

## GNOS Spine Case Report Form

### Initial Injury & Admission data

ORION Unique Patient Identifier			
Gender	Male, Female		
Date of Birth	dd/mm/yyyy		
Date/Time of Injury	dd/mm/yyyy HH:MM		
Type of Injury	<ul style="list-style-type: none"> <li>● Blunt <ul style="list-style-type: none"> <li>○ Low energy</li> <li>○ High energy</li> </ul> </li> <li>● Penetrating <ul style="list-style-type: none"> <li>○ Low energy</li> <li>○ High energy</li> </ul> </li> </ul>		
Mechanism of Injury	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">                     Road Traffic Collision (RTC)                     <ul style="list-style-type: none"> <li>● RTC Pedestrian</li> <li>● RTC Cyclist</li> <li>● RTC Motorcyclist</li> <li>● RTC Motorcyclist (passenger)</li> <li>● RTC Car (driver)</li> <li>● RTC Car (passenger)</li> <li>● RTC other vehicle (driver)</li> <li>● RTC other vehicle (passenger)</li> </ul>                     Fall                     <ul style="list-style-type: none"> <li>● Fall standing height</li> <li>● Fall from height</li> </ul> </td> <td style="width: 50%; vertical-align: top;">                     Assault                     <ul style="list-style-type: none"> <li>● Assault – no weapon</li> <li>● Assault – blunt instrument</li> <li>● Assault – sharp instrument</li> <li>● Assault – firearm</li> </ul>                     Other                     <ul style="list-style-type: none"> <li>● Self-harm</li> <li>● Other violence</li> <li>● Animal attack</li> <li>● Explosion</li> <li>● Industrial accident (outside categories listed above)</li> <li>● Sport/recreational activity</li> </ul> </td> </tr> </table>	Road Traffic Collision (RTC) <ul style="list-style-type: none"> <li>● RTC Pedestrian</li> <li>● RTC Cyclist</li> <li>● RTC Motorcyclist</li> <li>● RTC Motorcyclist (passenger)</li> <li>● RTC Car (driver)</li> <li>● RTC Car (passenger)</li> <li>● RTC other vehicle (driver)</li> <li>● RTC other vehicle (passenger)</li> </ul> Fall <ul style="list-style-type: none"> <li>● Fall standing height</li> <li>● Fall from height</li> </ul>	Assault <ul style="list-style-type: none"> <li>● Assault – no weapon</li> <li>● Assault – blunt instrument</li> <li>● Assault – sharp instrument</li> <li>● Assault – firearm</li> </ul> Other <ul style="list-style-type: none"> <li>● Self-harm</li> <li>● Other violence</li> <li>● Animal attack</li> <li>● Explosion</li> <li>● Industrial accident (outside categories listed above)</li> <li>● Sport/recreational activity</li> </ul>
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Date/Time of admission to hospital	dd/mm/yyyy HH:MM		
Was the patient directly transferred from the site of the accident to the current institution?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>		
Mode of transport to primary institution	<ul style="list-style-type: none"> <li>● Air ambulance (helicopter)</li> <li>● Land ambulance (paramedic staffed)</li> <li>● Land ambulance (not paramedic staffed)</li> <li>● Public Transport</li> <li>● Police</li> <li>● Private vehicle</li> <li>● By foot</li> <li>● Other (specify _____)</li> </ul>		
Method of transport to the current institution	<ul style="list-style-type: none"> <li>● Air ambulance (helicopter)</li> <li>● Land ambulance (paramedic staffed)</li> <li>● Land ambulance (not paramedic staffed)</li> <li>● Police</li> <li>● Private vehicle</li> <li>● By foot</li> <li>● Other (specify _____)</li> </ul>		
GCS on arrival to your institution (if intubated on arrival, please state pre-intubation GCS)	<ul style="list-style-type: none"> <li>● Eye Response <ul style="list-style-type: none"> <li>○ Open spontaneously - 4</li> <li>○ Open to verbal command - 3</li> <li>○ Open to pain - 2</li> <li>○ No eye opening - 1</li> </ul> </li> <li>● Verbal Response <ul style="list-style-type: none"> <li>○ Oriented - 5</li> <li>○ Confused - 4</li> <li>○ Inappropriate words - 3</li> <li>○ Incomprehensible sounds - 2</li> <li>○ No verbal response - 1</li> <li>○ Intubated - T</li> </ul> </li> </ul>		

