Zithulele Rural Rehabilitation Handbook

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About the handbook

This handbook is compiled by Zithulele therapists for Zithulele therapists. It is intended as a practical tool to help collate clinical protocols and information for common and important conditions encountered in the rural setting of Zithulele Hospital. The intention is not to replace textbooks or evidence-based research but to bring together important guidelines, reminders and notes conveniently into one easy-to-access place.

Many rural areas differ from the rural Eastern Cape where we are situated. Feel free to adapt the information in this book to your situation. We use the handbook to standardise practice between therapists with the aim to improve the overall standard of the care that we provide and reduce confusion among team members.

If you have any suggestions or corrections for future editions please get in touch we are grateful for any further insights to improve each edition.

Disclaimer

While every effort has been made to make sure the information in this Handbook is accurate, it is the responsibility of the individual clinician to verify details, especially treatment protocols. Neither the contributors nor the hospital shall be liable for any adverse outcomes resulting from the use of the information presented here.
Acknowledgements

Big thanks to Zithulele Staff past and present:


Thank you to Ashley Farrington for the photograph which appears on the cover of this eighth edition.
<table>
<thead>
<tr>
<th>Section</th>
<th>Subsections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General Information to Know</td>
</tr>
<tr>
<td></td>
<td>a) Vital Signs and Other Useful Normal Values</td>
</tr>
<tr>
<td></td>
<td>b) VP Shunt Malfunction and Raised Intracranial Pressure</td>
</tr>
<tr>
<td></td>
<td>c) Red Flags and Yellow Flags</td>
</tr>
<tr>
<td></td>
<td>d) Block Therapy Logistics</td>
</tr>
<tr>
<td></td>
<td>e) Headaches</td>
</tr>
<tr>
<td></td>
<td>f) New York Heart Association Classification Scale</td>
</tr>
<tr>
<td>2</td>
<td>Pressure and Circulatory Care</td>
</tr>
<tr>
<td></td>
<td>a) Deep Venous Thrombosis and Pulmonary Embolism</td>
</tr>
<tr>
<td></td>
<td>b) Pressure Care and Management of Pressure Sores</td>
</tr>
<tr>
<td></td>
<td>c) Lymphedema</td>
</tr>
<tr>
<td>3</td>
<td>Burn Injuries</td>
</tr>
<tr>
<td></td>
<td>a) Burns Management</td>
</tr>
<tr>
<td></td>
<td>b) Pain Management in a Patient with Burns</td>
</tr>
<tr>
<td>4</td>
<td>Pain</td>
</tr>
<tr>
<td></td>
<td>a) Understanding Pain</td>
</tr>
<tr>
<td></td>
<td>b) Acute Pain vs Persistent Pain</td>
</tr>
<tr>
<td></td>
<td>c) Acute and Chronic Pain Story</td>
</tr>
<tr>
<td></td>
<td>d) Models of Pain</td>
</tr>
<tr>
<td></td>
<td>e) Pain Gate Theory</td>
</tr>
<tr>
<td></td>
<td>f) Neuropathic Pain</td>
</tr>
<tr>
<td></td>
<td>g) Graded Motor Imagery and Mirror Therapy</td>
</tr>
<tr>
<td></td>
<td>h) Complex Regional Pain Syndrome</td>
</tr>
<tr>
<td>5</td>
<td>Amputation</td>
</tr>
<tr>
<td></td>
<td>a) Rehabilitation of People with Amputations</td>
</tr>
<tr>
<td></td>
<td>b) Amputee Mobility Predictor Assessment Tool</td>
</tr>
<tr>
<td></td>
<td>c) Amputee Screening Tool</td>
</tr>
<tr>
<td></td>
<td>d) Mobility Devices for Patients with Amputated Limbs</td>
</tr>
<tr>
<td></td>
<td>e) Post-amputation Pain</td>
</tr>
<tr>
<td></td>
<td>f) Mirror Box Therapy for Phantom Limb Pain</td>
</tr>
<tr>
<td>6</td>
<td>General Orthopaedics</td>
</tr>
<tr>
<td></td>
<td>a) Bone Fractures</td>
</tr>
<tr>
<td></td>
<td>b) Ankle Fracture: Danis-Weber Classification</td>
</tr>
<tr>
<td></td>
<td>c) Ottawa C-Spine Rule</td>
</tr>
<tr>
<td></td>
<td>d) Management of Clubfoot</td>
</tr>
<tr>
<td></td>
<td>e) Tendinopathy Rehabilitation</td>
</tr>
<tr>
<td></td>
<td>f) Achilles Tendon Injuries</td>
</tr>
<tr>
<td></td>
<td>g) Management of Acute Ligament Injuries of the Knee</td>
</tr>
<tr>
<td></td>
<td>h) Rheumatoid Arthritis</td>
</tr>
<tr>
<td>7</td>
<td>Respiratory</td>
</tr>
<tr>
<td></td>
<td>a) Basic Respiratory Care Guidelines</td>
</tr>
<tr>
<td></td>
<td>b) How to do an Induced Sputum</td>
</tr>
<tr>
<td></td>
<td>c) Zithulele Respiratory Outcome Measure</td>
</tr>
</tbody>
</table>
8 Neuro and SCI
a) Good Basic Neurological Assessment..........................................................59
b) Glasgow Coma Scale and Ranchos Los Amigos of Cognitive Functioning........61
c) SCI Classification......................................................................................63
d) Functional Implications of SCI....................................................................65
e) Helping a Person with a SCI.........................................................................67
f) Bladder Care for the Person with a SCI.........................................................68
g) Bowel Care for the Person with a SCI..........................................................72
h) ASIA Impairment Scale.................................................................................74

9 Cerebral Palsy
a) Cerebral Palsy Classification........................................................................76
b) Cerebral Palsy Checklist................................................................................78

10 Paediatrics
a) Assessment of Normal and Abnormal Reflexes in an Infant...........................79
b) General Grading Principles of Sensory and Motor Functions.......................81
c) Visual Perception.........................................................................................83
d) High Risk Baby Protocol.............................................................................84
e) Baby Home Stimulation Program.................................................................85
f) Toileting Milestones at Different Ages.........................................................86
g) Learning Disability Program.......................................................................88
h) Special Schools and Skills Centre Referrals.................................................89
i) Special Schools Report Outline.................................................................90

11 Social Support
a) General Guidelines for Booking and Assessing Clients for DGs..........................92
b) Social Work Cheat Sheet............................................................................94

12 Mental Health
a) Basic Psychiatric Conditions.........................................................................96
b) Personality Disorders....................................................................................99
c) Psychiatric and Cognitive Assessments.......................................................100
d) Counselling Principles...............................................................................106
e) Suicide Risk Assessment and Intervention................................................108
f) Depression Screening and Follow Up Sheet..............................................110
g) Assessment of Intellectual Impairment.......................................................111
h) Classification Levels for People with Intellectual Impairment......................114
i) Model of Creativity Ability Levels...............................................................115
j) Dementia vs Delirium....................................................................................117
k) Parkinson’s Disease....................................................................................118

13 HIV and TB
a) HIV and TB Services at Zithulele.................................................................119
b) Spinal TB/ Pott’s Disease............................................................................121
c) TB Spine suspicion index...........................................................................123

14 Upper Limb
a) Peripheral Nerve and Brachial Plexus Injuries..........................................124
b) Upper Limb Nerve Injuries..........................................................................127
c) Flexor Tendon Repairs...............................................................................129
d) Extensor Tendon Repairs............................................................................134
e) Management of Infections and Oedema in the Hand .......................................................... 137
f) Adapted Chedoke Arm and Hand Activity Inventory ......................................................... 139
g) Splinting Protocol for the Non-Moving Neuro Hand ......................................................... 143

15 Wheelchairs
a) Wheelchair Procurement ............................................................................................... 144
b) Wheelchair Seating and Positioning Guide .................................................................... 146

16 Speech and Communication
a) Basic Communication Management ............................................................................... 150
b) Basic Feeding and Swallowing Management .................................................................. 154
c) Madwaleni Communication Development screener ....................................................... 157

17 Basic isiXhosa
a) Useful Vocabulary and Phrases ....................................................................................... 162
### Vital Signs & Other Useful Normal Values

<table>
<thead>
<tr>
<th></th>
<th>Adult norms</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blood pressure</strong></td>
<td>Normal: 120 / 80</td>
<td>High: Equal to or above 140 / 90 Worrying: Above 180 / 110 Low: Worrying – below 90/60</td>
</tr>
<tr>
<td><strong>Heart Rate / Pulse Rate at rest</strong></td>
<td>Normal: 60 – 100 beats per minute</td>
<td>Tachycardia definition: over 100 Should not go over 120-130 even if stressed (pain, illness, anxiety) Bradycardia definition: below 60 Strange if below 50 but could be due to fitness</td>
</tr>
<tr>
<td><strong>Maximum HR</strong></td>
<td>Maximum: 220 – age</td>
<td></td>
</tr>
<tr>
<td><strong>Sats</strong> Oxygen Saturation in the bloodstream</td>
<td>Normal: 94 – 100 %</td>
<td>Below 80 can compromise organ function</td>
</tr>
<tr>
<td><strong>Blood sugar</strong></td>
<td>Normal: 4.0 – 7.8 mmol/L</td>
<td>Fasting: 4.0 – 6.0 mmol/L After meals: 4.0 – 7.8 mmol/L Under 4 needs attention as can mean an impending diabetic coma. Over 11 is a warning sign for diabetes.</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Normal: 36 to 37.5 °C</td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory rate</strong></td>
<td>Normal: 8 – 20 breaths per minute.</td>
<td>Above 30 is very abnormal Take note of other signs of respiratory distress.</td>
</tr>
<tr>
<td><strong>CD4 count</strong></td>
<td>Normal: 800 - 1000 (in a non-immune compromised individual)</td>
<td>HIV: Under 200 – usually ill Under 500 needs to be on ARV’s Over 500 – repeat CD4 count every 3 months</td>
</tr>
<tr>
<td><strong>CRP</strong> (Mark of acute inflammation)</td>
<td>Normal: Below 10 (ie no inflammation)</td>
<td>Maximum is very high (in hundreds)</td>
</tr>
<tr>
<td><strong>BMI</strong> Body mass index</td>
<td>Normal: 18.5 – 25 Kg/m²</td>
<td>Body mass divided by (height)$^2$ Underweight: below 18.5 Overweight: 25 – 30 Obese: Over 30</td>
</tr>
</tbody>
</table>

*Paediatric rates are age dependent so check with medical officer

*Results are interpreted in combination with clinical symptoms i.e. does the patient LOOK unwell/stressed/in pain.

*Take into consideration that stress, pain & anxiety all affect vital signs and hospital can be a stressful situation.
### Symptoms of VP Shunt Malfunction

<table>
<thead>
<tr>
<th>Infants</th>
<th>Toddlers</th>
<th>Children and adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enlargement of head</td>
<td>Head enlargement</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Fontanel is full and tense when infant is upright and quiet</td>
<td>Vomiting</td>
<td>Headaches</td>
</tr>
<tr>
<td>Prominent scalp veins</td>
<td>Headaches</td>
<td>Vision problems</td>
</tr>
<tr>
<td>Swelling along the shunt tract</td>
<td>Irritability</td>
<td>Irritability and or tiredness</td>
</tr>
<tr>
<td>Vomiting</td>
<td>A loss of previous functions (sensory or motor)</td>
<td>Swelling along shunt tract</td>
</tr>
<tr>
<td>Irritability</td>
<td>Swelling along shunt tract</td>
<td>Personality changes</td>
</tr>
<tr>
<td>Sleepiness</td>
<td>Fever, potentially present with shunt failure or infection</td>
<td>Loss of co-ordination or balance</td>
</tr>
<tr>
<td>Downward deviation of eyes</td>
<td>Redness along shunt tract, potentially present with shunt failure or infection</td>
<td>Difficulty waking up or staying awake (this symptom requires urgent attention as it can potentially lead to a coma)</td>
</tr>
<tr>
<td>Seizures</td>
<td>Sleepiness</td>
<td>Decline in academic or job performance</td>
</tr>
<tr>
<td>Less interest in feeding</td>
<td>Sleepiness</td>
<td>Fever, potentially present with shunt failure or infection</td>
</tr>
<tr>
<td>Fever, potentially present with shunt failure or infection</td>
<td>Redness along shunt tract, potentially present with shunt failure or infection</td>
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</tr>
<tr>
<td>Redness along shunt tract, potentially present with shunt failure or infection</td>
<td>Redness along shunt tract, potentially present with shunt failure or infection</td>
<td></td>
</tr>
</tbody>
</table>


### Signs of Raised Intracranial Pressure

<table>
<thead>
<tr>
<th>Infants</th>
<th>Older children and adults:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drowsiness</td>
<td>Behaviour changes</td>
</tr>
<tr>
<td>Separated sutures on the skull</td>
<td>Decreased consciousness</td>
</tr>
<tr>
<td>Bulging fontanelle</td>
<td>Headache</td>
</tr>
<tr>
<td>Vomiting</td>
<td>Lethargy</td>
</tr>
<tr>
<td></td>
<td>Neurological symptoms, including weakness, numbness, eye movement problems, and double vision</td>
</tr>
<tr>
<td>Seizures</td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
</tr>
</tbody>
</table>

### General Red Flags
• History and or signs of serious trauma (incl small trauma + osteoporosis
• Fever: persistently feeling unwell, especially with loss of appetite and weight loss, should be regarded with suspicion Pain at night; gets worse at night and doesn’t improve with movement.
• Night sweats
• Recent surgery
• Prolonged use of corticosteroids/drugs. (affects bone density)
• History of cancer
• Weight loss: unexplained > 5 kg/month
• Constant progressive, non-mechanical pain:
• Progressive neurological and visual symptoms

Red Flags for Back Pain

• Age: Acute back pain with clients aged >50 or <20
• Cauda equine syndrome; Bladder and bowel dysfunction: Saddle anesthesia
• Spasticity and hyper-reflexia:
• Persistent severe restriction of lumbar flexion

Red Flags Neck Pain

• First episode > 50 years
• Vertigo
• Severe pain in both legs en arms with forward neck flexion (cervical lesion) L’Hermitte sign
• Ptosis
• Double vision
• Hoarseness > 6 weeks
• Atrophy of shoulder girdle muscles
• Unilateral temporal headache with ocular dysfunction
• Swallowing dysfunction

Red Flags Headache

First episode > 50 years
Headache immediately started after trauma
New or different headache> 50 years < 5 years
Papill oedema
Progressive visual or neurological changes
Loss of co-ordination, ataxia
Sudden severe headache (maximal pain within minutes)
Headache with neck stiffness and interscapular pain (meningitis)

Red Flags Dizziness

• VBI
• Dizziness
• Drop attacks
• Diplopia
• Dysphagia
• Ataxic gait
• Nausea (With possible vomiting)
• Half-sided numbness in face and/or in body with nystagmus
Red Flags Vertigo

- Intense vertigo which is constantly there,
- episodes of vertigo with decreased hearing and tinnitus,
- vertigo combined with neurological symptoms double vision, dysarthria, ataxia, nystagmus (esp. in vertical direction). Continuous light headedness while on medication; diuretics, anti-hypertensive, psychopharmaceutic, phenytoin (epilepsy), carbamazepine (with epilepsy and certain antibiotics)

Yellow Flags

Illness Beliefs

ABCDEFW interview (Main & Watson 2002) or Illness Perceptions (common sense model, Leventhal)

Illness Perceptions: Questions a patient asks him/herself, could ask the patient

- Identity: What do I have
- Cause: What is the cause?
- Timeline: How long is this going to take?
- Consequences: What are the consequences?
- Curability/Controllability: Is it curable, how can I control this?
- ABCDEFW interview
- Attitudes/believes idea's and convictions about the physical issue
- Behaviour
- Compensation=(im)material guilt questions and stories
- Diagnosis/treatments= influences from other health professionals.
- Emotions
- Family: family members who are caring/concerned. They can affirm in the wrong way (usually well mend).
- Work= work factors (5 w's)

Psycho-emotional Disease

- Conversion Reaction
  - emotional response leads to a physical manifestation (a sign or symptom)
    - bizarre gait or movement pattern
    - jerky muscle test
    - inconsistency
    - non-anatomic sensory changes

Block Therapy Logistics
How to book a Block therapy patient:
- Book the patient on the board in the therapy department (if you are at a clinic, phone and get a date). Include name, surname, age, clinic, diagnosis, two contact numbers and the members of the MDT team that need to be involved in the rehab (e.g. physio, OT, ST, DT, Audio, SW).
- The therapist responsible for the block therapy at the time is responsible to update the laminated pages in the wards and to inform the ward staff which patients to expect for each week.
- Tell moms/adults to arrive by 10h00 on Monday, be prepared to stay until Friday, bring any splints / AFO’s, hospital card, medication, and any special food they need.
- Remember family member to organise food for carer (for that week) that will accompany patients during Block Therapy.

During the week:
- Make sure copies of datasheets/assessment forms/ outcome measures are ready
- Check toy box/ Check ADL boxes and assistive devices
- Check notes for any prep needed (e.g. equipment, toys to be made)

On Monday, before they arrive…
- Remind the wards about which patients to expect and make sure that they are keeping a bed for them.

When they arrive…
- Fill out the patient’s information an admission sheets and take it to the OPD for a doctor (preferably the OPD champ) to sign the admission form and prescribe any medication that they may need to receive in the ward.
- Then take the patients to Mr Dasoyi so he can call the ward to get them admitted, or take the patient down to the ward if you know that the bed is already available and let the patients settle in.

Paeds Plan

Monday
- Complete initial assessment (together with OT, PT and SLT – arrange a time before hand), fill out complex needs child datasheet, and set goals with mom for the week.

Tues, Wed, Thurs
- Daily therapy, have mom observe and join in, discuss progress, start to teach home program items
- Explore equipment options, make adaptations existing equipment if available, and decide what further might be needed. Please record the child’s latest measurements on the datasheet.
- Remember to keep records after each session.

Friday
- NB Clinic therapist MUST be involved so that follow-up is planned and carryover happens
- Finalize and finish teaching home program
- Issue equipment, toys, etc
- Make follow-up plans and give return date for clinic/hospital (in about a month’s time)
- Plan a home visit within the next three months (if appropriate) – get directions and set a date NOW.
- Get feedback from moms about the week
- Complete notes, ensure handover to clinic therapist and file notes in clinic file

Adults Plan
Monday
- For adults complete a data sheet and initial assessment. Choose 1-2 outcome measures applicable and complete.
- Set goals for the week with the patients, write them up somewhere can see them and work towards the same goals. Identify a task that the patient is struggling with which includes their goals for the week.
- Do an initial assessment and then plan your intervention (physical hands on rehab? assistive devices?) This intervention plan will be followed by your colleagues treating the patient too.

Tuesday Wednesday/Thursday
- Daily therapy discuss progress, start to teach home program items
- Explore equipment needs, order or make assistive devices or adapt existing equipment if available.
- Remember to keep records after each session.

Friday
- Repeat outcome measures.
- Do family training regarding the physical handling and ADLS practiced during the week.
- Complete all notes and file all information in the clinic file.
- Revise and finalise a home programme.
- Give the patient a follow up date at the clinic in one month and try to do a home visit in three months.
Headache Table

It is important to understand how long an individual has been experiencing these headaches, how long they last, their intensity, and if there are any associated symptoms that accompany the headache. For example, auras are associated with migraines and one can rule out TTH if these symptoms are described.

<table>
<thead>
<tr>
<th>Location</th>
<th>Tension-type</th>
<th>Cervicogenic</th>
<th>Cluster</th>
<th>Migraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary headache</td>
<td>Most often bilateral, can be unilateral</td>
<td>Unilateral “ram’s horn”</td>
<td>Unilateral</td>
<td>Unilateral (but not always)</td>
</tr>
<tr>
<td>Secondary headache</td>
<td>Pain can arise from neck, spread to occipital, frontoparietal and orbital areas</td>
<td>Orbital, supraorbital and/or temporal (Typically in the area of the first trigeminal branch and almost always on the same side of the head.)</td>
<td>Orbital, supraorbital and/or temporal with aura: Headache is usually contralateral to the visual field change of aura</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Character of pain</th>
<th>Tension-type</th>
<th>Cervicogenic</th>
<th>Cluster</th>
<th>Migraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary headache</td>
<td>Tight band or pressure around head and/or neck</td>
<td>Non-pulsating</td>
<td>Piercing pain felt deep inside</td>
<td>Throbbing, dull, pulsating</td>
</tr>
<tr>
<td></td>
<td>Tightening</td>
<td>Non-piercing</td>
<td>Non-throbbing</td>
<td>Accompanied by autonomic symptoms (e.g., nausea; sensitivity to light, sound, or odours)</td>
</tr>
<tr>
<td></td>
<td>Pain usually starts in the neck</td>
<td>Pain usually starts in the neck</td>
<td>Pain usually starts in the neck</td>
<td>Pain usually starts in the neck</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Severity</th>
<th>Tension-type</th>
<th>Cervicogenic</th>
<th>Cluster</th>
<th>Migraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary headache</td>
<td>Episodic: Mild-moderate</td>
<td>Moderate-severe</td>
<td>Severe - extremely severe</td>
<td>Moderate-Severe</td>
</tr>
<tr>
<td>Chronic: Moderate-Severe</td>
<td>(Described as red hot needle or nail being driven into eye, or eyeball being ripped from its socket)</td>
<td></td>
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<table>
<thead>
<tr>
<th>Duration</th>
<th>Tension-type</th>
<th>Cervicogenic</th>
<th>Cluster</th>
<th>Migraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary headache</td>
<td>Hours- continuous</td>
<td>Days to weeks</td>
<td>15-180 min</td>
<td>4-72 hours</td>
</tr>
<tr>
<td></td>
<td>(Sudden increase in pain. Suddenly subsides).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>Chronic, episodic</td>
<td>Frequency</td>
<td>Chronic, episodic</td>
<td></td>
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<td>-----------</td>
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<tr>
<td><strong>Episodic:</strong> &lt;15 days in a month</td>
<td><strong>Usually occur at the same time each day.</strong>&lt;br&gt;<strong>Often when a patient wakes up from an afternoon nap or sleep during the night.</strong>&lt;br&gt;<strong>One every other day to 8 in one day</strong></td>
<td><strong>Chronic:</strong> &gt;15 days a month for 3 consecutive months</td>
<td><strong>1-4 per month</strong>&lt;br&gt;<strong>&gt;14 days a month</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Triggers/ Contributing factors</th>
<th>Chronic, episodic</th>
<th>Triggers/ Contributing factors</th>
<th>Chronic, episodic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiple (Stress, depression, anxiety, eye strain, drugs/alcohol/cigarettes, skipping meals, tensing jaw, grinding teeth etc.)</strong>&lt;br&gt;<strong>Not usually neck movements</strong></td>
<td><strong>Lack of sleep</strong>&lt;br&gt;<strong>Naps</strong>&lt;br&gt;<strong>Burst of anger</strong>&lt;br&gt;<strong>Prolonged anxiety</strong>&lt;br&gt;<strong>Altitude hypemia during flights.</strong></td>
<td><strong>Multiple (Vasodilators, skipping meals, weather changes, reduced sleep, stress, flashing lights, strong odours, temporomandibular joint dysfunction, hormonal, physical exertion</strong>&lt;br&gt;<strong>Not usually neck movements</strong></td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Associated symptoms</th>
<th>Chronic, episodic</th>
<th>Associated symptoms</th>
<th>Chronic, episodic</th>
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</thead>
<tbody>
<tr>
<td><strong>Multiple (Stress, depression, anxiety, eye strain, drugs/alcohol/cigarettes, skipping meals, tensing jaw, grinding teeth etc.)</strong>&lt;br&gt;<strong>Not usually neck movements</strong></td>
<td><strong>Neck pain precedes or co-exists with the headache</strong>&lt;br&gt;<strong>Decreased Cx ROM</strong>&lt;br&gt;<strong>Ipsilateral shoulder and arm pain.</strong>&lt;br&gt;<strong>Sense of restlessness or agitation (may rock from side to side, hit their heads, hit objects with their fists or even hit their head against a wall)</strong>&lt;br&gt;<strong>Sometimes may have migraine-like symptoms such as:</strong>&lt;br&gt;<strong>Auras</strong>&lt;br&gt;<strong>Photophobia</strong>&lt;br&gt;<strong>Phonophobia</strong>&lt;br&gt;<strong>Nausea and vomiting</strong></td>
<td><strong>Ipsilateral:</strong>&lt;br&gt;<strong>Ptosis, swelling, and redness of eyelid.</strong>&lt;br&gt;<strong>Drooping of eyelid</strong>&lt;br&gt;<strong>Miosis, conjunctival injection</strong>&lt;br&gt;<strong>Tearful eye</strong>&lt;br&gt;<strong>Forehead and facial sweating</strong>&lt;br&gt;<strong>Nasal congestion &amp;/or rhinorrhea</strong>&lt;br&gt;<strong>Flushing of side of the face, sweating</strong>&lt;br&gt;<strong>If there's an aura:</strong>&lt;br&gt;<strong>Changes in the visual field.</strong>&lt;br&gt;<strong>Loss of focus, spots of darkness, and zigzag flashing lights</strong>&lt;br&gt;<strong>The visual image fades as the headache begins.</strong>&lt;br&gt;<strong>Paresthesias of the hand and face are common, specifically the tongue. (This can help differentiate from a TIA).</strong>&lt;br&gt;<strong>Can experience speech difficulty</strong>&lt;br&gt;<strong>Vertigo / dizziness</strong>&lt;br&gt;<strong>After headache, often feeling of heaviness, aching in head, considerable fatigue, tender scalp</strong></td>
<td><strong>Nausea and/or vomiting</strong>&lt;br&gt;<strong>Photophobia and phonophobia</strong>&lt;br&gt;<strong>Blurred vision</strong>&lt;br&gt;<strong>Neck stiffness</strong>&lt;br&gt;<strong>Pallor</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Origin of pain</th>
<th>Chronic, episodic</th>
<th>Origin of pain</th>
<th>Chronic, episodic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lifestyle plays a big role</strong>&lt;br&gt;<strong>Hypothesized that neurotransmitter imbalances (including serotonin) trigger pain pathways in the brain</strong>&lt;br&gt;<strong>Muscular origin</strong></td>
<td><strong>Arises from atlanto-occipital joint and upper cervical joints.</strong>&lt;br&gt;<strong>Structures innervated by the C1–C3 spinal nerves.</strong>&lt;br&gt;<strong>This may include:</strong>&lt;br&gt;<strong>-cx facets</strong>&lt;br&gt;<strong>-C2/3 disc</strong></td>
<td><strong>Vascular origin (primary headache)</strong></td>
<td><strong>Vascular origin (primary headache)</strong>&lt;br&gt;<strong>Centrally mediated pain disorder</strong>&lt;br&gt;<strong>Hypothesised as altered central neuronal processing and involvement of the trigeminovascular system, triggering neuropeptide</strong></td>
</tr>
</tbody>
</table>
-ligaments -cx muscles
•C2/C3 facet joints most common source of pain
•Can occur after whiplash or concussion. Can develop 3 months or more after injury. Most common type of headache in weight lifters
•Unilateral pain with a facet lock irradiating from the back of the head
•Central sensitization of pain from trigeminal nucleus
•May also have temporomandibular issues
•Impairment of c1-2 motion

release, which produces painful inflammation in cranial vessels and the dura mater

•Migraine headache occurs via intracranial vasoconstriction and extracranial vasodilation. This results in cerebral hypoxia and may be responsible for the neurologic defects that characterize the aura
•There is a hereditary factor

<table>
<thead>
<tr>
<th>Tension-type</th>
<th>Cervicogenic</th>
<th>Cluster</th>
<th>Migraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components of treatment</td>
<td></td>
<td>Pain medication doesn’t really help, usually takes too long to work.</td>
<td>Lifestyle changes (diet, exercise, sleeping habits)</td>
</tr>
<tr>
<td>•Psychological approach is needed.</td>
<td>•Address origin of cervical dysfunction.</td>
<td>Physical activity seems to alleviate pain, patients often prefer standing or sitting erect instead of lying down or reclining.</td>
<td>Medication:</td>
</tr>
<tr>
<td>•Identify and manage source of tension</td>
<td>•Mobilise stiff facet joints</td>
<td>Exercise can help improve symptoms.</td>
<td>-NSAIDs -Analgesics,</td>
</tr>
<tr>
<td>•Medication: Ibuprofen and acetylsalicylic acid &gt; paracetamol.</td>
<td>•Relieve muscle tension &amp; TPs</td>
<td>•Education about precipitating factors and triggers (alcohol, abrupt changes in sleeping patterns, and work shift changes)</td>
<td>-Serotonin receptor agonists,</td>
</tr>
<tr>
<td>-Stay away from opioids</td>
<td>•Stretch shortened muscles</td>
<td>•Use headache journal to identify triggers</td>
<td>-Beta-blockers</td>
</tr>
<tr>
<td>-No barbituates</td>
<td>•Retrain weakened muscles e.g deep cx flexors (pressure biofeedback ex’s)</td>
<td></td>
<td>-Channel blockers,</td>
</tr>
<tr>
<td>•More than twice a week: Use prophylactic treatment. Amitriptyline at night.</td>
<td></td>
<td></td>
<td>-Antiemetics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>•Address tender pericranial muscles</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>•Be aware of suboccipital and paraspinal muscle tension and underlying cervical dysfunction</td>
</tr>
<tr>
<td>Comment</td>
<td>Headaches that are getting worse over time</td>
<td>Neck trauma, whiplash, strain, or chronic spasm of the scalp, neck, or shoulder muscles can increase the sensitivity of the area resulting in allodynia. A lower pain threshold makes patients more susceptible to more severe pain.</td>
<td>The most notable clinical features - Severity and location of the headache - Shortness in duration - Frequency of attack - Associated autonomic symptoms</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>• Be aware of medication overuse headaches</td>
<td></td>
<td></td>
<td>It can take from 3 to 9 years to make a correct diagnosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Severity of pain can lead to suicidal idea or feelings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Follow a circadian rhythm. Cluster periods occur during the same time each year. Occur most commonly after the shortest or longest days of the year.</td>
</tr>
</tbody>
</table>

**Red flags to ask about headaches (Also see red flags and yellow flags pg 3)**

- Headaches that are getting worse over time
- Sudden onset of severe headache
- Headaches associated with high fever, stiff neck, or rash
- Onset of headache after head injury
- Problems with vision or profound dizziness
New York Heart Association Classification Scale (NYHA)

Helps to determine the extent of cardiac failure based on limitations during physical activity.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>No limitation of physical activity. Ordinary physical activity does not cause undue breathlessness, fatigue, or palpitations.</td>
</tr>
<tr>
<td>Class II</td>
<td>Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in undue breathlessness, fatigue, or palpitations.</td>
</tr>
<tr>
<td>Class III</td>
<td>Marked limitation of physical activity. Comfortable at rest, but less than ordinary physical activity results in undue breathlessness, fatigue, or palpitations.</td>
</tr>
<tr>
<td>Class IV</td>
<td>Unable to carry on any physical activity without discomfort. Symptoms at rest can be present. If any physical activity is undertaken, discomfort is increased.</td>
</tr>
</tbody>
</table>
Deep Venous Thrombosis (DVT) and Pulmonary Embolism (PE)

**DVT**: Blood clot obstructing deep veins in the lower extremity.

**Signs and symptoms:**
- Swelling/oedema – An increase in the circumference of the calf or thigh. Oedema is firm but it is not associated with cellulites.
- Pain, tenderness or cramping in the calf that worsen with dorsiflexion.
- Warm, red or discoloured skin areas on the calf.
- Weeping of blister and venous ulcers are also common.

**PE**: Blood clot in the lungs

**Clinical assessment:**
- **Measurement**: Measure circumference of both legs.
- **Homans sign**: passive dorsiflexion test, exerting traction on the posterior tibia vein causing pain.
- **ABPI**: Doppler examination (done by trained therapist or otherwise doctor)
- **Medical**: Bloods (D-dimer test, that is the protein fragment in the blood that is present after a clot degraded) D-dimer normal ranging is less than 0.50.
- Ultrasound can also be conducted.

**Management:**

1. Patient is started on a heparin regime (anticoagulants) by the doctor. The patient needs to be compliant on warfarin and follow up.
2. Elevation, early ambulation, short stretch bandaging and compression garments (30-40mmhg) is safe. Even over venous ulcers and wounds if needed.

* Short stretch bandaging is a specialized technique and needs a trained therapist to ensure no secondary complications.
* TED socks that are available from Bedford hospital (Contact MR Pretorius) are a safe option to use as it provides low compression. But this is not sufficient compression for long-term or providing help with wound healing.
* Early mobilization/ambulation soon after anticoagulation therapy has started can reduce secondary complications and also aid in faster resolution of symptoms.

**Patients at risk:**
- Inheriting clotting disorder.
- Prolonged hospital stay with long periods of bed rest.
- Injury or surgery
- Malignancy
- Inflammatory bowel disease
- Lower limb fractures
- Congestive heart failure
- Birth control and hormone therapy
- Obesity
- Dehydration
Prevention of thrombosis embolisms for patients with spinal cord injuries:

(DVT’s and PE’s are not only causing secondary problems for people with spinal cord injuries, but often is the cause of mortality and morbidities.) Morbidities such as DVT’s cause post phlebitis syndrome, prolonged oedema, pressure ulcers, and PE’s cause arthmiymia, hypoxia and death.

- Anticoagulation prophylaxis should be started and continued after discharge. For incomplete spinal injuries 8 weeks’ post D/C is sufficient. Patients with uncomplicated complete motor injury can continue prophylaxis 12 weeks’ post discharge from rehabilitation. Please discuss this with the medical officer at your hospital.

- Compression garments (Help with prolonged oedema and improve venous return) – 30 -40mmgh is a save compression class to use. (AGIAIN TED SOCKS IS AN OPTION BUT NOT MOST EFFETCTIVE)
  *please if using TED socks or compression garments notify the nursing staff and family so daily skin check-ups must be done.


Pressure Care and Management of Pressure Sores

Identification pressure sore grade:

**Grade 1:** Often a purple tint that doesn’t fade away.
- Pressure care education for the patient and family in order to avoid further breakdown and deep pressure sores.
- Inform the nursing staff that the patient is a high risk for developing further pressure sores. The use of the 2-hourly pressure care chart, nursing staff do have a chart that they should sign every 2 hours.
- Avoid turning on the side of the forming pressure sore.
- Using corrected lifting techniques with blankets etc. to avoid further breakdown or other potential pressure points.
- Bowel and bladder management if patient is unable with countenance to ensure patient stay dry as possible. (indwell catheter or nappies.)
- Get the patient on an air mattress (there is currently in general ward 3 available, it is ward equipment therefor consult with nursing staff about patient’s in need for an air mattress)

**Grade 2:** Damage to the dermis and the epidermis (partial thickness wound, blisters, or skin loss.)
- Discuss with the ward doctor re dressings for the patient that will be done by the nursing staff. (daily to every second day betadine dressings.)
- Pain management during this time is important. (Ensure patient got their pain medication before dressings, and discuss with ward doctor if you feel the patient needs more pain analgesia.

**Grade 3:** Full thickness skin loss involvement damage or necrosis of subcutaneous tissue, but not extending to underlying bone, tendon, or capsule.

**Grade 4:** Full thickness loss with extensive destruction and tissue necrosis to the bone, tendons, and capsules.
- Wound care and infection control. Wound care would need chemical and sharp debridement from the doctor overseeing the patient. Chemical debridement could be done by filling cavity with intasite or granugel. If not available betadine cream is the best next option. Please remember co-workers to fill up the space with gauze or drawtex.
- Surgical and sharp debridement will be done in teather.
- Refer to the dietician and monitor the patient’s fluid intake. Protein supplements or a high protein hospital diet can help with the enhancement of wound healing.
Pressure relief and skin care:

1) Bed time and lying pressure relief and care
Every 2 hours’ patient need to change positions. Either or manual assisted or technique self-turning positions.

Night time we can leave the patient for longer periods of time to not interrupt sleep. (Every 4 hours)

If the patient can mobilise the patient can move legs from one side to another, roll from side to back. Teach the patient to put folded linen in different positions between their legs and behind other at risk pressure points.

Clothing and accessories (in the wheelchair)

- No buttons holes, buttons, Zips and press buttons that press against the wheelchair that can cause pressure sores.
- No tight clothing ensure pants and socks is fitting loosely.
- Wheelchair clothes (biking clothes) can ensure skin protection of the wheelchair user.
- Wear shoes and socks when in the wheelchair to prevent caving, scraping and bruising. The wear of shoes also prevents plantar flexion contractures.
- Don’t put keys or objects in pockets as this might cause that the patient will sit on it. Put it on your lap.

The pressure care mattresses:

As mentioned above we currently have 3 air mattresses available in general ward.

Consult nursing staff to make decision as to which patient will benefit or are in need most.

Ensure the pressure to kilogram is set correctly on the electronic board on the end of the bed.

Common sites pressure sores develop:

- Ears
- Hips
- Ankles
- Heel
- Knees
- Scapulae
- Sacrum
- Shoulders
Lymphedema

Lymphedema is the consequence of impaired lymphatic drainage and can result in marked changes in the size and shape of the affected area. “M Clark, G Krimmel”

Lymph management of limb swelling involves a variety of approaches intended to reduce swelling.

The following techniques can be used:
• Specialised massage technique (manual lymph drainage)
• Compression bandaging
• Permanent compression stockings
• Taping.

Assessment:
1. Full medical history of the patient, all injuries, fractures, operations, diagnosis, medical conditions. (Detail is important in lymphology as this will help guide treatment forward any scaring or operation of removal and trauma could the cause of dysfunction in the lymph system.
2. Plot down what is observed, any skin changes and wounds.
3. Level of pitting oedema
4. The stemmer sign or Bjork bow test can be performed to assess for fibrosis.
5. ABPI (important to know if the patient possible have a peripheral arterial disease.) – PAD needs to be referred to a vascular surgeon.

Assessment for stages of Lymphedema

<table>
<thead>
<tr>
<th>STAGES OF LYMPHEDEMA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0</strong></td>
</tr>
<tr>
<td><strong>1</strong></td>
</tr>
<tr>
<td><strong>11</strong></td>
</tr>
<tr>
<td><strong>111</strong></td>
</tr>
</tbody>
</table>
Oedema therapy:

Stage 1: Decongestive therapy, that includes daily manual lymph drainage therapy with substations of compression in bandaging including skin care and home exercises. (In our setting MLD is possible daily for inpatient, therefore otherwise a 30 min MLD session every second week should be sufficient.)

Stage 2: Maintenance stage, MLD treatment get reduced. In this phase therapy’s goal is to maintain the results and optimize the achieved results made by the treatment. This will be to put a patient in a compression garment (flat knit or circular net) and participation in a regular daily home exercise program.

MLD: Manual lymph drainage is the use of a special technique massage technique with the special hand movement that decongest and active lymph nodes. It facilitating lymph flow by clearing the pathways, (side note this treatment will let patients urinate more.)

Hand pressure: It is a technique that you use the surface of the skin to assist lymph capillaries, it facilitates opening of anchoring filaments. Pressure of the hands should be like a two-rand coin on the skin. The movement is slow and rhythmical and a stretch on the skin. This movement is rather traction on the skin than pressure.

- Wind screen technique
- Stationary circles
- Pump
- Twist

Compression bandaging is the treatment and technique applied to receive inter changeable with MLD to ensure reduce and drainage of the oedema in the effected limb and area of congestion in the lymph system. Compression bandaging (Multilayer) is often our quickest method of reducing oedema, promote the wound healing and to breakdown fibrosis.

- Traditionally there is a few special techniques how to apply these bandages. I will state down protocol and then the deviation we will use in the rural context.
- Cleaning of the skin and nails.
- Stocking net application.
- Cotton wool one-layer application overlap with 50%.
- Foam or soft compression overlap.
- Short stretch bandaging circular bandaging or with the haring bow method, looks like a figure of 8 coning. (In the rural context, this is often not available. We have currently long stretch sure press that works well with correct application. The application of compression bandaging is not a pull method but rather an apply to skin and squeeze out of air.)

The role of a compression garments:
Compression garments are for maintenance of achieved reduced oedema management Currently we cannot order any flat knit or circular net compression stockings through government tender that will be enough containment and the correct amount of pressure to keep the optimized results in place. We have access to pressure garment material that is sufficient, but that need fabrication from an occupational therapist.
Burns Management

Classification of burns

<table>
<thead>
<tr>
<th>Depth</th>
<th>Epidermis</th>
<th>Partial thickness</th>
<th>Epidermis and dermis</th>
<th>Deep dermal</th>
<th>Epidermis, dermis and subcutaneous tissue</th>
<th>Full thickness</th>
<th>Epidermis, dermis, subcutaneous tissue and muscle</th>
</tr>
</thead>
</table>

Burn assessment

<table>
<thead>
<tr>
<th>Depth</th>
<th>Colour</th>
<th>Blisters</th>
<th>Cap Refill</th>
<th>Sensation</th>
<th>Healing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidermal</td>
<td>Red</td>
<td>NO</td>
<td>+</td>
<td>+</td>
<td>Yes, 7 days</td>
</tr>
<tr>
<td>Superficial dermal</td>
<td>Pale pink</td>
<td>Yes</td>
<td>+</td>
<td>Painful</td>
<td>Yes, 7-14 days</td>
</tr>
<tr>
<td>Mid dermal</td>
<td>Dark pink</td>
<td>Yes</td>
<td>Sluggish</td>
<td>+/-</td>
<td>Usually, 14-21 Days</td>
</tr>
<tr>
<td>Deep dermal</td>
<td>Blotchy red</td>
<td>Yes and NO</td>
<td>absent</td>
<td>Absent</td>
<td>No, graft and scar mx</td>
</tr>
<tr>
<td>Full thickness</td>
<td>White</td>
<td>No</td>
<td>absent</td>
<td>Absent</td>
<td>No, graft and scar mx</td>
</tr>
</tbody>
</table>

Treatment of burns

Acute phase of burns rehabilitation

- pre-skin graft or patient that only require wound dressings.
- Ensure correct positioning with splinting, wedges or positioning in bed.
- High risk areas that will positioning and/or splinting.

<table>
<thead>
<tr>
<th>Mouth</th>
<th>Mouth splints (hard thermoplastic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck</td>
<td>no pillow, Midline positioning with 10° extension.</td>
</tr>
<tr>
<td>Axilla</td>
<td>anti-deformity positioning, 90° abduction of axilla, 20 -30 horizontal flexion. (aeroplane splint)</td>
</tr>
<tr>
<td>Elbows</td>
<td>Extension without locking the elbow. Fore arm can be in supination or midline.</td>
</tr>
<tr>
<td>Wrist and hand</td>
<td>Anti-deformity position, 30° wrist extension, MCPJ’s 90 ° with IP’s in extension, thumb in a palmar grasp. (Functional resting splint)</td>
</tr>
<tr>
<td>Hips</td>
<td>Neutral position, position patient with wedges.</td>
</tr>
<tr>
<td>Knees</td>
<td>Extension without locking the knee (Thermoplastic splints)</td>
</tr>
<tr>
<td>Ankle/feet</td>
<td>90° dorsi flexion, use wedges or thermoplastic splints, ensure no pressure points on the heel.</td>
</tr>
</tbody>
</table>

- Decrease oedema if present, (elevation of the limb and active range of motion (could be in the form of ADL’s as well.)
- Get involve with the secondary base dressings (bandaging) as this will allow optimal active ROM for your patient.
- Counselling and building relationships with family and the patient as burns is often a long road to recovery and is a traumatic event the patient undergone.
Acute phase of rehabilitation post grafting:
- Splinting in theatre after the graft to immobilise for 5 – 7 days' post grafting (Discuss with the medical doctor at your hospital, this is what we do at Zithulele hospital.)

Rehabilitation phase:
- Continuation of strength and physical endurance
- Continue treating A ROM and P ROM
- Scar management
- Mid dermal and deeper burns will require splinting
- Splint sooner rather than later
- High risk areas include all involved joints
- The position of comfort will become the position of contracture
- Splinting should continue until scar maturation phase is reached
- Holistic thinking

Scar Management
Scars form with injury and when the skin is damage a lot of collagen and structural fibres get produced to repair the skin defects. When a wound gets exposed a lot or been picked a lot this increase the development of scars.

Keloid scars – Scar tissue that is normally darker, more pronounced, and larger than the original wound. This scar tissue need surgical removal, no compression garment over this scar tissue malformation as this possible activate more protein collagen in the tissue.

Hypertrophic scars – scar tissue that is thickened and raised but is in the boarders of the original wound. Compression garments and scar massage is ideal for this scar tissue formation.

Flat pale scars – Result of normally wound healing, flat pale scar, red, dark and raised, then get pale and flatten after time.

Ready for a pressure garment:
1) No scabs or open areas in the skin.
2) The skin should be thick enough, capillaries should not be visible through the skin and should be thin and friable.

Making pressure garments:
1) Measurement (Ask Zithulele therapist for a template if you have no access at your hospital.)
2) When drawing, the patterns must have redaction of 20 -25 % that is save compressing for scar tissue. Formula: (circumference × 0.4) you can leave a 1com Laffer age for sewing the seam.
3) Before cutting the material the (shiny side is the inside against the skin and the dull side the outside.)
4) Sew the pressure garment with a Zig Zag setting, with a 4 mm width.
5) Seems must be on the outside of the pressure garment to avoid pressure points.
Pain Management in a Patient with Burns

Burns cause an inflammatory response, which sensitizes nerves, leading to alldynia & hyperalgesia. Management of pain is essential alongside treating ROM because stretching causes further pain through primary mechanical hyperalgesia (Summer et al., 2007; Williams, 2011) and hyperalgesia and alldynia are already present.

