

2005 ANNUAL REPORT

PROVINCIAL OUT-OF-HOSPITAL ADULT CARDIAC ARRESTS

Prepared By:

Office of the Provincial Medical Director

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Executive Summary

This is the 8th Nova Scotia Provincial Annual Out of Hospital Adult Cardiac Arrest (OOHCA) Report.

Though Cardiac Arrests account for only 1% of all calls (2% of all emergency calls), this complaint is used as a tracer condition in most EMS systems. Several studies¹⁻⁵ have shown that the major determinants of survival from out of hospital cardiac arrests are witnessed collapse, public (vs private) location, bystander CPR, short interval to first defibrillation and presenting arrhythmia of VF/VT.

The incidence of out of hospital cardiac arrest in Nova Scotia over the past three (3) years is 146.6 per 100,000 population (over the age of 15) and varies from 100 in the Capital District Health Authority to 192 in the South Shore District Health Authority. The incidence cited in the North American literature ranges from 32 - 128 per 100,000 population. The wide range probably reflects the different definitions and criteria used to measure the incidence of cardiac arrest. The European age standardized incidence is 122/100,000. Our higher incidence might also reflect the prevalence of heart disease and/or a higher percentage of elderly people in the province. The highest incidence of OOHCA in males and females is in the 70 - 79 years.

The overall bystander CPR rate for non EMS witnessed arrests in Nova Scotia of 46% is at the upper limit of the range found in Canada (14 - 46%)⁷. The provincial CPR rate has ranged from 31.7% in 1998 to 45.5% in 2005. The most striking statistic is the apparent lack of improvement in survival rate of patients who receive bystander CPR. This is in contrast to several large studies. There are several potential reasons for this. One is the possibility that Bystander CPR may not be being performed properly. Another is that bystanders may stop CPR as the MFRs and Paramedics arrive so there is prolonged interruption of CPR. This past year saw the release of the new CPR guidelines which emphasize uninterrupted chest compressions. It will be interesting to see the effect this has on survival.

Our provincial survival rate is 3.3%. The lower survival rate may reflect the fact that 40% of arrests in Nova Scotia occur in rural areas. De Maio⁶ has shown an exponential relationship between survival and interval to defibrillation. Few survivors have a call response interval of greater than 9 minutes. However, of note is the low survival rate in patients who are attended to within four (4) minutes of Ambulance Dispatch receiving the call (1 of 45 patients or 2%). Compare this to the 15% survival rate when paramedics are with the patient when (s)he arrests. This needs to be looked at.

As with other years and in other systems, approximately 80% of arrests occur in a private residence. Unfortunately only 65% of these are witnessed and less than half (38%) receive bystander CPR. Patients who arrest in public are almost four times more likely to survive than those who arrest in a private residence. This is thought to be due to more

arrests in public are witnessed, have a quicker call to 911 and a greater percentage of bystander CPR, (55% vs 38%).

The vast majority of survivors (14 of 18), have VF/VT as their arresting dysrhythmia, although we continue to have some survivors for Asystole and for PEA (4).

The highest survival to discharge rate in 2005 was in South West DHA 2(5.5%). The highest survival rate by Medical Oversight Physician was Dr. Michelle Dow and the paramedics of Meteghan.

Survivors continue to show good outcome as measured on the Cerebral Performance Category. On this scale, a score of 1 or 2 is considered a good outcome. In 2005 there were 18 survivors, 14 with a CPC of 1 and 1 with a 2. Three (3) were not assessed.

Last December saw the publication of the newest AHA/ILCCR resuscitation guidelines. We have updated our protocols accordingly with the hope that this will help our survival rate. We will also continue to encourage traditional and non traditional first responders to obtain AEDs.

Again I would like to congratulate all paramedics, QCMs, supervisors, regional managers, MFRs and MOPs for their efforts and dedication to pre-hospital care.

1 Stiell IG, et al: Advanced Cardiac Life Support in Out-of-Hospital Cardiac Arrest. N Engl J Med 2004;351(7):647-656.

2 Valenzuela TD, et al: Estimating Effectiveness of Cardiac Arrest Interventions - A Logistic Regression Survival Model. Circulation 1997;96:3308-3313.

3 Nichol G, et al: Accumulative Meta-Analysis of the Effectiveness of Defibrillator-Capable Emergency Medical Services for Victims of Out-of-Hospital Cardiac Arrest. Ann Emerg Med 1999;34:4:517-525.

4 Wilcox-Gok VL: Survival from Out-of-Hospital Cardiac Arrest: A Multivariate Analysis. Med Care 1991 Feb;29(2):104-14.

5 Weston CF, et al: Predicting Survival from Out-of-Hospital Cardiac Arrest: A Multivariate Analysis. Resuscitation 1997 Feb;34(1):27-34.

6 De Maio VJ et al: Optimal Defibrillation Response Intervals for Maximum Out-of-Hospital Cardiac Arrest S. Ann Emerg Med 2003 Aug;42:2:242-250.

7 Vaillancourt C, et al, Canadian Cardiovascular Outcomes Research Team Optimal Defibrillation Response Intervals for Maximum Out-of-Hospital Cardiac Arrest Survival Rates. Ann Emerg Med 2003 Aug;42:2:242-250.

