

Facilitators and barriers to application of the Canadian C-spine rule by emergency department triage nurses



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ABSTRACT

Objectives: We recently conducted a multicentre implementation study on the use of the Canadian C-Spine Rule (CCR) by emergency department (ED) nurses to clear the c-spine in alert and stable trauma patients ($n = 4506$). The objective of this study was to conduct a survey of nurses, physicians, and administrators to evaluate their views on the facilitators and barriers to the implementation of the CCR.

Methods: We conducted both a paper-based and an electronic survey of the three different ED hospital staff groups of nine large teaching hospitals in Ontario, including six regional trauma centres. The content of this survey was informed by a qualitative evaluation of the opinions of the study nurses who had participated in the validation study.

Results: 57.5% (281/489) ED triage nurses, 50.2% ED physicians, and 82.8% of administrators responded. Nurse responses most often showed support from manager/educators and teamwork between physicians, nurses, and managers as being important facilitators to the use of the CCR. Physician responses most often identified the importance of a nurse leader/champion/educator, and presence of strong physician leaders. Administrator responses indicated the importance of nurse educators/champions, nurse engagement, and educational support. Barriers indicated by all three groups included busy department, lack of physician support, and lack of nursing support.

Conclusions: Bringing about change in clinical practice is complex. Strong leadership, effective communication, and senior physician buy-in appear to be very important. Identification of system-specific barriers and facilitators are important components of successful knowledge translation.

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1. Introduction

Canadian emergency departments annually treat 1.3 million patients who have suffered blunt trauma (e.g. from falls or motor vehicle collisions) and who are at risk for injury of the c-spine (Pitts et al., 2008). Most are adults who are alert and in stable condition; less than 1% have a c-spine fracture (Stiell et al., 1997). The majority of these patients are transported by ambulance on a backboard, with cervical collar and neck supports. Typically, nurses complete the triage assessment and send these patients to high-acuity resuscitation rooms, where they remain completely immobilized until physician

assessment and radiography are complete. Extended immobilization is often unnecessary, adds to patient discomfort and adds to the burden of crowded emergency departments (Chan et al., 2001; Schull et al., 2002).

The Canadian C-Spine Rule (CCR) assists in determining the necessity for immobilization and diagnostic imaging in alert and stable trauma patients who present with neck pain or by emergency medical services (EMS) on a backboard with a cervical collar. The CCR was originally derived, validated, and implemented for use by physicians in studies enrolling 28,000 patients (Stiell et al., 2001, 2003, 2009). The rule is based on three high-risk criteria, five low-risk criteria and the ability of patients to rotate their neck (Fig. 1). Patients who meet the criteria can have their cervical collars safely removed and avoid any imaging. More recently, we have studied the use of the CCR by emergency department (ED) nurses, initially validating the accuracy of use by 158 trained triage nurses at six hospitals in Ontario (Stiell et al., 2010). We then conducted

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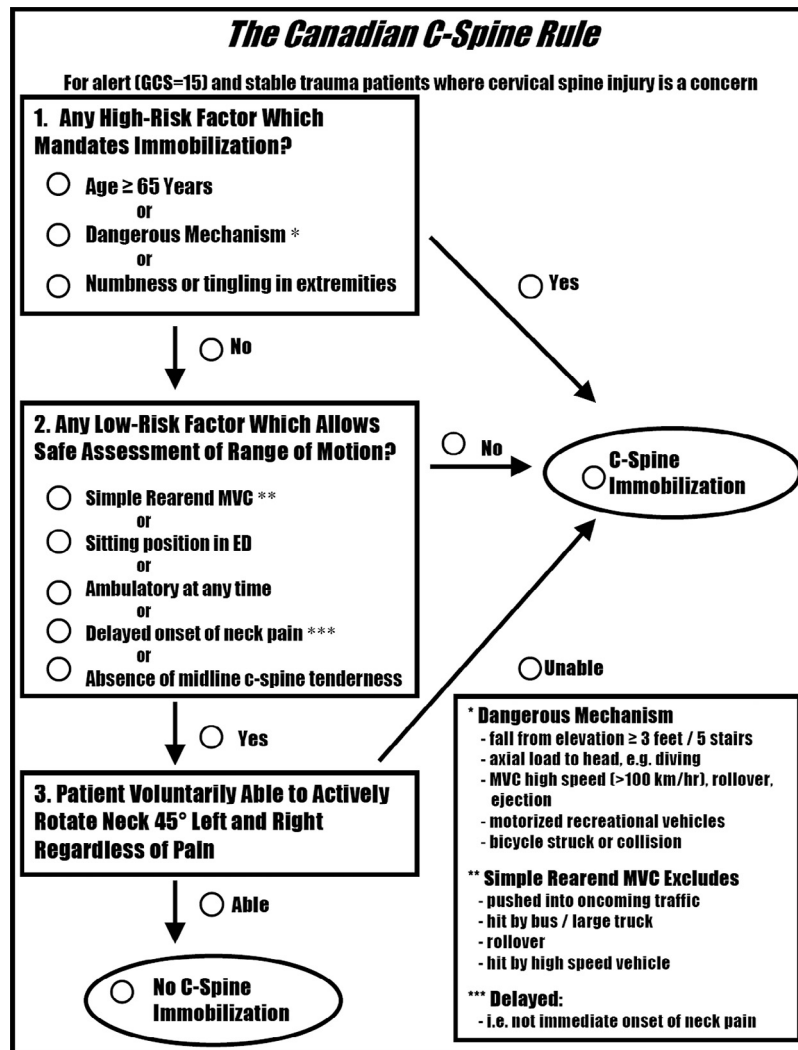