Complications of poor pain management
Long term sensory problems, chronic pain, paresthesia, dysesthesia and psychological conditions (Summer, Puntillo, Misaskowski, Green & Levine, 2007; Richardson & Mustard, 2009)
Impact on quality of life (Weedon & Potterton, 2011)

Pain management plan:
Discuss analgesia with ward doctor, nurses, therapy and patient to establish a Routine
Create rapport and trust with your patient
Get them to engage/participate as much as possible in active movement/HEP and pain control
As far as possible help patients to set their own goals regarding ROM and their HEP
Get pain control as quickly as possible – it is preferable to start less conservatively and then reduce analgesia to help pain and anxiety for long-term management
For passive stretching try to do it at the same time as dressings under appropriate analgesia
You will need to work hard with the whole team (nurses, therapy, doctors and patient to establish a routine that stays on time)

Paeds
Paeds are stretched passively under ketamine (the ward sister will phone you when the injection has been given)
Find out how often they will give ketamine and do dressings
Encourage as much active ROM in play for paeds as possible with fun distracting games

Other non-pharmacological pain management
Based on the principles of Melzack and Wall’s (1965) pain-gate theory (competing stimulus to the dorsal horn or through downward mediated mechanisms effectively “closing the gate” in the spinal cord)
Distraction play for active and passive play (paeds)
Distraction methods – e.g. music/focus elsewhere (adults)
Ultrasound, transcutaneous electrical nerve stimulation (TENS) and vacuum therapy (none available at Zithulele)
*vibration should not be used over a skin graft site until healing has taken place (Pryor & Prasad, 2008)

Pain and Anxiety
- Pain and anxiety are closely linked (Moseley, 2007)
- Poor pain management is known to increase anticipatory anxiety (Richard & Mustard, 2009; Gandhi et al., 2010
  - Ways to reduce anticipatory anxiety:
    1. Demonstrate what you will do before treatment
    2. Create routine for treatment time of day (for stretches and analgesics
    3. Encourage self-management: goal setting and creating HEP, self-
      Relaxation techniques, analgesic control as far as possible (help the patient
      To feel in control)
      - Use pharmacology (anxiolytics) as necessary – discuss with ward doctor
Understanding Pain

- Whether pain occurs in the presence of actual physical bodily damage or without physical bodily damage, the experience of pain is very real in both of these situations.

- Remember pain is a subjective experience. Every person experiences pain differently.

- The purpose of pain is usually to protect the body from injury.

How does pain work?

- When the body tissues are damaged or the body is at threat to be damaged (e.g. burning hand on a fire), nociceptors in the tissues sense that something has been damaged or is at threat to be damaged and these nociceptors send signals to the brain.

- The brain processes these signals in the context of other factors (listed later in this document) to determine what response is appropriate.

- In the case of the hand over the fire, the brain may decide that the signals that it is receiving indicate danger and that action needs to be taken to avoid this. The brain creates signals of pain so that the body can respond to avoid this pain (i.e. removing the hand from the flame).

- In a different situation the brain may decide that the signals that it is receiving from nociceptors do not indicate much danger (e.g. gentle bump of arm against chair). These signals may be interpreted as less threatening and therefore less pain is produced by the brain.

- The pain felt is not always an accurate representation of what is happening in the body tissues. This is because various factors contribute to how the brain interprets signals and produces pain.

Some factors that affect pain production include among others:

- Biological factors (physical changes to body tissue)
- Emotional state
- Cultural/social factors (how is pain viewed in the patient’s context)
- Age
- Previous experience
- Fatigue
- Sensitivity and efficacy of the brain circuits (the more the brain circuits are used to carry pain, the more sensitive they become)
- Diet and lifestyle
- Traumatic events
Things you need to know about pain

*Mostly inspired ideas and stories from Lorimer Moseley’s book ‘Painful Yarns’. These are just a few ideas.

1. Pain is what tells us to protect our body
   - If you put your hand near a fire it hurts right? It hurts even though the hand still looks the same and no damage has happened.
   - This is an example of how pain is a protective mechanism which is felt with actual or potential damage.

2. Pain is not a measure of the state of the tissues
   - if you are having a happy day and there is a celebration in the community or you just got given R100 and you tripped on a stone and fell how would you feel?
   - Now think about how you would feel if the same thing happened but you just lost R100 or you were very stressed by how much you needed to do.
   - Is there a difference in how much pain you feel?

3. Pain is a conscious correlation to perceived threat to tissues that motivates us to act/get out of danger
   - if you were walking along and stepped on a stick you may think very little of it
   - if you later realise that it was in fact that stick was a snake that bit you what do you think will happen the next time you step on a stick
   - your mind may remember the previous memory of the snake and react with lots of pain at first while you think it may be a snake
   - this is in order to make you act/to protect yourself
   - when you realise that it was actually a stick after all what do you think will happened to your pain?
   - this is because the body no longer needs to protect as you realise the stick is not a threat
   - pain does not accurately reflect what happened; it partly reflects our interpretation of it

4. The brain uses the virtual body to tell you where your actual pain is in danger
   - Your brain has a ‘map’, a virtual body which represents the actual body
   - Your brain is where danger in the body is interpreted (because our minds are clever! it can tell you where in the body potential or actual damage take place)
   - The interpretation gives us the experience of pain to make us act
   - Because the brain interprets danger you may still experience pain in an area of the body which no longer is part of you just as a amputated limb
   - There is a story of man who had a shark attack and had to have an amputation. He felt pain in his foot still after the amputation and if he scratched the area where his foot used to be with a stick it would relive some of the pain and he would be comforted by the scratchy feeling. This is because his brain was able to interpret how the foot felt and remembered how it would feel if it was scratched.
   - This story also tells us that we don’t need to actually have a stimulus or nociception for there to be pain
<table>
<thead>
<tr>
<th>Acute Pain vs Persistent (Chronic) Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Pain</strong></td>
</tr>
<tr>
<td>Short lasting (less than 3-6 months)</td>
</tr>
<tr>
<td>This pain is directly related to damage of the body tissues and structures e.g. cutting your finger with a knife</td>
</tr>
<tr>
<td>As the injured tissue heals, the acute pain should decrease and disappear</td>
</tr>
<tr>
<td>Acute pain functions as an alarm to tell us that something is wrong and signals the body to protect itself e.g. if you break your leg, the pain you feel tells your body that you need to rest your leg until it heals. In this situation acute pain is helping the body to heal by preventing more damaged to be caused to the leg by walking around on it.</td>
</tr>
<tr>
<td><strong>Signs and symptoms</strong></td>
</tr>
<tr>
<td>• Reasons for pain can be identified and pinpointed.</td>
</tr>
<tr>
<td>• Inflammation, swelling, increased local temperature.</td>
</tr>
<tr>
<td>• Pain tends to subside as healing takes place.</td>
</tr>
<tr>
<td>• Nervous system is usually intact.</td>
</tr>
<tr>
<td>• Responds well to conventional pain treatment.</td>
</tr>
<tr>
<td>• Psychological symptoms such as depression are short lived if present at all</td>
</tr>
<tr>
<td><strong>Treatment of Acute Pain vs Persistent (Chronic) Pain</strong></td>
</tr>
<tr>
<td><strong>Acute pain</strong></td>
</tr>
<tr>
<td>Aim of treatment is to decrease signals being sent from damaged tissue to the brain and decrease the brains interpretation of pain</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
Assessment of Persistent (Chronic) Pain/ Changes in the brain

Every patient complaining of pain needs to have a thorough assessment for acute pain. If patients have experienced pain for over 6 weeks changes in the brain may have occurred causing central sensitization and some chronic pain elements may exist. However there may also be acute pain problems persisting which need attention and treatment.

In the presence of chronic pain there are changes in central and peripheral sensitization. Central sensitization changes are representative of spreading hyperalgesia and allodynia further than expected area. Peripheral sensitization results in disuse and therefore is accompanied by decreased ROM, muscle weakness and skin changes.

Centralized pain has a very intricate relation with depression, anxiety; stress etc. and it essential for patients to identify and manage these variables. Consistency is essential in the treating therapist as trust and empathy plays a vital role in decreasing stress and anxiety related with this condition. This also allows for more effective treatment as the therapist will know the baseline and the client’s social factors and these won’t need to be explored each time.

The following tests may indicate changes in the brain and chronic pain development. These tests can be used to evaluate improvement/change.

- laterality changes
- two-point discrimination
- pain on imagined movements
- allodynia or hyperalgesia
the mother then runs to the chief to tell him about the fire.

the chief sends a messenger to calm the child.

the chief sends someone to put out the fire.

the house is on fire.

* normal response *

spinal cord

injury site

the child nociceptors runs to tell her mother about the fire.
Mother
all the time to her
smaller, less thing, running
and roots to even the
the child is traumatized.

RESPONSES
and overreacts (increased
old) and is very stressed
small things (lowered threshold
traumatized and roots to
the child is mother is also

Though there is no fire even
she runs to tell the

Chief there is a fire even

The chief is

becomes fired
me somehow

The chief

gets bucket and runs back and
puts out the "fire."

The person with the

* Abnormal Reaction*

chronic pain

Old Injury Site

Spinal Cord

Brain

Reported

on fire and has been
the house is no longer
Models of Pain

Pain is NOT equal to physical damage

Pain Gate Theory

Body Self Pain Matrix

Mature Organism Model
Pain Gate Theory

Analogy:
If we go to bed at night and leave our gate and front door open, a tsotsi can come in and hurt us and steal all our possessions. We will be very sad and scared. But if we close the gate and door he will not be able to get in and hurt us. We will safe from the tsotsi.

Our body works the same. Pain is the tsotsi and the house is our brain / body that tell us that our joints are painful.
If we can close the body’s gate and block all the pain signals (tsotsi) from going into the brain we will feel less pain.

Example 1: “The healing power of touch”
If you bump your head you quickly rub over the painful area. This helps reduce the perception of pain.

In this example we saw that rubbing or massaging the painful area will help block the pain signals. This is because massaging also sends signals to the brain and they fight with the pain signals to reach the brain on the same path. The massaging signals are much faster than the pain signals and so they reach the brain first and block the pain signals. (Use image below to demonstrate analogy)

<table>
<thead>
<tr>
<th>OPENS GATES</th>
<th>closes gates</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Sad Face" /></td>
<td><img src="image.png" alt="Happy Face" /></td>
</tr>
</tbody>
</table>

What opens the gate?
- Increased disease activity
- Anxiety or stress
- Tension
- Depression
- Focusing on pain
- Boredom
- Overdoing physical activity

What closes the gate?
- Medications
- Counter stimulation (e.g. heat, massage)
- Positive attitude and emotions
- Relaxation, Rest
- Distraction from pain
- Involvement and interest in daily life activities
Neuropathic Pain
(Useful knowledge to have when working in the Zithulele context)

NOTE: this is very much cut and paste/ slightly reworded out of the IASP fact sheets 2015! Just adapted slightly for relevance in this context

Allodynia & Hyperalgesia
- distribution should follow that of the injured or diseased nervous structure (can extend at times)
- onset is usually early and may decrease over time in acute pain but in progressing neuropathic pain conditions might increase over time
- early hypersensitivity puts one at risk of persistent neuropathic pain
- sensory modalities which illicit pain: thermal (cold and heat) and mechanical (touch, pin prick, pressure)
- quantitative or repetitive testing can indicate pain thresholds and pain response changes indicating allodynia and hyperalgesia respectively
- Use recommended medications as under the ‘neuropathic pain’ heading.

Neuropathic Pain
- direct consequence of a lesion or disease affecting the somatosensory system
- peripheral neuropathic pain (nerve injury or disease e.g. lumbar radiculopathy (sciatica); post herpetic neuralgia (shingles); diabetic neuropathy
- Central neuropathic pain e.g. stroke or SCI, multiple sclerosis
- Recognized by unpleasant symptoms eg. shooting, burning pain, numbness, altered sensation and “difficult to describe sensations”
- what makes it difficult is that some pain with neuropathic characteristics arise from other causes such as osteoarthritis and cancer)
- To confirm neuropathic pain evidence of a lesion is necessary e.g. reduced or increased sensitivity, altered sensation or pain in response to light touch
- standard analgesics are mostly ineffective with neuropathic pain
- therefore good evidence-based guidelines suggest antiepileptic (gabapentin and pregabalin), antidepressants (amitryptilline or duloxetine) and or topical preparations
- it is recommended that this is done alongside other appropriate medication and non-pharmacological methods

Painful HIV-Associated Sensory Neuropathy
- HIV-associated sensory neuropathy (HIV-SN) is a specific distal polyneuropathy (DSP) which is commonly painful
- examples of HIV-SN are HIV-associated distal symmetrical polyneuropathy (HIV-DSP) and antiretroviral toxic neuropathy (ATN)
- HIV-DSP is referred to if neuropathy began before exposure to anti-retrovirals
- ATN is referred to if neuropathy began after exposure to anti-retrovirals
- no clear clinical feature exist between ATN and HIV-DSP
- 40%-90% describe painful neuropathies which is commonly “burning”
- numbness and paraesthesia are also common
- feet and hands typically
- bilateral presence of “stocking and glove” distribution of pin-prick sensation, absent or deep-tendon reflexes and absent or reduced sense of vibration
- 30-60% of ambulant HIV-positive individuals
- increasing age and height, exposure to neurotoxic anti-retrovirals such as stavudine and didanosine, worsening infection if not on ARVs are all risk factors for developing a neuropathy
- more risk factors less consistently reported are being female, higher viral load, having a diagnosis of major depression
- evidence of a strong placebo effect in clinical trials of analgesics in comparison to other neuropathic conditions with pain but there is not substantial evidence identifying pharmacological treatment better than placebo
Central Neuropathic Pain

Neuropathic Pain

Neuropathic pain (see the fact sheet on “What Is Neuropathic Pain?”) can result from nerve injury or disease affecting the peripheral or central nervous system.

Definition

- Central neuropathic pain is caused by a lesion or disease of the central somatosensory nervous system.
- Central post stroke pain can occur after a cerebrovascular accident. Other common causes of central neuropathic pain include spinal cord injury (including syringomyelia), multiple sclerosis, and traumatic brain injury.

Clinical Features

- Central pain can be spontaneous or stimulus-evoked and may involve dynamic mechanical allodynia and cold allodynia. Pain may be described in terms such as burning, pricking, shooting, squeezing, and painful cold.
- Paresthesia and dysesthesia are common (e.g., tingling, pins and needles, cold, and pressing sensations).
- The distribution of pain can range from a small area to large areas, covering half of the body in stroke or the lower body in spinal cord injury. In patients with lateral medullary infarction, the pain can involve one side of the face and the contralateral side of the body or limbs, and periorbital pain is common. In spinal cord injury, neuropathic pain is classified as “at-level” pain, which is pain perceived in a segmental pattern at the level of injury, and “below-level” pain, which is pain felt below the injury level. The pain in multiple sclerosis has a distribution compatible with a brain or a spinal lesion.
- Central pain is located in areas with sensory abnormalities compatible with the central nervous system lesion.
- Central pain can occur immediately at disease onset or can be delayed for several months.
- Bedside clinical examination typically reveals altered pinprick sensation, decreased or increased sensation to touch and cold, and increased deep-tendon reflexes.

Epidemiology

- Central pain occurs in approximately 8% of patients with stroke, 25% of patients with multiple sclerosis, and 40–50% of patients with spinal cord injury.
- Early sensory hypersensitivity seems to predict the development of central pain. Little is known about other possible risk factors.

Impact

- Central neuropathic pain is associated with emotional distress and lower health-related quality of life and affects rehabilitation, mood, sleep, and social functioning.

Pathogenesis

- Central sensitization and ongoing discharges in central pain pathways contribute to the development of central pain.
- Spontaneous activity occurring in dorsal horn and other central neurons, disinhibited polysynaptic pathways, and sensitized spinothalamic tract pathways are possible substrates for central pain. In addition, changes occurring at supraspinal areas such as the thalamus, the anterior cingulate cortex, and prefrontal cortices may be involved in the generation, amplification, or modification of central neuropathic pain.

Treatment

- Treatment includes antiepileptic drugs (e.g., gabapentin or pregabalin), antidepressants (e.g., amitriptyline, imipramine, or duloxetine), and other drugs. Nonpharmacological approaches include cognitive-behavioral therapy, hypnosis, and neurostimulation therapies.

References

Graded Motor Imagery

Used for pain syndromes such as CRPS and chronic pain, where there is cortical changes.

Grade Motor Imagery (GMI) is a pain intervention which directly targets cortical (brain) reorganization. The brain changes in the presence of chronic/ maladaptive pain but because the brain is plastic, reorganization is possible. GMI is a series of exercises done in a sequence to work on synapses and reorganizing the brain. This sequence is important for pain alleviation and recovery. GMI consists of Left and Right Discrimination, Motor Imagery and Mirror Therapy.

• GMI can be used in conjunction with other therapies.
• GMI should be used before working on functional movements/ activities/ exercise.

According to studies GMI AND mirror therapy alone are effective treatments. However the use of laterality alone AND and motor therapy alone are shown to have mixed results and not be effective treatments when used in isolation.

Left and Right Discrimination:
In chronic pain it is common for people to lose the ability to identify left or right images of their painful body parts or to be slower in discriminating between left and right. Left and right discrimination training works on reorganizing the premotor cortex.

The exercises require you to look at images of the painful part of the body and determine if it is on the left or right of a body. This can be done using magazines where the person needs to flip through the pages and identify all of the body parts (specific to their injured area, e.g. knee hand etc.) as right or left. With spinal movement or facial expressions you need to answer which side you have moved/turned towards. Frequency for optimal effectiveness is 5-10 min every hour throughout the day.

Normal ranges:
The person should score an accuracy level of 80% and above and almost equal for the left and right. Every item should be answered in 1.5-2 seconds. Keep a baseline recording of the first session so that you can monitor the progress made.

Grading:
If using magazine images/flashcards/app the following grading is used:
- Basic – positioning of body part on a plain background.
- Context- the body part in the context of the environment (someone playing golf on a golf course). Try to make this as culturally relevant as possible.
- Abstract- this can include cartoons, art, statues.

All of these can be presented as a memory game as well.
If on assessment the laterality is equal, you can start doing imagined movements (Motor Imagery)

Imagined movements (motor imagery):
Motor imagery is an exercise which gets patients to think about moving without actually moving (NO MOVEMENT TAKES PLACE as you are treating the brain only). In people with chronic pain imagining a movement or watching someone else do a painful movement can cause the experience of pain in the individual? (A quarter of the neurons in your brain are ‘mirror neurons’ and start firing when you think of moving or even watch someone else move.)

Presentation:
- Calm, quiet environment with eyes closed and both hands in relaxed position on table or lap.
- Start with imagining movements which are slightly pain, and have no emotional attachments. Help individuals to know that they are training the part of the brain which prepares for movement. Help them to recognize that they are not causing any actual or potential damage to their body part as they have not actually moved and to start to reassure the brain that thinking about the movement is safe. Their experience of pain should decrease as they practice this new thinking.
use to prompt if needed: Flash cards showing pictures with hand in different positions can be used to prompt patient OR use pictures from magazines. If not available then one can describe/demonstrate the movements/positions to the patient.

- Patient looks at the image; close his/her eyes and imagine/visualize the movement/posture performed with the effected hand without moving the hand.
- Imagine moving the body into the position illustrated or described and then return to its original position.
- If visualizing the posture of the affected hand doesn’t initiate pain; the exercise can be graded to actually performing the movement.

**Grading:**

- Grading (progress only if a level is pain free; if a certain level causes pain regress to the previous level):
- Proximal graded to more distal or closer to zone experiencing pain
- Increase Rom and speed
- Start adding environmental and social factors
- Simpler to more complex movement patterns
- Peripheral nerve specific movement patterns:
  - MN: Thumb opposition; fisting
  - RN: Extension and thumb abduction patterns
  - UN: Intrinsic + position; Abduction and adduction of digits
- Functional movement patterns, e.g. holding a pen or holding scissors (NB Do not perform functional movements that are not appropriate for the dominant vs. non dominant hand).
- Progress to imagining yourself moving in a way that usually brings on increased pain and then in a way that may be emotional for example giving someone a hug or picking up a child or doing something you love but feel unable to do currently under the circumstances.

*These exercises should be done throughout the day as often as possible/ remembered and normally need to be continued for two weeks.

**Mirror Therapy:**

If a patient struggles with left and right discrimination it is best to start therapy with practicing left and right discrimination and wait until the patient has a good ability to discriminate between left and right before proceeding to mirror therapy. The same is true with imagined movements. This is done to trick the brain into believing that it is doing the movement because of the visual feedback that it is getting. This is used to desensitize the brain.

Before you begin exercise you must:
- Have equal laterality for 2 full days
- Able to imagine movements without any increase in pain
- Able to watch someone else do the movement which brings on the individuals pain without an increase in pain

**Presentation:**

- Box open on both sides with the mirror facing the un-affected limb in midline and the affected limb resting inside the box completely concealed.
- Must be a complete illusion i.e. all jewelry removed and tattoos covered.
- Patient is to look at the mirror image at all times. Concentration is essential.
- Ownership must be taken of the hand inside the mirror first otherwise mirror therapy will not work.

Start the session with approximately 3 minutes naming and describing the different digits and qualities of the imaged hand in the mirror.
General grading (progress and regress as per pain experience of patient; make sure to document session):
- Start all components with the uninvolved hand outside the box first before progressing to input on both limbs.
- Start with less involved sections of the hand first before targeting affected areas.

Component 1: Desensitization
- Don’t touch initially; just hold texture over a specific area of the hand
- Place texture on chosen area of the hand
- Continuous strokes
- Tapping
- Grade with textures as per usual desensitization program.

Component 2: Motor imagery in mirror box
- Proximal graded to more distal or closer to zone experiencing pain
- Simpler to more complex movement patterns (look at the hand, turn the hand, flatten hand, move individual fingers, thumb to fingers, tap fingers, use tools, move hand in box)
- Peripheral nerve specific movement patterns:
  - MN: Thumb opposition; fisting
  - RN: Extension and thumb abduction patterns
  - UN: Intrinsic + position; Abduction and adduction of digits
- Functional movement patterns, e.g. holding a pen or holding scissors (NB Do not perform functional movements that are not appropriate for the dominant vs. non dominant hand).

Desensitization program
The program has to be performed:
- 4-5 time a day.
- Use 3-4 materials from the list below.
- Use the material in the prescribed order.
- Rub the sensitive skin with each material for 5 minutes:
  - Up and down
  - Across
  - Tap the skin

If the 1st material on your list is not sensitive to touch anymore:
- Stop using the 1st material
- Start using the next material on the list.

The order of use of 3-4 appropriate textures
(The order is established by the occupational therapist after assessment)

<table>
<thead>
<tr>
<th>Soft material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Velcro</td>
</tr>
<tr>
<td>Hard material (Toweling)</td>
</tr>
<tr>
<td>Hard Velcro</td>
</tr>
<tr>
<td>Deep pressure</td>
</tr>
<tr>
<td>Vibration (Electric mixer or toothbrush can be used at home)</td>
</tr>
<tr>
<td>Immense hand in macaroni/rice/sand/beans.</td>
</tr>
</tbody>
</table>

USEFUL SITES:
Complex Regional Pain Syndrome

• CPRS often occurs post traumatic.
• Central sensitization is a main cause for CPRS

Presentation

- Allodynia, hyperalgesia
- Hypersensitivity of skin to light touch
- Pain, swelling and heat are usually present but not at the site of injury
- Sweating (can be in the pattern of innervation)
- Colour changes
- Weakness
- Decreased ROM

Criteria

The patient should have at least 1 symptom in 3/4 of the following categories:

- Sensory: Hyperaesthesia and/or allodynia
- Vasomotor: Temperature asymmetry and/or skin colour changes and/or skin colour asymmetry
- Sudomotor/Edema: Edema and/or sweating changes and/or sweating asymmetry
- Motor/Trophic: Decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

The patient should have at least 1 sign in 2/4 of the following categories:

- Sensory – Hyperalgesia (to pinprick) and/or allodynia (to light touch and/or temperature sensation and/or deep somatic pressure and/or joint movement)
- Vasomotor – Temperature asymmetry (> 1 °C) and/or skin colour changes and/or asymmetry
- Pseudo-motor/Oedema – Oedema and/or sweating changes and/or sweating asymmetry
- Motor/trophic – Decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

Treatment

See desensitization protocol
See graded motor imagery protocol
Rehabilitation of People with Amputations

Applying for a prosthesis
- Ensure that the residual limb has been shaped appropriately so that a prosthesis may be fitted (see amputation stump bandaging).
- Complete the Amputee Mobility Predictor Assessment to score the patient on readiness to receive a prosthesis.
- Also complete Guideline for Screening of Prosthetic Patients form.
- Submit copies of these forms to Bedford Orthotics and Prosthetics Centre so that the patient can be added to the regional waiting list.
- File these forms in the Amp Screening File so that we have record of our own waiting list.
- Continue to rehabilitate the patient to improve their score and prepare them for when the prosthesis is made. A prosthesis can be heavy and difficult for the patient to adapt to. The patient will need to have enough strength and ROM to use the prosthesis.
- Remember to re-evaluate regularly using the Amputee Mobility Predictor Assessment and if the score changes to send the updated score to BOH O&P. And file the updated score in the Zithulele amp file.
- Remember to explain to the patient that it can take a very long time (sometimes even longer than a year) to receive a prosthesis.
- The patient will need to continue rehab exercises after receiving the prosthesis to learn how to fit it, and perform ADL’s with it.
- It is important that the patient understands that a prosthesis is used to enhance their existing function and that they need to to continue training to adapt to life without that limb section

NB elements for good successful rehab:
- **Central Patient involvement** in goal setting, planning and treatment
- **Team work** (O&P, Physio, OT, Surgeon, Nursing, Social work all involved)

Recent Terminology to use:
- Not “amps” rather “people living with limb loss”
- Not “stump” rather “residual limb”

These people with limb loss will be long term rehab candidates, please ensure you have their details on a Datasheet

**Pre-operative**

<table>
<thead>
<tr>
<th>Info</th>
<th>action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early MO referral pre op</td>
<td>Look in wards for people awaiting amputation surgery</td>
</tr>
<tr>
<td>Team approach to decisions to amputate, and considerations regarding level</td>
<td>Educate on prevention of secondary surgery</td>
</tr>
<tr>
<td>Consider causes: Traumatic PVD</td>
<td></td>
</tr>
<tr>
<td>Consider risk of secondary problems related to first</td>
<td></td>
</tr>
<tr>
<td>Thorough Assessment – use ICF model</td>
<td></td>
</tr>
<tr>
<td>Counselling and education</td>
<td></td>
</tr>
<tr>
<td>Maximizing physical condition – better tolerance of surgery and also improved functional outcome after surgery</td>
<td>Work on fitness (use an outcome measure – timed get up and go, 3 or 6 minute walk test, bleep test) Work on strength (SMART goals)</td>
</tr>
<tr>
<td>SURGERY – Doctor skills! Ideal sites: tibia – 12-14cm from tibial tuberosity Knee disarticulation (to minimize surgical trauma in weak patients) – can full weight bear on stump Femur 25-28cm from top of greater trochanter Rather a knee disart/transfem if: On the hemi side Not for active rehab – easier in w/c OA knee etc, get worse with time</td>
<td>Assess thoroughly to be able to advise if asked for input</td>
</tr>
</tbody>
</table>
### Early Post-operative

<table>
<thead>
<tr>
<th>Oedema management: Rigid dressings</th>
<th>Apply rigid dressing in theatre and then three days after</th>
</tr>
</thead>
<tbody>
<tr>
<td>stump shaping, bandaging</td>
<td></td>
</tr>
<tr>
<td>ROM - Positioning – no pillows</td>
<td>Educate, remove pillows/blankets, encourage prone lying</td>
</tr>
<tr>
<td>Ideal Outcomes:</td>
<td></td>
</tr>
<tr>
<td>TF – no hip contractures</td>
<td></td>
</tr>
<tr>
<td>TT – no knee contractures</td>
<td></td>
</tr>
<tr>
<td>fitness</td>
<td>Continue to increase fitness – use outcome measure</td>
</tr>
<tr>
<td>Strengthening</td>
<td>Continue strengthening with SMART goals</td>
</tr>
<tr>
<td>Desensitization of scar</td>
<td>Tapping, rubbing, pressure as able</td>
</tr>
<tr>
<td>Falls Risk assessment tool</td>
<td>Do risk assessment</td>
</tr>
<tr>
<td>MMSE &lt; 24</td>
<td>Issue assistive devices if needed</td>
</tr>
<tr>
<td>• a cognitive impairment</td>
<td>Educate ward staff</td>
</tr>
<tr>
<td>• back or joint pain</td>
<td>Posters on wall?</td>
</tr>
<tr>
<td>• multiple problems with prosthesis</td>
<td>Issue wheelchair if needed?</td>
</tr>
<tr>
<td>• multiple problems with stump</td>
<td></td>
</tr>
<tr>
<td>• are older than 70</td>
<td></td>
</tr>
<tr>
<td>• deaf</td>
<td></td>
</tr>
<tr>
<td>• increased postural sway with eyes open and closed</td>
<td></td>
</tr>
<tr>
<td>• weak hip abductors</td>
<td></td>
</tr>
<tr>
<td>Early mirror therapy</td>
<td>For phantom sensation or pain</td>
</tr>
<tr>
<td>Psychosocial elements</td>
<td>Grief counselling</td>
</tr>
<tr>
<td>Early fitting of prosthesis within 6 weeks</td>
<td>(decreases phantom limb pain)</td>
</tr>
<tr>
<td>Early aggressive analgesics</td>
<td></td>
</tr>
<tr>
<td>Outcome measures – Amp Mo Pro, TUG, PEQ, LCI-5, 6 min walk, 2 min walk</td>
<td></td>
</tr>
</tbody>
</table>

### Post-operative

| Donning and doffing                |                                                          |
| Scar management                    |                                                          |
| Maintenance of residual limb: strength, ROM, skin, scar, desensitization, bearing pressure on end | |
| Gait retraining                    |                                                          |
| Discharge:                         |                                                          |
| Summary                            |                                                          |
| Follow up contact – how to access service again and be able to self-refer in | |
| Review date                        |                                                          |
| Info in notes if prosthesis use is discontinued, and why | |
| Annual Amp Camp?                   |                                                          |
| Prosthetics – review children 6 monthly |                                                          |
| Review adult 3 yearly              |                                                          |
# Amputee Mobility Predictor Assessment Tool

**Name:** ____________________________  **Date:** ____________  **Gender:** □ Male  □ Female

**DOB:** ____________  **Age:** ____________  **Amputation:** □ Left  □ Right

**Initial instructions:** Client is seated in a hard chair with arms. The following manoeuvres are tested with or without the use of the prosthesis. Advise the person of each task or group of tasks prior to performance. Please avoid unnecessary chatter throughout the test. Safety First, no task should be performed if either the tester or client is uncertain of a safe outcome.

The **Right Limb** is: □ PF □ TT □ KD □ TF □ HD □ intact The **Left Limb** is: □ PF □ TT □ KD □ TF □ HD □ intact

1. **Sitting Balance:** Sit forward in a chair with arms folded across chest for 60s.
   - Cannot sit upright independently for 60s  Can sit upright independently for 60s
     - = 0  = 1 ____________

2. **Sitting reach:** Reach forwards and grasp the ruler. (Tester holds ruler 12in beyond extended arms midline to the sternum)
   - Does not attempt  Cannot grasp or requires arm support  Reaches forward and successfully grasps item.
     - = 0  = 1  = 2 ____________

3. **Chair to chair transfer:** 2 chairs at 90°. Pt. may choose direction and use their upper limbs.
   - Cannot do or requires physical assistance  Performs independently, but appears unsteady  Performs independently, appears to be steady and safe
     - = 0  = 1  = 2 ____________

4. **Arises from a chair:** Ask pt. to fold arms across chest and stand. If unable, use arms or assistive device.
   - Unable without help (physical assistance)  Able, uses arms/assist device to help  Able, without using arms
     - = 0  = 1  = 2 ____________

5. **Attempts to arise from a chair:** (stopwatch ready) If attempt in no. 4. was without arms then ignore and allow another attempt without penalty.
   - Unable without help (physical assistance)  Able requires >1 attempt  Able to rise one attempt
     - = 0  = 1  = 2 ____________

6. **Immediate Standing Balance:** (first 5s) Begin timing immediately.
   - Unsteady (staggers, moves foot, sways)  Steady using walking aid or other support  Steady without walker or other support
     - = 0  = 1  = 2 ____________

7. **Standing Balance (30s):** (stopwatch ready) For item no.'s 7 & 8, first attempt is without assistive device. If support is required allow after first attempt
   - Unsteady  Steady but uses walking aid or other support  Standing without support
     - = 0  = 1  = 2 ____________

8. **Single limb standing balance:** (stopwatch ready) Time the duration of single limb standing on both the sound and prosthetic limb up to 30s. Grade the quality, not the time.
   - Non-prosthetic side  Prosthetic Side
     - Unsteady  Steady but uses walking aid or other support for 30s  Single-limb standing without support for 30s
       - = 0  = 1  = 2 ____________

9. **Standing reach:** Reach forward and grasp the ruler. (Tester holds ruler 12in beyond extended arm(s) midline to the sternum)
   - Does not attempt  Cannot grasp or requires arm support on assistive device  Reaches forward and successfully grasps item no support
     - = 0  = 1  = 2 ____________

10. **Nudge test:** With feet as close together as possible, examiner pushes lightly on pt.'s sternum with palm of hand 3 times (toes should rise)
    - Begins to fall  Staggers, grabs, catches self or uses assistive device Steady
      - = 0  = 1  = 2 ____________

11. **Eyes Closed:** (at maximum position #7) If support is required grade as unsteady.
    - Unsteady or grips assistive device  Steady without any use of assistive device
      - = 0  = 1 ____________

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*Eliminate item 8 for AMPnoPRO*
12. Pick up objects off the floor:
Pick up a pencil off the floor placed midline 12in in front of foot.
- Unable to pick up object and return to standing = 0
- Performs with some help (table, chair, walking aid etc) = 1
- Performs independently (without help) = 2

13. Sitting down:
Ask pt. to fold arms across chest and sit. If unable, use arm or assistive device.
- Unsafe (misjudged distance, falls into chair) = 0
- Uses arms, assistive device or not a smooth motion Safe, smooth motion = 1
- Performs with some help (table, chair, walking aid etc) = 2
- Performs independently (without help) = 3

14. Initiation of gait:
(Immediately after told to “go”)
- Any hesitancy or multiple attempts to start = 0
- No hesitancy = 1

15. Step length and height:
Walk a measured distance of 12ft twice (up and back). Four scores are required or two scores (a. & b.) for each leg. “Marked deviation” is defined as extreme substitute movements to avoid clearing the floor.
- a. Swing Foot
  - Does not advance a minimum of 12in = 0
  - Advances a minimum of 12in = 1
  - Prosthesis = Pro
  - Sound = S
- b. Foot Clearance
  - Foot does not completely clear floor without deviation = 0
  - Foot clears floor without marked deviation = 1

16. Step Continuity
- Stopping or discontinuity between steps (stop & go gait) = 0
- Steps appear continuous = 1

17. Turning:
180 degree turn when returning to chair.
- Unable to turn, requires intervention to prevent falling = 0
- Greater than three steps but completes task without intervention = 1
- No more than three continuous steps with or without assistive aid = 2

18. Variable cadence:
Walk a distance of 12ft fast as possible safely 4 times. (Speeds may vary from slow to fast and fast to slow varying cadence)
- Unable to vary cadence in a controlled manner = 0
- Asymmetrical increase in cadence controlled manner = 1
- Symmetrical increase in speed in a controlled manner = 2

19. Stepping over an obstacle:
Place a movable box of 4in in height in the walking path.
- Cannot step over the box = 0
- Steps over without interrupting stride = 2

20. Stairs (must have at least 2 steps): Try to go up and down these stairs without holding on to the railing. Don't hesitate to permit pt. to hold on to rail. Safety First, if examiner feels that any risk in involved omit and score as 0.
- Ascending
  - Unsteady, cannot do = 0
  - One step at a time, or must hold on to railing or device = 1
  - Step over step, does not hold onto the railing or device = 2
- Descending
  - Unsteady, cannot do = 0
  - One step at a time, or must hold on to railing or device = 1
  - Step over step, does not hold onto the railing or device = 2

21. Assistive device selection:
Add points for the use of an assistive device if used for two or more items. If testing without prosthesis use of appropriate assistive device is mandatory.
- Bed bound: = 0
- Wheelchair / Parallel Bars: = 1
- Walker: = 2
- Crutches (axillary or forearm): = 3
- Cane (straight or quad): = 4
- None: = 5

Total Score
- AMPnoPRO /43
- AMPpro /47

Abbreviation:
PF = partial foot; TT = transtibial; KD = knee disarticulation; TF = transfemoral; HD = hip disarticulation
Test: ☐ no prosthesis ☑ with prosthesis
observer: ___________________ Date: ____________

K LEVEL (converted from AMP score)
AMPnoPRO ☐ K0 (0-8) ☐ K1 (9-20) ☐ K2 (21-28) ☐ K3 (29-36) ☐ K4 (37-43)
### Appendix 3 GUIDELINE FOR SCREENING OF PROSTHETIC CANDIDATES:

<table>
<thead>
<tr>
<th>Test Score</th>
<th>Amputation stump/patient satisfaction</th>
<th>Amputation stump shape and soft tissue</th>
<th>Remaining limb</th>
<th>Community activity prior to amputation</th>
<th>Self care</th>
<th>Domestic activities</th>
<th>Employment</th>
<th>Scholastic</th>
<th>Social independence</th>
<th>Reason for poor function</th>
<th>Action to take</th>
</tr>
</thead>
</table>
Mobility Devices for Patients with Amputated Limbs

Orthotics and Prosthetics

- Patients can be referred to Bedford Orthopedic Hospital O&P center Monday to Thursday.
- Patients must be booked onto transport (the PTV) in OPD. When booking on PTV you must complete the EMS Planned Patient Booking Form (PPT Booking Form) found at the OPD desk. Once completed it must be emailed to the email address at the top of the form.
- Fill in the Ortho and prosthetics prescription form and sign it. Write clearly on the outside of the form that they are going to O&P and the date.

Crutches

Please remember that Crutches are NOT FREE for us, and we do not have an ENDLESS supply! So...

- Educate people who receive crutches or other assistive devices that we need them back afterwards please!
- Record them on your stats forms. THIS IS REALLY IMPORTANT. If we have good records, we can predict the expected numbers for the following year, and can motivate for budget.
- Please put a name on the frames you issue, so they don’t just walk away!
- Crutch rubbers need to be recorded as well as the crutches please.

Wheelchairs

- Wheelchairs are expensive resources, patients qualify for a wheelchair if they are not able to do activities at home that they would like to do without it. Please assess carefully ADLS and baseline. If the only activity is getting a grant once a month, this will most likely need a discussion with the rehab team.
- You need to record those ordered and issued in the wheelchair file, please read the instructions on the cover
- EVERY person with a wheelchair should have a data sheet for follow up.
- Please stick a label on the wheelchair so that we know who it belongs to if we find it floating around the wards (it helps if this is a small piece of white paper with the patients name and date of issue; this is then covered with broad sticky tape so that it endures the weather!) – stick this on the cross bar below the seat
- Write in the patient’s cards that they have been issued with a wheelchair.

NB: Please take careful note.

H0 patients get assistive devices for free.

H1 patients need to pay on a sliding scale for assistive devices. Please try to explain this to people who are using our services only for cheap assistive devices. If they are on medical aid they need to pay private rates.
Postamputation Pain

Neuropathic Pain
Neuropathic pain (see the fact sheet on “What Is Neuropathic Pain?”) can result from nerve injury or disease affecting the peripheral or central nervous system.

Definition
- Phantom limb pain: Pain perceived as arising in the missing limb.
- Stump (Residual limb) pain: Pain perceived in the amputation stump or residual limb.
- Phantom sensations: Any sensations of the missing limb, except pain.

Clinical Features
- The onset of phantom limb pain is usually within the first week after amputation. The appearance may, however, be delayed for months or even years.
- Phantom limb pain is usually intermittent; only few amputees have constant pain. The intensity and frequency of phantom limb pain attacks usually decrease with time. Terms used to describe the pain include shooting, pricking and burning.
- Phantom limb pain is primarily localized to the distal parts of the missing limb, i.e. in upper limb amputees pain is normally felt in the fingers and the palm of the hand and in lower limb amputees, it is generally experienced in the toes, foot, or ankle.
- Phantom limb pain may be modulated by various internal and external factors, such as attention, distress, urination, manipulation of the stump and prosthesis use.
- Chronic stump pain includes neuroma, muscle and bone stump as pain sources.
- Clinical examination of the stump will often reveal sensory abnormalities (e.g. hypoesthesia, allodynia, hyperalgesia).
- Some amputees experience spontaneous movements of the stump ranging from small jerks to visible contractions.
- Phantom sensations, where the amputee experiences kinesthetic feelings of length, volume or other spatial sensation of the amputated limb, are very frequent immediately after the amputation but decrease with time.
- Phantom sensations rarely pose any major clinical problem.
- There is an overlap between phantom limb pain, phantom sensations and stump pain, and in the same individual the three phenomena often coexist.
Epidemiology

- Phantom limb pain occurs in approximately 70% of amputees. The number of patients with severe pain is in the range of 5-15%. Female gender and upper limb amputation may be associated with a higher risk of phantom limb pain. Phantom limb pain is less frequent in young children and congenital amputees. Pre-amputation pain increases the risk of phantom limb pain.
- Stump pain is frequent immediately after amputation. Chronic stump pain occurs in 5-10% of all amputees.
- Phantom sensation is experienced by nearly all amputees.

Pathogenesis

- The mechanisms underlying post-amputation pain are complex and involve peripheral, spinal and supraspinal mechanisms (see fact sheet on “Mechanisms of Neuropathic Pain”).

Treatment

- There is a lack of evidence to guide clinicians with treatment. Treatment guidelines for other neuropathic pain conditions are probably the best approximation.
- Pharmacological treatment includes antiepileptic drugs, antidepressants, and/or topical preparations, along with other drugs.
- Non-pharmacological approaches include transcutaneous electrical nerve stimulation, hypnosis, mirror therapy, neurostimulation therapies, and others.

References


121-36. Copyright ©2014 International Association for the Study of Pain
Mirror Box Therapy for Phantom Limb pain

Refer to GRADED MOTOR IMAGERY to get full explanations and steps of the programme

• GMI can be used to treat CRPS, thumb arthritis, stroke, carpal tunnel syndrome, even pronation and supination after POP

• Research has shown that patients with phantom limb pain post amputee should undergo the full Graded Motor imagery Program which consists of left/right discrimination, imagined movements and mirror box therapy, based on Romy Parkers research each step should be done for 2 weeks before moving onto the next step.

Step 1: Left/right discrimination

• Treatment session: If possible, for the first week do 2 sessions of 30 minutes of the left/right discrimination.

• In week 2 the patient can be given a home exercise programme (HEP) where pictures/ magazines can be used where they differentiate between left/right for 10 minutes every hour (12 sessions a day)

Step 2: Imagined movements:

• Treatment session: give the patient 3 images for 30 minutes of treatment- they should imagine the movement of that in the image.

• HEP: 10 minute sessions every hour (12 sessions a day)

Step 3: Mirror box therapy

• The amputation is hidden behind a mirror, with the unaffected Infront of the mirror, patient is instructed to move both limbs according to the image.

• Treatment session: 30 minute session, 3 photographs

• HEP: images given to the patient, 10 minutes every hour (12 sessions a day)

Some points to take into consideration while using the mirror box:

• Good quality mirror so it doesn’t bow, there should also be enough space in the box.

• Patient should be comfortable, relaxed and should try forget about their body part that is in the mirror box

• Remove watches, rings or sleeves etc (need to really trick the brain to think that other side is injured side)

Begin with item in box being still:

• Start to just look at hand (outside the box), move it up and down, take weight on it, touch fingers to thumb); crawl on the mirror, tense hand, use objects like scissors etc.

• Can take the head into the mirror too, touch your face with hand.

Move the limb in the box:

• Replicate activity with the one inside the box, (can even do it reciprocally).

• Or do the painful movement gently (up to point of pain) in the box and aggressively out of the box.

• Use mirror box in different places (work, home).

• Different lights, times of day, with people around you, with music, different emotions etc
Bone Fractures

• **Initial consultation:** Check X-rays
• **At 24 hours:** Circulation check – Inform your patient to check for signs of decreased circulation, numbness/ pins and needles/ sensory or motor loss.

• **At 2 weeks:** Review - second X-ray taken in the plaster to ascertain fracture position at the time of reduction has not changed. Sometimes due to initial swelling at the time of injury it may be necessary to change the POP between 2-4 weeks to ensure there is no further displacement. (At ZLE this might happen after a week usually or after 6 weeks depending on the M.O.’s judgement; changing a POP doesn’t often happen unless a patient has come for a review)

For **upper limb-lower limb**, the **first 3-6 weeks respectively** are important for ensuring no displacement/ maintaining the position of reduction.

After the initial 3-6 weeks the X-rays are taken concerning fracture healing and not alignment. As soon as there is **better definition of bone healing the POP can be removed.** Clinically: If **pain and movement are present** on stressing the fracture then the fracture **still require immobilisation.** Radiologically: Look for **callus formation for indication**.

