TRIAGE PRACTICES AND PROCEDURES IN ONTARIO'S EMERGENCY DEPARTMENTS

A REPORT TO THE STEERING COMMITTEE, TRIAGE IN ONTARIO

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ACRONYMS

The following acronyms are used in this report:

Acronym	Meaning
ACLS	Advanced Cardiac Life Support
AFA	Alternative Funding Arrangements
CAEP	Canadian Association of Emergency Physicians
CRaNHR	Centre for Rural and Northern Health Research
CTAS	Canadian Triage and Acuity Scale
CTAS 1	Resuscitation
CTAS 2	Emergent
CTAS 3	Urgent
CTAS 4	Less Urgent
CTAS 5	Non Urgent
ED	Emergency Department
ENPC	Emergency Nursing Paediatric Course
FFS	Fee for Service
FRI	Febrile Respiratory Illness
FY 2002/2003	April 1, 2002, through March 31, 2003
HPG	Hospital Peer Group
MOHLTC	Ministry of Health and Long Term Care
NACRS	National Ambulatory Care Reporting System
NENA	National Emergency Nurses Affiliation, Inc.
NWG	CTAS National Working Group
PALS	Paediatric Advanced Life Support
PHPD	Provincial Health Planning Database
RN	Registered Nurse
SARS	Severe Acute Respiratory Syndrome
TNCC	Trauma Nursing Core Course

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CHAPTER 1: STUDY OVERVIEW

1.1 INTRODUCTION

Emergency departments treat people with injuries and unexpected illness, as well as those with chronic conditions, and act as an important link in the delivery of health care services to Ontarians. A recent study by Statistics Canada found that one out of every eight Canadians aged 15 or older, were either treated for an injury or had their most recent contact with a health professional in a hospital emergency department in Canada.

Those between the ages of 15 and 24 are the most likely group to receive care in an emergency department. Males are slightly more likely to receive care than females. As well, members of the lowest income group are more likely to receive care than those in the highest income group (Carrière, 2004). Essentially, emergency departments provide care that ranges from advice and self-care for patients with non-urgent needs, to complex diagnostics, medical, or surgical care for those with life-threatening illnesses and injuries.

Given the sheer number of patients and the variety of their needs, health professionals must determine which patients require immediate care and how long others can safely wait for care. Deciding how long a patient can safely wait for assessment and treatment is a process known as triage. To decide a patient's priority, triage nurses collect subjective and objective symptoms and history on all the patients arriving in the emergency department (ED). Each patient is then assigned an acuity rating consistent with the guidelines defined in the Canadian Triage and Acuity Scale (CTAS) (Beveridge, et al., 1998).

Triage is considered a high-risk activity (Derlet, 2004). It is a "complex process involving decision-making under uncertainty in an environment laden with emotion, driven by urgency and constrained by negotiation," (Fry and Burr, 2001). "Uncertainty has been shown to slow decision making," and triage nurses themselves emphasize "the need for experience" (Cone and Murray, 2002). The triage nurse's ability to make timely decisions about acuity levels depends on a number of factors, including:

- Physical environment that supports the triage function, including equipment to take objective measures.
- Characteristics of the triage process, e.g. pre-screening, order of activities, and responsible staff.

- Human Resources factors such as staffing levels, training requirements, triage training, and level of ED experience.
- Documentation to support the decisions.
- Quality assurance and best practices.

The Canadian Triage and Acuity Scale (CTAS) is used to determine patient acuity and the subsequent order in which patients will be assessed by a physician or nurse. It was introduced in 1997 to assist health professionals by providing them with a five-level triage tool that specified presenting complaints and gave detailed descriptions of conditions at each triage level (Manos et al., 2002). Implementation guidelines were published for the adult CTAS in December, 1998 (Beveridge, et al., 1998; Manos, et al., 2002), and in 2001 for the Canadian Paediatric Triage and Acuity Scale. The first revisions to the CTAS implementation guidelines were published in the *Canadian Journal of Emergency Medicine*, November 2004 (Murray, et al., 2004).

In 1999, the Ontario Ministry of Health and Long Term Care (MOHLTC) mandated the triage process using the five-level CTAS for emergency departments across Ontario, and in 2001, the MOHLTC mandated hospitals to collect data for the National Ambulatory Care Reporting System. Based on the advice of the Triage Project Steering Committee, the Ontario Hospital Association (OHA) commissioned this study of triage and the use of CTAS in hospital emergency departments. The MOHLTC funded the Triage Project.

1.2 STUDY GOALS AND OBJECTIVES

The goal of the Triage Project is to ensure that all emergency patients across Ontario are consistently and accurately assessed using the CTAS's five levels of acuity. To determine an acuity level, triage personnel must be highly proficient in the use of the CTAS. In the first stage of the Triage Project, information on the application of the CTAS is being gathered to:

- Determine the requirements for primary and refresher courses for triage staff in emergency departments.
- Assist in the development of quality improvement guidelines.
- Identify factors that may facilitate or hinder the effective triage of emergency patients using the CTAS guidelines.

Further to this, the Triage Project will develop and implement standardized training to update the skills of triage personnel, and develop quality assurance protocols to measure consistency.

To achieve these goals, the objective of the first stage is to collect the following information on the characteristics of hospital emergency departments:

- Staffing levels and training
- Patient flow
- Screening for infectious diseases
- Hospital policies affecting the flow
- Physical layout
- Triage records
- Data flow
- Quality assurance

1.3 STUDY COMPONENTS

In order to learn more about the various factors that influence how triage is performed and supported within hospitals, the OHA commissioned the Centre for Rural and Northern Health Research (CRaNHR) at Laurentian University to conduct a study on triage, the use of the CTAS in Ontario hospitals and the factors affecting its use. The study included two elements: 1) a survey of hospital EDs, and 2) an analysis of relevant secondary data to provide a broader context for understanding and interpreting the survey results.

1.3.1. NATIONAL AMBULATORY CARE REPORTING SYSTEM (NACRS) DATA

The National Ambulatory Care Reporting System (NACRS) provides information on all outpatient visits, including visits to emergency departments, in Ontario hospitals. The Canadian Institute for Health Information (CIHI) maintains the NACRS data, which has been collected since 2001. This data includes demographic information about emergency department patients; their triage scores; hospital location; times for registration, triage, and disposition; diagnosis; and disposition outcomes. The NACRS dataset was used in the Clinical Utilization and Outcomes quadrant of the *Hospital Report 2003: Emergency Department Care* (Brown, et al., 2004). The analysis in this report builds on the Clinical Utilization and Outcomes quadrant by adding information on hospital peer groups.

Currently, data submission to NACRS is mandatory in Ontario for emergency departments, as well as for four other ambulatory care services. An NACRS record is generated for every patient registered at an Ontario

ED. Client visit data is collected at the time of service in participating facilities. Data collection methods may vary by facility.

Access to the NACRS data was obtained through the Provincial Health Planning Database (PHPDB, 2002), maintained by the MOHLTC. Staff from the Northern Health Information Partnership (NHIP) drew the data and made the initial analyses.

1.3.2. Survey of Triage Activities in Ontario Hospital Emergency Departments

The second component of the study consisted of a survey of all Ontario ED sites. The Survey Working Group was formed to help develop the questionnaire, assist in the interpretation of survey questions, and review the final results. The working group (listed in Appendix A) consisted of professionals with specific experience in triage. Members also held current experience in managing, training or working in an emergency department. They provided varying perspectives from across hospital peer groups and from different geographic locations. The Director of CRaNHR worked closely with the Survey Working Group, the Steering Committee, and the Project Manager to construct the questionnaire through iterative revisions.

Details on the survey process, response rates, and issues encountered coding the data and analysis can be found in Appendix B.

1.3.3. Ethics Review and Approval of Study Design

The study design, questionnaire, consent forms, and covering letters were approved by the Laurentian University Research Ethics Board, which closely adheres to the Tri-Council research ethics guidelines for research involving human subjects. Guidelines protecting confidentiality were followed.

CHAPTER 2: ANALYSIS OF EMERGENCY DEPARTMENT VISITS

2.1 INTRODUCTION

This chapter analyzes the records of ED visits for the fiscal year (FY) 2002/03 (April 1, 2002, to March 31, 2003) stored in the NACRS. At the time of this analysis, FY 2002/03 provided the most recent data available, and it was the second full year in which NACRS data was submitted to CIHI. The data analyzed includes hospitals where the ED is open 24 hours as well as hospitals with EDs that have restricted hours and services.

In the FY 2002/03, 178 sites received emergency visits. Two ED sites did not report to NACRS, and seven sites reported data for only part of the year. In addition, seven EDs closed permanently during the period of April 1, 2002, through to June 30, 2004. Data selected for inclusion in the analysis came from hospitals that reported data to NACRS in FY 2002-03 and were still open in June 2004. A very small number of records (717) without CTAS scores were also excluded from the analysis. In summary, records of ED visits with CTAS scores from 169 EDs were included in the analysis.

The hospitals were grouped into four hospital peer groups (HPGs):

- Small Hospitals – 47 hospitals with alternative funding arrangements (AFAs) for physician services.
- Community AFA Hospitals – 70 community hospitals with AFAs.
- Community FFS Hospitals – 32 community hospitals which relied upon physicians to bill for fee-for-service (FFS) payments.
- Teaching Hospitals – 20 hospitals with mixed payment arrangements for physicians (one is FFS, all others are on alternative funding arrangements).

The assignment to a peer group is based on the *Hospital Report 2003: Emergency Department Care*, which states: "For multi-site hospitals, peer group designation is based on the size of the largest single hospital/site in the organization," (Brown, et al., 2004). Consequently, some small hospitals are grouped with community hospitals if they are part of a hospital corporation that contains hospitals of both sizes. In general terms, hospital and volume of ED visits increase as one moves down the list above. However, the size and mandate of the EDs vary by region and other considerations. Some small hospitals have higher volumes of ED visits

than some community hospitals. Community hospital ED visits range from low volumes in more rural areas to high volumes in large urban centres. Teaching hospitals are somewhere in the middle in terms of their volume of visits.

2.2 ED VISITS BY REGION, AGE, GENDER, TRIAGE LEVEL, TYPE OF ARRIVAL AND DISPOSITION

ED visits were analyzed for HPGs by region, age groups, gender, triage level, type of arrival, and disposition. The size and mandate of EDs vary by region and population base. In Table 1, the seven regions correspond to the MOHLTC planning regions. The regional populations are: Southwest (1,460,935); Central South (1,109,060); Central West (2,027,050); Central East (1,883,825); Toronto (2,456,805); East (1,518,365); and North (829,505) (Statistics Canada, 2005).

Table 1: REGIONAL DISTRIBUTION OF ED VISITS AND HOSPITALS BY HPG

Region	Small Hospitals	Community AFA	Community FFS	Teaching Hospitals	All Hospitals
Southwest					
No. of hospitals	3	28	1	3	35
No. of visits	47,188	568,449	53,574	119,613	788,824
Central South					
No. of hospitals	2	4	5	5	16
No. of visits	34,214	113,911	183,713	204,503	536,341
Central West					
No. of hospitals	2	9	4	0	15
No. of visits	18,333	361,904	250,637	0	630,874
Central East					
No. of hospitals	4	7	7	0	18
No. of visits	73,212	309,278	351,372	0	733,862
Toronto					
No. of hospitals	0	3	8	7	18
No. of visits	0	154,348	406,079	268,010	828,437
East					
No. of hospitals	8	11	3	5	27
No. of visits	127,075	322,854	111,619	258,739	820,287
North					
No. of hospitals	28	8	4	0	40
No. of visits	229,950	302,611	168,071	0	700,632
Total for HPG					
No. of hospitals	47	70	32	20	169
No. of visits	529,972	2,133,355	1,525.065	850,865	5,039,257

As seen in Table 1, the North (the region with the smallest population) had the largest number of hospitals overall (40) and the largest number of small hospitals (28), and it was fifth in the number of ED visits (700,632). Southwest Ontario (fifth out of seven in population size) had the largest number of community AFAs (28) and was third in the number of ED visits (788,824). Toronto, with the highest population, had the largest number of community FFS (8) and teaching hospitals (7), as well as the largest number of ED visits (828,437).

Table 2: PERCENTAGE OF ED VISITS BY AGE GROUPS AND HPG

Age Groups	Small Hospitals %	Community AFA Hospitals %	Community FFS Hospitals %	Teaching Hospitals %	All Hospitals %
0 to 18 years	28.1	26.4	25.5	25.5	26.2
19-64 years	55.4	56.2	56.7	57.3	56.5
65 plus years	16.5	17.4	17.7	17.3	17.4

**Total no. of visits = 5,039,257*

Patients 18 years or younger accounted for 26.2% of ED visits; patients between 19 and 64 years accounted for 56.5%; and those aged 65 or older accounted for 17.4%. For each group, the differences in the percentage of ED visits by hospital size were small – 2 % or less. The number of people visiting the ED on more than one occasion within the year is unknown.

Table 3: PERCENTAGE OF ED VISITS BY GENDER AND HPG

Gender	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Females	51.22	50.78	50.47	49.29	50.48
Males	48.78	49.22	49.53	50.71	49.52

There were slightly more visits by females (50.5%) than by males (49.5%), as can be seen in Table 3. The differences in the percentage of ED visits by hospital peer group for males and females were less than 1.0% for all HPGs. A very small number of cases (<100) were excluded due to missing data on the patients' gender.

Table 4: ED VISITS BY TRIAGE LEVEL AND HPG

CTAS Level	Small Hospitals	Community AFA	Community FFS	Teaching Hospitals	All Hospitals
CTAS 1					
No. of Visits	966	7,547	5,685	7,108	21,306
Median/hospital	19	53	130.5	217.5	51
CTAS 2					
No. of Visits	8,998	140,370	124,374	69,410	343,089
Median/hospital	127	878	3,106.5	3,438	677
CTAS 3					
No. of Visits	66,322	666,597	607,822	330,170	1,670,911
Median/hospital	950	6,248.5	19,188	16,351.5	5,754
CTAS 4					
No. of Visits	229,671	1,020,742	598,357	325,612	2,174,382
Median/hospital	3,870	13,243.5	19,115	15,013.5	12,913
CTAS 5					
No. of Visits	224,015	298,162	188,827	118,565	829,569
Median/hospital	3,438	3,360	4,438.5	3,194.5	3,748
Total for HPG					
No. of Visits	529,972	2,133,355	1,525,065	850,865	5,039,257
Median/hospital	742	2,536	5,381.5	4,171.5	2,536

As shown in Table 4, the number of visits recorded as triage level CTAS 1 – Resuscitation was relatively rare for EDs, accounting for 0.4% of all visits. Visits recorded as CTAS 2 – Emergent were relatively rare (6.9% of all visits). The median number of CTAS 1 and 2 visits per hospital increased as the size of the ED increased. Visits at CTAS 3 – Urgent and CTAS 4 – Less-Urgent are common in community and teaching hospitals. Visits scored as CTAS 5 – Non-Urgent are less common, but the median number is approximately the same across all HPGs.

Table 5: PERCENTAGE OF ED VISITS BY GENDER AND TRIAGE LEVEL FOR HPGS

ED Visits by Gender	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
CTAS 1	100 %	100 %	100 %	100 %	100 %
Female	37.0	40.4	41.0	37.1	39.3
Male	63.0	59.6	59.0	62.9	60.7
CTAS 2	100 %	100 %	100 %	100 %	100 %
Female	46.3	48.3	47.1	45.7	47.3
Male	53.7	51.7	52.9	54.3	52.7

ED Visits by Gender	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
CTAS 3	100 %	100 %	100 %	100 %	100 %
Female	50.6	53	53.0	51.3	52.8
Male	49.4	47	47.0	48.7	47.2
CTAS 4	100 %	100 %	100 %	100 %	100 %
Female	50.9	50.4	50.4	49.2	50.1
Male	48.1	49.6	49.6	50.8	49.9
CTAS 5	100 %	100 %	100 %	100 %	100 %
Female	51.2	48.6	48.6	46.7	48.4
Male	48.8	51.4	51.4	53.3	51.6

For every five CTAS 1 patients, three are male and two are female. For CTAS 2, the percentage of males is slightly higher than females. The percentage of females is slightly higher than males for CTAS levels 3 and 4. Overall, more males than females are found in the CTAS 5 level and in all hospital peer groups, except small hospitals.

Table 6: VISIT DISPOSITION BY TYPE OF ARRIVAL AND CTAS LEVEL

Type of Arrival by CTAS Level	Left Without Service %	Home %	Admitted %	Transfer %	Death %	All Hospitals %
CTAS 1	100 %	100 %	100 %	100 %	100 %	100 %
Walk-in	58.0	50.8	19.4	23.1	8.8	23.9
Ambulance	42.0	49.2	80.6	76.9	91.2	76.1
No.	157	4,345	10,421	1,478	4,905	21,306
CTAS 2	100 %	100 %	100 %	100 %	100 %	100 %
Walk-in	79.3	75.5	54.8	56.8	15.8	67.4
Ambulance	20.7	24.5	45.2	43.2	84.2	32.6
No.	6,839	201,170	123,817	10,375	748	343,089
CTAS 3	100 %	100 %	100 %	100 %	100 %	100 %
Walk-in	90.3	85.6	65.5	74.6	25.9	81.9
Ambulance	9.7	14.4	34.5	25.4	74.1	19.1
No.	72,960	1,269,193	296,349	31,923	486	1,670,911

Type of Arrival by CTAS Level	Left Without Service %	Home %	Admitted %	Transfer %	Death %	All Hospitals %
CTAS 4	100 %	100 %	100 %	100 %	100 %	100 %
Walk-in	95.6	95.1	72.4	87.4	51.4	94.3
Ambulance	4.4	4.9	27.6	12.6	48.6	5.7
No.	115,058	1,971,454	70,324	17,439	107	2,174,382
CTAS 5	100 %	100 %	100 %	100 %	100 %	100 %
Walk-in	97.9	97.8	76.2	91.2	48.4	97.5
Ambulance	2.1	2.2	23.8	8.8	51.6	2.5
No.	37,555	775,756	11,298	4,534	438	829,569
Total No. for disposition	232,569	4,261,118	512,209	65,749	6,684	5,039,257

Emergency patients may arrive in the ED by ambulance, "walk-in" on their own, or be accompanied by friends or relatives. Table 6 shows the type of arrival by triage level and HPG. While Ambulance arrivals accounted for three-quarters of CTAS 1 visits, one-third of CTAS 2 visits and one-fifth of CTAS 3 visits, the percentage of ambulance arrivals was small in CTAS 4 and 5 levels. Across all CTAS levels, patients who arrived by ambulance were more likely to be admitted, to be transferred or to die. Those who left without service were more likely to have arrived as walk-in patients. These findings do not take into account how paramedic and ambulance services are managed. Again, one needs clinical information to understand the characteristics of the visits.

Table 7: VISIT DISPOSITION TYPE BY TRIAGE LEVELS AND HOSPITAL PEER GROUPS

Disposition of Visits by CTAS Level	Small Hospitals	Community AFA	Community FFS	Teaching Hospitals	All Hospitals
CTAS 1	100.0 %	100 %	100 %	100 %	100 %
Left w/o service	0.52 %	1.03	0.47	0.66	0.74
Home	9.98 %	17.15	15.76	27.60	20.39
Admission	15.32 %	44.44	48.46	58.58	48.91
Transfer	19.57 %	8.71	7.19	3.14	6.94
Death	44.62 %	28.67	28.11	10.02	23.02
No.	966	7,547	5,685	7,108	21,306
CTAS 2	100.0	100 %	100 %	100%	100%
Left w/o service	0.87	2.38	1.99	1.36	1.99
Home	51.19	57.37	59.28	60.99	58.63
Admission	34.70	36.74	36.67	33.92	36.09
Transfer	12.68	3.29	1.79	3.45	3.02
Death	0.57	0.22	0.27	0.28	0.26
No.	8,998	140,307	124,374	69,410	343,089

Disposition of Visits by CTAS Level	Small Hospitals	Community AFA	Community FFS	Teaching Hospitals	All Hospitals
CTAS 3	100.0	100 %	100 %	100 %	100 %
Left w/o service	0.78	5.26	4.65	2.78	4.37
Home	77.30	75.40	75.96	76.81	75.96
Admission	17.44	17.38	17.96	18.10	17.74
Transfer	4.45	1.93	1.41	2.27	1.91
Death	0.03	0.03	0.02	0.04	0.03
No.	66,322	666,597	607,822	330,170	1,670,911
CTAS 4	100.0	100 %	100 %	100 %	100 %
Left w/o service	1.52	6.22	5.16	5.29	5.29
Home	94.63	90.36	90.32	89.49	90.67
Admission	3.14	2.76	3.71	3.91	3.23
Transfer	0.71	0.66	0.81	1.31	0.80
Death	0.003	0.004	0.01	0.01	0.005
No.	229,671	1,020742	598,357	325,612	2,174,382
CTAS 5	100.0	100 %	100 %	100 %	100 %
Left w/o service	2.94	4.94	5.32	5.23	4.53
Home	95.71	93.59	92.17	91.30	93.51
Admission	1.06	0.94	1.80	2.28	1.36
Transfer	0.28	0.45	0.65	1.13	0.55
Death	0.01	0.08	0.06	0.07	0.05
No.	224,015	298,162	188,827	118,565	829,569
Total for HPG No. of Visits	529,972	2,133,355	1,525,065	850,865	5,039,257

At the conclusion of the ED visit, the patient may be admitted to the hospital, transferred to another facility, discharged to home. Some may also leave before the assessment or service is complete and some cases may end with the death of the patient. Disposition may be affected by the type of ED and hospital services available and the volumes of patients. Table 7 shows the type of disposition by triage level and HPG.

The percentage of CTAS 1 visits ending in death ranged from 45% in small hospitals to 10% in teaching hospitals. Both types of community hospitals are in the center of this range, with approximately 28% of visits ending in death. The CTAS 2 visits related to death extend from 6 per 1,000 visits in small hospitals to 3 per 1,000 visits in teaching hospitals. Most of the remaining CTAS 1 and 2 visits ended in admissions or transfers. Percentages of patients discharged home increased as acuity decreased. However, without data about the presenting complaints and diagnosis most responsible for the ED visit, the value of the disposition information is only descriptive.

Table 8: TIME FROM TRIAGE TO DISPOSITION BY CTAS LEVEL AND TYPE OF VISIT DISPOSITION (EXCLUDING DEATHS)

Triage to Discharge for CTAS Levels	Left Without Being Seen	Home	Admitted	Transferred	All Hospitals
CTAS 1					
No.	150	3,967	9,572	1,383	15,072
Mean minutes	191.22	277.60	240.85	189.52	245.31
Median minutes	140	210	170	140	175
Std. deviation	174.25	253.39	233.35	188.44	235.87
CTAS 2					
No.	6,407	186,161	109,760	9,759	312,087
Mean minutes	170.65	256.39	347.01	252.23	286.37
Median minutes	125	199	267	183	218
Std. deviation	166.94	211.54	287.33	236.82	245.35
CTAS 3					
No.	68,498	1,191,954	261,847	30,071	1,552,370
Mean minutes	141.51	213.99	362.52	269.90	236.93
Median minutes	107	165	288	195	178
Std. deviation	139.86	189.26	288.69	253.09	217.15
CTAS 4					
No.	109,640	1,929,333	63,851	16,909	2,119,733
Mean minutes	124.49	136.67	326.13	230.16	142.49
Median minutes	93	98	255	160	100
Std. deviation	134.43	147.15	272.74	236.10	156.37
CTAS 5					
No.	35,916	775,603	10,413	4,443	826,375
Mean minutes	110.25	97.53	295.09	179.75	101.02
Median minutes	76	65	211	120	66
Std. deviation	137.04	122.42	280.33	204.95	128.92
Total for disposition					
No.	220,611	4,087,018	455,443	62,565	4,825,637
Mean minutes	128.84	157.38	349.58	248.22	175.39
Median minutes	95	110	274	177	120
Std. deviation	138.24	167.00	285.79	243.09	190.46

Table 8 shows mean (average) and median (mid-point) times between the time of triage and the time of disposition for type of visit disposition. This provides an approximation of the length of time patients wait in relation to their destination at the end of the visit. Since all visits start at a zero waiting time, and some last for many hours, the average time is pulled upward by the longest visits. As a result, mean times are higher than median times.

For every level but CTAS 1, the median times are highest for patients admitted to hospital. CTAS 1 patients who return home have the highest median time for that

level. This difference may be due to the nature of the presenting complaint, the complexity of services required, the admission procedures, and the availability of beds. The median times are greatest for CTAS 2 and 3, followed by CTAS 1. The median times decrease across CTAS 4 and 5.

Table 9: MEAN AND MEDIAN TIMES FOR TIME FROM TRIAGE TO DISPOSITION FOR HPGS

Triage to Discharge Time by CTAS Level	Small Hospitals	Community AFA	Community FFS	Teaching Hospitals	All Hospitals
CTAS 1					
No.	804	6680	4625	5255	17,391
Mean minutes	125.70	163.83	158.93	236.38	182.68
Median minutes	98.50	132.00	128.00	195.00	146.00
Std. deviation	115.48	143.87	143.59	165.77	153.92
CTAS 2					
No.	6928	122,246	101,302	44,308	274,784
Mean minutes	164.54	236.91	252.80	295.87	20.45
Median minutes	128.00	197.00	217.00	263.00	212.00
Std. deviation	129.94	156.20	156.20	172.83	160.29
CTAS 3					
No.	52,969	555,355	504,107	227,279	1,339,710
Mean minutes	130.24	195.82	224.89	253.11	213.89
Median minutes	95.00	160.00	190.00	217.00	178.00
Std. deviation	117.92	141.57	150.32	158.58	149.48
CTAS 4					
No.	194,384	839,589	485,892	227,304	1,747,169
Mean minutes	77.37	121.57	152.66	183.23	133.32
Median minutes	55.00	93.00	120.00	154.00	102.00
Std. deviation	75.62	101.97	120.55	124.96	112.02
CTAS 5					
No.	194,756	244,554	149,062	94,849	683,221
Mean minutes	65.44	87.00	121.25	128.78	94.13
Median minutes	45.00	64.00	88.00	101.00	67.00
Std. deviation	66.91	80.66	111.66	103.66	91.63
Total for HPG					
No.	449,841	1,768,424	1,245,015	598,995	4,062,275
Mean minutes	79.86	148.24	186.32	209.92	161.43
Median minutes	55	111	150	170	122
Std. deviation	82.68	126.52	142.44	148.97	136.25

Table 9 shows mean (average) and median (mid-point) times between triage and disposition. This provides an approximation of the time patients spend in EDs. The median times by CTAS levels increase across HPGs. The median times are

greater for CTAS 2 and 3 followed by CTAS 1. The median times decrease across levels CTAS 4 and 5.

There are two major problems with recording times for ED visits. First, arrival time was an optional variable for NCARS and few hospitals recorded the information. Triage time should precede registration time, but hospitals varied the sequence in which they performed the function or recorded the times. Secondly, given the ambiguity of arrival times in computing fractile times, neither fractile nor reassessment times could be assessed.

2.3 SUMMARY OF NACRS DATA

Patients who visit Ontario EDs are predominately non-elderly and are almost equally likely to be male or female. Nevertheless, the elderly are somewhat over-represented in the population that visited an ED in FY2002-03, since those 65 and older account for 12.8% of Ontario's population while 17% of visits to an ED were made by those in this age group (Statistics Canada, 2005).

Severely ill or injured patients, as indicated by CTAS 1 – Resuscitation and CTAS 2 – Emergent, accounted for less than 8% of all ED visits. Higher acuity CTAS 1 and 2 patients are most likely to start their ED visit by arriving in an ambulance, and to end their visit by transfer, admission to hospital, or death. Lower acuity patients triaged as CTAS levels 3, 4 and 5 are most likely to arrive in an ED as "walk-ins" and to finish by being released to their homes.

