CERVICAL COLLAR AND SPINAL BRACE – MANAGEMENT AND CARE OF A PATIENT REQUIRING A

1. Purpose	This Business Rule (BR) is to provide staff with information for cervical collars and spinal braces and the nursing care pertaining to these devices at St George Hospital (SGH) and The Sutherland Hospital (TSH). It provides step by step instructions for the application of a Philadelphia cervical collar. Spinal brace and collar fitting for Physiotherapy SGH is not included in the BR. Refer to SGH BR768 *Physiotherapy – Spinal brace and collar fitting* Management of the trauma patient in the ICU or ED is not covered in this BR. Refer to SESLHDGL/102 *Cervical Spine Management in the Emergency Department (ED)*
2. Risk Rating	Medium
3. National Standards	1 – Clinical Governance 2 – Partnering with Consumers 3 – Preventing and Controlling Healthcare Associated Infection 5 – Comprehensive Care 6 – Communicating for Safety
4. Employees it Applies to	Registered Nurses, Medical and Physiotherapy staff required to fit and care for patients in a cervical collar and / or spinal brace

5. PROCESS

Contents

5.1 RATIONALE FOR APPLICATION OF CERVICAL COLLAR

- Patients with suspected c-spine injury based on mechanism
- Patients with c-spine tenderness post injury
- Patients with sensory and/or motor (neurological) deficits following injury
- Patients with confirmed c-spinal injury on medical imaging

- For patients with a neurologic deficit or radiological evidence of a c-spine injury, a Philadelphia (Philly) collar must be applied, this is usually done in the Emergency Department (ED).
- If the Philly Collar needs to be fitted on the inpatient ward. The Registered Nurse (RN) must follow the step by step process to apply a Philadelphia collar. **(**See Appendix A: Philadelphia Collar Application). Further guidance can be sought from the ward Clinical Nurse Educator (CNE) or AH (After Hours) CNE / Nurse In Charge prior to fitting if further clarification is required.
- When a spinal injury occurs / is identified on imaging, a Spinal Surgery review and/or advice from SGH Trauma Hotline must take place to determine if the patient is for conservative management or surgical intervention. A long-term cervical collar plan i.e application of a Miami J or Aspen +/- Spinal Brace must be formulated and documented on eMR. (refer to section 5.6 Documentation)

5.2 INPATIENT AREAS THAT CAN MANAGE A PATIENT WITH A CERVICAL COLLAR / SPINAL BRACE

All confirmed unstable fractures must be transferred / managed at SGH or a spinal unit (eg Prince of Wales Hospital (POWH)).

The exception is those for non-operative / conservative management. This needs to be under the consultation of SGH Spinal Surgery.

⇒ **At SGH**

- Patients in Philly, Miami J, Aspen Collars, spinal braces (CTO or TLSO) with a spinal injury can only be allocated to the following inpatient ward areas:
  - 5A (Neurosurgery / Trauma)
  - 3S (GI, Plastics, Breast & Endo, ENT, Gen Surgery)
  - 3W (Orthopaedics)
  - 5W (if requiring cardiac monitoring/telemetry)

⇒ **At TSH**

- Patients in Philly, Miami J, Aspen Collars, spinal braces (CTO or TLSO) with a spinal injury that is for non-operative / conservative management and does not require full cervical spine precautions / immobilisation can be managed only in the following inpatient ward areas:
  - Jara (Surgical Ward)
  - Barkala (Aged Care)
  - Yarabee
  - Gunyah
  - Killara Rehab

5.3 FITTING AND APPLYING CERVICAL COLLARS AND SPINAL BRACES

5.3.1 Cervical - Philadelphia (Philly) Collars:

There will be some occasions when the Philly Collar needs to be fitted on the inpatient ward. The Registered Nurse (RN) must follow the step by step process to apply a Philadelphia collar. (Appendix A: Philadelphia Collar Application). They should consult their Clinical Nurse Educator (CNE) or AH (After Hours) CNE / Nurse In Charge / Trauma Case Manager's prior if they are unfamiliar with the process.