**Fracture Healing:**
• Pain and tenderness will subside over few weeks to a month. Direct pressure, attempting to twist or bend the fractured fragments will elicit discomfort if un-united. No pain would strongly suggest union.
• After the first 3 weeks for upper limb and 6 weeks for lower limb the initial callus should become visible radiologically. At this time the plaster can be removed for clinical and radiological assessment.
• The ‘gap’ between fractured ends may remain visible for many months post-injury. This is because the callus needs to mature and remodel into mature bone.
• External callus formation can either be hypertrophic or atrophic. Hypertrophic callus formation is good. Although too much callus formation may signify too much movement which may result in non-union. Atrophic would represent no callus formation and would result in non-union.

**Stages of Macro Healing:**
Haematoma – Inflammatory Phase - Callus Formation – Callus consolidation – Union – Remodelling

*Soft tissue damage is ALWAYS present in the case of a fracture and often get missed because everyone is looking at the broken bone. Handle soft tissue with care.*

**Factors delaying fracture healing:**
• Tissue hypoxia (most important)
• Age
• Soft tissue damage
• Displacement
• PVD/ Smoking/ Diabetes
• Motion- Lack of stabilisation continuously damages soft tissue
• Type of bone- cortical bone heals slower than metaphyseal bone

**Instructions to patients must cover:**
Gait training (if LL) with assistive device/ crutches to immobilise fractured part. Include safety, balance, stairs (up and down), slope and grass/ uneven surfaces training before D/C.
Educate on WB depending on what they are allowed to do.
**Elevate** for first 24 - 72 hours (above heart level) (decreased swelling alleviates pain; no NSAIDs for first 24 hours)

**Circulation Check:** increased pain, feeling like the POP is too tight; numbness and tingling in hand or foot (compression on nerves); burning or stinging (too much pressure on skin); excessive swelling below cast (slowing of blood circulation from tight POP).

**If loss of active movement refer immediately/ go see a doctor.**

**Exercise** uninjured parts and even uninjured but swollen parts

**Maintain ROM and strength** where not contraindicated.
Keep the POP dry. Check on follow up date MO: Check x-ray if patient is weight bearing (callus formation and displacement), check gait
Ankle Fracture  
Danis-Weber Classification: Weber A. B and C

- The bones and ligaments at the ankle form a ring of stability.
- The components of this ring include the tibial plafond, medial malleolus, deltoid ligaments, calcaneous, lateral collateral ligaments, lateral malleolus, and the syndesmosis.
- If the ring is broken in one place, the ankle remains stable.
- If the ring is broken in two places, the ankle is unstable and may dislocate.

- Remember that a ligamentous rupture may not be detectable on an x-ray, and the radiograph of an ankle may appear normal in an unstable ankle injury.

**Notable signs on an ankle x-ray**

![Image of ankle x-ray]

The medial clear space should not exceed 4mm (widening of the medial clear space indicates a potential disruption of the medial collateral ligaments and a lateral shift of the talus)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The fracture occurs below the level of the tibiotalar joint (level of the syndesmosis)</strong>&lt;br&gt;• There is no disruption of the syndesmosis&lt;br&gt;• Usually stable&lt;br&gt;• Talus moves medially in the mortise</td>
<td><strong>Fracture is at the level of the tibiotalar joint</strong>&lt;br&gt;• Partial disruption of the syndesmosis</td>
<td><strong>Above the level of the tibiotalar joint</strong>&lt;br&gt;• Disrupts the syndesmosis to the level of the fracture&lt;br&gt;• Unstable</td>
</tr>
</tbody>
</table>

**Danis-Weber Classification of ankle fractures**

![Images of normal and fractured ankles]
The Canadian C-Spine Rule

For alert (GCS = 15) and stable trauma patients where cervical spine injury is a concern

1. Any High-Risk Factor Which Mandates Radiography?
   Age \( \geq 65 \) years
   or
   Dangerous mechanism *
   or
   Paresthesias in extremities

   \( \text{No} \)

   Yes

2. Any Low-Risk Factor Which Allows Safe Assessment of Range of Motion?
   Simple rear end MVC **
   or
   Sitting position in ED
   or
   Ambulatory at any time
   or
   Delayed onset of neck pain ***
   or
   Absence of midline c-spine tenderness

   \( \text{No} \)

   \( \text{Radiography} \)

   \( \text{Unable} \)

   \( \text{Yes} \)

3. Able to Actively Rotate Neck?
   45° left and right

   \( \text{Able} \)

   \( \text{No Radiography} \)

---

* Dangerous Mechanism:
  - fall from elevation \( \geq 3 \) feet / 5 stairs
  - axial load to head, e.g. diving
  - MVC high speed (>100 km/hr), rollover, ejection
  - motorized recreational vehicles
  - bicycle collision

** Simple Rear end MVC Excludes:
  - pushed into oncoming traffic
  - hit by bus / large truck
  - rollover
  - hit by high speed vehicle

*** Delayed:
  - i.e. not immediate onset of neck pain
Zithulele Hospital Guideline: Management of Clubfoot  
(PONSETI TECHNIQUE)

Education
It is vital to provide education about the technique from the very beginning and reinforce this info about the need to comply through the whole treatment at every step along the way. We have flyers and little books and posters to use to refer to, as well as the DVDs that might also be helpful to watch.

Identifying clubfoot
- Cavus – high arch of the forefoot
- Adduction of the forefoot
- Shortening of the Achilles tendon
Differentiated from positional talipes equinovarus by ease at which full range can be attained and retained a week later

Assessment and Scoring (take foot to the end of available

Hind foot
- Posterior Crease (PC) – just above the calcaneous
- Empty Heel (EH) – fatty tissue in the heel
- Rigid Equinus (RE) – foot stiff in plantar flexion

Forefoot
- Medial Crease (MC) – on the medial part of the foot
- Lateral Head of Talus (LHT) – talus sticks out on the lateral side
- Lateral Border (LB) – convex position of the lateral part of the foot

Give each aspect a score according to the severity
1 = severe/very obvious; 0.5 = not as severe/obvious but still there
0 = normal
This score adds up to a total out of 6. Make sure that the baby’s foot/feet are scored every time they are treated so that improvements/relapses can be seen.

Follow up measures
Measure dorsiflexion range with a goniometer, ensuring that the calcaneus is abducted not adducted

TREATMENT
Manipulation and Casting started as early as possible after birth 7-10 days, but delayed treatment possible up to 4 years.
Serial weekly POP applications for +/- 6 weeks depending on severity
Correct in the right sequence of movements, aim for “over correction”
Head of Talus is the fulcrum, do stretches before applying cast
Casting: toes must be visible, leave end of roll bunched for mom to unwind

Tenotomy: Indications: if forefoot score is 0 cavus and varus corrected; less than 10 degrees dorsiflexion)
Tenotomy is done in 80% of cases. Immediately after tenotomy, last POP is applied for 3 weeks (or 2 weeks plus 2 weeks)

Bracing: After 4 weeks, POP is removed and foot abduction brace (FAB) is fitted
FAB worn 23 hours a day for 3 months. (NB check through hole in shoe to see that heel is down at the bottom of the shoe)
Thereafter, it’s worn when the child is sleeping only for up to 4 years
Remember that the child will need regular changes in shoes as the feet increase in size

Positional talipes: cast for 2 weeks then review and follow up 3 months later to check for recurrence (fold backslab for little feet that will be dorsiflexed, then complete cast by wrapping POP as per usual)

Older children: cast the lower leg in gypsona, then reinforce with delta-lite if available over the gypsona and all the way up the leg.
Zithulele Clubfoot Clinic days:

Weekly casting: Wednesdays

- **Early referral** from maternity ward to Therapy. please screen for associated pathologies (neurological, syndromic and teratologic)

- Initial session of **education** for the parent (video educational materials on maternity ward computers or Therapy computers)

- **Data sheet** completed in Clubfoot file with at least 2 phone numbers

ON ARRIVAL at Zithulele:

- Get **stamp**, go and **wait in Therapy**:  
- **Moms soak** babies' legs in casts in warm water with a little vinegar (moms may **not** remove casts at home). If a mom is happy, the pop saw can also be used.
- Moms wash off remaining POP and dry, **apply aqueous** cream to skin
- **Manipulation, stretches and casting** done by any two of the Ponseti trained staff who have done practice time
- Aim to keep at least one of the casters **consistent** throughout treatment
- Check for **adverse events** or skin reactions
- **Photograph** feet – with name date and time
- **Manipulation stretches** done on the foot/feet, then **casts** applied (warm water makes them harden faster)
- When the forefoot score is 0 they can be assessed for **Tenotomy**. These can be done at Zithulele by Dr Hendriks, Dr PA Mans, Dr Steenkamp
- **Cast** applied for 3 weeks after this. Book patient onto PTV for three weeks time NOW!
- Fit a boot and Follow up at Zithulele **monthly** thereafter
- After 4 months, follow up **3 monthly** at Zithulele

(Accelerated option, 2 casts a week, stay as inpatient?)

**AIMS:**

- Excellent education from the beginning – hopefully to improve follow up
- The parents meet each other and can support each other on follow up dates.
- The clinic can run in a way as to be able to follow up defaulters
- We try to have some consistency in the people casting
- We use the expertise that is available and participate in the busier BOH clinic on a Tuesday to improve on our skills
Scoring

The Total Score (TS)
This is the sum of the HS and MS and indicates the amount of deformity overall. Values can range from 0 (no deformity), to 6 (severe deformity).

The Hindfoot Score (HS)
The amount of hindfoot deformity is measured as the Hindfoot Score and is the sum of three signs (posterior crease, rigid equinus, and empty heel). Values can range from 0 (no deformity), to 3 (severe deformity).

Rigid Equinus (RE) Gently extend the ankle with the knee extended. The normal ankle extends at least 15 degrees beyond neutral and scores 0. With posterior contracture, ankle extension is limited. Extension only to neutral scores 0.5. Extension short of neutral scores 1.

Empty Heel (EH) Gently extend the ankle without hurting the child. Place a finger at the corner of the heel and feel the fat over the calcaneal tuberosity. The calcaneus is normally immediately palpable [score 0]. With posterior contracture, the calcaneus is drawn up and out of the heel pad, and the fat feels soft on palpation. A calcaneus that is palpable only deeply within the heel pad scores 0.5. A calcaneus that is not palpable scores 1.

Posterior Crease (PC) The normal posterior ankle skin shows multiple fine creases and scores 0. Deeper creases imply more posterior contracture. A posterior heel with one or two deeper creases scores 0.5. The presence of a single deep crease that changes the contour of the heel scores 1.

The Midfoot Score (MS)
The Midfoot Score measures midfoot deformity and is the sum of three signs (medial crease, curved lateral border, and lateral head of talus). Values can range from 0 or (no deformity), to 3 (severe deformity).

Curved lateral border (CLB) A normal foot has a straight lateral border and scores 0. Adductus causes a curved lateral border. A mild curve, where the lateral border curves at the metatarsals, scores 0.5. A lateral border that curves at the level of the calcaneo-cuboid joint scores 1.

Medial Crease (MC) A normal arch displays multiple fine skin 'lines and scores 0. Mild medial contracture causing one or two deeper creases that do not alter the arch's contour scores 0.5. A single deep crease indenting the arch's contour suggests severe medial/plantar contracture and scores 1.

Talar Head Palpability
None .0
Partial .5
Full 1

Lateral Head of Talus (LHT) Estimate the amount of uncovered talar head laterally [page 17, B] as an indicator of midfoot pathology. Hold the foot deformed and palpate the head of the talus with the thumb. Abduct the foot with the other hand. Note if the navicular reduces onto the head of the talus. Normally, abduction reduces the navicular completely to the talar head which is no longer palpable and scores 0. With medial contracture, the navicular does not fully cover over the talar head. A talar head that partially covers but remains somewhat palpable scores 0.5. A talar head that does not cover at all and remains easily palpable scores 1.
Tendinopathy Rehabilitation

The most commonly affected tendons include wrist flexors, extensors, rotator cuff, patellar and achilles.

1. Remove the cause (change in workout intensity, equipment, surface etc)
2. Reduce the pain through load reduction
3. Introduce isometric loads that reduce pain at early stages
4. Adapt training volume and resting period

** No meds or injectable treatment has been shown to alter tissue properties

<table>
<thead>
<tr>
<th>Isometric exercises</th>
<th>Eccentric training</th>
<th>Functional exercises</th>
<th>Energy storage and release - plyometrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-60 seconds, 4-5 times, 3 times per day</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Achilles Tendon Injuries

Distinguishing between differential diagnoses is vital - can’t miss a rupture
Site of pain & swelling with effective palpation NB to locate cause of injury

Common causes of Achilles pain & appropriate tests
1. Midportion vs insertional tendinopathy
   1. Alfredson’s heel drop (off edge step) (Ext knee=gastrocs, 45° flex=soleus)
2. Posterior impingement syndrome
   2. Prone- PFROM
3. Complete tendon rupture
   3. Prone – Calf squeeze test

Management ideas (consider other various options®)
1. Alfredson’s painful heel drop protocol
   Midportion- 3x15 repetitions, twice daily, 7 days/wk for 12 wks
   (Specifics: Start on toes & slowly lower heel over edge of step.
   Do exc with both knee ext & flexed @ 45° over edge step )
   Insertion- As above but only lower heel to ground level and not beyond. (↓tension stress at insertion but still gain benefits of eccentric loading.

2. Posterior impingement syndrome (ballet dancers, gymnasts, soccer)
   (impingement of posterior talus & post tibia in extremes PF)
   Rx: Relative rest with RICE & NSAIDS, symptom relief Manual mobs of subtalar, talocrural and midfoot joints, modified workload, intrinsic foot muscle training. You will also need to assess the biomechanics of the hip and knee joint. If the condition persists a corticosteroid injection can be considered.

3. Complete tendon rupture vs partial tendon tear
   First discuss with M.O.
   Ax & Dx: Ultrasound scan
   Calf squeeze test to confirm rupture

Conservative Mx vs Surgical Mx
Historically non-surgical mx was only considered in older patients or pts with low level activity. However, recent high quality studies have shown that both surgically and non-surgically treated pts received identical mobilization protocol, (Cast 2 weeks and then functional brace) there was no difference in patient reported outcome. Thus non-surgical Rx leads to high success rate, provided no re-rupture occurs and so is valid for all patients. (Brace availability affects this Rx plan.)
*Possible complication of surgery- ↑risk of severe scarring adhering to tendon & ↑ pain with ↓ ROM.
Mx post op/conservative:
Cast for 2-4 weeks in toe-down position (build up heel in cast not cast in PF)
- Mx swelling & pain (MRICE, NSAIDS)
- Active controlled Knee Rom & toes
- Mobilize with crutches NWB

4 weeks cast off/apply ankle hinge brace (heel built) or re-do cast (heel built up)
*If no available brace, weekly serial casting is an option although regular ↓AROM & depends largely on ability to attend regular visits. (D/W MO)
- FWB on operated leg provided bear weight through heel (Apply walking heel)
- Start to wean crutch use around 5-6 wks post op.
- Gentle, controlled active ankle ROM (take off brace or during weekly visits)

*Whether or not it was surgical or conservative
- Jogging 12-16w
- Non-contact sports 16-20w
- Contact sports 20-24w
Management of Acute ligament injuries of the knee

Grading acute ligament injuries

Grade 1 (mild) – few ligament fibres torn, stability maintained

Grade 2 (moderate) – partial rupture, increased laxity but no gross instability

Grade 3 (severe) – complete rupture, gross instability

(*Grade 3 are often extremely painful but can also be completely Pain-free as sensory fibres are completely divided in the injury.)

(In other settings grade 3 injuries are managed operatively, however here, there are limited surgical resources, meaning that the conservative option is all that is available. Having said this, please bear in mind those who are really high functioning, consider sending them to BOH for a consult with a good referral letter explaining why you think this person should be considered for precious theatre list space.)

**Grade 1 injuries** (These are managed symptomatically)

- Education on injury & recovery/healing process
- Control acute pain and inflammation (MRICE principle, NSAIDS & pain meds)
- Optional: Bandage- sensory feedback, additional support, compression element of MRICE
- Early active mobilization in pain-free ROM initially and then slowly regain FROM within first 2 weeks
- Once FROM achieved, start graded strengthening of surrounding muscles (Quads(VMO), Hams, gluts)
- 2-4 weeks post injury - Functional exercises & Balance & proprioceptive training eg: squats, single leg exercises.

**Grade 2 injuries** - As above PLUS:

- Provide stability with a long leg hinged knee brace if able for 6-12 weeks (Refer to BOH O&P)
- ROM limits: MCL and LCL (0-30°) ROM limit 0-4wks, for ACL flex limit of 120° for 6 wks
- Remove brace at night and to wash
- WB status; 0-4Wks NWB initially then move towards PWB (Respecting pain) – Issue 2x elb crutches
- 4Wks start FWB & Gait re-education
- Continue with strengthening, Functional exercises & balance and proprioceptive training.

**Grade 3 injuries** (These need to be stabilized immediately to prevent further joint damage.)

- Full Robert Jones compression bandage for 3 weeks (Layer thin cotton, layer crepe bandage X3)
- Long leg hinged brace for 6-9 months (if it breaks they must come get a new one!)

**EDUCATION NB:** the reasoning behind management to ensure compliance – 6 months is a LONG time!

As mentioned above, if pt is considered a **surgical candidate**, will need comprehensive referral and also good surrounding muscle strength before op, so ensure: FROM (particularly extension) , grd 4+/5 MP of LL’s

**NB**

- Consider the variations between management of ACL, PCL, MCL and LCL (General guide above)
- Examine carefully: the MCL is infrequently the only ligament with a grade 3, usually ACL as well.
Rheumatoid Arthritis

RA is diagnosed when at least four of the seven criteria are present: (American Rheumatoid Association criteria, 1987)

1. Morning stiffness (duration > 1 hour lasting > 6 weeks)
2. Arthritis of at least three areas (soft tissue swelling > 6 weeks)
3. Arthritis of hand joints (wrist, MP joints, PIPJs > 6 weeks)
4. Bilateral symmetrical arthritis (at least one area lasting > 6 weeks)
5. Rheumatic nodules
6. Serum rheumatoid factor or CCP (anti-cyclic citrullinated peptide)
   Make sure the patient has been sent for a Rheumatoid factor and ANA blood test, and has been diagnosed by a doctor (be aware of the other 20% who will not be positive).
7. Radiographic changes (erosions and osteopenia)
   An X-ray can be taken to observe changes of RA in the hand. The changes that are typical must include erosions decreased joint space or unequivocal bony decalcification.

If first contact and asking for bloods (at a clinic – just ask Nurse):
Ask Doctor or nurse to write up bloods in the following way:
ESR (black/Purple top), CRP (yellow top) FBC (purple top), RF (red/yellow top), U&E.

General clinical picture:
- Synovitis on the dorsum of the wrist. The wrist may be in radial deviation. In some cases volar subluxation may also be present.
- MPJ are in ulnar deviation. This may be combined with volar subluxation.
- PIPJ boutonniere and swan neck deformities may be present in the same hand.

Medical Management:
- Check the patient’s medical prescription to see if they have been prescribed slow acting anti-rheumatic drugs (SAARD)/ disease modifying anti-rheumatic drugs (DMARDS) e.g. Methotrexate (slows down disease process)
- Ensure (well considered!) good analgesia, possibly with Omeprazole or Lansoprazole for stomach protection
- These drugs can only be issued at the hospital as need to get Folate with it; need full blood count and LFT’s monitored regularly. (Regular MO consults are NB!)
- Book the patient for a Disability Grant so that he/she has the finances to come and fetch their medication every month (They can also send a relative to collect the drugs)

Precautions:
- The patient should not be on steroids long term.
- No alcohol intake whilst using these drugs.

Contra-indications: Pregnant woman cannot be on DMARDS/SAARDS
**Therapy Management**

- **Educate** the patient about RA diagnosis and prognosis (you may have to do this more than once)
- Educate the patient about **joint protection and energy conservation** during everyday activities (Pacing). Perhaps choose one activity to focus on first.

  PT to encourage patients to remain active and advise re-strengthening exercises and proper **body mechanics** while performing a task. Consider pacing techniques with intermittent/fluctuating pain.

  OT's to make assistive devices i.e. adapt utensils, keys, etc by building up the area the Pt grips, jar opener, bag carrier etc.

**Splinting:**

- OTs to make bilateral palmar resting **splints** and make/issue wrist extension splints/braces to protect and offer stability to joints to improve function.
- PIP flexion splints for swan neck deformities.
- A soft splint for correcting ulnar deviation of the MPJs is made in the early stages of the disease. This pattern and others can be found in the **HANDS AND PG’S** file.
Basic Respiratory Care Guidelines

Oxygen administration
Nasal Prongs 0-4 litres per minute = 0.22-0.44 FiO2 (humidify with a neb only)
Face mask 5-8 litres per minute = 0.3-0.6 FiO2
Rebreathe bag 5-15 litres per minute = 0.5 – 1 FiO2 (humidify with neb only)
Venturi masks 4-15 litres per minute = check amount on the little valves.

Indications for suction
Inability to expectorate sputum/saliva/aspirate from the back of the mouth/throat, the presence of which is causing an obstruction or discomfort
This is most likely to be in the event of a lowered level of consciousness.
( Please be aware of the “death rattle”, which alone is not a reason for suction if the patient is not distressed)
Try first with a Yankaur (get it from Pharmacy) and if on auscultation there is no improvement, suction with an oral airway, KY jelly and suction catheter.

ICD management
Education re care of ICD bottle
Ideally, ambulant exercise, or exercise bike, plus PEP bottle for improving expansion
Thoracic mobility exercises and education on NB of symmetrical posture
UL ROM exercises

Bronchopleural fistulas
No PEP, and minimal Positive Airway pressure activities.
Education about ICD, and posture, ROM UL exs and maintain exercise tolerance.
Reassure the patient.

Induced sputums
Best practice is a hypertonic (3%) saline neb outside without physio! If they still struggle after that, we can chat!

Vital Signs at Various Ages

<table>
<thead>
<tr>
<th>Age</th>
<th>Heart Rate (beats/min)</th>
<th>Blood Pressure (mm Hg)</th>
<th>Respiratory Rate (breaths/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premature</td>
<td>120-170 *</td>
<td>55-75/35-45†</td>
<td>40-70‡</td>
</tr>
<tr>
<td>0-3 mo</td>
<td>100-150 *</td>
<td>65-85/45-55</td>
<td>35-55</td>
</tr>
<tr>
<td>3-6 mo</td>
<td>90-120</td>
<td>70-90/50-65</td>
<td>30-45</td>
</tr>
<tr>
<td>6-12 mo</td>
<td>80-120</td>
<td>80-100/55-65</td>
<td>25-40</td>
</tr>
<tr>
<td>1-3 yr</td>
<td>70-110</td>
<td>90-105/55-70</td>
<td>20-30</td>
</tr>
<tr>
<td>3-6 yr</td>
<td>65-110</td>
<td>95-110/60-75</td>
<td>20-25</td>
</tr>
<tr>
<td>6-12 yr</td>
<td>60-95</td>
<td>100-120/60/75</td>
<td>14/22</td>
</tr>
<tr>
<td>12 * yr</td>
<td>55-85</td>
<td>110-135/65/85</td>
<td>12-18</td>
</tr>
</tbody>
</table>

Signs of respiratory distress in a child:
Increased breathing rate; Increased heart rate; Colour changes (bluish colour around the mouth/lips/fingernails; skin may also appear pale or gray; Grunting; Nose flaring; Retractions (chest appears to sink in just below the neck and/or under the breastbone with each breath); Sweating; Wheezing; Stridor; Accessory muscle use; Changes in alertness
How to do an Induced Sputum

Contraindications
- Extreme shortness of breath
- Pleural effusions (increased risk of worsening effusion and pneumothorax)
- Hypoxia (SaO2 < 90% on room air)
- Recent eye surgery
- Pulmonary oedema
- Lung function impairment (FEV1 <1.0)
- Thoracic, abdominal or cerebral aneurysms
- Coughing red blood
- Severe bronchospasm
- Unstable cardiovascular status (arrhythmias, angina
- Fractured ribs or other chest trauma
- Untreated pneumothorax
- Acute respiratory distress
- Platelets <25
- Pulmonary emboli

Prepare outside area (or area with negative ventilation)
Power Cable, Ultrasonic nebulizer (Ultrasonic is ideal, but standard neb if no ultrasonic), with sterile water to fill it to between the min/max line, 3% hypertonic saline into the top cup section (3% is as effective as 5% which is more readily available at Zle), mask for person assisting, and surgical mask for patient for afterwards, two sputum containers and a cup of water.

Explain to the patient what will happen. (having a drink, cleaning out their mouth, the steaming nebulizer not being hot, it tasting salty, carrying on for at least 15 minutes, and the fact that it will be very irritating and make them cough)

Put on your mask

Give the patient a drink of water. They can then rinse their mouth out and gargle.
They will then take 4 puffs of salbutamol through the spacer
They need to cough any available sputum into the first (throw away) container.

Turn on the nebulizer – administer 5-10 ml of hypertonic saline (3% is actually fine but we have 5 %)
The nebulizer will start to steam, reassure the patient that it is not hot. They should breathe at a normal rate nice and deeply through their mouths for ten minutes. It will taste very salty.
When the patient coughs, stop the nebulizer while they expectorate into the second sputum container.
The patient will probably start to cough spontaneously, if they don’t encourage them to huff three times followed by a cough

Ensure you continue for ten minutes at least– in this time they can continue to spit into the second sputum container which is the one that will be sent for analysis, they can continue for 15 minutes if you are not succeeding.

After the nebulizer is finished, ensure that the patient wears a surgical mask to stop any spread as the keep coughing after the event.

STOP the induced sputum if:
Patient becomes distressed or short of breath
Bronchospasm (patient tells you that they feel like their chest is closing)
Patient becomes breathless or measured SpO2 drops below 92%
Patient feels light headed or nauseas

Produced by Zithulele Physiotherapy Department 2015
Zithulele Respiratory Outcome Measure 2012

This outcome measure is to be used for those ‘oxygen dependent’ COPD patients whose main complaint is shortness of breath on exertion i.e. getting out of bed, walking. It is a measure of their anxiety and exercise tolerance.

NB This has 2 sections: 1) Anxiety Measure (20) 2) a distance measure

Section 1) Anxiety measure

1) How anxious do you become when you are short of breath?

<table>
<thead>
<tr>
<th>NOT AT ALL</th>
<th>A LITTLE</th>
<th>FAIRLY</th>
<th>VERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

2) How confident are you in your strategies to coping with your shortness of breath (strategies i.e. breathless positions, relaxation techniques, use of inhaler etc)?

<table>
<thead>
<tr>
<th>NOT AT ALL</th>
<th>A LITTLE</th>
<th>FAIRLY</th>
<th>VERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

3) How anxious do you become without your inhaler nearby?

<table>
<thead>
<tr>
<th>NOT AT ALL/ N/A</th>
<th>A LITTLE</th>
<th>FAIRLY</th>
<th>VERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

4) How anxious do you become when thinking of walking 100m?

<table>
<thead>
<tr>
<th>NOT AT ALL</th>
<th>A LITTLE</th>
<th>FAIRLY</th>
<th>VERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

5) If I tell you that we are going to walk for 3 minutes to test your endurance, how anxious do you become?

<table>
<thead>
<tr>
<th>NOT AT ALL</th>
<th>A LITTLE</th>
<th>FAIRLY</th>
<th>VERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Total: 20, 5 = least anxious, 20 = very anxious

Section 2) KOURIE 3MWT

General Information:
- Individual walks without physical assistance for 3 minutes over a 20m distance is measured
- Start timing when the individual is instructed to “Go”, stop timing at 3 minutes
- Assistive devices can be used but should be kept consistent
- Document date and distance covered from test to test (write in patient’s card)
- If physical assistance is required to walk, this test should not be performed
- The test should be performed at the fastest speed possible

Patient Instructions:
“Cover as much ground as possible over 3 minutes. Walk continuously if possible, but do not be concerned if you need to slow down or stop to rest. The goal is to feel at the end of the test that more ground could not have been covered in the 3 minutes.”

FINAL PATIENT SCORE: an anxiety score /20, and a distance written in meters
A Good Basic Neurological assessment

Subjective History
Take note of Emotional state, level of motivation, level of communication, level of cognition, level of pain (VAS)
Hobbies/ likes/ dislikes (to incorporate in functional rehab activities)

Posture
Anything to note: pusher/ hemi-neglect/ subluxed shoulder

Tone
OM: Modified Ashworth Scale
*Precaution: avoid tone assessment on subluxed hemi-shoulder

Sensation
Score out of 6: Light touch (cotton wool). Pin prick
*Remember to ask about cauda equine sx and cord signs.

Proprioception
Score out of 6: Up/ Down/ Middle

Reflexes
Score out of 6

| C5-6 Biceps | L3-4 Knee |
| C5-6 Brachioradialis | S1-2 Ankle |
| C7-8 Triceps |

Clonus
Sudden, sustained DF to ankle. Positive: More than 3 rhythmic contractions

Babinski
Pressure with pen along lat border of foot. Positive: Big toe extension with or without fanning of the other toes.

Hoffman

Motor control
OM: A functional grading scale:

| None | No initiation of movement. No flicker of muscle activity |
| Poor | Flicker of muscle activity but minimal to no movement (isometric) |
| Fair | Movement through some joint range but not equal to movement on the unaffected side or full passive range |
| Good | Range of movement is equal to that of the unaffected side or full passive range. |

*Do not apply resistance when assessing a limb with altered tone

Bed mobility
Rolling to sides, bridging, supine to sitting (OM: COVS, Motor Assessment Scale.)
Balance
Sitting (Static, Dynamic) (OM: Berg Balance Scale/ Functional Reach Test)
Standing (Static, Dynamic) (OM: Rhomberg’s test, Berg Balance Scale, Functional reach test)

Visual field assessment
- Visual field
- Smooth pursuit
- Gaze stability
- Conversions
- Saccadic eye movements
*Star cancellation test for hemi-neglect

Coordination
Finger to nose: Missing finger or intention tremor = possible cerebellar dysfunction.
Heel to shin: Inability to keep heel on shin or uncoordinated movement = possible cerebellar dysfunction.
Dysdiadochokinesia: Alternating palm and back of hand on thigh. Unable = possible cerebellar dysfunction

Functional Mobility
Transfer, Sit to stand, Gait (OM: COVS Dynamic gait index, STS Test, Mini-BESTest, Timed 10-meter walk test)

Level of self-care
- Eating
- Dressing
- Batting & grooming
- Toileting (bladder and bowel)
(OM: ADL questionnaire)

Patient’s Goals
Expectations and goal setting

Table 2: The Modified Ashworth Scale (Bohannon and Smith, 1987)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No increase in muscle tone</td>
</tr>
<tr>
<td>1</td>
<td>Slight increase in muscle tone, manifested by a catch and release or by minimal resistance at the end of the ROM when the affected part(s) is moved in flexion or in extension</td>
</tr>
<tr>
<td>1+</td>
<td>Slight increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the reminder (less than half) of the ROM</td>
</tr>
<tr>
<td>2</td>
<td>More marked increase in muscle tone throughout most of the ROM, but affected part(s) easily moved</td>
</tr>
<tr>
<td>3</td>
<td>Considerable increase in muscle tone, passive movement is difficult</td>
</tr>
<tr>
<td>4</td>
<td>Affected part(s) rigid in flexion or extension</td>
</tr>
</tbody>
</table>

Upper motor neuron lesion vs lower motor neuron lesion

<table>
<thead>
<tr>
<th></th>
<th>Upper</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle tone</td>
<td>Increased</td>
<td>Decreased</td>
</tr>
<tr>
<td>Clonus</td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Muscle fasciculation</td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Tendon reflexes</td>
<td>Increased</td>
<td>Depressed or absent</td>
</tr>
<tr>
<td>Plantar response</td>
<td>Abnormal = Babinski</td>
<td>Normal = flexion</td>
</tr>
<tr>
<td>Distribution</td>
<td>Extensor weakness in UL</td>
<td>Weakness of muscle groups innervated by affected spinal segment/root, plexus or peripheral nerve</td>
</tr>
<tr>
<td></td>
<td>Flexor weakness in LL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Whole limbs involved</td>
<td></td>
</tr>
</tbody>
</table>
# Glasgow Coma Scale (GCS)

<table>
<thead>
<tr>
<th>BEST MOTOR RESPONSE</th>
<th>BEST VERBAL RESPONSE</th>
<th>BEST EYE RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply varied painful stimulus: trapezius squeeze, earlobe pinch, supraorbital pressure, sternal rub, nail-bed pressure etc:</td>
<td>Record best level of speech. If patient is intubated, a &quot;derived verbal score&quot; is calculated via a linear regression prediction.</td>
<td></td>
</tr>
<tr>
<td>1 No response to pain</td>
<td>No verbal response.</td>
<td>No eye opening</td>
</tr>
<tr>
<td>2 Extensor posturing to pain: The stimulus causes limb extension (abduction, internal rotation of shoulder, pronation of forearm, wrist extension) - decerebrate posture</td>
<td>Incomprehensible speech: Moaning but no words. Infant: Inconsolable, agitated.</td>
<td>Opening to response to pain (pain stimuli not applied to face)</td>
</tr>
<tr>
<td>3 Abnormal flexor response to pain: Stimulus causes abnormal flexion of limbs (adduction of arm, internal rotation of shoulder, pronation of forearm, wrist flexion) - decorticate posture</td>
<td>Inappropriate speech: Random or exclamatory articulated speech, but no conversational exchange. Infant: Inconsistently inconsolable, moaning.</td>
<td>Eye opening in response any speech (or shout, not necessarily request to open eyes)</td>
</tr>
<tr>
<td>5 Localizing response to pain: Purposeful movements towards changing painful stimuli is a 'localizing' response. Infant: withdraws from touch</td>
<td>Orientated: Patient 'knows who he is, where he is and why, the year, season, and month. Infant: Smiles, orientated to sounds, follows objects, interacts.</td>
<td></td>
</tr>
<tr>
<td>6 Obeying command: The patient does simple things you ask (beware of accepting a grasp reflex in this category). Infant: moves spontaneously or purposefully</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Rancho Los Amigos Levels of Cognitive Functioning
(for patients with Brain Injuries)

<table>
<thead>
<tr>
<th>Level</th>
<th>Response</th>
<th>Description</th>
<th>Basic Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>None</td>
<td>Patient does not respond to external stimuli and appears asleep</td>
<td>Positioning, passive ROM, Sensory stimulation, increase level of arousal</td>
</tr>
<tr>
<td>2</td>
<td>Generalized</td>
<td>Patient reacts to external stimuli in nonspecific, inconsistent, and non-purposeful manner with stereotypic and limited responses</td>
<td>Positioning, passive ROM, Sensory stimulation, increase level of arousal, focusing activity, orientation to person, focussed attention</td>
</tr>
<tr>
<td>3</td>
<td>Localised</td>
<td>Patient responds specifically and inconsistently with delays to stimuli, but may follow simple commands for motor action</td>
<td>Sensory stim, orientation to person, others and time, communication (yes/no), facilitated active movement, incorporate family members, familiarity and consistency NB!! follow instructions, focussed attention, memory, basic concepts</td>
</tr>
<tr>
<td>4</td>
<td>Confused, agitated</td>
<td>Patient exhibits bizarre, non-purposeful, incoherent or inappropriate behaviours, has no short-term recall, attention is short and non-selective</td>
<td>Constant environment, comfortable, routine, supervision, recognition, ADL, precautions, education, memory, attention, communication, orientation</td>
</tr>
<tr>
<td>5</td>
<td>Confused, inappropriate, non-agitated</td>
<td>Patient gives random, fragmented, and non-purposeful responses to complex and unstructured stimuli; Simple commands are followed consistently, memory and selective attention are impaired, and new information is not retained</td>
<td>Remove restraints, functional activity – appropriately orientated to client, routine, reality orientation, facilitate verbal communication and basic understanding, attention (all levels), memory, self-care, orientation to place</td>
</tr>
<tr>
<td>6</td>
<td>Confused, appropriate</td>
<td>Patient gives context appropriate, goal-directed responses, dependent upon external input for direction; there is carry-over for relearned, but not for new tasks, and recent memory problems persist</td>
<td>Facilitate communication, basic insight, functional activity, orientation to place, sustained attention, facilitate responsibility, basic communication</td>
</tr>
<tr>
<td>7</td>
<td>Automatic, appropriate</td>
<td>Patient behaves appropriately in familiar settings, performs daily routines automatically, and shows carry-over for new learning at lower than normal rates; patient initiates social interactions, but judgement remains impaired</td>
<td>Consolidate basics, timetable, facilitate individuality and flexibility, insight, judgement, social skills, leisure activities, responsibility in ward, memory, sustained attention, thought processes (logic), impulse control</td>
</tr>
<tr>
<td>8</td>
<td>Purposeful, appropriate</td>
<td>Patient orientated and responds to the environment but abstract reasoning abilities are decreased relative to premorbid functioning</td>
<td>Carry-over of skills into daily life, reintegration into society, structures set up at home, may be able to return to work, higher grade skills, stress management, problem solving, general functioning of patient in daily life</td>
</tr>
</tbody>
</table>
## Spinal Cord Injuries Classification

**Complete SCI:** Complete loss of sensation and motor function below level of injury.

**Incomplete SCI:** Preservation of sensory or motor function below the level of the injury

<table>
<thead>
<tr>
<th>Incomplete</th>
<th>Description</th>
<th>Visual</th>
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</thead>
<tbody>
<tr>
<td>Brown Sequard Syndrome</td>
<td>MOI&lt;br&gt;• Complete hemi-transection, penetrating trauma&lt;br&gt;• Often due to stab injuries or gunshot</td>
<td><img src="image1" alt="Injury to one half of the spinal cord more than the other half." /></td>
</tr>
<tr>
<td></td>
<td><strong>Presentation</strong>&lt;br&gt;On same side as injury&lt;br&gt;<strong>Loss of:</strong>&lt;br&gt;• Motor function at and below the level of the lesion.&lt;br&gt;• Proprioception&lt;br&gt;• Vibratory sensation&lt;br&gt;• Deep touch</td>
<td><img src="image2" alt="Area of cord damage" /></td>
</tr>
<tr>
<td></td>
<td><strong>On opposite side to injury:</strong>&lt;br&gt;<strong>Loss of:</strong>&lt;br&gt;• Pain&lt;br&gt;• Temperature&lt;br&gt;• Light touch</td>
<td><img src="image3" alt="Loss of motor function" /></td>
</tr>
<tr>
<td></td>
<td><strong>Prognosis</strong>&lt;br&gt;• Excellent prognosis&lt;br&gt;• 99% ambulatory at final follow up&lt;br&gt;• Best prognosis for function motor activity</td>
<td><img src="image4" alt="Incomplete loss of motor function" /></td>
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<thead>
<tr>
<th>Incomplete</th>
<th>Description</th>
<th>Visual</th>
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<tbody>
<tr>
<td>Central Cord Syndrome</td>
<td>MOI&lt;br&gt;• Hyperextension injury&lt;br&gt;• Individual usually has an underlying cervical spondylosis.&lt;br&gt;• There is compression of the cord in the already narrowed spinal canal.&lt;br&gt;• Falls in elderly with pre-existing spondylosis/stenosis/osteophytes&lt;br&gt;• May also occur with low velocity injuries&lt;br&gt;• May occur with or without fracture and dislocations</td>
<td><img src="image5" alt="Most common incomplete syndrome" /></td>
</tr>
<tr>
<td></td>
<td><strong>Presentation</strong>&lt;br&gt;• Motor loss in ULs&gt; LLs&lt;br&gt;• Hands have more pronounced deficit than arms&lt;br&gt;• Burning in distal upper extremity&lt;br&gt;• At level of injury: LMN signs= UL: weak, clumsy.&lt;br&gt;• Below level of injury: UMN spasticity= LL spastic&lt;br&gt;• Sacral sparing</td>
<td><img src="image6" alt="Recovery occurs in typical pattern" /></td>
</tr>
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<td></td>
<td><strong>Prognosis</strong>&lt;br&gt;• Substantial recovery starting in the lower limbs.&lt;br&gt;• Good prognosis although full functional recovery rare&lt;br&gt;• Usually ambulatory at final follow up&lt;br&gt;• Usually regain bladder control&lt;br&gt;• Upper extremity and hand recovery is unpredictable and patients often have permanent clumsy hands</td>
<td><img src="image7" alt="Worst prognosis of incomplete SCI" /></td>
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<thead>
<tr>
<th>Incomplete</th>
<th>Description</th>
<th>Visual</th>
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<tbody>
<tr>
<td>Anterior Cord Syndrome</td>
<td>MOI&lt;br&gt;• Flexion injuries/ compression injuries&lt;br&gt;• Vascular injury or occlusion of the anterior spinal artery</td>
<td><img src="image8" alt="Worst prognosis of incomplete SCI" /></td>
</tr>
<tr>
<td>Presentation</td>
<td>MOI</td>
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<td>--------------------------------------------------</td>
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<tr>
<td>At the level of injury and below:</td>
<td>Hyperextension injury</td>
<td></td>
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<tr>
<td>Loss of:</td>
<td></td>
<td></td>
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<tr>
<td>• Motor function</td>
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<td>• Temperature</td>
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<tr>
<td>• Pain</td>
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<td></td>
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<tr>
<td>Preservation of:</td>
<td></td>
<td></td>
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<tr>
<td>Proprioception and vibratory sense</td>
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<tr>
<td><strong>Prognosis</strong></td>
<td><strong>Very Rare</strong></td>
<td></td>
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<tr>
<td>• Poor prognosis for recovery</td>
<td></td>
<td></td>
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<tr>
<td>• Most likely to mimic complete cord injury</td>
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<td></td>
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<tr>
<td>(10-20% chance of motor recovery)</td>
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| Posterior Cord Syndrome                         |                          |
| Presentation                                     | Below the level of the lesion, Loss of: |
| • Proprioception                                 |                           |
| • Vibration sense                                |                           |
| • Deep touch                                     |                           |
| • Preservation of:                               |                           |
| • Motor function                                 |                           |
| • Pain                                           |                           |
| • Temperature                                    |                           |
| • Light touch                                    |                           |

| Cauda equine syndrome                            |                           |
| Presentation                                     | Compression of spinal cord/ nerve roots arising from L1-L5 |
| • Lx disc prolapse                               | Epidural abscess          |
| • Spinal epidural haematoma                       | Diskitis                  |
| • Spinal stenosis                                 | Tumour                    |
| • Fracture                                       |                           |
| **Prognosis**                                    | **Rare**                  |
| • Requires urgent surgical intervention to relieve pressure |                           |
| • Delayed intervention can result in permanency of sx (e.g. paralysis). |                           |
| • Red Flag: Acute back pain &/or leg pain with suggestion of a disturbance of bladder or bowel function and/or saddle anaesthesia | suspect cauda equine syndrome |

* Where a patient reports bilateral leg pain, signs of upper motor neuron involvement should be examined (babinski and clonus).
## Functional Implications of SCI

<table>
<thead>
<tr>
<th>Level</th>
<th>Motor function available</th>
<th>Functional Implication</th>
<th>Care &amp; assistive devices needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 – C3</td>
<td>• Sternocleidomastoid&lt;br&gt;• Paraspinal Muscles&lt;br&gt;• Accessory muscles</td>
<td>• Breathing: Dependent on a ventilator, unable to clear secretions.&lt;br&gt;• Physical dependence for personal care and ADLs&lt;br&gt;• Physical dependence for mobility and pressure care&lt;br&gt;• Able to operate an electric wheelchair with head/chin control&lt;br&gt;• Able to communicate (writing) through assistive technology</td>
<td>• 24 hours of care needed.&lt;br&gt;• Motorised wheelchairs with chin control&lt;br&gt;• Orthotics and splints to maintain ROM&lt;br&gt;• Hoist&lt;br&gt;• Pressure care mattress&lt;br&gt;• Mouth stick and assistive communication technology (touch screen phones and tablets)</td>
</tr>
<tr>
<td>C4</td>
<td><strong>Neck Muscles:</strong>&lt;br&gt;• Upper Trapezius&lt;br&gt;<strong>Respiratory muscles:</strong>&lt;br&gt;• Diaphragm</td>
<td>• Breathing: Independent breathing (low endurance may require assistance to clear secretions)&lt;br&gt;• Independently steer a power wheelchair (head or chin)&lt;br&gt;• Communication (verbal, mouth stick, high tech computer)</td>
<td>• Same as C1-3</td>
</tr>
<tr>
<td>C5</td>
<td><strong>Shoulder Muscles:</strong>&lt;br&gt;• Deltoid&lt;br&gt;<strong>Elbow muscles:</strong>&lt;br&gt;• Biceps&lt;br&gt;• Brachialis&lt;br&gt;• Brachioradialis</td>
<td>• Breathing: May need assistance to clear secretions.&lt;br&gt;• Bed mobility (Can assist)&lt;br&gt;• Pressure care (independent with equipment)&lt;br&gt;• Eating (independent with equipment)&lt;br&gt;• Upper limb dressing (can assist)&lt;br&gt;• Dependent in transfers&lt;br&gt;• Wheelchair mobility (independent in power chair with hand controls)&lt;br&gt;• Communication (independent with equipment)</td>
<td>• 10H (personal) + 6H (home care)&lt;br&gt;• Wrist extension splint and universal cuffs for all self-care activities (tooth brush, spoon, hair brush ect)&lt;br&gt;• Motorised wheelchair with hand controls.</td>
</tr>
<tr>
<td>C6</td>
<td><strong>Shoulder Muscles:</strong>&lt;br&gt;• Pectoralis major&lt;br&gt;• Latissimus dorsi&lt;br&gt;• Serratus Anterior&lt;br&gt;<strong>Wrist muscles:</strong>&lt;br&gt;• Extensor carpi radialis&lt;br&gt;• Longus + Brewis</td>
<td>• Bed mobility (Can assist)&lt;br&gt;• Pressure care (independent with equipment)&lt;br&gt;• Eating (independent with equipment/ without equipment)&lt;br&gt;** NB! Tenodesis! **&lt;br&gt;• Upper limb dressing + bathing (independent)&lt;br&gt;• Lower limb dressing + bathing (can assist)&lt;br&gt;• Grooming (independent with equipment)&lt;br&gt;• Wheelchair mobility (power-independent, manual independent indoors)&lt;br&gt;• Transportation (Independent driving from wheelchair)&lt;br&gt;• Homemaking (assist with light meals)</td>
<td>• 6H (personal) + 4H (home care)&lt;br&gt;• Tenodesis splint&lt;br&gt;• Built up grips on self care items.&lt;br&gt;• Transfer board&lt;br&gt;• Adapted vehicle</td>
</tr>
<tr>
<td>Level</td>
<td>Muscles</td>
<td>Functional Implications</td>
<td></td>
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<td>---------</td>
<td>-------------------------</td>
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</tbody>
</table>
| C7    | **Shoulder Muscles:**  
  • Triceps  
  **Wrist muscles:**  
  • Wrist flexors  
  • Long finger flexors  
  * Functional strength in triceps | • Breathing: Independent breathing (low endurance, assistance to clear secretions).  
  • Bladder + Bowel (independent to some assist)  
  • Bed mobility + uneven transfers (car transfers etc)  
  • Pressure care  
  • Eating + grooming  
  • Lower limb dressing + bathing (with devices)  
  • Wheelchair mobility (manual indoors + outdoors)  
  • Transportation (Independent driving with hand controls, cant load and unload W/C yet)  
  • Homemaking (can do light tasks) | • 6H (personal) + 4H (home care)  
  • Catheters  
  • Commode  
  • Ramps, bathrooms and home adaptations  
  • Long handled sponges, tongs and reachers |
| C8    | **Hand muscles:**  
  • Fingers flexors  
  • Thumb abductor + extensor + flexor + lumbricals | • Same as above, but with better hand function and greater dexterity.  
  • Independent in bladder and bowel program | • 6H (personal) + 4H (home care) |
| T1-T12 | **Trunk Muscles:**  
  • Upper intercostal  
  • Thoracic extensors  
  **T7-T12: Trunk muscles:**  
  • Lower intercostal  
  • Lumbar extensors  
  • Abdominals | • Breathing: Independent breathing (compromised endurance T1-T10)  
  • Full function of upper limbs and hands means physical independence for personal care and ADLs  
  • Able to lift transfer independently (Can do advanced transfers more easily with abdominals intact)  
  • May struggle with poor trunk stability (T1-T6)  
  • Independent with manual wheelchair and W/C skills  
  • Able to drive with hand controls (and load and unload W/C)  
  • Able to live independently (only needs assistance with heavy duties). | • Homemaking 2-3H  
  • Active light weight chairs.  
  • Adapted cars  
  • Home adjustments (e.g. ramps, everything lowered in kitchen) |
| L1-S2 | **Lower Limb Muscles:**  
  **L1/2:** Hip flexors  
  **L3:** Knee extensors  
  **L4:** Ankle dorsiflexors  
  **L5:** Long toe extensors  
  **S1/2:** Ankle Plantarflexors | • Independent for personal care and ADLs  
  • Able to lift transfer independently with potential to stand transfer  
  • Independent with manual wheelchair with potential to be able to ambulate with the aid of lower limb orthoses (such as calipers or AFOs) and a walking aid  
  • Able to drive with/without hand controls  
  • Able to live independently  
  • S1/S2: impairments with bowel and bladder functioning, and sexual functioning. | • L1/2: Calipers  
  • L3-L5: Ankle foot orthosis, crutches  
  • Catheters etc for bladder and bowel program.  
  • Assistive devices for sexual functioning. |
HELPING A PERSON WITH A SPINAL INJURY

Have you done all of these things?