	<ul style="list-style-type: none"> <li>● Motor Response <ul style="list-style-type: none"> <li>○ Obeys commands - 6</li> <li>○ Localising pain - 5</li> <li>○ Withdrawal from pain - 4</li> <li>○ Flexion to pain - 3</li> <li>○ Extension to pain - 2</li> <li>○ No motor response - 1</li> </ul> </li> </ul>
Kampala Trauma Score	<ul style="list-style-type: none"> <li>● Age <ul style="list-style-type: none"> <li>○ 5-55</li> <li>○ &lt;5 or &gt;55</li> </ul> </li> <li>● SBP (mmHg) <ul style="list-style-type: none"> <li>○ &gt;89</li> <li>○ 50-89</li> <li>○ 1-49</li> <li>○ Undetectable</li> </ul> </li> <li>● Respiratory rate (/min) <ul style="list-style-type: none"> <li>○ ≤9</li> <li>○ 10-29</li> <li>○ ≥30</li> </ul> </li> <li>● Neurological status <ul style="list-style-type: none"> <li>○ Alert</li> <li>○ Responds to verbal stimuli</li> <li>○ Responds to painful stimuli</li> <li>○ Unresponsive</li> </ul> </li> <li>● Serious injuries <ul style="list-style-type: none"> <li>○ None</li> <li>○ 1</li> <li>○ 2 or more</li> </ul> </li> </ul>
Frankel Grade at initial assessment	<ul style="list-style-type: none"> <li>● A: Complete motor and sensory loss</li> <li>● B: Complete motor loss, incomplete sensory loss</li> <li>● C: Incomplete motor loss without practical use</li> <li>● D: Incomplete motor loss, able to ambulate with or without walking aids</li> <li>● E: Free of neurological symptoms</li> </ul>
Major intracranial injury (defined as requiring hospital admission in its own)	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Site of PRIMARY spinal cord injury	<ul style="list-style-type: none"> <li>● Occipital condyle to S1:</li> <li>● Unknown</li> </ul>
Primary vertebral fracture Level	<ul style="list-style-type: none"> <li>● Occipital condyle to S1:</li> <li>● Unknown</li> </ul>
Deformity	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Any other injury (can select multiple)	<ul style="list-style-type: none"> <li>● Chest</li> <li>● Abdomen</li> <li>● Pelvis</li> <li>● Long bones</li> </ul>
Admission location	<ul style="list-style-type: none"> <li>● General wards</li> <li>● HDU</li> <li>● ITU</li> </ul>
Admitting Team	<ul style="list-style-type: none"> <li>● Orthopaedics</li> <li>● Neurosurgery</li> <li>● General Surgery</li> <li>● Medicine</li> <li>● Emergency Department</li> </ul>

### Imaging Data

Date/Time of first imaging	dd/mm/yyyy HH:MM
Most advanced type of imaging performed	<ul style="list-style-type: none"> <li>● Plain film radiograph</li> <li>● Non-contrast CT Scan</li> <li>● Contrast CT Scan</li> <li>● MRI Scan</li> </ul>
Anatomical area of spine included on imaging (Can select multiple)	<ul style="list-style-type: none"> <li>● Cervical</li> <li>● Thoracic</li> <li>● Lumbar</li> <li>● Sacral</li> </ul>
Level of fracture	<ul style="list-style-type: none"> <li>● Upper cervical</li> <li>● Subaxial</li> <li>● Thoracolumbar</li> <li>● Sacral</li> <li>● No injury</li> </ul>
AO Classification of Injury	
Subluxation/Translation	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Traumatic herniated nucleus pulposis (not required if only plain radiograph available)	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>● Please specify level:</li> <li>● Cord compression: Yes/No</li> </ul>
Haematoma (not required if only plain radiograph available)	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>

### Injury Management

What was the <b>intended</b> injury management?	<ul style="list-style-type: none"> <li>● No intervention</li> <li>● Non-operative</li> <li>● Operative</li> </ul>
Was there immobilisation during transfer?	<ul style="list-style-type: none"> <li>● Nothing</li> <li>● Collar</li> <li>● Trauma board</li> <li>● Bed</li> </ul>
Did the patient have surgical bedrest?	<ul style="list-style-type: none"> <li>● Nothing</li> <li>● Bedrest, no logroll</li> <li>● Bedrest + logroll</li> <li>● Collar only</li> </ul>
Traction?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Did the patient receive any specialist therapy as an inpatient	<p>Yes No</p> <p>If Yes, what type of therapy was provided?</p> <ul style="list-style-type: none"> <li>- Speech and Language Therapy</li> <li>- Tracheostomy care</li> <li>- Physiotherapy</li> <li>- Occupational therapy</li> <li>- Alternative therapy – Ayurveda etc</li> <li>- Other (specify _____)</li> </ul>
Was spinal surgery performed?	<ul style="list-style-type: none"> <li>● Yes, performed at this institution</li> <li>● Yes, transferred to a different institution for surgery</li> <li>● No</li> </ul>