The overall median wait in the ED from triage to completion of the visit was two hours. The median times were longest for CTAS 2 and 3, followed by CTAS 1. Median waits were longer for admitted patients for every level but CTAS 1.

CHAPTER 3: SURVEY OF TRIAGE ACTIVITIES IN ONTARIO

3.1 INTRODUCTION

The second component of the study consisted of surveying all Ontario EDs to collect information on the physical environment of these departments, the triage processes, staffing and training requirements, information systems for triage and disposition, as well as quality assurance and best practices. The Triage Project Working Group that helped to develop the questionnaire consisted of professionals with specific experience in triage and current experience in managing, training or working in an emergency department. Members of the group also offered varying perspectives from across hospital peer groups and from various geographic locations. The Director of CRaNHR worked closely with this Working Group, as well as the Triage Project Steering Committee and the Project Manager, to construct the questionnaire through a series of revisions.

The resulting questionnaire consisted of 48 questions:

- 10 questions covered details of the ED's physical layout and triage profile.
- 10 questions asked about the ED's characteristics and triage process.
- 13 reported on the ED's nurse staffing, experience, skills, training and training practices.
- 3 concerned the ED's physician staffing and training.
- 2 concerned screening for respiratory and infectious diseases.
- 6 questions covered data recording and flow.
- 4 questions reported on quality assurance.

Details on the survey process, response rates, and issues encountered coding the data and analysis can be found in Appendix B.

3.2 EMERGENCY DEPARTMENT TRIAGE PROFILE AND PHYSICAL LAYOUT

Six indicators were used to assess the layout of the EDs. The first indicator measured the number of public entrances to the ED. These included direct entrances and entrances through the hospital, but not entrances for ambulances.

Table 10: NUMBER OF PUBLIC ENTRANCES TO ED BY HPG

Public Entrances to ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
1	19.4	21.2	29.2	18.8	21.9
2	55.6	36.5	45.8	37.5	43.8
3 or more	25.0	42.3	25.0	43.8	34.3
Total	100	100	100	100.1	100
No. hospitals	36	52	24	16	128

Twenty-two percent of EDs had one public entrance, 44% had two, and 34% had three or more. There was no relationship between the peer group of an ED and number of public entrances. Community hospitals were most likely to have one public entrance, small hospitals were most likely to have two, and community AFA and teaching hospitals were most likely to have three.

Table 11: ED LAYOUT BY HPG

ED Layout for Triage	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Triage nurse able to observe all arriving walk-in patients	56.8	67.3	86.4	62.5	66.9
Triage nurse able to observe all arriving ambulance patients	83.8	59.6	62.5	56.3	66.7
Triage nurse able to observe all patients in ED waiting room	51.4	63.5	82.6	50.0	61.7
Separate area in ED for triage	56.8	82.7	100.0	87.5	78.9

To perform triage functions effectively, the triage nurse should be able to observe patients who enter by ambulance, those who walk in and those in the waiting room. Table 11 summarizes the responses to the following questions:

- *Is the triage nurse able to observe all entering walk-in patients?* Approximately two-thirds of hospitals reported that the triage nurse was able to observe all walk-in patients as they entered the ED. This was most likely for community hospitals (87%) and least likely for small hospitals (57%).

- *Is the triage nurse able to observe all entering ambulance patients?* Again, approximately two-thirds of hospitals reported the triage nurse was able to observe all ambulance patients as they entered the ED. Eighty-three percent of triage nurses in small hospitals were able to do this, while 55% to 63% of hospitals in the other three peer groups also reported being able to do so.

- *Is the triage nurse able to observe all patients in the ED waiting room?* Triage nurses could observe all patients in the ED waiting room in just under two-thirds of EDs. This was most likely for the community FFS peer group and least likely for small and teaching hospital peer groups (51% and 50%).

- *Is there a separate area in the ED for triage?* Overall, close to 80% of hospitals had a separate area for triage in their EDs. All community FFS hospitals had a separate triage area, while 88% of teaching, 83% of community AFA, and 57% of small hospitals had one.

Table 12: NUMBER OF TRIAGE STATIONS IN ED BY HPG

Number of Triage Stations	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
0	29.7	7.8	0	0	11.8
1	62.2	74.5	54.2	46.7	63.8
2 or more	8.1	17.7	45.8	53.3	24.4
Total	100.0	100.0	100.0	100.0	100.0

**Total no. of hospitals = 127*

Overall, approximately 12% of hospitals had no triage station, 64% had one, and approximately 25% had three or more. The number of triage stations was related to the hospital peer group. Small hospitals and community AFA hospitals were most likely to not have a triage station, or to have only one. Community FFS were most likely to have two or more triage stations, followed by teaching hospitals.

3.3 RESOURCES AND EQUIPMENT

The triage nurse requires equipment to perform a brief assessment of patients. Equipment should be available for both adults and children, with the exception of paediatric hospitals and the few EDs only serving adult populations. Other useful resources include CTAS posters and resource binders. Adult and paediatric equipment and resources will be discussed in this section.

Table 13: RESOURCES AVAILABLE FOR ADULT TRIAGING BY HPG

Adult CTAS Resources in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Poster displayed	89.2	88.5	91.7	86.7	89.1
Resource binder available	59.5	72.0	83.3	66.7	69.8

**Total no. of hospitals = 128*

In Table 13, the results for the following indicators are displayed:

- *Adult CTAS Poster available to triage nurse* – Approximately 90% of EDs had an adult CTAS poster available to the triage nurse. All of the triage groups were quite close to this average.

- *Adult CTAS resource binder available at triage station* – Data was reported by 126 hospitals. Approximately 70% of hospitals had an adult CTAS resource binder available at the triage station. The community FFS peer group was most likely to report this (83%) and the small hospital peer group least likely (60%).

Table 14: MEDICAL EQUIPMENT AVAILABLE FOR TRIAGING ADULTS BY HPG

Equipment and Tools for Triaging Adults in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Blood pressure cuff	94.6	100.0	100.0	100.0	98.4
Glucose monitoring	86.5	76.9	58.3	50.0	73.2
Pain scale	75.7	96.2	95.8	92.9	89.8
O_2 saturation	94.6	100.0	100.0	100.0	98.4
Peak flow monitor	78.4	57.7	41.7	14.3	55.9
Spirometer	43.2	28.8	12.5	7.1	27.6
Stethoscope	91.9	100.0	91.7	100.0	96.1
Thermometer	94.6	100.0	100.0	100.0	98.4
Weigh scale	86.5	96.2	83.3	64.3	87.4

**Total no. of hospitals = 128*

In Table 14, the equipment used by the triage nurse is listed along with the proportion of hospitals reporting that this equipment was available at the triage station. A summary of the findings follows:

- *Adult-sized blood pressure cuff* – All hospitals reported adult-sized blood pressure cuffs were available at triage, with the exception of small hospitals where 5% reported lacking this piece of equipment.

- *Adult glucose monitoring* – Less than three-quarters of EDs had glucose monitoring equipment available for triaging adults. The likelihood of having this equipment decreased as the ED size increased, with 87% of small hospitals and 50% of teaching hospitals having it.

- *Adult Pain Scale* – Approximately 90% of hospitals had the pain scale available to triage adults, except for small hospitals where only three-quarters of these reported having it.

- *Adult O_2 saturation* – Approximately 98% of hospitals reported having O_2 saturation available for triaging adults. One hundred percent of the community and teaching hospitals and approximately 95% of small hospitals O_2 saturation.

- *Adult peak flow monitor* – Fifty-six percent of hospitals reported having a peak flow monitor at triage. The likelihood of having this equipment decreased as the size of the ED increased. Almost 80% of small hospitals reported having one, as compared to 14% of teaching hospitals.

- *Adult spirometer* – Approximately a quarter of hospitals had an adult spirometer available at triage and the likelihood of having one increased as the size of the ED decreased.

- *Adult stethoscope* – Ninety-six percent of hospitals had an adult stethoscope available. Approximately 90% of small and community FFS hospitals and 100% of community AFA and teaching hospitals had a stethoscope for triaging adults.

- *Thermometer* – The distribution for availability of thermometers, overall and across hospitals groups, was the same as blood pressure cuffs and O_2 saturation; almost all hospitals reported thermometers were available.

- *Weigh scale* – Approximately 87% of hospitals had a weigh scale available for adult triaging. Teaching hospitals were least likely to have one (64%) and community AFA hospitals were most likely (96%).

Table 15: PAEDIATRIC IMPLEMENTATION AND AVAILABLE RESOURCES BY HPG

Paediatric CTAS Resources in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Formally implemented paediatric version of CTAS	22.2	50.0	58.3	40.0	42.5
Poster displayed	27.0	43.1	56.5	62.5	43.3
Resource binder available	30.6	40.0	41.7	43.8	38.1

**Total no. of hospitals = 127*

Table 15 details the status of implementing the paediatric CTAS and the availability of paediatric resources. The results are summarized below:

- *Implementation of P-CTAS* – Approximately 43% of Ontario EDs had implemented the P-CTAS by the summer of 2004. A couple of ED administrators noted they planned to implement P-CTAS in the fall of that year. The community hospital peer groups were most likely to have implemented P-CTAS (approximately 60% and 50%), followed by 40% of teaching hospitals, and 22% of small hospitals.

- *Paediatric CTAS poster available to triage nurse* – One hundred and twenty-seven hospitals reported for this indicator. Approximately 43% of EDs had a paediatric CTAS poster available to the triage nurse. The likelihood of having a poster increased as the size of the ED increased. Approximately 27% of small hospitals had posters compared to 63% of teaching hospitals.

- *Paediatric CTAS resource binder available at triage station* – Data was reported by 126 hospitals. Thirty-eight percent of hospitals had a Paediatric CTAS resource binder available at the triage station. Again, the likelihood of having a resource binder increased as the size of the ED increased. The percentages of hospital groups with binders ranged from 30% for small hospitals to 44% for teaching hospitals.

Table 16: MEDICAL EQUIPMENT AVAILABLE FOR TRIAGING CHILDREN BY HPG

Paediatric Equipment and Tools in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Blood pressure cuff	91.9	98.1	100.0	93.3	96.1
Glucose monitoring	75.7	65.4	54.2	40.0	63.3
Pain scale	62.2	80.8	87.5	80.0	76.6
O_2 saturation	94.6	96.2	100.0	86.7	95.3
Peak flow monitor	64.9	46.2	41.7	20.0	47.7
Spirometer	27.0	21.2	12.5	13.3	20.3
Stethoscope	89.2	90.4	79.2	73.3	85.9
Thermometer	94.6	98.1	100.0	86.7	96.1
Weigh scale	83.8	86.5	79.2	60.0	81.3

**Total no. of hospitals = 127*

Similarly, Table 16 lists types of equipment used by the triage nurse when assessing children. The table records the proportion of hospitals reporting that this equipment was available at the triage station, and the results are outlined below:

- *Paediatric-sized blood pressure cuff* – Almost all hospitals reported the availability of a paediatric-sized blood pressure cuff available at triage. One hundred percent of community FFS hospitals had paediatric blood pressure cuffs for triaging children, and 92% or more of the other three peer groups reported having this piece of equipment.

- *Paediatric glucose monitoring* – Just under two-thirds of hospitals had glucose monitoring equipment available for triaging paediatrics. The likelihood of having this equipment decreased as ED size increased, with 75% of small hospitals and 40% of teaching hospitals reporting glucose monitoring.

- *Paediatric Pain Scale* – Approximately three-quarters of hospitals had the pain scale available to triage children. Almost two-thirds of small hospitals had the pain scale available, compared to 80% or more of all other peer groups.

- *Paediatric O_2 saturation* – O_2 saturation was almost universally available for triaging paediatrics. One hundred percent of the community FFS hospitals had O_2 saturation, while approximately 95% of community AFA and small hospitals, and 88% of teaching hospitals had it.

- *Paediatric peak flow monitor* – Forty-seven percent of hospitals reported having a peak flow monitor. The likelihood of having one decreased as size of ED increased. Almost two-thirds of small hospitals reported having this piece of equipment as compared to 20% of teaching hospitals.

- *Paediatric spirometer* – One in five hospitals overall had a paediatric spirometer available at triage. Again, the likelihood of having one increased as the size of ED decreased, with 27% of small hospitals reporting this piece of equipment available as compared to approximately 13% of community FFS and teaching hospitals.

- *Paediatric stethoscope* – Eighty-five percent of hospitals had a paediatric stethoscope available. Approximately 90% of the small and community FFS hospitals had a stethoscope for triaging paediatrics, and between 73% and 79% of community AFA and teaching hospitals did.

- *Thermometer* – Almost all hospitals had a thermometer for triaging children. Teaching hospitals were least likely to have this piece of equipment (86%).

- *Weigh scale* – Four out of every five hospitals had a weigh scale available for paediatric triaging. Teaching hospitals were least likely to have one (60%), and community AFA hospitals most likely (86%).

CHAPTER 4: CHARACTERISTICS OF ED AND TRIAGE

4.1 INTRODUCTION

Effective triage must occur as close to a patient's arrival as possible, and be performed on a continual basis because a patient's condition can deteriorate quickly. The November 2004 revisions to CTAS emphasize the process of reassessment, with reassignment of a triage score, if necessary, instead of using the fractile response times (Murray, et al., 2004). Effective triage is dependent on having enough nurses and physicians to handle the number of patients who require care, and on having staff whose assessment skills are honed by experience and maintained through continual practice. Large numbers of patients make effective triage difficult.

4.2 ARRIVAL TIME TO INITIAL TRIAGE

Documenting a patient's time of arrival and time of triage allows ED staff to determine how long patients wait for triage overall. It also allows administrators to establish if there are predictable times when triaging does or does not occur in a timely fashion. Like triage, documenting the time of arrival requires sufficient staff to attend to patients immediately, and is difficult to achieve if an ED is crowded or inadequately staffed.

Table 17: RECORDING PATIENTS' ARRIVAL TIMES AND MECHANISMS FOR TRACKING TIMES BETWEEN PATIENTS' ARRIVAL AND TRIAGE

Marking Patient Arrival Times in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Time of arrival recorded	91.9	78.0	50.0	43.8	72.4
Waiting time tracked	67.6	59.6	33.3	18.8	51.9
Wait time spot checked	37.5	58.6	75.0	33.3	51.6
Wait time routinely checked	62.5	41.4	25.0	66.7	48.4

Table 17 summarizes the responses to a series of questions about patients' time of arrival and policies concerning wait times. Results are highlighted below:

- *Patients' arrival time in the ED recorded* – Almost three-quarters of Ontario EDs reported that the time of arrival was documented for patients. Lower levels of documentation were related to higher volumes of ED visits. There were large differences between hospital peer groups regarding this practice. Ninety-two percent of small hospitals documented the time of arrival. So did 78% of community AFA hospitals, 50% of community FFS hospitals and 44% of teaching hospitals.

- *Mechanism in ED to keep track of the time between the patient's arrival and triage* – Approximately half (52%) of all hospitals had a mechanism in place to keep track of the time between a patient's arrival and triage. Small hospitals were most likely to have a mechanism for recording the time of arrival to triage, with 67% reporting they had one. Community AFA hospitals were next most likely at 57%, while community FFS and teaching hospitals were less likely at 33% and 19%.

- *Mechanism used routinely or on a spot-check basis* – Overall, approximately half of ED sites routinely used their arrival to triage time mechanism and the other half did spot checks. Approximately two-thirds of small and teaching hospitals routinely checked wait time, while both types of community hospitals were more likely to spot check.

- *Average wait time for triage* – While six of the responses came from hospitals that did not report having a mechanism for tracking arrival to triage time, they could answer the question. Seven out of ten hospitals reported average wait times of less than 15 minutes. Due to differences in the ways respondents answered this question, this indicator was not analyzed using HPGs.

4.3 PRE-TRIAGE AND INITIAL TRIAGE

When asked what systems or approaches were in place in their ED to manage patient flow when there was a long queue at triage, respondents focused on all parts of the triage process: pre-triage, initial triage, physician assessment, and reassessment or re-triaging. This section focuses on pre-triage and initial triage.

Pre-triage is the rapid assessment of patients to determine if they need to be seen more quickly by the triage nurse or physician. The largest number of comments focused on this part of the process. It was reported that triage nurses might "eyeball" patients or "go out and check the reason for the visit for those in line" and then prioritize. Sometimes pre-triaging was done as a "pre-screen" or "90 second triage." Patients were sometimes directed to register first, where the nurse "views patients at registration and takes [them] to triage area if they look very ill." Sometimes a "brief assessment of the chief complaint is documented, and the patient is returned to the waiting room until full triage," or the nurse "will bring the more urgent cases in a room to be examined immediately." Triaging according to a review of the ER chart or sheet appeared to fall into this category as well, but

this method could have failed to convey whether the patient "looks sick" and so resulted in under-triaging.

Another set of approaches that respondents reported for handling long lines at triage included:

- Calling for help
- Calling for a second triage nurse
- Opening another triage unit

Calling for help may consist of asking a nurse to help keep an eye on the waiting room or to start assessments, while calling for a second triage nurse or opening another triage unit specifically related to triage assessment. People called to help in a general way included "staff from another unit," "other staff," "backup from resource RN," etc. In one ED, the triage nurse had a buzzer to summon assistance.

Calls for extra triage nurses fell into two categories: those calls that seemed to be made "on the fly" as necessary, and those that were planned for in advance. Comments concerning calls made as conditions dictated included "second triage area opened if staff available," "ER float nurse to triage," or "call charge nurse as a third [triage nurse]." Statements that indicated advance planning included versions of "two triage nurses scheduled [at peak times]" or "when the 5th chair in the triage area is full, a second nurse starts triaging."

Some other approaches to managing long queues at triage included help from non-clinical staff and volunteers, informing scheduled and non-urgent patients that there was a wait, asking non-urgent patients if they could return at a later scheduled time, or redirecting non-urgent patients to walk-in clinics or urgent care clinics.

While most respondents focused on how their staff managed long queues at triage, a few discussed what they did when patient overflow spilled into areas outside the ED waiting room. One hospital used the reception area with a monitor when the ED waiting room was full, and another used the observation room. A third stated that they "move patients that require ongoing observation to the acute care in-patient area."

A few respondents indicated that patients were seen in the order they arrived. It is unclear whether this held for all patients or only those that were non-urgent. Either case represents a lack of careful triaging.

4.4 TRIAGING PATIENTS ARRIVING BY AMBULANCE

It is generally believed that patients arriving by ambulance are more severely ill and that they require more services over a shorter period of time than do many

ambulatory patients. Ontario's paramedics assign a CTAS code in the field. However, the patient's condition may change quickly, and ambulance patients should be triaged using the CTAS after arrival in the ED.

Table 18: TRIAGING AMBULANCE PATIENTS IN ED

Persons Triaging Patients in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Triage nurse	37.8	40.4	58.3	50.0	44.2
Charge nurse	21.6	42.3	45.8	43.8	37.2
Other	67.6	57.7	20.8	18.8	48.8

**Total no. of hospitals = 129*

- *Staff triaging ambulance patients* – Triage nurses triaged ambulance patients in 44% of hospitals, charge nurses did so in 37% of hospitals, and approximately half of other types of nurses also triaged ambulance patients.

Table 19: ADOPTION AND TRANSCRIPTION OF PARAMEDICS' TRIAGE CODE IN ED

Paramedic Triage Code Used in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Yes	41.7	33.3	29.2	6.3	31.5

**Total no. of hospitals = 127*

- *Paramedic code transcribed as the triage code in ED* – Approximately one-third of Ontario EDs had adopted the paramedic code as the triage code in the ED. The likelihood of using the paramedic code within the ED increased as the size of the ED decreased, with approximately 40% of small hospitals doing so as compared with 6% of teaching hospitals.

4.5 FROM TRIAGE TO CLINICIAN ASSESSMENT

Since a CTAS score is a measure of patient acuity, each score suggests how long a patient can safely wait from the time of triage to assessment by a clinician. These waiting periods, or fractile response times, are termed "operating objectives" in the *Guidelines* because they are not established standards of care (Beveridge, et al., 2004). Waiting times increase as the perceived severity of the patient's condition decreases. The suggested fractile response times are as follows:

- CTAS 1 – Resuscitation, immediate assessment by a nurse and physician.
- CTAS 2 –Emergent, immediate nurse assessment and 15 minutes to a physician assessment.
- CTAS 3 – Urgent, 30 minutes to nurse and physician assessments.
- CTAS 4 – Less Urgent, 60 minutes to nurse and physician assessment.

- CTAS 5 – Non Urgent, 120 minutes to nurse and physician assessments.

Table 20: PHYSICIANS IN ED TYPICALLY MEET CTAS GUIDELINES FOR FRACTILE RESPONSE

CTAS Guidelines for Times in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Fractile response times met by ED physicians	97.3	51.1	13.0	0	51.2

- *CTAS fractile response times typically met by ED physicians* – Approximately half of the hospitals reported physicians were typically able to meet CTAS guidelines for fractile response times. The likelihood of meeting fractile response times increased as the size of the ED decreased. Differences between the hospital peer groups were very large, with small hospitals meeting fractile response times 97% of the time and teaching hospitals unable to meet these objectives.

Responses for this question were varied, as Table 20 suggests. Most respondents answered with a Yes or No, but answers from approximately 13% respondents, representing 17 hospitals, were more complex. For example, some respondents said "no" and stated which CTAS levels were or were not met. Others said "yes" and detailed which levels were or were not met.

Additional comments gave a clearer picture of the situations when fractile response times were or were not met. Two respondents indicated that, in their EDs, CTAS 1 patients (those in need of resuscitation) were seen within the guidelines "100% of the time." The majority of this group said that their ED physicians typically met the fractile times "for levels 1, 2, and 3, [while meeting] 4 and 5 is dependent on the activity of the department" or "not for non-urgent patients CTAS 4-5." One respondent said that, typically, fractile response times were "not [met] during the summer, especially 4 and 5," while another stated they were met "depending on volumes presenting at one time."

On the whole, these comments suggest that the number of Ontario EDs able to meet fractile response times for patients requiring resuscitative, urgent, and emergent care are probably higher than indicated by the figures in Table 20. In other words, emergency departments concentrate on treating patients facing real emergencies first. Patients with lesser complaints must wait.

When administrators were asked to discuss the approaches their EDs used to manage patient flow when the queue for triage was long, some respondents also discussed how staff handled long waits for physician assessments. One hospital had a "policy to call in a second physician when a patient waited more than two hours for physician assessment." Others mentioned they had a "second roster for physicians should we need more MD support," they had a "second physician on call," or they "call the extra doctor in town." As mentioned in Section 4.3, ED

staff sometimes also redirected non-urgent patients to other sources of care, or provided them with an expected wait time.

4.6 TRIAGE REASSESSMENT

When patients must wait longer for physician assessment than the CTAS guidelines suggest, a triage nurse should reassess them to determine whether their condition has changed. It is also good practice to ask patients to inform a nurse if their condition worsens while they wait for clinician assessment. When patients must wait longer than specified by their CTAS score, new revisions to the CTAS by the CTAS and CEDIS National Working Groups recommend that a reassessment score be written in the triage record in addition to the initial triage score.

Table 21: PERIODIC REASSESSMENTS OF PATIENTS IN WAITING ROOM BY TRIAGE NURSE

Triage Nurse Reassesses Waiting Patients	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
No	5.6	5.8	4.2	6.3	5.5
Occasionally	33.3	42.3	45.8	56.2	42.2
Frequently	41.7	44.2	41.7	25.0	40.6
Always	19.4	7.7	8.3	12.5	11.7

- *Periodic reassessment of patients in the ED waiting room by triage nurse* – Overall, approximately 5% of hospitals never performed reassessments of patients in the waiting room; over 80% of hospitals occasionally or frequently did reassessments, and; 12% always performed them. All hospital groups were almost equally as likely to never reassess waiting room patients. The likelihood of occasional reassessments increased as hospital size increased. All hospital types were almost equally as likely to perform frequent reassessments, except teaching hospitals, which were less likely to do so. Small and teaching hospitals were most likely to always do reassessments.

Table 22: FORMAL PROCESS FOR DOCUMENTING REASSESSMENT OF PATIENTS IN ED WAITING ROOMS

CTAS Guidelines for Times in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Formal process for documenting reassessments	45.9	75.0	87.5	93.8	71.3

- *Formal process for documenting reassessments of ED waiting room patients* – Seven out of every 10 ED sites reported having a formal process for documenting reassessments of patients in the waiting room. The percentage of hospitals with a formal process increased as the size of the ED increased. Forty-six percent of small hospitals reported a formal documentation process, as compared with 94% of teaching hospitals.

Table 23: TRIAGE NURSES IN ED TYPICALLY MEET CTAS GUIDELINES FOR REASSESSMENT TIMES

CTAS Guidelines for Times in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Triage nurse typically meets reassessment times.	83.3	46.0	31.8	26.7	52.4

- *Triage nurses typically able to meet CTAS guidelines for reassessment times* – In approximately half of Ontario's EDs, triage nurses typically met CTAS recommended reassessment times. Size of ED was negatively related to the likelihood of triage nurses meeting reassessment times. Approximately 83% of small hospitals reported triage nurses typically met reassessment times, followed by 46% of community AFA hospitals, 32% of community FFS hospitals, and 27% of teaching hospitals.

Table 24: PROCESS FOR PATIENTS TO NOTIFY THE TRIAGE NURSE ABOUT CHANGES IN THEIR CONDITIONS

Patients Informed About Reporting Changes	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Signage	70.3	88.5	75.0	62.5	77.5
Triage nurse	91.9	94.2	95.8	87.5	93.0
Other	18.9	34.6	16.7	25.0	25.6

- *Patients informed about reporting changes in their conditions* – Overall, 93% of EDs stated that the triage nurse advised the patients to inform her/him if their conditions changed, and 78% used signage. Another quarter used some other method. The differences between peer groups for use of signage or triage nurse advisement were small. There was no relationship between the use of other methods and the size of the ED.

4.6.1. FORMAL PROCESSES FOR DOCUMENTING PATIENT REASSESSMENTS IN WAITING ROOM

Overall, responses indicated that there was no single method for documenting triage reassessment times, nor was there a standard document, or place on a document where reassessment information was recorded. Most respondents answered the question by focusing on a document, or section of a document, where reassessments were recorded in their ED. Reassessment information was recorded on a variety of documents. ED patient records and triage tools were most often cited, but progress notes and flow sheets were also mentioned several times. Sometimes respondents indicated that there was a distinct reassessment section on a document. This was most often mentioned for triage forms and occasionally for ED charts.

A few respondents said that reassessments were included in the section for recording vital signs. A small number of respondents noted that their ED had recently begun using a triage tool with a section for reassessments, and two said a new triage form with a reassessment section was being developed. Some respondents mentioned the reassessment section was on the back of the form. This placement could lower the chances of recording the reassessment. A few respondents mentioned that the nurse who conducted the reassessment must sign reassessment times and findings.

Some respondents specified that charting was done manually, and one mentioned it was part of an electronic record.

A nurse's signature confirming that the reassessment was done served as the most common process for documenting reassessment retrospectively. Three respondents described prospective processes used in their ED. In one ED, staff used an electronic tracking board that flashed when a reassessment was due. In another, a staff member flagged charts of patients requiring reassessment and placed them in a special file. The process in the third ED was described as "a continuation of the triage record in line rotation."

A few respondents mentioned that a policy for documenting reassessment was under development or that a new policy was being developed because the existing one was not being followed.

Two responses to the question on managing long queues also described a process for documenting reassessment. One hospital used a computer indicator for tracking reassessments, while the other mentioned that a clinician was available in that ED to help with reassessment.