☑ RESPIRATORY CARE
  o Can they cough? got a PEEP bottle
  o Has training been done on assisted coughing?

☑ AUTONOMIC DYSREFLEXIA
  o Have they been educated on symptoms & what to do?

☑ PRESSURE RELIEF
  o Have they been trained on pressure relief techniques?

☑ SKIN/PRESSURE CARE
  o Turning sheet/form must be taped to bedside table
  o Sign for above bed
  o Record all current pressure areas clearly in file

☑ BLADDER CARE
  o What type of catheter?
  o Can they intermittently catheterize?

☑ BOWEL CARE
  o Stool chart
  o Started on drug regime to create predictable routine

☑ PASSIVE MOVEMENTS
  o Regularly, every day
  o Train patient to do own passives where possible

☑ FAMILY INVOLVEMENT
  o Family meeting to help family understand diagnosis & prognosis
  o Identification of caregiver where necessary
  o Training and education of family and/or caregiver

☑ ASSISTIVE DEVICES
  o Have you assessed the patient for the most appropriate wheelchair
  o Issue and practice using other assistive devices

☑ ORTHOTICS
  o Does the patient need any splints, AFO’s ect to maintain ROM or improve function?

☑ ADL’S AND INDEPENDENT LIVING
☑ WHEELCHAIR MOBILITY
☑ WORK PLACE ISSUES

Produced by Zithulele Rehabilitation August 2008 updated Nov 2020
Bladder Care for the Person with a Spinal Cord Injury

Urinary complications are one of the main causes of death in SCI people!
• S2-S4 nerve roots control bladder function, so almost all people with SCI will need bladder management.
• T12 and above will most likely have a reflex/spastic bladder:
  (The reflex bladder empties itself once it has filled)
• Below T12 will have an acontractile/flaccid bladder
  (it doesn’t contract when full, and may just dribble urine out once full)

Management Aims:
1) Avoid infection
2) allow bladder to hold a decent volume of urine (especially NB for those with indwelling catheters)
3) expel urine completely at least once every 3-4 hours
4) Avoid getting AUTONOMIC DYSREFLEXIA which can be LIFE THREATENING (this is especially likely for those with T6 lesions or higher)

A full bladder can make you feel any of the following: backache, abdominal fullness, headache, sweating, and goosebumps.

Reflex bladders: People with reflexive bladders/ spastic bladders have a few options for bladder management. The bladder may reflexively empty itself once full (see reflex voiding below), it is important to ensure that the bladder empties itself out properly. This can be checked by doing an ultrasound or inserting a catheter after the patient has voided their bladder. If they have any residual urine left in their bladder they need to do intermitted catheterization to empty the bladder.

If the bladder does void completely the patient can make use of a bed pan/commode/toilet if it is sensed/controlled, if not you can try stimulating the bladders voiding. Stimulation of voiding can be induced by tapping above the pubic bone; stimulation of the skin around the perineum; or pulling on pubic hair. It is preferable not to push on the bladder as this may make urine reflux to the kidneys.

Males with reflex bladders that void completely can use a condom catheter (avoid long term indwelling if possible). This should be removed for 2 hours in 24 and the penis washed. Women can have an indwelling Foley's catheter. Those needing indwelling catheters should have a tap that allows them to stop the flow through the catheter and allow the bladder to hold a certain volume (indwelling catheters should be changed every 4-6 weeks. However often intermittent catheterization is still the chosen method of bladder management even if the bladder voids completely, especially if your bladder has good capacity.

Those with flaccid bladders, which would otherwise fill to capacity and then leak, can intermittently catheterize with a soft catheter 3-4 hourly (male and female). Use the smallest size catheter possible to avoid damage to the urethra, use KY jelly. Catheter can be used for up to one week, store dry after washing in Milton/jik solution.

Drink at least 3 litres of water a day, and if possible take vitamin C tablets to keep the urine acidic, avoid milk and cheese which increase the risk of bladder stones. Keep an eye on the colour and consistency of the urine to be alert for signs of infection

CONTROLLED INTERMITTENT CATHETERISATION (CIC)
Renal failure is a common cause of death for spinal cord injured individuals, but is almost completely preventable with good bladder management. When the bladder cannot empty normally (patient describes it as “blocked” or reports only a little urine), back-up in the urinary system puts strain on the kidneys, ultimately causing failure. Added risks include infections, overflow and kidney stones.
It is IMPERATIVE that urine management is addressed with ALL spinal cord injured patients.
What is CIC?
Emptying the bladder routinely every 4-6 hours using a catheter, which is inserted only to drain urine, and then is removed again.

Who is a candidate? Anyone who cannot empty bladder normally, who also has good cognitive and hand function (para’s ideal). It is infinitely preferable to wandering around permanently with an indwelling catheter – both for social and medical reasons. Indwelling catheters are high infection risks, and tugging on the catheter during transfers etc. can cause trauma to the urethra, leading to strictures.

CIC allows the individual to use a toilet like anyone else, and the catheter can easily be taken along in the pocket when he/she goes out.

Avoid using CIC in the following situations:
- Inability to catheterize themselves.
- A caregiver who is unwilling to perform catheterization.
- Abnormal urethral anatomy, such as stricture, false passages, and bladder neck obstruction.
- Bladder capacity less than 200 ml.
- Poor cognition, little motivation, or inability or unwillingness to adhere to the catheterization time schedule.
- High fluid intake regimen.
- Adverse reaction to passing a catheter into the genital area multiple times a day.
- Tendency to develop autonomic dysreflexia with bladder filling despite treatment.

HOW TO DO CIC

Preparation
- Needed: Foleys catheter (size 14/16/18) – ideally ***[silicone/soft tipped]
- Gloves (although hand-washing is sufficient at home)
- Clean water and cloth
- KY jelly/Remacaine (latter is anaesthetizing – good but only if pt has sensation)
- Bedpan/bucket

To remove indwelling catheter
- Check side of catheter near outlets for volume of balloon – usually 5ml
- Attach syringe driver to the extra outlet and suction air/water used to fill balloon (NB urethral trauma due to catheters is mainly caused by the balloon rather than the tube itself)
- Withdraw catheter and dispose of it.
- Wash hands
- Wipe tip of penis clean with cloth and water

Insertion
- Open catheter packaging (save this for storage)
- Squirt KY jelly/Remacaine onto insertion tip of catheter and spread along the end 5cm or so
- For men: hold penis up and insert catheter, sliding it in as far as possible (remember the urethra in men is long – ideally insert catheter all the way to the hilt). Pull penis straight and upwards to aid insertion. Ensure other end of catheter is positioned over bedpan/bucket as urine will start to drain as soon as catheter reaches bladder
- For women: more challenging. A brief anatomy lesson about the urine pipe and where to find it, and some practice, preferably with a mirror, needed. The female urethra is only 10cm long, so catheter does not need to be inserted as far.
- Drain bladder completely (should require just leaving the catheter in until no more urine is coming out).
- Slide catheter out, and wash with clean water or a diluted jik solution. Wrap in packaging and store – the same catheter can be used for 2-3 weeks, or until it starts to look grotty. The patient begins to do this 4-hrly, although he will get to know how full the bladder usually is, and whether this can be stretched to 6-hrly. At night, he empties the bladder before going to sleep, and then again on waking.

**Follow-up**
- Ensure patient is comfortable and confident with the routine before discharge
- Ensure access to supply of catheters (may not be available at clinic – give a good stock to take home) and KY jelly
- Patients need ANNUAL follow-up at Urology (tertiary level) for ultrasound – refer
- Ensure patient knows whom to contact if he is having any problems.
- For complications/ questions contact …?

**NB: CIC does NOT cause trauma to the urethra long-term if it is done properly, so this should not be a concern. It is both safer and more pleasant for the individual, and should be strongly encouraged where feasible.**

**SUPRAPUBIC CATHETER:**
A suprapubic catheter is surgically inserted into bladder through abdominal wall, the urine is then drained into a bag, which needs to be changed once every 6 weeks. When available it is considered above the use of a permanent indwelling catheter as it causes less damage and complications. Studies have also shown that it affects the person’s body image less than a permanent indwelling catheter.

Consider using suprapubic catheterization for individuals with:

- Urethral abnormalities, such as stricture, false passages, bladder neck obstruction, or urethral fistula.
- Urethral discomfort.
- Recurrent urethral catheter obstruction.
- Difficulty with urethral catheter insertion.
- Perineal skin breakdown due to urine leakage secondary to urethral incompetence.
- Psychological considerations, such as body image or personal preference.
- A desire to improve sexual genital function.
- Prostatitis, urethritis, or epididymo-orchitis.

Suprapubic catheterization should not be used in the following cases:

- Immediately following acute SCI if urethral injury is suspected, especially after pelvic trauma (blood at the urethral meatus and perineal and scrotal hematomas may be indicative of urethral trauma).
- If bladder capacity is small, with forceful uninhibited contractions despite treatment.
- Consider indwelling catheterization for individuals who are at risk of genitourinary complications due to elevated detrusor pressures.

**INDWELLING CATHETER:**
Indwelling catheterization is a method of bladder management in which a catheter is inserted into the bladder and maintained in place for an extended period of time. Because there is an open conduit to the storage device, as bladder filling occurs, urine is continually emptied. Successful indwelling catheterization does not require bladder contractions, nor does it require coordinated action of the sphincter mechanism. Because complete bladder filling often does not occur and individuals who use indwelling catheterization tend to have uninhibited bladder contractions, bladder capacity and compliance tend to decrease over time.
Consider using indwelling catheterization for individuals with:

- Poor hand skills.
- High fluid intake.
- Cognitive impairment or active substance abuse.
- Elevated detrusor pressures managed with anticholinergic medications or other means.
- Lack of success with other, less invasive bladder management methods.
- Need for temporary management of vesicoureteral reflux.
- Limited assistance from a caregiver, making another type of bladder management not feasible.

Please be aware of the potential complications associated with long term indwelling catheterization:

- Bladder and kidney stones.
- Urethral erosions.
- Epididymitis.
- Recurrent symptomatic urinary tract infections.
- Incontinence.
- Pyelonephritis.
- Hydronephrosis from bladder wall thickening or fibrosis.
- Bladder cancer.

**Reflex Voiding:**

Reflex voiding is a method that depends on an intact sacral micturition reflex. As bladder filling begins, sensory afferents begin to feed this information into the sacral cord. Continued bladder filling eventually triggers sacral efferent to cause an uninhibited (involuntary) bladder contraction. But because of the spinal cord injury, coordinated relaxation of the sphincter mechanism is absent; thus, detrusor sphincter dyssynergia is usually present. Despite dyssynergia between the bladder contractions and sphincter relaxation, voiding occurs because the sphincter relaxes intermittently during the bladder contractions. However, detrusor sphincter dyssynergia frequently results in elevated voiding pressures, which can then cause poor drainage and complications to the upper tract. Another problem that commonly occurs in those with detrusor sphincter dyssynergia is poor drainage of the bladder. In those with spinal injuries at T6 and above, autonomic dysreflexia can occur when the bladder contracts against a dyssynergic sphincter. Autonomic dysreflexia can also occur from bladder distention from incomplete bladder emptying.

Because the bladder contractions are involuntary with little or no warning, individuals who reflex void require a collecting device. The presence of detrusor sphincter dyssynergia frequently necessitates other interventions (e.g., suprapubic bladder tapping, alpha-blockers, botulinum toxin injection, urethral stents, or sphincterotomy) to allow the bladder to empty effectively and prevent upper tract complications.

Consider using reflex voiding for individuals with:

- Sufficient hand skills to put on a condom catheter and empty the leg bag or have a willing caregiver.
- Small bladder capacity.
- Small post-void residual volumes.
- Ability to maintain a condom catheter in place.

Avoid using reflex voiding for individuals with:

- Penile skin breakdown from the condom catheter.
- Urethral fistula.
- Symptomatic UTI.
- Poor bladder emptying.
- High intravesical voiding pressures.
- Autonomic Dysreflexia with injuries at T6 and above.

**Bowel Care for the Person with a Spinal Cord Injury**

It is important for to have a **predictable and regular bowel movement**. This allows for the person to have confidence about not having accidents, it allows for better skin care if there is less contact with faeces, and it facilitates better digestive health with regular voiding of faeces.

Each person's body will act slightly differently, and it is important to consider this variation in individuals when trying to set up a bowel regime. Diet is important and it is recommended that the person eats a high fiber diet to assist the formation and passage of stools. Please also consider factors such as the persons normal rhythm of passing stools, transfers to the toilet, accessibility, positioning, privacy ect.

**SCI Above T12= Upper MNL=Defecation Reflex Present (Use bowel regime using laxatives/digital stim)**

**SCI Below T12= Lower MNL= No defecation reflex Present/Flaccid (use Bowel washout)**

**BOWEL REGIME:**
Before starting on the regime the patients colon needs to be emptied, or a bowel washout needs to be done. At Zithulele the patient is admitted to the ward for three days where three enemas are given daily.

Following this the patient needs to be taught to do the regime independently:

**Starting regime, on ALTERNATE days only:**
- 2 senekot (soflax/sennosides) in the evening (8pm), and one Dulcolax/glycerine suppository in the morning (6am) this should enable a bowel movement shortly after this. This regime needs to be modified for each patient:
  - perhaps more or less Senekot;
  - They can choose the time at which they will pass faeces (they may prefer setting it up so they go in the evening, not the morning).
  - Patient can also choose how frequently to do regime based on previous bowel habits

Many people think that ultimately it is best if there is less reliance on medication, and that the bowel routine can happen as a habit.

There are other methods of stimulating ones bowels to void, these include:
- Clockwise massage over the lower abdomen
- Digital stimulation around the anus
- Taking a hot drink just prior to the time one wants to pass stool

**BOWEL WASHOUT:**
A bowel washout is done for patients with a flaccid bladder. This most commonly occurs in children with spina bifida. Below I’m going to describe the procedure that you would do for a child. An adult follows the same principles.

**Preparation and equipment**
Find a private area, preferably free from draughts and now too cold.

Collect the following:
- Saline (body temperature if possible)
- Lubricating gel
- Bowl and a jug
- Rectal tube (Jacques catheter)
- 50ml bladder syringe/drip bag/catheter bag/any vessel to pour the water from
- Linen saver or old towel, Changing mat or old towel
How much saline do I use?
Warm sterile saline 20-50mls per kilogram of body weight, (e.g. if your baby weighs 3kgs, 60-150mls of saline may be required). Some babies will need more fluid, others less. The volume depends on being able to obtain clear fluid returns on completion of the rectal washout.

Procedure:
- Warm the saline by standing it in a jug of hot water. The temperature of the saline should be body temperature. NB. Water must not be used for this procedure as it is easily absorbed by the bowel and may make your baby unwell. Procedure Following preparation of equipment and environment:
- Wash hands and put on gloves (parent / carers optional).
- Undress the baby leaving vest or T-shirt on to ensure your baby does not get cold.
- Lay the baby on the chosen surface ensuring the baby is safe and cannot roll off. Place the child on a linen saver/ old towel.
- Look and gently feel the baby's abdomen. Any swelling should go down with the release of the bowel contents and air. If after performing the washout, the baby's abdomen remains swollen, please seek advice.
- Connect catheter tubing to the end of syringe/drip bag.
- Lay the baby in position, either on their back with their legs raised or on their left side as this will aid the flow of saline into the rectum.
- Allow the correct amount of saline to run into the catheter using the drip bag or syringe.
- To make the catheter easier to insert, smear the end of the catheter with lubricating jelly. Put more jelly on the tube each time it needs re-inserting to prevent soreness.
- Gently insert tube into the rectum at least 10-15cm (with a maximum of 20cm or as discussed with the surgical team) and kink the tubing. Never force the tube as it could cause damage to the lining of the bowel.
- Allow the saline to run down the catheter (using gravity) into the bowel up the rectum.
- Some of the fluid will run back out. This can be repeated if needed.
- Allow most of the fluid to run out, then you can put on the nappy/ the child can sit on a potty/bedpan/commode whilst their bowel empty's.
- Daily rectal washouts will need to continue until the baby either has surgery or you are advised to stop or decrease the frequency

Skin Care
Every patient must care for own skin!
- do daily inspections
- know about how a pressure sore is formed
- know about hourly lifting when sitting, or position change
- ensure their bladder and bowel are controlled
- know about the importance of having the right surface on which to sit (plastic makes one's skin sweat which means it is wet, and more likely to develop sores)
- look after their feet and legs during transfers
**Muscle Function Grading**

- 0 = total paralysis
- 1 = palpable or visible contraction
- 2 = active movement, full range of motion (ROM) with gravity eliminated
- 3 = active movement, full ROM against gravity
- 4 = active movement, full ROM against gravity and moderate resistance in a muscle specific position
- 5 = (normal) active movement, full ROM against gravity and full resistance in a functional muscle position expected from an otherwise uninjured person
- 5" = (normal) active movement, full ROM against gravity and sufficient resistance to be considered normal if identified inhibiting factors (i.e., pain, disease) were not present
- NT = not testable (i.e., due to immobilization, severe pain such that the patient cannot be grasped, amputation of limb, or contracture of > 50% of the normal ROM)

**Sensory Grading**

- 0 = Absent
- 1 = Altered, either decreased/impaired sensation or hypersensitivity
- 2 = Normal
- NT = Not testable

**When to Test Non-Key Muscles:**

In a patient with an apparent A8 B classification, non-key muscle functions more than 3 levels below the motor level on each side should be tested to most accurately classify the injury (differentiate between A8 B and C).

<table>
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<tr>
<th>Movement</th>
<th>Root level</th>
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<td>Shoulder</td>
<td>C5</td>
</tr>
<tr>
<td>Elbow</td>
<td>C6</td>
</tr>
<tr>
<td>Wrist</td>
<td>C7</td>
</tr>
<tr>
<td>Finger</td>
<td>C8</td>
</tr>
<tr>
<td>Hip</td>
<td>T1</td>
</tr>
<tr>
<td>Knee</td>
<td>L2</td>
</tr>
<tr>
<td>Ankle</td>
<td>L3</td>
</tr>
<tr>
<td>Toe</td>
<td>L4</td>
</tr>
<tr>
<td>Hallux</td>
<td>L5</td>
</tr>
<tr>
<td>Haltux</td>
<td>S1</td>
</tr>
</tbody>
</table>

**ASIA Impairment Scale (AIS)**

A = Complete. No sensory or motor function is preserved in the sacral segments S4-S5.

B = Sensory Incomplete. Sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-S5 (light touch or pin prick at S4-S5 or deep anal pressure AND no motor function is preserved more than three levels below the motor level on either side of the body.

C = Motor Incomplete. Motor function is preserved at the most caudal sacral segments for voluntary anal contraction (VAC) OR the patient meets the criteria for sensory incomplete status (sensory function preserved at the most caudal sacral segments S4-S5 by light touch or pin prick at S4-S5, OR deep anal pressure) and has some sparing of motor function more than three levels below the ipsilateral motor level on either side of the body. (This includes key or non-key muscle functions to determine motor incomplete status.) For AIS C, less than half of key muscle functions below the single NLI have a muscle grade ≥ 3.

D = Motor Incomplete. Motor incomplete status as defined above, with at least half (half or more) of key muscle functions below the single NLI having a muscle grade ≥ 3.

E = Normal. If sensation and motor function as tested with the ISNCSCI are graded as normal in all segments and the patient had prior deficits, then the AIS grade is E. Someone without an initial SCI does not receive an AIS grade.

<table>
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<tr>
<th>AIS Grade</th>
<th>Steps in Classification</th>
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<tr>
<td>A</td>
<td>1. Determine sensory levels for right and left sides. The sensory level is the most caudal intact dermatome for both pin prick and light touch sensation.</td>
</tr>
<tr>
<td></td>
<td>2. Determine motor levels for right and left sides. Defined by the lowest key muscle function that has a grade of at least 3 (sparingly sparing), providing the key muscle functions represented by segments above that level are judged to be intact (graded as ≥ 3). Note: In regions where there is no somatosensory test, the motor level is presumed to be the same as the sensory level, if testable motor function above that level is also normal.</td>
</tr>
<tr>
<td></td>
<td>3. Determine the neurological level of injury (NLI). This refers to the most caudal segment of the cord with intact sensation and anterior (3 or more) muscle function strength, provided that there is normal (intact) sensory and motor function medially respectively. The NLI is the most caudal of the sensory and motor levels determined in steps 1 and 2.</td>
</tr>
<tr>
<td></td>
<td>4. Determine whether the injury is Complete or Incomplete. (i.e., absence or presence of actual sparing) If voluntary anal contraction = No AND at S4-S5 sensory scores = 0 AND deep and pressure = No, then injury is Complete. Otherwise, injury is Incomplete.</td>
</tr>
<tr>
<td></td>
<td>5. Determine ASIA Impairment Scale (AIS) Grade: Is injury Complete? If YES, AIS=A and can record ZP (lowest dermatome of myotome on each side with same preservation)</td>
</tr>
<tr>
<td></td>
<td>Is injury Motor Complete? If YES, AIS=B</td>
</tr>
<tr>
<td></td>
<td>(No voluntary anal contraction OR motor function more than three levels below the motor level on a given side, if the patient has sensory incomplete classification)</td>
</tr>
<tr>
<td></td>
<td>Are at least half (half or more) of the key muscle functions below the neurological level of injury graded 3 or better?</td>
</tr>
<tr>
<td></td>
<td>AIS=C</td>
</tr>
<tr>
<td></td>
<td>AIS=D</td>
</tr>
</tbody>
</table>

If sensation and motor function is normal in all segments, AIS=E Note: AIS E is used in follow up testing when an individual with a documented SCI has recovered normal function. If initial testing no deficits are found, the individual is neurologically intact; the ASIA Impairment Scale does not apply.
### Gross Motor Function Classification System for Cerebral Palsy (GMFCS)

<table>
<thead>
<tr>
<th>Age</th>
<th>Level I</th>
<th>Level II</th>
<th>Level III</th>
<th>Level IV</th>
<th>Level V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 2nd Birthday</td>
<td>In &amp; out of sitting; crawls, pull to stand &amp; take steps; holding furniture; walk between 18m &amp; 2y without device</td>
<td>maintain sitting but may use hands for support; creep or crawl; may pull to stand &amp; take steps holding furniture</td>
<td>maintain floor sitting with low back supported; roll &amp; creep forward on stomach</td>
<td>head control but trunk support is needed; can roll to supine &amp; may roll to prone</td>
<td>Vol mvt limited; unable to maintain antigravity head &amp; trunk postures in prone &amp; sitting; require help to roll</td>
</tr>
<tr>
<td>Between 2nd and 4th Birthday</td>
<td>floor sit with both hands free; mvt's in &amp; out of floor sitting &amp; standing without assistance; prefer to walk, no device needed</td>
<td>floor sit but struggle with balance when using hands; in &amp; out of sitting without help; pull to stand on stable surface; crawl with a reciprocal pattern, cruise holding furniture &amp; walk using device</td>
<td>maintain floor sitting (W-sitting); need help to get into sitting; creep or crawl (primary methods); may pull to stand on a stable surface &amp; cruise short distances; may walk short distances with device &amp; help</td>
<td>floor sit when placed, but need extra support; often need equipment for sit &amp; stand; roll, creep, crawl methods for self mobility</td>
<td>Restrictions of vol mvt and antigravity postures; all areas of motor fx limited; unable to compensate physical limitations with equipment; no means of independent mobility; may use power w/c</td>
</tr>
<tr>
<td>Between 4th and 6th Birthday</td>
<td>Sit on chair without support; sit-stand without support; walk indoors &amp; outdoors, climb stairs; start to run &amp; jump</td>
<td>sit in chair with both hands; sit-stand pulling on object; walk without device on level surface; climb stairs with rail; unable to run or jump</td>
<td>sit on a chair but may require support; on&amp;off chair using stable surface; walk with device &amp; climb stairs with help; often transported</td>
<td>sit on a chair but need adaptive seating; in &amp; out of chair with help; may walk short distances with walker; transported; may be able to use power w/c</td>
<td>Restrictions of vol mvt and antigravity postures; all areas of motor fx limited; Unable to compensate for functional limitations with equipment; dependant for mobility</td>
</tr>
<tr>
<td>Between 6th and 12th Birthday</td>
<td>walk indoors &amp; outdoors, climb stairs; perform gross motor skills but speed, balance, &amp; coordination are reduced</td>
<td>walk indoors &amp; outdoors, &amp; climb stairs holding railing but limited on uneven surfaces &amp; inclines; minimal ability to perform gross motor</td>
<td>Walk indoors or outdoors on level surface with device. may climb stairs holding rail; propel w/c or be transported</td>
<td>may maintain levels achieved before 6y or rely more on wheeled mobility; may use power w/c</td>
<td>Restrictions of vol mvt and antigravity postures; all areas of motor fx limited; Unable to compensate for functional limitations with equipment; dependant for mobility; some may use power w/c</td>
</tr>
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### Manual Ability Classification System (MACS)

<table>
<thead>
<tr>
<th>Level I</th>
<th>Handles objects easily and successfully. At most, limitations in the ease of performing manual tasks requiring speed and accuracy. However, any limitations in manual abilities do not restrict independence in daily activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level II</td>
<td>Handles most objects but with somewhat reduced quality and/or speed of achievement. Certain activities may be avoided or be achieved with some difficulty; alternative ways of performance might be used but manual abilities do not usually restrict independence in daily activities.</td>
</tr>
<tr>
<td>Level III</td>
<td>Handles objects with difficulty; needs help to prepare and/or modify activities. The performance is slow and achieved with limited success regarding quality and quantity. Activities are performed independently if they have been set up or adapted.</td>
</tr>
<tr>
<td>Level IV</td>
<td>Handles only a limited selection of easily managed objects in adapted situations. Performs parts of activities with effort and with limited success. Requires continuous support and assistance and/or adapted equipment, for even partial achievement of the activity.</td>
</tr>
<tr>
<td>Level V</td>
<td>Does not handle objects and has a severely limited ability to perform even simple actions. Requires total assistance.</td>
</tr>
</tbody>
</table>
Communication Function Classification System (CFCS) for Individuals with Cerebral Palsy

**Level I**
Effective sender and receiver with unfamiliar and familiar partners. The person independently alternates between sender and receiver roles with most people in most environments. The communication occurs easily and at a comfortable pace with both unfamiliar and familiar conversational partners. Communication misunderstandings are quickly repaired and do not interfere with the overall effectiveness of the persons communication.

**Level II**
Effective but slower paced sender and/or receiver with unfamiliar and/or familiar partners. The person independently alternates between sender and receiver roles with most people in most environments, but the conversational pace is slow and may make the communication interaction more difficult. The person may need extra time to understand the messages, compose messages, and/or repair misunderstandings. Communication misunderstandings are often repaired and do not interfere with the eventual effectiveness of the person’s communication with both unfamiliar and familiar partners.

**Level III**
Effective sender and receiver with familiar partners. The person alternates between sender and receiver roles with familiar (but not unfamiliar) conversational partners in most environments. Communication is not consistently effective with most unfamiliar partners, but it is usually effective with familiar partners.

**Level IV**
Inconsistent sender and/or receiver with familiar partners. The person does not consistently alternate sender and receiver roles. This type of inconsistency might be seen in different types of communication including a) an occasionally effective sender and receiver 2) an effective sender but limited receiver c) a limited sender but effective receiver. Communication is sometimes effective with familiar partners.

**Level V**
Seldom effective sender and receiver even with familiar partners. The person is limited as both a sender and a receiver. The persons communication is difficult for most people to understand. The person appears to have limited understanding of messages from most people. Communication is seldom effective even with familiar partners.

### SCPE Classification of Cerebral Palsy

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<th>Dyskinetic CP</th>
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CP Checklist

General
- Diagnosis (what classification of CP)
- Co morbidities & referral system: Epilepsy (refer to Dr); Vision/hearing (refer to Audiologist or Eye clinic); Intellectual impairment; Speech/ swallowing difficulties (refer to speech therapist), oral hygiene (refer to dentist)
- Family’s concerns/goals (regular goal setting gives family hope and encouragement)
- Abilities and inabilities (use what they can do)
- Postural patterns (need for seating/ 24hr positioning)
- Current/potential contractures and deformities
  - Measure and record (for keeping track)
  - Positions/tone that might put child at risk
  - Plan to prevent/improve
- Hip joint stability (possible dislocations)
- Ideally should see doctor for check-up every 6 months
- Feeding – observe positioning. Should be eating solids at appropriate age
- Hand use – does he/she need toys to stimulate, possible splinting for maintenance/functioning
- ADL’s - Aim for maximum involvement in toileting, washing, dressing
- Sensory integration issues – through observation
- Anti-spasmodics – would he/she benefit?
- CDG – usually apply after 2 yrs old, unless clear cut medical evidence is available

Equipment
- Check all equipment every 6 months
- Measure child if new equipment needed
  - Back height (seat to base scapula)
  - Seat depth (Back of buttock to behind knee)
  - Knee to heel (Footrest height + cushion height)
  - Arm rest height (top shoulder to elbow)
  - Pelvis to top of head
- Standing (Standing frame (SF))
  - From 1 year of age and up, for at least 2 hours a day broken up in 30 minute intervals.
  - Remember to order equipment 6-12 months in advance
  - Must wear shoes (and AFOs if has them)
- Buggy seating (Preferably check every 3 months for young or fast-growing child)
- AFOs –prevention of achilles contractures
- Neoprene thumb abduction splints – check if needed and check regularly
- Soft splints for limbs – measurements: circumference of ankle, thigh & length between them
- Bench – check if needed/used
- Wedges – check if needed/used (consider blankets as a substitute)
- Sidelier – check if needed/used (check caregiver’s understanding)

Caregiver education
Does the family have a basic understanding of child’s condition?
Pressure care (i.e. changing position every 2 hours)
TIPS/conducive positions for contracture prevention
How to use equipment and organising transport/ home visit for drop off
Basic understanding of 24 hour management
Give positive feedback and praise to caregiver (be specific)
Remind family of progress made and goals achieved (for hope and encouragement)Try to invite main caregiver in a CP Clinic groups
### Toileting Milestones at Different Ages

#### Assessment of Normal and Abnormal Reflexes in an Infant

<table>
<thead>
<tr>
<th>Reflex Type</th>
<th>Position</th>
<th>Method</th>
<th>Response</th>
<th>Age at disappearance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sucking</strong></td>
<td>Supine</td>
<td>Place finger onto roof of infants mouth</td>
<td>Sucks when roof of mouth is stimulated</td>
<td></td>
</tr>
<tr>
<td><strong>Babinski</strong></td>
<td>Supine</td>
<td>Striking along the lateral aspect of the sole extending from the heel to the head of the 5th metatarsal</td>
<td>Combined extensor response: simultaneous dorsiflexion of the great toe and fanning of the remaining toes</td>
<td>Presence always abnormal</td>
</tr>
<tr>
<td><strong>Ionic labyrinthine reflex TLR</strong></td>
<td>Supine</td>
<td>Tilt head backwards</td>
<td>The back to stiffens and extends; the legs extend, adduct, plantar flexion at ankles; elbows and wrists flex; and the hands to become fist or the fingers to curl</td>
<td>Presence is abnormal</td>
</tr>
<tr>
<td><strong>Neck righting</strong></td>
<td>Supine</td>
<td>Rotate head to side</td>
<td>Trunk rotates in the direction in which the head of the supine infant is turned</td>
<td>This reflex is absent or decreased in infants with spasticity.</td>
</tr>
<tr>
<td><strong>Heel</strong></td>
<td>Supine</td>
<td>Tapping on the heel with a hammer, with the hip and knee joint flexed, and the ankle joint in neutral position</td>
<td>Rapid reflex extension of the lower extremity in question</td>
<td>3 weeks</td>
</tr>
<tr>
<td><strong>Rossolimo</strong></td>
<td>Supine</td>
<td>Light tapping of the 2nd-4th toes at their plantar surface</td>
<td>Tonic flexion of the toes at the first metacarpophalangeal joint</td>
<td>4 weeks</td>
</tr>
<tr>
<td><strong>Suprapubic extensor</strong></td>
<td>Supine</td>
<td>Pressing the skin over the pubic bone with the fingers</td>
<td>Reflex extension of both lower extremities, with adduction and internal rotation into talipes equinus</td>
<td>4 weeks</td>
</tr>
<tr>
<td><strong>Crossed extensor</strong></td>
<td>Supine</td>
<td>Passive total flexion of one lower extremity</td>
<td>Extension of the other lower limb with adduction and internal rotation into talipes equinus</td>
<td>6 weeks</td>
</tr>
<tr>
<td><strong>ATNR</strong></td>
<td>Supine</td>
<td>Rotation of the infants head to one side for 15 seconds</td>
<td>Extension of the extremities on the chin side and flexion of those on the occipital side</td>
<td>3 months</td>
</tr>
<tr>
<td><strong>Galant</strong></td>
<td>Prone</td>
<td>Scratching the skin of the infants back from the shoulder downwards, 2-3cm lateral to the spinous processes</td>
<td>Side flexion of the trunk, with the concavity on the stimulated side</td>
<td>4 months</td>
</tr>
<tr>
<td><strong>Rooting</strong></td>
<td>Supine</td>
<td>Stroke the baby's cheek alongside the mouth</td>
<td>The infant will turn toward the side that was stroked and begin to make sucking motions with the mouth.</td>
<td>4 months</td>
</tr>
<tr>
<td><strong>Moro/startle</strong></td>
<td>Supine</td>
<td>Sudden head extension produced by a light drop of the head, or loud noise stimulus</td>
<td>Abduction followed by adduction and flexion of the upper extremities</td>
<td>6 months (watch for asymmetry)</td>
</tr>
<tr>
<td><strong>Symmetrical Tonic Neck STNR</strong></td>
<td>Prone</td>
<td>When the infant is prone and extends neck his arms extend and his legs flex, leaving him sitting back on his heels. Conversely, when he flexes his neck, the opposite actions reflexively manifest: his arms flex and his legs extend, elevating his rear end.</td>
<td>Starts 6-9 months Ends 9-11 months</td>
<td></td>
</tr>
<tr>
<td><strong>Parachute</strong></td>
<td></td>
<td>Occurs in slightly older infants. Child is held upright and then body rotated his quickly face forward (as if falling). The baby will extend his arms forward as if to break a fall, even though this reflex appears long before the baby walks.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Supine = supine position; Prone = prone position.
Toileting Milestones at Different Ages

HIE scores

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOC</td>
<td>Normal</td>
<td>Hyperalert</td>
<td>Lethargic</td>
<td>Comatose</td>
</tr>
<tr>
<td>Tone</td>
<td>Normal</td>
<td>Hypertonia</td>
<td>Hypotonia</td>
<td>Flaccid</td>
</tr>
<tr>
<td>Seizures</td>
<td>Normal</td>
<td>Infrequent</td>
<td>Frequent</td>
<td></td>
</tr>
<tr>
<td>Postures</td>
<td>None</td>
<td>Fisting,cycling</td>
<td>Strong flexion</td>
<td>Decerebrate</td>
</tr>
<tr>
<td>Moro</td>
<td>Normal</td>
<td>Partial</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Grasp</td>
<td>Normal</td>
<td>Poor</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Suck</td>
<td>Normal</td>
<td>Poor</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Resp</td>
<td>Normal</td>
<td>Hyperventilate</td>
<td>Brief apnoea</td>
<td>Apnoea(IPPV)</td>
</tr>
<tr>
<td>Fontanelle</td>
<td>Normal</td>
<td>Full</td>
<td>tense</td>
<td></td>
</tr>
</tbody>
</table>

If baby max 10 and is Normal by day 7 = normal outcome
If baby peaks 15<, remains abnormal after day 7 = guarded prognosis

APGARS

<table>
<thead>
<tr>
<th>Sign</th>
<th>Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Skin colour</td>
<td>Blue, Pale</td>
<td>Hands and feet blue</td>
<td>Completely pink</td>
</tr>
<tr>
<td>Pulse</td>
<td>Heart rate</td>
<td>Absent</td>
<td>&lt;100</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Grimace</td>
<td>Reflex irritability</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough or sneeze</td>
</tr>
<tr>
<td>Activity</td>
<td>Muscle tone</td>
<td>Flaccid</td>
<td>Arms and legs flexed</td>
<td>Well flexed</td>
</tr>
<tr>
<td>Respiration</td>
<td>Respiratory rate</td>
<td>Absent</td>
<td>Weak, irregular</td>
<td>Good, crying</td>
</tr>
</tbody>
</table>
# General Grading Principles of Sensory and Motor Functions

## 1. Grading of sensory stimulation

<table>
<thead>
<tr>
<th>Sensory system</th>
<th>Aspects to be graded</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactile (facilitatory / arousing)</td>
<td></td>
<td>Experimenting (with equipment such as swings, large balls) → exploration (materials) → stimulation by another person → stimulation involving/requiring motor planning → discrimination (temperature, pressure, texture) → discrimination (numbers, letters) → discrimination (shapes, objects) → Graphesthesia (recognise writing on skin)</td>
</tr>
<tr>
<td>Tactile (inhibitory)</td>
<td></td>
<td>Deep pressure (through weight bearing e.g. stomping feet; hanging; running) → self-controlled movement over equipment → deep pressure (direct touch) → deep pressure (direct touch – intense)</td>
</tr>
<tr>
<td>Vestibular stimulation</td>
<td>Directions/positions</td>
<td>Inversion → anterior-posterior → lateral → diagonal → linear acceleration → rotation</td>
</tr>
<tr>
<td></td>
<td>Positions</td>
<td>Lying → sitting → kneeling → standing</td>
</tr>
<tr>
<td></td>
<td>Complexity</td>
<td>Fast arrhythmic movements; increase in speed; quick change in direction</td>
</tr>
<tr>
<td></td>
<td>Inhibitory techniques</td>
<td>Slow rhythmic movements; linear movement; inversion position</td>
</tr>
</tbody>
</table>

## 2. Grading of motor functions

<table>
<thead>
<tr>
<th>Motor function</th>
<th>Aspects to be graded</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equilibrium/ Balance</td>
<td>Centre of gravity: height</td>
<td>Low → high e.g. Lying → sitting → kneeling → half kneeling → standing → raising arms above head</td>
</tr>
<tr>
<td></td>
<td>Centre of gravity: displacement</td>
<td>Anterior → lateral → posterior → rotation</td>
</tr>
<tr>
<td></td>
<td>Centre of gravity: Range of displacement</td>
<td></td>
</tr>
<tr>
<td>Support (external)</td>
<td>Proximal → distal e.g. therapist holds body → hold hand Constant → intermittent e.g. Therapists hands remain constantly on patient → therapist remains close but provides intermittent physical cues only, for correction</td>
<td></td>
</tr>
<tr>
<td>Weight of objects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stable vs unstable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movement/positions of limbs</td>
<td>Inner → outer range; complexity of movement</td>
<td></td>
</tr>
<tr>
<td>Size of base of support</td>
<td>Large B.o.S → Small B.o.S e.g. Standing with legs spread apart → standing on 1 leg</td>
<td></td>
</tr>
<tr>
<td>Eye movements</td>
<td>Eye ocular control</td>
<td>Fixation → following (tracking) → localization</td>
</tr>
<tr>
<td></td>
<td>Field of vision</td>
<td>Midline → periphery</td>
</tr>
<tr>
<td></td>
<td>Direction of movement</td>
<td>Vertical → horizontal → diagonal → rotation</td>
</tr>
<tr>
<td></td>
<td>Speed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Size of objects</td>
<td></td>
</tr>
<tr>
<td>Motor planning</td>
<td>Gross and total patterns</td>
<td>Flexion with support → active flexion → extension against gravity → integration of flexion and extension → diagonal movement (across body) → rotation (rolling)</td>
</tr>
<tr>
<td></td>
<td>Complexity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limbs involved</td>
<td>Upper limbs → lower limbs → upper and lower limbs</td>
</tr>
<tr>
<td></td>
<td>Positions</td>
<td>Rolling → sitting → crawling → walking → running → throwing → jumping → fine motor → eye-hand coordination</td>
</tr>
<tr>
<td></td>
<td>General</td>
<td>Ideation → planning → execution</td>
</tr>
<tr>
<td>Bilateral integration</td>
<td>General</td>
<td>Trunk stability; body positions (developmental sequence); isotonic → isometric; proximal → distal; gross motor → fine motor; association → dissociation → integration</td>
</tr>
<tr>
<td></td>
<td>Direction of movement</td>
<td>Lateral → midline → crossing of the midline</td>
</tr>
<tr>
<td></td>
<td>Type of movement</td>
<td>Symmetrical → asymmetrical → alternating</td>
</tr>
<tr>
<td></td>
<td>Type of combination</td>
<td>Bilateral → unilateral → contra-lateral</td>
</tr>
<tr>
<td></td>
<td>Use of limbs</td>
<td>Upper limbs → lower limbs → upper and lower limbs → upper and lower limbs unilaterally → upper and lower limbs contra-laterally</td>
</tr>
<tr>
<td>Coordination</td>
<td>Gross coordination</td>
<td>Complexity of movement; inner → outer range; number of limbs; combination of limbs; accuracy; handling of objects</td>
</tr>
<tr>
<td></td>
<td>Fine coordination</td>
<td>Type of grasp; size of objects; complexity of movement; accuracy</td>
</tr>
<tr>
<td></td>
<td>Eye-hand coordination</td>
<td>Eye control → follow hands with eyes → bilateral reach → unilateral reach → explore with index finger → controlled reach and grasp → release in container → throw (from and at something)</td>
</tr>
<tr>
<td>Rhythm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Signs/behaviours associated with sensory modulation disorders:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Negative or unexpected responses to loud noises</td>
<td>12</td>
<td>Gets excited when there is a variety of visual objects</td>
</tr>
<tr>
<td>2</td>
<td>Difficulty paying attention in noisy rooms</td>
<td>13</td>
<td>Dislikes having hair cut and/or washed (discomfort excessive)</td>
</tr>
<tr>
<td>3</td>
<td>Seems confused as to where sounds are coming from</td>
<td>14</td>
<td>Dislikes having fingernails cut</td>
</tr>
<tr>
<td>4</td>
<td>Unable to function when 2-3 step instructions are given</td>
<td>15</td>
<td>Scratch/rubs spot after being touched by someone</td>
</tr>
<tr>
<td>5</td>
<td>Seems to enjoy strange noises and/or make loud noises</td>
<td>16</td>
<td>Dislikes being approached from behind/has difficulty standing in a line</td>
</tr>
<tr>
<td>6</td>
<td>Appear to be hard of hearing</td>
<td>17</td>
<td>Has unusual needs for touch</td>
</tr>
<tr>
<td>7</td>
<td>Mouth/chew non-food objects</td>
<td>18</td>
<td>Avoids messy play (sand, water etc.)</td>
</tr>
<tr>
<td>8</td>
<td>Dislikes food of certain texture</td>
<td>19</td>
<td>Becomes anxious when feet leave the ground/feel as if balance is lost</td>
</tr>
<tr>
<td>9</td>
<td>Having unusual cravings for certain foods</td>
<td>20</td>
<td>Does not enjoy playground activities/avoids climbing</td>
</tr>
<tr>
<td>10</td>
<td>Reacts negatively to smell</td>
<td>21</td>
<td>Alarmed if suddenly pushed backwards when seated</td>
</tr>
<tr>
<td>11</td>
<td>Express discomfort in bright lights</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If some of these behaviours are exhibited frequently/consistently, Sensory Integration intervention is required.

