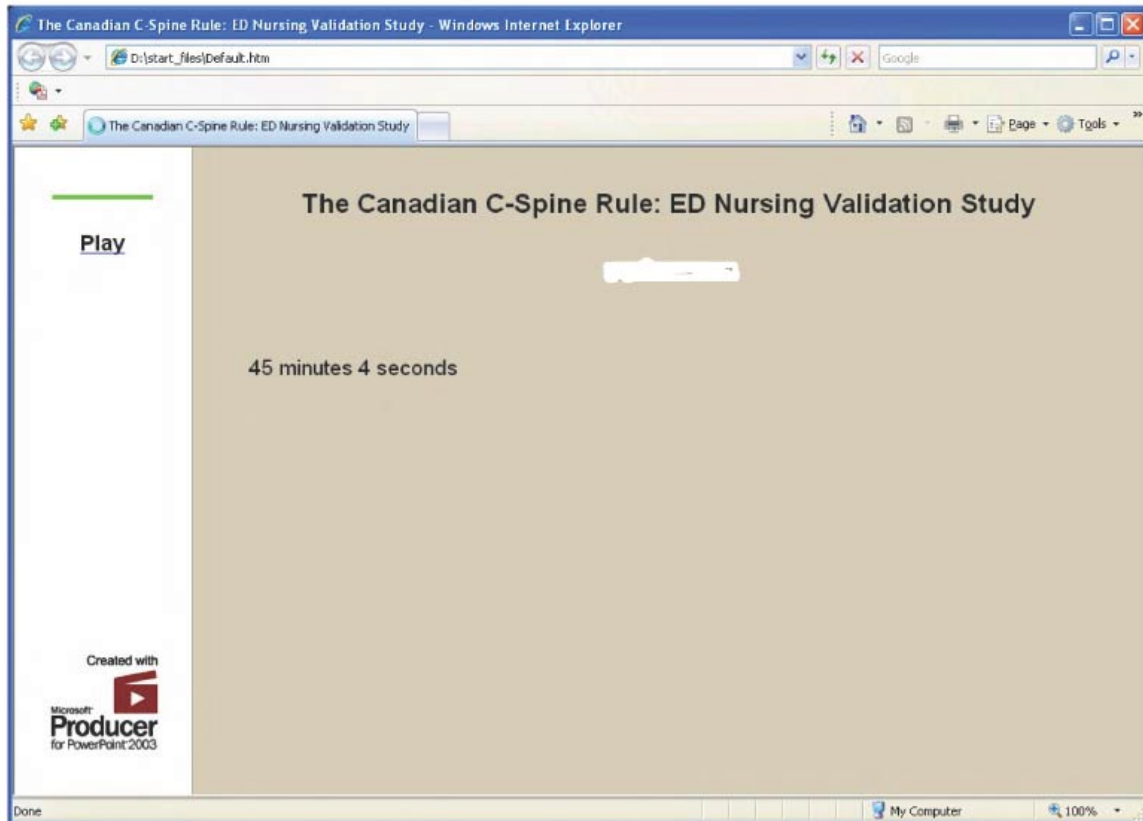
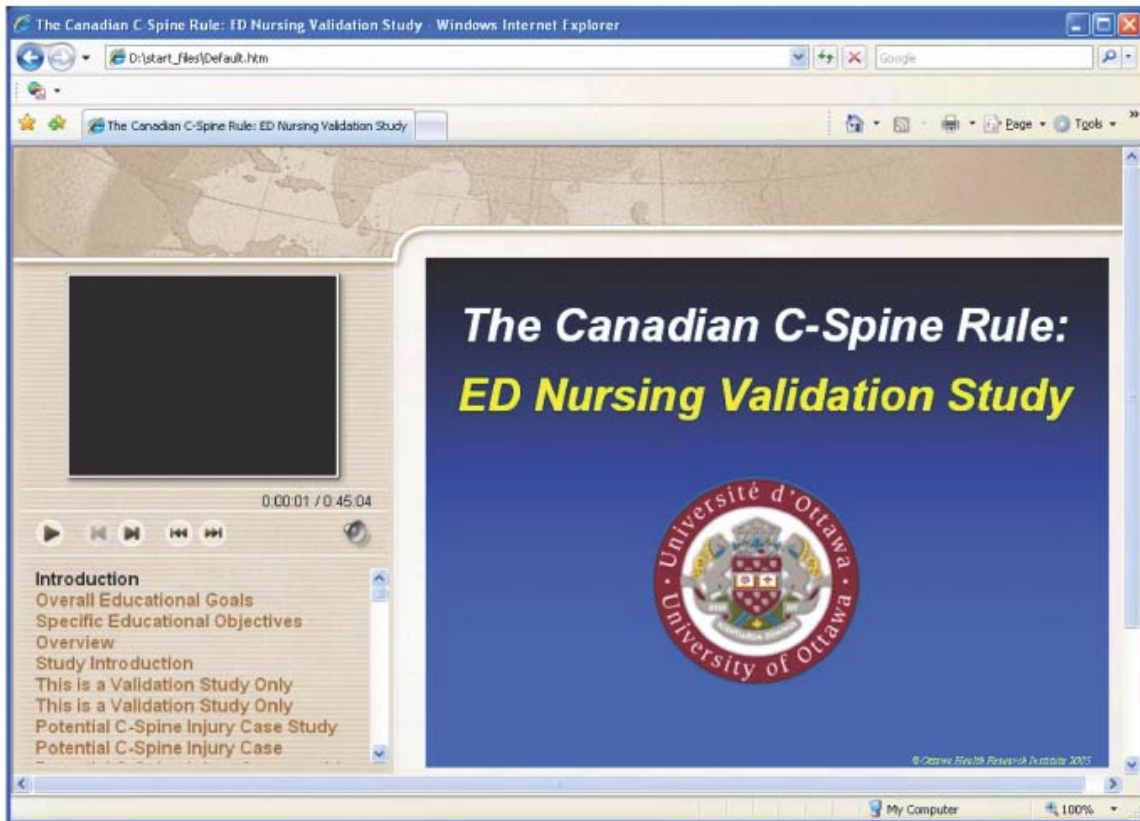