Fig. 1. The Canadian C-spine Rule.

implementation studies at a single hospital, followed by a multicentre study at nine Ontario teaching hospital EDs to evaluate impact and safety (Stiell et al., 2011, 2014). The latter study, sponsored by the Council of Academic Hospitals of Ontario (CAHO), involved 560 ED nurses and 4506 patients.

There similarly exists a developing body of rigorous evaluations of different dissemination and implementation strategies (Bero et al., 1998; Davis et al., 1995; Oxman et al., 1995). Grimshaw et al. (2001) undertook an overview of 41 systematic reviews of professional behaviour change strategies. This included one systematic review that specifically considered test ordering (Solomon et al., 1998). These systematic reviews identified an assortment of dissemination and implementation strategies that are effective under certain conditions, but current knowledge is lacking. Passive dissemination (for example, mailing educational materials to targeted clinicians) is generally ineffective and is unlikely to result in behaviour change when used alone. However, this approach may be useful in raising awareness of the desired behaviour change. Active approaches are more apt to be effective but also likely to be more costly. Interventions of variable effectiveness include audit and feedback and use of local opinion leaders. Generally, successful strategies include educational outreach (for prescribing behaviour) and reminders.

We originally learned of facilitators and barriers to the use of the CCR when we conducted a survey of nurses following our val-

idation study of the CCR at 6 Ontario hospitals. Local nurse champions interviewed various staff hospital groups. The responses were recorded, transcribed, analysed and collated. Themes identified by a post-doctoral fellow working in our program were then used to develop the survey (Danseco et al., 2007).

With our recent multicentre implementation study, we saw an opportunity to better understand these barriers and facilitators amongst a wider range of large hospitals and amongst a range of stakeholders, including nurses, physicians, and administrators.

2. Methods

2.1. Design and setting

We administered our survey utilizing both paper-based and electronic formats to the ED staff of nine large teaching hospitals in Ontario that participated in the nursing CCR implementation study. These included six regional trauma centres (Stiell et al., 2014).

2.2. Sample frame

We surveyed three different hospital staff groups. We included all ED triage nurses ($n = 489$) who had been trained to use the CCR, all ED staff physicians ($n = 301$), as well as managers and

administrators ($n = 29$) of those hospitals. The project was approved by the Ottawa Health Science Network Research Ethics Board.

2.3. Survey creation and distribution

The content of our survey was informed by content analysis of structured interviews conducted by the six local champion nurses who had participated in the validation study. Barriers/facilitators identified informed the response options of our survey (Appendix 1) (Clement et al., 2011). Section I included 25 statements on the use of the CCR including seventeen positive and eight negative statements, utilizing a six-point Likert response scale. Aids to nurse application of the CCR utilized a nine-point Likert response scale. All three hospital staff groups were asked to list qualitatively what their top three barriers/facilitators were as well as most valuable lessons learned.

