Instructor's Guide

"XCollar Plus" and "NeXsplint Plus"

Objective:

Our objective is to give instructors the information, tools and skills to clearly teach and evaluate this new Cervical Splinting Technology to new trainees. The following recommended steps complete an outline for a Cervical Spine Splinting class and is designed for any instructor to build upon, add or modify depending on any relevant points concerning their local protocols, type of incidents and local population. The information and corresponding actions are presented in sequential order of importance to ensure the best possible delivery and understanding of the audience:

We recommend, if time permits, the instructor cover the following topics prior to starting to teach our Cervical Splinting (CS) Technology:

1) Anatomy and Physiology of the Cervical Spine.
2) Pathology as it related to traumatic injuries.
3) Area's population, types of accidents and Epidemiology.
4) Clinical evidence on the problems of conventional tools and techniques currently used.

Verbal Communication	Physical Action/Demonstration
Explain the local guidelines and medical protocols as it relates to the management of Cervical Spinal injuries.	**Engage audience and make eye contact to establish good communication.**
Explain how conventional c-collars' design and physical impediments used, can distract an unstable injury as they work in an attempt to immobilize the head. They wedge rigid plastic between both trapezius muscles and the base of the skull, which inevitably has the tendency to hyperextend the cervical spine thus harming the patients, while following manufacture's recommendations-Refer to Baylor studies; **Extrication Collars Can Result In Abnormal Vertebrae Separation.. And Neck Pivot Shift Phenomenon.**	**Demonstrate this fact by showing:** Point out on a subject or volunteer how the hard plastic of a conventional c-collar would wedge between the ears and shoulders of a patient, show how it would extend (distract) the Cervical Spine as it is applied and make sure to mention the inaccuracy of using fingers as a way of measurement.

Explain that we propose to mitigate these issues by Introducing a new ***technology*** (A new tool and technique) to achieve a better result and outcomes. Show with slides or with a sample the way the XCollar splints the head to the torso.	**Introducing Cervical Splinting as a New Technology.** Hold the XCollar on your hands to point at and show as the parts that support the patient above C-1 and below C-7 anterior and posterior. And the crossing straps that complete the system.
Explain that Cervical Splinting works by securing the patient on two points, above C-1 and below C-7, both anterior and posterior. Posterior: The XCollar secures above C-1 on the occipital region and Below C-7 between the scapulae. Anterior: It secures above C-1 on the Mandible and facial regions, and below C-7 on the upper sternum. The XStraps or Blue and Yellow Crossing straps complete the Cervical Splint as a full System.	**Splinting** – Using a volunteer or mannequin, superimpose the posterior and then anterior pieces of the XCollar as you point at the regions above C-1 and below C-7, both on the volunteer and on the device. Proceed to extend the Chest Support (Front Piece) while describing how our device is not distracting the C-Spine. Show that while device is extended that the plastic on the side of the splint below the ear remains the same and that there are no rigid impediments to cause distraction.
Ask if someone could provide a timer and state that the purpose of the real time application is for the following three reasons and that all should pay attention to: 1) - Method of application and use of opposing forces (Controlling manual C-Spine while adjusting the device on the patient for exact fit) 2)- Time required for Application 3)- Efficacy of the device after application	**Demonstration of Application In Real Time** Procure a timer and give to either a colleague or volunteer to monitor. (This is done to reassure the student of the simplicity of the device and method of application).
<u>Before you apply the device</u>: Describe the three steps of application: (SAX) Set up, Adjust, and XStraps application. <u>During the application</u>: Please explain what we want to achieve and NOT simply the steps for application. It is most important to describe that one rescuer can now secure C-Spine with one hand to avoid manipulation while using opposing forces to adjust the Cervical Splint to the exact **<u>circumference</u>** and **<u>length</u>** of the patient's size with the other hand. The final goal of the cross straps (Blue & Yellow) is to integrate the posterior and anterior pieces together, thus forming a complete cervical splinting system.	**Device Application** During application, be sure to explain the **rationale and goals** of the procedure instead of simply the steps. 1 - While controlling C-Spine with one hand, capture the patients' chin with front piece, encircle patient, and connect buckle. 2 - Adjust side straps and extend chest piece. 3- Apply XStraps 4 – Stop timer, and point out time of application.