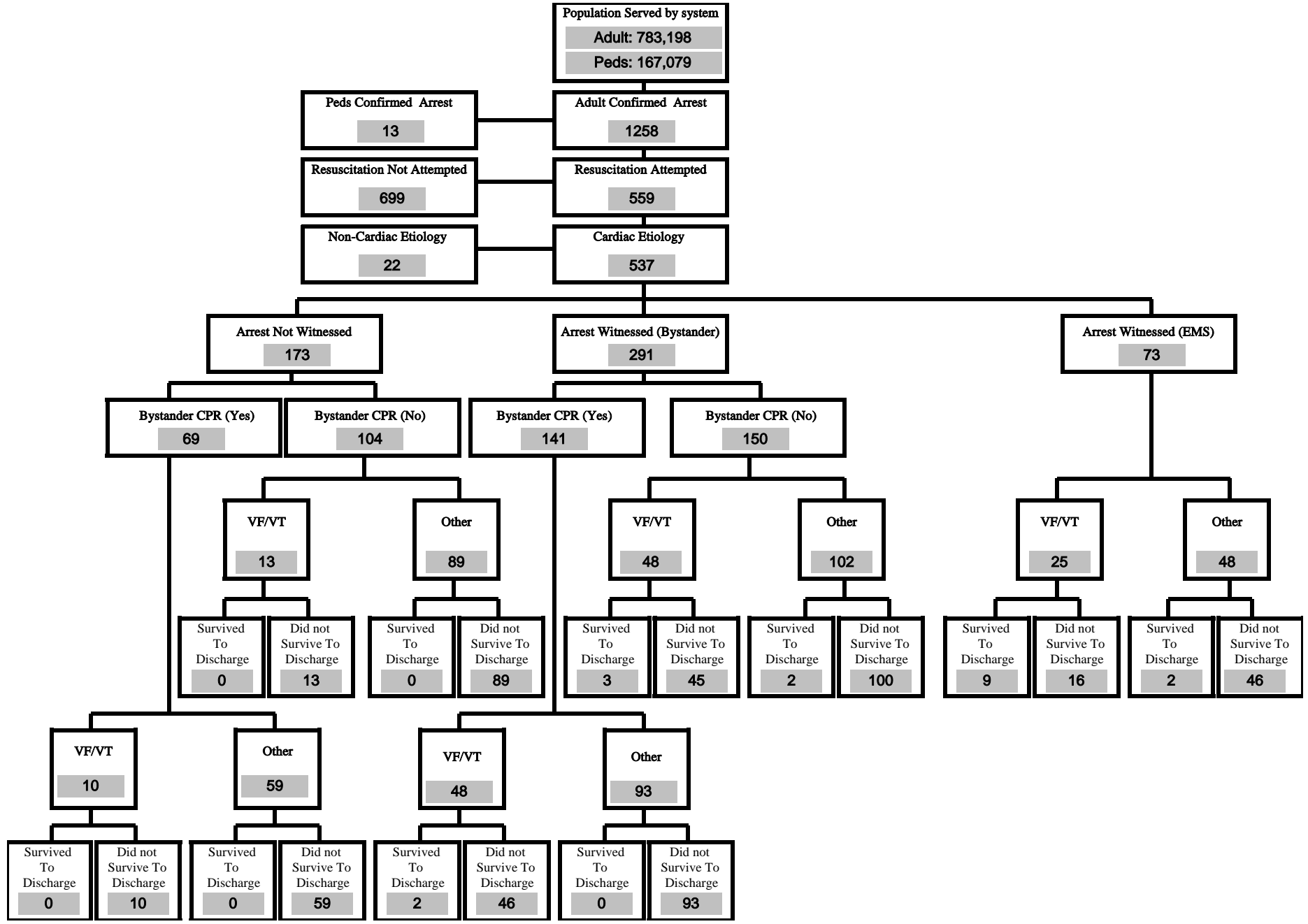
Utstein Style Report

In 1991, the recommended guidelines for uniform reports of data for Out of Hospital Cardiac Arrest: the Utstein Style were published in the Annals of Emergency Medicine. In response to the lack of uniform terminology and reporting standards for Out Of Hospital Cardiac Arrests, a consensus was developed on a glossary of terms, a template for reporting data (next page), definitions for time points and intervals, definitions of clinical terms and outcomes as well as recommendations for the description of EMS systems when reporting Out Of Hospital Cardiac Arrest research.