We initially administered a paper-based survey using a modified Dillman technique that involved a pre-notification email indicating that responses would be anonymized and reported only in aggregate form, followed one week later by distribution of the survey instrument (Dillman, 2000). Non-respondents were provided additional reminders by the nurse champion of each site (nursing) and local physician champion (physicians) every two weeks for two months. To improve the response rate, we also disseminated the same survey via email with a link to our electronic-based survey (SurveyMonkey). A modest incentive (a \$5.00 coffee card) was provided after receiving a completed survey. The research was coordinated by the Department of Emergency Medicine, University of Ottawa and the Clinical Epidemiology Program of the Ottawa Hospital Research Institute from June to November 2013.

2.4. Data analysis

We analysed the collected survey data with descriptive statistics including 95% confidence intervals where appropriate. Analysis also included medians with associated interquartile ranges. Themes were identified for all open ended questions. Two reviewers independently analysed and collated responses into the appropriate theme prior to sending to data entry. Data were analysed using SAS version 9.2 (SAS Institute, Cary, NC).

3. Results

Over half, 57.5% (281/489) ED triage nurses, 50.2% (151/301) ED physicians and 82.8% (24/29) administrators responded. Table 1 demonstrates that nursing respondents represented nurses of varying employment status, educational status, and years in practice. The majority of respondents were female (80.9%), had baccalaureate

Table 1
Characteristics of the 281 nurse respondents.

Characteristics	Percentage (%)
Gender – Female (%) ($n = 251$)	80.9
Employment status in ED (%)	
Full-time	51.4
Part-time	17.5
Unknown	31.1
Highest education received (%)	
Masters (Nursing or other)	4.3
Baccalaureate	54.4
Diploma	36.3
Specialty education	10.3
ED work pattern (%)	
Time practicing in nursing, mean (years)	13.8
Range	1–40
Time practicing in ED, mean (years)	9.5
Range	1–35

training (54.4%), and 51.4% had full-time employment status in the ED. Time practicing in the ED varied from 1 to 35 years with a mean of 9.5. We were unable to collect data on the non-respondents.

On a scale of 1–6, nurses strongly endorsed all 17 positive statements assessed (all scores > 4 out of 6). These responses indicate very positive attitudes on the part of the nurses towards implementing the CCR and indicate the extent to which they agree with the importance of the facilitators and barriers listed. Of the 17 questions asked, the most supported were “Nurse role models/leaders in our unit advocate use of the CCR”, “Like being involved in projects that can improve patient care”, and “My manager/administrator supports nurses’ use of the CCR”, with medians of 6 and Interquartile ranges of 5–6. Most nurses felt that the application of the CCR was a big help in making the ED more efficient and most also felt that the physicians trusted their ability to use the CCR (Table 2).

The nurses also indicated potential barriers in clearing the c-spine but at much lower rates than for the facilitators, indicating disagreement with seven of eight negative statements (all items but one rated ‘moderately disagree’ or ‘strongly disagree’). The most common barriers reported were “Heavy workload making it difficult to use the rule”, median (IQR) 3 (2–4), and “Too much trouble to apply” and “Too unsafe”, both with median (IQR) 2 (1–3) (Table 2).

In Table 3, we see the nurses’ ratings for six local implementation measures with very strong scores (all ≥ 7). Of those mentioned, having access to teaching or consultation with an experienced nurse was the most strongly endorsed.

We also included three open-ended questions that gave respondents the opportunity to suggest the top three facilitators and barriers that empower them to clinically clear the c-spine as well as most valuable lessons learned. We received structured narrative

Table 2

Potential facilitators and barriers to use of the Canadian C-spine rule as evaluated by 281 emergency department triage nurses (scale: strongly disagree = 1 → strongly agree = 6).

