Waitemata District Health Board

Best Care for Everyone

☑ = YES ☒ = NO

(PLACE PATIENT LABEL HERE)

SURNAME: _____ NHI: _____

FIRST NAMES: _____

Date of Birth: _____ /_____ /_____ SEX: _____

C-SPINE TRAUMA (SUSPECTED)

Date: Time: Assessment nurse: Sign:

INCLUSION CRITERIA - MUST MEET ALL

- ☐ C-SPINE trauma < 48hrs *and*
- ☐ Age > 15 *and*
- ☐ Vital signs within normal limits

EXCLUSION CRITERIA

- ☐ Multi-trauma *e.g chest, abd, pelvis, or long bone injuries*
- ☐ Penetrating neck injury

☐ **Select Treatment Pathway on Whiteboard**
Enter actual time started
Data collected for Ministry of Health

STOP! Not suitable for this Best Care Bundle
Select 'BCB removed' Treatment Pathway
Inform SMO

☐ Ambulance with lanyard
↳ *Continue*

☐ Ambulance with hard collar
↳ *Do not remove the collar*

☐ Walk in / self presentation
↳ *Lanyard / collar as per guide below*

NURSING ASSESSMENT *Aim < 30 minutes*

- ☐ History, examination & vital signs — *Document on nursing assessment record. Assess for other injuries.*
- ☐ Concomitant head injury? → Minor Head Injury Best Care Bundle started as well ☐ Yes ☐ No
- ☐ Record neck pain score ____/10 — *Administer nurse initiated analgesia. Standing orders page 4*
- ☐ Remove jewellery and other bulky clothing around the neck
- ☐ Provide patient information sheet

RED FLAGS: IMMOBILISATION GUIDE

All boxes must be populated ☑ = YES ☒ = NO

- ☐ Severe neck pain
- ☐ Midline C-spine tenderness
- ☐ Focal neurological deficit *e.g sensory or motor deficit*
- ☐ GCS < 15
- ☐ Previous C-spine surgery
- ☐ Painful distracting injury *e.g. long bone #, major torso injury*

☐ **NO RED FLAGS**

Continue to Imaging decision on page 2

☐ **RED FLAGS PRESENT (ANY) →**

↳ ☐ Place cervical collar *Philadelphia or semi-rigid collar*

↳ ☐ EM Dr review ASAP *(SMO / Senior Registrar)* → *Imaging decision guide on page 2*

Dr Name: _____ Sign: _____ Time: _____

INTOXICATED PATIENTS: ☐ N/A

		Recommendations
☐ Cooperative & no other Red Flags	→ Place lanyard	*Verbal deescalation*
☐ Cooperative with other Red Flags	→ Place cervical collar	*Assess risk / benefit of collar*
☐ NOT cooperative	→ Place cervical collar if tolerated / unsure	*Assess for signs of TBI*
	→ ED Senior review ASAP → ☐ BSL: _____	*Manage in position of comfort*

☐ **Lanyard on all patients on this Bundle** *unless C-collar already applied / indicated*
Lanyards located in Medication room and resus

EM Clinician to apply imaging decision rule page 2 ASAP *to expedite radiology request or C-spine clearance*

C-SPINE TRAUMA BEST CARE BUNDLE PATHWAY

7.7.208 A

CLINICIAN

C-SPINE COLLAR AND IMAGING DECISION GUIDE

Waitemata District Health Board

Best Care for Everyone

☑ = YES ☒ = NO

(PLACE PATIENT LABEL HERE)

SURNAME: _____ NHI: _____

FIRST NAMES: _____

Date of Birth: _____ /_____ /_____ SEX: _____

C-SPINE IMAGING DECISION GUIDE

This guide is designed as an inter-service agreement with Emergency Medicine, Orthopaedics and Radiology. It supports and does not replace clinical judgment. It is based on the Canadian C-spine rules.

See literature summary EM CeDDS

ANY SPECIAL CONSIDERATIONS?