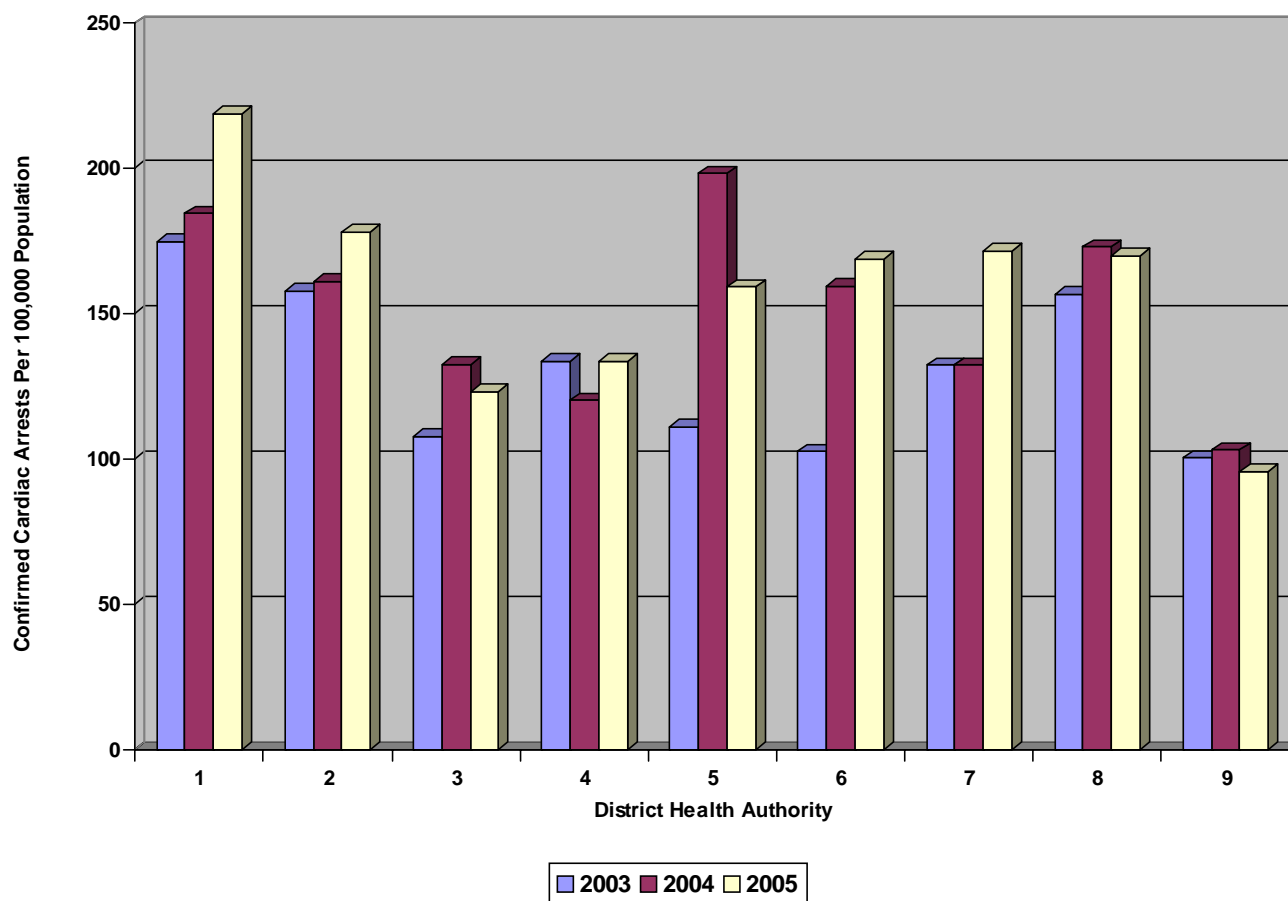
In reporting our provincial Out Of Hospital Cardiac Arrest data and outcomes we have attempted to follow the Utstein style.

Utstein Style Report

Provincial Summary Year to Date 12/31/05



Cardiac Arrests with Resuscitation Attempted per 100,000 Population



Year	District Health Authority									Province
	1	2	3	4	5	6	7	8	9	
2003	174.6	157.9	107.7	133.7	111.1	102.5	132.2	156.6	100.2	131.1
2004	184.4	160.9	132.3	120.0	198.1	159.5	132.2	173.0	102.9	151.6
2005	218.7	178.0	122.9	133.7	159.1	168.6	171.6	170.0	95.6	157.3
Totals:	192.6	165.6	121.0	129.1	156.1	143.5	145.3	166.5	99.6	146.6

Locations

Year to Date 12/31/05

Location	Arrests	% of Total (1118)
Home/Cottage	946	84.6%
Nursing Home	49	4.4%
Public Street/Parking Lot	34	3.0%
Public Building	26	2.3%
Highway	11	1.0%
Ambulance/Helicopter Landing Zone	6	0.5%
Drs Office	6	0.5%
Industrial	6	0.5%
Recreational Facility	6	0.5%
Park/Graveyard	5	0.4%
Unknown/Other	5	0.4%
Hospital	3	0.3%
Water	3	0.3%
Bar	2	0.2%
Golf Course	2	0.2%
Hotel/Lodge	2	0.2%
Woods	2	0.2%
Boat	1	0.1%
Farm	1	0.1%
School/Day Care	1	0.1%
Taxi	1	0.1%
Total	1118	100%

INTERPRETATION:

By far the most common place of a cardiac arrest is in a private residence. This may limit the impact of public access defibrillation strategies on the provincial survival rate.

BENCHMARKS:

Our system has ranged between 73% and 85% private residence over the past 8 years. Several studies have shown similar results in other systems.*

LIMITATIONS:

We have changed this report from previous years when it located all out of hospital deaths. The above represents all out of hospital sudden deaths without including pediatric patients, non trauma and medical causes.

*Vaillancourt C, Stiell IG, Canadian Cardiovascular Outcomes Research Team. Can J Cardiol 2004 Sep;20(11):1081-90.

Survivors vs Non Survivors

Year to Date 12/31/05

Total Patients Recorded	1258
Resuscitations Attempted	559
Cardiac Etiology	537
Median Call to Arrive Scene (min)	7
Return of Spontaneous Circulation (% Cardiac Etiology)	109 (20.3%)
Admitted to Hospital (% Cardiac Etiology)	29 (5.4%)
Survived to Discharge (%Cardiac Etiology)	18 (3.4%)

INTERPRETATION:

Overall survival to discharge was 3.4%. Survivors were more likely to have an initial rhythm of VF/VT and to have been witnessed. CPR did not appear to increase survival rate. Interestingly, 18 of the 29 patients admitted to hospital were discharged (62%). Therefore few patients (11) of the 537 resuscitated died in hospital (2%).