	Median	IQR
Positive statements about applying the Canadian C-spine Rule (CCR)		
It was easy to learn	5	(5–6)
It was easy to remember	5	(4–5)
It was easy to use	5	(5–6)
It was useful to my practice	5	(5–6)
It was an efficient use of my time	5	(4–6)
I feel comfortable applying the CCR	5	(4–6)
There were fewer complaints from our patients/clients when we applied the CCR	4	(3–5)
The use of the CCR made nurses more autonomous	5	(4–6)
Nurses’ application of the CCR was a big help in making the Emergency Department more efficient	5	(4–6)
Our doctors trusted the nurses’ ability to do the CCR	5	(4–5)
When nurses did the CCR, doctors were able to concentrate on more serious cases	4	(3–5)
I like to try new things in my work	6	(5–6)
It is usually easy for me to take on new responsibilities	5	(5–6)
I like being involved in projects that can improve patient care	6	(5–6)
Our department is used to changing our practices and procedures based on new evidence	5	(5–6)
My manager/administrator supports nurses’ use of the CCR	6	(5–6)
There are nurse role models/leaders in our unit that advocate the use of the CCR	6	(5–6)
Negative statements		
It was too much trouble to apply	2	(1–3)
It was too unsafe	2	(1–3)
It increased the risk of lawsuits	2	(1–3)
It was too rigid to apply to individual patients	2	(1–3)
My heavy workload makes it hard for me to apply the CCR	3	(2–4)
It is not a nurse’s role to apply the CCR	2	(1–3)
It takes time for me to change the way I care for my patients	2	(1–3)
It is hard for me to learn new ways of doing things	1	(1–2)

Table 3

Most important local facilitators to ensure successful implementation of the Canadian C-spine rule as evaluated by 281 emergency department triage nurses (scale: 1 = not helpful at all → 9 = extremely helpful).

Aids to applying the rule	Median	IQR
A box or space in the emergency chart	7	(5–8)
Signs of the CCR in the triage area	7	(5–8)
Short refresher session (10 to 15 minutes)	7	(6–9)
An annual recertification on the CCR	7	(5–9)
Having access to teaching or consultation with an experienced nurse	8	(6–9)
Having access to MD consultation	7	(5–8)

feedback from 281 nurses, 151 physicians, and 24 hospital administrators. We collated the responses into broad categories, depicted in Tables 4–6.

In Table 4, the responses of 177 triage nurses indicated that the facilitators most commonly suggested were 1) support from managers or educators (48.6%), 2) teamwork amongst nurses, physicians, and managers (46.9%), and 3) having excellent nurse champions (33.9%). The most common comments regarding barriers related to 1) being too busy, lacking time, and having too great a workload (35.9%), 2) not enough trauma patients to become comfortable using the CCR (21.0%), and 3) lack of support from physicians (13.2%).

In Table 5, we collated comments from 151 physicians and the most commonly identified supports included 1) importance of nurse leader, champion or educator (34.4%), 2) importance of physician leader (22.5%), and 3) support of nursing management (17.2%). The most commonly mentioned barriers were 1) busy department

Table 4

Facilitators and barriers – structured narrative feedback from nurses.

Supports and facilitators	(n = 177)	Percentage (%)
Support from manager/educator	86	48.6
Teamwork between nurses/physicians/management	83	46.9
Excellent nurse champions	60	33.9
Reminders/emails/signs	44	24.8
Certified and senior staff encourage uncertified staff	38	21.5
Physician support	38	21.5
Education/refreshers	35	19.8
Easy to follow/easy to learn	17	9.6
Easy access to implementation sheets	17	9.6
Comfort for patients	6	3.4
Easy access to resources	5	2.8
Barriers and challenges	(n = 281)	
Too busy/lack of time/workload	101	35.9
Not enough trauma patients to get comfortable using CCR	59	21.0
Physicians not on board	37	13.2
No support/cannot find anyone to consult with	21	7.5
Patient refusal/compliance	18	6.4
Confusing rule/misinterpretation	11	3.9
Remembering to do it	11	3.9
Physical space	10	3.6
Lack of nurse participation	9	3.2
Cannot find the CCR form	7	2.5
Worried complications could arise	7	2.5
Paramedics questioning the nurses/resisting RN assessment	4	1.4
Delay in medical directive	4	1.4
Not for triage nurses/should be Charge RN or RN in room	4	1.4
Takes longer to triage	4	1.4
EMS using CCR in Ottawa	4	1.4
Not for nurses... MD should remove the collar	3	1.1
Not being able to remove the backboard	3	1.1
Requires refreshers	3	1.1
Lack of education	3	1.1

Table 5

Facilitators and barriers – structured narrative feedback from physicians.