4.6.2. How Patients Know to Notify Triage Nurses About Changes in Their Conditions

Reassessment could also occur if a patient informed the triage nurse of a change in his or her condition. How did the patient learn to inform the triage nurses of changes? In almost all hospitals, the triage nurse advised patients to inform her or him of changes in their condition, and three quarters also used signage. When examined by peer group, both types of community hospitals were more likely to use both methods.

Approximately 25% of EDs indicated they used other methods, with community AFA and teaching hospitals most likely to report this. These methods and processes can be designated as more active or less active and as promoting action by staff or patients.

The most proactive processes an ED could have in place were those that vigorously promoted staff evaluation of patients, and variations of this type were most frequently mentioned. Other good, less-mentioned proactive processes

included the continual observation of patients by staff. Next best, and most often mentioned, was conducting patient re-evaluations. Nurses and admitting staff were reported to be participating in both continual observations and rounds.

A less active method was to have staff available for the patients to contact if their condition changed, or to provide patients with a method to contact staff. Persons mentioned as available contacts included nurses, admitting clerks, receptionists, patient liaisons, and volunteers. Methods for contacting staff included buzzers and call buttons.

An even less active process for encouraging patients to contact staff about changes in their condition was to provide the patients with a time at which they needed to report back for reassessment. Less active still, some EDs provided the patients with a pamphlet or information booklet when they arrived. Such booklets could provide patients with useful information about triaging; however, this method was dependent upon the patient having the ability and interest to read the material. The most passive process was to place such material in the waiting room.

In general, the two processes most often mentioned by respondents were staff rounds (the most active) and pamphlets (the least active).

4.7 SCREENING FOR FRI

As a result of SARS, the Ontario government and the Federal Government commissioned a series of reports to determine how best to manage a health emergency from various perspectives. The Infection Control Standards Task Force recommended that: “all patients presenting at the emergency department and/or admitted to hospitals are to be assessed for indicators of FRI/ SRI using a tiered approach to the screening questions.”

The report also contained a screening tool (Infection Control Standards Task Force, 2003).

Table 25: ED USE OF MOHLTC FEBRILE SCREENING TOOL OR ED-DEVELOPED TOOL

Screening for Febrile Respiratory Disease	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
ED screens all patients	100.0	100.0	100.0	100.0	100.0
ED uses Febrile Screening Tool of MOHLTC	94.6	92.3	90.9	50.0	87.4
Uses own tool*	8.1	9.6	18.2	43.8	15.6

**Three hospitals indicated that they used both the MOHLTC screening tool and one of their own; therefore, column percentages do not add to 100%.*

- *ED screens all patients for FRI* – All 129 hospitals reported valid data for this indicator. One hundred percent of hospitals reported they screened for FRI in their ED.

- *Type of FRI screening tool used in ED* – Valid data for this question existed for 128 hospitals. Overall, 86% of Ontario EDs used the FRI screen tool recommended by the MOHLTC. The likelihood of using the MOHLTC tool decreased as the size of the ED increased. Approximately 15% of all hospitals used a screening tool they developed themselves, and teaching hospitals were two to five times more likely to use their own tool than the other HPGs. Three hospitals – one each from the small, community AFA, and community FFS peer groups – reported using both the MOHLTC tool and a tool they had developed themselves. For this reason, column totals for Table 25 add to more than 100% for all columns except teaching hospitals.

CHAPTER 5: HUMAN RESOURCES—REGISTERED NURSES

5.1 INTRODUCTION

Effective triaging requires sufficient human resources. Adequate staffing for a typical 24-hour period is based on an understanding of how many nursing hours are needed to provide care, and the numbers of full-time and part-time nurses available to provide the required number of hours. Adequate staffing for triage is affected by the volume and timing of visits in an ED. The use of casual nurses in the ED was not considered in the survey, and staff requirements for disasters are beyond the purview of this report.

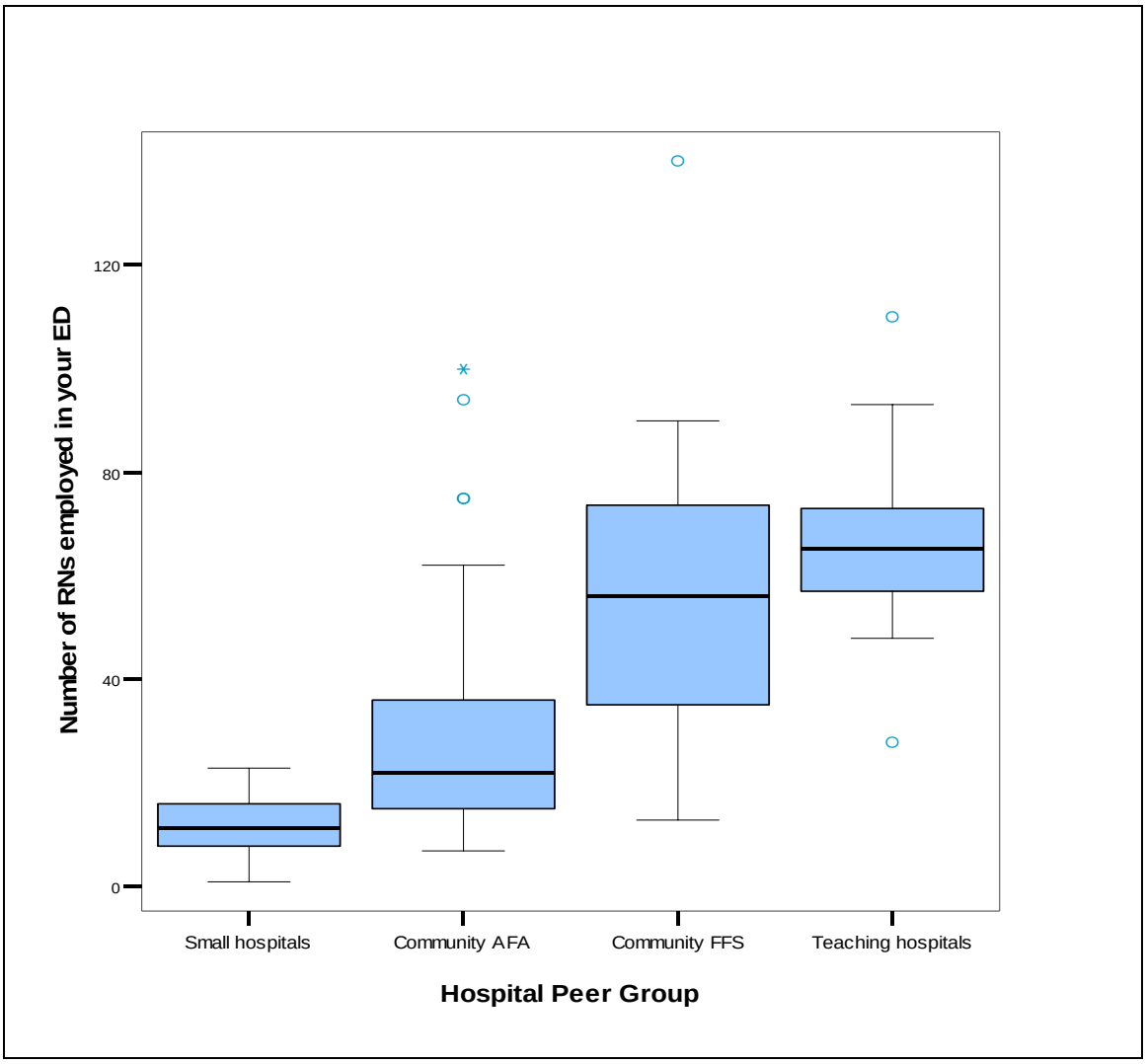
Much of the data in Chapters 5, 6, and 7 is presented in boxplots. Boxplots are useful in displaying variability in the data. The line in the middle of the box reflects the data for the median hospitals, indicating that 50% of hospitals had higher values and 50% had lower values. Similarly, the bottom and the top outlines of the box indicate the 25th and 75th percentile scores respectively. The lines extending from either end of the box include the hospitals with the minimum and maximum values. Small circles beyond the lines are hospitals with indicator values considered as mild outliers, and stars represent hospitals with extreme values – that is, hospitals whose indicator values are considerably higher or lower than the rest of the hospitals. There is a boxplot for each hospital peer group, which allows for comparisons.

5.2 NUMBER OF RNS IN THE EMERGENCY DEPARTMENT

This section describes the scale of staffing across all EDs, staff trained for triage, proportion working in triage, and the portion of their time committed to triage. Indicators are:

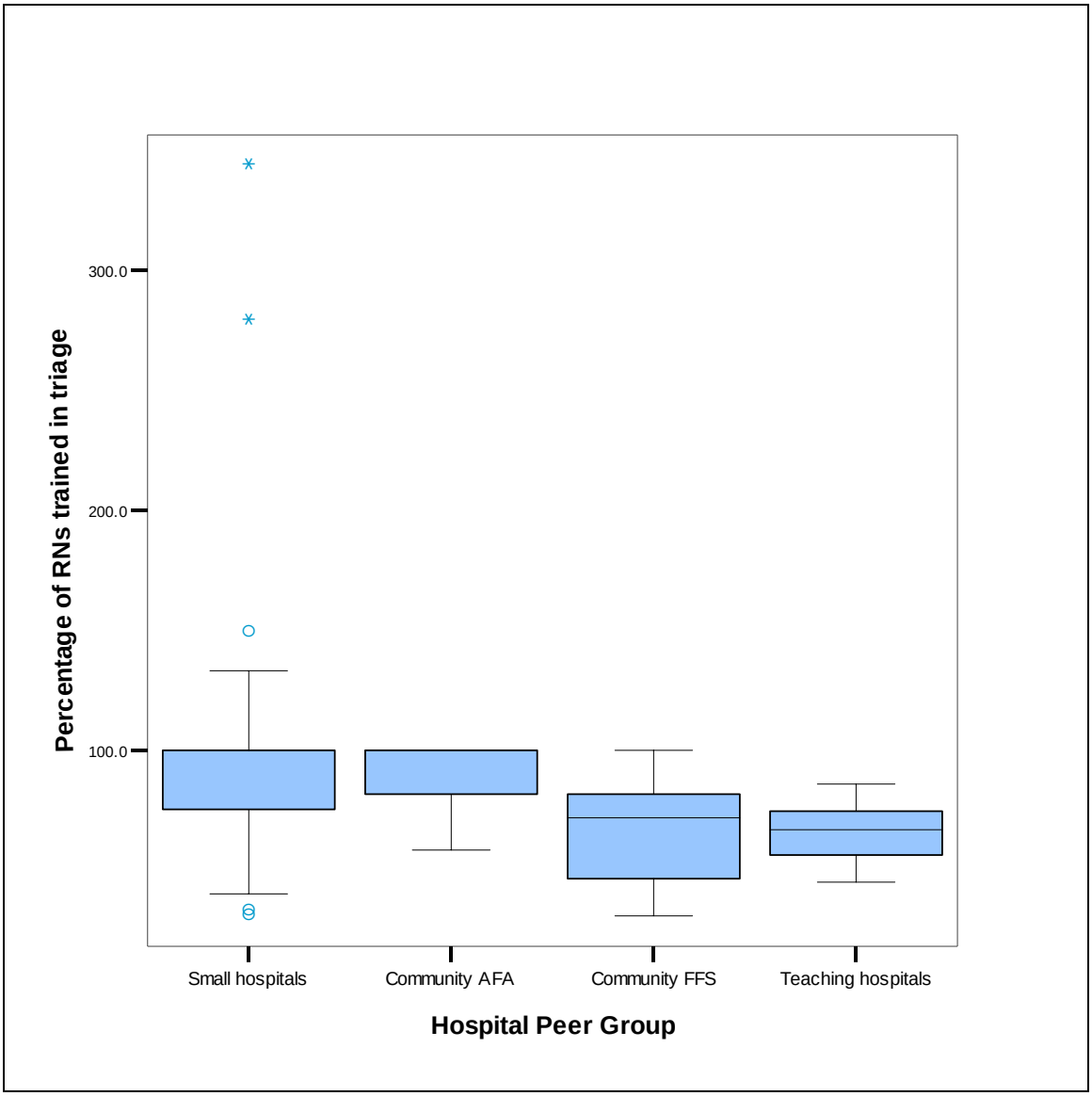
- Combined number of full-time and part-time RNs employed in the ED
- Percentage of RNs employed in the ED who are trained in triage
- Percentage of RNs in the ED who actively work in triage
- Percentage of a routine shift where a triage nurse performs triage

Graph 1: NUMBER OF RNS IN ED BY HPG



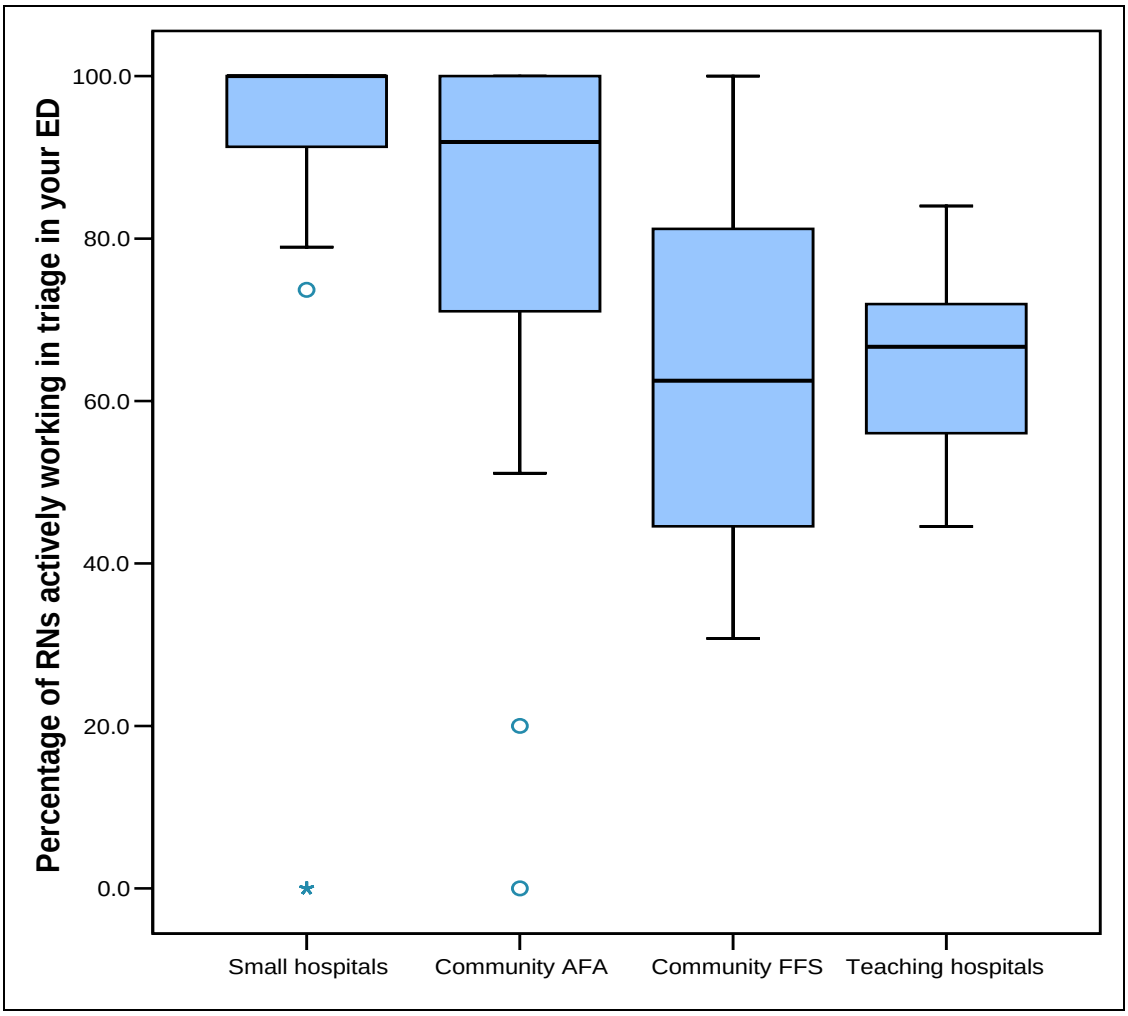
The number of RNs in an ED increased as the size of the ED increased. The median number of employed RNs ranged from 11.5 for small hospitals to 65 for teaching hospitals. Community FFS hospitals showed the largest variation in number of employed RNs where the median hospital employed 56 RNs, the hospital at the 25th percentile employed slightly less than 40 RNs and the hospital at the 75th percentile employed just less than 80 RNs. Some hospitals had very high or very low values for all hospital peer groups except small hospitals.

Graph 2: PERCENTAGE OF RNS TRAINED IN TRIAGE BY HPG



The median hospitals for the small and community AFA peer groups reported 100% of their RNs were trained in triage. The median community FFS hospital and the median teaching hospitals had approximately two-thirds of RNs triage trained. The hospitals with the lowest percentage of triage-trained RNs were in the small and community FFS peer groups, and these reported that approximately 30% of RNs were triage-trained. Three small hospitals reported very high percentages of triage-trained RNs.

Graph 3: PERCENTAGE OF RNS (FULL-TIME PLUS PART-TIME) ACTIVELY WORKING IN TRIAGE BY HPG



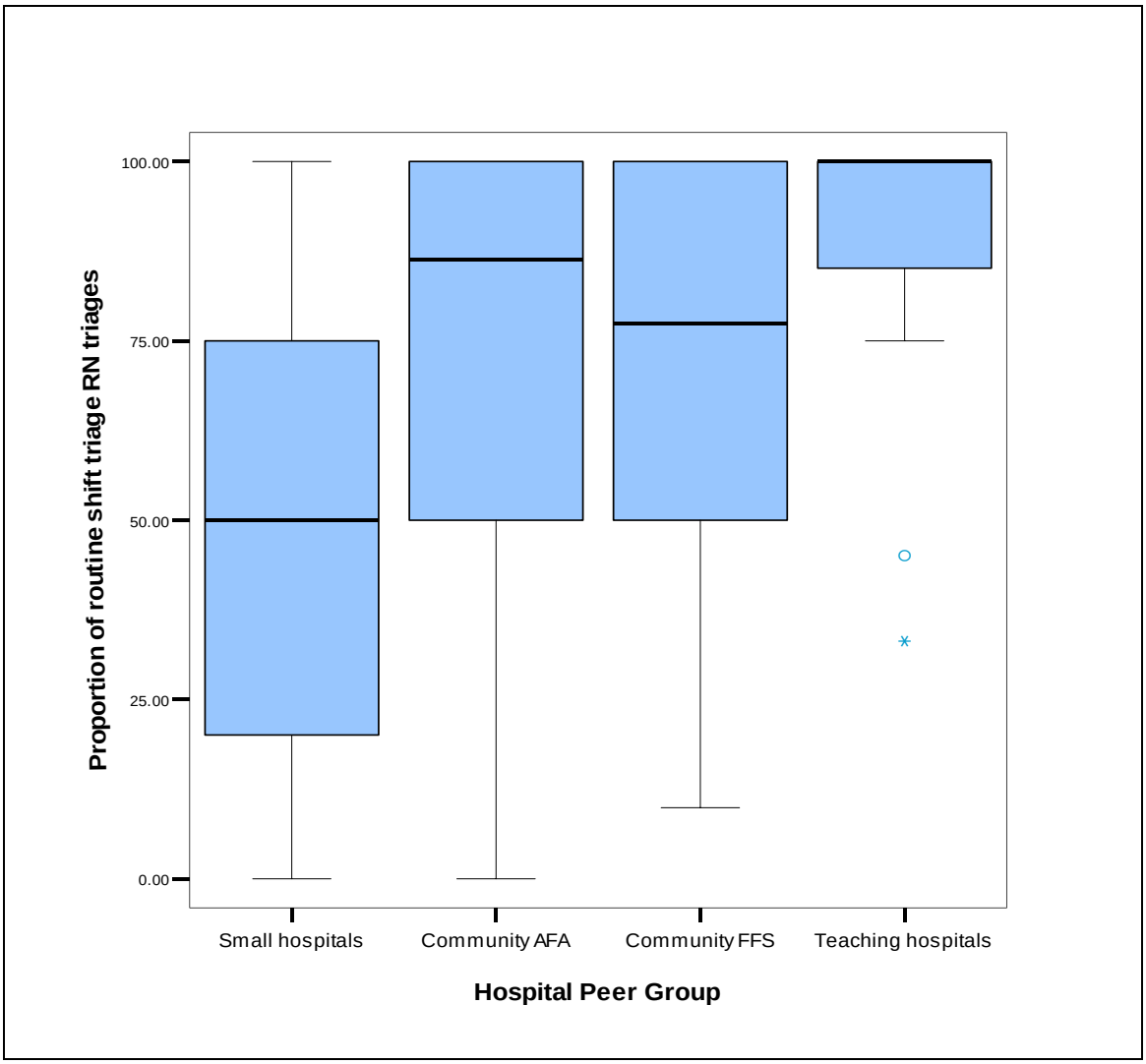
Graph 3 measures the proportion of RNs in the ED regularly practising triage. Regular practice of any set of skills helps in their maintenance and tends to lead to improvement.

The highest median hospital was in the small hospital peer group where 100% of RNs in the ED actively worked in triage. The second highest median was a community AFA hospital, with approximately 92% of RNs actively working in triage. The median teaching hospital had approximately two-thirds of its RNs actively working in triage.

Community FFS hospitals showed the most variation. The median hospital reported 71% of RNs actively working in triage, the 25th percentile hospital reported approximately 45%, and the 75th percentile hospital reported approximately 80%. Two hospitals – each in the small and community AFA peer groups – had a low or an extremely low percentage of RNs working in triage.

Two hospitals in the small hospital peer group were removed due to extremely high percentages of RNs actively practising triage.

Graph 4: PERCENTAGE OF ROUTINE SHIFT TRIAGE RN DOES TRIAGE BY HPG



Small and community AFA peer groups reported the largest variation, with triage nurses working in triage from 0% to 100% of a shift. In 50% of small hospitals, triage RNs performed triage for 16% to 80% of a routine shift. Triage nurses in AFA and FFS community hospitals at the 75th percentile and above routinely triaged for 100% of a shift. Hospitals at the 25th percentile of both groups had triage nurses spending about half a routine shift on triage. The 25th percentile teaching hospital had RNs triage for about 80% of a shift, and 50% of teaching hospitals reported triage nurses performing triage for 100% of a shift.

It is not known how many hours per shift a triage nurse must triage in order to maintain skills. This indicator does not address this issue directly, but does describe current practice in FY 2002/2003. It may also indicate patient volume, or

it may indicate an ED administrator's ability to provide some relief to triage nurses from the stress inherent in the job.

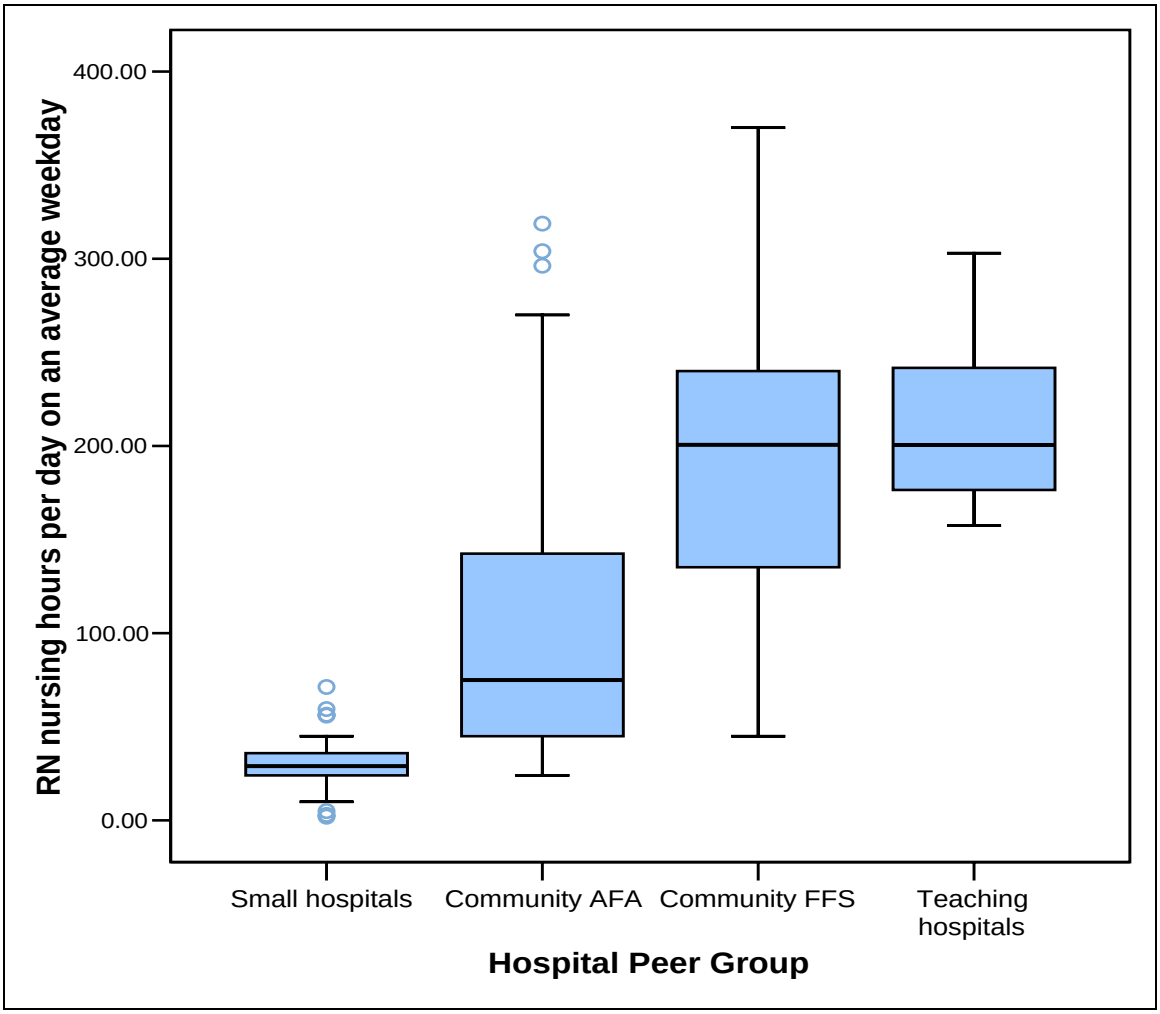
5.3 SCHEDULED NURSING HOURS IN THE EMERGENCY DEPARTMENT

Nurses provide triage assessment and observation in the waiting room. The number of RN nursing hours reported in an ED tends to reflect both patient volume and available staffing. Likewise, the percentage of RN nursing hours spent triaging reflects both the size of the staff and the level of activity in the ED.