### The Wall Model of Development

<table>
<thead>
<tr>
<th></th>
<th>Handwriting</th>
<th>Sitting at a Table</th>
<th>Concentration</th>
<th>Socio-Emotional Skills</th>
<th>Reading and Spelling</th>
<th>Activities of Daily Living</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequencing</td>
<td>Visual Motor Integration</td>
<td>Analysis and Synthesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Motor Coordination</td>
<td>Eye-Hand Coordination</td>
<td>Visual Closure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>Body Image</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>Right-Left Discrimination</td>
<td>Gross Motor Coordination</td>
<td>Motor Planning</td>
<td>Spatial Relations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Motor Components</td>
<td>Laterality and Directionality</td>
<td>Crossing of the Midline</td>
<td>Form Constancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postural Stability</td>
<td>Bilateral Integration</td>
<td>Position in Space</td>
<td>Figure Ground</td>
<td>Language Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postural Control</td>
<td>Body Scheme</td>
<td>Eye Movements</td>
<td>Dissociation Between Movements</td>
<td>Basic Concepts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Balance</td>
<td>Integration of Postural Reaction</td>
<td>Modulation</td>
<td>Self-Regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuro-Motor</td>
<td>Vestibular-Proprioceptive</td>
<td>Tactile</td>
<td>Visual</td>
<td>Auditory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Visual Perception
Definitions and examples of school related problems:

**Visual discrimination:** perceiving similarities and differences between objects, shapes and symbols. (E.g. confusion between ‘o’ and ‘a’)

**Figure ground:** focus of attention on an object or figure so that the background is less important. (E.g. read with finger, leaving letters out in words: ‘sunday’)

**Form constancy:** realization that an object has traits which don’t change even if the colour, position, size, background or texture changes. (E.g. confusion with A, a, a, a)

**Position in space:** orientation of child’s body in relation to objects (E.g. reversals of ‘b’/ ‘d’ or ‘p’/’q’)

**Spatial relations:** orientation of objects in relation to each other. (E.g. was/saw confusion, reversals, unable to write on a line)

**Visual closure:** ability to complete a figure (E.g. confusion between ‘a’ and ‘u’ or ‘h’ and ‘b’)

**Visual memory/ visual sequential memory:** ability to memories info received from eyes in sequence. (E.g. poor copying from board, spelling)

**Analysis and synthesis:** ability to break a large object into smaller pieces or vice versa.

**Visio-motor integration:** integrating the visual and motor system to be able to copy drawings or actions.

Normal development and grading of visual perception:

1. **Basic concepts**
   - Body concept: kinaesthetic, 3D, 2D
   - Size concept: kinaesthetic, 3D, 2D
   - Colour concept: discriminate, identify, match, name, and reproduce
   - Shape concept: recognise, identify 3D, identify 2D, name 3D, name 2D, drawing/copying

2. **Figure ground:** 3D, 2D, symbols, school work

3. **Form constancy:** 3D, 2D, symbols, school work

4. **Position in space:** kinaesthetic, 3D, 2, school

5. **Spatial relations:** copying
   - 3D-3D
   - 2D-3D
   - 2D-2D
   - School work

6. **Visual closure:** kinaesthetic, 3D, 2D

7. **Visual memory:** kinaesthetic, 3D, 2D

8. **Analysis and synthesis:** complexity, 3D, 2D

9. **Visio-motor integration**

**Perceptual skills and normal developmental ages:**

<table>
<thead>
<tr>
<th>Skills</th>
<th>Developmental age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Following instruction</td>
<td>18months</td>
</tr>
<tr>
<td>Body concept:</td>
<td></td>
</tr>
<tr>
<td>identify</td>
<td>30months</td>
</tr>
<tr>
<td>name</td>
<td>42months</td>
</tr>
<tr>
<td>know function</td>
<td>60months</td>
</tr>
<tr>
<td>Basic concepts:</td>
<td></td>
</tr>
<tr>
<td>3D matching</td>
<td>36months</td>
</tr>
<tr>
<td>3D naming</td>
<td>60months</td>
</tr>
<tr>
<td>Position in space:</td>
<td></td>
</tr>
<tr>
<td>kinaesthetic</td>
<td>30months</td>
</tr>
<tr>
<td>Left and right discrimination</td>
<td>60months</td>
</tr>
<tr>
<td>Spatial relations:</td>
<td></td>
</tr>
<tr>
<td>3D</td>
<td>48months</td>
</tr>
</tbody>
</table>

**High Risk Baby Protocol**
The High Risk Baby protocol is designed to follow up all High Risk Baby's from 0-12 Months. An assessment form will be filled in by the MO and referred to OT/PT who will then fill in the rest of the assessment form or screening is done to identify a HRB using the program criteria found on the profile page. 4 group sessions are run in the ward where the mothers are taught about their prem or high risk babies and how to care for them. A basic baby stimulation home program will be given to all baby's entering program. All High risk babies will be followed up at zithulele on the second Monday of the month.

After the initial assessment give a 3 month follow up and complete the HRP datasheet. On D/C give hand out a Basic Baby Stimulation home program.

Follow ups will be done by the rehab team members and then referred to MO, Audio, Dentist, and Dietician as needed.

Follow ups will be at 3, 6, 9 and 12 Months. A Wits Developmental profile will be used to monitor the baby’s development. The caretaker/Mother is taught what milestones are expected to have reached by the next follow up date as well as stimulation program. Overall health and well-being of the baby is also checked up on, please remember to have a look at their weight for age chart.

At 1 years age either D/C baby or place in a CP group.

If a baby meets any of the following criteria they should be entered

<table>
<thead>
<tr>
<th>Referral criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prem &lt;34 wks</td>
</tr>
<tr>
<td>LBW&lt;2000g</td>
</tr>
<tr>
<td>Long/difficult resus</td>
</tr>
<tr>
<td>Septicaemia / RDS/ NNS</td>
</tr>
<tr>
<td>Breech Delivery</td>
</tr>
<tr>
<td>NNJ Bil&gt;280mmol</td>
</tr>
<tr>
<td>Seizures/ jitteriness</td>
</tr>
<tr>
<td>Abnormal movements</td>
</tr>
<tr>
<td>Hydro/microcephaly</td>
</tr>
<tr>
<td>Absent/ deformed limb</td>
</tr>
<tr>
<td>Congenital deformity</td>
</tr>
</tbody>
</table>
# Baby Home Stimulation Program

<table>
<thead>
<tr>
<th>0-3 Months</th>
<th>4-6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What to expect:</strong> lifting head while lying on stomach, starts reaching for objects, brings hands to mouth</td>
<td><strong>What to expect:</strong> sits with support, balances head well, pushes through legs when you hold them in a standing position, should be rolling from tummy to back and back to tummy at the end of 6 months, handling objects, babbling</td>
</tr>
<tr>
<td><strong>How to help:</strong> 30 minutes of tummy time throughout the day, progress from baby lying on your chest to lying with a rolled up towel under their chest and eventually letting them do it independently. Use colourful and noisy toys to gain baby’s attention and encourage them to follow it with their eyes in different positions.</td>
<td><strong>How to help:</strong> Continue with tummy time, letting them play with toys in supported sitting, use colourful toys and speak to them a lot, help with rolling at the shoulders or hips</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7-9 Months</th>
<th>10-12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What to expect:</strong> Starts sitting with hands leaning forward and sits independently by 9 months, bounces in supported standing, pulls to stand, rocks forward and backwards on hands and knees, will start crawling from 9 months onwards</td>
<td><strong>What to expect:</strong> Walks while holding onto furniture, might walk while holding onto your fingers or hands, playing with a ball by rolling it, imitates sounds and starts doing gestures</td>
</tr>
<tr>
<td><strong>How to help:</strong> encourage baby to sit and put weight in arms, if struggling with being on hands and knees then you can support them underneath their tummy</td>
<td><strong>How to help:</strong> say the names of the objects you give to baby read to them, can start practicing to use a spoon, encourage walking while holding on</td>
</tr>
</tbody>
</table>
## Toileting Milestones at Different Ages

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 MONTHS</td>
<td>There is no awareness or control of bladder and bowel sensations.</td>
</tr>
<tr>
<td></td>
<td>The child has no bladder or bowel control.</td>
</tr>
<tr>
<td></td>
<td>The child’s reflexes control movement.</td>
</tr>
<tr>
<td>12-24 MONTHS</td>
<td>The child perceives bladder fullness.</td>
</tr>
<tr>
<td></td>
<td>The child begins to show bladder and bowel patterns.</td>
</tr>
<tr>
<td></td>
<td>The child begins to indicate discomfort over soiled diapers.</td>
</tr>
<tr>
<td></td>
<td>The child holds urine briefly.</td>
</tr>
<tr>
<td>18-24 MONTHS</td>
<td>The child sits on a potty or adaptive seat on a toilet with assistance.</td>
</tr>
<tr>
<td></td>
<td>The child washes and dries hands partially.</td>
</tr>
<tr>
<td>24-36 MONTHS</td>
<td>The child shows an interest in using the toilet.</td>
</tr>
<tr>
<td></td>
<td>The child stays dry for 2-4 hours.</td>
</tr>
<tr>
<td></td>
<td>The child can pull down pants with assistance.</td>
</tr>
<tr>
<td></td>
<td>The child indicates the need to use the toilet.</td>
</tr>
<tr>
<td></td>
<td>The child washes hands independently.</td>
</tr>
<tr>
<td>24-48 MONTHS</td>
<td>The child anticipates the need to empty their bladder and bowel.</td>
</tr>
<tr>
<td></td>
<td>The child has voluntary control of their bladder and bowel during the daytime.</td>
</tr>
<tr>
<td></td>
<td>The child undresses with assistance.</td>
</tr>
<tr>
<td></td>
<td>The child pulls up pants with assistance.</td>
</tr>
<tr>
<td>30-36 MONTHS</td>
<td>The child distinguishes between urination and bowel movements.</td>
</tr>
<tr>
<td></td>
<td>The child can hold urine voluntarily with occasional mishaps.</td>
</tr>
<tr>
<td></td>
<td>The child takes responsibility for toileting and shows an overall insistence to do things independently.</td>
</tr>
</tbody>
</table>
The child may require assistance for wiping with toilet paper.
The child dresses with supervision and may require help with fasteners.
The child dries their hands independently.

**44-72 MONTHS**
The child tears toilet paper, wipes self and flushes the toilet after use.
The child remembers to wash and dry their hands after using the toilet.
The child dresses independently and adjusts clothing before leaving the bathroom.
The child may have a few accidents.
The child can hold urine for longer periods of time.
The child has control of the bladder and bowel at night.

**72 MONTHS**
The child has voluntary control when bladder is less than full.
Learning Disability Program

LD group is held once a month for 12 months. Children are assessed and if they meet the criteria they are placed in the group. Once the completed all 12 sessions they either graduate or they start the sessions from the beginning. The groups focus on 11 topics and the aim is to empower the parents to be able to assist their children with learning. Sadly, there is not capacity in DOH to provide individual sessions to all the kids with schooling needs the individual sessions they require. By empowering the parents, we have seen good improvement.

Criteria for entering groups:

- Between the ages of 5-8/9
- Supportive/ involved care giver
- Currently schooling

Groups:

1. Development of posture and body scheme
2. Eye movements and visual discrimination
3. Shoulder and hand strength
4. Balance and in-hand manipulation
5. Symmetrical bilateral coordination and basic constancy
6. Asymmetrical bilateral coordination and directionality and progression
7. Spatial perception
8. Visual closure
9. Task Concept and basic problem solving
10. Obstacle course and stations observation for evaluation report

*Outlines for groups are in the LD group boxes
Special School Referral Protocol

All placements for special schooling is done by the Department of Educations task team in Mthatha at the Botha Sigcau building. The following proses was agreed to by both parties to assist patients and care givers to make the process more efficient:

1. Each child that needs a special schooling assessment will need a completed Support Needs Assessment Form (SNA) that needs to be completed by the class teacher.
2. This form needs to be accompanied by a copy of the child’s Learner Profile (LP) that contains the child’s report cards and school progress. Birth certificate, road to health card as well as any relevant medical documentation needs to be added.
3. The Support Needs Assessment, along with the Learner Profile and a referral letter can then be sent with the caregiver to the Occupational Therapists at his/her District Hospital.
4. The Occupational Therapist will then send to it that the forms are sent to the Department of Education for the child to be given an appointment date for assessment.
5. The SNA, LP can be emailed to samkelisiwe.mojola@ecdoe.gov.za or zanele.ntunzi@ecdoe.gov.za. The care giver can also take the referral to the Inclusive Education office no 58 Ground floor Bota Sigcau Building, Mthatha. They will then record the referral and call the caregiver and the child for an assessment date.
6. A District Support team (consisting of Allied Health Professionals) will then do the necessary assessments based on the Support Needs Assessment form as well as learner profile. They will need to do the assessment at the child school and will then be in contact with the school to arrange an appropriate date and time for the assessments.
7. The DOE team will then take the process further and based on their assessment, will be able to determine what the best school environment for the child will be. They will then contact the appropriate school and arrange further assessment or placement.

*Copies of the Support Needs Assessment Form and the Learner profile can be found in the Special Schools file.

Skills Centre Referral Protocol

There are three options for skills centres in the Mthatha area which of whom some take persons with physical disabilities and/or intellectual disabilities.

Each centre has their own criteria for entry as well as run different programs.

It is again not up to Department of Health to place but rather to advice and facilitate the process for our patients.

1. Ikhwezi Lokusa Rehabilitation and Development Society
2. Sakhi Ngomso Training and Development Centre
3. Efata School for the blind

*Application forms and medical forms can be found in the special school file.
**Occupational Therapy: Special Schools Assessment**

**Procedure:**
- Complete special school’s assessment stats.
- Save on department computer. Email to District Based Support Team (DBST).
- Follow up at end of each year to find out who has been placed.
- Most important sections of the report: From beginning until Mobility.

<table>
<thead>
<tr>
<th>Name</th>
<th>Assessed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth</td>
<td>Date of assessment</td>
</tr>
<tr>
<td>Age on Ax</td>
<td>Address</td>
</tr>
<tr>
<td>Caregiver Name &amp; Relation</td>
<td>Contact Details 1. 2.</td>
</tr>
</tbody>
</table>

**Recommendations**

**Child's special needs and/or limitations:**

- **Physical disability**: mobility / hand function / speech / sensory (visual / hearing / sensation)
- **Intellectual disability**: Mild / Moderate / Severe / profound
- **Is this child educable?** Full academic / basic academics and skills / skills only
- **How much care does this child require?** Physical assistance needed with:
  - Supervision needed with:

**Recommended School:** (These 3 schools are the government schools in Mthatha)
- **Thembisa** (For Intellectual disability; MUST be mobile (not wheelchair friendly); must have accommodation within 20 km radius of school; day school only)
- **Ikhwezi Lokhussa** (Physical and/or II with academic potential)
- **Efata** (section for the visually impaired / section for the hearing impaired; has hostel facilities; not wheelchair accessible)

**Further Comments:**

**Background**

**Living situation:**
- **Grant Status:**
  - **Relative in Mthatha?** Y/N
  - **Within 20 km of Thembisa?** Y/N

- **Birth History:** NVD / C-section? Term/Premature?
- **Complications? Apgars?**
- **Milestones:** Sitting? Crawling? Walking? Potty trained? First word?

**Medical History:**
- Epilepsy or other conditions? Controlled?
- Medication? Side Effects?
- Cause of diagnosis?
- Reason for referral?

**Vision and Hearing**
- Tested? Function.

**School History**
- Ever attended school/ crèche
  - If not why?
  - If yes, name of school
- If stopped schooling- why?

**Years of school experience and grades repeated**
- Child’s experience/ enjoyment of school
- Teacher Comments

**Activities of daily living**
- Overall Competence:
- Eating and Drinking:
- Toileting:
- Toothbrushing and Face Washing:

**Dressing:**
- Fastening Buttons and Zips:
- Washing:
- Taking medication:

**Social Skills**
- Plays with other children?
  - Younger/older?
- Can follow ‘rules’ of a game?
- Prefers Playing alone? Aggressive? Strange behaviours?
## Mobility

| Walking / Crutches / Wheelchair self-propelled / Wheelchair assistant propelled | Distance able to cover? |
| Able to carry school bag? | Other limitations? |
| Negotiate rough terrain? | If child has a physical disability comment on: |
| | Head control, trunk, upper limbs, lower limbs. |

## Gross Motor Skills

| Prone extension (Superman position) | Skipping |
| Running | Clapping a rhythm (1-4 part rhythms) |
| Jump both legs | Diadokokinesis |
| Stand on one leg 10sec (L and R) | Comment on: |
| Hop 3m on one leg (L and R) | General ability to maintain posture (Tone) |
| Catch and throw large ball | Co-ordination of movement |
| Catch and throw tennis ball | Ability to sequence movements |
| Star Jumps | Left and right discrimination |

## Fine Motor skills

| Thumb-finger-touching | Writing name and surname |
| Coloring in and cutting out ice-cream picture | Writing: Mama, vuka, inja. |

## Speech and Language

| Identify and name body parts | Comment on components in table below. |
| | |

### Expressive Language

<table>
<thead>
<tr>
<th>3-4 Years</th>
<th>4-5 Years</th>
<th>5-6 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Say Please and thank you</td>
<td>• Empty/full</td>
<td></td>
</tr>
<tr>
<td>• Say name and surname</td>
<td>• Boy/girl</td>
<td></td>
</tr>
<tr>
<td>• Say age and gender</td>
<td>• Asks “who?” and “why?” questions</td>
<td></td>
</tr>
<tr>
<td>• Sentence length of 4-5 words</td>
<td>• Uses past tense</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Visual Perception

- Position in space: Follow instructions to go to or put body part: On top of, under, in front of, to the left, to the right of chair (combine with body parts)
- Draw a man (also relate to naming body parts R.E. body image)
- Shapes: Identifies and draws
- ☐☐☐☐

### Numeracy skills

| Concept of size | Able to count backwards from 20 |
| Able to count by rote up to 20 | Basic addition |
| Able to count 20 objects | Basic subtraction |

### Literacy skills

| Comment on writing of name and other words | Able to copy letters |
| Able to recognise letters | Able to write word |
| Able to read letters |

### Attention and Ability to Learn

| Allen Cognitive Test score & comments |

---

Signature, name, surname and title of therapist
General Guidelines for Booking and Assessing Clients for DGs

See the Guidelines for the Medical Assessment of Disability for Social Assistance Purposes document for more detailed info

1.) Booking

Elliotdale:
- Patients need to go to Elliotdale SASSA on specific days to be assessed by the Elliotdale doctors.
- Complete the assessment, and fill out a letter for SASSA
- Go to Nonceba to book the patient for a date for them to go to SASSA, as we need to send the list to SASSA to ensure that they get assessed.
- They patient needs to take 2x copies of their ID for a DG or GIA, or 2x copies of the birth certificate and 2x copies of the mother/caregivers ID for a CDG.

Mqanduli:
- Mqanduli applications can be processed at any time as SASSA leaves their book with Nonceba for her to take the fingerprints of patients.
- Complete the therapy assessment and if they qualify write the assessment report to motivate for the grant.
- Ask a doctor (Opd champ) if they would be willing to do the grant (if OPD is very busy the patient might need to be booked to come back on a Friday.
- The patient then needs to go to Nonceba to have the forms filled out and their fingerprints taken.

2.) The Therapy Assessment

The therapy assessment serves as a thorough functional assessment when it is unclear whether the applicant qualifies or not and also as a back up for the doctor’s recommendation, when the person is clearly functionally impaired. Our assessment falls under 4 headings
- **Background:** under this heading include information about the age, medical condition, relevant medical history, household circumstances and income, and schooling and work history
- **Assessment:** physical, psychological or intellectual. This includes areas such as ROM, muscle strength, gait, endurance, sensation, memory, orientation, writing etc. Include whatever is relevant to the condition and reason for application
- **Functional Implications:** Discuss the implications of the physical, psychological or intellectual impairments on the daily functioning of the applicant
- **Conclusions/Recommendations:** conclude the assessment and make a recommendation whether the applicant should receive the DG/CDG or not.

If you are doing a CDG application, on the form please fill in the developmental milestones and recommendations regarding schooling

Send the applicant back to the doctor to sign the form and then hand it in at the nurses' station in OPD

3.) Guidelines for Specific conditions

**Epilepsy:** need to be classified as “uncontrolled” (more than 3 fits per month) with proof by **blood test** of compliance with medication

**HIV/AIDS:** stages 3 and 4 (need to be **functionally** impaired)

**Psychiatric Illness:** results of MSE (or a cognitive ax), full **OT** assessment (ideally diagnosed by a **psychiatrist**)

**Intellectual Impairment:** IQ level, mental age, cognitive function

**Neurological:** disease process, UMN vs L MNL, central vs peripheral, power, tone, deformity, limbs involved, deficits in higher functioning, CT scan, **CVA patients must be given 3m recovery & get rehab**

**Musculoskeletal:** (polio, congenital limb defects, severely functionally impairing fractures): joint involvement, muscle wasting, muscle tone (be sure to note **functional** impairment), back pain alone will not qualify
Osteoarthritis: needs to be more than mild-moderate, needs functional limitations as well as clinical changes, X-ray evidence

Kyphoscoliosis or other skeletal deformities: will qualify if severe and with functional limitations or respiratory compromise.

Vision: preferably to have been to mercy vision, do functional assessment

Hearing: need full assessment by audiologist, not assessed by us.

Respiratory/COPD: smoker? Xray report, Peak exp flow Rates (pre and Post bronchodilators), an exercise stress test can confirm low exercise tolerance (5 minutes exercise with HR and BR measured at intervals afterwards), functional assessment, NYHA dyspnoea grade. Patients ideally need lung function tests.

<table>
<thead>
<tr>
<th>Grade I (minimal Dyspnea)</th>
<th>Grade II</th>
<th>Grade III (considerable Dyspnea)</th>
<th>Grade IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathlessness on running or on doing more than ordinary effort</td>
<td>on doing ordinary effort</td>
<td>on doing less than ordinary effort</td>
<td>Breathlessness at rest</td>
</tr>
</tbody>
</table>

5.) Temporary grants
The following conditions are suitable for application for temporary grants:

MDR TB, Acute TB with severe functional restrictions, pts awaiting surgery, severe mood disorders,

Club feet: These children need to attend for weekly casting and regular trips to Mthatha.

6.) Factors to consider during an evaluation
- Description of impairment based on medical diagnosis
- Level of functional independence (activities of daily living)
- Education and skills, employment history
- Discriminating factors:
  - Age: <50; or >50
  - Geographical area and socio-economic factors
  - Opportunities for referral, community projects or sheltered workshops

Determination of grant eligibility (this is still not a perfect system nor a science)

According to the information supplied in the medical assessment are they estimated to fall into which of the following categories?

1. Minimal impairment i.e. 0-25%.
   The impairment is considered to be minor despite the social conditions, he/she does not qualify

2. Significant impairment i.e. 25-40%
   The patient must qualify depending on above mentioned social factors

3. Major impairment i.e. >40%
   The patient automatically for disability grant unless he/she fails the means test

7.) The Means Test: Asset and Income threshold for 2020/21

Disability Grant (R1860 per month) – for those 18-59yrs old who are unable to work due to disability

Asset threshold may not own assets worth more than

<table>
<thead>
<tr>
<th>Single person</th>
<th>Married person</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 227 600</td>
<td>R2 445 200</td>
</tr>
</tbody>
</table>

Income thresholds may not earn more than the following per year

<table>
<thead>
<tr>
<th>Single person</th>
<th>Married person</th>
</tr>
</thead>
<tbody>
<tr>
<td>R86 280</td>
<td>R94 800</td>
</tr>
</tbody>
</table>

Care-dependency grant (R1860 per month) – for children under 18 needing more care than another child

Income threshold (per year)

<table>
<thead>
<tr>
<th>Single person</th>
<th>Married person</th>
</tr>
</thead>
<tbody>
<tr>
<td>R144 000</td>
<td>R288 000</td>
</tr>
</tbody>
</table>

Grant in aid (extra R450)
This can be applied for in conjunction with a DG (not a CDG) in order to assist people who are completely dependent on others to be able to pay a carer.

Other grants:
Child support grant (R440) all children under 18yrs paid to mom
Old age pension (R1860) 60+yrs Foster child grant (R1040)
Social Work Cheat Sheet

How do you get a birth certificate for an adult?
Documents needed:
- Parents ID
- A letter from the chief/counsellor of the area
- A letter from the principle of the school you attended. You need to get a ‘school form’ from home affairs which then need to be completed by the school you attended. The letter must also be stamped by the school
You need to be accompanied by an older (at least 10 years older) family member with the same surname as you to Home Affairs

How to get an ID if you don’t have one?
Documents needed:
- Birth Certificate
- ID photos
- If older than 25 years you need a report from a social worker to explain why you are only applying for the ID now.
Take all of the above to Home Affairs

How to change your ID if the dates/sex are incorrect?
Documents needed:
- Letter from a doctor to state your sex and date of birth
- If a child: Discharge letter from maternity which will have the sex of the child on it
- If birth certificate is correct: Take this along. If birth certificate dates are incorrect take documents 1 and 2 with you
- Social worker report (if possible)
Then go back to Home affairs and will need to pay a fee. Always keep the first receipt as proof that you have already paid, as it happens quite often that this mistake is made and they will need to repeat the process. Home affairs will then do an investigation.

How to get a birth certificate for your child who doesn’t have one?
Documents needed:
- Need an up to date RTHC with a hospital stamp
- Mother’s ID
These documents need to be taken to Home affairs
No fee
If no RTHC:
- Need to get a clinic card from the clinic or hospital
- A letter from the chief stating that he knows the child & the date of birth
Once the mother has received a clinic card, follow the procedure above

How to change the person who receives a CSG or CDG (if mommy is not looking after the child)?
Documents needed:
- Clinic cards
- Birth certificates of the child
- ID of the family member or caregiver you would like the grant to go to
- Social work completes a transfer of CSG request (if available)
Need t contact SASSA & give all details
What if child has different surname?
Documents needed:
- Letter from the chief or affidavit from the police explaining that he knows the child and the reason for a different surname
- Copy of mother’s ID/date of birth of the mother
- If the child already has a birth certificate in the incorrect surname, this and the RTHC must also be brought along
- If mother is not the caregiver: This person must bring their ID with as well
Social workers can be contacted for verification
All documents need to be taken to SASSA
Alternatively the child can wait until they are 18 and then apply for their surname to be changed.

What if an elderly person was born at home and does not know their date of birth/has never received a birth certificate?
Documents needed:
- Passport or book of life, if they have one
If no passport, they can either go to home affairs on Thursdays to the screening committee. They need to take along an older family member who has the same surname and an ID.
Home Affairs does also now come out into the community so if the screening committee is in their area they can also do this there.
Will probably need a letter from chief and neighbour/ someone present at birth and a social worker report if possible.
## Basic Psychiatric Conditions

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>CLINICAL FEATURES</th>
<th>HANDLING PRINCIPLES</th>
</tr>
</thead>
</table>
| **GENERALISED ANXIETY DISORDER** | **Criteria:** Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months about a number of events or activities  
Presenting with at least 3 of the following  
- Restlessness or feeling keyed up or on edge  
- Being easily fatigued  
- Difficulty concentrating or mind going blank  
- Irritability  
- Muscle tension  
- Sleep disturbance (difficulty falling or staying asleep or restless, unsatisfying sleep)  
Associated with Autonomic hyperactivity (shortness of breath, excessive sweating, palpitations, GIT problems)  
**Psychosocial causes:** Sense of uncontrollability usually developed in childhood. | • **Reassurance:** acknowledge discomfort, discuss fears, positive attributions, acknowledge symptoms are distressing but not dangerous.  
• **Encouragement:** promote self-evaluation, help process threatening information on an emotional level, opportunities to verbalise emotions, be practical, help process threatening information on an emotional level,  
• **Acceptance:** create safe space – don’t criticize, realistic demands, tolerate initial dependency  
• **Support and confrontation:** support NB! Confrontation – firm and matter of fact, honest and sensitive feedback, help with choice making and problem solving and install faith in their own abilities to problem solve  
• **Educate:** educate on possible impact on functioning (especially decision making), educate patients how to relax deeply to combat tension |
| **POST-TRAUMATIC STRESS DISORDER** | • Following a traumatic event:  
  - Avoid  
    - Thoughts, feelings, people, situations that remind of trauma  
  - Re-experience the trauma as  
    - Flashbacks, nightmares, intrusive thoughts – leading to intense psychological distress and physiological reactivity  
  - Hyperarousal  
    - Being alert, trouble sleeping, irritability, difficulty concentrating, exaggerated startle response  
    = severe occupational and social dysfunction  
  • Other symptoms: panic attacks, feelings of mistrust, relationship problems, persistent negative emotions, physical (muscle cramps, headaches etc), post-traumatic amnesia, no interest in significant activities | • Be in a safe area where an episode of panic can be managed appropriately  
**Possible RX:** Desensitisation  
- Allow to talk about experience/ flashbacks  
- Identify triggers (usually through sensory stimuli)  
- Memories are usually scattered.  
- Manage reactions in a calm approach - avoid uncertainty, arranging the re-exposure so that it will be therapeutic rather than traumatic.  
  - Use breathing techniques (use glove)  
  - 5 senses awareness technique (5 things I can see, 4 things I can hear, 3 things I can feel, 2 things I can smell, 1 thing I can taste)  
- Teach the patient to use these techniques when triggers resurface. |
| **BIPOLAR MOOD DISORDER** | **BMD Type I:** Mania, alternating with depressive episodes  
**BMD type II:** Hypomania, alternating with depressive episodes  
• Abnormally and persistently elevated, irritable and/or expansive mood, persistently increased goal directed activity/energy (at least 1 week)  
• 3+ of following symptoms:  
  - Inflamed self-esteem (grandiosity)  
  - Decreased need for sleep  
  - More talkative (pressured speech)  
  - Flight of ideas (racing thoughts)  
  - Distractibility | • Keep in mind the patient might have poor insight and not want to lose his current surge of energy.  
• Be firm with the patient wrt appropriate behaviour  
• Be aware of countertransference of energy  
• Show empathy and understanding  
• Set clear rules during treatment sessions (set clear limits)  
• Bring the client back to reality when they lose interest  
• Be consistent and on time  
• Provide realistic, positive feedback  
• Don’t try to get pt to calm down, but channel energy into constructive |
### MAJOR DEPRESSIVE EPISODE

If no manic/hypomanic episode occurs, one depressive episode can be diagnosed as major depressive disorder.

**Criteria:** Depressed mood and/or anhedonia most of the day every day for at least 2 weeks, accompanied by at least 3 or more of the symptoms below. Should cause change in functioning.
- Increase/decrease in appetite, weight
- Insomnia/ hypersomnia
- Psychomotor agitation/retardation
- Fatigue/ Lack of energy
- Feelings of guilt/worthlessness
- Indecisiveness
- Poor concentration
- Thought of death and suicide

**Associated with:** Social withdrawal, decreased motivation, Anxiety, decreased sexual drive, Stooped posture, Decreased rate/volume of speech, Negative thought content and Impaired memory

### GRIEF AND COMPLICATED GRIEF

**Acute grief** – yearning for deceased, suicidal ideaedions to be reunited with deceased, streaming thoughts of deceased, hallucinatory experiences and somatic distress (physical symptoms similar to a depressive episode)
Natural grieving process peaks withing first 6 months but some individuals grieve for a year or longer. Normal process results in adjustment to the loss = **integrated grief**.

**Severe grief** – If still present 6 months after loss, prognosis of recovery without treatment is reduced. The following symptoms arise, suicidal thoughts, difficulties with emotional regulation – become rigid and inflexible.

**Complicated grief** - The presence of thoughts, feelings, or behaviours reflecting excessive or distracting concerns about the circumstances or consequences of the death.

### SCHIZOPHRENIA:
- **Paranoid**
- **Disorganised**
- **Catatonic**
- **Undifferentiated**
- **Residual**

<table>
<thead>
<tr>
<th>Positive symptoms</th>
<th>Negative symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delusions</td>
<td>Blunted/flat affect</td>
</tr>
<tr>
<td>Hallucinations</td>
<td>Aloia (poverty of speech)</td>
</tr>
<tr>
<td>Disorganised speech</td>
<td>Anhedonia (reduced emotional response, no more pleasure)</td>
</tr>
<tr>
<td>Grossly disorganised or catatonic behaviour</td>
<td>Asoiality (reduced desire to form relationships)</td>
</tr>
</tbody>
</table>

### Pharmacotherapeutic intervention

- **Build a therapeutic relationship with the patient built on trust.**
- **Show empathy by listening and give patient time to react**
- **Give the patient opportunity to express feelings**
- **Use warm, matter of fact approach**
- **Show understanding of his/her feelings**
- **Show acceptance**
- **Handle negativism in a passive way (ignore)**
- **Help with feelings of guilt by allowing verbal expression**
- **Normalise mental illness and break stigma**

**Rx:** Education and give insight into pathology, projective techniques for dealing with subconscious feeling, educate on medication and compliance, life style adjustments for healthy coping strategies, ensure support system via family education/ support groups.

**1.** Help patient to,
1. Accept the reality of the loss;
2. Work through to the pain of grief;
3. Adjust to an environment in which the deceased is missing; and
4. Emotionally relocate the deceased and move on with life.

**2.** Facilitate Stages of grief. Assess whether the patient is stuck in one stage.
Denial -> Anger -> Bargaining -> Depression -> Acceptance

**3.** Encouraged to talk about the loved one, the death, and the meaning of the loss while experiencing all the associated emotions, until that person can come to terms with reality.

**4.** Help patient to,
1. Accept the reality of the loss;
2. Work through to the pain of grief;
3. Adjust to an environment in which the deceased is missing; and
4. Emotionally relocate the deceased and move on with life.

**5.** Build a therapeutic relationship with the patient built on trust.
- **Show empathy by listening and give patient time to react**
- **Give the patient opportunity to express feelings**
- **Use warm, matter of fact approach**
- **Show understanding of his/her feelings**
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**1.** Help patient to,
1. Accept the reality of the loss;
2. Work through to the pain of grief;
3. Adjust to an environment in which the deceased is missing; and
4. Emotionally relocate the deceased and move on with life.

**2.** Facilitate Stages of grief. Assess whether the patient is stuck in one stage.
Denial -> Anger -> Bargaining -> Depression -> Acceptance

**3.** Encouraged to talk about the loved one, the death, and the meaning of the loss while experiencing all the associated emotions, until that person can come to terms with reality.

**4.** Help patient to,
1. Accept the reality of the loss;
2. Work through to the pain of grief;
3. Adjust to an environment in which the deceased is missing; and
4. Emotionally relocate the deceased and move on with life.
| NEURO COGNITIVE DISORDER (Previously dementia, includes Alzheimer's) | • Disorientation  
• Impairment in language abilities  
• Intellectual impairment  
• Forgetfulness  
• Denial  
• Social withdrawal  
• Sudden outbursts of anger/sarcasm  
• Memory impairment  
• Lability of emotions  
• Poor personal hygiene/grooming | • Provide optimal level of environmental stimulation  
• Make environments more familiar  
• Provide environmental cues to facilitate orientation  
• Orient client when he/she is confused  
• Move slowly, speak clearly, explain all procedures  
• Structure environment to enhance memory  
• Label objects  
• Provide consistent daily routine that does not overload senses  
• Validate feelings expressed – do not argue with delusions  
• Family education of dealing with delusions, confusion and anger |
|---|---|
| DELIRIUM | • Direct physiological consequence of another medical condition, substance use/withdrawal  
• Disturbance in attention and awareness developing in a short period of time and fluctuates in one day  
• Cognitive disturbances (memory, orientation, language, visuospatial and perception)  
• Disruption of sleep-wake cycle  
• Mood alterations | |
| SUBSTANCE ABUSE | • Includes: dependence, abuse, intoxication, withdrawal, substance induced disorders  
• Abuse:  
  o Recurrent substance use in situations that place person in physical danger  
  o In face of obvious impairment in school or work performance  
  o Despite legal problems  
  o Despite social and interpersonal problems  
• Dependence:  
  o Tolerance, withdrawal, heavier use of substance than was intended, unsuccessful desire to cut down or control use, reduction in social and occupational activities, user aware of impairments but doesn’t give it up | • Focus in changing behaviours and lifestyle:  
  o Recognise problems and consequences  
  o Admit need for help and concentrate on solving problems constructively  
  o Identify changes that need to be made  
  o Make changes to develop new way of life  
• Aims of treatment:  
  o To obtain insight, LTA stimulation to replace alcohol abuse  
  o Form new, healthy IPR, stress mx, increase self image, problem solving, voc rehab, goal setting, increase ADL part. |
## Personality Disorders

*(Reference: Occupational Therapy in Psychiatry and Mental Health)*

### OUTSTANDING PERSONALITY TRAITS

<table>
<thead>
<tr>
<th>CLUSTER A: Odd, Aloid features</th>
<th>HANDLING PRINCIPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PARANOID</strong></td>
<td>Distrust and suspiciousness; Intimacy avoidance; Hostility; Unusual beliefs</td>
</tr>
<tr>
<td><strong>SCHIZOID</strong></td>
<td>Social withdrawal; Intimacy avoidance; Restricted affectivity; Anhedonia</td>
</tr>
<tr>
<td><strong>SCHIZOTYPAL</strong></td>
<td>Altered cognitive regulation; Unusual perceptions; Unusual beliefs; Social withdrawal; Restricted affectivity; Intimacy avoidance; Distrust and suspiciousness; Anxiety</td>
</tr>
</tbody>
</table>

### CLUSTER B: Dramatic, Impulsive and Unpredictable

| **NARCISSISTIC** | Grandiose, self-importance, expect special treatment, handle criticism poorly, ambitious for fame and fortune, fragile relationships, exploit others, no empathy, susceptible for depression, interpersonal difficulties | Est empathetic therapeutic rapport; encourage empathy, awareness of feelings, others’ point of view; deal with projections of feelings onto others |
| **BORDERLINE** | Always in state of crisis, mood swings, short-lived psychosis, unpredictable behaviour, achieve below ability, repetitive self-destructive acts, unstable relationships, not tolerate being alone, projection of negative aspects of self onto others, ordinary reasoning | Structured, reality orientated approach; set clear boundaries; react calmly to impulsivity and unpredictable behaviour; activities channel aggression and relieve pain; address consequences of destructive behaviour |
| **HISTRIONIC** | Attention seeking, temper tantrums, tears, accusations, seductive, sexual fantasies, psychosexual dysfunction, endless need for assurance, act on sexual impulses, relationships superficial, unaware of own feelings, decreased reality testing under stress | Ignore attention seeking, create situations where attention is received (socially appropriate), guard against dependency, replace negative behaviour with positive coping mechanisms |
| **ANTISOCIAL** | Often normal but history full of lying, absenteeism, run from home, fights etc; no anxiety or depression present, no delusions or irrational thinking, often “con-men”, lie and cannot be trusted, promiscuous, spousal abuse, child abuse, drunk driving | Long-term behaviour orientated (poor prognosis); self-help groups; firm limits essential; vigilant to manipulation in therapy |

### CLUSTER C: Anxious and Fearful

| **OBSESSIVE-COMPULSIVE** | Perfectionism; Rigidity; Orderliness; Perseveration; Anxiety; Pessimism; Guilt or shame; Restricted affectivity; Oppositionality | Create relaxed atmosphere; reduce tension as precursor of obsessive behaviour; stress management and leisure participation; constructive use of perfectionism; insight; facilitate emotional expression; promote enjoyment, fun, positive impact on mood, thought and action |
| **DEPENDENT** | Submissiveness, fear of separation, needs excessive amounts of assistance in decision making, defer responsibility of own life, difficulty to express disagreement; goes to excessive lengths to obtain support and acceptance from others, replace close relationships very quickly when lost; Anxiety; Fear of loss | Encourage independent thoughts, decision making, responsibility and function, assertiveness training, attainment of short-term goals (experience success to increase self-esteem); encourage to assess own thoughts and feelings, discuss negative effects of dependence |
| **AVOIDANT** | Anxiety, Fear of loss, Pessimism, Low self-esteem, Guilt or shame, Intimacy avoidance, Social withdrawal, Restricted affectivity, Anhedonia, Social detachment, Risk aversion | Acceptance, develop trust, do not encourage avoidance, approach confrontation with caution, discuss negative effects of avoidance, orientate towards reality |
Psychiatric and Cognitive Assessments

1. **Patient details and case history:**

   Name and surname; Age; Address; Contact details; Main caregiver; Marital Status; Dependants; Employment and Schooling; Family history of mental or other medical conditions; Household circumstances and income; Medical history *(Onset of symptoms/condition; Previous hospital admissions and reason for admission; Reason of current admission/visit to hospital; Medication—remember to also consider the side-effects of medication)*; Main problems/complaints of patient; Main problems/complaints of family members; Main problems reported w.r.t. specific occupations (ADL’s, IADL’s, Social, Leisure, Work/School); Contextual factors facilitating/inhibiting occupational performance

2. **Diagnosis**

   Axis I – Clinical Disorder
   Axis II – Personality disorders and Mental Retardation
   Axis III – Physical disorder or general medical conditions
   Axis IV – psychosocial or environmental problems contributing to psychiatric condition
   Axis V – Global Assessment of Functioning (Social, occupational, and psychosocial)

<table>
<thead>
<tr>
<th>GLOBAL ASSESSMENT OF FUNCTIONING SCALE (0-100)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-91</td>
<td>Superior functioning in a wide range of activities</td>
</tr>
<tr>
<td>90-81</td>
<td>Good functioning in all areas, occupationally and socially effective</td>
</tr>
<tr>
<td>80-71</td>
<td>No more than slight impairment in social, occupational, or school functioning (e.g., infrequent interpersonal conflict, temporarily falling behind in schoolwork)</td>
</tr>
<tr>
<td>70-61</td>
<td>Some difficulty in social, occupational, or school functioning, but generally functioning well, has some meaningful interpersonal relationships</td>
</tr>
<tr>
<td>60-51</td>
<td>Moderate difficulty in social, occupational or school functioning (e.g., few friends, conflicts with friends or co-workers)</td>
</tr>
<tr>
<td>50-41</td>
<td>Serious impairment in social, occupational, or school functioning (e.g., no friends, unable to keep a job)</td>
</tr>
<tr>
<td>40-31</td>
<td>Major impairments in several areas, such as work or school, family relations (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing at school)</td>
</tr>
<tr>
<td>30-21</td>
<td>Inability to function in almost all areas (e.g., stays in bed all day, no job, home or friends)</td>
</tr>
<tr>
<td>20-11</td>
<td>Occasionally fails to maintain minimal personal hygiene; unable to function independently</td>
</tr>
<tr>
<td>10-1</td>
<td>Persistent inability to maintain minimal personal hygiene. Unable to function without harming self or others or without considerable external support (e.g., nursing care and supervision)</td>
</tr>
<tr>
<td>0</td>
<td>Inadequate information</td>
</tr>
</tbody>
</table>

3. **General observations**

   Physique and posture; Gait; Facial expressions; Speech; General appearance (Quality of self-care); Communication – Verbal and non-verbal; Psychomotor activity; Attitude towards therapy
Assessments useful for psychiatry and cognition.

- **Mini-Mental State Examination (Use as cognitive screening tool - If appropriate)**

**Adapted Mini-Mental State Examination**

Instructions:
Tell the patient that you are going to ask him/her some questions and that you will be glad if he/she will please help you by answering them. In the case of a highly intelligent patient say that you realise that some of the questions may seem very easy but that for health screening purposes we do need to include all patients. Test only to be administered to patients who are alert.