Supports and facilitators	(n = 151)	Percentage (%)
Nurse leader/champion/educator	52	34.4
Physician leader	34	22.5
Management/Nursing support	26	17.2
Nurse engagement	19	12.6
Physician enthusiasm and support	15	9.9
Frequent reminders, posters, signage	13	8.6
Timely training of nurses and physicians	10	6.6
Communication between MD/RN feedback and support	9	6.0
Barriers and challenges	(n = 151)	
Busy department	40	26.5
Nurse reluctance/participation/comfort	32	21.2
Lack of education training and support	31	20.5
Physicians not comfortable with nurses clearing the c-spine	27	17.9
Not aware of any barriers	21	13.9
Not aware of project	14	9.2
Not necessary at our hospital	12	7.9
Legal/liability concerns	8	5.3
Lack of physician education	8	5.3
Variation in interpretation; of dangerous mechanism, intoxicated patients	7	4.6
Physicians using Nexus and CCR combined (Changing practice)	6	4.0
Not enough trauma patients	6	4.0
EMS roadblocks	5	3.3
Most valuable lessons learned	(n = 151)	
Nurses are capable of using the CCR	30	19.9
Speeds up patient throughput/improves efficiency	28	18.5
Good nursing/physician education	17	11.3
Not involved	13	8.6
Nurses need encouragement/reminders to use	10	6.6
Improves communication and teamwork	8	5.3
Physician support	8	5.3
Get staff on board first	7	4.6
Easy to learn	5	3.3
Need clearer guidelines/variation in interpretation	5	3.3

(26.5%), 2) reluctance or lack of comfort of the nurses (21.2%), 3) lack of education and training (20.5%), and 4) physicians not comfortable with nurses clearing the c-spine (17.9%). Most valuable lessons learned included the realization that nurses are capable of using the CCR (19.9%), and that application of the CCR by nurses' increases patient throughput (18.5%).

In Table 6, the comments of 24 hospital administrators and managers indicated that the most common facilitators were the importance of nurse educators and champions (37.5%), nurses' engagement (33.3%), and educational support (33.3%). The most frequently mentioned barriers centred on lack of physician support (37.5%), non-compliance of nurses (33.3%), and the nurses' perception of being too busy to apply the CCR (33.3%). Most valuable lessons learned included the realization that physician engagement/support is required early on (37.5%), educational support must be provided (33.3%), determination of project as appropriate for institution (29.2%), and nurse engagement (25.0%).

4. Discussion

Results from this survey highlight the most important local facilitators and barriers for clearance of the c-spine of alert and stable trauma patients by ED triage nurses at these nine large teaching hospitals in Ontario. These are useful suggestions to help the implementation of CCR in other Canadian EDs. This is the first time

Table 6
Facilitators and barriers – structured narrative feedback from administration.

Supports and facilitators	(n = 24)	Percentage (%)
Nurse champion and educators	9	37.5
Nurse engagement	8	33.3
Educational support	8	33.3
Management support	6	25.0
Physician support	3	12.5
Barriers and challenges	(n = 24)	
Lack of physician support	9	37.5
Non-compliance of nursing staff	9	37.5
Nurses perceive triage as too busy	8	33.3
Not enough trauma patients to gain competence	7	29.2
Time to train all staff	7	29.2
Competing with physician learners	7	29.2
Medical directive approval	6	25.0
Nurse champion – requires dedicated time/support	5	20.8
Most valuable lessons learned	(n = 24)	
Requires physician engagement/support early on	9	37.5
Educational support must be provided	8	33.3
Determine if project is appropriate for institution	7	29.2
Nurse engagement mandatory	6	25.0
Correct staff required to champion	6	25.0
Perseverance required to keep nurses on board	5	21.0
Improved patient satisfaction	5	21.0

that we obtained feedback on the process of implementation of a decision rule to include nurses, physicians and administrators.

The nurses who completed our survey were interested and highly motivated to learn more about how to conduct and utilize research to improve practice. While nursing research can be a crucial component in providing evidence-based care for ED patients (Chan et al., 2011), there remains relatively little research in this area. The barriers and facilitators identified in our surveys are consistent with the scope of barriers and facilitators to uptake of evidence-based research described in the literature. As described in our study, many other authors have noted a lack of strong leadership and organizational support to promote the use of evidence-based practice (Kajermo et al., 2008; Oh, 2008; Shirey, 2006). Similarly, Fink et al. (2005) found that focused efforts by organizations to commit to use research in practice was imperative to the improvement of nurses' beliefs and attitudes about research. Gifford et al. (2007) conducted a systematic review of the literature surrounding nurses' use of research evidence and associated clinical leadership. Similar to our findings, these qualitative studies found organizational issues as barriers to managers' abilities to affect research use, while role modelling and valuing research facilitated research use. Another American study concluded that healthcare systems should implement interventions that not only increase nurses' evidence-based knowledge and skills, but also further strengthen their beliefs about the advantages of evidence-based care (Melnyk et al., 2004). Similar to our study's results, Hagen et al. (2015) conducted a survey of administrative and clinical health care leaders on the approval of advanced care planning and concluded that identification of system-specific barriers and facilitators to the uptake of change is an important element of successful knowledge translation.

