



Annual Statistical Report

January – December 2003

Cardiac Arrest Study Communities

OPALS Prehospital Research Group Study Annual Report – 2004

Acknowledgements

The OPALS Study Steering Committee wishes to thank all those who have contributed to the study. This annual report would not have been possible without the continuing support of the following people.

Study Coordinating Center

Banek, Jane
Beaudoin, Tammy
Brisson, Dave
Campbell, Starla
Cousineau, Donna
Domingo, Sheryl
Kwan, Howard
Marcantonio, Angela
Nesbitt, Lisa
Stiell, Ian
Tran, My-Linh

Base Hospital Medical Directors

Affleck, Andrew
Arcieri, Vince
Bradford, Paul
Dreyer, Jon
Graham, Karen
Lees, Martin
Lepage, Robert
Maloney, Justin
Munkley, Doug
Stempien, Matt
Waldibillig, David

Hospital Health Records Staff

Adamo, Sherri
Arpan, Shiela
Baulk, Tabitha
Beckman, Cheri
Bercier, Carmen
Burt, Suzanne
Cambridge, Darlene
David, Betty
Farrell, Tammy
Gardi, Lou
Kittson-Crawford, Lyse
Knudsen, Helen
Latam, Janice
McGee, Janet
Milak, Dorothy
Nasser, Shirin
Nayler, Barb
Newman, Donnette
Noble, Dale
Purdy, Coralee
Quigley, Tammy
Sanca, Maggie
Sgarbossa, Marilyn
Smith, Niki
Thompson, Donna
Whitehurst, Karen
Zuefle, Margaret

Base Hospital Program Staff

Brandt, Cindy
Brooke, Millie
Densmore, Nancy
Dutrisac, Nila
Ferguson, Bonnie
Hawkins, Rosie
Hietikka, Irene
Hobbler, Dave
Kolodziejczak, Dana
Labelle, Pamela
Parker, Lori Ann
Robinson, Heather
Rorai, Kelly
Slogan, Sandra
Smith, Michelle
Smithson, Shawn
Verdon, Jeanny

Base Hospital Program Directors

Ballah, Kieran
Boyle, Ken
Halladay, Mark
Hedges, Cathie
Hobler, David
LaBarre, Dallas
Lunistra-Toohey, Lorie
Mathers, Paul
Salminen, Sylvie
Trickett, John
Tyson, Tara
Wilson, Ann

OPALS Steering Committee

Campeau, Tony
Dagnone, Gene
DeMaio, Valerie
Field, Brian
Francis, Cathy
Lyver, Marion
Spaite, Daniel
Stiell, Ian
Vaillancourt, Christian
Wells, George

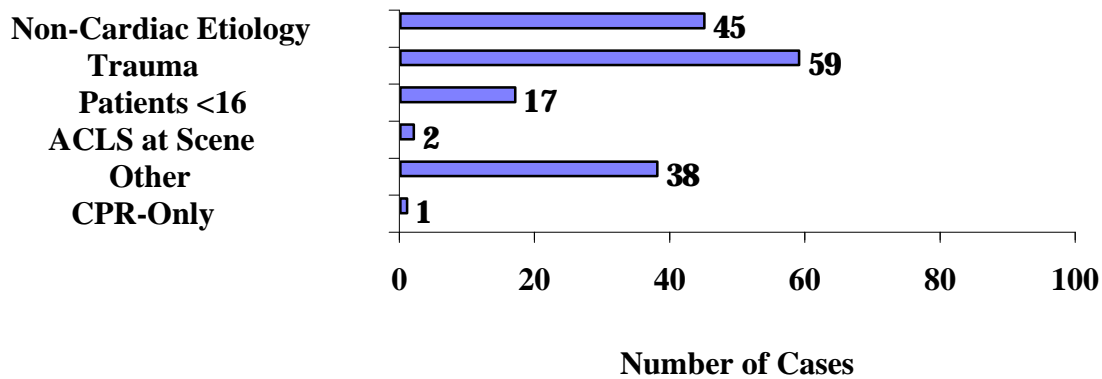
Annual Cardiac Arrest Statistics January - December 2003

Study Patients

Patients Eligible for Study (N=1538)

No	162	10.5
Yes	1376	89.5

Reasons for Ineligibility (N=162)



Study Sites

Base Hospital

Study Community (N=1376)