BENCHMARKS:

The survival rate in OPALS (a large Ontario cardiac arrest survival study) was 5.1%. * Our rates have ranged from 2.7% to 6.9% over the past 8 years.

LIMITATIONS:

Because of the small number of survivors a lack of benefit from bystander CPR is likely a statistical anomaly as multiple other studies have shown a benefit to bystander CPR.

*Stiell IG, Well GA, Field B, Spaite DW, Nesbitt LP, DeMaio VJ, Nichol G, Cousineau D, Blackburn J, Munkley D, Luinstra-Toohey L, Campeau T, Dagnone E, Lyver M, Advanced Cardiac Life Support in Out-of-Hospital Cardiac Arrest, N Engl J Med 2004; 351:647-56.

SUB GROUPS	#	Survivors
Bystander Witnessed Arrests	291	7 (2.4%)
EMS Witnessed Arrests	73	11 (15.1%)
All Witnessed Arrests	364	18 (4.9%)
All Non EMS Witnessed Arrests and Bystander CPR	210	2 (1.0%)
Initial Rhythm - Asystole or PEA	391	4 (1.0%)
- VF/VT	144	14 (9.7%)
Bystander Witnessed and Bystander CPR	141	2 (1.4%)
Bystander Witnessed and Bystander CPR and VF/VT	48	2 (4.2%)
Bystander Witnessed and Bystander CPR and VF/VT and Call Response Interval <9min	32	2 (6.3%)

Public vs Private

Year to Date 12/31/05

	Public	Private	Total
Total Patients Recorded	165	1032	1258
Resuscitations Attempted	96 (58.2%)	447 (43.3%)	559 (44.4%)
Cardiac Etiology	94 (57.0%)	442 (42.8%)	537 (42.7%)
Median Call to Arrive Scene (min)	7	7	7

n (%) Patients Cardiac Etiology

Arrest Witnessed	78 (83.0%)	286 (64.7%)	364 (67.8%)
Bystander CPR	42 (54.5%)	168 (38.0%)	210 (45.5%)
Initial Rhythm -Asystole	32 (34.0%)	246 (55.7%)	278 (51.8%)
-PEA	14 (14.9%)	99 (22.4%)	113 (21.0%)
-VF/VT	48 (51.1%)	96 (21.7%)	144 (26.8%)
Survived to Discharge	8 (8.5%)	10 (2.3%)	18 (3.4%)

INTERPRETATION:

Interestingly, a cardiac arrest in a public place is more likely to receive bystander CPR and almost four times more likely to survive (8.5% vs 2.3%) despite similar response times (7 minutes mean). This is likely due to the higher proportion in VF/VT which may be the result of bystander CPR. There appears to be an opportunity for families of potential cardiac patients to learn CPR.

BENCHMARKS: Again these numbers are quite comparable to Vaillancourt's review.*

LIMITATIONS:

Small absolute numbers of survivors makes it difficult to assume a real association versus a statistical anomaly.

*Vaillancourt C, Steill IG, Canadian Cardiovascular Outcomes Research Team. Can J Cardiol 2004 Sep;20(11):1081-90

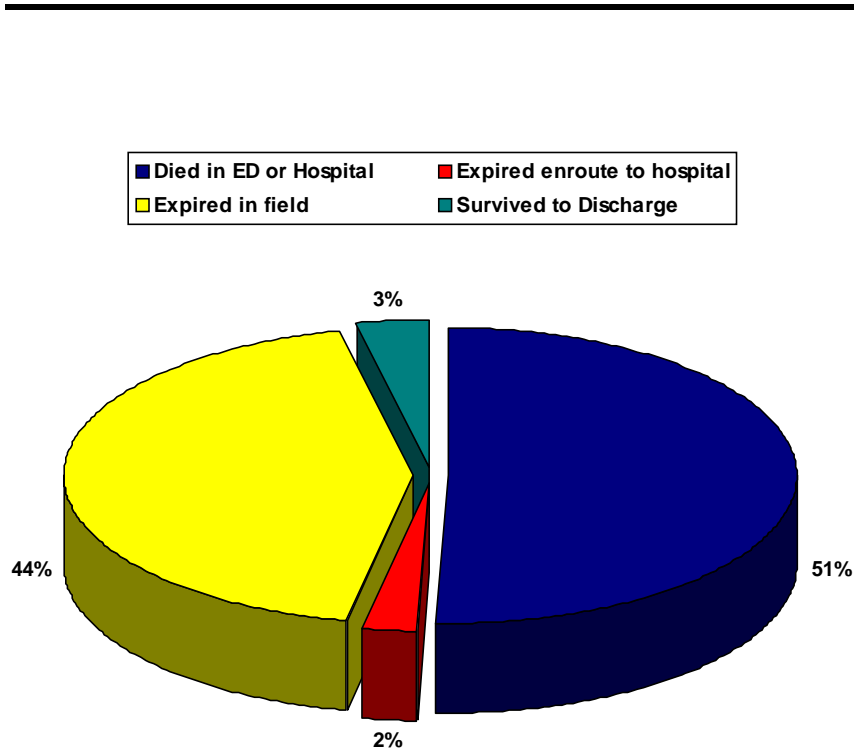
Outcomes

Year to Date 12/31/05

Total Patients: 1258

Resuscitation Attempted: 559

Cardiac Etiology: 537



INTERPRETATION:

The majority of cardiac arrest patients were declared dead either on route to or after they arrived at the hospital. 44% were declared dead in the field after an appropriate period of ACLS resuscitative efforts as per protocol.