The indicators included in this section are as follows:

- Number of RN nursing hours per 24-hour day reported on an average weekday
- Number of RN nursing hours per 24-hour day reported on an average weekend
- Percentage of RN nursing hours typically devoted to triage during an average 24-hour weekday
- Percentage of RN nursing hours typically devoted to triage during an average 24-hour weekend day

Graph 5: TOTAL RN (FULL-TIME AND PART-TIME) NURSING HOURS PER AVERAGE 24-HOUR *WEEKDAY* BY HPG



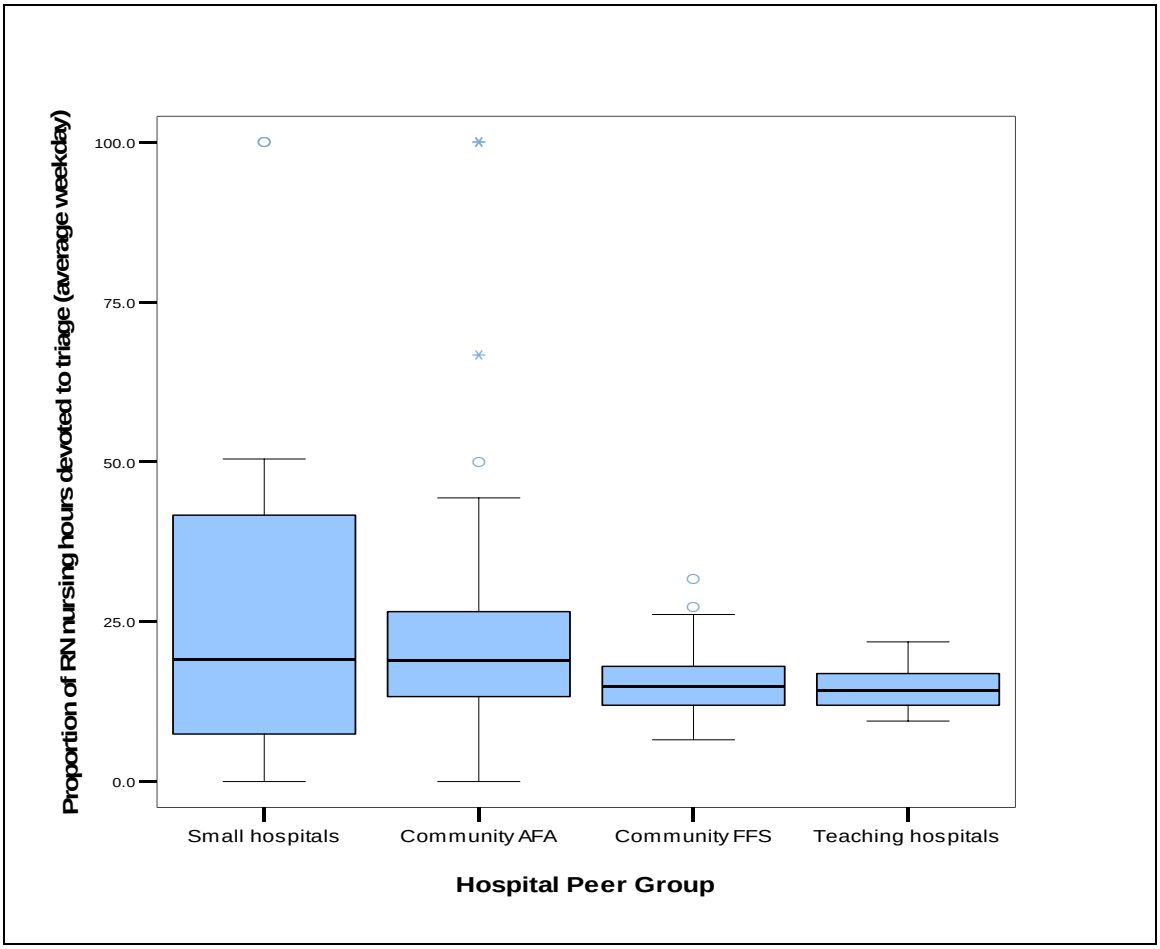
RN nursing hours per day equal the total number of nurses scheduled in an average day multiplied by the length of the shifts they work. Since RNs performed a variety of duties in a shift, including administration and direct care, these indicators are a proxy for the number of hours RNs provided direct patient care in an ED during an average 24-hour period.

For an average 24-hour weekday, the total RN nursing hours increased as the size of the ED increased. The medians for the HPGs were 29 RN nursing hours for small hospitals; 75 RN nursing hours for community AFA hospitals; and 200 and 204 RN nursing hours for community FFS hospitals and teaching hospitals.

RN nursing hours for an average 24-hour weekend day were found to be almost identical to an average weekday; therefore, the boxplot for this indicator is not included. Within an average 24-hour weekend day, the median RN nursing hours dropped slightly from 29 to 26 nursing hours for the small hospital peer group,

and from 200 to 197 nursing hours for the community FFS peer group. There was no change in the median for community AFA and teaching hospital peer groups.

Graph 6: PERCENTAGE OF ED RN NURSING HOURS SPENT TRIAGING PER AVERAGE WEEKDAY BY HPG



The median hospitals for all hospital peer groups were similar. Median ED RN nursing hours spent triaging ranged from approximately 19 hours on an average weekday for small and community AFA hospitals, to 14.9 hours for community FFS hospitals, and approximately 13.7 hours for teaching hospitals. The variation within HPGs increased as the size of the ED decreased. The medians for the percentage of RN nursing hours spent triaging was the same for average weekdays and weekends for all HPGs except community AFA hospitals, where the median increased approximately one hour on weekends.

The number of RN nursing hours was an approximation for direct patient care provided by nurses to ED patients for an average weekday or weekend day. The number of nursing hours increased as the number of RNs employed by an ED increased; therefore, the number of hours nurses provided direct care increased directly with HPG, which was a proxy for the volume of patients an ED treated.

The percentage of nursing hours spent doing triage was an approximate measure of the proportion of direct patient care RNs devoted to triage. The median across all four peer groups was very similar. Of all the peer groups, small hospitals had the largest variation in the number of nursing hours devoted to triage. These differences reflected a number of factors including the size of the staff, the number of RNs who performed triage, and patient volume. Variation in the percentage of nursing hours spent triaging was caused by very low or very high numbers of reported triage hours relative to the number of RN nursing hours reported.

Small hospitals often reported a higher proportion of RNs actively working in triage than did other HPGs. In these hospitals, the triage and primary nurse functions were blended. If every nurse scheduled or called in to work in the ED also performed triage, the proportion of RN hours devoted to triage could have exceeded that of a hospital where one or two RNs provided triage on every shift. This was most likely to occur in small hospitals with higher patient volumes.

CHAPTER 6: TRIAGE TRAINING

6.1 INTRODUCTION

Effective triaging requires sufficient human resources with ED experience and triage training. Initial assessment, ongoing observation in the waiting room, and reassessment are ideally performed by a triage nurse – an RN with at least two years of ED experience as well as training in the CTAS. The National Emergency Nurses Affiliation (NENA) states that the triage nurse should be a Registered Nurse with:

- A minimum of two years' recent emergency nursing practice
- Demonstrated competence in emergency nursing practice
- Displayed acquisition of advanced assessment, interviewing, and interpersonal skills
- ACLS, TNCC, ENPC, and Emergency Nursing Certification (NENA Position Statement A-2-1, 2002)

Training for triage nurses in ED is discussed in three sections:

- The level of experience of triage nurses and ideal levels of experience and training.
- Measures of the major types of ED training of RNs working in EDs, and the percentage of RNs requiring initial training in adult and paediatric CTAS.
- Methods of triage training, and financial support for training, offered by hospitals.

6.2 EXPERIENCE OF TRIAGE NURSES

Triaging is based on clinical judgement. It requires sufficient experience working with ED patients at all levels of illness to understand what a "sick" patient looks like, knowledge of the patient services available in that hospital, and an understanding of that hospital's processes for delivering care.

The following indicators were used to understand the training level of ED nurses in the HPGs:

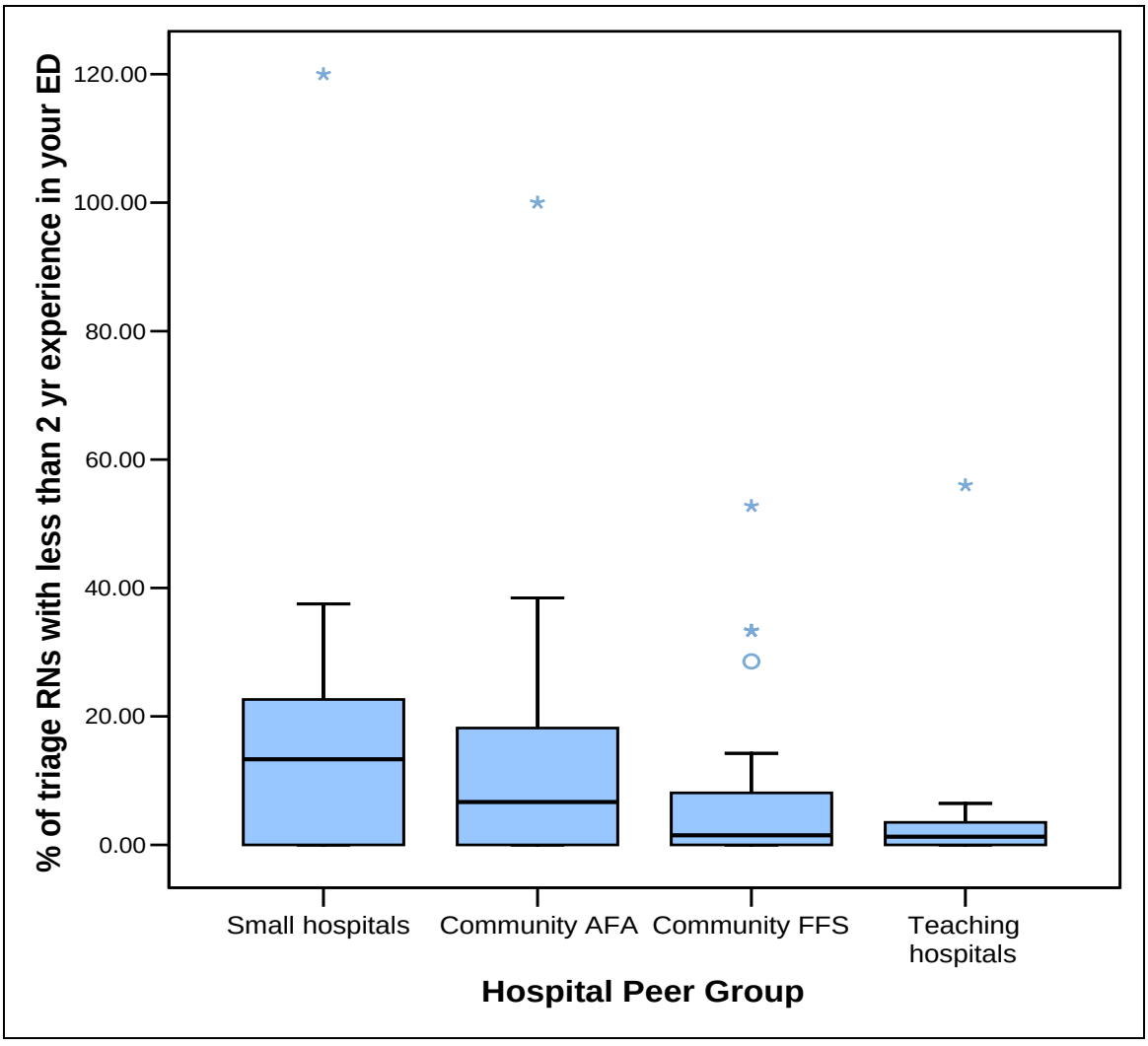
- The percentage of triage nurses working in EDs who had less than two years' experience in *that specific* ED.

- The percentage of triage nurses who had less than two years' experience in *any* hospital ED.

The two-year cut off was based on the NENA requirements for triage nurses.

Together, these indicators measured the level of experience of triage nurses working in the HPGs. Respondents were also asked to describe the minimum requirements for RNs to triage in their ED as an indicator of preferred or actual levels of experience and skills.

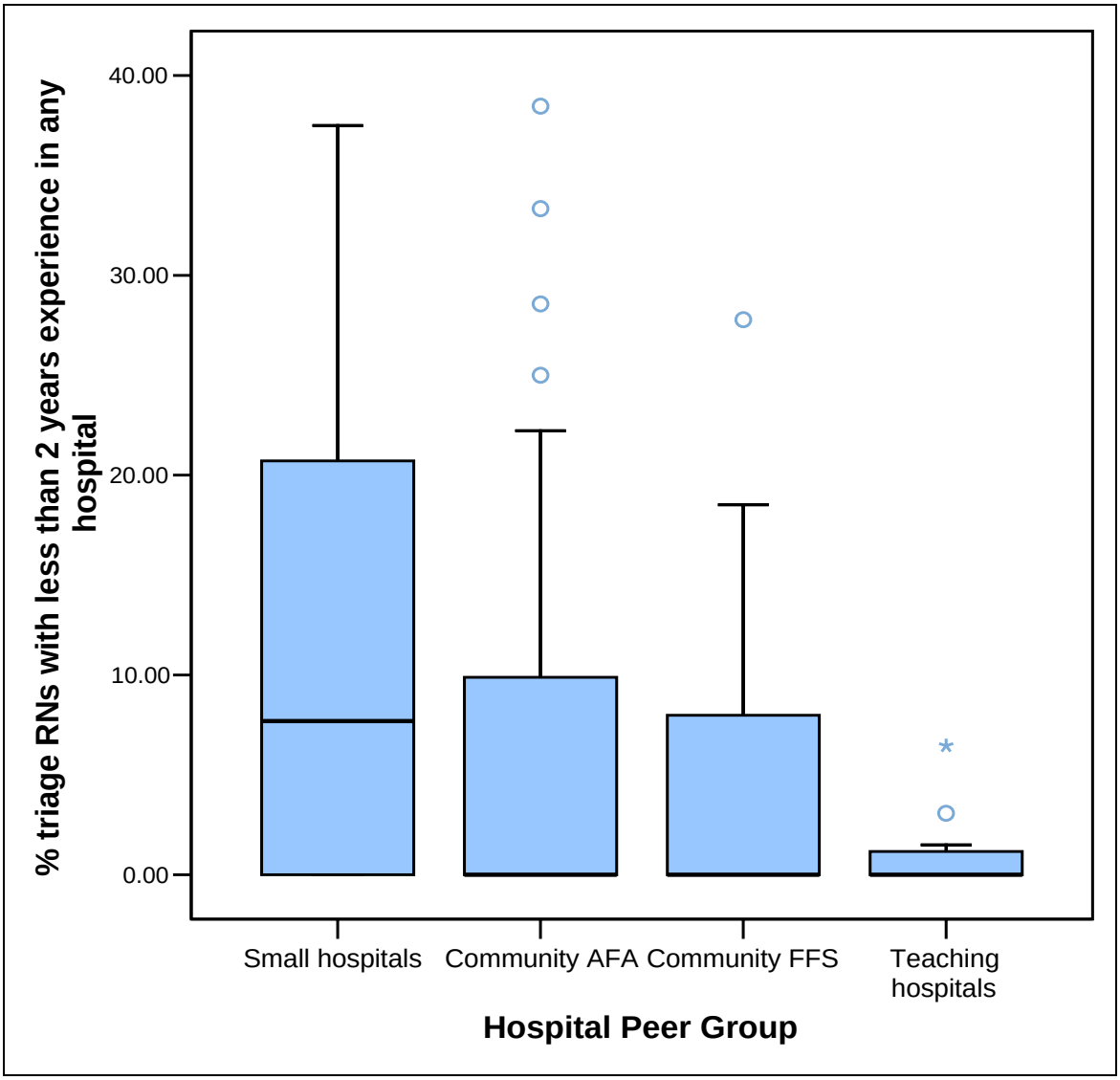
Graph 7: PERCENTAGE OF TRIAGE RNS WITH LESS THAN TWO YEARS' EXPERIENCE IN ED BY HPG



One quarter of all HPGs reported having no (or zero) triage nurses with two or more years' experience in their ED. The percentage of triage nurses with less than two years' experience decreased as the size of the ED increased. The median small hospital had approximately 15% of triage nurses with less than two years' experience in that ED, compared with 2% at the median teaching hospital.

Similarly, the hospital ED at the 75th percentile for the small hospital peer group reported 28% of its triage nurses had less than two years' experience in that ED, as compared with 9% of triage nurses at the 75th percentile of teaching hospitals. All HPGs had one or more hospitals with high or very high percentages of triage nurses with less than two years' experience in their hospitals' EDs.

Graph 8: PERCENTAGE OF TRIAGE RNS WITH LESS THAN TWO YEARS' EXPERIENCE IN *ANY* ED BY HPG



Twenty-five percent of small hospitals and 50% of the other peer groups had no (or zero) triage nurses with less than two years' experience in any hospital ED. The median small hospital reported 8% of triage nurses with less than two years' experience in any ED. Overall, the percentage of less experienced triage nurses dropped as the size of the ED rose, with small hospitals reporting the highest levels and teaching hospitals, showing the lowest levels. All HPGs had one or

more hospitals with high or very high percentages of triage nurses with less than two years' experience in any hospital ED.

6.3 SKILLS OF TRIAGE NURSES

Administrators were asked how many RNs in their ED had less than two years' experience in that ED, and less than two years' experience in any ED. To learn how the levels of experience sought in a triage nurse compared with the actual levels reported above, ED administrators were also asked to describe the minimum requirements for an RN to work as a triage nurse in their ED.

Reported levels of general experience expected for triage nurses ranged from three months to five years. Usually, administrators expected that experience to have occurred within an ED. Sometimes, a description of experience was given, such as "demonstrated performance in the department," "performing well as a staff nurse in the observation room," or "demonstrated knowledge, skills and judgement relative to rapid assessment and prioritization."

A few respondents also mentioned that triage nurses were required to have "soft" skills such as "excellent communication skills," "leadership skills," and "skills in assessment and interviewing." In one ED, triage nurses were given customer service education, and in another, they took a "dealing with difficult people seminar."

A number of respondents mentioned difficulties in meeting their hospital requirements for triage nursing. Comments ranged from "now with the shortage of nurses there is no requirement, depending on senior level nurse numbers," to "any competent ER nurse triages," to "ideally experienced, but with my ageing workforce new grads help out in department occasionally."

The size of hospital was a factor in meeting desired levels of experience as demonstrated by comments such as, "because we are a small facility, all nurses must be able to work in all areas. Most of the skills are learned on the job. New staff are paired with an experienced RN," and "one RN in ER department…Seek experienced staff." Sometimes, union rules overrode minimum requirements.

These comments were supported by the percentages of triage nurses with less than two years' experience in the respondents' hospitals, and in any hospital, as shown in Graphs 7 and 8. Generally, and for each peer group, the median percentage of RNs with less than two years' experience in that ED was slightly higher than the median percentage of RNs with less than two years' experience in any hospital. Overall, the median percentage of inexperienced triage nurses for all hospital EDs was small: 5% of triage RNs had less than two years' experience in the hospital where they were working, and 0% of triage RNs had less than two years' experience in any hospital (Table not shown).

These figures hide variations within HPGs. Seventy-five percent of hospitals in each peer group reported having some RNs without two years' experience in the ED where they worked (Graph 7). Fifty to 75% of hospitals in each HPG reported having RNs without two years' experience in any hospital (Graph 8). Furthermore, the smaller the ED, the more likely the respondent was to report having larger percentages of less experienced RNs of both types. Most of these hospitals reported 20% or less of RNs with less experience; however, there were outlier hospitals in every peer group that had high or very high percentages of less experienced RNs.

Given that uncertainty influences the speed and accuracy of judgement (Fry and Burr, 2001), survey results suggest there was a sizeable number of hospitals with inexperienced RNs performing the triage function. NENA position statements suggest having any triage nurses with less than two years ED experience is inconsistent with quality triage.

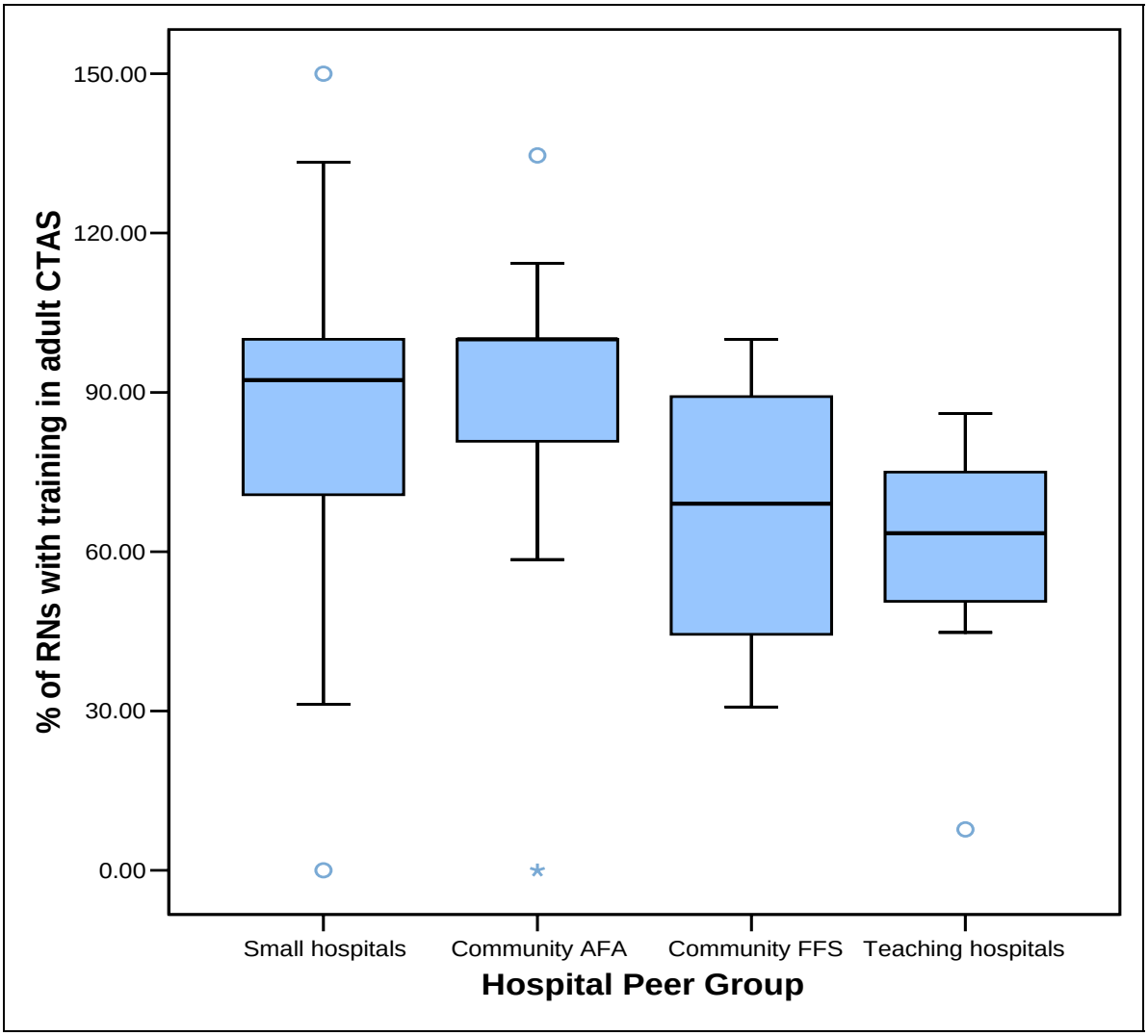
6.4 SUPPORT FOR TRIAGE TRAINING

Triaging requires decision-making that can save or end lives. Among other factors, decision-making is affected by the complexity of the situation and the level of education of the decision-maker (Cone and Murray, 2002). Indicators of RN ED skills were measured by the percentage of ED nurses who had the following types of training:

- Advanced cardiac life support (ACLS)
- Emergency nursing paediatric course (ENPC)
- Trauma nursing core course (TNCC)
- Certificate in ED nursing
- Paediatric advanced life support (PALS)
- Training in adult CTAS
- Training in paediatric CTAS
- Other ED or triage-related training

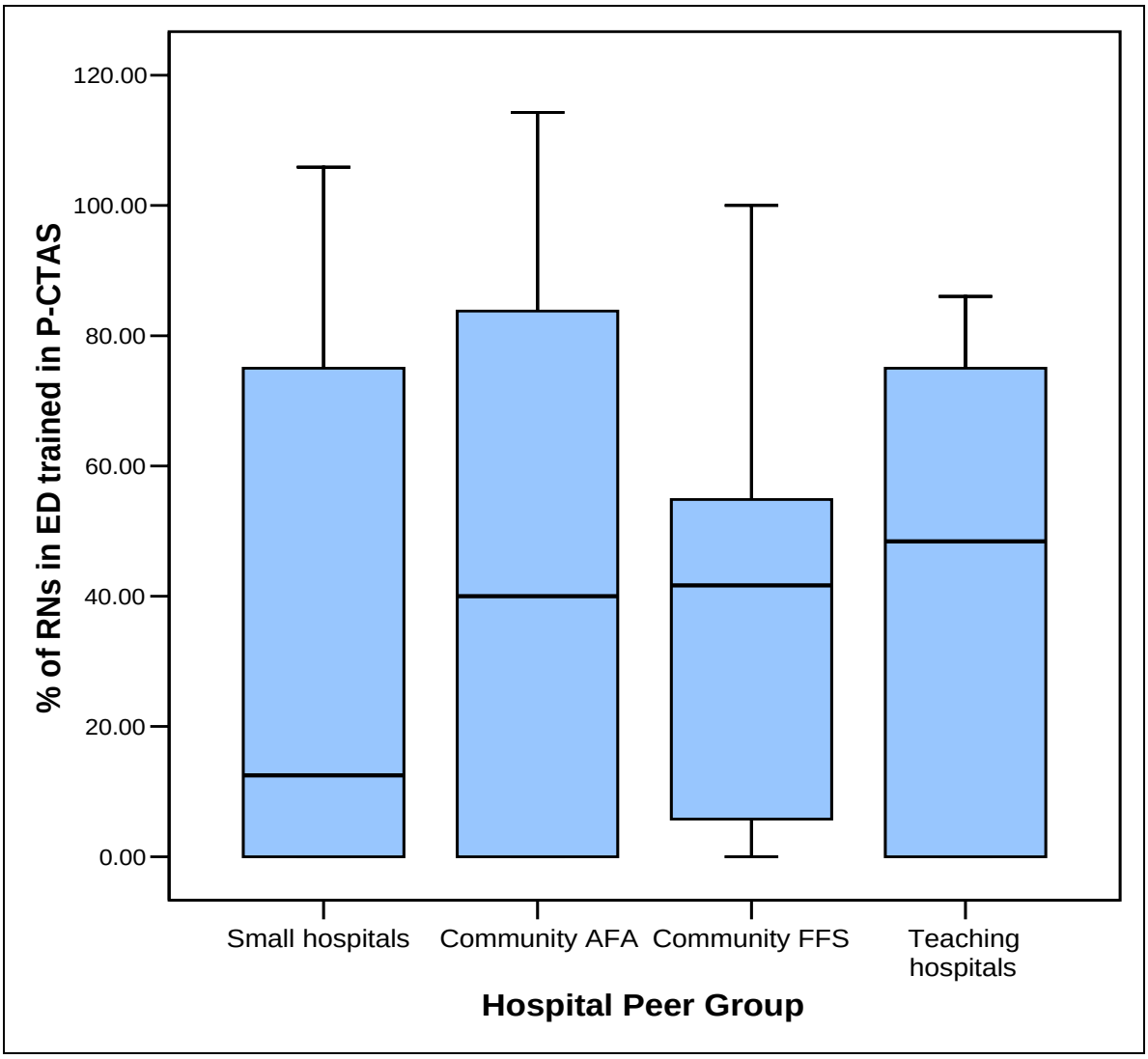
The final two indicators in this section measured the number of ED RNs who required initial training in the adult and paediatric CTAS.