Halton Region	Burlington *	75	5.5%
	Oakville*	49	3.6%
Cambridge	Cambridge *	60	4.4%
	Kitchener/Waterloo *	102	7.4%
Kingston	Kingston *	67	4.9%
London	London *	165	12.0%
Niagara Region	Grimsby	11	0.8%
	Niagara *	52	3.8%
	Port Colborne	17	1.2%
	St. Catharines *	80	5.8%
	Welland *	32	2.3%
	Fort Erie	9	0.7%
Ottawa-Carleton	Ottawa *	292	21.2%
Peterborough	Lindsay	14	1.0%
	Peterborough *	44	3.2%
	Port Hope/Cobourg*	19	1.4%
Sarnia	Sarnia *	55	4.0%
Sudbury	Sudbury*	43	3.1%
Thunder Bay	Thunder Bay *	69	5.0%
Windsor	Windsor *	121	8.8%

* Sites in Phase III

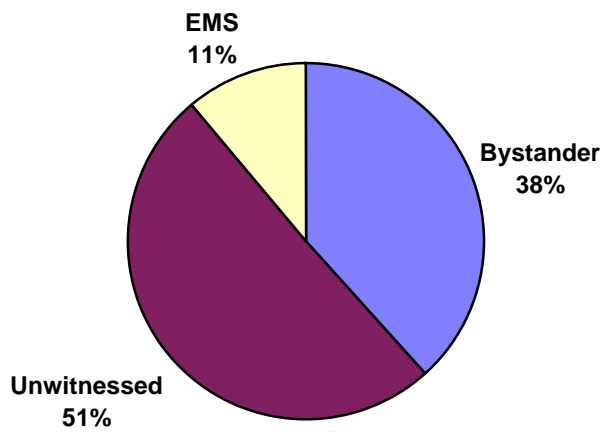
Subject's Gender (N=1376)

Male	942	68.5
Female	434	31.5

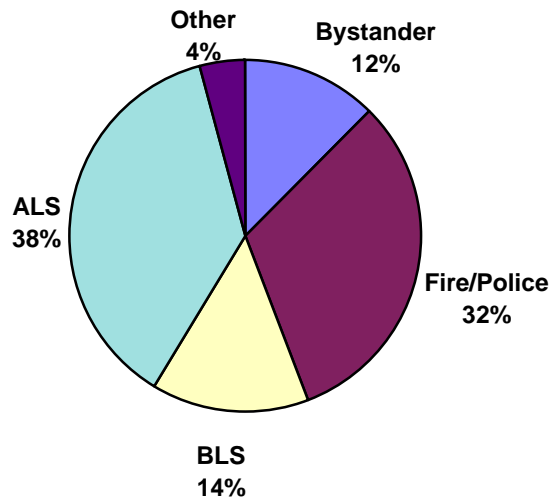
Subject's Age (N=1372)

Mean (SD)	69
Median	72
Minimum, Maximum	(17, 97)

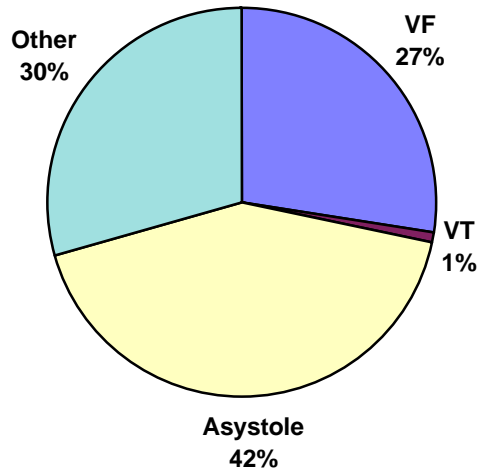
Arrest Witnessed (N=1376)



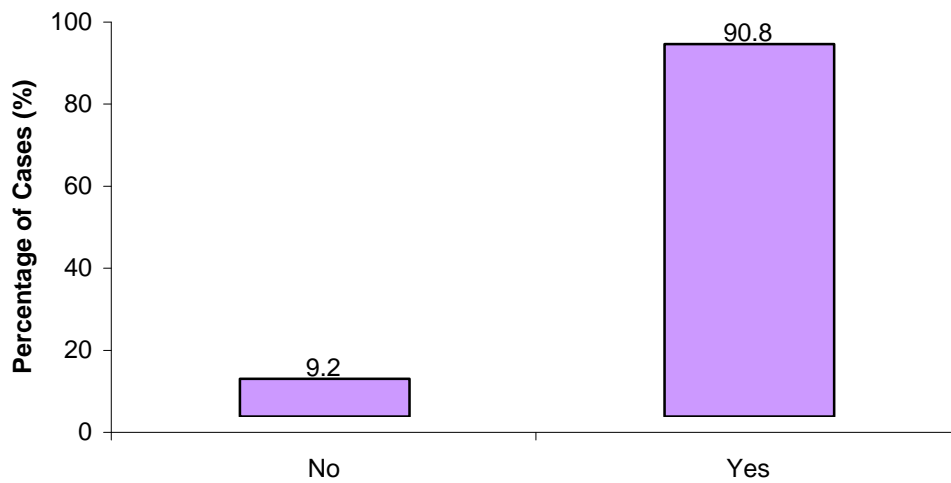
CPR Started by (N=1368)