5.3.2 Cervical - Miami J and Aspen

A patient can remain in a Philly collar for **up to 72 hours** if they are unable to be fitted immediately into a Miami J / Aspen.

The Philly collar must be removed and **skin inspection attended every four hours** to assess for pressure injuries and skin moisture. Continue 4 hourly checks until the patient is fitted into a Miami J or Aspen Collar

⇒ **At SGH**

- Long term cervical collars (Miami J and Aspen Collars) can be fitted by trained Physiotherapists (PTs) in hours (Monday - Friday 0800-1630hrs), discuss with the Ward PT re: fitting of these devices. After hours fittings (between 1300-2130hrs Monday - Sunday including public holidays), can be arranged via the Trauma Case Managers (TCMs) pager #012.
- PTs and TCMs must document details of their fitting on eMR.
- For ill-fitting collars / assiatnce with Miami J / Aspen collars, in hours (0800-1630hrs) contact the ward PT or between 1300-2130hrs Monday - Sunday including public holidays, contact the TCMs pager #012.

⇒ **At TSH**

- Long term cervical collars (Miami J and Aspen Collars) can be fitted by the Orthotist (Ph 9522 2990). Leave a message after hours / if phone not answered).
- The Registered Nurse allocated to the patient must be present for the fitting & document on eMR.
- For queries concerning nursing care of patients with collars at TSH, contact TSH Ortho CNC (PH 9540 7972 or pager # 195) in hours (0800-1630hrs) or the AH CNE pg #484 if AH CNE unavailable contact the AH CERS CNC (Mon – Sun 1130-2400hrs) pg #025.

5.3.3 Spinal Braces - Cervical Thoracic Orthosis (CTO) / Thoracic-Lumbar-Sacral Orthosis (TLSO)

⇒ **At SGH**

Physiotherapists (PTs) can fit spinal braces refer to SGH BR768 *Physiotherapy – Spinal brace and collar fitting*

⇒ **At TSH**

Physiotherapists can fit spinal braces – refer to Head of Department

AHs For assistance with customised spinal braces (i.e TLSOs or CTOs) contact the Orthotist (Ph 9522 2990 leave a message after hours / if phone not answered).

5.4 ESCALATION PROCESS

- In the event of clinical deterioration with a collar or spinal brace insitu follow SESLHD and local Clinical Emergency Response System (CERS) response.
- SESLHDPR/697 *Management of the Deteriorating ADULT inpatient (excluding maternity)*
- SGH BR 301 *Clinical Emergency Response Systems (CERS) Management, SGH*
- TSH BR 412 *CERS - Clinical Emergency Response Management, TSH*

5.5 NURSING CARE

5.5.1 Skin Checks / Pressure Area Care, Cleaning & Maintenance

- Appropriate hygiene and product cleaning are an important part of a patient's recovery. In addition, it will keep the patient clean, comfortable and prevent skin irritation and pressure injuries.
- Skin care and pressure area inspection is to occur twice a day.
- For inpatients that are bed bound, collar care needs to occur 4th hourly and pressure area surveillance to occur twice daily.
- A care plan specific to the patients' needs must be documented in the patient centred care plan.
- Pressure area care and surveillance of the patient with an abnormal imaging and cervical spine injury on full spinal precautions (Appendix B) must be directed by the Neurosurgical Consultant / Registrar until stability or definitive orthotic immobilisation is arranged.
- Gather all necessary skin care and wound management equipment and staff (according to log roll requirements) before commencement

5.5.2 Cervical Collars (Miami J Or Aspen) That Are Fitted Supine:

- Two nursing staff are needed for removal, skin inspection / cares, cleaning and reapplication of a cervical collar
- Assess the patient neurologically to establish a baseline before collar is removed
- Ensure one staff member continues to maintain c-spine alignment using a trapezius grip/hold while the other staff member removes the collar and assess for pressure injuries and skin moisture. (see picture 1 below)
- Manual in-line stabilisation must be maintained whilst turning a patient for pressure area surveillance and care therefore the patient's neck must be held throughout the procedure using a trapezius squeeze method. This is not required when the c spine has been cleared of an injury or a stable fracture or ligamentous injury has been diagnosed. However, care must be taken to ensure the patients head remains in an anatomical alignment on turning and lateral positioning (as long as the patient is able to do this). (see pictures 2 and 3 below)
- For confused, impulsive patient's that are fitted in collars sitting attending to their skin checks supine is best practice. This enables better support of their neck as they may not have the ability to follow commands and keep their head / neck still when the collar is removed when in a sitting position.