BENCHMARKS:

These proportions are very similar to those found in other studies and reviewed in the NAEMSP position paper on field termination.*

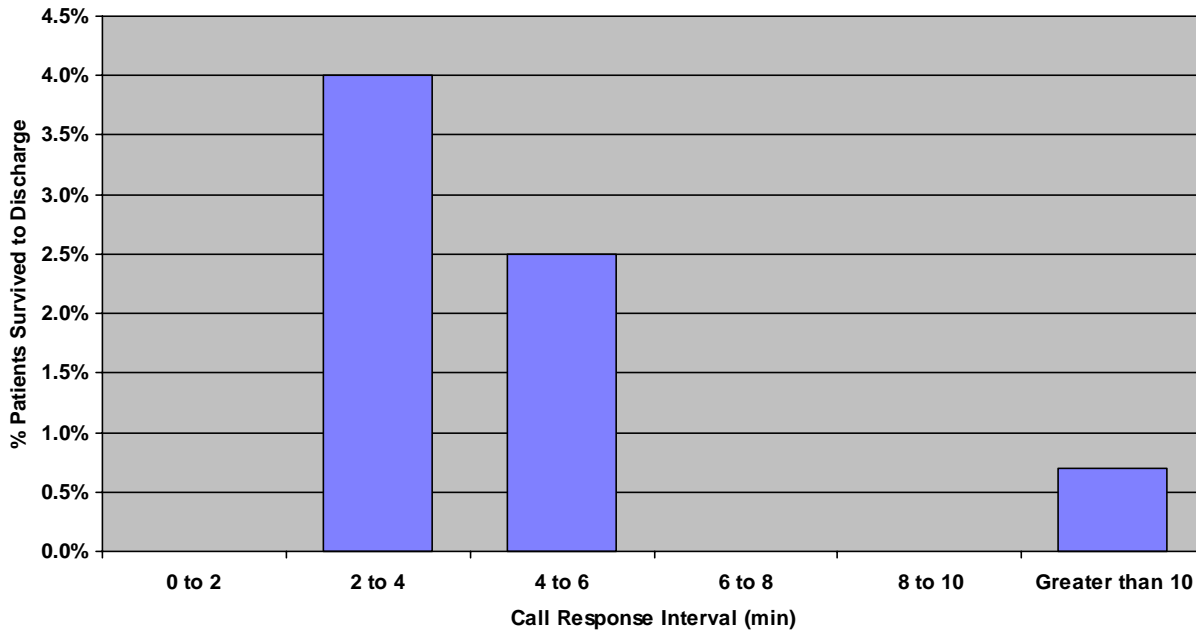
LIMITATIONS:

Fifty-one % "Died in ED or Hospital" does not necessarily infer a return of spontaneous circulation.

*Bailey ED, Wydor GC, Cone DC, Termination of Resuscitation in the Prehospital Setting for Adult Patients Suffering Nontraumatic Cardiac Arrest. National Association of EMS Physicians Standards and Clinical Practice Committee, PreHosp Emerg Care 2000 Apr-Jun, 4(2):190-5.

% of Survivors by Call Response Interval, Non EMS Witnessed

Year to Date 12/31/05



0 to 2 min	2 to 4 min	4 to 6 min	6 to 8 min	8 to 10 min	> 10
0 of 18 (0.0%)	3 of 75 (4.0%)	3 of 120 (2.5%)	0 of 69 (0.0%)	0 of 43 (0.0%)	1 of 142 (0.7%)

INTERPRETATION:

A rough axiom is survival decreases by 10% with each minute delay of defibrillation. This would mean the expected survival for patients attended to within 2 minutes would be 80% and 2 to 4 minutes, 60%. This should translate into 8 and 21 survivors respectively. Instead of the 29 survivors expected, we had one (1). This will be further analysed.

BENCHMARKS:

This has been shown in other studies. Please see the graph from DeMaio.*

LIMITATIONS:

Exact time from call to first shock is not reliably recorded, therefore we have used the call response interval as a reasonable surrogate. DeMaio reports as defibrillation response interval.

*DeMaio VJ, Stiell JG, Well GA, Spaite DW. Optimal Defibrillation Response Intervals for Maximum Out-of-Hospital Cardiac Arrest Survival Rates, Ann Emerg Med. 2003;42:242-250.