Show that device is designed to provide treatment and maintain proper **neutral patient alignment** for **both** small pediatric and large adults: From Pediatric patients of approx 12-14 Kg (24-26 Lbs.) To Adult patients of approx 160+ Kg (360+Lbs.) Explain that bilateral adjustments allow for this to be possible. Also, explain that the bi-lateral adjustment allows for asymmetric application or application in "Position Found" or "Position of Comfort".	**Show the Features and Capabilities of the Device** To show small pediatric capabilities: Fully adjust the XCollar to the smallest configuration the two white side straps and the chin strap and point at the device as it can maintain proper Neutral alignment. For large adult patients: Fully extend both side straps and chin strap to demonstrate how the device can maintain Neutral alignment very extra large patients as well. Then, tighten only one side strap to show asymmetric capabilities and "Position of Comfort" application
Because of bilateral adjustment capabilities and asymmetrical front piece adjustment capabilities, the patient can be splinted in the "position found". Emphasize that this is particularly useful for injured patients who complain of pain before or upon movement.	**Position of Comfort or Position Found** Point out mannequin, volunteer or photo that has been splinted in Position found or out of alignment, or pick another volunteer to do an application demonstration in "Position Found".
Communicate that in summary cervical splinting with the XCollar allows for: -**More** effective treatment. -By **one** single rescuer (fewer personnel). -While being able to treat **multiple** patients. -In **less** time and with **less** equipment.	**Summary** The end result is prompt and better patient care at no additional cost.
Head Restraint System (HRS): It integrates with the Cervical Splinting System and has a height adjustable occipital support accompanied with two Securing Straps, thus allowing for patients of different body types to lie down and be secured with proper spinal alignment.	**Head Restraint System (HRS):** Point out at the arrow shaped Occipital Pad with marked pre-cut sections, adhesive back, and if desired tear and stack pieces for appropriate height to demonstrate. A Spinal Board or demonstration props (mannequin and straps) are needed to perform a full demonstration.

Detail that the thickness of the pad is 12mm (approx ½"), adding up to 4.8 cm with 4 pre-cut pieces that stack (up to approx 2"). Explain that the HRS comes with 2 Velcro straps which integrate with any carrying equipment, and work to secure any vertical, lateral, and rotational movement, while allowing for the patient head to move in-line with the body. Please emphasize that this eliminates unwanted spinal manipulation during transport created by movement and the use of conventional head block type devices and methods.	**Apply HRS** Demonstrate the HRS application on a volunteer or mannequin (Must have: XCollar/NeXsplint, HRS, Spinal Board and straps). Do not over tighten Securing Straps on HRS. Practice application several times prior to demonstration. Lift the mannequin vertically and move laterally to show how secure is the head to prevent vertical and lateral movement, but allowing the head to move in alignment with the body. Move the mannequin in line with Spinal Board to show pivot action of securing straps allow for in line motion of head and torso.
Throughout your presentation please Mention of all the advantages below: 1 - Superior Patient Stabilization. 2 - Ergonomic Design around ears 3 - Increased patient safety during extrication 5- Compactness "NeXsplint" and "NeXsplint Plus" 6- Effectiveness working as a force multiplier 7- Reduced times for treatment of multiple patients.	**Verbal Summary Points** Go over the information in the Introduction Folder. Explain the following documents contained in the Introduction Folder: - Clinical studies; Collars create abnormal separation between Vertebrae upon… and Comparison of three collars… - EMS Article on Study - Hand outs information with features and capabilities. - Provider Training Information; DVD and Online Training Certification Course. - Instructor tips - Assessment at ED/ER, Assessment Chart & videos.
Describe Online training Certification Course to include the didactic and manipulative parts.	Distribute Study Guides.
Explain the manipulative practice objectives and standards of training as detailed in the "Study Guide"	Make groups of three students and initiate practice session prior to final evaluation

- **During the hands on practice session ask the students to use the Study Guide manipulative check list and evaluate them according to the training standards given.**

<u>Also teach</u>: a) Management of the XCollar through the duration of the call. The sole objective of this is to make the device more comfortable to the patient during transport.

b) Second rescuer assistance while holding manual c-spine also aids on proper placement of back piece, helping with long hair and moving clothing or jewelry out of the way for ease of application.