Our study had several strengths. This was a multi-centre study conducted at nine large teaching hospitals in Ontario, including six trauma centres. We surveyed a significant number of nurses, physicians, and administrators at these institutions. The contents of this survey were informed by qualitative interviews held with various health care professionals on the application of the CCR in the validation study.

This paper also had limitations. The study findings may not be generalizable to different practice environments internationally, as these findings are based on only one region in Canada. There could be self-selection bias as those that responded are often interested in the issues and might be systematically different from non-respondents. Finally, as the survey was anonymous, we are unable to comment on non-respondents.

This study demonstrates important implications for institutions contemplating clinical clearance of the c-spine by ED triage nurses on alert and stable patients. Comments gathered from administrators, physicians, and nurses in these nine large, academic centres provide insight as to how to implement institutional policy around nurse clearance of the c-spine. Nurses view support from managers or educators and physicians as imperative to this initiative. Physicians also cited the importance of having a local physician leader as essential. Hospital administration identified the leadership of nurse educators and champions as vital to the success of implementation, along with nursing staff engagement and educational support. Common barriers to clearing the c-spine included heavy workload, busyness of department, and lack of physician support. Most valuable lessons learned included the realization from physicians that nurses are capable of using the CCR, application of the CCR by nurses' was perceived to increase patient throughput, and physician engagement is required early on to increase success. The most important aids required to assist nurses in the clearance of the c-spine included access to nurse educators/champions as well as frequent refresher training sessions on rule application.

5. Conclusions

Bringing about change in clinical practice is complex. Strong leadership, effective communication, and senior physician buy-in appear to be very important. Identification of system-specific barriers and facilitators are important components of successful knowledge translation. This survey was a significant step towards the goal of evaluation of the implementation of the CCR by ED triage nurses on alert and stable trauma patients in large, academic, trauma centres. Feedback obtained through this study will be valuable in future efforts to roll out CCR implementation to all EDs in Ontario and across Canada.

Conflict of interest

None declared.

Appendix 1: Triage nurse survey

Survey on the Canadian C-Spine Rule (CCR) for Emergency Department Triage Nurses

We would like to evaluate your experiences and attitudes on the Canadian C-Spine Rule for ED Triage Nurses. Your honest opinions are valued, your comments/suggestions are particularly welcome.

This survey is anonymous.

Section I. Please rate how strongly you agree or disagree with the following statements based on your experience with The Canadian C-Spine Rule (CCR) for ED Triage Nurses at your respective EDs.

A. Applying the Canadian C-Spine Rule (CCR)		Strongly disagree	Moderately disagree	Mildly disagree	Mildly agree	Moderately agree	Strongly agree
1.	It was easy to learn.	1	2	3	4	5	6
2.	It was easy to remember.	1	2	3	4	5	6
3.	It was easy to use.	1	2	3	4	5	6
4.	It was useful to my practice.	1	2	3	4	5	6
5.	It was an efficient use of my time.	1	2	3	4	5	6
6.	I feel comfortable applying the CCR.	1	2	3	4	5	6
7.	There were fewer complaints from our patients/clients when we applied the CCR.	1	2	3	4	5	6
8.	The use of the CCR made nurses more autonomous.	1	2	3	4	5	6
9.	Nurses' application of the CCR was a big help in making the emergency department more efficient.	1	2	3	4	5	6
10.	Our doctors trusted the nurses' ability to do the CCR.	1	2	3	4	5	6
11.	When nurses did the CCR, doctors were able to concentrate on more serious cases.	1	2	3	4	5	6
12.	I like to try new things in my work.	1	2	3	4	5	6
13.	It is usually easy for me to take on new responsibilities.	1	2	3	4	5	6
14.	I like being involved in projects that can improve patient care.	1	2	3	4	5	6
15.	Our department is used to changing our practices or procedures based on new evidence.	1	2	3	4	5	6
16.	My manager/administrator supports nurses' use of the CCR	1	2	3	4	5	6
17.	There are nurse role models/leaders in our unit that advocate the use of the CCR.	1	2	3	4	5	6
18.	It was too much trouble to apply.	1	2	3	4	5	6
19.	It was too unsafe.	1	2	3	4	5	6
20.	It increased the chance of lawsuits.	1	2	3	4	5	6
21.	It was too rigid to apply to individual patients.	1	2	3	4	5	6
22.	My heavy workload makes it hard for me to apply the CCR.	1	2	3	4	5	6
23.	It is not a nurses' role to apply the CCR	1	2	3	4	5	6
24.	It takes time for me to change the way I care for my patients.	1	2	3	4	5	6
25.	It is hard for me to learn new ways of doing things.	1	2	3	4	5	6