**Operative Data (If “Yes, performed at this institution” to ‘Was spinal surgery performed?’)**

Grade of most senior surgeon present in the operating theatre	<ul style="list-style-type: none"> <li>● Fully qualified spinal surgeon</li> <li>● Other qualified surgeon</li> <li>● Surgical trainee</li> <li>● Medical doctor</li> </ul>
Type of anaesthesia	<ul style="list-style-type: none"> <li>● General</li> <li>● Local</li> <li>● None</li> </ul>
Grade of most senior anaesthesia provider present in the operating theatre	<ul style="list-style-type: none"> <li>● Fully qualified anaesthetist with medical qualification</li> <li>● Anaesthetist in training with medical qualification</li> <li>● Not medically qualified anaesthesia provider</li> <li>● Anaesthetic administered by the surgeon</li> </ul>
Date of Operation	dd/mm/yyyy
Duration of operation	<ul style="list-style-type: none"> <li>● Less than 1 hour</li> <li>● 1-5 hours</li> <li>● 5-10 hours</li> <li>● Over 10 hours</li> </ul>
Were pre-incision prophylactic antibiotics given?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Class of surgical wound	<ul style="list-style-type: none"> <li>● I Clean</li> <li>● II Clean-contaminated</li> <li>● III Contaminated</li> <li>● IV Dirty-infected</li> </ul>
Location of surgery	<ul style="list-style-type: none"> <li>● Cranio-cervical</li> <li>● Cervical</li> <li>● Thoracic</li> <li>● Lumbar</li> <li>● Sacral</li> </ul>
<p>What was the main procedure undertaken?</p> <p>*If &gt;1 procedure undertaken, refer to the main one</p> <p>** Flow-Chart on ORION Platform **</p>	<ul style="list-style-type: none"> <li>● Open <ul style="list-style-type: none"> <li>a. Approach: Anterior/Posterior/360</li> <li>b. Minimally invasive surgery? Yes/No</li> <li>c. Open Reduction? Yes/No</li> <li>d. Direct decompression? Yes/No</li> <li>e. In situ fusion? Yes/no</li> <li>f. Fusion? Yes/No <ul style="list-style-type: none"> <li>▪ Type of instrumentation <ul style="list-style-type: none"> <li>● None</li> <li>● OC</li> <li>● C1/2</li> <li>● Lateral mass</li> <li>● Pedicle</li> <li>● Anterior plating</li> <li>● Bone graft</li> <li>● Interbody fusion</li> <li>● Lateral plating</li> </ul> </li> <li>○ Fluoroscopy used: Yes/No</li> </ul> </li> </ul> </li> <li>● Closed <ul style="list-style-type: none"> <li>○ Gardener Wells vs Halo</li> <li>○ Mechanism of Maintenance: Collar vs Halo vs Bedrest</li> </ul> </li> </ul>
Funding (Select all who contributed)	<ul style="list-style-type: none"> <li>● Patient</li> <li>● Family</li> <li>● Government</li> <li>● Insurer</li> <li>● Hospital</li> <li>● NGO</li> <li>● Other (specify _____)</li> </ul>

Did the patient experience a hypotensive episode (systolic BP<90mmHg for >5 minutes) during the surgical procedure?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Did the patient experience a hypoxic episode (SpO <sub>2</sub> < 90% for > 5 minutes) during the surgical procedure?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Optional further comments regarding the procedure	Free text
Intraoperative complications (please select all that occurred)	<ul style="list-style-type: none"> <li>● None</li> <li>● Incorrect level of surgery</li> <li>● Misplacement of metalwork</li> <li>● Incidental durotomy</li> <li>● Death</li> <li>● Other (specify _____)</li> </ul>