- After the collar is removed, gently clean the patient's neck and face with soap and water; observe for any signs of skin irritation or pressure areas. The patient's neck and face should be dried completely before the collar is reapplied.
- Collars are to be cleaned and any removable foam inserts from Miami J / Aspen collars are to be changed once a day, preferably on the morning shift for continuity. Hard plastic parts of the collar can be cleaned with mild soapy water and completely dried with a paper towel. Foam inserts / lining must be changed on the morning shift / PRN (soiled etc). Spare foam inserts are ordered through the ward Nurse Unit Manager (NUM).
- Following this the collar can be reapplied
- Reassess for change in neurological status
- Ensure the patient is comfortable and they can open their mouth post reapplication of the collar

5.5.3 Collars Fitted in Sitting:

- One nursing staff is needed for removal, skin inspection / cares, cleaning and reapplication of a cervical collar
- Product cleaning can take place whilst the patient is sat out of bed providing the patient can obey commands and keep their head / neck still (see pictures 4, 5 and 6 below)
- Assess the patient neurologically to establish a baseline before collar is removed


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- After the collar is removed, gently clean the patient's neck and face with soap and water; observe for any signs of skin irritation or pressure areas. The patient's neck and face should be dried completely before the collar is reapplied.
- Collars are to be cleaned and any removable foam inserts from Miami J / Aspen collars are to be changed once a day, preferably on the morning shift for continuity. Hard plastic parts of the collar can be cleaned with mild soapy water and completely dried with a paper towel. Foam inserts / lining must be changed on the morning shift / PRN (soiled etc). Spare foam inserts are ordered through the ward Nurse Unit Manager (NUM).
- Following this the collar can be reapplied
- Reassess for change in neurological status
- Ensure the patient is comfortable and they can open their mouth post reapplication of the collar

5.5.4 Spinal Brace - Cervical Thoracic Orthosis (CTO) / Thoracic-Lumbar-Sacral Orthosis (TLSO)

- Brace is to be worn over the top of clothing
- Only worn whilst mobilising
- Removed for showering and bed

5.6 DOCUMENTATION

5.6.1 Medical Officer Documentation

The following documentation must occur on eMR by the Spinal Surgery team or Emergency Department (ED) Medical Officer prior to the patient departing ED.

Medical Progress Note

Brace/Collar Prescription:

Brace/ Collar type:

Brace/Collar duration:

Application:

Brace/collar must be changed in sitting	**Y**	***If Yes, Can the pt. change the brace/collar themselves?
Brace/collar must be changed in lying	**N**	

In bed (select ONE option only):

Strict log roll required	**N**
Can roll side to side in bed	**Y**

Sitting Up:

Brace/collar required for sitting up in bed/chair	**N**
Angle the pt. can sit in bed without brace/collar:	

Mobilising:

Brace/collar required when pt. mobilising	**Y**

Showering:

Is the pt. able to shower in sitting	**Y**
Brace/collar required when pt. sitting in shower	**N**

Name of Neurosurgery Registrar (or AMO) who prescribed above:

5.6.2. Nursing Staff Documentation

- Nursing assessment and care given in the clinical notes on eMR. This must include a further Waterlow with skin inspection.
- Recheck neurologic status and note any alteration and document these findings in patients' progress notes. Escalate any concerns for deterioration in neurological status as per section 5.4
- If a pressure injury is noted:
  - Complete a Pressure Injury Notification form (see Appendix B Pressure injury notification on eMR) for hospital acquired pressure injuries and non-hospital acquired pressure injuries
  - A wound chart must be completed.
  - Pressure injuries that are hospital acquired or worsening of existing pressure injuries are a clinical incident and must be notified via the Incident Management System (IMS) and the IMS notification number documented in the clinical notes.
  - Pressure injuries that are hospital acquired or worsening of existing pressure injuries require a Huddle-up form to be completed on eMR. Document the procedure, size/type of collar used and skin status including any dressings applied.