B. Aids to Applying the Canadian C-Spine Rule for ED Triage Nurses		The following could help remind me in accurately using the CCR:								
		Not at all helpful							Extremely helpful	
1.	A box or space in the emergency chart	1	2	3	4	5	6	7	8	9
2.	Signs of the CCR in the triage area	1	2	3	4	5	6	7	8	9
3.	Short refresher sessions (10 to 15 minutes)	1	2	3	4	5	6	7	8	9
4.	An annual recertification on the CCR	1	2	3	4	5	6	7	8	9
5.	Having access to teaching or consultation with an experienced nurse	1	2	3	4	5	6	7	8	9
6.	Having access to MD consultation	1	2	3	4	5	6	7	8	9

C. For your ED what are the Top 3 Barriers or Challenges you have found in implementing the Canadian C-Spine Rule for ED Triage Nurses?

D. For your ED, what are the Top 3 Supports or Facilitators you have found in ensuring successful implementation of the Canadian C-Spine Rule for ED Triage Nurses?

E. Any additional comments or suggestions?

Section II. Demographic questions.

- Are you:
 - Female Male
- How long have you been working in this area? _____ Years
- How many years of **clinical** nursing experience do you have in total? _____ Years
- What is your employment status?
 - Full-time Part-time
- What is your level of education? (Check all)
 - College Diploma BScN MSN or other Masters ENCC

THANK YOU FOR COMPLETING THIS SURVEY!

Appendix 2: Physician survey

Survey for Physicians Involved in the Canadian C-Spine Rule (CCR) for Emergency Department Triage Nurses CAHO ARTIC Project

We would like to evaluate your experiences and attitudes on the use of the Canadian C-Spine Rule for ED Triage Nurses at your

hospital. Your honest opinions are valued, your comments/suggestions are particularly welcome. **This survey is anonymous.**

Section I

For your ED, what are the Top 3 Barriers or Challenges you have found in implementing the Canadian C-Spine Rule for ED Triage Nurses?

For your ED, what are the Top 3 Supports or Facilitators you have found in ensuring successful implementation of the Canadian C-Spine Rule for ED Triage Nurses?

What are the 3 most valuable lessons learned at your site related to the implementation of the Canadian C-Spine Rule for ED Triage Nurses?

Section II. Demographics

How long have you been practicing in the ED _____ Years?

THANK YOU FOR COMPLETING THIS SURVEY!

Appendix 3: Administrators survey

Survey for Administrators Involved in the Canadian C-Spine Rule (CCR) for Emergency Department Triage Nurses CAHO ARTIC Project

We would like to evaluate your experiences and attitudes on use of the Canadian C-Spine Rule for ED Triage Nurses at your hospital. Your honest opinions are valued, your comments/suggestions are particularly welcome. **This survey is anonymous.**

Section I

For your ED, what are the Top 3 Barriers or Challenges you have found in implementing the Canadian C-Spine Rule for ED Triage Nurses?

For your ED, what are the Top 3 Supports or Facilitators you have found in ensuring successful implementation of the Canadian C-Spine Rule for ED Triage Nurses?

What are the 3 most valuable lessons learned at your site related to the implementation of the Canadian C-Spine Rule for ED Triage Nurses?

Section II. Demographics

V.P. Director ED Nurse Manager ED Nurse Educator
THANK YOU FOR COMPLETING THIS SURVEY!

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