- ☐ Rheumatological disorders
  i.e Rheumatoid arthritis / Ankylosing spondylitis
- ☐ Previous C-spine fracture or surgery
- ☐ Body habitus that precludes good plain film views *or*
- ☐ CT Head indicated also *or*
- ☐ Down Syndrome

☐ **YES** → **IMAGING INDICATED**

- ☐ CT recommended modality *unless very low suspicion of injury: EM senior decision*
  - *May have 15° head up for comfort in ED and during trasnport to Radiology*
  - *Patients with lanyard can self transfer*
  - *Patient in collars need manual inline stabilisation during transfers.*
  - *Transit mandatory.*

☐ **NO**

ANY HIGH RISK FACTORS?

- ☐ Age ≥ 65
- ☐ Dangerous mechanism:
  - Fall > 1m (does not mean fall from standing)
  - Axial load to head (e.g.diving)
  - RTC high speed (>100k / hr, roll over, ejection)
  - Motorised recreational vehicle
  - Bicycle struck or collision
- ☐ Paresthesia or abnormal focal neurology in extremities

☐ **YES** → **IMAGING INDICATED**

- ☐ CT recommended modality *unless very low suspicion of injury: EM senior decision*
- ☐ C-collar recommended for high risk group
  - *Transit mandatory*
  - *May have 15° head up for comfort in ED and during transport to Radiology*
  - *Manual in-line stabilisation during transfers*

☐ **NO**

ARE ANY **ONE** LOW RISK FACTOR PRESENT?

- ☐ Simple rear end RTC *or* **see footnote*
- ☐ Ambulatory at any time *or*
- ☐ Absence of midline pain *or*
- ☐ Sitting position in ED *or*
- ☐ Delayed onset neck pain

☐ **NO** → **IMAGING INDICATED**

- ☐ Plain films or ☐ CT *clinician discretion*
- ☐ Place lanyard unless already collared
  - *Radiology will accept patients with lanyard only if on this Best Care Bundle*
  - *Patients with lanyard can self transfer*

☐ **YES**

SAFE TO ASSESS CERVICAL SPINE MOBILITY

? ABLE TO ACTIVELY ROTATE NECK 45 ° left & right?

Note this is a test of range of motion.
Some discomfort / pain is allowed and not necessarily an indication for imaging. SMO review if unsure

☐ **NO** → **IMAGING INDICATED**

- ☐ Plain films or ☐ CT *clinician discretion*
  Significant pain on head rotation may be an indication of C1/C2 #. Consider CT
- ☐ Place lanyard unless already collared
  - *Radiology will accept patients with lanyard only if on this Best Care Bundle*
  - *Patients with lanyard can self transfer*

☐ **YES**

IMAGING **NOT** INDICATED

- Manage other issues appropriately
- Discharge if patient able to mobilise safely and other discharge criteria page 3 met
- MDT / Physio review if any concerns

** Simple rear end RTC excludes:*
- *Pushed into oncoming traffic*
- *Hit by bus or large truck*
- *Rollover*
- *Hit by high speed vehicle*

Waitemata District Health Board

Best Care for Everyone

☑ = YES ☒ = NO

(PLACE PATIENT LABEL HERE)

SURNAME: _____ NHI: _____

FIRST NAMES: _____

Date of Birth: _____ /_____ /_____ SEX: _____

CLINICIAN

BEST CARE BUNDLE - PATHWAY

IMAGING GUIDE / FLOWCHART

PLAIN FILMS - 3 VIEWS

- ☐ Adequate **AND** ☐ No abnormality
- ☐ Inadequate ***or*** ☐ Abnormality

- ☐ CLINICAL REVIEW *Mild / moderate pain does not preclude clearing spine as long as good active rotation*

- ☐ **NO** ongoing clinical concern
- ☐ Ongoing clinical concern

- ☐ Discharge if criteria p4 met

CT C-SPINE

- ☐ Normal / no injury
- ☐ Abnormal CT

- ☐ CLINICAL REVIEW *Mild / moderate pain does not preclude clearing spine as long as good active rotation*

- ☐ **NO** ongoing clinical concern
- ☐ Ongoing concern

- ☐ Discharge if criteria p4 met
- ☐ ORTHOPAEDIC REVIEW *Replace semi-ridgid collar with Phillidelphia collar as soon as able*

PATIENT POSITIONING AND TRANSIT GUIDE

- ☐ All patients in lanyards and collars may be 15 ° head up for comfort while in ED and during transit
- ☐ Transit is mandatory for all patients in collars *(use discretion for patients in lanyards)*
- ☐ Patients in Lanyards may self transfer in Radiology as long s they keep their nose and toes in line
- ☐ Patients in collars need to be laid flat before transfer in Radiology. Log roll for transfer.