5.7 ON DISCHARGE

Physiotherapists (PTs) to be contacted by ward RN prior to discharge. PT will provide patient and carer with bedside collar education and brochure relevant to their specific collar. Resources can be found here - Surgery and PeriOperative Resources

6. Cross References	SESLHDGL/102 *Cervical Spine Management in the Emergency Department (ED)* SESLHDPR/697 *Management of the Deteriorating ADULT inpatient (excluding maternity)* SGH BR768 *Physiotherapy – Spinal brace and collar fitting* TSH BR 412 *CERS - Clinical Emergency Response Management, TSH* SGH BR 301 *Clinical Emergency Response Systems (CERS) Management, SGH*
7. Keywords	Cervical Collar, Philadelphia (Philly), Miami J, Aspen, Pressure area care, pressure injury, cervical spine
8. BR Location	SGH-TSH Business Rule Webpage – C & SGH Trauma
9. External References	1. American College of Surgeons, Trauma Quality Programs, 2022, Best Practices Guidelines - Spine Injury. 2. Ham, HW, Schoonhoven, LL, GalerA & Shortridge-Baggett, LL 2014, 'Cervical collar-related pressure ulcers in trauma patients in intensive care unit', Journal of trauma nursing : the official journal of the Society of Trauma Nurses, vol. 21, no. 3, pp.94-102. Available from: https://www.ncbi.nlm.nih.gov/pubmed/24828769 3. Lacey, L, Palokas, M & Walker, J 2019, 'Preventative interventions, protocols or guidelines for trauma patients at risk of cervical collar related pressure ulcers: a scoping review', JBI database of systematic reviews and implementation reports, Available from: https://www.ncbi.nlm.nih.gov/pubmed/31464850
10. Consumer Advisory Group (CAG) Approval	Not applicable
11. Aboriginal Health Impact Statement	The Aboriginal Health Impact Statement does not require completion because there is no direct or indirect impact on Aboriginal people
12. Implementation and Evaluation Plan	**Implementation:** The document will be published on the SGH-TSH business rule webpage and distributed via the monthly SGH-TSH CGD report. Training and education will be provided to TSH core stakeholders (CNC, CNE group, AH CNE & AH CERS CNCs) **Evaluation:** Incident Monitoring, Review of document after 3 months.
13. Knowledge Evaluation	**Q1: What is the frequency for collar removal and skin checks when a patient is in a Philadelphia (Philly) collar awaiting a Miami J or Aspen fitting.** *A1:* The Philly collar must be removed and skin inspection attended every four hours to assess for pressure injuries and skin moisture.

	Q2: What must be documented by Spinal Surgery / ED MO prior to departing ED ? *A2:* **Medical Progress Note** ***Brace/Collar Prescription:*** **Brace/ Collar type:** **Brace/Collar duration:** **Application:** Brace/collar must be changed in sitting change the brace/collar themselves? **Y** ***If Yes, Can the pt.** Brace/collar must be changed in lying **N** **In bed (select ONE option only):** Strict log roll required **N** Can roll side to side in bed **Y** **Sitting Up:** Brace/collar required for sitting up in bed/chair **N** Angle the pt. can sit in bed without brace/collar: **Mobilising:** Brace/collar required when pt. mobilising **Y** **Showering:** Is the pt. able to shower in sitting **Y** Brace/collar required when pt. sitting in shower **N** Name of Neurosurgery Registrar (or AMO) who prescribed above: **Q3: What is the process in the event of clinical deterioration with a collar or spinal brace insitu** *A3:* follow SESLHD & local Clinical Emergency Response System (CERS) response.
14. Who is Responsible	Directors of Nursing and Midwifery Directors of Medical Services Physiotherapy Department Head