<table>
<thead>
<tr>
<th>Name of patient:</th>
<th>Date:</th>
<th>Possible points</th>
<th>Score</th>
<th>Possible points</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is this year?</td>
<td>1</td>
<td>Say: “I’m going to say something that I want you to repeat.” Then say:</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is this season?</td>
<td>1</td>
<td>Ask the patient to follow the three stage command. “Take this paper with your right hand. Fold the paper in half. Put the paper on the floor.” Penalise the patient in he/she folds the paper more than once.</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is this month?</td>
<td>1</td>
<td>Ask patient to imitate you. <strong>Close your eyes.</strong> The patient must do the same.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is this date?</td>
<td>1</td>
<td>Ask the patient to make any sentence. The sentence should include a subject and a verb, and be sensible.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What day of the week is this?</td>
<td>1</td>
<td>Ask the patient to copy the design printed below. (Score 1 point if all sides present and angles are preserved, and intersecting sides form a diamond)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In which country are we?</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In which province are we?</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In which town/city are we?</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In which hospital are we?</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In which part of the hospital are we?</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Say: “I’m going to say 3 words which I want you to remember”. Say the 3 words (only once): <strong>Apple, pen, table</strong> (take 1 second for each). Then ask patient to repeat the 3 words. Then say: “I’m going to ask you to repeat these words later”.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Say: “If you had R100 and spent R7 on bread, how much would you have left?” Then say: “Then you buy another bread for R7, how much do you have left?” Carry on, and stop after 5 answers. Score 1 for each correct answer.</td>
<td>5</td>
<td>Use the best score x/5 between these 2 questions.</td>
<td></td>
<td>TOTAL SCORE: Max 30</td>
<td></td>
</tr>
<tr>
<td>Ask the patient to spell their name.</td>
<td>5</td>
<td></td>
<td></td>
<td>Age:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Years of schooling:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Able to see: Yes/No</td>
<td></td>
</tr>
</tbody>
</table>
If they are able to do that, ask them to spell their name backwards.

Ask the patient: “Please repeat the 3 words I asked you to remember.”

Point to a pen and a table, and ask the patient to name them as you point.

Able to hear: Yes/No

Scoring: For a person with 7 years of schooling, good eyesight and good hearing, a score of less than 24/30 is highly suggestive of dementia or delirium. Patients not able to answer some of the questions due to poor eyesight, hearing or illiteracy, the score is expressed as \( x/(30-y) \), where \( y \) is the number of questions not answered.

**The Allen Cognitive Level Screen**

Downloaded and abridged from: [http://www.allen-cognitive-levels.com/acls.htm](http://www.allen-cognitive-levels.com/acls.htm)

Watch a video of its administration at: [https://vimeo.com/69276435](https://vimeo.com/69276435)

**Introduction:**

Establish rapport. Ask about daily ADL and I-ADL participation

“Have you ever done anything like this before?” (If too familiar this test will not be valid)

“Can you see the holes?” If no, change to the LACLS.

**Running Stitch:**

“I am interested in seeing how you follow directions and concentrate. I will show you how to do a stitch now, so watch carefully what I do.”

“Take the needle and push it down through the next hole and pull the thread through the hole. Push the needle up through the next hole. Pull the needle through the hole and tighten it. Don’t skip any holes. Now you do it.”

These verbal directions and demonstrations can be repeated once.

Interventions for errors – Running Stitch

1. "Is yours like mine?"
2. "How is it different?"
3. "Your mistake is right here," point to the error. "I want you to make yours look just like mine."
4. "Can you fix it?"
5. "Would you like me to show you again?"

**Whipstitch:**

“See how the leather lacing has a dark, smooth side and a light, rough side.”

“Always keep the smooth, dark side up as you do each stitch, being careful not to twist the lacing. Now I will show you another stitch. Watch me carefully. Take the lacing and bring it around to the front, over the edge of the leather. Push the needle through the hole and tighten it. Be sure the lacing isn’t twisted. Don’t skip any holes. Now you do 3 stitches.”

If the person stops after one stitch “Can you do two more?”

Demonstration can be repeated once.

**Two errors:** Twisted thread and cross in the back. If they did not occur introduce them

“I’m going to make a mistake to see if you can correct it.”

“I have made another mistake.” “Can you show me my mistake?” “Can you fix it?”

*Can you do it without taking the lacing out of the hole?*

The same intervention for errors can be used as was used for running stitch.

**Single Cordovan Stitch:**

"Can you do this stitch by yourself?"

Anytime that the person looks lost, frustrated, or in danger of quitting, offer a demonstration. Only two demonstrations can be scored.

"Would you like to be shown how?" If so, continue: "Watch me carefully. Bring the needle to the front of the leather. Push the needle through the next hole towards the back of the leather. Don’t pull the lacing tight but
leave a small loop in it. Bring the lacing to the front of the leather. This time put the needle through the loop you have made. Keep the needle to the left of the lacing. (Show the insertion of the needle) Pull the lacing through the loop towards the back of the leather. Tighten the lacing from the back hole, then tighten the long lacing end. Make sure the lacing isn't twisted. Now you do 3 stitches."

Allen' Cognitive Levels Screen Scoring Guidelines, 2000

Running Stitch
3.0 Grasps leather or pushes it away. May not attempt to grasp the lacing or may grasp the leather lacing when handed to the person and moves leather lacing in a random manner.
3.2 Pushes needle through at least one hole, which can be the wrong location. May skip holes.
3.4 Completes at least 3 running stitches with no more than two demonstrations. Does not skip holes.

Whipstitch
3.6 Does at least one whipstitch in the correct location; no skipped holes.
3.8 Does not recognize twist, cross errors in back when cued. Does recognize running stitch error, but is unconcerned about error. May continue until out of space. May say, “Am I done?”
4.0 Does recognize twists or the cross in back as an error when pointed out. Does not attempt to correct twist or cross errors. Corrects running stitch errors on back when pointed out.
4.2 Corrects twists by redoing the last stitch. Does not untwist while lacing is still in the hole. Corrects errors in cross in back.
4.4 Can untwist at least one whipstitch without pulling it out. Stops after 3 stitches.

Single Cordovan Stitch
5.8 Completes 3 single cordovan stitches without a demonstration or a verbal cue by examining the sample stitches and using trial and error.
5.6 Completes 3 single cordovan stitches without a demonstration but requires a cue (verbal or pointing to location of error) to do the stitch correctly.
5.4 One (but only one) demonstration is given. Corrects errors in directionality, tangled lacing, or tightening in sequence without a second demonstration by altering actions two or more times.

The following scores are after Second Demonstration is Given:
4.2 Repeats the whipstitch or does the whipstitch followed by an attempt to do a second unrelated step. Does not benefit from first and second demonstration.
4.4 Goes from front to back through the hole (like the whipstitch) but inserts needle through loop from the back as if it were one step. (Lacing is under loop but does not wrap around it.) Or, directionality goes front to back through the hole but back to front through the loop or vice versa. Does not benefit from first and second demonstration.
4.6 Right/left orientation of lacing and needle are incorrect when going through the loop. Little to no improvement is noted with first or second demonstration.
4.8 Lacing is not tightened in sequence (hole then loop), just pulls on needle, may or may not recognize error. Little to no improvement is noted with first or second demonstration.
5.0 Corrects errors in directionality, tangled lacing, or tightening in sequence but cannot replicate solutions. A little improvement or alteration occurs with a second demonstration but errors remain.
5.2 Corrects errors in directionality, tangled lacing, or tightening in sequence with a second demonstration. The loops are tightened in sequence; the tension may be a little loose but no other errors remain.
• **MSE – Mental state examination** (This is a tool that is mostly use by medical doctors.)

Appearance: General appearance from the patient, distinguishing features, weight, personal hygiene, clothing and objects.

Behaviour: It provides may provide information about the patients, engagement and report, eye contact, Facial expression, Body language, psychomotor activity (restlessness or psychomotor retardation) abnormal movements and posture.
- Involuntary movements
- Tremors
- Tics
- Lip-smacking
- Akathisias
- Rocking

Speech: Rate of speech (pressured speech or slow speech)
- Quantity of speech
- Tone of speech
- Volume of speech,
- fluency
- rhythm of speech.

Mood and affect: Mood is what the patient tells you, affect is what you observe.
Mood (How do you feel, what is your current mood (feeling anxious, depressed, low, angry, enraged, guilty, euphoric, apathetic)
Affect: Facial expression and apparent emotion
- Range and ability of affect (fixed affect, restricted affect and labile effect)
- Intensity of effect (heightened or Blunted/flatten effect)
- Congruency of effect (if the affect keeps in context with the thought)

Thoughts: Form, content and possession.
Though form (processing and organisation of thoughts)
Speed of thoughts (patients can respond abnormally fast (racing) or abnormally slow thought process. Flow and coherence of thoughts (healthy individual will think of things in a thought flow at a steady pace and logical order)

Abnormalities of thought flow and coherence include:

- Loose associations: moving rapidly from one topic to another with no connection between topics.
- Circumstantial thoughts: these are thoughts which include lots of irrelevant and unnecessary details.
- Tangential thoughts: digressions from the main conversation subject.
- Flight of ideas: there is an accelerated tempo of speech often referred to as ‘pressure of speech. The patient will have irrelevant and loads of ideas following each other with unrealistic thoughts.
- Thought blocking: sudden cessation of thought, typically mid-sentence, with the patient being unable to recover what was previously said.
- Perseveration: refers to the repetition of a response (such as a word, phrase or gesture) despite the absence/removal of the stimulus.
- Neologisms: words a patient has made-up which are unintelligible to another person.

Thought content (Abnormalities of thought content can include):

- Delusions: a firm, fixed belief based on inadequate grounds.
- Obsessions: thoughts, images or impulses that occur repeatedly and feel out of the person’s control. The patient is aware these obsessions are irrational, but the thoughts continue to enter their head.
• Compulsions: repetitive behaviours that the patient feels compelled to perform despite recognising the irrationality of the behaviour.
• Overvalued ideas: a solitary, abnormal belief that is neither delusional nor obsessional in nature, but which is preoccupying to the extent of dominating.
• Homicidal/violent thoughts

Thought possession, (abnormalities of thought possession include):

• Thought insertion: a belief that thoughts can be inserted into the patient’s mind.
• Thought withdrawal: a belief that thoughts can be removed from the patient’s mind.
• Thought broadcasting: a belief that others can hear the patient’s thoughts.

Perception:

involves the organisation, identification and interpretation of sensory information to understand the world around us. Abnormalities of perception are a feature of several mental health conditions.

Abnormalities of perception include:

• Hallucinations: a sensory perception without any external stimulation of the relevant sense that the patient believes is real.
• Pseudo-hallucinations: the same as a hallucination but the patient is aware that it is not real.
• Illusions: the misinterpretation of an external stimulus (e.g. mistaking a shadow for a person).
• Depersonalisation: the patient feels that they are no longer their ‘true’ self and are someone different or strange.
• Derealisation: a sense that the world around them is not a true reality.

Cognition: The mental action of process (MMSE) mini mental

Insight and judgement (ability of understanding that they have a mental health problem):

• Insight, in a mental state examination context, refers to the ability of a patient to understand that they have a mental health problem and that what they’re experiencing is abnormal.
• Judgement refers to the ability to make considered decisions or come to a sensible conclusion when presented with information.
Basic Counselling Principles

1. Start with the most immediate emotional problem (what is uppermost in the client’s mind today) and work outward/backward
2. Don’t say anything, in content or manner that can be perceived as judgemental or as an attack
3. Stay with the client. Let him/her lead. Follow the clues he/she gives you.
4. Make sure your client stays with you and that you are not on your own mission, leaving the client behind. Be aware when you are projective your own opinions.
5. You are not looking for the truth, your client’s reality and experience is his truth. Ie understand his/her point of view.
6. The person sitting in front of you is your client. Their mother/wife/neighbour is not the client and it is the client’s perspective you are interested in.
7. Don’t address symptoms. Address underlying contributing factors.

Phases of therapeutic process

1st Interview:

1) **Introduce** yourself. Ask patients name and then take stats.
2) Find out the relationship of the people with him/her. Decide whether to do the session with or without relatives present.
3) Explain your role as counsellor.
4) Establish confidentiality.
5) Establish immediate need: “How can I help you?” / “How would you like me to help you?” / “What help do you need today?”
7) Allow time to **debrief / release emotion**:  
   - Ask broad/open ended questions such as “tell me what happened”. In this phase, let the person speak without interruption. The translator can summarise at the end. It is more important for the patient to tell the story than for you to understand it.
   - **Listen** empathetically. Look interested even when they are speaking Xhosa and you don’t understand
8) **Reflect** back to client using counselling technique such as summary/interpretation/reflection.
9) **Acknowledge** their emotions and that how they are feeling is normal.
   - Also acknowledge the difficulty of the situation – esp if it was a traumatic event. This situation is difficult, and it doesn’t make sense, but your emotional reaction to it does make sense and is normal. During ALL PHASES, keep in mind the patient’s: Level of Intelligence, emotional intelligence, current emotional state, circumstances, time and culture.

Bridging / Assessment Phase

This phase and the therapeutic phase, come into play if the patient is to be seen for more than 1 session.

- Identify the underlying problems. In other words, what were the contributing factors that brought the patient to the place they are at now.

Therapeutic phase

- Choose the type of intervention that would be used to address each problem.
- Some of the techniques that can be used are:
  - Childhood redefining
  - Relationship counselling
  - Trauma counselling/grief counselling
  - Emotional analytic therapy
  - Projective techniques
  - Cognitive behavioural therapy
Basic techniques

Empathy: Putting yourself in the patients position and seeing things from their perspective.

Generalisation: “Most people confronted by these circumstances react in this manner”

Personalisation 1: “When I went through a similar situation I reacted in a similar manner…”

Personalisation 2: “I have not been in this same situation as you, but I would imagine that if I was, I would react in a similar manner”

Interpretation: Taking what the patient has told you and interpreting what it means. Eg “I notice a pattern of avoidance when you are confronted by ….. You avoid by using silence/tv/food”

Reflecting: Repeat back to client what was said, but add the emotions the client was expressing.

Summary: Summarising what the patient has told you.

Problem defining: Defining the true underlying problem(s) and breaking it down for the patient.

Reframing: Giving the patient alternative ways of interpreting or viewing their situation.

Questioning *Use with caution to avoid sounding confrontational.

Confrontation: *Use with caution when patient needs a clear message or direction. eg “I see you are avoiding talking about this issue by using humour.”

Useful explanations of the role of counsellor

Useful explanation: We are all made up of three parts: Body, soul (thoughts & emotions) and spirit (the part that communicates with God or the spiritual world). These 3 parts are interlinked in such a way that if there is a problem in the one part, the other parts suffer. If you have long term pain in your body you may begin to have negative thoughts or feel angry; you may also begin to question your belief system. Vice versa, if you have long term stress/sadness/anger/fear you can begin to experience pain in your body.

If the patient is receiving counselling because they suffer from chronic pain, always assure them that their physical pain will also be dealt with – by the doctor and/or physiotherapist. This session deals with the emotional & cognitive side of the pain.
Suicide Risk assessment:

SAD PERSONS is a commonly used tool for screening for risk for suicide (Patterson et al, 1983)

<table>
<thead>
<tr>
<th><strong>S</strong></th>
<th><strong>Sex</strong></th>
<th>Men kill themselves 4x more than women, although women make attempts 3x more.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>Age</strong></td>
<td>High risk groups: 15-24 year olds; 45+ years and the elderly.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>Depression</strong></td>
<td>Patients with depression or a mood disorder are high risk.</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td><strong>Previous Attempts</strong></td>
<td>A past suicide attempt in a risk factor for future attempts and deaths.</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td><strong>ETOH</strong></td>
<td>Alcohol is present with 20-50% of people who commit suicide.</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td><strong>Rational thinking loss</strong></td>
<td>Any mental impairment (e.g. psychosis, hallucinations or delusions) severely affects judgment and rational thought and endangers the individual.</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td><strong>Social Support lacking</strong></td>
<td>A suicidal person often lacks significant others (friends, relatives), meaningful employment, and community support.</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td><strong>Organized plan</strong></td>
<td>The presence of a specific plan for suicide (date, place, and means) signifies a person at high risk.</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td><strong>No spouse</strong></td>
<td>Studies indicate that individuals who are widowed, separated, divorced or single, are at greater risk than those who are married.</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td><strong>Sickness</strong></td>
<td>Chronic, debilitating and severe illness causing distress.</td>
</tr>
</tbody>
</table>

**Risk assessment:**

<table>
<thead>
<tr>
<th><strong>Mild</strong></th>
<th><strong>Moderate</strong></th>
<th><strong>High</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ideation</strong></td>
<td>Periodic intense thoughts of death and not wanting to live, that last of a short while.</td>
<td>Regularly occurring thoughts of death and not wanting to live, that are difficult to dispel.</td>
</tr>
<tr>
<td><strong>Immediacy of plans</strong></td>
<td>No immediate suicide plan, no threats, does not want to die.</td>
<td>Not sure when, but soon. Makes indirect threats. Ambivalent about dying.</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>Means unavailable, unrealistic or not thought through.</td>
<td>Lethality of method is variable with some likelihood of rescue or intervention.</td>
</tr>
<tr>
<td><strong>Emotional state or mood.</strong></td>
<td>Sad cries easily</td>
<td>Pattern of up and down mood swings. Rarely expresses any feelings.</td>
</tr>
<tr>
<td><strong>Level of emotional distress.</strong></td>
<td>Mild emotional hurt.</td>
<td>Moderately distressed.</td>
</tr>
<tr>
<td><strong>Support or protective factors.</strong></td>
<td>Feels cared for by family, peers and/ or significant others.</td>
<td>Moderate or fragile support. Moderate conflict with family, peers and or significant others.</td>
</tr>
<tr>
<td><strong>Previous attempts</strong></td>
<td>None</td>
<td>One previous attempt, or some suicidal behavior.</td>
</tr>
<tr>
<td><strong>Reason to live or hope</strong></td>
<td>Wants to change and has some hope. Has some future plans.</td>
<td>Pessimistic. Vague, negative future plans.</td>
</tr>
</tbody>
</table>
**Suicide Intervention:**
With a high risk patient you either need hospitalization or full time supervision.
Where possible remove all harmful objects, poisons or weapons etc. and keep the client in a safe environment. Short-term crisis intervention is aimed at protecting the client from impulsive behavior and reducing or eliminating factors contributing to the crisis.

Once the client is stabilized the following model can then be used to guide you through the counselling. This Chain analysis involves working with the client to collaboratively identify and describe in detail the following:

1. **Specific Problem Behavior** e.g., Para suicidal behavior such as cutting; thoughts about suicide; suicide attempt.
2. **Precipitating Event** that started the chain of behavior (e.g., what prompting event in the environment resulted in the client becoming acutely suicidal?).
3. **Vulnerability Factors** that occurred before the precipitating event and made the client more vulnerable to a problematic chain of events (e.g., Unbalanced eating or sleeping, use of drugs, recent losses, chronic pain).
4. **Chain of events** (Thoughts, feelings and actions) that led up to the problem behavior (e.g., what exact thought, belief, feeling, or action followed the precipitating event? what thought, feeling, or action followed that? what next?).
5. **Short- and long-term consequences** of the behavior both with respect to how others (e.g. family, friends) and the client reacted.
6. **Alternative solutions** to the problem/ problems within the chain of events.
7. **Prevention strategy** for preventing the chain of events from reoccurring, by applying above mentioned strategies.
8. **Ways to repair** any negative consequences of the problem behavior.

(Adapted from Linehan, 1993)
Depression Screening and Follow up sheet  
Zithulele Hospital Occupational Therapy

Therapist name: 
First assessment date: 

Please tick which of the following symptoms are present:  
Please note that according to the DSM V Criteria for major depressive episode the person must 1) Present with 5 or more of the following symptoms must be present 2) The symptoms should influence the daily functioning of the person and 3) it should not be caused by any physiological effects of any medication or substances.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed mood most of the day nearly every day</td>
<td></td>
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<tr>
<td>Diminished interest or pleasure in most activities</td>
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<tr>
<td>Insomnia or hypersomnia</td>
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<tr>
<td>Psychomotor agitation or retardation</td>
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<tr>
<td>Fatigue or loss of energy</td>
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<tr>
<td>Significant weight loss or weight gain or a change in appetite</td>
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<tr>
<td>Feelings of worthlessness or inappropriate guilt</td>
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<tr>
<td>Diminished ability to think or concentrate</td>
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<tr>
<td>Recurrent thoughts of death or suicidal ideation</td>
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</tbody>
</table>

EQ-SD:  

<table>
<thead>
<tr>
<th>Mobility:</th>
<th>Date:</th>
<th>Date:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1- I have no problems walking about</td>
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<table>
<thead>
<tr>
<th>Self-Care:</th>
<th>Date:</th>
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<th>Date:</th>
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<tbody>
<tr>
<td>1- I have no problems with self-care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2- I have some problems washing and dressing myself</td>
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<tr>
<td>3- I am unable to wash or dress myself</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Useful activities (work, household, family or leisure activities)</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- I have no problems with performing useful activities</td>
<td></td>
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<tr>
<td>2- I have some problems with performing useful activities</td>
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<tr>
<td>3- I am unable to perform my normal activities</td>
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<table>
<thead>
<tr>
<th>Pain and Discomfort:</th>
<th>Date:</th>
<th>Date:</th>
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<tr>
<td>1- I have no pain or discomfort</td>
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<tr>
<td>2- I have moderate pain or discomfort</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Assessments of intellectual impairment

<table>
<thead>
<tr>
<th>Basic ADLs</th>
<th>Needs physical help or can't do any part of the task themselves. (For each write the number 1)</th>
<th>Needs reminding or supervision or physical assistance with a part of the task. (For each write the number 2)</th>
<th>Remembers and does it themself</th>
<th>Does not need any help. (For each write the number 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dress</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Toileting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Instrumental ADLs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Added Questions: (If not applicable do NOT score.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fetch wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fetch water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning the house (sweep)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making fire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Working with animals</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gardening</td>
<td></td>
<td></td>
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<tr>
<td>Fixing Kraal</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>Basic Concepts</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>• Colours:</strong></td>
<td>Can’t name any colours</td>
<td>Can only name some of the colours.</td>
<td>Can name all the colours.</td>
<td></td>
</tr>
<tr>
<td>Tick off with an the colour that the individual can name.</td>
<td>BLUE</td>
<td>RED</td>
<td>BLUE</td>
<td>RED</td>
</tr>
<tr>
<td></td>
<td>GREEN</td>
<td>YELLOW</td>
<td>GREEN</td>
<td>YELLOW</td>
</tr>
<tr>
<td></td>
<td>BLACK</td>
<td>WHITE</td>
<td>BLACK</td>
<td>WHITE</td>
</tr>
<tr>
<td><strong>• Body Parts:</strong></td>
<td>Can’t name any body parts:</td>
<td>Can only name some of the body parts:</td>
<td>Can name all the body parts:</td>
<td></td>
</tr>
<tr>
<td>Tick off with an the body parts that the individual can name.</td>
<td>MOUTH, NOSE, EARS, EYES, HEAD, BACK, TUMMY, CHEST, ARMS, HANDS, LEGS, KNEES, FEET</td>
<td>MOUTH, NOSE, EARS, EYES, HEAD, BACK, TUMMY, CHEST, ARMS, HANDS, LEGS, KNEES, FEET</td>
<td>MOUTH, NOSE, EARS, EYES, HEAD, BACK, TUMMY, CHEST, ARMS, HANDS, LEGS, KNEES, FEET</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can’t name any body parts’ function:</td>
<td>Can only name some of the body parts’ function:</td>
<td>Can name all the body parts’ function:</td>
<td></td>
</tr>
<tr>
<td>Tick off with an the body parts’ function that the individual can name.</td>
<td>MOUTH, NOSE, EARS, LEGS, HANDS</td>
<td>MOUTH, NOSE, EARS, LEGS, HANDS</td>
<td>MOUTH, NOSE, EARS, LEGS, HANDS</td>
<td></td>
</tr>
<tr>
<td><strong>5a Social</strong></td>
<td>Pt. can’t be controlled / calmed down by the carer and harms others or self:</td>
<td>Pt. becomes aggressive and hurt self / others at times but the carer can calm him / her down:</td>
<td>When pt. gets aggressive he / she don’t hurt himself / herself or others and can calm him / herself down:</td>
<td></td>
</tr>
<tr>
<td>When they get angry…</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Can follow 3 step instructions (“Pick up the paper. Fold it in half. Put it on the floor.”)</td>
<td>Pt. not able to follow any of the given instructions.</td>
<td>Pt. only follows two steps of the instruction. Usually omits one step or performs second step incorrectly.</td>
<td>Pt. follows three step instructions correctly without any omission of steps.</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL 1:</strong> (Circle the nr. that was ticked most above.)</td>
<td>Number: 1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
• Birth history
  - Location of birth
  - Delay in breathing/crying

• Early milestones
  - Ages at which child started sitting, crawling, walking, talking, toileting

• Does the carer think the child is different from other children his/her age?
  - Age that this was first noted

• Epilepsy
  - Start? History of control

• Home chores
  - Any participation and quality of execution
  - Why can’t he/she do certain things?
  - What happens if you send the child to the chopp to buy a few things?

• Social behaviour
  - Type of play (e.g.
  - solitary Age of friends

• School history
  - Has he/she ever been to school/crèche?
  - What age did they start?
  - Complaints by teachers
  - Did he/she pass grades or was he/she promoted?
  - Did he/she like school?

• Is he/she safe from violence/sexual abuse? Is there a plan to keep him/her safe?
  - For teenagers/adults:
  - Does she menstruate?
  - Is she on contraceptives?
  - Have you discussed the possibilities of having a baby?
  - Does he masturbate? Is it done appropriately?
  - Does he ever chase girls to try and rape them?

• Numeracy skills: (Counting forward and backwards, concepts such as bigger, smaller, more, less)
• Basic concepts: shapes (triangle, circle, square and rectangle)
• Gross motor
• Fine motor
• Speech and language: receptive and expressive, number of words spoken/understood

• Orientation:
  - What is your name? Where do you live?
  - Where are you now?
  - Time of day, season, and year
  - Why are you here?

• Insight:
  - Are you different to others of your age?

• Reasoning and problem solving:
  - What would you do if your house is on fire? / What would you do if you mom is very sick?
  - How does a person build a house? / How do you cook samp and bean?

• Functional maths:
  If you have R10 and you buy a bread for R7, how much change will you get?

  Try to categorize the patient according to the levels of intellectual impairment:

<table>
<thead>
<tr>
<th>CLASSIFICATION SCALE:</th>
<th>MODERATE:</th>
<th>SEVERE:</th>
<th>PROFOUND:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBTOTAL 1:</td>
<td>Majority 3’s</td>
<td>Majority 2’s</td>
<td>Majority 1’s</td>
</tr>
</tbody>
</table>
### Classification Levels for People with Intellectual Impairment

#### Basic levels of II at different ages:

<table>
<thead>
<tr>
<th>Level</th>
<th>IQ</th>
<th>0-6 years</th>
<th>6-18 years</th>
<th>Adults</th>
</tr>
</thead>
</table>
| Mild   | 50/55-70 | Develop social skills and communication skills  
Poor motor coordination (diagnosed later) | Appropriate social skills  
Schooling until gr. 6 | Self-supported  
Basic academic skills  
Need of guidance and support in unusual social/economical stress |
| Moderate | 35/40-50/55 | Can talk/communicate  
Poor social awareness  
Poor motor coordination | Can learn some social and occupational skills  
Basic school work  
Can travel alone in familiar environment | Work under sheltered conditions  
Needs supervision and guidance under mild stress |
| Sever  | 20/25-35/40 | Say few words  
Can learn some self-help skills  
Poor motor coordination | Can talk/communicate  
Can learn simple health habits | Partial contribution to self-care  
Complete supervision |
| Profound | <20/25 | Little motor coordination | Limited communication  
Some motor coordination | Very little self-care independence |

#### Normal ages at which functional skills develop:

<table>
<thead>
<tr>
<th>Functional Skill</th>
<th>Normal Developmental Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding: Finger</td>
<td>15months</td>
</tr>
<tr>
<td>Spoon</td>
<td>24months</td>
</tr>
<tr>
<td>Cup drinking</td>
<td>24months</td>
</tr>
<tr>
<td>Undress</td>
<td>24months</td>
</tr>
<tr>
<td>Dress</td>
<td>36months</td>
</tr>
<tr>
<td>Potty train</td>
<td>36months</td>
</tr>
</tbody>
</table>

#### Alexandra Hospital classification of function for adults (>15) with II:

<table>
<thead>
<tr>
<th>Level</th>
<th>IQ</th>
<th>D.A</th>
<th>Functional expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profound (lower)</td>
<td>10-13</td>
<td>1y6 - 2y</td>
<td>Finger feeding, spoon feeding, drink from cup fairly well; Undress partially, unable to dress; Toilet with assistance; Few words, respond to 3-4 words; Simple play: rolling balls, scribbling</td>
</tr>
<tr>
<td>Profound (upper)</td>
<td>14-19</td>
<td>2y1m - 2y10m</td>
<td>Cup drinking well, feed with spoon; Undress fully, dress with help; Reminder to toilet; Respond to simple request; Identify familiar objects; Uses about 20 words</td>
</tr>
<tr>
<td>Severe (lower)</td>
<td>20-27</td>
<td>3y - 4y</td>
<td>Spoon feeds and uses fork; Undress, dress with minor help; Bath with help; Toilet on own initiative; Identify familiar objects, names a few objects in pictures; Short sentences, limited vocabulary; Protected work</td>
</tr>
<tr>
<td>Severe (upper)</td>
<td>28-34</td>
<td>4y - 4y11m</td>
<td>Independent in feeding; Dress/undress; Toilets ; Supervision in bathing; Simple sentences with fair vocabulary; Name objects and explain use of it; Draw a man – primitive; Count few items; Learns social skills</td>
</tr>
<tr>
<td>Moderate (lower)</td>
<td>35-41</td>
<td>5y - 5y11m</td>
<td>Independent in routine self-help skills; Remember and execute 3 step instruction; Responds verbally to simple questions; Describes concrete aspects of a picture; Knowledge of colours and time concept – day of week</td>
</tr>
<tr>
<td>Moderate (upper)</td>
<td>42-49</td>
<td>6y – 7y1m</td>
<td>Live semi-independent; Food prep and house hold tasks; Simple conversation; Print letters, recognize numbers; Count to 20, understand money; Draw a man with fair detail</td>
</tr>
</tbody>
</table>
# Model of Creativity Ability Levels

<table>
<thead>
<tr>
<th>MOTIVATION</th>
<th>ACTION</th>
<th>PRODUCT</th>
<th>MATERIAL &amp; OBJECTS</th>
<th>PLANNING THE TREATMENT SESSION</th>
<th>METHOD OF TREATMENT</th>
<th>THERAPIST APPROACH</th>
<th>TASK EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tone (stage 1)</td>
<td>Pre-destructive.</td>
<td>No product, only sensory stimulation</td>
<td>Known objects from clients environment for sensory stimulation</td>
<td>See client in a safe, known environment if possible.</td>
<td>Present one sensory modality at a time. Use consistently and with repetition.</td>
<td>Warm and caring. Treated with dignity Unconditional acceptance</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Little/ no control over their own bodies.</td>
<td></td>
<td>Safe; non toxic</td>
<td>Decrease surrounding sensory input (quiet, and clutter free)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Little awareness of others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-differentiation (Stage 2)</td>
<td>Destructive action/ Incidentally constructive action -unplanned -by chance -immediate effect</td>
<td>-no knowledge about properties of materials needed (but still use familiar materials if possible) -no handling of tools (only by chance)</td>
<td>Ensure that: -client=handle material -VISIBLE prod 1step -dramatic effect -NO intell demands -NO fine co-ord. dem. -NO tool-handling d -NO social demands</td>
<td>-don’t explain objective =invite patient -explain task, but show no end-prod -1 step (simple instr.) -prompt cl. 2 participate -task initiated by therapist</td>
<td>-total acceptance -Encourage effort -Approve action -NONE -recognition of effort</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establish and maintain self-awareness as a separate entity from the environment</td>
<td>-coincidental -unplanned by cl -Created by chance -ABILITY plays NO ROLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Presentation (stage 3)</td>
<td>Exploration Intentional investigation of tools &amp; materials</td>
<td>-NB: gain info about materials, object, tools &amp; NOT product -product may coincidental success arise -&gt;props explored -No norms - quality of prod &amp; speed</td>
<td>Th keep in mind that: -cl=never bored -th=full responsibility for excitement -th must know what props cl must discover -cl=learn about tools; not use within norms</td>
<td>-greet client -Expl session duration -Meet cl on emo level -obtain cl knowledge about art materials &quot;sign contract&quot; – cl must describe props -Task execution: -provide clues&amp; neces mat &amp; tools to stimulate task initiat. -prompt cl 2 tk part -prom cl when faced with inability -prom-not nec wen enjoym&amp;succ exper</td>
<td>-client given: -acceptance -security -encouragement To explore &amp;discover</td>
<td>-positive evaluation regarding client’s performance -NO evaluation on standard of prod &amp; speed of performance</td>
<td></td>
</tr>
<tr>
<td>Passive Participation (stage 4) (5-7 steps)</td>
<td>-material handling -&gt; product creation -&gt; task satisfaction -&gt; cl dependent on t her but competent with guidance -task component directed</td>
<td>-result of task fulfillm Client: - understand what 2 do -accepts task as own -executes t with guid -realises task=compl -expres task satisfac</td>
<td>-sufficient knowl about proprties of materials -&gt;feel secure -skill becomes product directed</td>
<td>Ther keep in mind: - job is 2 prepare client -&gt; give info before passive part</td>
<td>-great client -Expl duration of sess -Meet cl on emo level -facilitate problem spotting -formulate objective 4 treatm session -sign contract (contr) -obtain frame of reference -Task execution: -clear, simple def of total task &amp; seq, &amp; content of steps -clear, simple statement on standard of prod -demonstration of task execution</td>
<td>-support cl exec of task -cl=do task -ther=confirm task content &amp; seq of steps -cl=decides when task is complete</td>
<td>-client should critically evaluate own product!!!! -compare &amp; don't judge</td>
</tr>
<tr>
<td>Establish rules and norms acceptable to the group and society in which he lives</td>
<td></td>
<td></td>
<td></td>
<td>-ther=PRODUCT CENTERED -demands: -work-related -social; interpersonal</td>
<td>Same as passive -Task execution: -present eg -descr mat &amp; tools -descr steps -indicate criteria/norms</td>
<td>-little/no help in sequencing steps</td>
<td>-client should critically evaluate own product!!!! -compare &amp; don't judge</td>
</tr>
<tr>
<td>Imitative Participation (Stage 5)</td>
<td>-IMITATIVE -security-no unknown</td>
<td>-follow EXAMPLE -NB compare prod</td>
<td>-familiar materials &amp; tools-&gt;cl won’t feel threatened -cl needs 2 follow procedure/pattern</td>
<td>-ther=PRODUCT CENTERED -demands: -work-related -social; interpersonal</td>
<td></td>
<td>-client should critically evaluate own product!!!! -compare &amp; don't judge</td>
<td></td>
</tr>
<tr>
<td>Do what is expected of them. No more. No less.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Participation</td>
<td>-standard required &amp; add of own to improve standard</td>
<td>-unique personal interests, aptitudes &amp; attitudes will affect nature &amp;standard of prod</td>
<td>-experiment with new materials 2 enhance prod</td>
<td>-create opportunities for client to use: -initiative -original thought</td>
<td>-meet cl on emo level -problem spotting -frame of reference -sign contract -create opportunities to show initiative -expect client 2 show initiative -expect cl 2 exercise self-control &amp; self-discipline</td>
<td>-no help with sequen -acknowledgement 4 max effort &amp; initiative ONLY</td>
<td>-cl=reflect on own effort -cl evaluate quality of own end-prod -&gt; to which extent did cl use initiative</td>
</tr>
</tbody>
</table>
## Dementia versus Delirium

Dementia: general loss of memory, problem solving and other thinking abilities that is interfering with daily occupational tasks and routines, Alzheimer's disorder is most common.

Delirium: a loss in mental abilities that result in confused thoughts and decreased awareness of surrounding activities.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Acute sudden onset</td>
<td>Slow chronic onset</td>
</tr>
<tr>
<td>Cause</td>
<td>An acute illness, drug withdrawal, infections, and dehydration.</td>
<td>An underlying brain disorder, such as Alzheimer's disease, Lewy body dementia, vascular dementia.</td>
</tr>
<tr>
<td>Courses</td>
<td>Reversible with no damage to the brain if treated early and no other signs and symptoms of an underlying brain disorder.</td>
<td>Progressively, currently no cure but pharmaceutical and non-pharmaceutical can slow the progression down.</td>
</tr>
<tr>
<td>Duration</td>
<td>Weeks to months</td>
<td>Terminal disease</td>
</tr>
<tr>
<td>Attention</td>
<td>Impaired during the delirious episode otherwise attention is intact.</td>
<td>Declines as the dementia progress</td>
</tr>
<tr>
<td>Sleep – awake</td>
<td>Usually worse in the night</td>
<td>Can be worst in the night</td>
</tr>
<tr>
<td>Level of consciousness</td>
<td>Impaired during the delirious episode otherwise intact</td>
<td>Unimpaired, but becomes impaired in the later stages of dementia.</td>
</tr>
<tr>
<td>Orientation</td>
<td>Impaired during the delirious episode.</td>
<td>Initial presentation unimpaired, becomes impaired as the dementia stages progress</td>
</tr>
<tr>
<td>Behaviour</td>
<td>In hyperactive delirium, the patient becomes agitated and restless.</td>
<td>In the early stages of dementia patient have normal behaviour as the disorder progress patient will be unable to communicate needs.</td>
</tr>
<tr>
<td>Speech</td>
<td>Incoherent, either slowed or accelerated speech.</td>
<td>Word finding difficulties, it progresses when dementia progress.</td>
</tr>
<tr>
<td>Memory</td>
<td>Varies, mostly seen that recovered patient doesn't remember actions and incidents in the delirious episode.</td>
<td>Loss of short term memory in the early stages, then increasely memory loss as the stages progress.</td>
</tr>
<tr>
<td>Perceptions</td>
<td>Hallucination and delusions</td>
<td>Visual disturbances, hallucinations may occur in Lewy body dementia.</td>
</tr>
</tbody>
</table>
Parkinson’s Disease

Progressive neurological disorder characterized by degeneration of the dopamine-producing cells in the substantia nigra. Diagnosis made if patient has bradykinesia and at least one of the following: muscle rigidity, resting tremor, balance impairments.

Treatment: LSVT LOUD (speech and voice disorders) and LSVT BIG (movement disorders)

<table>
<thead>
<tr>
<th>LSVT LOUD</th>
<th>LSVT BIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim: Increase movement amplitude focusing on respiratory/laryngeal systems</td>
<td>Aim: Increase movement amplitude across limb motor system including gait</td>
</tr>
<tr>
<td>15 repetitions per task (each max effort)</td>
<td>8-16 reps per task (max effort)</td>
</tr>
<tr>
<td>Exercises:</td>
<td>Exercises:</td>
</tr>
<tr>
<td>• Task 1: Max sustained movements (say “ah” loudly as long as possible)</td>
<td>• Task 1: Max sustained movements seated (stretch floor to ceiling, 10s hold; side to side stretch, 10 s hold)</td>
</tr>
<tr>
<td>• Task 2: Directional movements (“ah” going high pitch); (“ah” going low pitch)</td>
<td>• Task 2: Repetitive/Directional movements standing for each leg (big step forward; sideways big step; backwards step, forward Big Rock and reach; sideways Big Rock and reach)</td>
</tr>
<tr>
<td>• Task 3: Patient identifies 10 of his most used phrases, then 5 reps of the list of phrases. Performed the same as Task 1.</td>
<td>• Task 3: 5 patient self identified daily movements and then practice ONE component of each movement</td>
</tr>
<tr>
<td>Progression over weeks:</td>
<td>Progression over weeks:</td>
</tr>
<tr>
<td>• Increase complexity of tasks (words-phrases-sentences-reading-conversation) and can be tailored to context of patient</td>
<td>• Increase complexity of tasks (duration, amplitude)</td>
</tr>
<tr>
<td>• Increase duration and amplitude</td>
<td>• Environmental interference (multi steps, dual processing, background noise, attentional distracters)</td>
</tr>
<tr>
<td>• Add interference from environment (dual processing, background noise and attentional distracters)</td>
<td>• Incorporate into daily activities</td>
</tr>
<tr>
<td>Home programme: Practice for between 5-15 min daily.</td>
<td>Home programme: Practice for between 5-15 min daily.</td>
</tr>
</tbody>
</table>

HIV Services

1) Patient tests for HIV
2) If positive, patient gets CD4 blood taken (results take 1 week) (Don’t forget Bactrim 2tabs/day & Vit B Co 1tab/day whilst awaiting CD4 result (discontinue if CD4>200)
3) Everyone qualifies for HAART and will start treatment once results available.
4) All patients receive pre-HAART counselling.

Where & when is the ARV clinic? | Who is it for? | What services are provided?
---|---|---
ZLE Wednesday clinic | HIV+ adults | • Initiation & follow-up of HAART patients,
Integrated TB follow-up,
Integrated chronic care follow-up, eg HPT, DM, etc
ZLE Thursday clinic | HIV+ children & moms with exposed/positive kids | • Initiation & follow-up of HAART patients,
Integrated TB follow-up,
Integrated chronic care follow-up, eg epilepsy, etc

A main emphasis of our HIV/ARV programme is decentralized care. The goal is that the vast majority of patients enrol in the Wellness programme, prepare for HAART and in time initiate HAART and get followed up at their closest clinic. A doctor visits each clinic regularly. Very unwell patients will continue to need follow up at the hospital initially.

- Stable, adherent, suppressed patients on HAART can get meds from Mapuzi, Zidindi, Ngcwanguba, Wilo, Jalamba, Lutubeni, Nzulwini, Pumalanga & Tshezi (*If you notice that a patient has missed a follow up date please let the default tracer know.)

Additionally some patients need extra support if they do not qualify for a grant or have not got the paperwork for a grant yet.

If you have any questions or constructive suggestions, please contact Chwayita Sogoni (081 488 1760)

Tuberculosis Management

TB suspects start by having an X-ray, sputum and HIV test.

Treatment is usually 6 months but may be prolonged due to various factors. Some HIV positive people (especially health care workers) and all children under 5 should get prophylactic treatment for 6 months.

TB Patients are admitted if:

- Patient is too weak to walk/go home/take treatment easily.
- They have a complication needing close medical supervision.

TB may also be present in different parts of the body, including joints.

Green Cards and Blue Cards.

All patients will be registered with a Blue Card which stays at Zithulele.
They are also given a GREEN CARD which stays with their hand held records.

- All adult patients must be prescribed 1 Vitamin B Co tablet daily PO.
- All adult patients who are RVD Reactive must be prescribed 2 tablets of Bactrim daily PO.
- All adult patients with oral candida must be prescribed Nystatin Drops, 6 drops in the mouth 8hrly for a month.

After the first 2 months of treatment they should see a doctor to start continuation phase of treatment. At the completion of their treatment they need to be seen at TB point.
MDR TB
- We are seeing increasing numbers of patients with multi-drug resistant TB
- They are largely managed in the community, after an initial admission to check blood and sputum result, do counselling and conduct a home visit to check whether their home circumstances are suitable.
- The current treatment regimes can last from 9 months to 2 years (or beyond if poor compliance)
- Many of the patients are quite weak and need input from therapy.

Infection control
Please ensure that you wear an N95 mask whenever you treat or consult a patient who has active TB and any patient with a cough.

Dec 2020
Spinal TB / Pott’s Disease

What is it
• A primary infection of M. Tuberculosis in the body (usually pulmonary or genitourinary) spreads via the blood (arterially or venously) to the dense vasculature of vertebral bodies and intervertebral discs.
• There can be destruction of the intervertebral disc space and the adjacent vertebral bodies.
• The anterior inferior portion of the vertebral body is usually first affected and later there can be spread to the central vertebral body or disc.
• Anterior vertebral collapse leads to anterior wedging of the vertebrae, leading to kyphotic deformity and gibbus formation.
• Usually affects more than one vertebra.
• In younger pts, the disc is primarily involved, as it is more vascularised. In older pts the disc is not primarily involved due to age-related avascularity.
• Infection can also result in compression fractures, spinal deformities and neurological insults, including paraplegia.