INDICATIONS AND PROCESS FOR MRI

- ☐ Normal imaging but ongoing neurologic deficit.
- ☐ Ongoing severe pain despite normal imaging

All MRI requests to be discussed with the on call Orthopaedic team.
Case by case discussion will determine timing (inpatient vs outpatient)
Orthopaedic team responsible for making the actual request.

ADDITIONAL INFORMATION

Literature summary	EM CeDDS
St John	Clinical procedures and guideline - comprehensive edition 2016-2018 p177 - 183
C-spine rules	Stiell IG, Clement CM, McKnight RD, Brison R, Schull MJ, Rowe BH, et al. The Canadian C-spine rule versus the NEXUS low-risk criteria in patients with trauma. N Engl J Med. 2003 Dec 25. 349(26):2510-8. [Medline].

Waitemata District Health Board

Best Care for Everyone

☑ = YES ☒ = NO

(PLACE PATIENT LABEL HERE)

SURNAME: _____ NHI: _____

FIRST NAMES: _____

Date of Birth: _____ /_____ /_____ SEX: _____

FORMULARY / MEDICATION OPTIONS

CHECK ALLERGY STATUS AND SEE MEDSAFE OR OTHER TEXT FOR FULL LIST OF CONTRAINDICATIONS**
ALL MEDICATIONS MUST BE CHARTED ON THE NATIONAL MEDICATION CHART

ANALGESIA FOR USE IN HOSPITAL AND ON DISCHARGE

Note: Please prescribe regular and PRN dosing, especially on discharge

Medication	Dose	Route	Freq	Notes
Paracetamol	1 g	Oral	Q 4-6 hourly	*Standing order. Max 4g/24 hrs*
Ibuprofen	400 mg	Oral	Q 6-8 hourly	*Standing order* *Up to 400 mg TDS. (Max 1200 mg/day)* *Ensure normal eGFR (> 60 ml /1.73 m2)*
Codeine phosphate	30 - 60 mg	Oral	Q 6 hourly	*Standing order. Max 240 mg / day* *Constipating. Consider laxative or stool softeners*
Morphine	5 mg (max)	IV	SLOW push	*Standing order. < 50 kg = 0.1 mg/kg IV > 50 kg = 5 mg*
Diclofenac SR	75 mg	Oral	Twice daily	*Ensure normal eGFR (>60 ml/1.73 m2)* *Max 150 mg daily.* *Consider Omeprazole 20 mg PO daily. GI upset common*
Ondansetron	4 - 8 mg	Oral / IV	Q 8 hourly	*First 4mg is a standing order*

DISCHARGE CRITERIA MUST MEET ALL

- ☐ Senior doctor agrees with discharge plan
  Dr: _____
- ☐ Able to mobilise *even with some residual pain*
- ☐ No other injuries that require admission
- ☐ Supportive social situation / time of day
  Consider OBS overnight
- ☐ Minor, stable, or injury not requiring surgical intervention *after discussion with ortho*

ADMISSION CRITERIA / REFER ORTHO

- ☐ Focal neurological deficit
- ☐ Significant CT or XR abnormality
  some stable fractures can be managed as outpatient
- ☐ Senior clinician discretion Dr: _____
  Reason: _____

DISCHARGE CHECK LIST

- ☐ All other injuries addressed - in particular Minor HI
  Patients often have comcomittant Minor Head injury Refer to Minor Head Injury Best Care Bundle for guidance and Westmead score
- ☐ Prescription for home analgesia *formulary above*
- ☐ Patient information leaflet
  Bundle pack, EM CeDSS site, BCB page
- ☐ Medical certificate for 3 days if applicable
- ☐ ACC form signed

FOLLOW UP - *please document this in the EDS*

- ☐ GP follow up as needed
  See BCB proforma link from the EDS - it is pre-populated with physiotherapy and other useful patient advice
- ☐ Physiotherapy
  See EM CeDDS for summary page with numbers and cost of physiotherapy providers