Approval for: CERVICAL COLLAR AND SPINAL BRACE – MANAGEMENT AND CARE OF A PATIENT REQUIRING A	
Specialty/Department Committee	Committee: Nursing & Midwifery Practice Committee SGH Chairperson: Lauren Sturgess, Director of Nursing & Midwifery Services SGH Date: 04.05.2023

Specialty/Department Committee	Committee: Nursing & Midwifery Practice Committee TSH Chairperson: Joanne Newbury, Director of Nursing & Midwifery Services TSH Date: 17.04.2023
Nurse Manager / Divisional Director (SGH)	Andrew Bridgeman, Divisional Director Surgery Date: 12.04.2023
Nurse Manager / Co-Director (TSH)	Leanne Horvat, Co-Director Nursing & Operations - Critical Care, Emergency, Surgery, Anaesthetics & PeriOperative Services Date: 13.04.2023
Medical Head of Department (SGH)	Dr Heidi Boss, Director of Medical Services Date: 12.04.2023
Medical Head of Department (TSH)	Dr Huong Van Nguyen, Director of Medical Services Date: 14.04.2023
Executive Sponsor SGH	Lauren Sturgess, Director of Nursing & Midwifery Services SGH Date: 04.05.2023
Executive Sponsor TSH	Joanne Newbury, Director of Nursing & Midwifery Services TSH Date: 17.04.2023
Contributors to BR	**Contribution** Vincent King, Neurosurgical Registrar, SGH Katherine Johnston, Neurosurgery and Trauma CNE, SGH Vinay Kulkarni, Ortho Spinal Surgeon, TSH & SGH Leanne Horvat, Co-Director Nursing & Operations - Critical Care, Emergency, Surgery, Anaesthetics & PeriOperative Services, TSH Zvisinei Juliana Zvavanjanja, CNC Orthopaedics, TSH Huong Van Nguyen, Director of Medical Services, TSH Andrew Lawson Physiotherapy Head of Department, TSH
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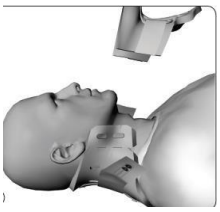
Revision and Approval History				
Revision Date	Revision number	Reason	Coordinator/Author	Revision Due
Mar 2023	0	New Replacing SGH-TSH BR048 Cervical (Philadelphia) collar – care of a patient requiring	Sarah O'Hare, SESLHD Trauma & P.A.R.T.Y CNC	Mar 2026
May 2023	1	Update to section 5.2: Killara acute removed, Killara Rehab added	Sarah O'Hare, SESLHD Trauma & P.A.R.T.Y CNC	Mar 2026

General Manager's Ratification	
Angela Karooz (SGH)	Date: 05.04.2023
Renata Melan (A/GM TSH)	Date: 21.04.2023

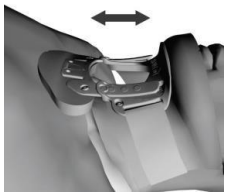
Appendix A: Philadelphia (Philly) collar application step by step guide

Step 1



- Always ensure region to be covered by Philadelphia Collar is free of debris and fluid, wounds are covered appropriately, jewellery removed prior to applying collar as this will contribute to skin breakdown.
- Check the patient's neurological status prior to procedure.
- Place the back of collar on patient while one staff member continues to maintain inline stabilisation of head and neck. To achieve best positioning without compromising inline stabilisation, it may require the staff member to push down into the bed as they are sliding the back of the collar under the patient. Ensure the collar is positioned under ear lobes, arrow is pointing up and the collar piece is central.

Step 2



- Prior to measurement, ensure neutral c-spine alignment so that measurements and fitting is correct. A folded towel (height approximately 1-2 cm) can be placed underneath the adult patient's head to assist in maintaining normal cervical spine alignment and will also help with comfort.
- Place the front piece of collar to front of neck ensuring the patients chin rests in the chin-cup. Slide the lower section down or up to align the bottom of opening with sternal notch and to ensure neck isn't hyper/hypo extended. Observe the number that is in line with correct fit and then fit off the patient

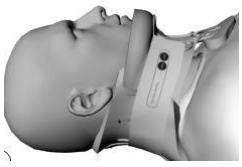
Step 3

- Lift the front away from patient, remove sticky tabs and push the two tabs to lock into the correct size which was measured for the patient.
- **Once locked into position the collar cannot be re sized.**