<table>
<thead>
<tr>
<th>Signs and symptoms</th>
<th>Red Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>* See TB spine suspicion index score</td>
<td>* These are signs of worsening cord compression and need referral to a tertiary institution immediately</td>
</tr>
<tr>
<td>Back pain</td>
<td>Urinary and faecal incontinence/retention (exclude stress incontinence/ UTI)</td>
</tr>
<tr>
<td>Localised pain (most common in lower Tx region, also Lx).</td>
<td>Saddle anaesthesia</td>
</tr>
<tr>
<td>Pain may be aggravated by spinal motion, coughing, weight bearing</td>
<td>Bilateral loss of reflexes/power/sensation</td>
</tr>
<tr>
<td>Pain can present as spinal or radicular</td>
<td>Severe night pain (excluding positional)</td>
</tr>
<tr>
<td>Gibbus</td>
<td></td>
</tr>
<tr>
<td>Spinal deformity (most common Tx kyphosis)</td>
<td></td>
</tr>
<tr>
<td>Altered neurology</td>
<td></td>
</tr>
<tr>
<td>Possibly changes on Xray- vertebral wedging, narrowing of intervertebral spaces.</td>
<td></td>
</tr>
<tr>
<td>Possibly raised CRP (&gt;10) or ESR (&gt;100)</td>
<td></td>
</tr>
<tr>
<td>Also malaise, loss of weight and appetite, night sweats, fatigue, generalised body aches</td>
<td></td>
</tr>
</tbody>
</table>

Diagnostic tests

| MRI | Gold standard |
| Xray | Decreased density of vertebral end plates |
| | loss of disk height |
| | Osseous destruction |
| | New-bone formation |
| | Soft tissue abscess (seen as soft tissue shadows adjacent to spine) |
| | Often, multiple vertebrae are involved |
| | *Often by the time disease is apparent on x-rays, the patient has already reached an advanced stage of illness |

Prognosis
• The progression of spinal tuberculosis is slow and insidious. The total duration of the illness varies from few months to few years, with average disease duration ranging from 4 to 11 months.
• With early diagnosis and early medical treatment, prognosis is generally good (response to medical treatment is seen in pain relief, decrease in neurological deficit, and can include correction of spinal deformity)
Management

• Maintain a low threshold for TB spine suspicion.
• When pts complain of chronic back pain, complete TB Spine Suspicion Index Score
• Rule out common cancers (physical exam, blood checks)
• Urology assessment (ideally urologist, at least U&E’s). Initial urology assessment and annual urology appointment
• Early diagnosis and treatment with TB medication is vital.
• Treatment with TB meds. (Differing opinions of duration of medical treatment. WHO suggests 9 months, American Thoracic Society recommends 6 months adults, 12 months children. Individualised approach to duration of treatment).
• Surgery may be required in selected cases, e.g. large abscess formation, severe kyphosis, an evolving neurological deficit, or lack of response to medical treatment.
• Surgery can provide immediate relief of compressed neurological tissue.
• Some advocate for drug treatment alone, some for drug treatment with spinal fusion (not clear cut)
• Spinal fusion for cases of multiple level involvement or clear need for spinal stabilization

Therapy

• Educate on condition and importance of adherence to drug treatment
• Assessment of neurological condition. To note current condition and observe for changes. Also aid in goal setting (immediate, short term and long term goals). Regular re-assessment.
• Care as per pt presentation, depending on spinal level and severity (pressure care, DVT stockings, respiratory care, potential Baclofen (increased tone) etc)
• Encourage prone lying as pain allows (extension position to counter anterior wedging position)
• Stabilise spinal segment with corset (preferably TSLO) if unstable
• Remain ambulant if able, otherwise remain in bed until trained to mobilise safely
• Mobility (bed mobility, walking aid if needed, w/c if needed *remember w/c mobility training)
• UL and LL strengthening as able
• ADL training (adaptations needed to increase independence)
• Assist in DG application
• Education about management of SCI if present (precautions, respiratory, skin, bladder, bowel care etc)
• Prolonged protection of the spine with suitable braces in later stages
• Counselling, coping skills, return to work preparation/assessment, depression
• Sexuality and relationship counselling
• Educate family on condition, precautions, lifting, assist with ADL’s if needed
• Dietetics advice in maintaining healthy weight
• Follow up with home visit after discharge

Precautions/ Contraindications

Spinal safety (for 8 weeks)
• Avoid flexion loading, rotation, asymmetrical movement
• No hip flexion beyond 45 degrees lumbar involvement
• No bilateral hip flexion past 90 for thoracic involvement
• No bilateral arm flexion above 90 for high thoracic or Cx involvement
TB Spine Suspicion Index for patients with back pain (pilot 2010)

<table>
<thead>
<tr>
<th></th>
<th>MAX</th>
<th>No.1</th>
<th>No.2</th>
<th>No.3</th>
<th>No.4</th>
<th>No.5</th>
<th>No.6</th>
<th>No.7</th>
<th>No.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV : positive no ARV (2); ARV betw 0-6 mo (2); on ARV longer 6mo(1)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB contact/Previous or current TB</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Recent significant Loss of weight</td>
<td>1</td>
<td></td>
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<tr>
<td>Demonstrates site of pain with finger/s not hand</td>
<td>3</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Notable localised muscle spasm</td>
<td>3</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Altered sensation or muscle power in limbs or trunk</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Back pain wakes them at night</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain not related to movement</td>
<td>3</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Age 25-45 and more than 6 visits to clinic for back pain over last 6mo</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CRP raised in absence of other obvious infection</td>
<td>3</td>
<td></td>
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<tr>
<td>Change in ability to do physical ADLS (water, wood, home repairs, farming)</td>
<td>1</td>
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</tbody>
</table>

A score of 13 or more is significant

** FRANKEL CLASSIFICATION OF SPINAL INJURY

<table>
<thead>
<tr>
<th>No.</th>
<th>DATE</th>
<th>NAME</th>
<th>Home area</th>
<th>Clinic</th>
<th>Phone number</th>
<th>age</th>
<th>Index score</th>
<th>Frankel Score**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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</tbody>
</table>

ASIA CLASSIFICATION OF SPINAL INJURY

A Complete: no motor or sensory function is preserved in the sacral segments S4-S5

B Incomplete: sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-S5

C Incomplete: motor function is preserved below the neurological level, and more than half of key muscles below the neurological level have a muscle grade less than 3

D Incomplete: motor function is preserved below the neurological level and at least half of key muscles below the neurological level have a muscle grade of 3 or more

E Normal: motor and sensory function are normal
Peripheral Nerve Injuries

Seddon classification of nerve injuries

Neuropraxia

- Usually as a result of local ischemia which leads to a decrease in myelin which leads to nerve conduction velocity slowing down resulting in a reversible conduction block.
- No Wallerian degeneration takes place.
- Prognosis: Full spontaneous recovery expected within 6/52-3/12.

Axonotmesis

- Axon and myelin sheath disruption leads to a conduction block with degeneration.
- The endoneurium remains intact.
- Full regeneration expected at a rate of 1mm a day (monitor with Tinel sign).

Neurotmesis

- Complete nerve division with disruption of endoneurium
- no recovery unless surgical repair performed

<table>
<thead>
<tr>
<th>Type</th>
<th>Myelin intact</th>
<th>Axon intact</th>
<th>Endoneurium intact</th>
<th>Reversible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuropraxia</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Axonotmesis</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Neurotmesis</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Brachial Plexus Motor Assessment chart

<table>
<thead>
<tr>
<th>Level:</th>
<th>Mechanism of injury:</th>
<th>Posture and fallout</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper (C5-C6)</td>
<td>Head pushed into lateral flexion while the shoulder is pushed downwards.</td>
<td>Deficit: Shoulder abduction, external rotation, elbow flexion, supination and sensory loss over lateral arm. Posture: Waiters tip position-limp arm hanging in pronation</td>
<td>Favourable</td>
</tr>
<tr>
<td>Middle (C7)</td>
<td>Can occur with an upper or lower brachial plexus injury</td>
<td>The Radial nerve will also be affected.</td>
<td></td>
</tr>
<tr>
<td>Lower (C8/T1)</td>
<td>Forceful pull to upper limb with the shoulder in flexion</td>
<td>Deficit: Wrist and finger flexors, hand intrinsic mm, medial forearm and hand sensory loss Posture: Clawing of the hand</td>
<td>Poor, difficult to restore hand function.</td>
</tr>
</tbody>
</table>
Proximal vs more distal Brachial Plexus injuries:

<table>
<thead>
<tr>
<th>Root</th>
<th>Trunk</th>
<th>Cords</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preganglionic:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- poor prognosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- complete motor and sensory loss of involved root (on myotome and dermatome maps)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Winging of the scapula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No Tinels sign present</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Upper trunk:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoulder muscles and Biceps Brachii paralysed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lateral Chord:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Lateral Pectoral nerve (Pec. Major)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Musculocutaneous nerve (coracobrachialis, Biceps, Lateral cutaneous nerve of the arm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Middle trunk:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radial nerve involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Medial chord:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Median and ulnar nerve involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Medial pectoral nerve (pec major and minor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lower Trunk:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paralysis of muscles innervated by the ulnar nerve and some of those innervated by the median nerve.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Posterior cord:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Radial nerve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Posterior interosseous nerve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Triceps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Auxiliary nerve (Deltoid)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Brachial Plexus Diagram

<table>
<thead>
<tr>
<th>5 ROOTS</th>
<th>3 TRUNKS</th>
<th>6 DIVISIONS</th>
<th>3 CORDS</th>
<th>5 TERMINAL BRANCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>C5</td>
<td></td>
<td></td>
<td></td>
<td>Musculo-cutaneous C5,6,7</td>
</tr>
<tr>
<td>C6</td>
<td></td>
<td></td>
<td></td>
<td>Axillary C5,6</td>
</tr>
<tr>
<td>C7</td>
<td></td>
<td></td>
<td></td>
<td>Median C5,6,7, 8, T1</td>
</tr>
<tr>
<td>C8</td>
<td></td>
<td></td>
<td></td>
<td>Radial C5,6,7, 8, T1</td>
</tr>
<tr>
<td>T1</td>
<td></td>
<td></td>
<td></td>
<td>Ulnar C8, T1</td>
</tr>
</tbody>
</table>

Adapted for Zithulele Handbook in Nov 2015
Comparison of Sensory Innervation of Terminal Branches of Brachial Plexus vs Dermatomes of Upper Arm

1. Supraclavicular nerve (cervical plexus C4)
2. Axillary nerve (C5,6)
3. Radial Nerve (C5-T1)
3*. Superficial radial nerve (C5-T1)
4. Medial cutaneous nerve of the arm (C8-T1)
5. Lateral cutaneous nerve of the forearm
6. Medial cutaneous nerve of the forearm (C8, T1)
7. Superficial radial nerve (C5-T1)
8. Median nerve (C5-T1)
9. Ulnar nerve (C8-T1)

Dermatomes of The Upper Arm

Reference ASIA scale (for spinal cord injuries) for more information on Dermatomes and where exactly to test sensation.
# Upper Limb Nerve Injuries

**Nerve tissue Healing:**
4 weeks to 'jump' scar after repair and ± 1 mm growth per day thereafter. (Record advancing Tinel - elicited by tapping along the course of the nerve, an electrical shock is felt by the Pt)

**Immobilisation phase:** 3-4 weeks splint hand in position that will allow least tension at repair sight

**Mobilisation phase:** PROM, splint for function and prevention, sensory precautions

**Recovery phase:** AROM and PROM, place and hold exercises, muscle strength, desensitisation, sensory re-education

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Treatment</th>
</tr>
</thead>
</table>
| LOW MEDIAN NERVE INJURY (i.e. wrist level) | Aims:  
- Prevent or correct deformities of thumb webspace  
- Enhance function by aiding grasps |
| **Loss of sensation** in the dominant part of the hand | Splints:  
Thumb abduction/ Spica splint which also allows opposition  
Webspace to maintain thumb webspace  
Dynamic thumb opposition soft splint: (A cuff is made to go around the wrist and a finger cuff is attached over the MP joint of the thumb. The finger cuff is attached to the wrist cuff bringing the thumb into opposition. NB position correctly to avoid MP and IP flexion of the thumb. This splint will allow the Pt to pinch their index and middle fingers to the thumb and therefore maintain the function of the hand)  
Wrist extension splint to aid function  
Resting splint for wrist extension and MP flexion to maintain PROM  
Buddy strap can be provided to allow fingers with full flexion to aid the affected fingers. |

**Injury at wrist Level:**

*Thenar muscles paralysed:* APB, OP, FPB therefore unable to oppose the thumb  
Hyperextension of MP of index and middle finger

**Injury at elbow Level:**

*Loss of finger (index and middle) and wrist flexion*  
Loss of pronation  
Hyperextension of wrist  

*Ape hand* deformity
### ULNAR NERVE INJURY

<table>
<thead>
<tr>
<th>Loss of intrinsic muscle function of the hand</th>
<th><strong>Aims:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>reducing power grip by 80%</strong></td>
<td>- Prevent claw deformity</td>
</tr>
<tr>
<td>Loss of longitudinal and transverse arches resulting in <strong>flat hand</strong></td>
<td>- Enhance function</td>
</tr>
<tr>
<td>No active MP flex with IP ext of ring finger and pinkie</td>
<td><strong>Splints:</strong></td>
</tr>
<tr>
<td><strong>Clawing</strong> of the fingers (Benediction sign): MP hypertext, and PIP and DIP flexion</td>
<td>Supply Pt with a <strong>static/dynamic MP flexion splint</strong> to prevent clawing deformity.</td>
</tr>
<tr>
<td><strong>Loss of finger abduction and adduction</strong></td>
<td>The splint maintains the <strong>MPJs in flexion and the IPJs in extension</strong> in the absence of the interosseous and lumbrical muscles.</td>
</tr>
<tr>
<td>Loss of <strong>thumb adduction</strong></td>
<td>PROM exercises to maintain ROM of all IP and MPJs.</td>
</tr>
<tr>
<td><strong>Test Froment’s sign:</strong> lateral pinch done by using thumb IP flexion</td>
<td>Visual control when performing ADLs to prevent burns (Pts often burn their little fingers)</td>
</tr>
</tbody>
</table>

![Image of ulnar nerve and hand](image)

**Normal** | **Froment's positive**

### RADIAL NERVE INJURY

<table>
<thead>
<tr>
<th>Loss of <strong>MP joint extension</strong></th>
<th><strong>Aims:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of thumb <strong>extension/abduction</strong></td>
<td>- Maintain mobility of all the joints move joints through full ROM daily</td>
</tr>
<tr>
<td><strong>Wrist drop</strong></td>
<td>- Prevent extension contractures and over stretching by supporting wrists</td>
</tr>
<tr>
<td>Extension of IPJs is still possible due to lumbrical function</td>
<td>- Enhance function</td>
</tr>
<tr>
<td>Sensation los mostly posterior</td>
<td><strong>Neuroptaxis:</strong> wrist extension splint</td>
</tr>
<tr>
<td></td>
<td>Pt is taught how to extend the wrist and MPs with gravity eliminated</td>
</tr>
<tr>
<td></td>
<td>Graded muscle strengthening exercises as muscle power returns</td>
</tr>
<tr>
<td></td>
<td>Wrist, finger, thumb extension – eliminate intrinsic muscles by strapping IPs in flexion</td>
</tr>
<tr>
<td></td>
<td><strong>Neurotmesis:</strong> Dynamic dorsal MP extension splint which maintains the wrist in 30-40° of ext and the MPJs in a neutral position</td>
</tr>
</tbody>
</table>

![Image of radial nerve and hand](image)
1.) Flexor tendon hand zones

- **Zone I**
  FDP injury trough trauma.
  Avulsion injury: Jersy finger
- **Zone II**
  "no man's land" – poor prognosis
  FDP and FDS injury to consider
- **Zone III**
  Lumbricals attaching tho the FDP. But generally good prognosis if early intervention
- **Zone IV**
  Inside the carpal tunnel.
  Good prognosis
- **Zone V**
  Common to have a combination of nerve and tendon injury
- **Zone VI & VII**
  Muscle belly injuries – refer to protocol specifications for these injuries.

2.) Most important to remember with flexor tendons:

- Avoid passive extension!!
- Pre-op place hand in wrist neutral, MCPJ full flexion and IPJ’s full extension back slab!
- No resistance before 8-12 weeks post op

3.) Types of protocols:

*There are 3 main categories of protocols for the rehabilitation of flexor tendons: Immobilisation, early passive mobilisation and early active mobilisation. The latest literature advocates early mobilisation (either active or passive) however it is particularly important to know what **type of repair** and **how strong** the repair is that was done before deciding on which protocol to follow.

The Modified Duran protocol is a good midway protocol to use to decrease stiffness but still to protect the repair especially when not knowing the type and quality of repair.
**Modified Duran protocol (controlled early mobilisation protocol)**
*protocol plus general treatment guidelines per therapy session*

<table>
<thead>
<tr>
<th>Day 1-2</th>
<th>Remove POP Cast (prevent any passive flexion!!)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dorsal Block Splint:</td>
</tr>
<tr>
<td></td>
<td>Wrist neutral – 20° Flexion</td>
</tr>
<tr>
<td></td>
<td>MCPJ’s – 70° flexion (with a palmar bar)</td>
</tr>
<tr>
<td></td>
<td>IPJ’s – extension (removable)</td>
</tr>
<tr>
<td></td>
<td><strong>Thumb (FPL) Consideration</strong></td>
</tr>
<tr>
<td></td>
<td>Wrist neutral – 20° flexion</td>
</tr>
<tr>
<td></td>
<td>CMCJ mild flexion</td>
</tr>
<tr>
<td></td>
<td>Thumb in palmar abduction</td>
</tr>
<tr>
<td></td>
<td>MCPJ blocked at 25°</td>
</tr>
<tr>
<td></td>
<td>IPJ in extension</td>
</tr>
<tr>
<td></td>
<td><strong>Exercises:</strong></td>
</tr>
<tr>
<td></td>
<td>10 x every hour (awake)</td>
</tr>
<tr>
<td></td>
<td>Remove strap around IPJ’s</td>
</tr>
<tr>
<td></td>
<td>- Passive composite flexion and active extension up to dorsal block of splint</td>
</tr>
<tr>
<td></td>
<td>Replace strap around IPJ’s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1-4 weeks</th>
<th>Weekly follow up at hospital:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1 - Review splint and remould if not fitting well. Wound dressing.</td>
</tr>
<tr>
<td></td>
<td>Week 2 - Suture removal and wound dressing.</td>
</tr>
<tr>
<td></td>
<td>Week 3 - Wash hand in flexion position under supervision</td>
</tr>
<tr>
<td></td>
<td>Week 4 – Start scar massage if indicated</td>
</tr>
<tr>
<td></td>
<td><strong>Exercises:</strong></td>
</tr>
<tr>
<td></td>
<td>10 x 5 (hold for 2-5 sec)</td>
</tr>
<tr>
<td></td>
<td>Place hold exercises inside the splint</td>
</tr>
<tr>
<td></td>
<td>1. Total grasp</td>
</tr>
<tr>
<td></td>
<td>2. Long grasp</td>
</tr>
<tr>
<td></td>
<td>3. Hook grasp</td>
</tr>
<tr>
<td></td>
<td>Protected passive mobilization (gentle and pain free)</td>
</tr>
<tr>
<td></td>
<td>1. Passively push the MCPJ into max flexion with PIPJ into extension.</td>
</tr>
</tbody>
</table>

**Precautions:**
Always keep splint on (except in therapy)
No active motion of involved digits
No passive wrist extension
No passive finger extension
No functional use of hand

<table>
<thead>
<tr>
<th>6 weeks</th>
<th>Remove splint except for when in busy places or when sleeping (still need protection against excessive force like falling)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Exercises:</strong></td>
</tr>
<tr>
<td></td>
<td>10 x 5 times a day</td>
</tr>
<tr>
<td></td>
<td>Finger blocking exercises of PIPJ and DIPJ</td>
</tr>
<tr>
<td></td>
<td>Tendon gliding</td>
</tr>
<tr>
<td></td>
<td>Composite active stretch</td>
</tr>
<tr>
<td></td>
<td>Progressive resistance (start with very light resistance till week 8)</td>
</tr>
<tr>
<td></td>
<td>Light ADL’s at home</td>
</tr>
</tbody>
</table>
**Scar management:**

Scar massaging

Use oily cream

Apply pressure on scar and make small circular movements with finger for 5-10min

Fabricate pressure garment

**Precautions:**

Always Wear splint at night and in busy places

No heavy activities (opening a fridge door is too heavy)

Do not over exercise and always work in range of pain.

<table>
<thead>
<tr>
<th>8-12 weeks</th>
<th>Remove splint completely</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exercise:</strong></td>
<td>As per above add</td>
</tr>
<tr>
<td></td>
<td>Progressive strengthening</td>
</tr>
<tr>
<td></td>
<td>Passive mobilization</td>
</tr>
<tr>
<td></td>
<td>Continue scar management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12 weeks</th>
<th>Muscle strengthening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work hardening</td>
</tr>
<tr>
<td></td>
<td>Activities with full resistance allowed at 12 weeks</td>
</tr>
<tr>
<td></td>
<td>It is advised that the hand must be protected from activities with high intensity contact sport up until 6 months postoperatively.</td>
</tr>
<tr>
<td></td>
<td>If any joint stiffness is still present prolonged passive stretching can be added to increase Range of Motion</td>
</tr>
<tr>
<td></td>
<td>Continue scar management (PG up to 2 years if needed)</td>
</tr>
</tbody>
</table>
### Immobilisation protocol

| 0-4 weeks | Immobilisation  
POP cast  
Wrist, MPJ and IPJ flexion |
|---|---|
| 4-6 weeks | Dorsal block splint:  
Wrist: neutral - 20° flx  
MP joints: 60° – 80° flx  
IP joints: neutral / full ext  
*Splint removed every 2 hours to do exercises (A and PROM but no passive ext)  
**Exercises:**  
Each finger: Passive composite flx - MP, PIP & DIP & active ext  
Place & hold exercises: Patient passively flexes his finger, and then tries to keep it there for 5 seconds  
Active flx & ext of wrist and fingers (10-20 repetitions)  
Active isolated flx & ext of DIP and PIP joints (with blocking at proximal joint)  
**Start scar massaging:**  
- Use oily cream  
- apply pressure on scar and make small circular movements with finger for 5-10min  
Manage oedema  
Do not use hand in function |
| 6-8 weeks | Wear splint by night only  
**Exercises:**  
Continue with exercises  
Tendon gliding  
Tendon blocking  
Splints can be provided to facilitate extension of wrist / fingers, if extrinsic flexor stiffness is present  
(If the patient has nerve involvement as well, a splint should now be provided to prevent deformities caused by the particular nerve injury)  
Continue with scar massaging |
| 8-10 weeks | Passive ext is now allowed  
Exercises against slight/gradual resistance may start, and light grasps may be allowed  
Continue previous exercises if full range have not yet been achieved |
| 10-12 weeks | Muscle strengthening  
Work hardening  
Activities with full resistance allowed at 12 weeks  
It is advised that the hand must be protected from activities with high intensity contact sport up until 6 months postoperatively |
Disadvantages of immobilisation protocol:
1. Stiffness!!
2. Thickened scar tissue
3. Lack of differential glide of tendons secondary to tendons tethered/adhered in scar tissue
4. FFD (fixed flexion deformity) of the PIPJ/DIPJ of the injured fingers – night splinting can be used to try to resolve this

Other protocols to consider:
- Duran (early passive mobilisation)
- Kleinert (controlled passive mobilisation)
- Elliot and associates (early active protocol)

*for more information see protocols in the hand file
Extensor Tendon Repairs

4.) Extensor tendon hand zones

5.) Most important to remember with extensor tendons:
   - Avoid passive flexion!!
   - No resistance before 8-12 weeks post op

6.) Management of injuries in different zones:

Zone 1 and 2: Mallet finger
Immobilisation for 0-6 weeks in gutter splint (DIP hyperextensions):
   - Remove splint once a day to inspect finger but avoid flexion of DIP at all times
   - Splint can be adjusted during 6 week period
   - ROM of non-affected joints
6-8 weeks:
   - Remove splint every 2h for light active DIP flexion and extension
   - Avoid DIP passive flexion
   - Splint during rest and at night
   - If extensor lag develops delay exercises
10-12 weeks:
   - Splint by night or for protection during heavy duty activities
   - Start with DIP passive flexion
12 weeks
   - Unrestricted use
   - Unrestricted DIPJ flex allowed

Zone 3 and 4: Boutonniere
Immobilisation for 0-5/6 / 52 (conservative management) or 3-6/52 (surgery) in gutter splint (PIP ext (full) DIP left open) if very proximal zone IV include MCPJ in splint:
   - Manage oedema

4-6 weeks:
   - AROM and PROM of DIPJ allowed
   - Avoid PIP passive flexion
   - Splint full time
6-8 weeks:
- Splint by night or for protection during heavy duty activities
- Start with PIP passive flexion
- If extensor lag is present immobilise PIP for another week

8-10 weeks:
- Wean splint to only night time
- Start light duties without wearing splint
- If no extensor lag start passive flexion and resistance
- With a chronic Boutonniere deformity an aggressive dynamic PIP ext splint program must be started. (Static finger extension gutter splint can also be made as alternative). The splint must be worn continuously between exercise sessions. When the PIP joint reaches the neutral position, the splint must still be worn for a further 8 weeks to ensure that the deformity doesn’t occur again.

Zone 5 to 7:

Types of protocols:
*There are 3 main categories of protocols for the rehabilitation of flexor tendons: Immobilisation, early passive mobilisation and early active mobilisation. The latest literature advocates early mobilisation (either active or passive) however within this the setting the immobilisation protocol is most commonly used.

**Immobilisation protocol**

<table>
<thead>
<tr>
<th>0-4 weeks</th>
<th>Immobilisation POP cast Wrist extension, MP flexion, IP full extension</th>
</tr>
</thead>
</table>
| 4-6 weeks | **Palmar splint:** Wrist in 25° -35° ext MP’s in 10°-15° flx IP’s are left open Allow space for thumb movements End distal part of splint in middle of prox phalanx to allow full PIP flex for all digits, round edge of splint *Splint removed every 2 hours to do exercises (A and PROM but no passive flex wrist or finger flexion)*
|           | **Exercises:** Active flexion and passive extension of IP joints x 5 with each finger *If not longer has extensor lag of MPs, adjust splint to allow full MP flexion* 
|           | **Exercises:** Place & hold exercises: passively extends his MP joint (with IP’s flexed) and then tries to keep it there actively for 5 seconds AROM exercises – wrist & composite finger flexion and extension 
|           | **Start scar massaging:** -Use oily cream -apply pressure on scar and make small circular movements with finger for 5-10min 
|           | Manage oedema Do not use hand in function |
| 6-8 weeks | **Exercises:** Continue with exercises MP extension exercises (graded): -Gravity eliminated: IP joints flexed (short lever arm) then IP joints extended (long lever arm) -Against gravity: IPJ’s flexed then IPJ’s extended Tendon gliding |
**Tendon blocking**
*By the end of week 6 the splint can be worn by night only
Continue with scar massaging

<table>
<thead>
<tr>
<th>Period</th>
<th>Activities and Exercises</th>
</tr>
</thead>
</table>
| 8-10 weeks | Passive flexion is now allowed  
Exercises against slight/gradual resistance may start, and light grasps may be allowed  
Continue previous exercises if full range have not yet been achieved. |
| 10-12 weeks | Muscle strengthening  
Work hardening  
Activities with full resistance allowed at 12 weeks  
It is advised that the hand must be protected from activities with high intensity contact sport up until 6 months postoperatively. |

*Note: alternatively a dorsal dynamic MP extension splint could be issued at 4 weeks post op which allows for active flexion and passive extension. This splint can be used until 8 weeks post op.*

**Alternative protocols:**
- Controlled passive mobilisation with a dynamic splint
- Early active mobilisation
Management of Infections and Oedema in the Hand.

Signs of hand infection:
- Redness
- Throbbing pain
- Raised local temperature
- Tenderness
- Oedema/Swelling
- Restricted finger movement

Acute phase:
- Broad spectrum antibiotics (IV or oral, the medical doctor will decide the patient need with initial presentation to the hospital.)
- The doctor will surgically do incision and drainage. Further debridement as needed, for potential communicating pathways and compartments.
- Immobilization of the hand for the first 48 hours.

Oedema management:
- Elevation of the limb above the heart (using a drip stand and make a sling) ensure you don't suppress any blood flow with the positioning of the sling.
- Mobilise proximal joints
- Compression bandaging (special technique bandaging to reduce oedema and enhance lymph drainage.)

Splinting:
Gutter splint for fingers and functional resting splints for hands.
Ensure MCP flexion in optimal flexion as possible in range what oedema allow. It prevents collateral ligaments to tighten. Daily wear for 48 hours as this contributes positively to lymph drainage.
- Splinting and material in rural is often a challenge as we don't always have resources. Plaster of paris (POP) splint can always be fabricated especially as the splinting is only applicable for a short amount of time.

Hand baths:
- Betadine hand bath once a day for 30 min.
- Pour Saline and betadine solution in a sterilized bowl.
- Start with light active and passive Rom's this helps with the drainage of puss collections.

Rehabilitation/ Mobilisation phase
This phase is very important as this will prevent a stiff hand.

Oedema management:
- continuation of hand elevation above the heart.
- Active hand pumps
- Oedema management lymph hand bandaging.

Splint:
Continue night time splints.
Mobilization during hand baths:
- Table top fist: (MPs flexion with IP’s extension)
- Hook grip formation
- Abduction and adduction of fingers
- Maintenance of first web space and thenar opposition
- Individual PIP, DIP and MP flexion and extension exercises (fingerblock).
- Wrist flexion and extension, radial and ulnar deviation, supination and pronation

Hand function:
- Functional activities (ADL’s, hand grasps and muscles strength and endurance.)

Management of the Stiff hand:
- Assess intrinsic and extrinsic muscle of the hand that is stiff.
- Active mobilization of the hand. (If the patient experience any pain or swelling after active exercises
- Slow stretch and passive ROM exercises.
- Proprioceptive feedback
- Low load prolonged stretching (Night times), static splinting methods.
- Dynamic splinting (example wrist extension boxing glove splint.)
- Static progressive splinting (serial splinting, also known as the CIMS method, the CIMS method is a specialised skill that should be performed by a CIMS trained therapist.)
- Fascia scarring massage and releasing. Kinesio taping help to lift the skin and allow more movement (specific technique required). Fascia release loosen tight banded fascia (deep or superficial trap muscles and all other structures, use circular massaging to breakdown the tissue, the pull and press technique)
- Compression garment, with chip foam pockets creates uneven surfaces on the skin that helps with the breakdown of tighten or scarred fascia.

Management of joint stiffness:
- Assess PROM, while proximal and distal joints are in different positions. If the PROM is the same, it means there is joint stiffness.
- AROM, PROM and mobilization dynamic splinting.
Adapted Chedoke Arm and Hand Activity Inventory

The purpose of this measure is **to evaluate the functional ability of the affected arm and hand to perform everyday tasks**. It is NOT designed to measure the patient’s ability to complete the task using only their unaffected hand, but rather to encourage bilateral function.

Explain to your patients that some tasks are difficult and they should not get frustrated if unable to complete all the tasks. Encourage them to give their best effort using BOTH arms and hands. *The patient may attempt each task twice.*

**Standard starting position**

- **Posture:** Seated in chair without armrests or in wheelchair with armrests removed, encourage erect posture, feet flat on the floor
- **Height of table:** At the level of the last costal rib
- **Distance from table:** Client's elbow comes to the table edge
- **Hands:** Resting on the table

**To ensure the patient understands**
- Each task should be demonstrated once, twice if needed
- The client may be cued to use both hands twice
- The client may be reminded not to rest elbows on the table twice

**Equipment needed:**

- Table
- Chair
- Coffee Jar
- Enamel mug
- Plastic Water Jug with a lid
- Bath Towel
- Container (5kg weight in 60CMX60CM plastic storage bin)
- Toothbrush
- Toothpaste with screw lid
- Water
- Washcloth
- Small bowl
- Button up purse
- 5 coins of different sizes
- Pull-on vest with 5 buttons (one side male & one side female)

**Scoring**

Score the performance of the affected upper limb using the 7 point Activity Scale. Observe the performance of the affected upper limb and:

1) Use the Task Component Chart to determine what part of the task the affected limb performed. e.g. affected hand turning the lid or affected hand stabilizing the jar
2) Identify the specific components of manipulation and stabilization the affected limb completed
3) Use the 7 point Activity Scale to determine the score.

If different performances are observed then assign the lower score.

Record which part of the task the affected hand performed in order for retesting to be consistent.

**Description of the levels of function for the activity scale**

7 Complete independence: All of the tasks are performed safely, without modification, assistive devices or aids, and within reasonable time.

6 Modified independence: Activity requires any one or more of the following: an assistive device, more than reasonable time, or there are safety (risk) considerations.

5 Supervision: The client requires no more help than standby, cueing or coaxing, without physical contact. A helper sets up needed items or applies orthoses.

4 Minimal assistance: With physical contact the client requires no more than touching, and client expends 75% or more of the effort.

3 Moderate assistance: Weak limb manipulates and stabilizes during the task. The client requires more help than touching, or expends

2 Maximal assistance: Weak limb stabilizes during task. The client expends less than 50% of the effort, but at least 25%.

1 Total assistance: The client expends less than 25% of the effort.
Algorithm for application of the Chedoke Arm and Hand Activity Inventory
November 2007

Start

Does client need help?

No

Does client need assistive device or takes 3x normal or safety concern?

Yes

SCORE 7

SCORE 6

NO HELPER OR ASSISTANCE from therapist, other hand, table

HELP

Yes

Does client show any sign of arm or hand manipulation?

No

Does client only need cueing, coaxing or orthosis applied?

Yes

Yes

SCORE 5

No

Does client perform all parts of stabilization?

No

Does client only need light touch and does 75% or more of work?

Yes

Yes

SCORE 4

No

Client stabilizes only during task, does 25-49% of the effort

SCORE 2

No

Client stabilizes only during task, does 25% or less of the effort

SCORE 1

No

Client does 50-74% of the effort, shows manipulation

SCORE 3
<table>
<thead>
<tr>
<th>TASK COMPONENT CHART</th>
</tr>
</thead>
<tbody>
<tr>
<td>(MAKE NOTES AND SCORE ON THE CHART WITH WHITE BOARD PEN)</td>
</tr>
</tbody>
</table>

1. OPENING A JAR OF COFFEE

**If affected hand is holding the jar**
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps jar
  - Lifts jar off the table
- **Components of stabilization**
  - Maintains grasp on jar
  - Maintains jar off the table

**If affected hand is holding the lid**
- **Components of arm mobility and hand manipulation**
  - Turns and removes lid
- **Components of stabilization**
  - Maintains grasp on lid while it is removed

2. POUR A GLASS OF WATER

**If affected hand is holding the glass**
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps glass
  - Lifts glass off the table
- **Components of stabilization**
  - Maintain sufficient grasp to hold the glass away from table
  - Maintain glass steady while pouring

**If affected hand is holding the jug**
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps pitcher
  - Lifts picture off the table
  - Pours water from pitcher
- **Components of stabilization**
  - Maintain sufficient grasp to hold the pitcher off the table
  - Maintain pitcher steady while pouring

3. WRINGING OUT WASHCLOTH

Score affected hand on:
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps washcloth
  - Hand in wringing action
- **Components of stabilization**
  - Holds washcloth in place
  - Holds washcloth to permit wringing action

4. DO UP FIVE BUTTONS

**If the affected hand is holding the material**
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps material
  - Brings sides of material together
  - Assists in threading the button through the holes
  - Releases material
- **Components of stabilization**
  - Holds and maintains grasp on material

**If the affected hand is holding the buttons**
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps buttons
  - Brings sides of material together
  - Assists in threading the button through the holes
  - Releases buttons
- **Components of stabilization**
  - Holds and maintains grasp on buttons

5. PUT TOOTHPASTE ON TOOTHBRUSH

**If affected hand is holding toothpaste**
- **Components of arm mobility and hand manipulation**
  - Reaches and grasps toothpaste
  - Squeezes toothpaste with enough force to get toothpaste on brush
- **Components of stabilization**

**If affected hand is holding toothbrush**
- **Components of arm mobility and hand manipulation**
  - Unscrews lid
  - Reaches and grasps toothbrush
- **Components of stabilization**
  - Sufficient force holding toothbrush
<table>
<thead>
<tr>
<th></th>
<th>With sufficient force holds toothpaste while manipulating lid</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. PLACE CONTAINER ON A TABLE (5kg weight in 60CMX60CM plastic crate)</td>
<td>Using both the affected and unaffected hand  Components of arm mobility and hand manipulation  - Reaches down and grasps container  - Elbow flexion to lift container enough to easily clear table  - Places container on table  Components of stabilization  - Maintains sufficient grasp  - Stabilizes container during lifting without using body for support</td>
</tr>
<tr>
<td>7. DRY BACK WITH TOWEL</td>
<td>If the affected hand is reaching and grasping for towel  Components of arm mobility and hand manipulation  - Reaches and grasps towel  - Manipulates towel in hand to place on back  - Rubbing motion along upper and lower back  Components of stabilization  - Maintains grasp on towel sufficient to complete task</td>
</tr>
<tr>
<td>8. PUT 5 COINS INTO A PURSE</td>
<td>If the affected hand is holding the purse  Components of arm and hand manipulation  - Reaches grasps purse  Components of stabilisation  - Maintains sufficient grasp  - Stabilises purse so that coins may be placed in through opening</td>
</tr>
</tbody>
</table>
## Splinting Protocol for the Non-Moving Neuro Hand

<table>
<thead>
<tr>
<th>No, Low or normal tone</th>
<th>Increased tone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aims for splinting:</strong> (all to enable and focus on the formation of active grasp)</td>
<td><strong>Aims for splinting:</strong> (all to prepare for movement)</td>
</tr>
<tr>
<td>• Improved stability of wrist with fingers unrestrained</td>
<td>• Reduce spasticity in finger and wrist flexors and ulnar deviators</td>
</tr>
<tr>
<td>• Improve and maintain functional hand positions</td>
<td>• Reduce and prevent stiffness and shortening of collateral ligaments</td>
</tr>
<tr>
<td>• Reduce and prevent lengthening of antagonistic muscles and ligaments</td>
<td>• Reduce and prevent lengthening of antagonistic muscles and ligaments</td>
</tr>
<tr>
<td>• Manage and prevent pain and oedema</td>
<td>• Manage and prevent pain and oedema</td>
</tr>
<tr>
<td>• Improve and maintain a functional hand position</td>
<td>• Improve and maintain a functional hand position</td>
</tr>
</tbody>
</table>

### PROCESS:

**Step A1:** reduce the subluxation of the shoulder. Improve resting position of arm through the use of a tray table and placing the arm in a functional position. Strapping* can also be done by an appropriately trained therapist.

**Step A2:** manage the pain (<6 on VAS at rest during the day) and oedema (1-1.5cm between the two hands using the figure of 8 hand oedema management). UL must have full PROM with pain VAS 2-3 during passive stretching.

**Step A3:**
Fabricate the wrist extensor splint, not passing the transverse palmar crease and leaving fingers unrestrained for grasping. Thenar eminence must be free for movement. This is to provide proximal stability.

**Step A4:**
Fabricate cone splint for night wearing for maintenance of tissue and MPJ and IPJ collateral ligament length.

**Step A5:** Provide intervention to active voluntary grasp.
- Gentle passive mobilization of all joints of the UL
- Sweep tapping, vibration and quick stretch of the fingers without the splint
- Use intensive simple excercises in the ward with a stressball
- During OT sessions use functional grasping tasks with wrist extensor splints on.
  - Towel pulling
  - Washing and squeezing items
  - Mirror therapy*
- FES* of finger flexors if indicated and appropriate

**Step 6:** Remove splint during therapy time once active voluntary grasp is achieved and use occupation based activities to strengthen active wrist and finger flexion and extension. **Splint remains on outside of therapy time.**
- Self care, wiping table, folding, pushing
- Theraputty, flexi bar, Thera band, power web
All movements should use an active grasp + release

**Step 7:** Remove splint completely once wrist extension is active and the patient has voluntary movement of the hand.

*Intervention marked with a * require additional training and/or qualifications and are not covered during the splinting workshop.

### Reassessment – always WRAP and wash

- Wrinkled skin
- ROM of muscles and tendons
- Appearance of limb and joints, pressure
- Position of limb and joint
Introduction into Wheelchair Procurement- Eastern Region, Eastern Cape

- All wheelchairs are ordered through our BOH O&P centre and come out of the regional budget for wheelchairs.
- We have a Wheelchair Advisory Committee (WAC) that meets quarterly to discuss all wheelchair related issues as well as prioritizing our waiting list and trying to decrease our backlog.
- As a region we use Kobo toolbox to capture all data as well as compiling a regional database.
- Currently we are still working on electronic system as well as a paper base system for all orders, issues and returns of wheelchairs.

Wheelchair Ordering Procedure
1. Complete the setup process as below
2. Complete the form for each device using the guideline below
3. Please note: For some products we require that an intermediate seating trained therapist is consulted before ordering. These products are:
   a. Chest straps
   b. Thigh and knee straps
   c. Recliner back
   d. Buggies
   e. Motorised chairs
   f. Wedges
   g. Back systems (besides the TAB)
4. Wheelchair application form, agreement and register still needs to be filled in at each hospital. This is vital for audit purposes. It is important that each institution has their own register they can refer to.
5. The patient/therapist agreement needs to be completed for each wheelchair that is issued.

Receiving Orders
1. When your wheelchairs arrive, they will either be delivered to Bedford O&P or directly to your hospital.
2. When an order arrives at your hospital, make sure to check what chairs arrived, s/n and number of chairs. Sign the delivery note and invoice.
3. Send the invoice number to Mr Pretorius along with the number and type of chairs you received. Do this on the day that you received the order so that they can be paid timeously
4. Fill out the S/N on the patient's written order form. Copies of these forms along with the delivery note and invoice then need to go to Mr Pretorius for record purposes.
5. On the Kobo form, mark the type of entry as "Wheelchair received". Complete a new entry for each chair received specifying type, size and extra products ordered with it.

Using the Kobo form
1. Firstly you need to set up the kobo app on your device. How to available on the WAC google drive.
2. Opening the form you should be greeted with the page on the right. If you see a star as indicated by the red circle it means this entry has to be answered in order to submit.
3. Select what type of entry you are doing.
   a. New order: This is when ordering for a patient. If a chair has already been ordered and you are issuing, select the Issue Tab.
   b. Wheelchair received: This is when a delivery has arrived. You will be required to insert the s/n for every chair and detail what kind of chair it is. This will be important for the wheelchair database we are creating.
c. **Change of wheelchair:** This is if a patient is receiving a replacement chair that has already been ordered for them.

d. **Wheelchair Repair:** Specify what repairs were done

5. Some questions just have an “OK” as a response. Mark “OK” if you want that specific component.

6. There are multiple entries that will let you know if the component will carry an extra cost. This is to make you aware so you can assess whether that component is necessary.

7. When opening the form, if you are greeted with this warning, it could mean that you did not complete and submit the last form. Select load record and complete and submit before continuing.

8. There is an option to save as a draft at the bottom of the page if you find you do not have all the information and you want to come back to it later. Mark the box to save and then press the blue button.

9. To submit, make sure all the questions are answered and then press submit.

10. If you received the alert on the right, you have not completed all the entries that are required. Your form has not been submitted. Press close and find all the questions in red. Then once again press submit.

11. The red number on the top left will indicate if any submissions have not been uploaded. Once you get to internet you may have to manually submit if it does not go through itself.

12. The queue menu should open. It should indicate what entries are still to be uploaded. Press the upload button to manually upload them.
Wheelchair Seating and Positioning Guide

**Evaluation**

<table>
<thead>
<tr>
<th>ROM:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip Flexion (check when pelvis tilts posterior)</td>
<td>Hip adduction (check for pelvic movement)</td>
</tr>
<tr>
<td>Hip Extension</td>
<td>Hip abduction (check for pelvic movement)</td>
</tr>
<tr>
<td>Hamstring (Hip F=90°; extend knee)</td>
<td>Internal rotation of Hips</td>
</tr>
<tr>
<td>DF: Gastroc’s &amp; Soleus (Knee in F &amp; E)</td>
<td>External Rotation of Hips</td>
</tr>
<tr>
<td>Pelvic Mobility: Lateral tilt</td>
<td>Pelvic obliquity (fixed or correctable)</td>
</tr>
<tr>
<td>Anterior tilt</td>
<td>Scoliosis (fixed or correctable)</td>
</tr>
<tr>
<td>Posterior tilt</td>
<td>Windswept deformities (fixed or correctable)</td>
</tr>
<tr>
<td>Pelvic rotation</td>
<td>Leg length discrepancy</td>
</tr>
</tbody>
</table>

**Measurement**

**A Seat width**
Measure widest part of body (pelvis or trunk)

**B Seat length**
Remember to allow space for 4 fingers at the back of the knees

**C Backrest height**
Decide on the size of backrest height by doing a balance test & remember to add the cushion thickness.
- Low backrest = apex of lumbar curve
- Medium backrest = thoraco-lumbar junction
- standard backrest = base of scapulae
- tall backrest = shoulders

**D Foot plate’s height**

**Balance Assessment**

<table>
<thead>
<tr>
<th>X</th>
<th>Balance</th>
<th>Back height</th>
<th>Rear wheels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Able to sit with bilateral arm support but unable to move over BOS</td>
<td>High</td>
<td>Safe</td>
</tr>
<tr>
<td></td>
<td>Able to sit with bilateral arm support, able to move over BOS OR</td>
<td>High/standard</td>
<td>Safe/neutral</td>
</tr>
<tr>
<td></td>
<td>Able to sit safely with unilateral arm support, but unable to move over</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BOS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Able to sit with unilateral arm support, able to move over BOS OR</td>
<td>Standard</td>
<td>Neutral</td>
</tr>
<tr>
<td></td>
<td>Able to sit safely with without arm support, but unable to move over</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BOS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Able to sit without arm support, able to move over BOS</td>
<td>Standard/medium</td>
<td>Neutral/active</td>
</tr>
<tr>
<td></td>
<td>Able to sit without arm support, able to move over BOS</td>
<td>Medium/low</td>
<td>Active</td>
</tr>
</tbody>
</table>
Types of backrest

- **Tension Adjustable Backrest system:**
  Provides posterior support and contours the trunk to follow normal curvatures or a gibbus. Not adequate for tall/heavy users or with strong extensor spasticity.