Appendix 1 - Multicenter Prospective Validation of the Canadian  
C-Spine Rule by Emergency Department Triage Nurses

**Sample Pages from Teaching CD**



## Sample Pages from Teaching CD



## Sample Pages from Teaching CD

The Canadian C-Spine Rule: ED Nursing Validation Study - Windows Internet Explorer

D:\start\_files\Default.htm

Google

The Canadian C-Spine Rule: ED Nursing Validation Study

**Study Introduction**

- 2 year study to validate the Canadian C-Spine Rule by ED nurses
- Will involve 4,000 alert, stable, and cooperative adult trauma patients
- Will involve triage nurses at 6 Eastern Ontario EDs

0:02:33 / 0:45:04

Introduction  
Overall Educational Goals  
Specific Educational Objectives  
Overview  
**Study Introduction**  
This is a Validation Study Only  
This is a Validation Study Only  
Potential C-Spine Injury Case Study  
Potential C-Spine Injury Case

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Downloading picture file:///D:/start\_files/style2videoslideshtml/skipforward\_h.gif...

My Computer 100%

## Sample Pages from Teaching CD

The screenshot shows a Windows Internet Explorer browser window. The address bar displays the URL: C:\Documents and Settings\mhendley\Desktop\cspine\_rule\start\_files\Default.htm. The page title is "The Canadian C-Spine Rule: ED Nursing Validation Study".

The main content area features a video player with a play button and a progress bar showing 0:08:32 / 0:45:04. Below the video player is a list of links related to the study, including "Multi-Phase Study The Canadian C-S...", "The Rule", "Phase I: Derivation of C C Rule Stiell, ...", "Phase I Results: 8,924 Patients", "Multicenter Prospective Validation of t...", "Phase II Methods", "Phase II Results: 8,283 Patients", "Actual vs. Potential Radiography Rates", "Total Time in ED in Minutes for Patient...", "Overall Accuracy for 16,462 Cases", "Conclusions: Canadian C-Spine Rule", "The Canadian C-Spine Rule: ED Nursl...", and "ED Nursing Validation Study of the C...".

To the right of the video player is a large flowchart titled "The Canadian C-Spine Rule" with the subtitle "3 Questions". The flowchart is set against a blue background and contains the following text and arrows:

- 1. Any High-Risk Factor Which Mandates Immobilization ?**
  - Yes → C-Spine Immobilization
  - No → 2. Any Low-Risk Factor Which Allows Safe Assessment of Range of Motion?
- 2. Any Low-Risk Factor Which Allows Safe Assessment of Range of Motion?**
  - No → C-Spine Immobilization
  - Unable → C-Spine Immobilization
  - Yes → 3. Patient Voluntarily Able to Actively Rotate Neck 45° Left and Right Regardless of Pain
- 3. Patient Voluntarily Able to Actively Rotate Neck 45° Left and Right Regardless of Pain**
  - Able → No C-Spine Immobilization

At the bottom right of the flowchart, there is a small copyright notice: "© Ottawa Health Research Institute 2003".