Step 4

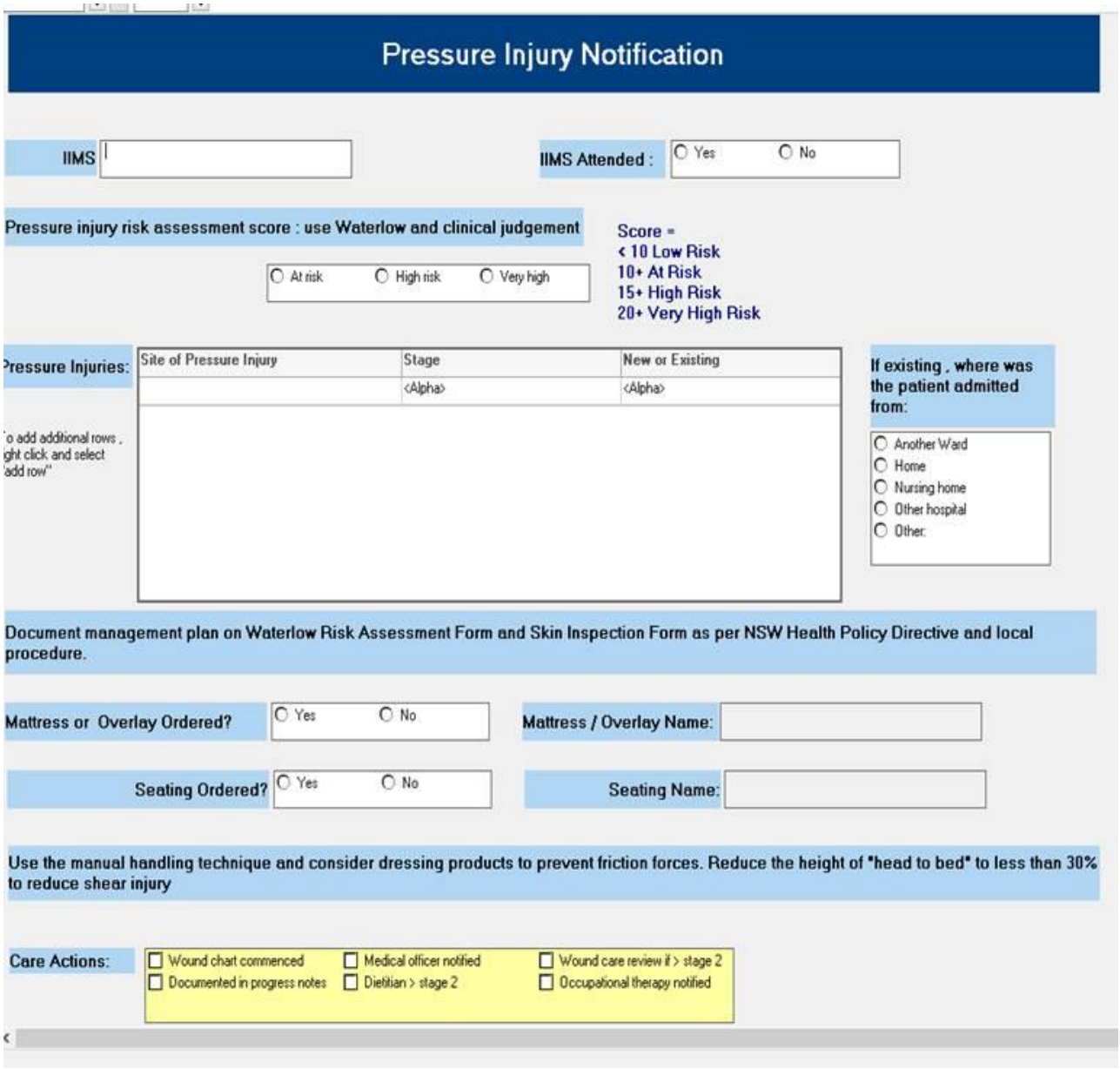
- Adjust circumference by tearing away sections of the back piece foam (if any portion of back section is visible through front window, tear 1 tab section from both sides until not visible).
- Centre the collar by the head holding person confirming alignment

Step 5



- Apply the front of the collar with the chin secured in the chin-cup.
- Ensure the patient can open their mouth and feels comfortable.
- Document the procedure, size/type of collar used and skin status including any dressing applied. Recheck neurological status, note any alterations, document findings and escalate as appropriate.