- **Gibby backrest system:**
  Combination of tension adjustable straps with rigid lateral support.

- **Tess backrest system:**
  Rigid back with rigid lateral support.
  Suitable for users with
  - Taller and heavier users or those with complete lesions or strong extensor spasticity.
  - Accommodate minor to moderate deviations of the upper trunk with the lateral support.
  Not for deep kyphotic or gibbus deformities.

Buggy:

**Principles of seating:**

1. **Stabilise pelvis:**
   - Pre-ischial shelf – Cut out in chip foam.
   - Pelvic strap – Can assist in correcting pelvic obliquity
   - Pummel: Check for excessive forces on inner thighs
2. **Stabilise spine:**
   - Lateral support – Make sure laterals are not restricting scapulae or upper limb movement
   - Rib hump or Kyphosis – Cut a keyhole in backrest to support spinal deformities if not correctable.
   - Head support – Make sure head is not pushed forward and no pressure over ears.
3. **Tilt in space:**
   - Add last! If client is still falling forward or slumping check pelvic alignment again.

Cushion adjustment

**Pre-ischial shelf and Trochanter loading:** While client is sitting in neutral position on cushion feel where his/her ischial tuberosity's (IT) are. Mark it on the cushion with permanent marker. Lengthen pre-ischial shelf with about another finger width (1-2cm). Cut out the pre-ischial shelf in the CHIP-FOAM / base of cushion. Leave approximately a ¼ of the cushion width on each side of the pre-ischial shelf to take some of the Trochanter load of the IT’s.

![Pre-ischial shelf and Trochanter loading](image)

**Extensor Tone:** Wedged cushion can be issued to users with excessive extensor tone either in trunk or lower limbs. Wedging of the hips breaks the extensor tone and facilitates better postural control and comfort.

**Adduction & internal rotation of legs:** First check cushion’s stability and integrity. If a patients legs internally rotates and is in adduction an abduction block can be inserted in the distal 1/3 of the cushion between the legs to maintain a neutral alignment and prevent any pressure sores between the knees.

**Pelvic Obliquity:** Determine height of build-up under pelvis after lateral trunk support is provided for scoliosis if present. **Fixed:** Orientate and align head and shoulder girdle. Build-up and support under
higher side. Provide trunk and pelvic support if needed. Pelvic strap can be used. **Mobile / Correctable:** Build-up under lower side if able to return to neutral and apply a lateral pelvic force if needed.

**Windswept Deformities:** Check foot plate’s height, seat depth and cushions integrity.

**Possible solutions:**
- Adduction and abduction pads
- Lateral hip pad to prevent pelvic shift
- Pelvic strap with force localizing pad
- Sacral support

**If not correctable:** Align head and shoulders and accommodate windswept deviation, correction will cause rotation of pelvis and spinal deviation.

**Hip Flexion < 90°:** Unilateral: Taper down t accommodate affected side from pre-ischial shelf to front of cushion. **Bilateral:** Open back-seat angle or taper down the whole cushion to accommodate both sides.

**Hip Flexion > 90°:** Wedge to accommodate affected side. The pelvis stays level and just wedge under thigh.

**Equipment sizes:**

<table>
<thead>
<tr>
<th>Shonaquip buggies</th>
<th>Baby 1</th>
<th>Baby 2</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back height (max)</td>
<td>44cm</td>
<td>44cm</td>
<td>48cm</td>
<td>55cm</td>
<td>57cm</td>
</tr>
<tr>
<td>Pelvis width (max)</td>
<td>16cm</td>
<td>22cm</td>
<td>20cm</td>
<td>20cm</td>
<td>23cm</td>
</tr>
<tr>
<td>Seat length (Max)</td>
<td>18cm</td>
<td>24cm</td>
<td>32cm</td>
<td>36cm</td>
<td>40cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shonaquip standing frame</th>
<th>X small</th>
<th>Small</th>
<th>Medium</th>
<th>large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heel to head</td>
<td>75-110cm</td>
<td>95-135</td>
<td>110-165</td>
<td>140-175</td>
</tr>
<tr>
<td>Heel to nipple</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hips max width</td>
<td>22cm</td>
<td>23</td>
<td>28</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timion standing frame</th>
<th>X small</th>
<th>Small</th>
<th>Medium</th>
<th>large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heel to head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heel to nipple</td>
<td>-53cm</td>
<td>54-80</td>
<td>80-100</td>
<td>100+</td>
</tr>
<tr>
<td>Hips max width</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timion equipment measurements needed</th>
<th>bench</th>
<th>Side lyer</th>
<th>Heel to head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heel to back of knee</td>
<td></td>
<td></td>
<td>Heel to head</td>
</tr>
<tr>
<td>table</td>
<td>Measure off the floor at the height needed in sitting on a bench/chair</td>
<td>Supine lyer</td>
<td>Heel to back of knee</td>
</tr>
<tr>
<td>Kaye walker</td>
<td>Heel to radial styloid</td>
<td>Height adjustable chair (not posture chair)</td>
<td>Heel to back of knee</td>
</tr>
<tr>
<td></td>
<td>Hip width</td>
<td>Height</td>
<td>Seat depth</td>
</tr>
<tr>
<td></td>
<td>Radial styloid to elbow</td>
<td>adjustable chair</td>
<td>Hip width</td>
</tr>
<tr>
<td></td>
<td>Shoulder width</td>
<td>(not posture chair)</td>
<td>Seat to top of head (back height)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shoulder width</td>
<td>Shoulder width</td>
</tr>
</tbody>
</table>

Table

- Bench
- Side lyer
- Heel to head
- Custom made
- Supine lyer
- Height adjustable chair (not posture chair)
- Heel to back of knee
- Seat depth
- Hip width
- Seat to top of head (back height)
- Shoulder width
Wheelchairs available:

<table>
<thead>
<tr>
<th>Department of Health</th>
<th>Who is a candidate</th>
<th>Terrain</th>
<th>Extra’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing Folding frame 10”- 22”</td>
<td>Standard Folding A basic wheelchair that is most suited for temporary or short term use (for example emergency relief or for use in hospitals).</td>
<td>Urban and Indoor.</td>
<td>Short or long hanger footplates Different seat depth</td>
</tr>
<tr>
<td>WM3 12”-18”</td>
<td>Active wheelchair with a large rubber castor wheel and long wheelbase which allows for safe and stable propulsion over uneven ground. Provides good postural support, comfort and is supplied with a contoured pressure relieving cushion.</td>
<td>Rough rural terrain.</td>
<td>Own Cushion 3 wheels</td>
</tr>
<tr>
<td>ATW</td>
<td>Active users.</td>
<td>The ATW is the All-Terrain Wheelchair. The ultimate 3-wheel Off-Road wheelchair.</td>
<td>Rigid frame means extra strength, 3 wheels. Long wheel base. Tension adjustable and height adjustable backrest</td>
</tr>
<tr>
<td>Rough Rider</td>
<td>Active users</td>
<td>4-wheel all terrain wheelchair</td>
<td>Easy to transport, adjustable frame and handles rough terrain really well.</td>
</tr>
<tr>
<td>Shonaquip</td>
<td>Who is a candidate</td>
<td>Terrain</td>
<td>Extra’s</td>
</tr>
<tr>
<td>Sally 8” 10” 12”</td>
<td>The Sully active kids’ wheelchair gives mobility and independence to children who need that little bit more postural support. It is designed to be highly maneuverable and stable, offering the user a means to comfortably move around and explore the world and stimulate the mind of even the most inquisitive child.</td>
<td>Urban, peri-Urban and light rural</td>
<td>Standard posture tray Padded posture tray Range of headrests</td>
</tr>
<tr>
<td>Sam 12” – 18”</td>
<td>The Sam is an active self-propelled adult wheelchair, which provides mild to intermediate postural support for adults who are active users, but require a higher level of postural support. It is designed to be highly maneuverable and stable, offering the user a means to comfortably move around and with the long wheelbase users with basic mobility skills can access more demanding terrain.</td>
<td>Urban, peri-Urban and light rural</td>
<td>Standard posture tray Padded posture tray Range of headrests</td>
</tr>
</tbody>
</table>
Basic Communication Management:

Adults:

Assessment (basic screener):

Basically, all you are trying to determine is:

1) Can this patient follow instructions (1 step, 2 steps, complex) (with or without prompting i.e. repetition and demonstration)?

2) Can this patient communicate verbally and if so, does the verbal communication make sense to the listener?
   - If not, is it because of what the patient sounds like, or is it because the patient is unable to find words or jumbles words in sentences i.e. speaks ‘gibberish’

3) If the patient is unable to communicate verbally, is there any other way he/she can communicate (gestures, head nodding, eye gaze, reading, writing, pointing, sounds, yes/no)

So the screener looks at a few things:

1) OME (oromotor examination) to determine how well a patient can use their lips, tongue or cheeks; difficulty moving or weakness demonstrated can indicate that a patient will have motor speech problems (dysarthria) OR feeding problems (dysphagia)

2) DDK (/p/;/t/;/k/;/ptk/) to determine of the patient has difficulty producing any sounds or sequencing a pattern of sounds; difficulty with isolated sounds will likely indicate a patient has dysarthria while difficulty sequencing the pattern will likely indicate apraxia of speech

3) Receptive language tasks
   - Identifying objects (so can you show me…. body parts, common objects and pictures
   - Instruction following (1 step, 2 step, complex and is prompting requiring)

4) Expressive language tasks
   - Automatic speech (often achieved when checking orientation of a patient when asking them their name, age, where they live, days of the week, counting); a patient who struggles with this likely has more an apraxia of speech than an expressive language difficulty
   - Imitation (words from single syllables to sentences); a patient who struggles to imitate any words likely has more of an expressive aphasia rather than an apraxia but when a patient struggles to imitate longer words (words of increasing complexity) then it is likely that he/she has an element of apraxia of speech
   - Naming (what is this….. body parts, common objects, pictures); a patient who struggles with this likely has a word finding difficulty with expressive aphasia
   - Spontaneous speech (can the patient initiate conversation and spontaneously comment while making sense); a patient who struggles with this is likely to have an expressive aphasia rather than an apraxia of speech
   - Gesture (can a patient produce gesture such as pointing, waving, pretending to drink from a cup, eat with a spoon, brush hair, light a match or unlock a door with keys); a patient who struggles to produce on command or even imitate gesture is likely to have more of an expressive aphasia

NOTE: A patient may have multiple different language and speech difficulties but it is helpful to identify the most prominent one or the one most obviously affecting their function and do some of the appropriate language or speech tasks during your therapy sessions with them that would be helpful.

The language centers (Broca’s and Wernicke’s area) are in the left side of the brain so a patient with a right hemiplegia can have both language (aphasia) and speech (apraxia and dysarthria) fallout while a patient with a left hemiplegia is likely to have speech (apraxia and dysarthria) fallout. A patient who presents with a left hemiplegia and is struggling to follow instructions is may then have cognitive fallout, confusion, dementia. A patient who presents with a hemiplegia due to TBI may also have cognitive fallout or right hemisphere disorders associated with memory difficulties, poor reasoning etc (see Adult Assessments flip file for some assessment options here too, otherwise the mini mental works just as well).
You don’t need to do the full assessment, this is just to help if you feel that the speech/language fallout is the main issue a patient has, otherwise stick to answering the first four questions about the patient to know what kind of input would be helpful.

Management:
A helpful resource for some drill work management of the adult population (mostly for expressive aphasia (word finding), motor speech difficulties (dysarthria and apraxia of speech) as well as right hemisphere/cognitive fallout (often associated with TBIs):

1) Source for aphasia
2) Aphasia workbook
3) Help for work finding
4) WALC 8 Word finding
5) WALC 6 Oral Motor, Non-verbal communication
6) Source for apraxia
7) WALC 9 Verbal and visual reasoning
8) WALC 10 Memory
9) WALC 7 Math language
10) Brain exercises

The best way to manage a patient with a language (or speech fallout) is to get them to use communication as much as possible during functional activities (applicable to receptive and expressive aphasia or apraxia of speech):

- Clothes washing (instruction following, sequencing, naming, describing, asking)
- Dish washing (instruction following, sequencing, naming, describing, asking)
- Bread making (instruction following, sequencing, naming, describing, asking)
- Floor sweeping (instruction following, sequencing, naming, describing, asking)
- Shopping (sequencing, naming, describing, asking, matching picture to object if you have taken pictures with your phone, or reading comprehension of the list if the patient is able to read)
- Prescribed exercises that they need to do at home (counting for automatic speech, watching themselves do the activities on a recorded video to then describe what they are seeing or explain the exercises they need to do at home back to you)

Patients may need some cueing to use words by either giving them the first part of the word or the whole word to imitate; start with getting them to use single words, then two-word phrases then sentences etc. and don’t stress too much about what the word sounds like, rather ensure the patient just tries. Encouraging gesture and written language to help with communication is helpful too (patient can either be instructed or will need to imitate).

Orientation (applicable to receptive and expressive aphasia or apraxia of speech):
A great way to help with automatic speech and ensure a patient is orientated at the same time. So, getting a patient to answer:

- Who are you? Who am I?
- Where are you? Where do you live?
- Why are you here?
- What has happened to you? What session are you doing now?
- Why are you here? Why is this important?

Dysarthria management (can be encouraged during the other activities too):

- Exaggerated articulation (opening your mouth nice and widely)
- Slowing down
- Using shorter sentences/phrases
- Doing some functional strengthening exercises (whistling, drinking from a straw or sippy bottle, chewing, singing, reading aloud)

*Train caregivers

Bell’s palsy:
See program translated to Xhosa; go through with patient and then send home with patient to do (screener in resource pack)

- Exaggerated articulation can also be encouraged if patient in struggling to verbalize clearly
- Encouraging some of the functional strengthening exercises as per dysarthria management

Voice:
- Patient presents with a very hoarse, rough or no voice not related to illness
- See if doctors can get an ENT appointment for patient otherwise patient must go be booked for SLT next year

Paeds:
Screeners in resource pack for age group appropriate screeners (but WITS or developmental screeners used by OTs generally provide enough information to start)

Assessment:
You will either gather information through observation, eliciting in session or through case history questions with caregiver but main things you want to determine:

- Hearing (any concerns, reoccurring ear infections, does child respond to environmental noise or name being called)
- Identifying objects (can child identify basic objects around the house i.e. spoon, cup, blanket; can the child identify people in the home, body parts and animals)
- Instruction following (can the child follow basic i.e. come, sit, wait, no; 1 step, 2 step instructions and helpful to determine whether demonstration or repetition is required to help with this instruction following)
- Words (does the child have any words, what are they, are they easy to understand)
- Phrases (is the child able to out some the words together to make sentences)
- Vocalizations (does the child use any vocalizations to communicate)
- Gesture (does the child ever use his/her hands to communicate i.e. wave, come or head i.e. yes, no)
- Imitation (does the child copy any words or activities he/she sees?)
- Request (how does the child ask for things i.e. words, hand out, cries, grabs, makes a sound)
- Protest (how does the child tell if he/she doesn't want/like something i.e. cries, shouts)
- Pragmatics (does the child make eye contact, show joint attention, initiate activities, take turns in activities)
- Other information that is helpful to know as part of developmental assessment: Independence in ADLs, participation in household chores (can give some insight into imitation, sequencing, following instructions, interests, potential for learning)

Management (basic and general):
1) Referral to audio if hearing concerns or regular occurring ear infections
2) Basic vocabulary (doing activities centered around basic vocabulary):
   - Body parts, animals, common household objects, people’s names
3) Using child routines and household rituals (to help with interest, imitation, vocabulary, following instructions and ensures easy tasks for caregivers to fit in to daily life):
   - Washing, dressing, clothes washing, dish washing, sweeping, food making
4) Book reading (and singing songs):
   - Encouraging caregivers to sit and read with child before bedtime for 10mins (pointing, naming pictures, turning pages, listening to story, recalling story, following sequence of activities)
   - Issue books to caregivers for borrowing and return
5) Matching activities (this can lead to the first level of learning basic concepts but remember, most children need to learn how to match objects first before more abstracts concepts like colours, shapes and sizes)
   - Matching common household items (cups, forks, spoons, shoes, hats)
   - Matching body parts (here is my nose, where is yours?)
- Matching more abstract items (pegs, ping pong balls, bottle caps little shop items, going for a walk and finding matching sticks, leaves etc)
- Matching pictures (using memory game pictures)

6) Preverbal activities (to encourage eye contact, joint attention, turn-taking, request, and imitation)
- Bubbles, blocks, plastic containers (insert items into and taking)

7) WORDWORKS
- Book 1: Talk, play and sing (early stages)
- Book 2: Talk & sing
- Book 3: Play
- Book 4: Share books
- Book 5: Draw & write
- Book 6: Enjoy maths everyday

Speech-related concerns
- For SLT after maternity leave

Stuttering-related concerns
- For SLT after maternity
Basic Feeding and Swallowing Management

Adults:

1 helpful resource for both assessment and management of the adult population:

1) Source for dysphagia (very detailed but if you are stuck with something then it can be quite helpful) (Madwaleni Rehab→ Profession-specific→ SLT→ Feeding & swallowing)

Assessment (Bedside swallow):

Try and catch pt during mealtime otherwise you may need to take a bottle of water and a cup (see Sarah’s cupboard on the third shelf) and some syringes (either from ward or Sarah’s shelf)

1) Get pt to ‘Aaaah’ before giving anything orally and then get pt to dry swallow, place fingers along pts neck to determine whether swallow is triggered (it normally will be but can sometimes be delayed)
2) Then provide a sip of water (2ml given by syringe) for patient to then swallow (determined again by placing fingers along neck) and ‘Aaaah’
3) Move on to 5ml of water and small sips from cup followed by drinking from cup
4) After each progression, repeat feeling for swallow and getting patient to ‘Aaaah’
5) You can do the same with soft diet or solids (anything the pt must chew) if you catch pt during mealtimes (also progressing with volume i.e. quarter spoon, half spoon, whole spoon & multiple spoons)
6) Do not proceed to next volume if pts shows signs of aspiration (coughing, choking, distinctly gurgly voice) or is unable to swallow (no swallow triggered) as this will be volume that the patient can tolerate safely

Management:

If pt is unable to trigger swallow or shows signs of aspiration, then you can try-

1) Postural management: Sitting upright in bed (must be ensured for assessment as well) if this does not work then →
   Pt can put his/her chin to chest for swallow but if this does not work then →
   Pt can turn head to affected side for swallow

(Obviously only possible if pt can follow instructions and if not then at least allow someone to do it for them i.e. nurse and preferably caregiver)

2) Volume & consistency control: Present volume and consistency pt can tolerate (if pt is unable to tolerate to liquids then pt should at least get VERY small sips of drinking in the day before and after a meal and if a pt is unable to chew then should get a soft diet, Sihle can help with nutritional soft diet education) AND/OR
3) If pt is not finishing meals and family gets worried about he/she not getting enough then ask them to feed pt what he/she can manage and then give some more later
4) Always: Meals must be slow and with lots of communication

Paeds:

2 extremely helpful resources for both assessment and management of the paeds population:

1) Holt international’s feeding and positioning manual: Guidelines for working with babies and children and can be found on the drive: (Madwaleni Rehab→ Profession-specific→ SLT→ Feeding & swallowing)
2) Malemulele’s guide on feeding and swallowing screening and management
Assessment:

1) Observe meal first i.e. how does caregiver give meal to child
   - Look for: anterior spillage, whether child swallows, signs of aspiration (coughing, choking, watering eyes, gurgly or wet voice)
2) You want to try all consistencies with a child so try and at least see liquids and soft foods given by a spoon (does one consistency look better than the other?)

Management (basic and general):

1) Positioning:
   - Shoulders, hips, feet aligned (there will seldom be exceptions to this)
   - With head supported and preferably tucked closer to chest
   - Use positioning options to achieve this i.e. on carer’s lap (least likely to work for the full extent of a meal especially if child is big), Waskom, bench and, most optimally, a buggy
2) Consistency:
   - Determined by the feeding observation but the most common management for children who are struggling with all consistencies is to put them on a soft diet of mashed foods (Sihle can be involved to advise nutritional options) with lateral feeding of small pieces of soft food items (banana, cooked apple, butternut potato etc.) and small sips of water before and after feeds either given by cup or spoon (to help with hydration, constipation management and oral hygiene)
   - Otherwise, if a child can cope with all or two of the consistencies then that is diet that be recommended to child for safe feeding
3) Volume & pacing:
   - A child who tires easily throughout meal (feeding worsens the longer the meal lasts for) can be advised to receive 6 small rather than 3 big meals in the day
   - Caregiver can make sure that child has swallowed or at least cleared mouthful before next mouthful presentation
   - Slow feeding rather than rushed feeding is also advised
4) Utensils (or means of feeding)
   - Assessment along with trial and error will tell you what options are best for child but generally it’s spoon vs cut-out cup for soft diet and liquids presentation
   - Cut-out cup allows for better head position and can be easier for children with tongue thrust to take from cup rather than spoon
   - Size of spoon (must be age appropriate as far as possible) but again, if volume controls required then consider a smaller spoon rather
   - If a child has the ability then try and encourage caregiver to help child participate with finger feeding or at the very least, holding a utensil during the meal and using hand-over-hand prompting to get spoon to mouth every now & again
5) Anterior spillage:
   - Visual, verbal and tactile cues provided will help a child close his/her mouth
   - Ensure than when caregiver wipes child’s mouth (or child wipes his/her mouth or caregiver helps child wipes his/her mouth) she wipes it closed, demonstrates a closed mouth for child to see and says ‘vala umlomo’
   - During mealtime, compensatory techniques can be used to help child (as can be seen in the two recommended manuals)
6) Tongue thrust and tonic bite:
   - Tongue thrust: use cut-out cup OR pushing down with spoon on tongue after mouthful presentation
   - Tonic bite: present food with utensil off-center and if the bite happens then try and relieve with mastoid massage
Breastfeeding:

Refer to MO or Dietician but some of the basics to help with initial latch if a mother you are seeing is struggling:

1) Baby to be nicely swaddled
2) Baby to be positioned facing mother (tummy-to-tummy)
3) Mom can squeeze a bit of milk out first to get breasts nice and soft
4) Baby to be nice and close to mother to attach to areola (NOT just nipple) with so basically nose and chin touching breast with a small little space for baby to breathe out of nose; more areola at the top of mouth than at the bottom (so baby to mom; not mom to baby)
5) Baby’s lips curved outwards
6) Try different positioning and different breasts to help stimulate if standard cradle hold isn’t working
### MADWLENI PAEDIATRIC SCREENER
(Adapted from Rossetti Infant- Toddler Scale)

Date: __________________________________
Name: __________________________________
Date of birth: __________________________________
Male/Female: ____________________________
Age: ____________________________________
Clinic: ____________________________
Contact number: ____________________________
Diagnosis: __________________________________

By 1 year:

<table>
<thead>
<tr>
<th>Interaction-Attachment</th>
<th>Pragmatics</th>
<th>Gesture</th>
<th>Play</th>
<th>Language Comprehension</th>
<th>Language Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief eye contact during feeding</td>
<td>Responds to interaction</td>
<td>Waves in response to 'bye- bye'</td>
<td>Plays with rattle</td>
<td>Quiets to a familiar voice</td>
<td>Vocalizes to caregiver’s smile and voice</td>
</tr>
<tr>
<td>Differing response to caregiver’s face or voice</td>
<td>Seeks eye contact</td>
<td>Momentarily looks at objects</td>
<td>Moves in response to voice</td>
<td>Vocalizes two different sounds</td>
<td></td>
</tr>
<tr>
<td>Caregiver relaxed and comfortable with child</td>
<td>Cries for attention</td>
<td>Attempts to imitate facial expressions</td>
<td>Shows awareness of speaker</td>
<td>Coos</td>
<td></td>
</tr>
<tr>
<td>Smiles spontaneously to human contact</td>
<td>Maintains eye contact</td>
<td>Smiles at self in mirror</td>
<td>Turns head toward voice</td>
<td>Takes turns vocalizing</td>
<td></td>
</tr>
<tr>
<td>Smiles when playing alone</td>
<td>Vocalizes in response to vocalization</td>
<td>Resists removal of toy</td>
<td>Recognises name</td>
<td>Babble</td>
<td></td>
</tr>
<tr>
<td>Stops crying when spoken to</td>
<td>Imitates facial expression</td>
<td>Pushes toy car</td>
<td>Anticipates feeding</td>
<td>Initiates vocalizing</td>
<td></td>
</tr>
<tr>
<td>Responds to request ‘come here’</td>
<td>Exchanges gestures with adult</td>
<td></td>
<td>Responds with gesture to ‘want up’ or ‘come up’</td>
<td>Vocalizes four different syllables</td>
<td></td>
</tr>
<tr>
<td>Becomes more lively with people</td>
<td>Uses gesture and vocalization to protest</td>
<td>Reaches for objects</td>
<td>Responds to sound when source is not visible</td>
<td>Imitates duplicated syllables</td>
<td></td>
</tr>
<tr>
<td>Shows some initial separation fear</td>
<td>Shouts or vocalizes to gain attention</td>
<td>Searches for hidden objects</td>
<td>Attends to pictures</td>
<td>Vocalizes during games</td>
<td></td>
</tr>
<tr>
<td>Displays fear of strangers</td>
<td>Indicates a desire for change in activities</td>
<td>Reaches for self in mirror</td>
<td>Gives objects upon verbal request</td>
<td>Says ‘mama’ or ‘dada’ meaningfully</td>
<td></td>
</tr>
<tr>
<td>Allows release of contact in new situations</td>
<td>Vocalizes when another person calls</td>
<td>Interacts with objects with mouthing or banging</td>
<td>Follows simple commands occasionally</td>
<td>Says one or two words spontaneously</td>
<td></td>
</tr>
<tr>
<td>Performs for social attention</td>
<td></td>
<td></td>
<td>Identifies two body parts on self</td>
<td>Imitates the names of familiar objects</td>
<td></td>
</tr>
<tr>
<td>Age group category (months)</td>
<td>Interaction-Attachment</td>
<td>Pragmatics</td>
<td>Gesture</td>
<td>Play</td>
<td>Language Comprehension</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------------</td>
<td>------------</td>
<td>---------</td>
<td>------</td>
<td>------------------------</td>
</tr>
<tr>
<td>12 – 15</td>
<td>_</td>
<td>Imitates other children</td>
<td>Feeds others</td>
<td>Imitates patting a doll</td>
<td>Follows one-step commands during play</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Responds to other children’s vocalizations</td>
<td>Hugs dolls, animals or people</td>
<td>Demonstrates functional use of objects</td>
<td>Responds to requests to say words</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiates turn- taking routines</td>
<td>Shakes head ‘no’</td>
<td>Explores toys</td>
<td>Understands some prepositions</td>
</tr>
<tr>
<td>15 – 18</td>
<td>Plays away from familiar people</td>
<td>Points to, shows or gives objects</td>
<td>_</td>
<td>Plays with toy in different ways</td>
<td>Identifies six body parts on self/doll</td>
</tr>
<tr>
<td></td>
<td>Requests assistance from adult</td>
<td>Uses words to protest</td>
<td></td>
<td>Plays ball with adult</td>
<td>Completes two requests with one object</td>
</tr>
<tr>
<td></td>
<td>Retreats to caregiver when unfamiliar people approach</td>
<td></td>
<td></td>
<td>Places one object inside another</td>
<td>Chooses two familiar objects upon request</td>
</tr>
<tr>
<td>18 – 21</td>
<td>_</td>
<td>Uses vocalizations and words during pretend play</td>
<td>Leads caregiver to desired objects</td>
<td>Imitates housework activities</td>
<td>Understands action words</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uses words to interact</td>
<td>Puts on/takes off clothing</td>
<td>Groups items in play</td>
<td>Chooses five familiar objects on request</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Takes turns in conversation</td>
<td>Pretends to dance to music</td>
<td>Uses two toys together in play</td>
<td>Identifies pictures when named</td>
</tr>
<tr>
<td>21 – 24</td>
<td>_</td>
<td>_</td>
<td>Gestures to request action</td>
<td>Puts away toys on request</td>
<td>Chooses objects from five on verbal request</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_</td>
<td>Gestures to indicate toilet needs</td>
<td>Attempts to repair broken toys</td>
<td>Follows novel commands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_</td>
<td>Pretending to pour</td>
<td>Stacks/assembles toys/objects</td>
<td>Follows two-step related command</td>
</tr>
<tr>
<td>Preverbal skills</td>
<td></td>
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<td>Eye contact:</td>
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<tr>
<td>Turn- taking:</td>
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<tr>
<td>Joint attention:</td>
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<td>Request:</td>
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<td>Topic initiation:</td>
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<td>Topic maintenance:</td>
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<td>Book reading:</td>
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</table>

<table>
<thead>
<tr>
<th>Comments</th>
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</table>
### PAEDIATRIC SCREENER
(Adapted from Rossetti Infant-Toddler Scale)

**Name:** _____________________________________________________________

**Male/Female:** ______________________________________________________

**Date of birth:** ___________________________ **Age:** ______________________

**Diagnosis:** __________________________________________________________

---

#### 1-3 years old

<table>
<thead>
<tr>
<th>Age group category (months)</th>
<th>Interaction-Attachment</th>
<th>Pragmatics</th>
<th>Gesture</th>
<th>Play</th>
<th>Language Comprehension</th>
<th>Language Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 – 27</td>
<td>_</td>
<td>_</td>
<td>Pretends to write or type</td>
<td>Performs many related activities during play</td>
<td>Recognises family members’ names</td>
<td>Imitates two numbers or unrelated words on request</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pretends to talk on the telephone</td>
<td>Chooses toys selectively</td>
<td>Understands the concept ‘one’</td>
<td>Uses three-word phrases often</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wipes hands and face</td>
<td>Uses most toys appropriately</td>
<td>Understands six concepts</td>
<td>Uses action words</td>
</tr>
<tr>
<td>27 – 30</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>Responds to greetings consistently</td>
</tr>
<tr>
<td></td>
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<td>_</td>
<td>Uses two sentence types</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>_</td>
<td>Uses negation</td>
</tr>
<tr>
<td>30 – 33</td>
<td>_</td>
<td>_</td>
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<td>33 – 36</td>
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<td>_</td>
<td>Verbalizes recent experiences</td>
</tr>
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<td></td>
<td>_</td>
<td>Uses verb forms</td>
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<tr>
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<td></td>
<td>_</td>
<td>Counts to three</td>
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<tr>
<td>Preverbal skills</td>
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<td>Converses in sentences:</td>
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<td>Book reading:</td>
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<table>
<thead>
<tr>
<th>Comments</th>
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</table>
### Useful isiXhosa Words and Phrases

<table>
<thead>
<tr>
<th>BASIC HISTORY</th>
<th>BASIC INSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is your name?</strong></td>
<td>Ngubani igama lakho?</td>
</tr>
<tr>
<td><strong>How old are you?</strong></td>
<td>Uneeminyaka emingaphi?</td>
</tr>
<tr>
<td><strong>Where do you live?</strong></td>
<td>Uhlala phi?</td>
</tr>
<tr>
<td><strong>Where is your clinic?</strong></td>
<td>Iphi ikliniki yakho?</td>
</tr>
<tr>
<td><strong>Who do you live with?</strong></td>
<td>Uhlala nabani?</td>
</tr>
<tr>
<td><strong>Are you married?</strong></td>
<td>Utshatile?</td>
</tr>
<tr>
<td><strong>How many children do you have?</strong></td>
<td>Bangaphi abantwana bakho?</td>
</tr>
<tr>
<td><strong>Who looks after this child?</strong></td>
<td>Ngubani ojongene nalomtwana?</td>
</tr>
<tr>
<td><strong>What is the problem?</strong></td>
<td>Yintoni ingxaki?</td>
</tr>
<tr>
<td><strong>Where is the pain?</strong></td>
<td>Iphi ukubuhlungu phi/kubuhlungu ndawoni</td>
</tr>
<tr>
<td><strong>How long have you had this pain/problem?</strong></td>
<td>Unexesha elingakanani uqaqanjelwa/unalengxaki?</td>
</tr>
<tr>
<td><strong>What makes the pain less/better?</strong></td>
<td>Yintoni ekwenza uqaqanjelwe kacinci?</td>
</tr>
<tr>
<td><strong>What makes the more/worse?</strong></td>
<td>Yintoni ekwenza uqaqanjelwe kakhulu?</td>
</tr>
<tr>
<td><strong>Do you get a grant?</strong></td>
<td>Uyapeya?</td>
</tr>
<tr>
<td><strong>How much is the grant?</strong></td>
<td>Upeya malini?</td>
</tr>
</tbody>
</table>

### TIME

| **day/date** | umhla | go up | nyuka |
| **day (24 hours)** | usuku | open | vula |
| **day (12 hours)** | imini | close | vala |
| **today** | namhlane | repeat | phinda |
| **yesterday** | izolo | throw | phosa |
| **tomorrow** | ngomso | drink | sela |
| **in the morning** | kwakusasa/ekuseni | play | dlabalaba |
| **in the afternoon** | emva kwemini | stay | hala |
| **in the evening** | ngokuhlwa | run | baleka |
| **at night** | ebusuku | choose | khetha |
| **on the weekend** | ngempelaveki | dress | nxiba |
| **every day** | yonke imihla | undress | khulula |
| **sometimes** | ngamanye amaxesha | rest | phumla |
| **in this week** | kule veki | put down | beka phantsi |
| **next week** | kule veki izayo | stop (moving) | yima |
| **last week** | kule veki iphelileyo | stop (leave it) | yeka |
| **in this month** | kule nyanga | turn | jika |
| **next month** | kule nyanga izayo | kick | khaba |
| **this year** | kulo nyaka | here | apha |
| **next year** | kulo nyaka uzayo | there | aphi |
| **last year** | kulo nyaka uphelileyo |  |  |
### GENERAL VERBS

<table>
<thead>
<tr>
<th>Action</th>
<th>Xhosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>go to a place</td>
<td>yiya</td>
</tr>
<tr>
<td>go/travel</td>
<td>hamba</td>
</tr>
<tr>
<td>work/make</td>
<td>enza (sebenza, yenza etc)</td>
</tr>
<tr>
<td>fix</td>
<td>lungisa</td>
</tr>
<tr>
<td>heal</td>
<td>phola</td>
</tr>
<tr>
<td>read/learn</td>
<td>funda</td>
</tr>
<tr>
<td>sing</td>
<td>cula</td>
</tr>
<tr>
<td>talk</td>
<td>thetha</td>
</tr>
</tbody>
</table>

### PLACES IN THE HOSPITAL

<table>
<thead>
<tr>
<th>Place</th>
<th>Xhosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>go to a place</td>
<td>admission/stamp</td>
</tr>
<tr>
<td>go/travel</td>
<td>OPD</td>
</tr>
<tr>
<td>work/make</td>
<td>pharmacy</td>
</tr>
<tr>
<td>fix</td>
<td>ward</td>
</tr>
<tr>
<td>heal</td>
<td>x-rays</td>
</tr>
<tr>
<td>read/learn</td>
<td>Therapy dept</td>
</tr>
<tr>
<td>sing</td>
<td>Therapy / physio</td>
</tr>
<tr>
<td>talk</td>
<td>Therapy / physio</td>
</tr>
</tbody>
</table>

### PREPOSITIONS

<table>
<thead>
<tr>
<th>Location</th>
<th>Xhosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>up</td>
<td>phezu</td>
</tr>
<tr>
<td>down</td>
<td>phantsi</td>
</tr>
<tr>
<td>inside</td>
<td>ngaphakathi</td>
</tr>
<tr>
<td>outside</td>
<td>phandle</td>
</tr>
<tr>
<td>on top</td>
<td>ngaphezu</td>
</tr>
<tr>
<td>underneath</td>
<td>ngaphantsi</td>
</tr>
<tr>
<td>in front of</td>
<td>phambi</td>
</tr>
<tr>
<td>behind</td>
<td>emva</td>
</tr>
<tr>
<td>forward</td>
<td>phambili</td>
</tr>
<tr>
<td>backwards</td>
<td>ngasekela</td>
</tr>
</tbody>
</table>

### PEOPLE IN THE HOSPITAL

<table>
<thead>
<tr>
<th>Professional</th>
<th>Xhosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse</td>
<td>Inesi</td>
</tr>
<tr>
<td>Doctor</td>
<td>Ugqirha</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>Ugqirha wamayeza</td>
</tr>
<tr>
<td>Physio</td>
<td>Ugqirha wamathambo</td>
</tr>
<tr>
<td>OT</td>
<td>Ugqirha wabantu abakhubazekileyo</td>
</tr>
<tr>
<td>Speech therapist</td>
<td>Ugqirha wokuthethe nokutya</td>
</tr>
<tr>
<td>Audiologist</td>
<td>Ugqirha weendlebe</td>
</tr>
<tr>
<td>Dentist</td>
<td>Ugqirha wamazinyo</td>
</tr>
<tr>
<td>ARV counsellor</td>
<td>Umcebisi ngezinto zikagawulayo</td>
</tr>
<tr>
<td>Dietician</td>
<td>Ingcali yokutya</td>
</tr>
<tr>
<td>Ophthalmologist/optician</td>
<td>Ugqirha wamehlo</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>Ugqirha womqondo</td>
</tr>
<tr>
<td>Social worker</td>
<td>Unontialontle</td>
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### CHILDREN

<table>
<thead>
<tr>
<th>Question</th>
<th>Xhosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can he crawl?</td>
<td>Uyagaqa?</td>
</tr>
<tr>
<td>Can he walk?</td>
<td>Uyahamba ngeenyawo?</td>
</tr>
<tr>
<td>Can he stand?</td>
<td>Uyama?</td>
</tr>
<tr>
<td>Can he roll?</td>
<td>Uyaguquka?</td>
</tr>
<tr>
<td>Can he sit?</td>
<td>Uyahlala?</td>
</tr>
<tr>
<td>Can he talk?</td>
<td>Uyathetha?</td>
</tr>
<tr>
<td>Was he born with this problem?</td>
<td>Uzalwe enale ngxaki?</td>
</tr>
<tr>
<td>Who looks after him mostly?</td>
<td>Ngubani ohlala emakekele?</td>
</tr>
<tr>
<td>Do you think he is different to other children? How?</td>
<td>Ucinga ukuba unomehluko kwabantu abantwana? Kanjani?</td>
</tr>
<tr>
<td>Does he go to school?</td>
<td>Uyafunda?</td>
</tr>
<tr>
<td>Which grade is he studying?</td>
<td>Ufundu kubani?</td>
</tr>
<tr>
<td>Did he repeat any grades? How many times?</td>
<td>Ingaba wake waphinda iklasi? Kangaphi?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action</th>
<th>Xhosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>carry on back</td>
<td>beleka</td>
</tr>
<tr>
<td>HOUSEHOLD TASKS</td>
<td>Imisebenzi yasekhayeni</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>sweep</td>
<td>tshayela</td>
</tr>
<tr>
<td>cook</td>
<td>pheka</td>
</tr>
<tr>
<td>clean</td>
<td>coca</td>
</tr>
<tr>
<td>wash clothes</td>
<td>hlamba impahla</td>
</tr>
<tr>
<td>wash dishes</td>
<td>hlamba izilya</td>
</tr>
<tr>
<td>herd</td>
<td>lusa</td>
</tr>
<tr>
<td>fix kraal</td>
<td>biya ubuhlanti</td>
</tr>
<tr>
<td>fetch water</td>
<td>yikha amanzi</td>
</tr>
<tr>
<td>fetch wood</td>
<td>theza</td>
</tr>
<tr>
<td>make fire</td>
<td>Basa umliyo</td>
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<table>
<thead>
<tr>
<th>WHEELCHAIRS</th>
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<tbody>
<tr>
<td>ADLs</td>
<td>cushion</td>
<td>umqamelo</td>
</tr>
<tr>
<td>dress</td>
<td>nxiba</td>
<td>footplates</td>
</tr>
<tr>
<td>undress</td>
<td>khulula</td>
<td>arm rest</td>
</tr>
<tr>
<td>wash</td>
<td>hlamba</td>
<td>front wheel</td>
</tr>
<tr>
<td>go to the toilet</td>
<td>yiya endle/yiya ngasese</td>
<td>back wheel</td>
</tr>
<tr>
<td>Does he need help to…?</td>
<td>Udinga ukuncediswa</td>
<td>Put the brakes on</td>
</tr>
<tr>
<td>Is he able to…independently?</td>
<td>Uyakwazi ukuzenzela?</td>
<td>His bum must be all the way to the back</td>
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</tbody>
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<table>
<thead>
<tr>
<th>MENTAL HEALTH</th>
<th></th>
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<tbody>
<tr>
<td>How do you sleep?</td>
<td>Uyalala kakhule?</td>
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</tr>
<tr>
<td>How is your appetite?</td>
<td>Uyatya kakhule?</td>
<td></td>
</tr>
<tr>
<td>Have you ever thought about killing yourself?</td>
<td>Uke ucinge ngokuzibulala?</td>
<td></td>
</tr>
<tr>
<td>Do you have bad thoughts about yourself?</td>
<td>Unengcinga ezimbi ngawe?</td>
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<table>
<thead>
<tr>
<th>ASSISTIVE DEVICES</th>
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<tr>
<td>splint</td>
<td>isixhoba sesandla</td>
<td>diabetes</td>
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<tr>
<td>soft splint</td>
<td>isixhoba esithubhileyo sokulala</td>
<td>epilepsy</td>
</tr>
<tr>
<td>AFO</td>
<td>isixhobasethughtyana esinceda unyawo lungajongi phantsi</td>
<td>CP</td>
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<tr>
<td>crutch</td>
<td>intonga</td>
<td>intellectual impairment</td>
</tr>
<tr>
<td>wheelchair</td>
<td>isitulo esinamavili / iwheelchair</td>
<td>psychosis</td>
</tr>
<tr>
<td>cushion</td>
<td>umqamelo</td>
<td>stroke</td>
</tr>
<tr>
<td>walking frame</td>
<td>ugxada wokuhamaba</td>
<td>TB spine</td>
</tr>
<tr>
<td>standing frame/box</td>
<td>ibhokisi yokuma</td>
<td>shortness of breath</td>
</tr>
<tr>
<td>buggy</td>
<td>isitulo sabantwana sohamba</td>
<td>dizziness</td>
</tr>
<tr>
<td>commode chair</td>
<td>istulo esinomquma</td>
<td>throbbing</td>
</tr>
<tr>
<td>bench</td>
<td>isitulo eside</td>
<td>aching</td>
</tr>
<tr>
<td>side-lyer</td>
<td>isixho sokulala ngecalas</td>
<td>pins and needles</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMON CONDITIONS &amp; SYMPTOMS</th>
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<tbody>
<tr>
<td>arthritis</td>
<td>isigulo samathambo</td>
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<td>HIV</td>
<td>ugawalayo</td>
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</tr>
<tr>
<td>TB</td>
<td>iTB</td>
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<td>pins and needles</td>
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Useful isiXhosa Phrases to Know (Especially in the Ward)

Directions

• Stop what you are doing.
  Yeka lento uyenzayo.

• Look at me.
  Jonga mna.

• Hold onto.
  Wubambe kanjalo.

• Let go please.
  Yeka.

• Come to me.
  Yiza kum.

• Breathe in/out.
  Uzophefumlela ngaphakathi nangaphandle.

• In through the nose and out through the mouth.
  Ubizele ngempumlo uwukhuphe ngomlomo.

• Relax completely and let me do all the work.
  Yekelela umzimba, yekelela kum ibe ndim okushukumisayo.

• Please work with me.
  Ndicela sisebenzisane.

• Wake up.
  Vuka

Function

• Are you walking to the bathroom on your own?
  Uyakwazi ukuya kwindlu yangasese ngokwakho?

• I am going to help you out of bed.
  Ndifuna ukuku nceda uphakame ebhedini.

• Why did you come to hospital today?
  Uziswa yintoni esibhedelele namhlanje?

Exercises

• You need to do these exercises as much as possible when I am not here.
  Kufuneka uzenze exercises kangangoko unako nokuba andikho.

• I am going to show you exercises I want you to do at home.
  Ndizokubonisa exercises endifuna uzenze ekhaya.
• We are going to do breathing exercises.

Sizokwenza exercises zokuphefumla.

• Do you want to take a break?

Ufuna uphumla?

• Do you want to go back to bed?

Ufuna ukubuyela ebhedini?

Pain and Symptoms

• Show me where your pain is.

Ndibonise kubuhlungu ndawoni.

• Is the pain getting better or worse?

Intlungu zincono okanye zibheka phambili?

• What causes your pain to increase/decrease?

Yintoni eyenza intlungu zande okanye ncono?

• Are you feeling any pain?

Zikhona intlungu ozivayo?

• It is going to feel a little bit painful.

Zikhona intlungu ozoziva ke.

• Don’t push into too much pain; it should only be a little bit uncomfortable.

Sutyala de kubehlungu kakhulu.

• Are you feeling a sharp pain, a stretch or pins and needles or numbness?

Uva into ehlabayo, okanye etsalekayo, okanye ehlaba ngathi zinaliti, okanye kungindili?

• Are you feeling dizzy?

Unesiyezi?

• Are you feeling tired?

Udiniwe?

• Are the muscles feeling weak or are you feeling out of breath?

Izihlunu zakho azomelanga okanye uphefumula ndzima?

Home

• Who lives with you?

Uhlala nabani?

• Is there someone to help you at home?

Ukhona umntu okuncedayo ekhaya?

• Do you have to walk long distances from home to hospital?

Uhamba umgama omde ukusuka ekhaya ukuya esibhedle?