Cardiac Arrest Report by DHA

Year to Date 12/31/05

DHA	Total Out of Hospital Cardiac Arrest	Resuscitation Attempted	Cardiac Etiology	Arrest Witnessed	Bystander CPR	Shockable Rhythm VFVT	Asystole	PEA	Survival to Discharge
1	134	73	71	51 (71.8%)	21 (35.0%)	22 (31.0%)	35 (49.3%)	14 (19.7%)	2 (2.8%)
2	115	57	55	39 (70.9%)	25 (58.1%)	11 (20.0%)	30 (54.5%)	13 (23.6%)	3 (5.5%)
3	105	51	46	32 (69.6%)	20 (48.8%)	14 (30.4%)	20 (43.5%)	12 (26.1%)	2 (4.3%)
4	98	43	41	25 (61.0%)	11 (34.4%)	13 (31.7%)	19 (46.3%)	8 (19.5%)	0
5	53	22	20	13 (65.0%)	11 (55.0%)	3 (15.0%)	14 (70.0%)	3 (15.0%)	0
6	74	36	35	23 (65.7%)	16 (50.0%)	7 (20.0%)	23 (65.7%)	5 (14.3%)	1 (2.9%)
7	74	35	34	23 (67.6%)	12 (40.0%)	8 (23.5%)	14 (41.2%)	12 (35.3%)	0
8	228	92	89	59 (66.3%)	36 (46.2%)	27 (30.3%)	47 (52.8%)	15 (16.9%)	3 (3.4%)
9	377	150	146	99 (67.8%)	58 (46.0%)	39 (26.7%)	76 (52.1%)	31 (21.2%)	7 (4.8%)
NS	1258	559	537	364 (67.8%)	210 (45.5%)	144 (26.8%)	278 (51.8%)	113 (21.0%)	18 (3.4%)

MOP Cardiac Arrest Statistics

Year to Date 12/31/05

MOP	Cardiac Etiology	% Arrest Witnessed	% Bystander CPR	% Initial Rhythm VF/VT	Median (Minutes)		Survived to Discharge	% Survived to Discharge
					Call Response Interval	Arrive Shock Interval *		
Bennett	25	68.0%	33.3%	32.0%	5	2	1	4.0%
Buchholz	28	78.6%	42.3%	32.1%	9	4	1	3.6%
Chaloner	16	87.5%	50.0%	18.8%	11	1	0	0.0%
Dow	13	69.2%	42.9%	30.8%	3.5	21.5	2	15.4%
Harrison	20	65.0%	55.0%	15.0%	5		0	0.0%
Holmes	7	71.4%	50.0%	14.3%	14		0	0.0%
Howlett	41	61.0%	34.4%	31.7%	8	6	0	0.0%
Legere	15	40.0%	78.6%	6.7%	16		0	0.0%
Loveridge	1	100.0%	100.0%				0	0.0%
MacDonald	14	78.6%	60.0%	21.4%	12	21	1	7.1%
McLeod	35	68.6%	58.1%	28.6%	5.5	2	3	8.6%
Morash	87	71.3%	35.6%	31.0%	7	3.5	4	4.6%
Sutherland	19	63.2%	41.2%	26.3%	5	1	0	0.0%
Sutton/Allen	35	65.7%	50.0%	20.0%	6	3	1	2.9%
Travers	111	65.8%	44.3%	26.1%	6	2	3	2.7%
Wawer	70	67.1%	48.3%	30.0%	5	2	2	2.9%
Summary	537	67.8%	45.5%	26.8%	6	2	18	3.4%

* Filtered on resuscitation attempted / cardiac etiology / initial rhythm- VF/VT prior to hospital transport. There is concern about the accuracy of this measurement as the time of first shock is not always taken from a time piece synchronized with the CAD which marks arrival at scene. Blank spaces mean no patients were defibrillated.

Provincial Comparison of 1998 - 2005 Cardiac Arrest Statistics

Year	Resuscitation Attempted	Cardiac Etiology	Arrest Witnessed	Bystander CPR	VF/VT	Survived to Discharge
1998	482	436 (90.5%)	207 (47.5%)	139 (31.9%)	128 (29.4%)	12 (2.8%)
1999	540	489 (90.6%)	265 (54.2%)	174 (35.6%)	155 (31.7%)	27 (5.5%)
2000	563	506 (89.9%)	274 (54.2%)	177 (35.0%)	165 (32.6%)	35 (6.9%)
2001	678	591 (87.2%)	293 (49.6%)	210 (35.5%)	158 (26.7%)	31 (5.2%)
2002	575	469 (81.6%)	256 (54.6%)	149 (31.8%)	133 (28.4%)	29 (6.2%)
2003	543	522 (96.1%)	329 (63.0%)	195 (43.0%)	140 (26.8%)	21 (4.0%)
2004	608	588 (96.7%)	381 (64.8%)	202 (39.1%)	142 (24.1%)	23 (3.9%)
2005	559	537 (96.1%)	364 (67.8%)	210 (45.5%)	144 (26.8%)	18 (3.4%)

INTERPRETATION:

There has been a decrease in cardiac arrests with an initial rhythm of VF/VT (those most likely to respond to treatment). This may explain the decrease in survival rate over the last 3 years. Perhaps this trend (if it is real) may be explained by an aging population with more comorbidities having cardiac arrests. This phenomenon requires more study. The bystander CPR rates this year is very good.

BENCHMARKS:

OPALS Survival 5.1%

LIMITATIONS:

OPALS benchmark had a 90% fractile response interval of 8 minutes (response interval less than 8 minutes, 90% of the time). Our data includes many cardiac arrests in rural areas where response times can be prolonged.

Survivors

Once a patient is discharged, (s)he is sent a letter stating that we are doing follow up on all patients who suffered an out of hospital cardiac arrest and were discharged from hospital. The letter states a paramedic will be contacting them to conduct a phone or in-person interview. We emphasize this is purely voluntary and that no change in their management will result from participating or not participating in the interview.