Graph 9: PERCENTAGE OF RNS TRAINED IN ADULT CTAS BY HPG



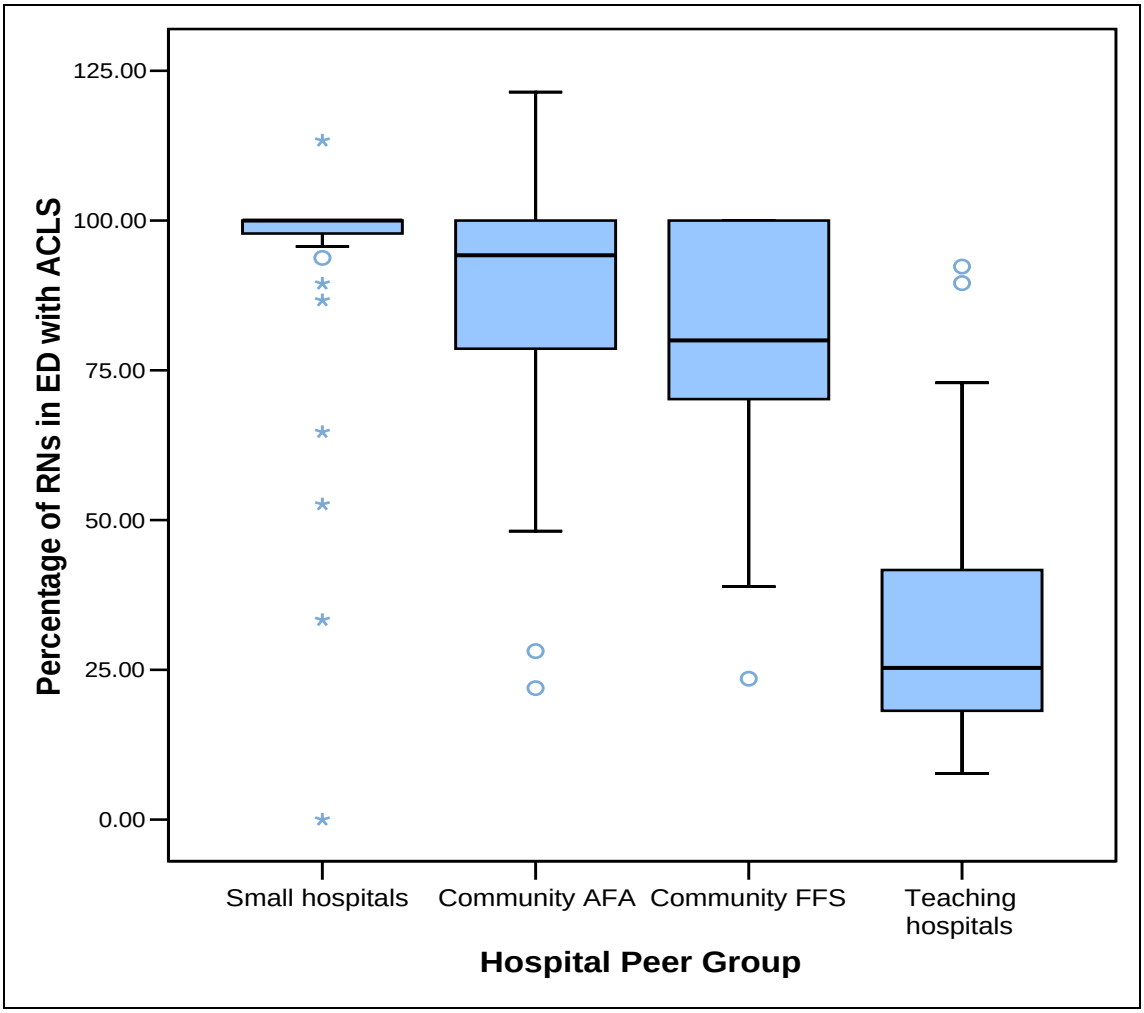
The percentage of RNs trained in adult CTAS in the median HPGs ranged from a high of 100% for the community AFA peer group, to a low of 64% for the teaching hospitals. Small hospitals showed the greatest variation in the percentage of triage-trained RNs, overall. However, 50% of the small hospitals reported 96% or more of their RNs had adult CTAS training. All HPGs except the community FFS peer group reported hospitals with very large or very small percentages of RNs with this training.

Graph 10: PERCENTAGE OF RNS IN EDS TRAINED IN *PAEDIATRIC* CTAS BY HPG



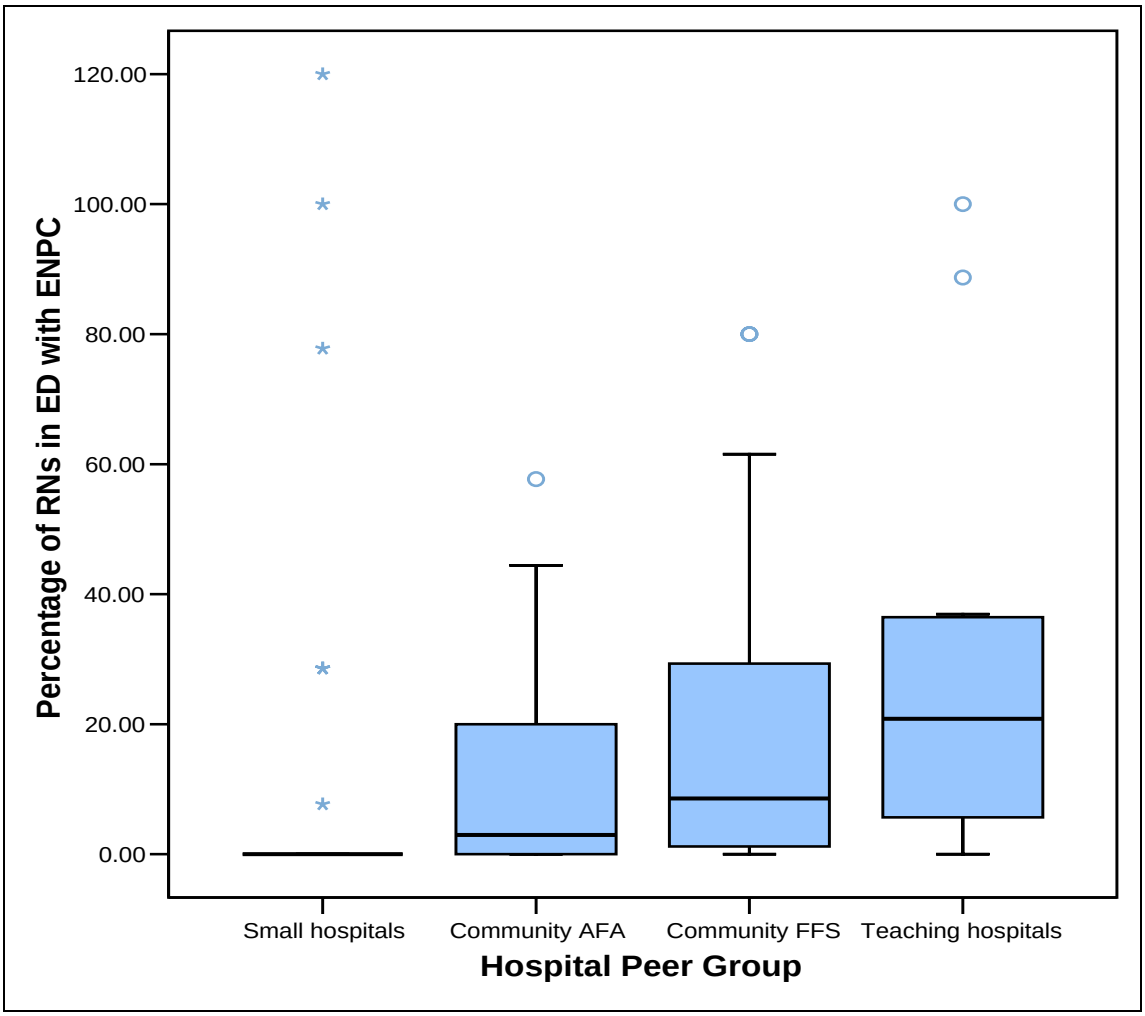
The median percentage of ED RNs trained in paediatric CTAS (P-CTAS) increased as the size of the ED increased. The median small hospital reported 13% of RNs with P-CTAS training, which rose to approximately 40% for the median community hospitals and 48% in the median teaching hospital. The variation between hospitals within each peer group was large. The community FFS hospital at the bottom of that peer group's range reported that approximately 5% of its RNs had P-CTAS, while in the other three peer groups, 25% of hospitals reported 0% of RNs with P-CTAS. At the upper range, all peer groups reported one or more hospitals with 100% or more of ED RNs trained in P-CTAS.

Graph 11: PERCENTAGE OF RNS WITH ACUTE CARDIAC LIFE SUPPORT (ACLS) BY HPG



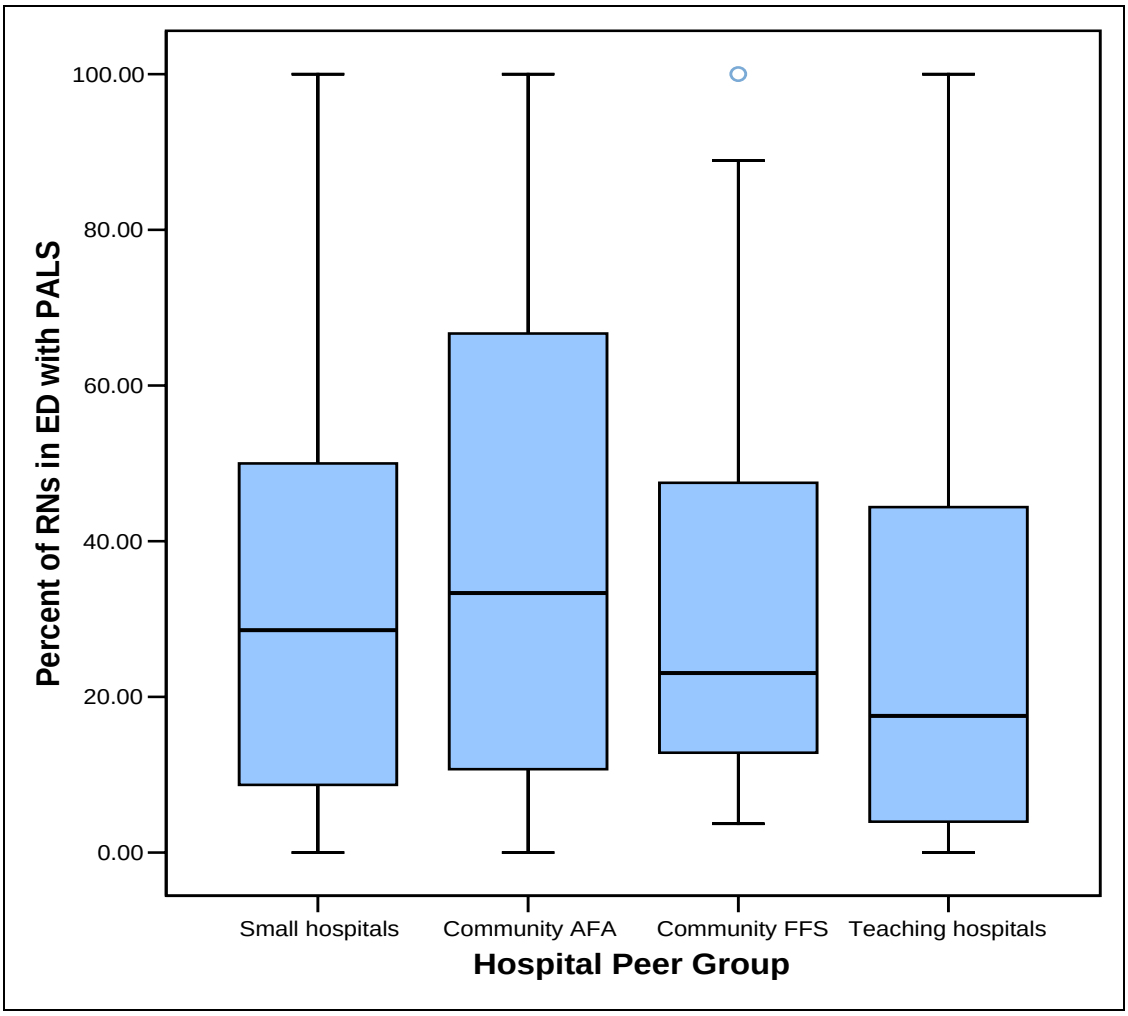
The median percentage of RNs with ACLS training decreased as the size of the ED increased. The median small hospital reported that 100% of its RNs had ACLS. This percentage dropped to 95% for the community AFA, 80% for the community FFS, and 25% for the teaching hospital peer groups. All HPGs reported hospitals with extreme values for this indicator.

Graph 12: PERCENTAGE OF RNS WITH THE EMERGENCY NURSING PAEDIATRIC COURSE (ENPC) BY HPG



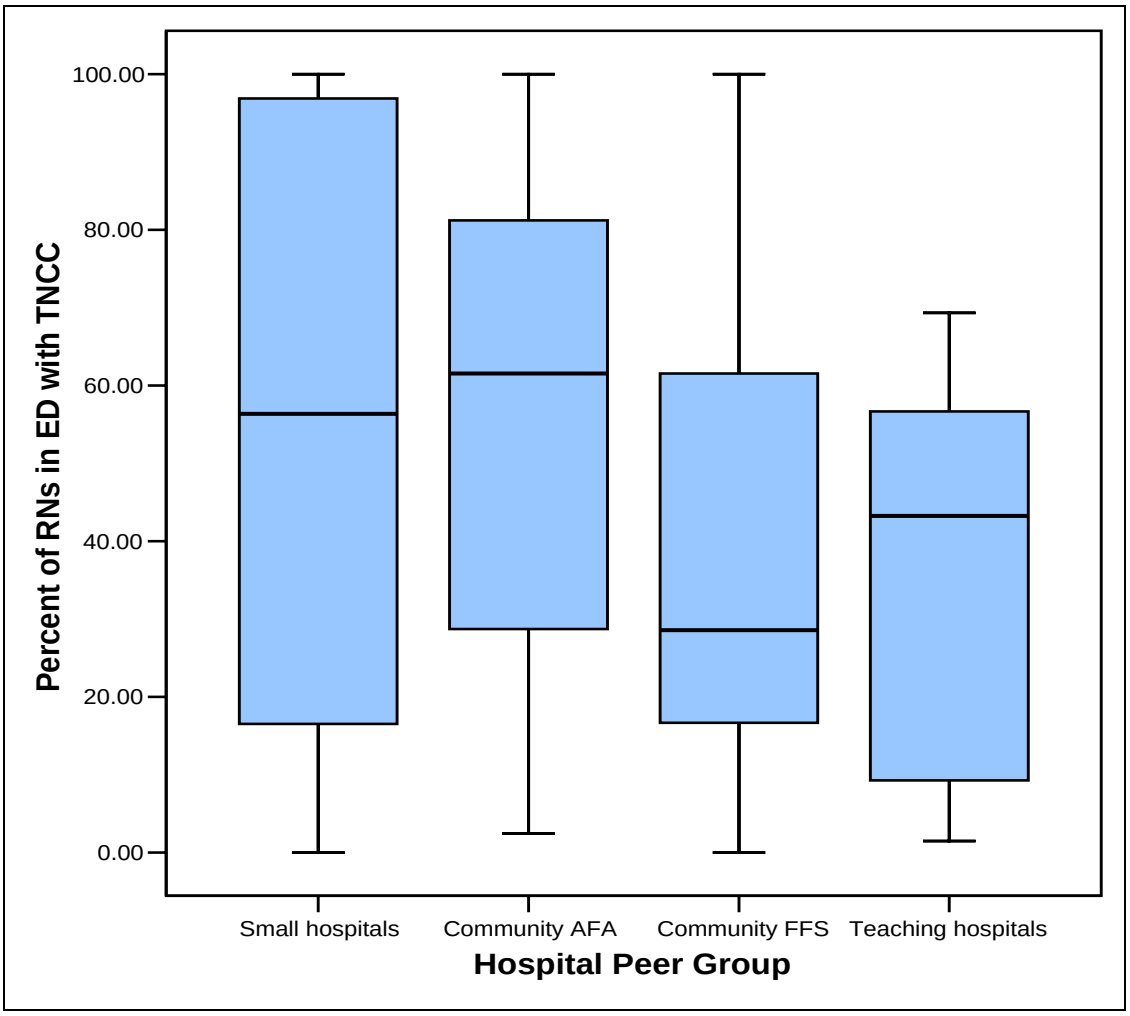
The median percentage of RNs with ENPC increased as the size of the ED increased. The median small hospital reported 0% of RNs with ENPC training, while the median community AFA, community FFS, and teaching hospital reported 3%, 9%, and 21%, respectively. Five small hospitals reported very high percentages, as compared with most of this group, and these ranged from a low of approximately 8% to a high of 120%. The other three peer groups reported one or two hospitals with large values, with the highest being 100% for a teaching hospital.

Graph 13: PERCENTAGE OF RNS IN EMERGENCY DEPARTMENTS WITH PAEDIATRIC ADVANCED LIFE SUPPORT (PALS) BY HPG



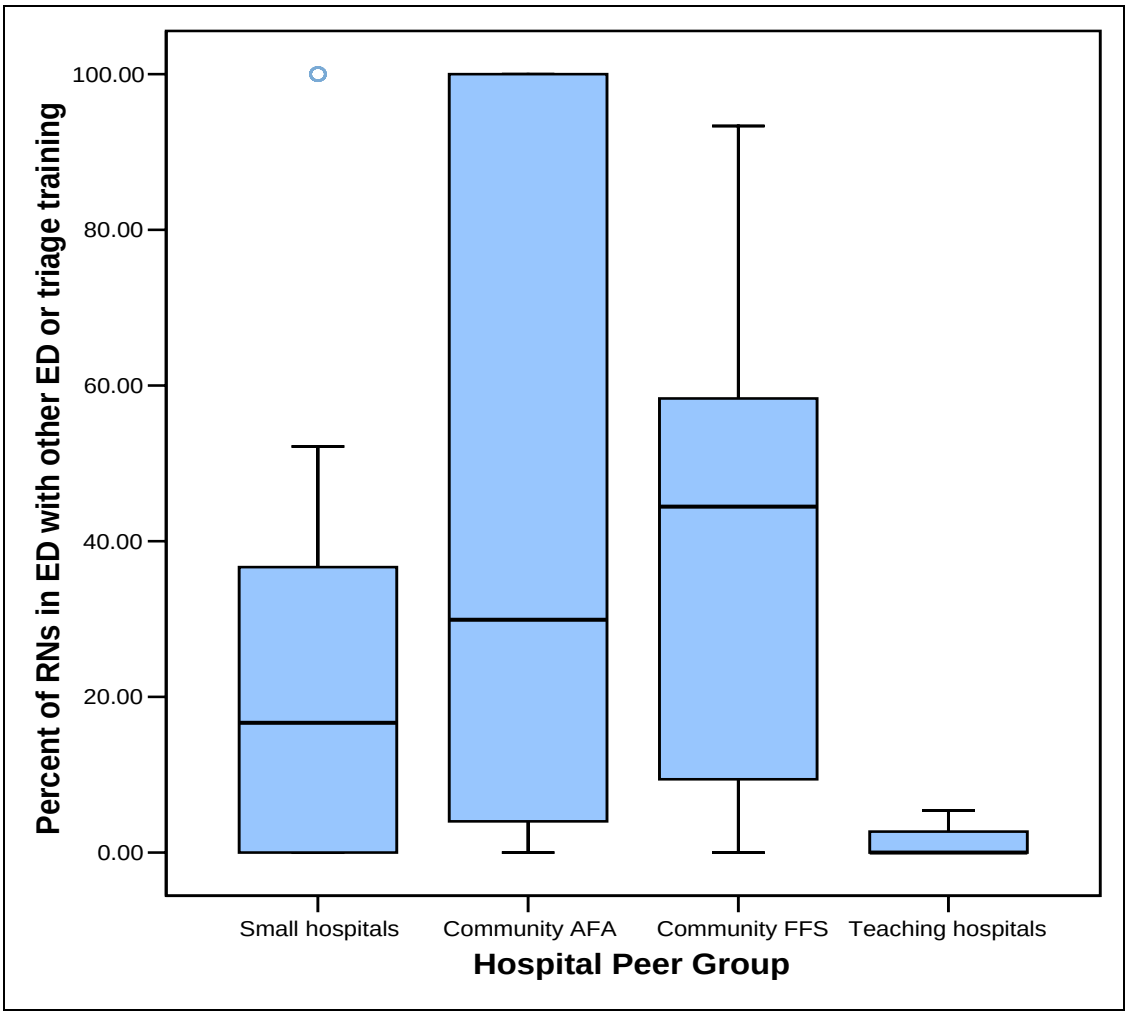
The teaching hospital peer group had the lowest median percentage of RNs trained in PALS at 18%, followed by the community FFS at 23%, the small hospital at 31%, and the community AFA at 33%. All peer groups had at least one hospital that reported having 100% of RNs with PALS, and every peer group except community FFS had at least one hospital with 0% of RNs trained in PALS.

Graph 14: PERCENTAGE OF RNS IN EMERGENCY DEPARTMENTS WITH THE TRAUMA NURSING CORE COURSE (TNCC) BY HPG



The median percentage of RNs with TNCC training was not related to the size of the ED. The highest median of 61% was for the community AFA peer group, followed by 57% for the median small hospital, 43% for the median teaching hospital, and 29% for the median community FFS hospital. At least one small hospital and both community hospital peer groups had 100% of RNs with TNCC. All the peer groups had at least one hospital with between 0% and 2% of RNs with TNCC. Three hospitals with extreme values were removed from the small hospital peer group.

Graph 15: PERCENTAGE OF RNS IN EMERGENCY DEPARTMENTS WITH OTHER ED/TRIAGE TRAINING BY HPG



Sixty-four hospital EDs reported valid data for this indicator. Data was missing for 18 small, 10 community FFS, 24 community AFA, and 13 teaching hospitals. Fifty percent of small hospitals had between 0% and 17% of RNs with extra ED or triage training, and another 25% had up to 40% with such training. Approximately half of community AFA hospitals reported having between 0% and 33% of nurses with other training, and the other half, between 33% and 100% of other training. Community FFS hospitals reported between 0% and approximately 95% of RNs with other training, with the median hospital reporting 45% of RNs with other training. The boxplot for teaching hospitals is based on three hospitals – too small a number to be reliable.

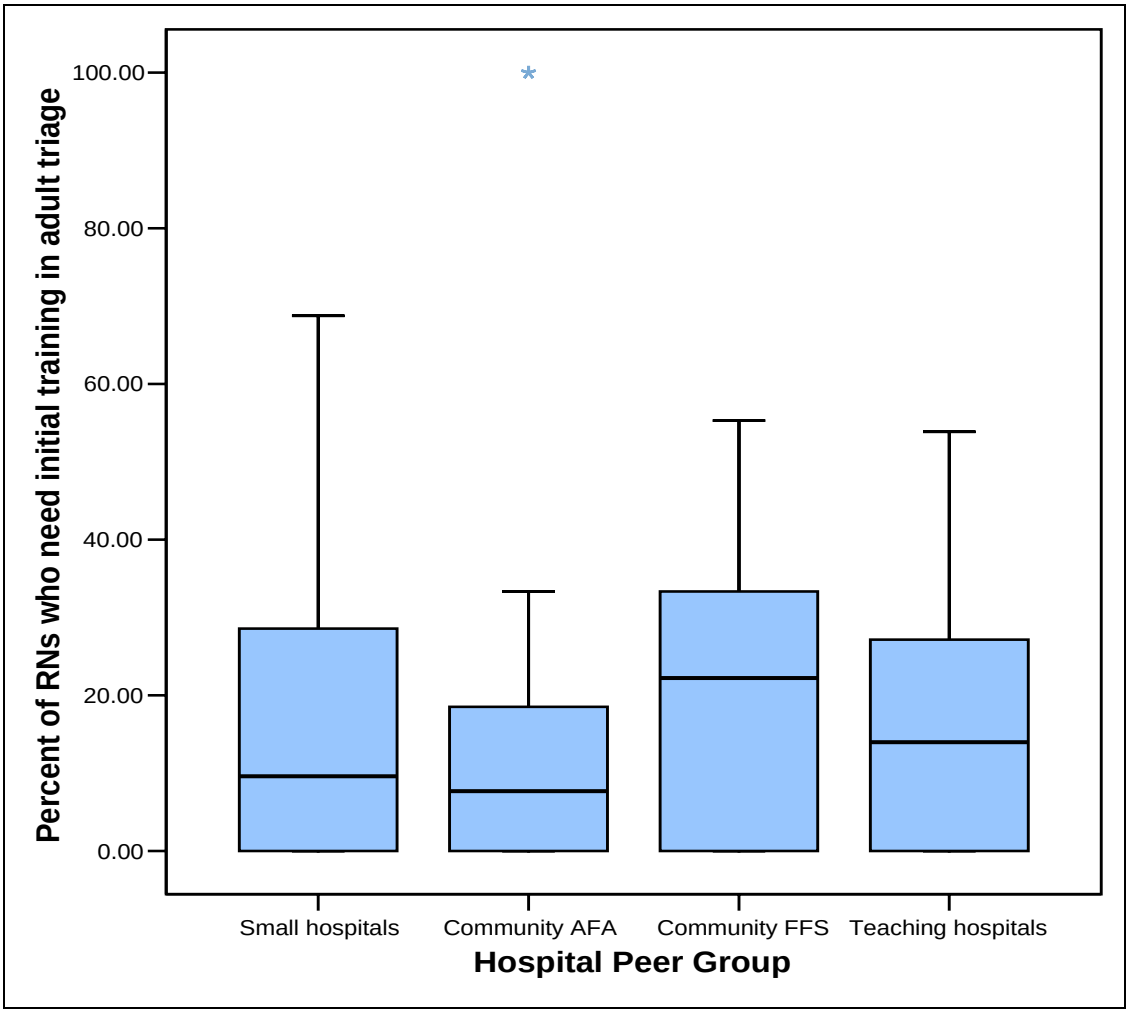
6.5 OTHER TRAINING FOR ED OR TRIAGE

ED administrators often mentioned that triage nurses were given on-the-job training to learn how to triage. This training was given a variety of names such as

in-house training, orientation, preceptorships, mentoring, or "buddied shifts." On-the-job training ranged from a "four-hour shift with a preceptor at triage" through to a 42-hour training period. One mentorship program included "skills check-off lists," and in another, chart audits were completed "on the first few shifts." One respondent described the training process as follows: "each nurse progresses by schedule from lower activity points to observation to trauma to triage, with education provided at each level." Other forms of evaluation were mentioned, including quizzes and completion of self-directed education handouts.