The browser's status bar at the bottom shows "Downloading picture file://C:/Documents%20and%20Settings/mhendley/Desktop/cspine\_rule/start\_files/style2videolideshtml/pa" and "My Computer" with a 100% zoom level.

## Sample Pages from Teaching CD

The Canadian C-Spine Rule: ED Nursing Validation Study - Windows Internet Explorer

C:\Documents and Settings\mhender\\Desktop\cspine\_rule\start\_files\Default.htm

The Canadian C-Spine Rule: ED Nursing Validation Study

0:17:52 / 0:45:04

**Age > 65**

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- The Canadian C-Spine Rule: ED Nursing Validation Study of the C-Spine Rule
- Staff Co-investigators
- Sites
- Sites cont'd
- Nursing Study Objectives & Methods
- The Canadian C-Spine Rule Can Be Used
- The Canadian C-Spine Rule Can Not Be Used
- Applications of the Rule
- 3 questions
- Question 1
- Age > 65 Years**
- Dangerous Mechanism
- Numbness or Tingling in Extremities

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## QUESTIONS FOR THE NURSING C-SPINE EXAM

### Scenario #1

Age: 22 Sex: F

Mode of Arrival: Walking holding her elbow.

Mechanism of Injury: Was skating and fell on her right side one hour ago.

Presentation: She's complaining of a right elbow pain with obvious deformity and midline neck pain since her fall. She is alert, orientated x 3 and denies tingling or numbness to the extremities. She thinks she loss consciousness for about 2 minutes.

Can the Canadian C-Spine Rule be used for this patient?

- a) No since she had a possible LOC.
- b) No since she is ambulating.
- c) Yes since she is a trauma patient with acute neck pain.
- d) No since she has obvious deformity of her right elbow.

### Scenario #2

Age: 62 Sex: M

Mode of Arrival: Ambulance with backboard and collar.

Mechanism of Injury: Patient was downhill skiing and hit a post head first.

Patient doesn't remember what happened to him.

Presentation: Complaining of bilateral knee pain, left side abdominal pain and a headache. He's alert and orientated x 3, reports right lateral neck pain and denies numbness or tingling to the extremities.

Should you ask the patient to rotate his neck?

- a) No since the patient presents with a dangerous mechanism (axial load to head).
- b) Yes since the patient is only complaining of right lateral neck pain.
- c) Yes since the patient is less than 65 y old.
- d) Yes since the patient denies numbness or tingling to extremities.

### Scenario #3

Age: 54 Sex: M

Mode of arrival: Ambulance with backboard and collar.

Mechanism of Injury: Construction worker lost his balance and fell from an 8 ft height landing on his back.

Presentation: Patient alert and orientated x 3. On assessment denies any neck pain or head pain. No LOC. Complaining of lower lumbar back pain. Denies any numbness or tingling to extremities.

Can the Canadian C-Spine Rule be used on this patient?

- a) No since the patient does not have any neck pain.
- b) Yes since the patient arrived by ambulance with backboard and collar.
- c) No since the patient is greater than 50yrs old.
- d) Yes since the patient fell from an 8ft height.

### Scenario #4

Age: 34 Sex: F

Mode of Arrival: Ambulance with backboard and collar

Mechanism of Injury: Driver. Wearing seatbelt. Driving 40 km/hr through intersection. T-Boned by car driving at same speed to driver's door.

Presentation: Alert and orientated x 3. Vital signs stable. 2 cm laceration to forehead. Denies neck pain or other injuries. 10 weeks pregnant. No numbness or tingling to extremities.

1. Can the Canadian C-Spine Rule be used on this patient?

- a) No since she is pregnant.
- b) No since she has no neck pain.
- c) Yes since she has no neck pain but presented by ambulance with backboard and collar.
- d) No since she does not have any numbness or tingling to her extremities.

2. What would your next step be with the patient in Scenario #4?

- a) Remove the patient's C-Spine collar.