Cerebral Performance Category Scale	
1	Good
2	Mild Disability
3	Moderate Disability
4	Severe Disability
5	Coma/vegetative state

2003 (21)		2004 (24)		2005 (18)	
CPC	# (%)	CPC	# (%)	CPC	# (%)
1	20	1	13	1	14
2	1	2	5	2	1
3	-	3	1	3	-
4	-	4	-	4	-
5	-	5	-	5	-
?	-	?	5	?	3

A score of 1 or 2 is considered good outcome. Combining the 2003, 2004 and 2005 data shows that 54/55 (98.1%) patients who could be interviewed had a 1 or 2 rating. If we include the patients that could not be reached then the percentage becomes 54/63 (85.7%).

Definitions

Adult: Any patient 16 years of age or older.

Asystole: The cessation of all electrical activity in the heart.

Arrest Witnessed (Bystander): Patient collapse was seen or heard by a bystander.

Arrest Witnessed (EMS): Patient arrested after arrival of emergency response personnel. [Utstein studies report 10% of out-of-hospital cardiac arrest occur after the arrival of emergency personnel.]

Arrive to Shock Interval: The period of time from the moment the ambulance arrives at scene until the time the first defibrillation (shock) is given.

Bystander CPR : *(also called Lay or Citizen CPR)* An attempt to perform basic cardiopulmonary resuscitation on a cardiac arrest patient by a person who is not a member of the organized emergency response system. By this definition a physician, nurse or paramedic who happen to witness a cardiac arrest and provide CPR is classified as a bystander.

Call Response Interval: The period of time from the moment the call for help is answered at the Ambulance Communication Centre to the moment the paramedics arrive at scene. Also referred to as call received/receipt until at scene interval. Note that this interval does not extend to arrival at the patient's side.

Cardiac Arrest: The cessation of the heart's mechanical activity with loss of vital signs (no detectable pulse, breathing and unresponsive).

Cardiac Etiology: It is impossible to accurately determine the specific cause of cardiac arrest for all attempted resuscitation. According to the Utstein Style Template we classify cardiac arrest as presumed cardiac etiology if it is likely based on all available information - history, past medical history, presenting rhythm, hospital, autopsy and Medical Examiner (ME) records. However, this frequently is a diagnosis of exclusion as patients who do not fit readily into the non cardiac etiology category are included in the cardiac etiology category.

Cardiopulmonary Resuscitation (CPR): Broad term meaning an attempt to restore spontaneous circulation. This term refers to basic CPR which is the attempt to restore effective circulation with external compressions of the chest wall, plus expired air inflation or the lungs.

Definitions

Cerebral Performance Category: This is a five point scale used to assess neurological status of survivors from out of hospital cardiac arrest. Category 1 is conscious and normal, without disability. Category 2 is conscious with moderate disability. Category 3 is conscious with severe disability. Category 4 is a comatose or vegetative state. Category 5 is death. Our system uses a single data collection form but many interviewers to collect this data.

Computer Aided Dispatch (CAD): In Nova Scotia, all calls for an ambulance are transferred from a 911 Public Service Answering Point (PSAP) to a single Ambulance Communications Centre and automatically assigned a master incident number (MIN) and time stamped. A computer program guides the call taker through a series of questions and then suggests a response configuration (closest ambulance - no lights and siren, with lights and siren, second ambulance to intercept and/or assist the first, medical first responders as well as the ambulance(s), etc.)

Dead on Arrival (DOA): A patient who was pronounced dead upon the arrival of paramedics. There was no attempt at resuscitation.

Expired in Field: A patient was declared dead after field ALS resuscitation attempts. Includes patients transported to hospital but pronounced dead without further resuscitation attempts in the Emergency Department.

Medical Oversight Physician (MOP): Physician responsible for a specific area in Nova Scotia who oversees the care provided to persons using the ambulance service according to provincial emergency medical policies and protocols.

Non cardiac Etiology: Non cardiac causes of cardiac arrest include drug overdose, suicide, drowning, hypoxia, exsanguination, cerebrovascular accident, and trauma.

On Line Medical Oversight Physician (OLMOP): Physician who provides on-line medical oversight consultation 24/7 for ground ambulance paramedics providing care to persons using the ambulance service according to provincial emergency medical policies and protocols.

Population at Risk: The provincial population over the age of fifteen (15) years.

Private Residence: Home/Cottage.

Public Access Defibrillation: The provision of defibrillation by non-traditional "first responders" such as security guards, lifeguards, flight attendants, etc.

Definitions

Pulseless Electrical Activity: An organized cardiac rhythm but there is no pulse/cardiac output

Resuscitations Attempted: This group includes all persons whom emergency system personnel attempted to resuscitate (other than basic assessment). A resuscitation attempt refers to some effort at basic CPR.

Resuscitation Not Attempted: Resuscitation attempts for some patients in cardiac arrest are inappropriate and should not be attempted. The current EHS policy is that if a patient has evidence of being dead for a period of time where resuscitation attempts would have no hope of success the paramedics do not attempt resuscitation. Additionally, resuscitation is not attempted on patients with a Do Not Resuscitate (DNR) order. Also, if the interval from patient collapse until arrival of the paramedics at the scene is confirmed to be greater than fifteen (15) minutes, no CPR has been performed prior to their arrival and, the defibrillator reveals asystole or gives a no shock advisory, resuscitation may not be attempted.