Appendix B Pressure injury notification on eMR



Pressure Injury Notification

IIMS | IIMS Attended : ○ Yes ○ No

Pressure injury risk assessment score : use Waterlow and clinical judgement

○ At risk ○ High risk ○ Very high

Score =
< 10 Low Risk
10+ At Risk
15+ High Risk
20+ Very High Risk

Pressure Injuries:

Site of Pressure Injury	Stage	New or Existing
	<Alpha>	<Alpha>

o add additional rows , ight click and select 'add row"

If existing , where was the patient admitted from:

○ Another Ward
○ Home
○ Nursing home
○ Other hospital
○ Other:

Document management plan on Waterlow Risk Assessment Form and Skin Inspection Form as per NSW Health Policy Directive and local procedure.

Mattress or Overlay Ordered? ○ Yes ○ No | Mattress / Overlay Name:

Seating Ordered? ○ Yes ○ No | Seating Name:

Use the manual handling technique and consider dressing products to prevent friction forces. Reduce the height of "head to bed" to less than 30% to reduce shear injury

Care Actions:
☐ Wound chart commenced ☐ Medical officer notified ☐ Wound care review if > stage 2
☐ Documented in progress notes ☐ Dietitian > stage 2 ☐ Occupational therapy notified

Appendix C: Manual inline cervical spine immobilisation / c spine precautions – log roll

- Cervical spine immobilisation is to occur simultaneously whilst assessing and/or when securing the patient's airway where required.
- Stand at the head of the bed.
- Place both arms either side of the patient's head down to the top of the shoulder and grip the head and neck with your hands and forearms to prevent movement.
- Hold the top of the shoulders for additional support.
- Second assistant can then begin to inspect and ensure that the patient's skin is clean and dry and any wounds are covered. Jewellery such as necklaces and earrings must be removed.
- Continue in-line stabilisation until a cervical collar can be fitted, or until it is no longer deemed necessary.
- Administer adequate analgesia where possible.
- Document your assessment, findings and care provided in the patient's electronic medical record (eMR).

Appendix D: Definitions

Acute Cervical Spine (C-spine) Trauma: A broad range of potential injuries to ligaments, muscles, bones, and spinal cord that follow acute incidents ranging from a seemingly innocuous fall to a high-energy motor vehicle accident. Patients may present immediately or several days after a traumatic incident.

Immobilisation: There are several methods employed to immobilise the c-spine ranging from manual head and neck control, through to cervical collar application.

Manual inline C-Spine Immobilisation / C-spine precautions: Are frequently used when awaiting the application of a cervical spinal collar, moving a patient whose c-spine is not cleared, maintaining neutral head and neck alignment whilst changing a cervical collar or when opening a cervical collar to inspect and attend to patient skin care / pressure area care (PAC).

Cervical Collar: An orthotic device that may be used to physically and consciously acknowledge the potential for c-spine injury. Although available devices may limit movement within the c-spine, no device has been shown to immobilise it completely. There is a lack of evidence for the efficacy of spinal immobilisation in the prevention of spinal cord injury (SCI). This document will refer to the management of patients in a hard collar such as Miami J or Aspen and the application of a Philadelphia collar.

Spinal Brace:

Cervical Thoracic Orthosis (CTO): A CTO is a cervical collar (neck brace) that has an extension support to also protect the thoracic spine. It limits movement whilst providing you with support and can also provide some pain relief.

Thoracic-Lumbar-Sacral Orthosis (TLSO):

A TLSO brace used to limit motion in the thoracic, lumbar and sacral regions of the spine. It is used to treat stable fractures or after surgery to the thoracic and or lumbar region of the spine.