- b) Do not continue with the Canadian C-Spine Rule. Leave the patient as is with backboard and collar until assessed by the Emergency Physician.
  - c) Assess patient for high-risk factors and indicate that the patient would require maintenance of C-Spine Immobilization based on the fact that the patient was in a MVC which is a dangerous mechanism.
  - d) Assess patient for high-risk factors and indicate that the patient could now be assessed for low risk factors since she did not have any high risk factors.
3. The patient in Scenario #4 is assessed and has absence of midline tenderness. Would you ask this patient to rotate her neck?
- a) No since the Canadian C-Spine Rule can't be used on this patient.
  - b) No since the patient had a high risk factor and it was already indicated that the patient should therefore automatically have C-Spine immobilization maintained.
  - c) No since the patient is not a simple rear end MVC therefore active neck rotation should not be assessed.
  - d) Yes since the patient has absence of midline tenderness which is a low-risk factor which allows safe assessment of active neck rotation.

General Questions:

4. Which one of the following injuries is **not** a dangerous mechanism of injury:
- a) Fall 10 feet from roof.
  - b) Playing hockey, skated into boards head first.
  - c) Riding bicycle down steep hill and fell off bicycle after hitting curb.
  - d) MVC rollover.
5. The four patients listed below present with neck pain caused by trauma. Indicate which patient could be assessed using the Canadian C-Spine Rule.
- a) Patient drank 10 beers in last 4 hours. Alert and oriented x 3.
  - b) Patient has stab wound to neck causing neck pain.
  - c) Patient has unstable vital signs as follows: BP 70/40, heart rate - 140, respiratory rate - 32.
  - d) Previous C-Spine injury with C5-C6 fusion 2 years ago.

2004-12-17  
rev. 2004-12-21



6. Which one of these MVCs would be considered simple rear end MVC?
- a) Stopped at red light. Hit from behind then head-on collision with oncoming car.
  - b) Traveling at 40 km/hr. Hit from behind by minivan.
  - c) Traveling at 80 km/hr. Hit from behind then rolled over.
  - d) Traveling at 110 km/hr. Hit from behind by vehicle traveling same speed.
7. Which one of these patients with no neck pain could be assessed using the Canadian C-Spine Rule?
- a) Fall 8 feet off roof. Arrived to Emergency ambulating with 2 cm laceration to chin.
  - b) Fall while skating on canal. Ambulating at scene. Presented to triage in wheelchair.
  - c) Simple rear end MVC. Arrived by ambulance with backboard and collar.
  - d) Assault. Arrived by ambulance with no collar and backboard. 1 cm laceration to lower lip.

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rev. 2004-12-21

## Performance Checklist for RN Assessment of The Canadian C-Spine Rule

Nurse Name: \_\_\_\_\_

Date: \_\_\_\_\_

- Determine that patient is alert (GCS must be 15)
- Determine that patient is at least 16 years old
- Determine that the patient does not have major trauma or unstable vital signs (i.e. major chest/abdomen/femur #/unstable pelvis #; vital signs must be within normal limits).
- Determine if mechanism of injury was 'dangerous' i.e.
  - Fall from elevation  $\geq$  3 feet / 5 stairs
  - Axial load to head, e.g. diving, hockey player headfirst into boards
  - MVC high speed ( $>100$  km/hr), rollover, ejection
  - Motorized recreation vehicles involved, e.g. ATV, snowmobile, seadoo, motorboat, etc.
  - Bicycle struck or collision i.e. bicycle struck by vehicle or bicycle struck a fixed object.
- Ask about paresthesias (any numbness, tingling or radicular pain in extremities).
- Ask if the patient is 65 years or older.

**If patient has answered "YES" to any of questions 4, 5, or 6, continue immobilization until physician assessment.**

- If no 'High Risk' factors present, then assess patient for all 5 'Low Risk' factors.
- Determine if patient was involved in a simple rearend MVC.
- Determine if patient is sitting upright.
- Determine if patient was walking at any time since the accident.
- Determine if the neck pain started at the time of the accident or later.
- Loosen cervical collar.
- Palpate midline posterior neck for tenderness.
- If none of the 5 'Low Risk' factors present, continue immobilization until physician assessment.
- Otherwise ask patient to rotate neck 45 degrees left and right; if unable, continue immobilization until physician assessment; if able, remove cervical collar.



*This is to certify that:*

---

*Has received training on  
The Canadian C-Spine Rule  
and will now participate in  
The ED Nursing C-Spine Study*

*2 CONTINUING EDUCATION HOURS*

*Date:* \_\_\_\_\_

*Nurse Educator:* \_\_\_\_\_