Survival: Out-of-hospital cardiac arrest patient successfully resuscitated and subsequently discharged alive from hospital.

Survival Rate: The number of survivors to hospital discharge divided by the number of people who suffer an out-of-hospital cardiac arrest of cardiac origin and have resuscitation attempted.

Utstein Style: Internationally agreed upon criteria and definitions for reporting out-of-hospital cardiac arrest data and outcomes. Named for the location in Norway of the first international conference on reporting cardiac arrest data.

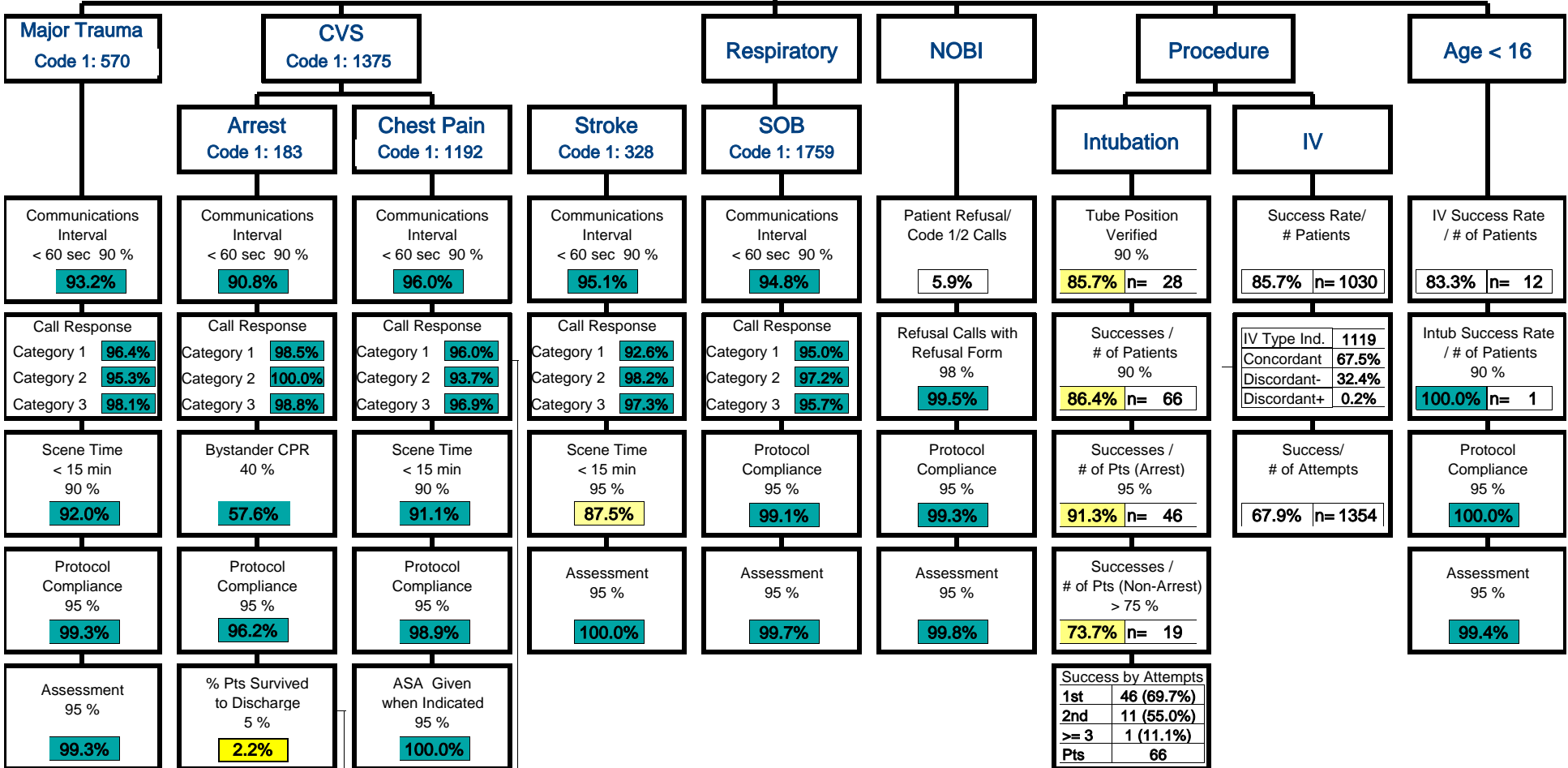
Ventricular Fibrillation / pulseless Ventricular Tachycardia (VF/VT): A totally disorganized / extremely fast, ineffective electrical activity in the heart resulting in no cardiac output.

Period 1st Quarter 2006
 Provincial
 Total Calls: 26,166 Code 1: 10,044

Nova Scotia Emergency Health Services

Medical Quality Performance Measure Report

■	Achieved or above target
■	Within 10% of target
■	Below target by more than 10%
■	No data available



% Patients...
 * Arrest Confirmed
 * Resuscitation attempted
 * Etiology Confirmed

Call Response Interval (call recieved 'til unit arrive scene)
 Category 1 - Response interval <9 min. - 90 %
 Category 2 - Response interval <15 min. - 90 %
 Category 3 to 5 - Response interval <30 min. - 90 %

* (Concordant) - Actual method is the same as the indicated method.
 * (Discordant +) - Actual method is greater than the indicated method.
 * (Discordant -) - Actual method is less than the indicated method.