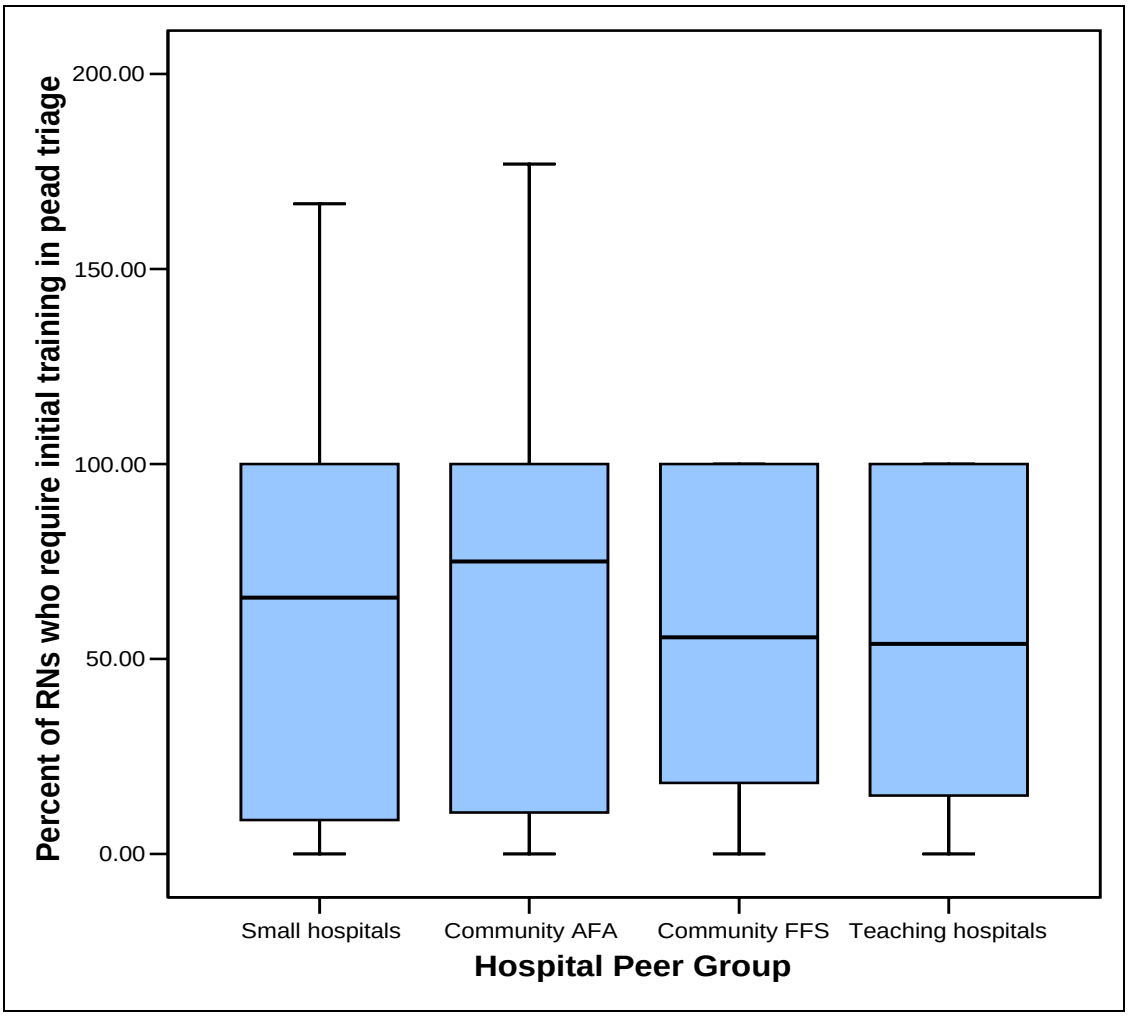
As suggested by administrators' comments, many RNs possessed "other ED or triage training" although the likelihood of this training varied by peer group. RNs in teaching hospitals were least likely to have other training, with a median of 0% and a maximum of 5% of these RNs. Small hospitals had the next lowest median. However, median community hospitals were most likely to have larger percentages of RNs with other ED or triage training.

Graph 16: PERCENTAGE OF RNS WHO NEED INITIAL TRAINING IN ADULT TRIAGE BY HPG



The median percentages of RNs who required initial training in adult CTAS were not related to the ED's size. They ranged from a low of approximately 8% for community AFA hospital ED sites to a high of 22% for community FFS hospital ED sites. All four peer groups had 25% of hospitals with 0% of RNs requiring initial CTAS training. The small hospital peer group showed the greatest differences in CTAS training needs between hospitals.

Graph 17: PERCENTAGE OF RNS WORKING IN AN ED REQUIRING INITIAL TRAINING IN TRIAGE FOR CHILDREN (P-CTAS)



All peer groups had at least one hospital where none of the RNs required initial training in P-CTAS. Figures for median hospitals indicated that between 53% and 75% of RNs needed this training. Twenty-five percent of hospitals in each peer group had 100% or more RNs who required initial training in P-CTAS.

6.6 EDs' MINIMUM TRAINING REQUIREMENTS

The position statements of the National Emergency Nurses Affiliation (NENA) specify that triage nurses must have certifications in advanced cardiac life support (ACLS), the trauma nursing core course (TNCC), the emergency nursing paediatric course (ENPC), and the Emergency Nursing Certification. ED administrators were asked to describe their EDs' minimum requirements for a nurse to work in triage. ED administrators were also asked to report the number of RNs with specific training and the number of RNs who required initial training in adult and paediatric CTAS.

Training requirements mentioned by ED administrators were divided into three groups in order of importance:

- First, at a minimum, a triage nurse should be an RN – either with a diploma or a baccalaureate degree in nursing.
- Second, various certifications were considered important.
- Finally, requirements related to local care needs were emphasized.

Administrators mentioned a variety of certifications such as the following:

- Advanced cardiac life support (ACLS)
- Trauma nursing core course (TNCC)
- Paediatric advanced life support (PALS)
- Emergency nursing paediatric course (ENPC)
- Emergency Nursing Certification

Many ED administrators followed NENA's requirements, indicating that ACLS, TNCC, and ENPC were required. PALS was listed twice, without reference to ENPC. The Emergency Nursing Certification was seldom mentioned as being necessary.

ACLS was quite common in the small and community peer groups, and somewhat less common in teaching hospitals. There was larger variation in the percentages of nurses that reported having TNCC, where the median hospitals ranged from 28% for community FFS hospitals to 61% for community AFA hospitals. At least one hospital for all peer groups, except teaching hospitals, reported a hospital where 100% of nurses had TNCC. When the boxplots of the paediatric certifications are compared (ENPC and PALS), hospitals were more likely to report larger percentages of RNs with PALS than with ENPC, although administrators were more likely to mention ENPC. The likelihood of having larger percentages of RNs with ENPC increased as the size of the ED increased. More RNs had the Emergency Nursing Certification than was suggested by ED

administrators' comments, although the median percentages were low (8% to 14%). Higher percentages of RNs with the Emergency Nursing Certification were more likely to be found in the small hospital peer group.

The third group of requirements mentioned by ED administrators ranged from specific caregiving skills to a nurse's availability for night shift. Caregiving skills cited were many and included CPR, IV starts and therapy, coronary care, critical care, oncology certification, fluid warmer, extremity x-ray workshop, blood glucose monitoring certification, and EKG interpretation. Some of these were required to meet the mission of hospitals serving specific patient populations, while others had a more general focus. Other skills mentioned were infection control, and education in screening for SARS, FRI, and domestic violence.

6.7 EDs' TRIAGE TRAINING NEEDS

Most ED administrators required a course in triage, specifically CTAS and/or paediatric CTAS. The training might be given in-house or taken as a workshop, as a self-learning package, or through a local college. Some hospitals indicated their expectation was that triage nurses be re-certified annually or biennially.

Percentages of RNs with adult triage training were high. Small and community AFA hospitals reported medians of 93% and 100% respectively, while community FFS and teaching hospitals were in the low 60% range. The lowest non-outlier hospitals had approximately 30% of RNs with CTAS training. Medians for P-CTAS were much lower. The small hospital median was 12%, and the medians for other peer groups ranged from 40% to 48%.

Table 26: COUNTS AND PERCENTAGES OF RNS NEEDING INITIAL TRAINING IN TRIAGE

Percentages of RNs in ED Needing Initial Training in Triage	Small Hospitals	Community AFA	Community FFS	Teaching Hospitals	All Hospitals
Adult triage					
No.	119	221	271	134	745
Median %	13%	8%	22%	14%	
Paediatric triage					
No.	253	751	742	383	2129
Median %	73%	75%	55%	53%	

ED administrators were asked how many RNs in their ED required initial training in adult and paediatric triage. Based on reported figures, 745 RNs required initial training in adult CTAS, and 2,129 RNs required initial training in paediatric CTAS.

These estimates may have understated the number of RNs who needed training, particularly for small and community AFA hospitals. This underestimate may have occurred because of the difference between the number of RNs who worked

exclusively in the ED and the number of RNs who rotated through the ED, as well as the fact that some respondents answered the question by saying "all" their nurses required initial training. As a result, it was not possible to determine whether "all" referred to RNs who worked exclusively in the ED, or RNs who rotated in and out and who were required to have triage training.

6.8 LEVEL OF FINANCIAL SUPPORT FOR TRIAGE TRAINING AND METHODS OF TRAINING

Use of the CTAS is mandatory for Ontario emergency departments. To what degree do hospitals support the use of CTAS by offering RNs financial support during the training period? How are nurses trained in CTAS, and what are the preferred methods of training? Four indicators were used to answer these questions.

The following two indicators were used to determine whether RNs were offered financial support for training:

- Staff time spent on CTAS training was paid by the hospital.
- CTAS course tuition and training material expenses were covered by the hospital.

Finally, ED administrators were asked to indicate current and preferred methods for training RNs in their hospitals. Choices included: classroom instruction, teleconference, videoconference, self-directed training, online/Web-based/CD training, and other methods.

Table 27: RNs' PAID-FOR TIME SPENT ON CTAS TRAINING

Training Expenses	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
RNs' paid-for time spent on CTAS training	80.6	89.8	91.7	93.8	88.0
Tuition and materials covered by hospital	100.0	100.0	100.0	100.0	100.0

Eighty-eight percent of hospitals paid RNs for the time spent in triage training. The likelihood of this increased as the size of the ED increased, from 80% of small hospitals offering payment to 93% of teaching hospitals.

As mentioned earlier, the use of the CTAS is mandatory. Hospitals that offer financial support to RNs to obtain training are investing in their human resources and in a higher quality of care. Overall, a very high percentage of hospitals

appeared to offer financial support for the time RNs spent receiving training, and for tuition and materials.

Comments from respondents indicated that the situation was more complicated than the numbers suggested. For instance, some respondents indicated their hospital did not pay nurses for their time during training but did offer payment for tuition and materials, for tuition only, or for materials only. One respondent said the hospital offered assistance for costs associated with training, rather than fully covering the costs. A few mentioned that their hospitals only covered costs for the in-house triage-training course. One respondent noted there was a "paid four-hour on-site course, and RNAO covers the online course."

All responding hospitals covered CTAS course tuition and materials.

Table 28: METHOD OF TRAINING RNS FOR TRIAGE

Current Practice for Training RNs for Triage	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Classroom instruction	62.2	88.5	87.5	81.3	79.8
Teleconference	2.7*	1.9*	4.2*	0	2.3*
Videoconference	2.7*	1.9*	4.2*	0	2.3*
Self-directed training	40.5	40.4	41.7	43.8	41.1
Online/web-based/CD	27.0	30.8	16.7	6.3	24.0
Other	32.4	40.4	50.0	37.5	39.5

**Percentages based on cell sizes of less than five*

Overall, the most popular methods of triage training were classroom instruction (80%), self-directed training (41%), and online/Web-based/CD training. Small hospitals were least likely to use classroom instruction (62%). Community and small hospitals were most likely to use online/Web-based/CD methods. Although 40% of hospitals reported using other methods to train RNs in triage, most respondents did not indicate whether other methods were used at the time or were preferred.

Table 29: PREFERRED METHODS FOR TRAINING RNS FOR TRIAGE

Preferred Method for Training RNs for Triage	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Classroom	56.8	53.8	33.3	25.0*	47.3
Teleconference	2.7*	3.8*	8.3*	6.3*	4.7
Videoconference	27.0	13.5	8.3*	12.5*	16.3

Preferred Method for Training RNs for Triage	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Self-directed	24.3	21.2	16.7	18.8*	20.9
Online/Web-based/CD	27.0	23.1	20.8*	25.0*	24.0
Other	0	11.5	4.2*	6.3*	6.2

**Percentages based on cell sizes of less than five*

All hospitals reported valid data for this indicator. Overall, classroom training was most likely to be chosen as a preferred training method (47%), followed by online/Web-based/CD methods (24%), self-directed training (21%), and videoconferencing (16%).

Classroom instruction was the most commonly used and most preferred method for training RNs in triage. Although small hospitals were least likely to use classroom instruction, they were most likely to prefer it. Approximately 40% of all hospital peer groups used self-directed training, yet only 20% of hospitals overall indicated they preferred that method. A few respondents commented that it was difficult to gauge how well RNs using the self-directed package absorbed the material. Although fewer than five respondents said they used videoconferencing as a triage-training method, 16% of respondents indicated they would prefer this method.

CHAPTER 7: HUMAN RESOURCES—EMERGENCY PHYSICIANS

7.1 INTRODUCTION

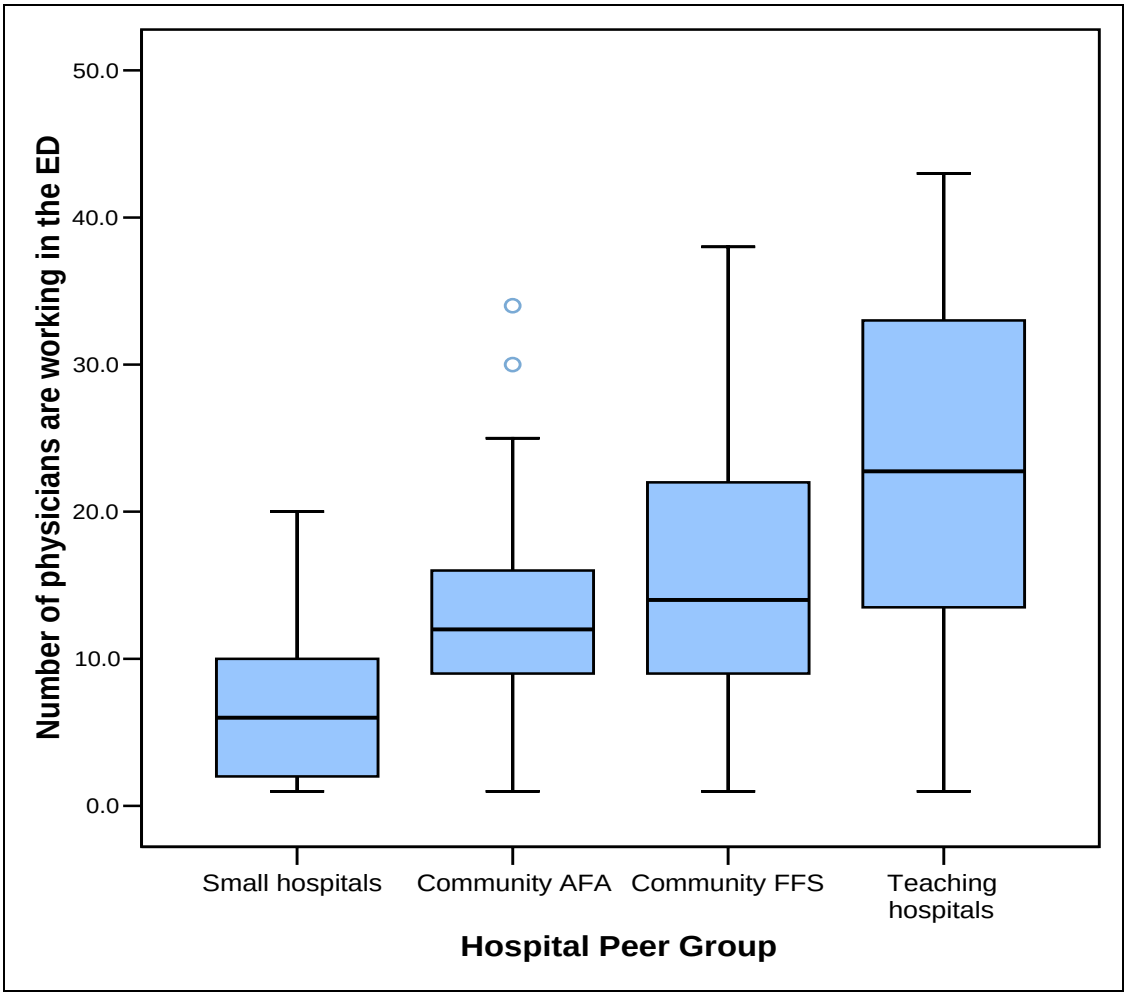
Triaged patients require treatment by a clinician, and the CTAS-recommended times to assessment can vary from immediate to two hours. Severely ill patients who require immediate care may arrive at an ED at any time of the day or night; however, EDs may or may not have physicians on-site 24 hours a day, seven days a week. The number of physicians working in the ED also affects how well CTAS time-to-care requirements can be met. The ability to meet care needs of patients is enhanced when physicians understand the triage system and trust decisions made by the triage nurse.

7.2 NUMBER OF EMERGENCY PHYSICIANS

A hospital must have a sufficient number of physicians available to treat its volume of ED patients in order to deliver good quality care. Four indicators were used to measure the level of ED physician staffing across hospital peer groups, as follows:

- Number of physicians working in the ED
- Average weekday, physicians on-site, 24 hours a day
- Average weekend day, physicians on-site, 24 hours a day
- For EDs operating less than 24 hours, the average number of hours with an on-site physician for an average weekday and an average weekend

Graph 18: NUMBER OF PHYSICIANS WORKING IN EMERGENCY DEPARTMENT



The number of physicians working in an ED increased as the size of the ED increased. The median small hospital had six physicians working in the ED, the median community AFA hospital had 12 physicians, the median community FFS hospital had 14, and the median teaching hospital had 23 physicians. The maximum number of physicians reported was 43 physicians working in a teaching hospital. All HPGs had at least one hospital report that only one physician worked in the ED.

Table 30: PHYSICIANS ON-SITE 24 HOURS A DAY ON AN AVERAGE WEEKDAY AND WEEKEND

EDs with On-Site Physician Coverage 24 Hours a Day	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Average weekday	54.1	82.7	95.7	93.3	78.0
Average weekend day	54.1	82.7	95.7	100	78.7

Overall, 78% of responding EDs had physicians on-site for 24 hours on an average weekday. Small hospitals were least likely to have a physician on-site (54%), followed by community AFA hospitals (83%), teaching hospitals (93%), and community FFS hospitals (96%).

The only change in these figures for an average weekend day was for the teaching hospital peer group. On average weekends, 100% of teaching hospitals reported they had physicians on-site for 24 hours.

Table 31: ON-SITE PHYSICIAN COVERAGE IN ED ON AVERAGE WEEKDAY OR WEEKEND DAY

If Less Than 24-Hour Physician Coverage, Average Hours of On-Site Coverage	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Average weekday day	9.1	12.7	18*	0	10.8
Average weekend day	8.3	11.1	18*	0	9.8

**Percentages based on cell sizes of less than five*

On an average weekday, twenty-four hospitals without 24-hour physician on-site coverage had a physician on site for an average of 10.8 hours, or slightly less than half a day. Small hospitals reported a physician on site for 9.1 mean hours, and community AFA hospitals, 12.7 mean hours. One out of a possible two community FFS hospitals responded to this question. This hospital had physicians on site for 18 hours on an average weekday.

Overall, and for each peer group, the mean number of hours for physician on-site coverage dropped by approximately one hour on weekends. The exception was the lone community FFS hospital, which continued to report having a physician on site for 18 hours. Twenty-one hospitals without 24-hour physician coverage responded to the question about coverage on average weekend days.

The availability of physicians to care for severely ill patients at any time of the day or night is a descriptor of the depth of the ED physician workforce. Approximately four-fifths, or 80%, of Ontario's EDs had one or more physicians on site 24 hours a day, seven days a week. Overall, the likelihood that a hospital had 24-hour physician coverage increased as the size of the ED increased. Most EDs without 24-hour physician coverage were in the small and community AFA peer groups. Physicians were on site in these EDs an average of 9 to 12 hours a day on weekdays, and 8 to 11 hours on weekends. Only one reporting community FFS hospital did not have 24-hour physician coverage, and none of the reporting teaching hospitals lacked a physician on site 24 hours a day.

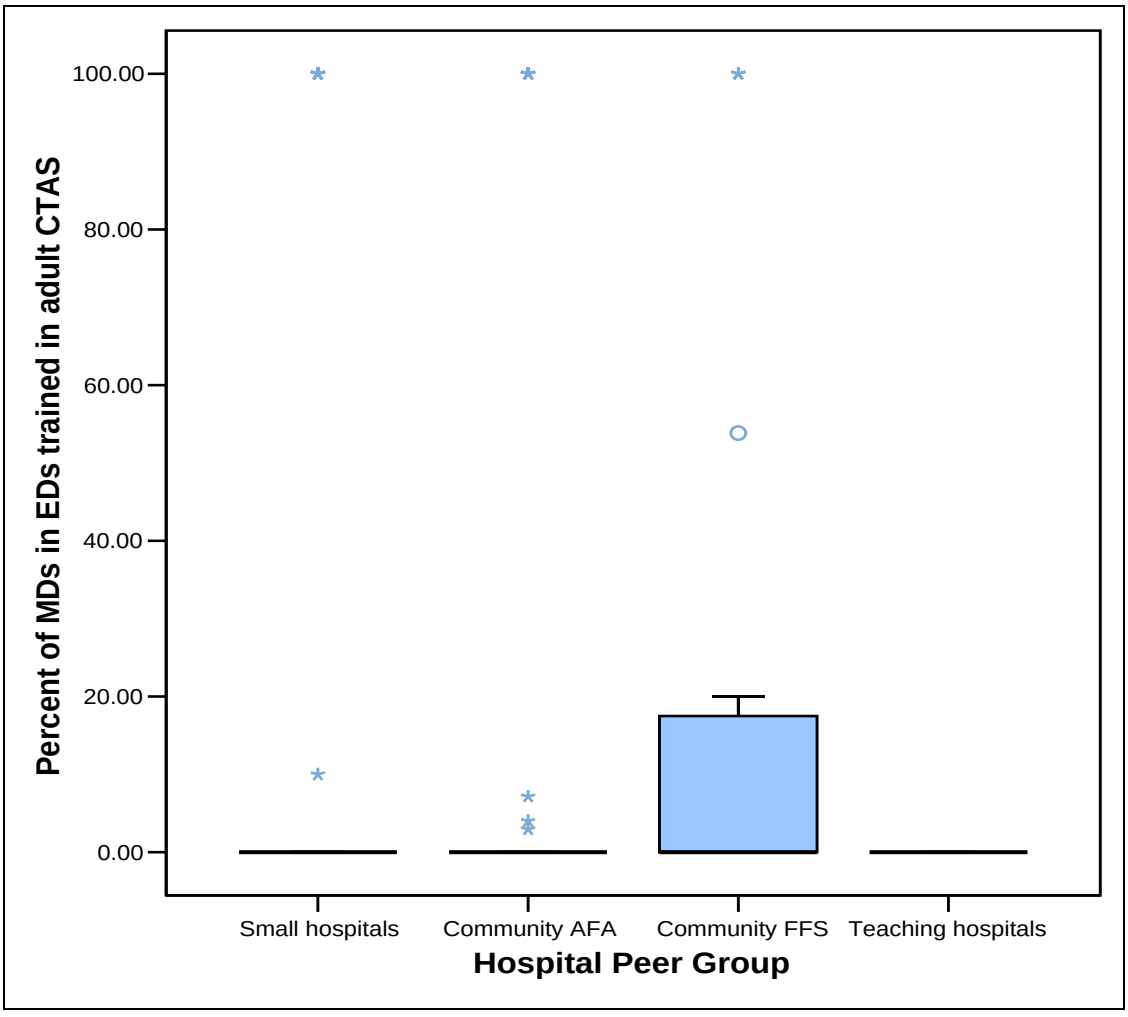
7.3 PHYSICIAN TRAINING IN CTAS

Delivery of care is enhanced when staff members work together as a team. Teamwork requires that members understand their specialized roles and the roles of other members. Knowledge of the CTAS allows physicians to understand the triage system and the decisions made by the triage nurse.

Two indicators were used to measure ED physician knowledge of the CTAS:

- Percentage of physicians with training in adult CTAS
- Percentage of physicians with training in paediatric CTAS

Graph 19: PERCENTAGE OF PHYSICIANS WITH TRAINING IN ADULT CTAS

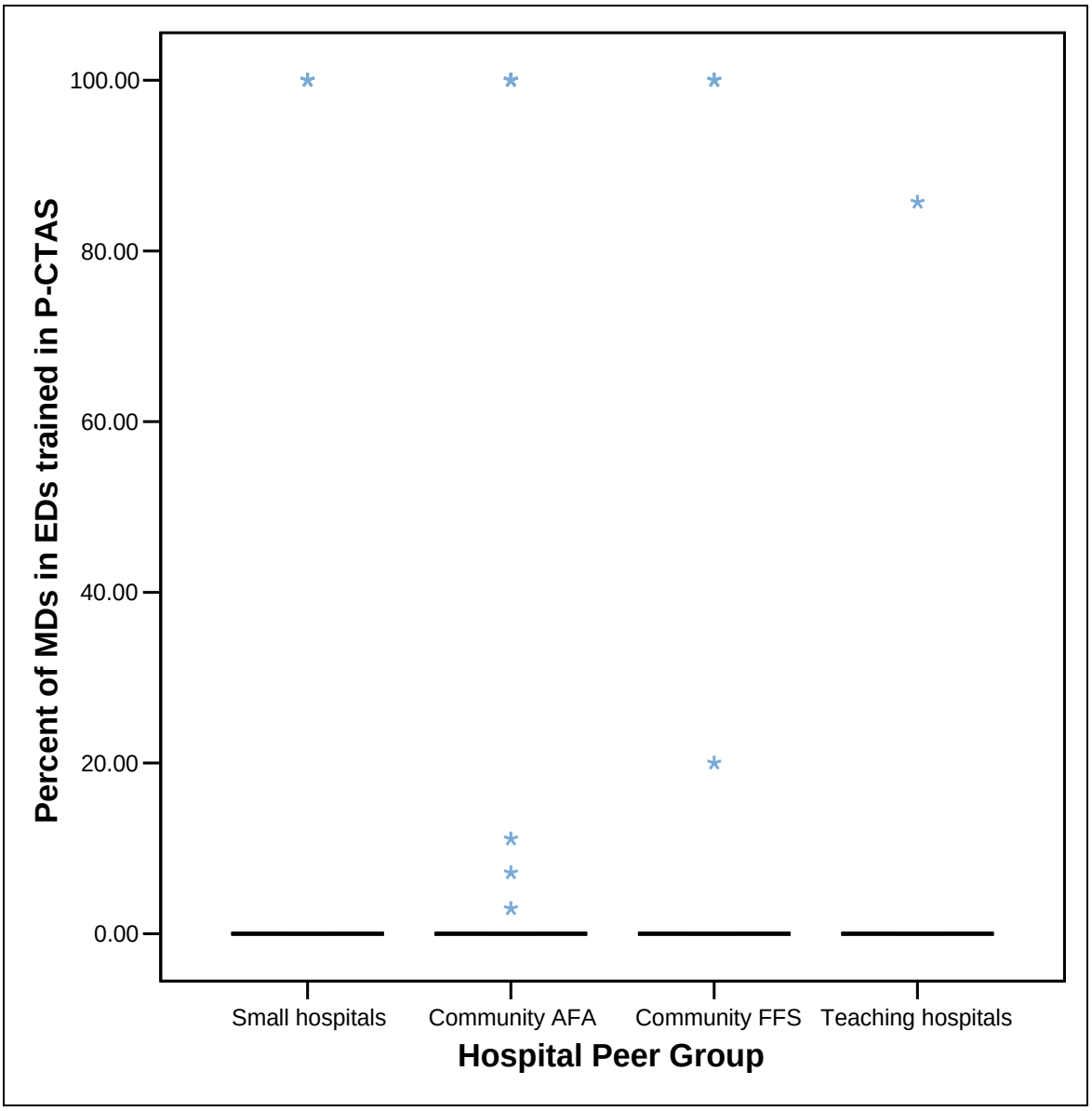


**Total no. of hospitals = 89*

The median hospital for each peer group reported no physicians (or zero) were trained in adult CTAS. The community FFS hospital at the 75th percentile

reported that approximately 19% of physicians had this training. For all peer groups except teaching hospitals, there were hospitals with high or very high levels of physicians trained in triage. One hospital from each of the small, community AFA, and community FFS hospital peer groups had 100% of physicians trained in adult triage.