### Outcome Data

Death within the 6-week follow-up period?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>● Date of death: dd/mm/yyyy</li> <li>● In ICU at time of death? Yes/No</li> </ul>
Discharged within the 6-week follow-up period?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>● Date of discharge: dd/mm/yyyy</li> <li>● Destination of discharge: <ul style="list-style-type: none"> <li>○ Transfer to another hospital</li> <li>○ Transfer to a rehabilitation unit</li> <li>○ Usual place of residence/Home</li> <li>○ Absconded</li> <li>○ Other (specify _____)</li> </ul> </li> </ul>
Was the patient admitted to intensive care at any point during the 6-week follow up period?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>● Date of admission to ICU: dd/mm/yyyy</li> <li>● Was the patient discharged from ICU during the 6-week follow up period? Yes/No</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>● Date of discharge from ICU: dd/mm/yyyy</li> </ul>
Was the patient intubated during admission?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Did the patient require a tracheostomy?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Was the patient requiring ventilatory support at time of death/the end of the 6-week follow up period (whichever event occurs first)?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul>
Did any adverse events of special interest occur in the 6-week follow-up period? (Select all that apply)	<ul style="list-style-type: none"> <li>● None</li> <li>● Pressure Ulcer</li> <li>● Pneumonia</li> <li>● Urinary tract infection</li> <li>● Pulmonary embolism</li> <li>● Deep venous thrombosis</li> <li>● Decubitus Ulcer</li> <li>● Symptomatic haematoma</li> </ul>

Did any surgical site infections occur in the 6-week follow-up period?	<ul style="list-style-type: none"> <li>● Yes</li> <li>● No</li> </ul> <p>If Yes:</p> <ul style="list-style-type: none"> <li>● Required antibiotics only</li> <li>● Required debridement</li> <li>● Required removal of metalwork</li> </ul>																																																		
Did the patient return to the operating theatre for spinal surgery during the current admission?	<ul style="list-style-type: none"> <li>● Yes - planned</li> <li>● Yes - unplanned</li> <li>● No</li> </ul> <p>If Yes: Was the re-operation at:</p> <ul style="list-style-type: none"> <li>● Same level</li> <li>● Different level</li> </ul>																																																		
Did the patient survive to the end of the follow up period (6 weeks post-admission or until they were discharged from hospital, whichever came first)?	<p>Yes No</p> <p>Was the patient still an inpatient at the end of 6 weeks post-admission?</p> <p>- Yes - No</p>																																																		
Frankel Grade at the end of the 6-week follow up period or at time of death/discharge (whichever event occurs first)?	<ul style="list-style-type: none"> <li>● A: Complete motor and sensory loss</li> <li>● B: Complete motor loss, incomplete sensory loss</li> <li>● C: Incomplete motor loss without practical use</li> <li>● D: Incomplete motor loss, able to ambulate with or without walking aids</li> <li>● E: Free of neurological symptoms</li> </ul>																																																		
How independent is the patient in the following activities of daily living at the end of the follow up period or at time of discharge?	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 15%;">Unaided</th> <th style="width: 15%;">With Aid</th> <th style="width: 10%;">Completely Dependent</th> </tr> </thead> <tbody> <tr><td>Feeding</td><td></td><td></td><td></td></tr> <tr><td>Grooming</td><td></td><td></td><td></td></tr> <tr><td>Bathing</td><td></td><td></td><td></td></tr> <tr><td>Dressing – upper body</td><td></td><td></td><td></td></tr> <tr><td>Dressing – lower body</td><td></td><td></td><td></td></tr> <tr><td>Toileting</td><td></td><td></td><td></td></tr> <tr><td>Swallowing</td><td></td><td></td><td></td></tr> <tr><td>Bladder management</td><td></td><td></td><td></td></tr> <tr><td>Bowel management</td><td></td><td></td><td></td></tr> <tr><td>Transfers</td><td></td><td></td><td></td></tr> <tr><td>Climbing stairs</td><td></td><td></td><td></td></tr> </tbody> </table>				Unaided	With Aid	Completely Dependent	Feeding				Grooming				Bathing				Dressing – upper body				Dressing – lower body				Toileting				Swallowing				Bladder management				Bowel management				Transfers				Climbing stairs			
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What is the patient using to mobilise at the end of the follow up period or at time of discharge (whichever event occurs first)?	<ul style="list-style-type: none"> <li>● Mobilising independently</li> <li>● Use of one walking stick / crutch</li> <li>● Use of two walking sticks / crutches</li> <li>● Use of a frame</li> <li>● Wheelchair</li> <li>● Not mobilising (bed-bound)</li> </ul>																																																		