Graph 20: PERCENTAGE OF PHYSICIANS WITH TRAINING IN PAEDIATRIC CTAS



**Total no. of hospitals = 89*

Most physicians had no training in paediatric CTAS. However, all peer groups had at least one hospital with very high percentages of physicians trained in P-CTAS.

Physicians were not generally trained in triage, although there were exceptional hospitals in each peer group. A number of respondents noted, "all physicians have received literature pertaining to adult and paediatric CTAS and are self-directed in training." In other sections of the survey, a few respondents noted that physicians in their EDs did not trust the triage scores or did not use them. In contrast, some respondents noted that in-house triage education for physicians and RNs had overcome mistrust.

CHAPTER 8: DATA RECORDING AND FLOW

8.1 INTRODUCTION

Medical records have a variety of uses. Containing medical histories, a record of signs and symptoms, diagnoses and treatment plans, these are valuable sources of information that allow clinicians to make informed decisions about patients' medical needs. Medical record databases contain summarized data abstracted from the medical records. To administrators, these databases offer information about volume and type of services provided and can be used for remuneration purposes. To planners, summary information can be joined with demographic and other types of information for future planning. ED data is a source for medical, legal, social and fiduciary accountability.

Documenting triage activities provides accountability about choices made by triage staff. A triage record that is separate from the emergency patient record allows more information to be collected, but duplicate entries might add to the administrative burden. In addition, if unnecessary information is collected, it will slow triage and treatment. Furthermore, if the CTAS score is not recorded on the emergency patient record, the attending clinician will lack information about the patient's assessed acuity.

Keeping track of records that do not have triage scores is an indicator of quality that can be used in continuous improvement processes. A new trend is to locate data coders within the department. These coders ask the experts around them for information, as well as following up with staff members who have not completed records. Since triage is based on clinical judgement, and it is difficult to recall details after longer periods of time, the faster incomplete records are dealt with, the easier it is to complete them.

The following six indicators were used to measure how Ontario EDs document triage activities:

- The triage record was different from the ED record.
- The triage score was recorded on the ED record.
- A hospital's medical records department kept track of the percentage of records that were received without a CTAS score in an average week.
- There was an established process to rectify missing triage codes and descriptions of the process.

- The health records coder was located within the ED.
- The health record coder completed records within one week of the patient visit.

8.2 TRIAGE DOCUMENTATION PRACTICES

Table 32: DATA RECORDING AND FLOW

Data Recording and Flow in ED	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Triage record is different from ED record.	13.5	53.8	70.8	75.0	48.1
Triage score is recorded on ED record.	94.6	92.3	95.8	87.5	93.0
Medical records track percentage of records not having CTAS score.	47.2	56.9	60.9	43.8	53.2
ED has process for following up on missing CTAS scores.	62.9	84.6	72.7	53.8	73.0
Health records recorder is located in ED.	0	7.7*	4.2*	20.0*	6.3
Health records recorder completes all records within one week of ED visit.	54.3	33.3	47.8	33.3*	42.1

**Percentages based on cell sizes of less than five*

- *Triage record different from ED record* – Overall, just under half of ED sites reported that the triage record was different from the ED record. The likelihood increased as the size of the ED increased. Only about 14% of small hospitals had different records for triage and ED treatment, while 75% of teaching hospitals reported this difference.

- *Triage score recorded on ED record* – Over 90% of hospital EDs recorded the triage score on the ED record. Community FFS and small hospitals reported the highest percentages, with approximately 95% of these hospitals recording CTAS scores on the ED record. Teaching hospitals had the lowest percentages among HPGs; nevertheless, approximately 88% of teaching hospitals did record triage scores on ED records.

- *Percentage of records without a CTAS score tracked by medical records department* – Approximately 53% of EDs reported that the medical records department tracked the percentage of records that did not have a CTAS score. Community hospitals were most likely to report that medical records departments did this, with 61% in the community FFS peer group and 57% in the community AFA peer group. The teaching hospitals peer group was the least likely to track missing triage scores, with 44% of this peer group reporting that their medical records department followed this procedure.

- *Established process in ED for handling missing CTAS scores* – Approximately three-quarters of ED sites had an established process for handling missing CTAS scores. Approximately 85% of the community AFA EDs had a process, followed by 73% of community FFS EDs, 63% of small hospital EDs, and 54% of teaching hospitals.

- *Health records coder located in ED* – Only 6% of responding hospital EDs located the health records coder in the ED.

- *ED records completed within one week of patient visits* – Approximately 42% of hospital EDs reported the health recorder completed all records within one week of a patient's ED visit. In fact, 54% of small hospitals, 47% of community FFS hospitals, and approximately 33% of teaching and community AFA hospitals reported that records were completed within a week.

CHAPTER 9: QUALITY ASSURANCE AND BEST PRACTICES

9.1 INTRODUCTION

Quality improvement is a cyclical process of setting goals for improvement, finding ways to measure improvements related to those goals, evaluating performance, and providing feedback to enhance performance. To be effective, quality improvement is practised over time, either continuously, or at regular intervals.

Best practices arise out of the quality improvement process, as individuals or groups recognize what works best in real work experiences. Following the wisdom of the adage "Two heads are better than one", sharing best practices allows peers to learn from one another. When done cooperatively, it allows them to build on each other's experiences and ideas.

In a series of open-ended questions in the last section of the questionnaire, the managers of EDs were asked to describe major problems their ED had experienced in a number of areas that may have affected triage. They were also asked to describe the solutions and best practices employed to address the problems. The free-text responses were parsed, coded into themes, and grouped.

9.2 QUALITY ASSURANCE

Triage involves complex decision-making and is often practised in emotional, and sometimes confrontational, settings. The following quality indicators were used:

- Quality assurance mechanism developed by the hospital for the CTAS
- Percentage of ED triage charts reviewed for quality assurance purposes
- Plans to develop a quality assurance mechanism
- Person designated to monitor triage quality assurance

ED administrators were also asked to describe who was responsible for conducting quality assurance for CTAS, and the title or position of the person who monitored triage quality assurance.

Table 33: QUALITY ASSURANCE MECHANISM FOR CTAS IN HOSPITAL

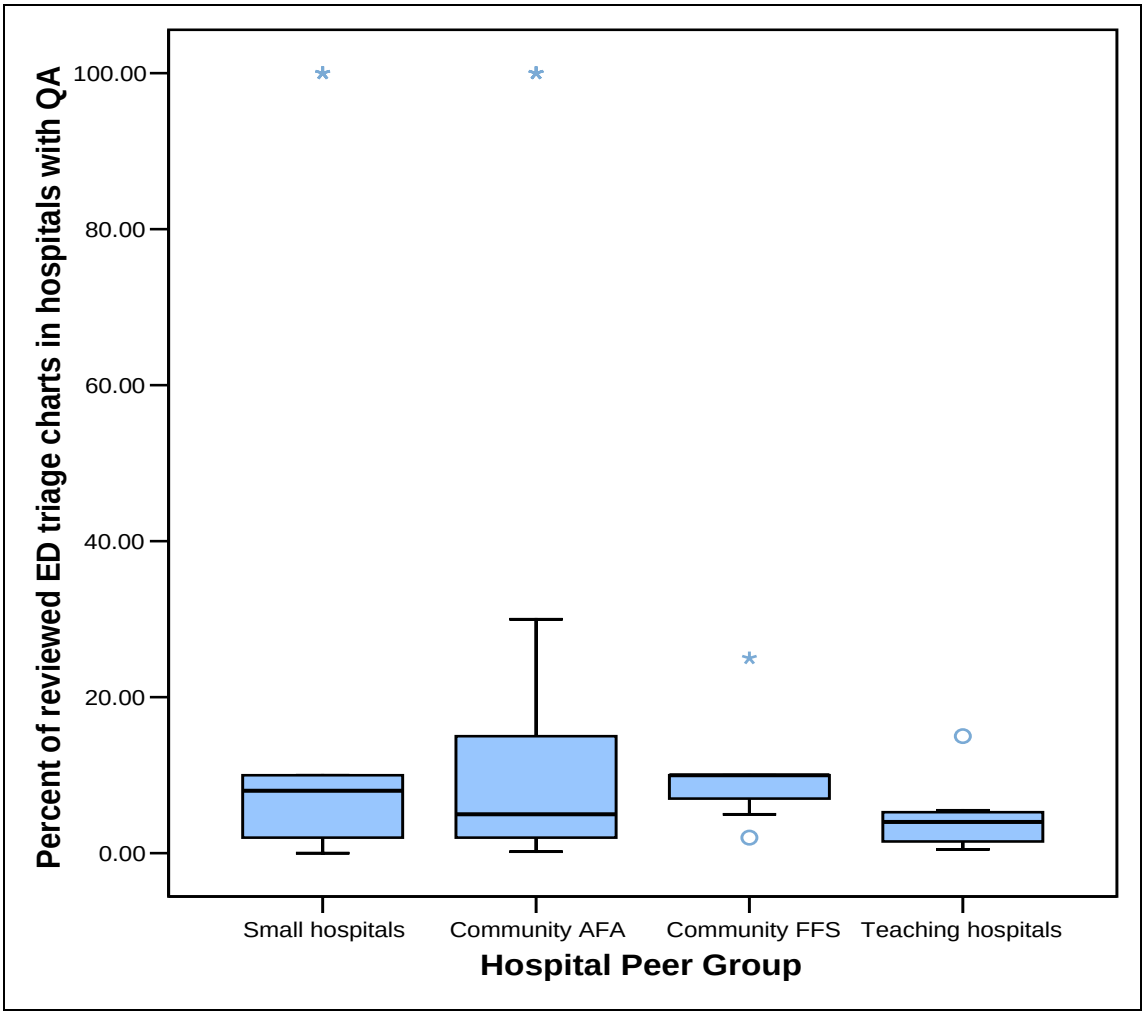
Quality Assurance	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Mechanism for CTAS	54.1	55.8	62.5	81.3	59.7
Plan to develop a CTAS QA mechanism	64.3	47.4	66.7	50.0*	56.8

**Percentage based on cell size less than five*

- *Quality assurance mechanism for the CTAS* – Sixty percent of hospital EDs had a quality assurance mechanism for CTAS. The likelihood of having a QA mechanism increased as the size of ED increased. Slightly over half of small and community AFA hospitals had a QA mechanism, while 63% of community FFS hospitals and 82% of teaching hospitals had one.

- *Plan to develop a quality assurance mechanism for the CTAS* – This measure was limited to hospitals that did not have a quality assurance mechanism. Forty-four out of a possible 52 hospital EDs reported valid data for this measure. Overall, slightly over half of hospitals without a QA mechanism had plans to develop one. The size of the ED was not related to the likelihood of planning to develop a QA mechanism. Approximately two-thirds of responding small and community FFS hospitals without a QA mechanism, planned to develop one. This was also true for just under half of community AFA ED sites. The percentage of teaching hospitals with plans was based on fewer than five hospitals, and so, could not be generalized.

Graph 21: PERCENTAGE OF ED TRIAGE CHARTS REVIEWED FOR QUALITY ASSURANCE PURPOSES



Only hospitals that reported having a QA mechanism were asked what percentage of ED charts were reviewed for QA purposes. The median hospitals for the small and community hospitals reviewed 10% of ED triage charts. The median teaching hospital reviewed 4% of ED triage charts.

Table 34: PERSON DESIGNATED TO MONITOR TRIAGE QUALITY ASSURANCE

Monitoring Triage QA	Small Hospitals %	Community AFA %	Community FFS %	Teaching Hospitals %	All Hospitals %
Person designated to monitor triage QA	52.8	59.6	58.3	40.0	55.1

- *Person designated to monitor triage QA* – Just over half of hospitals had a designated person who monitored triage QA. Just fewer than 60% of both community hospital peer groups reported having a designated QA person, while 53% of small hospitals and 40% of teaching hospitals had one.

9.3 TITLE OR POSITION OF PERSON DESIGNATED TO MONITOR TRIAGE QA

ED administrators who indicated that their hospitals had developed a quality assurance mechanism were also asked who was responsible for conducting quality assurance. In addition, all respondents were asked if there was a person designated to monitor triage QA. Responses indicated that those responsible for conducting quality assurance were the same as, or largely overlapped with, those designated to monitor QA. The most common response was to name an individual, team, or internal hospital group.

Individuals who conducted quality assurance for triage included: clinical managers, nurse managers, charge nurses, staff nurses, educators, ED managers, program directors or managers, chiefs and vice chiefs of services or chiefs of emergency services, and patient coordinators. Those mentioned less often included decision support people, workload analysts, project leaders, and clerical managers.

Teams mentioned as conducting quality assurance for triage included quality councils, ambulatory care teams, committees or CQI teams, triage teams, audit committees, and corporate ER committees. Less formally organized teams included groups of ED physicians and nurses, ER staff, nursing team leaders, and emergency services program physicians.

A small number of respondents indicated that they also used external reviewers in their quality assurance activities. External reviewers named by administrators included "another site of our hospital," and "external peers, that is, colleagues in neighbouring hospitals." Two administrators mentioned that their District Health Councils had performed reviews.

Overall, for hospitals that practised triage QA, approximately 9% of ED charts were reviewed. The percentage of reviewed charts decreased as the size of the ED increased. Median hospitals for the small and community peer groups reviewed 10% of charts, and the median teaching hospital reviewed 4%.

When asked about their EDs' QA mechanism, some respondents also discussed the type and number of records reviewed, the types of information reviewed, and the methods used. Medical records and charts were reviewed for triage code, time to triage, physician assessment, reassessment, completion of triage documentation, and disposition. Use of pain scale was also studied.

The time intervals for regular audits ranged from daily, weekly, monthly, quarterly, and bi-yearly, to every two years. Some hospitals did occasional audits or spot checks. Some respondents said they only audited charts with more serious CTAS scores – CTAS 1, 2 and 3 being most often mentioned. Four respondents mentioned they used an electronic tool to perform their audit.

The methods used for auditing included inter-rater reliability, peer audits, and external audits by neighbouring hospitals or District Health Councils. One respondent said his/her ED did "continuous quality monitoring throughout the patient stay." Some respondents stated that quality assurance mechanisms were new or "not yet initiated," or that a full process had not been developed.

A number of respondents also discussed how reviews were used. Audit results might be reviewed at committee meetings, or used for individual discussion with nurses "when a trend to under- or over-triage is identified." Results were sometimes posted, and in one hospital, it was reported that, "if the percentage falls below a certain level, an in-service is held."

In summary, the quality assurance mechanism in an Ontario ED might look like this: on a monthly basis, an ED manager selects 10 charts per triage nurse, checks that the documentation is complete, and validates CTAS levels. If necessary, the manager provides feedback individually on any trends towards over-triaging or under-triaging. A quarterly report of the monthly audits is then presented to the hospital's Quality Council for discussion.

Clearly, the responses indicate that Ontario EDs are making efforts to assess and improve triage process, from documentation and decision-making to timing. The numbers of EDs practising QA is a good start, and there is room for further improvement.

CHAPTER 10: TRIAGE CHALLENGES AND BEST PRACTICES

10.1 INTRODUCTION

ED administrators were asked to describe any problems experienced in triage in the following six areas:

- Staffing and training
- Physical layout
- Crowding
- Attitudes
- Documentation
- Quality assurance

They were also asked to identify any other triage-related problems occurring beyond those named. They were then asked to describe solutions to those problems that had worked well in their ED.

10.2 STAFFING AND TRAINING

Although difficulties with both staffing and training for triage were mentioned, more respondents focused on training. Three themes came to light in these comments:

- Identified training needs
- Barriers and facilitators to training
- ED sites that identified themselves as not experiencing any difficulties

10.2.1. IDENTIFIED TRAINING NEEDS

Education and training for new and existing staff was the most often mentioned need of respondents. The need for training in paediatric CTAS was also commonly mentioned, as well as the need for professional certification training to "train the trainer" and enable some hospitals to run their own training programs. A number of respondents reported a need for refresher courses for "annual skills upgrade" for all staff. Respondents expressed an interest in "on-site training for

staff" or access to "a review program, self study, on-line." It was suggested that triage training be structured the same way as ACLS and TNCC.

Other identified training needs concerned support for triage activities. "Ongoing mentoring" and "physician involvement in CTAS training" were both mentioned. Support would assist with issues such as "re-educating staff on assigning proper triage levels" and the "interpretation of levels of CTAS that vary between staff." One respondent requested posters and resource manuals for paediatric CTAS and several calls for these materials were received as well.

10.2.2. BARRIERS AND FACILITATORS TO TRAINING

The most commonly mentioned barrier to training was "lack of access to formal CTAS training programs," especially for paediatric CTAS. For example, it was stated that the "courses [were] not available very often" so there was "poor access to training for staff and for educators." Respondents also asked, "where has a paeds course been offered in Ontario?" and stated, "adult CTAS training is fine, but [we] lack a regional approach to paediatric CTAS."

Resources and time were commonly mentioned as barriers. Training involves several types of costs: tuition, course materials, staff time, and the costs of "adequate staff to [allow] time off so training can occur." Respondents were concerned about "no funding in the budget for future upgrading and training," and the lack of "funding for enhanced orientation programs for new grads." They reported, "staff not paid for time for training," and "no money to support formal triage training." One respondent said that there was "no budget allocation from the Ministry."

Respondents expressed "frustration due to misinformation and lack of communication of requirements/mandates," and said there was "poor roll out of training material and guidelines from national group."

Suggestions to facilitate training included an "on site staff member certified to train new staff members in both adult and paediatric triage" and access to triage courses. Payment for training and staff time was mentioned, as was incorporating training into orientation hours. It was reported that some hospitals had developed in-house training, to which other hospitals sent staff.

10.2.3. SUCCESSFUL TRAINING

A few respondents reported "we are comfortable with training" and that "training is highly encouraged and financially supported." Some EDs had "large numbers of staff trained, which allows for maximum flexibility," and "triage was shared so that all of the shift was not spent in triage."

10.2.4. STAFFING DIFFICULTIES

"Staff availability" was the most often mentioned staffing difficulty ED administrators faced; however, it took many forms. Sometimes there was "no funding for a dedicated triage nurse," or the ED was "lacking a nurse for paediatric CTAS." In other cases, the difficulty was time-specific, as when there was "insufficient staffing on nights to have a dedicated triage nurse," or when the "triage nurse is sometimes pulled to meet department demands," or there was "not enough staff for triaging."

In some cases, it was reported that "scheduling is difficult due to the number of ED nurses." "Staff turnover and shortages" also made it difficult to triage effectively, as did "maintaining qualified, efficient staff." One respondent wrote, "because of turnover and skill mix issues, we are often put in a position of training-promoting RNs to triage before they have adequate experience." Another said, "staff rotate through the department, therefore some staff don't get much experience using CTAS, but on the whole staff is doing well with CTAS."

Finding staff to substitute for those being trained was also identified as a difficulty. It was reported that some hospitals, "do not have a dedicated clinician to support training" and "replacement staff are difficult to find to free learners." Sometimes, a hospital was "unable to cover nurses for training due to staffing shortages."

Finally, some respondents from small hospitals linked the size of hospital to staff difficulties with triage. One respondent noted that, "CTAS needs to be geared for small rural hospitals," and another said "[we are a] small hospital, therefore [we have] few staff to choose from."

To summarize, staffing difficulties apparently arose from lack of funding for dedicated triage staff, low numbers of trained staff, lack of qualified and experienced staff, difficulties in recruiting and keeping staff, difficulties filling particular shifts with trained staff, and the need for extra staff to substitute for those being trained.

10.2.5. SOLUTIONS AND BEST PRACTICES FOR TRAINING

Two best training practices were mentioned by a large number of respondents:

- Periodic refresher courses
- Train-the-trainer courses

Reinforcing the basics of triage reportedly produced the following result:

> [A] better understanding for those who triage. Patients are more accurately triaged now, according to presentation, not according to staffing, availability of spots in the department or wait times.

It was suggested that refresher training could be supported by "having one staff member that is able to teach triage so that yearly training can be done on-site," through the use of videoconferencing, and by increased nursing staff in other units "to free up ED staff to attend triage workshop."

In-service training for physicians was considered important, as was "support of ER director to address non-compliance issues with ER physicians."

Staffing solutions for triage included keeping up-to-date lists of staff with triage training, and using "blended scheduling and weakened worker positions." One hospital was piloting an entry nurse position, while in another, a respondent stated:

> [We] arranged with the assistance of human resources and occupational health to have nurses within the hospital who are in need of a modified work program to assist triage with his/her duties (i.e. see to patient needs in the waiting rooms, re-evaluate vital signs, answer their inquiries, but not to triage). This is very successful.

One administrator said, "use of medical directives in triage helps with patient flow and satisfaction," while another suggested the "development of a professional practice model for ED nurses that includes triage." Another administrator used the results of workload statistics to acquire extra staff for triage, as stated below:

> The figure indicated that with triage implementation we had insufficient nursing care hours and therefore staffing was increased.

10.3 PHYSICAL LAYOUT

Triage assessment requires a clear view of patients who are arriving and of those who are waiting. A private and confidential space to interview patients is also necessary. When respondents were asked about crowding, physical layout was cited as a contributing factor. When asked what major problems their EDs' physical layout caused, the three mentioned most often were:

- Poor design
- Lack of space
- Lack of privacy

10.3.1. PROBLEMS WITH PHYSICAL LAYOUT

Poorly designed physical layout was cited as creating difficulties with visualization and patient flow, and as causing interruptions. The physical layout might be "very poor to facilitate visualization of patients coming through the door

as well as seeing the waiting room and doing reassessments." Sometimes, there was "insufficient glass versus wall to allow clear sight lines, the walls are too high" or "physically the ED is located in the wrong location for good triage practices, it is at the back of the hospital, with no separate entrance for the ED."

Often the "waiting room is not viewed," and when this was the case, the "patients register before triage unless arriving by ambulance." When triage was performed at the ED entrance, "patients arriving to ER interrupt triage assessment and slow the process." Then again, the ED might have "no room to designate an area for triage," or it may be a "small triage space." It may lack a "sink for hand washing, security, alcohol hand gel" or "an area to perform EKGs."

Difficulties with physical layout also created a lack of privacy. Respondents may have experienced this as a "problem with confidentiality" or interruptions in the triage process as "patients lining up to speak with triage nurse often crowd the patient-nurse." Sometimes, the triage nurse was "unable to do an in-depth exam at triage due to lack of privacy." This might have been because the "triage is completed at the beginning of the corridor entrance to the ED" or because the "triage assessment area is open with close proximity to the waiting room." Suggested solutions included the use of glass and sound barriers.

The use of one area for a variety of activities was mentioned as problematic. In one hospital, "ambulatory care and emergency are the same department so it makes it very crowded at times." In another, the difficulty was in having the "same triage for the ambulance and the walk-in." Lack of a dedicated fast-track area was also cited as a problem in physical layout. One respondent noted that the inclusion of triage at registration was positive, since "ER is steps away, and if patient requires, we take [him/her] to the ER to examine."

10.3.2. Improvements to Physical Layout

A number of respondents reported that improvements to their ED physical layout were being planned or were in process. Planning usually had to do with a "redesign to increase confidentiality." One respondent summarized the difficulties in planning this way:

> [A] customer service consultant has recently challenged this site to increase patient privacy. The difficulty will be to achieve this objective while maintaining the RNs' sight lines with triage check-in in [the ED] wait room.

Some respondents said that they were "waiting for a capital project to redesign ER," or that a "redevelop is planned, but put on hold by the MOH."

Ongoing improvements ranged from fairly modest to the construction of new departments. Most often mentioned were modest improvements aimed at increasing privacy, such as "plexi-glass being installed around triage, registration

and main desk area." One renovation included "modifications for staff security," and another included:

> The addition of a sink, door into department locked, access button in triage and nursing station, and a closed circuit camera provides visualization of waiting room and triage area.

A number of EDs reported satisfaction with their physical layout. One respondent's ED had "one triage area, one large waiting area, and one smaller triage waiting area for patients that triage nurse is concerned about." Another ED "currently has three triage stations with the number one triage RN as first contact." Several mentioned that their triage area had good visualization and privacy.

10.3.3. CROWDING IN TRIAGE

Concerns with crowding in triage were expressed in three ways:

- Contributing factors to crowding
- Effects of crowding on triage activities
- Ways of easing crowding

10.3.4. CONTRIBUTING FACTORS TO CROWDING IN TRIAGE

The issue named most often as a cause of crowding was lack of space in the ED. Respondents said the "triage and waiting room are too small," or "very small old department, a quiet corner or down the hall is found to triage." Attempts to ease the problem were not always successful, as was indicated by the following statement: "Retrofit done, but is inadequate." One respondent noted that crowding was due to "recent construction of a negative pressure area, glass for visualization, for patients with URI to wait, isolation of patients with URI." This reveals how a solution to one set of issues could lead to complications in other areas.

Volume of patients as a source of crowding was often cited. Higher patient volume might be a constant for an ED, as indicated by comments such as "the ED is currently 50% of size currently recommended" or "the ER area is too small for numbers of patients, therefore [we are] unable to meet CTAS guidelines." On the other hand, increases in patient volume could be intermittent, as indicated in this comment: "a sudden influx of patients tends to overcrowd and extend the wait time at triage." Sudden crowding could also be specific to areas or events. Sometimes, the "ambulance area gets crowded," or the "area for triage is very congested." Sometimes, there was "waiting room overflow, and patients waiting in hallways is typical," or there was a "backup of admitted patients when the inpatient unit is full." "Occasional events" and motor vehicle accidents were also mentioned as causing intermittent crowding.

Crowding was sometimes predictable. One respondent mentioned the "treatment waiting area is crowded during peak hours," and another that "code 4-5 wait more than the recommendation time during specific days because of increased visits on those days." Seasonal variation occurred as well, caused by long weekends or increased population, "especially in our summer resort hospital."

Understaffing and work slowdowns were mentioned as contributors to crowding. One respondent said, "[You] need appropriate nursing staff or [triage] just doesn't work." A second respondent mentioned that the ED has "insufficient staff for a dedicated triage nurse," and a third said that, "some physicians are working slowly so people will not come to the ER for minor problems."

Line-ups at triage were mentioned several times as a specific source of crowding. Several respondents mentioned that patients or visitors inappropriately using the seats designated for triage caused line-ups. Poor signage and a lack of a designated children's areas were also cited as causes of crowding.

10.3.5. Effects of Crowding in Triage

Respondents indicated that the effects of crowding were felt throughout the triaging process. There was "delay in triage," "decreased fractile response times," and "problems with getting timely reassessments." Staff might "downgrade, under triage, if [there is] nowhere to put the patient, especially level 2," or "often ER staff will move more difficult, loud people up the queue." Another said, "[You] cannot let volume of patients influence your CTAS score, i.e., you know your patient is CTAS 3, but maybe won't be seen for over 3 hours." Crowding could also cause "people to leave without being seen."

One respondent mentioned that crowding had an impact on privacy, and that there was "a lot of work still needed to decrease anxieties." Privacy issues were discussed in more detail in the section on the EDs' physical layout.

10.3.6. Solutions to Crowding and Physical Layout

Increased staffing was mentioned as an important way to handle crowding. One respondent said they "pull additional support from acute care when required," while another said that crowding had become "less of an issue because ambulance patients are triaged by the charge nurse." A "large waiting area and smaller designated areas for fast track and paediatrics" helped with crowding, as did after-hours and walk-in clinics which "daily ease pressure in the ER."

The single most often mentioned solution to crowding and other problems was a renovation of the ED or a new hospital. Some hospitals were undergoing renovations, some would be soon, some were waiting, and some wished for renovations. Specific planned improvements included a "larger waiting area with a children's area, a dedicated triage waiting, more privacy, electronic tracking, more treatment rooms," and "plans to separate emergency and ambulatory care."

One ED was planning to build a screen to increase privacy, while another was "looking at purchasing a window with voice box for primary triage."

Some EDs used alert systems or a call system to alert staff when a patient had arrived at triage. One ED had placed a video camera in the waiting room, "so patients were visible both through the window and on the video monitor," while another hospital used a camera in the triage area to improve staff security. Another ED used a "two-way radio headset between charge nurse and triage nurses for better communication and control of waiting room." Having a patient liaison or volunteer in the waiting room to assist with crowding at triage was also mentioned as helpful, as was having "a second triage area in the department when staffing prohibits [having a] dedicated triage nurse."

One solution to crowding and increased wait times was to hire a nurse practitioner for the ED. When possible, limiting the use of the ED also helped to ease crowding. Walk-in clinics relieved crowding, and not using the "waiting room for patients to be seen or following assessment" also helped.

10.4 ATTITUDES

Three main types of difficulties with attitudes and triage emerged from the ED administrators' reports:

- Patient attitudes
- Professionals' attitudes
- Systemic attitudes

10.4.1. PATIENT ATTITUDES

The most commonly mentioned difficulty with attitudes concerned patients. A few respondents described the problem generally, saying the "public are uneducated about CTAS." Most responses were more specific. Patients "want to be seen in order of arrival" and "believe they should be seen ahead of others." This was particularly true of "non-urgent patients who don't understand continuing delays in seeing a physician as more acute patients arrive." This could lead to patients becoming "upset," displaying a "lack of patience," or becoming "aggressive." In one hospital, the following comment was made:

> Patients have identified a need or desire to have estimates for time to physician, but RNs are very reluctant to provide this info due to the constantly changing environment and perceived backlash from patients when this info is incorrect and the wait is longer than estimated.

Finally, there was a tone of warning in this response: "Patients required to wait, leave without being seen."

10.4.2. PROFESSIONAL ATTITUDES

The descriptions of professionals' attitudes fell into two broad categories:

- General discussions
- Specific difficulties

The largest category of general attitudes concerned "nurse-physician disagreement on [the assigned] triage level." Some respondents indicated that occasionally, "some physicians don't respect CTAS codes," while others made more categorical statements such as "doctors are not respectful of assessment by triage nurse." One respondent noted difficulties with "physician attitude towards seeing patients at shift changeover," and two said there were "some challenges from physicians on adopting AFA sign on." One respondent noted "this has changed with nurses and physicians due to recent triage education."

Another common theme centered on staff difficulties with triaging consistently. Sometimes, it was reported, "staff do not recognize the importance of assessment and monitoring." More often, "nurses have different perspectives on CTAS level," and there was "variation in triage levels assigned amongst staff." There were reports of staff "consistently over-triaging" or having a "tendency to have a large majority of patients triaged as CTAS 3," or "on occasion a triage nurse may triage according to the activity in department."

An equally common theme was "staff enjoy and appreciate the consistency and organization of CTAS system," and "staff are motivated and compliance is exceptionally good." Furthermore, staff reportedly had a "good attitude" because CTAS gave a "sense of reassurance for staff that patients are OK."

Professional attitudes that concerned specific aspects of triage included the pain scale used by CTAS, the extra work triage created, and the concerns and stress that staff experienced while following CTAS guidelines. Pain assessment was "not done or [staff] do not believe what patient says," and "some staff feel patient percent of pain is weighted too heavily and gives too high a score." Respondents felt the use of the pain scale created a "discrepancy between subject-objective data" and that "how a patient presents rather than their presenting complaint may influence CTAS."

A few respondents noted that "nurses felt [CTAS] was extra work," and that it "caused resentment because of extra responsibility" and the required "time to assess each person presenting to the department." Another indicator of this attitude was heard in this comment: "staff pull triage nurse."

ED staff also expressed concern about "amount of time [spent] in assessment and reassessment of least sick, level 4 and 5;" their "frustration trying to meet reassessment and fractile response times;" and their "reluctance to comply with codes since [they are] unable to keep within recommended timelines." Another

source of frustration was that "response times by physicians were not within CTAS guidelines."

Finally, ED staff found the ED was a "stressful area due to high acuity patients left in waiting room," and that "nurses often feel overwhelmed at triage, [because there are] too many patients. Nurses feel stressed when standards cannot be met."

10.4.3. Systemic Attitudes

A number of respondents replied to the question on attitudes by discussing attitudes found in the larger milieu surrounding the ED, which created difficulties implementing and using CTAS. One respondent said, "Physicians and nurses feel frustrated by the lack of funding for sufficient staff to meet triage requirements and responses times." Similar statements included: "No funding received for a dedicated triage nurse or space," "not enough nursing hours to accomplish triage," and "only one or two nurses working in ER providing treatments and triage." One respondent expressed the following fear:

> Something will be missed in triage due to high volume, inexperienced staff, and long waits in ER due to gridlock.

Triaging was acknowledged as a "difficult job, especially when gowned and masked" and because triaging staff could be "on their own to deal with aggressive patients and family, and high acuity."

10.4.4. Best Practices and Solutions for Attitudes

Best practices for improving attitudes towards triage focused mainly on patient attitudes, and included educational and other efforts made by staff. Signage and "taking the time to explain triage and how this is used in emergency" were mentioned. Providing pamphlets on triage and "working with the newspaper to run a series of education pieces regarding the emergency department to increase public knowledge" were other suggested strategies.

Staff-based efforts to improve patient attitudes included increased communication with waiting patients, frequently observing the waiting room, crisis intervention, and "wait times during peak periods…advertised as often longer." One ED implemented a policy that "all triage nurses have excellent PR skills along with assessment skills," which resulted in the decision that "if PR skills are weak, even if senior or strong nurse, we do not place in triage." Processes for improving professional attitudes included a "team-based 'good to great' project," as well as providing more education about triage.

10.5 DOCUMENTATION

Two broad themes surfaced from the respondents' descriptions of the problems their EDs had encountered with documenting triage:

- What information is or is not recorded
- Where and how the information is recorded

10.5.1. MISSING INFORMATION

The event in the triage process that was most often mentioned as "not documented in a thorough fashion" was reassessment. Sometimes this was because the "nurses believe they are too busy" or because "[they] do not have reassessment documentation on record," or it could be because the ED was "unable to meet guideline for reassessments."

Use of the pain scale was also singled out as a problem. There was "inconsistent use of documentation of pain scale" and a "lack of adequate documentation of pain scale." One respondent noted several times that the "pain scale is often not completed" because of "on-going issues with accurate documentation of objective-subjective data."

Respondents reported a wide variety of other types of information that were not recorded consistently, including:

- Respiratory rates
- Signatures
- Domestic violence screening
- Documentation to support the assigned triage level
- Time of arrival
- Complete information on medications
- Physician assessment time
- "Complete record of all events"

Staffing was mentioned as a factor contributing to incomplete documentation. One respondent noted that "a dedicated triage nurse would enhance better and/or full documentation on triage record" and that, "staff are keen to triage when a second RN is on duty." A few respondents noted that "physicians do not document times or what is done," or more strongly, "physicians refuse to document their assessment time." Motivation "to convince all staff of the importance and value of good documentation" was also raised as an issue.

METHOD OF DOCUMENTATION

Lack of documentation was clearly tied to "duplication of charting on triage record and ER chart" for nurses and physicians, and to the fact that it was "time consuming." The form itself was said to contribute to incomplete information because there was "too much documentation in triage and not enough room." A number of respondents noted that they had recently revised their triage documentation form, and the revision most often mentioned was the inclusion of room for triage documentation on the ED record. One said the "nurses are happy now with one tool." Another said that the new tool "has improved the triage process."

One ED created a record that "has more primary assessment on it to assist with asking and assessing questions, so the documentation supports the triage category," while another had revised it "to include tick boxes to facilitate appropriate assessments." One respondent noted that the ED was "working on automation to incorporate triage info into the ED [record]," while another said that, "electronic charting has made a difference, a positive consistency in the department."

A few respondents reported that there were no difficulties with documentation in their EDs.

BEST PRACTICES AND SOLUTIONS FOR DOCUMENTATION

A variety of improvements to forms were discussed as helpful. One ED reduced duplication of recording by using a duplicate carbon-less triage form, which split into two copies that could be affixed to the ED and registration records. Some other suggestions were new triage records with prompts for precise triage documentation, secondary assessments, documentation of reassessments, and separate adult and paediatric charts that "reflect the different assessment of these two groups." One administrator suggested there should be "a single QA tool provincially that is completed concurrently by triage instructor." Several mentions were made of using a computerized form with mandatory fields for triage score field and FRI screening.

10.6 QUALITY ASSURANCE PRACTICES

When asked what problems their hospitals faced in relation to quality assurance, responses fell broadly into three groups:

- Hospitals that lacked a QA program
- Hospitals where some QA is performed and there is a desire to do more
- Hospitals whose administrators were satisfied with how QA was performed in their ED sites

These three groups discussed barriers and facilitators to developing a QA program, the types of QA performed, and the benefits and difficulties their QA programs had identified.

10.6.1. NO QA OR LIMITED QA

In an earlier question, approximately 40% of administrators reported their ED lacked a QA program. A few of these respondents gave a more detailed response that indicated their hospitals did not have a QA program in place, and most said there were no plans in place to develop one. A larger group indicated their hospitals did "only random audits up to this point" or that they recognized the "need to formalize the process for QA."

10.6.2. BARRIERS AND FACILITATORS FOR TRIAGE QA

The most frequently mentioned barriers to having a QA program were lack of human resources and time. Another common reason was "no money to support QA." Respondents said it was difficult "getting staff to complete chart audits" and that not performing audits routinely was a barrier to QA. "Lack of knowledge" and "data retrieval and manual processes to utilize data" were also mentioned as barriers.

Respondents whose hospitals did not have a QA program or that had a minimal program also mentioned perceived facilitators for a QA program. Facilitators included a formal QA process, an automated process, a standard audit tool, resources, and education. To emphasize the need for shared learning, one respondent said there was "no formal process, we need a contact name with other small hospitals to get information."

As discussed in the previous section on quality assurance, QA in Ontario has sometimes been done by individuals or by teams; has usually been done internally and sometimes externally; and has been done "to check for compliance to standards and documentation."

10.6.3. BENEFITS AND DIFFICULTIES OF PERFORMING TRIAGE QA

The benefits of having a QA program included knowing that the ED had "no problems with triage level documented" and "increased awareness of triage requirements for documentation." Audits had informed EDs that "pain scales, vital signs and acuity levels are not always documented," that "physicians are not meeting fractile response times," and that patients were being under-triaged or over-triaged.

Many respondents indicated a desire to improve their QA program. One said there was "no way of accurately predicting – measuring whether we comply with the standard of 15 minutes arrival to triage time." A number said their EDs did not

track assessment or secondary assessment times. Another group indicated they would like to move from a retrospective auditing system to "a system of simultaneous audits" because "audits are subjective in nature without the benefit of seeing the patient." Other improvements mentioned included a more comprehensive system, appropriate reports, and "follow up with each staff regarding documentation." Staff resentment of audits and disagreements between staff members doing audits were mentioned as QA problems, as was having new staff. One respondent said that the "medical records department was a big help" with quality assurance in the ED.

10.6.4. BEST PRACTICES AND SOLUTIONS FOR QA

Best practices for QA included sharing audit results with staff, and creating forums for discussion of QA within and outside the ED. QA audits were done for all staff by an expert triage nurse or clinical nurse specialist or by a third party. Alternatively, "each staff member in ER audits charts of co-workers." Audits were shared with staff "on a one-to-one basis" and by posting. Other practices included "emphasizing documentation of care to support a higher acuity," "clinical resource nurse providing updates to staff," as well as, "having an annual mandatory review of CTAS, and not allowing the triage nurse to be pulled."

One ED mentioned it was important to make sure the people responsible for quality assurance had the time to discuss cases with each other outside of the ED. This sometimes happened at emergency services meetings or by having a triage or best practice committee. Establishing a regional triage committee or forming a committee with other hospitals was also mentioned.

10.7 OTHER PROBLEMS WITH TRIAGE

ED administrators were asked to describe any other problems they encountered with CTAS. These have been categorized as:

- Systemic issues
- Structural issues within hospitals
- Process issues

10.7.1. SYSTEMIC DIFFICULTIES WITH TRIAGE

The systemic issues named by administrators were broad indeed. System level difficulties with triage included those caused by lack of access to educational opportunities and information, hospital size, the funding formula, lack of clinicians, and the assumptions on which the CTAS is based.

Lack of Access to Education and Information

It was clear from statements made in the section on staffing and training that administrators and nurses were interested in improving access to training. Three respondents said there was "limited availability to education, e.g., PALS, TNCC, ENPC, and ENCC," and another noted there was "no access to paediatric CTAS.

Lack of information was also a source of frustration. One administrator faced "poor response to emails to national triage group with questions regarding roll out of training" and "also had difficulty obtaining supplies, e.g. posters, pocket cards, training manuals, etc. Delays in implementing this leave hospitals in a position of developing their own programs again."

Another respondent was "not aware of the changes made to CTAS, nor do we have a contact person to refer to as needs arise."

Hospital Size

Difficulties with triage related to hospital size were generally related to limited funding and human resources as summarized by the following statement:

> It is much more difficult for a small hospital to initiate this type of program due to limited staff and lack of training money.

Some administrators said, "[we] need a dedicated triage nurse" because a "dedicated triage nurse who does not have the additional role of charge nurse would improve quality and consistency in triage" or because "it's difficult to do managerial work when you are the ER nurse-triage nurse." An alternative viewpoint was expressed as follows: "to put in dedicated triage staff is expensive and not always necessary, they could sit with nothing to do for [long] periods of time."

Funding Formula

Several administrators discussed the implications of having "CTAS tied to the funding formula, which creates a conflict of interest." Both alternative funding arrangements and fee for service were criticized. One administrator detailed the following conflict with AFAs:

> AFA physician hours were reduced due to the increase in [patients who] leave without being seen (LWBS), and therefore patients wait [for a long time] and are still not seen in a timely manner.

Another administrator described triage difficulties caused by fee for service:

> [Our ED is] presently functioning under the fee-for-service plan and therefore physicians do not pay as close attention to the acuity level as compared to a sister hospital that is on an alternate funding plan.

LACK OF CLINICIANS

Triage problems due to a lack of clinicians had two aspects: the number of available clinicians and whether they were available on site. One administrator said, "our physicians are not on site so often [CTAS] 4s and 5s may wait longer than fractile response times." Another made this statement:

> Congestion can occur because of three reasons: 1) lack of family physicians equals increased orphan patients [patients without a physician in the community] having to use the ED as a walk-in clinic; 2) physicians closing their practice and avoiding overhead costs of an office at the expense of hospital services; and 3) no nurse practitioners to ease the overload with orphan patients.

CTAS ASSUMPTIONS

One administrator offered a critique of CTAS that was clearly related to the location and mission of that ED. The administrator stated:

> CTAS is a middle class tool. It does not focus on homelessness or other population-based issues endemic to our case mix. It also underscores mental health issues such as suicidality.

10.7.2. STRUCTURAL ISSUES WITHIN HOSPITALS

How a hospital's ED was structured could impact triage in many ways. Respondents discussed the effects of staffing and training, professional attitudes, miscommunication, departmental amalgamation, documentation, and security.

STAFFING

One administrator said triage was difficult because of "large staff turnover, many new staff." Many new staff required training, and as mentioned above, some hospitals faced difficulty gaining access to training. Responses made in the section on staffing and training also discussed the problems some hospitals faced in covering the cost of training new staff.

PROFESSIONAL ATTITUDES

Professionals' attitudes most often mentioned as affecting triage were physicians' lack of triage training, disagreements between professionals over triage scores, and work slowdowns. Survey findings indicated that most physicians were not formally trained in triage. In some hospitals, it was reported that "MDs don't buy into CTAS levels, and do not want to follow CTAS levels for seeing patients." One administrator made this comment:

> Physician practice and non-adherence to CTAS guidelines and training are not disclosed. CTAS according to physician are a challenge, and [there

> are] no consequences to their actions or finances. Consultants do not feel they are required to meet CTAS guidelines and utilize department as a secondary office. GPs send patients without notification or consequences.

On a more hopeful note, another administrator stated that "initially CTAS was being decreased, no way response times could be met by MDs, [changing this] required retraining and reinforcement."

A number of responses described disagreements between nurses regarding triage scores, and all of these disagreements were related to under-triaging. One administrator summarized it as "[we] find nurses will triage according to patient volume and bed availability."

Another difficulty with the attitudes of professionals occurred when "ER doctors sometimes disagreed with the triage nurse. A review [of the case] found the triage nurses CTAS to be accurate."

The final difficulty with triage was work slowdowns. One respondent said, "physicians not keeping up, with some working much slower than others," while another said, "blockages to fractile response, Dr and RN, due to slow output."

COMMUNICATION DIFFICULTIES

Difficulties with communication were varied. Sometimes, it was a "lack of communication with the waiting room," or the "communication from triage to charge nurse area is poor, we require telephone or intercom and [it] is being considered," or "sometimes there is a discrepancy, confusion between ambulance services PRIORITY versus CTAS codes, should be one." Another respondent mentioned there was a "question as to who triages ambulances when ambulance entrance is separate from ER entrance."

10.7.3. DIFFICULTIES WITH THE TRIAGE PROCESS

Several ED administrators used this section to discuss specific points in the triage process with which their hospitals were having difficulties. Findings from the NACRS indicated that approximately half of Ontario's EDs triage patients before registration, and half triage after. Three respondents mentioned that registration came before triage for some or all of their ED patients, and the approaches to the issue were varied. At one hospital, it was reported:

> [We] have patients complete the FRI screen, go to registration, directly across from ER, and have the chart started for the patient to hand to the triage nurse. It takes an extra minute, but saves the nurse from asking demographic questions.

Another administrator made this statement:

> ...Since CTAS was implemented, we continued to register patients first, as long as we were able to triage patients within 15 minutes of arrival. Up until the past 1.5 years, wait times to triage were less than 15 minutes. Now we have a wait time of 19 minutes, and we are in the process of changing to triage first. Also, we have done more primary assessment in triage because of a lack of resources, primary assessment would otherwise not have been done. [We] recognize change must occur and the difficulty lies with a lack of resources as over the past two years as our acuity has also increased.

A third administrator mentioned that registration before triage occurred for some patients, but not all.

ED waiting times were discussed in relationship to patient complaints, patients leaving before being clinically assessed, and the difficulty of reassessing patients in the waiting room. One frustrated respondent mentioned that statistics could be skewed with the ED "backboard protocol – use L2 [level 2] for all patients, LWBS (leave without being seen) patients assigned L5 [level 5]…"

BEST PRACTICES FOR THE TRIAGE PROCESS

Hospitals varied on whether they triaged or registered patients first. Sometimes, it was stated that "having a patient register before triage works well in a rural hospital with small numbers." Another hospital took ambulance patients and critical ambulatory patients directly into the ED through a back door, while at the same time:

> ...Most other patients arrive at front door and are registered before going to ER. Time of entry to registration as studied for QA is 6 minutes. Patients then proceed to ER to see nurse for assessment and triage categorization.

A third hospital followed this practice:

> [We] developed our own strategy for triage. Vital signs are done at time of registering patient and for CTAS 4 and 5. Anything lower is brought in immediately and assessed by RN in the department.

For one ED that wished to triage before registration, "guidelines were established for staff regarding triage of emergency patient prior to registration." Two other respondents also emphasized the necessity for having a policy requiring compliance with CTAS. One hospital used signage to stream patients to triage before registration. Another had the following arrangement:

> … four self-contained triage stations which are private. The patient is triaged and registered in same location. Patients do not move. Staff move from station to station.

Another waiting room was described as having double RN coverage for 12 hours, with double desks, an intercom to contact the team leader, and a voice pager to contact physicians upon arrival of CTAS 1 or 2 patients. To help with reassessment, that ED also sorted CTAS levels into bins.

Other best practices included 90-second triage, tracking the number of patients who left without being seen, and implementing regional destination determination guidelines for ambulances.

NO DIFFICULTIES

A few respondents reported no difficulties. One respondent said that, "staff were receptive to triage training and appreciate value of triage," another said that, "patients were understanding the concept of triage." Finally, one respondent said:

> …The results of the audits were shared with everyone and everyone appears to be more accepting. Also have increased triage nurses at peak times, very helpful.

APPENDIX A: ADVISORY GROUP

The following individuals faithfully provided advice during each stage of the project: questionnaire design, analysis of results and reporting. Their input has been invaluable.

Marg Balzer	Clinical Educator, Emergency Department Hotel Dieu Grace Hospital Windsor
Carolyn Farquharson	Clinical Specialist Mt. Sinai Hospital Toronto
Rose Gass	Nurse Manager, ED/ICU Norfolk General Hospital Simcoe
Chris McKenzie	Clinical Manager, Emergency Department Queensway Carleton Hospital Ottawa
Charlene Sandilands	Director, Emergency Health System Trillium Health Centre Mississauga
Kathy Stevenson	Manager of Emergency Services Royal Victoria Hospital Barrie

APPENDIX B: METHODS AND TECHNICAL NOTES

A.1 INTRODUCTION

The study involved the analysis of data from the National Ambulatory Care Reporting System (NACRS) and the Canadian Triage and Acuity Scale (CTAS) questionnaire survey. For both parts of the study, the results are presented using Hospital Peer Groups (HPGs). The methods, technical procedures, and related issues are covered in this appendix.

A.2 HOSPITAL PEER GROUPS

Hospitals were grouped as teaching, small, or community hospitals, consistent with the following definitions used in *Hospital Report 2003: Emergency Department Care*:

- **Teaching hospitals**, acute and paediatric, belong to the Ontario Council of Teaching Hospitals, which has become the Council of Academic Health Organizations.
- **Small hospitals**, as defined by the Joint Policy and Planning Committee (JPPC), include hospitals that generally admit fewer than 3,500 weighted cases, have a referral population of fewer than 20,000 people, and are the only hospital in their community.
- **Community hospitals** include acute care facilities that are neither small nor teaching hospitals.

For multiple-site hospitals, peer group designation was based on the size of the largest single hospital site in the organization.

Community hospitals were further subdivided based on the funding mechanism for medical services provided in the emergency departments (EDs) – fee-for service (FFS) and alternative funding arrangement (AFA). In an FFS hospital, individual physicians bill the Ontario Health Insurance Plan for each service provided to an emergency patient. In an AFA hospital, a group of physicians is contracted by the MOHLTC to provide all emergency services in that location.

A.3 NACRS DATA AND ANALYSES

An NACRS record is generated for each patient who registers in EDs and outpatient departments in Ontario hospitals. The Canadian Institute for Health Information (CIHI) manages the NACRS database. A copy of the NACRS data is

entered into the Provincial Health Planning Database (PHPD) maintained by the MOHLTC. The NACRS data used in this report was extracted from the PHPD by Mary Ward and Robert Barnett at the Northern Health Information Partnership in Sudbury, Ontario.

The data for this Triage Project was derived from NACRS data for the 2002/03 fiscal year. The 2002/03 fiscal year was the second full year that the data was collected. Data was submitted by 176 hospitals. From 2002 to 2004, seven hospitals either closed, or closed their EDs, as part of changes in their functions. Two hospitals did not report data to NACRS for FY 2002/2003. The data for this report is for the 169 hospitals with active EDs in 2003/04, and they had 5,039,257 visits in the study year. The breakdown by HPGs is as follows:

Table 35: BREAKDOWN OF HPGS IN STUDY

Hospital Peer Groups	Number of Hospitals	ED Visits 2002/03
Small hospitals	47	529,972
Community AFA	70	2,133,355
Community FFS	32	1,525,065
Teaching	20	850,865
Total	169	5,039,257

The following variables were incorporated in the analysis:

Table 36: ANALYSIS VARIABLES

Variable Name	Original Values in the PHPDB	Recoded Values for Analysis
CTAS Score	1 – Resuscitation 2 – Emergent 3 – Urgent 4 – Less-urgent 5 – Non-urgent Blank = No score	Same as original
Age at visit	Age in years or infant age in days	0 to18 years 19 to 64 years 65 years plus
Sex	Male Female Other	Male Female
Region	Southwest Central South Central West Central East Toronto East North	Same as original

Variable Name	Original Values in the PHPDB	Recoded Values for Analysis
Ambulance type	A – Air ambulance C – Combination of air, water, ground ambulances G – Ground ambulance W – Water ambulance Blank – Non-ambulance visit	1 – All ambulance arrivals (A,C,G,W combined –) 2 – Ambulatory, or non-ambulance arrival
Visit Disposition	1 – Discharged to place of residence 2 – Registered but left without begin seen/treated by service provider 3 – Triaged but left without being seen (patient registered) 4 – Triaged, registered, and assessed but left without treatment 5 – Triaged, registered and assessed but left before treatment completed 6 – Admitted direct from ER as inpatient to critical care unit/operating room in reporting facility 7 – Admitted direct from ER as inpatient to other units in reporting facility 8 – Transferred to another acute care facility 9 – Transferred to another non-acute care facility 10 – Death after arrival (DAA/death in emergency (DIE) 11 – Death on arrival (DOA) 12 – Intra facility transfer to another ambulatory care functional center in reporting facility	1 – Left without being seen (2, 3, 4, 5 combined) 2 – Discharged to place of residence (1 in original) 3 – Admitted (6 & combined) 4 – Transferred (8, 9, 12 combined) 5 – Death (10, 11 combined)
Arrival time	Date, time	Optional field – Not used
Registration time	Date, time	
Triage time	Date, time	
Disposition time	Date, time	

The data quality for the variables was, for the most part, quite good. However, problems were encountered with the time variables. Because less than half of the hospitals submitted arrival time, it could not be used. There were also problems deciphering the other time variables because of data entry errors. The time variables were complete for approximately 84% of the visits. The errors and missing values for the other variables were present in less than 5% of the visits. The data was cleaned and errors corrected insofar as possible.

The data was abstracted from the PHPDB and summarized with the query software GQL®, Hummingbird Corporation. The tables were produced with SPSS for Windows, version 12.0, SPSS, Inc.

One purpose of the Triage Project was to give feedback to each participating hospital about its results. To do so, each hospital had to give permission to be identified by the researchers in the presentation of the data. The CEO of each hospital was sent a letter by June 7, 2004, seeking consent to so identify her or his hospital. Ninety-two percent of the CEOs agreed to participate.

A.4 THE TRIAGE SURVEY

The Hospital Survey Working Group and the Steering Committee worked in close collaboration with Dr. Ray Pong and Cater Sloan of the Centre for Rural and Northern Health Research (CRaNHR) in the construction of the survey questionnaire. Dr. Pong managed the Triage Project, and Cater Sloan analyzed the survey responses, collated the results from NACRS and survey data, and drafted the report.

The questionnaire was sent to managers of the EDs for completion. Completed questionnaires were returned for 76% of the hospitals, and the response rates were uniformly high across the hospital peer groups.

The responses to structured questions were coded and analyzed at CRaNHR with SPSS for Windows, version 12. The respondents added comments to structured questions and replied to open-ended questions. The aforementioned groups, participating in the Triage Project, reviewed the written comments and collaborated in identifying themes in the qualitative analysis, which was completed by Cater Sloan.

The data for this report is presented in tables and boxplots. Boxplots are useful in displaying the variability in data. The line in the middle of the box reflects the data for the median hospital, indicating that 50% of hospitals had higher values and 50% had lower values. Similarly, the bottom and the top outlines of the box indicate 25th and 75th percentile scores respectively. The lines extending from either end of the box mark the hospitals with the minimum and maximum values. Small circles beyond the lines are hospitals with indicator values considered as mild outliers, and stars represent hospitals with extreme values – that is, hospitals whose indicator values are considerably higher or lower than the rest of the hospitals. There is a boxplot for each hospital peer group, which allows for comparisons.

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