Initial Rhythm (N=1336)

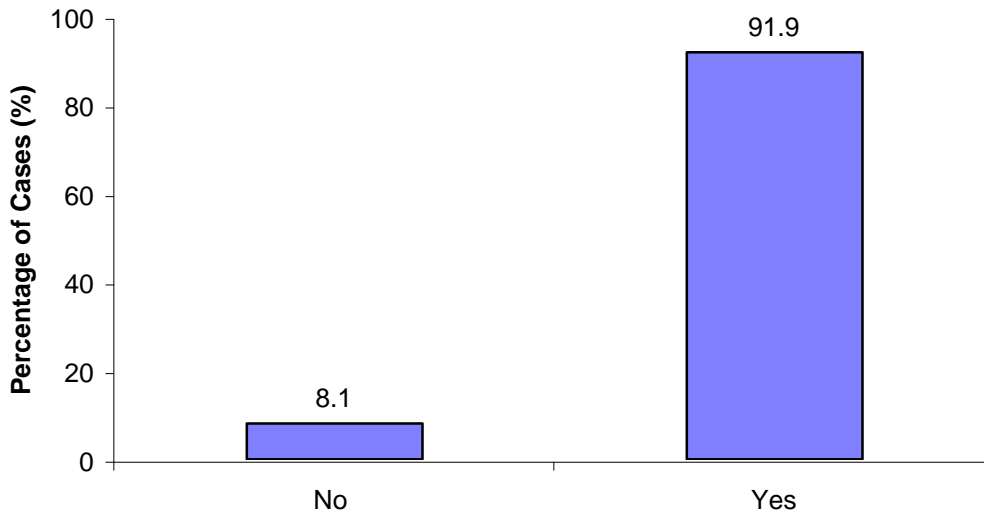


Defibrillator Response 8 Min. or Less (N=1214)

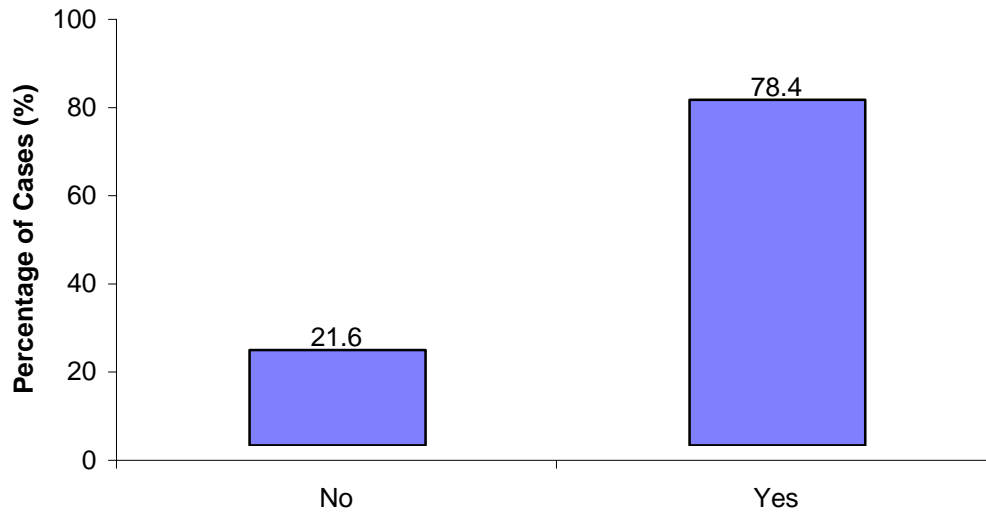


* Missing data are due to EMS-witnessed arrests

Overall Advanced Care Paramedic Response (N=1264)

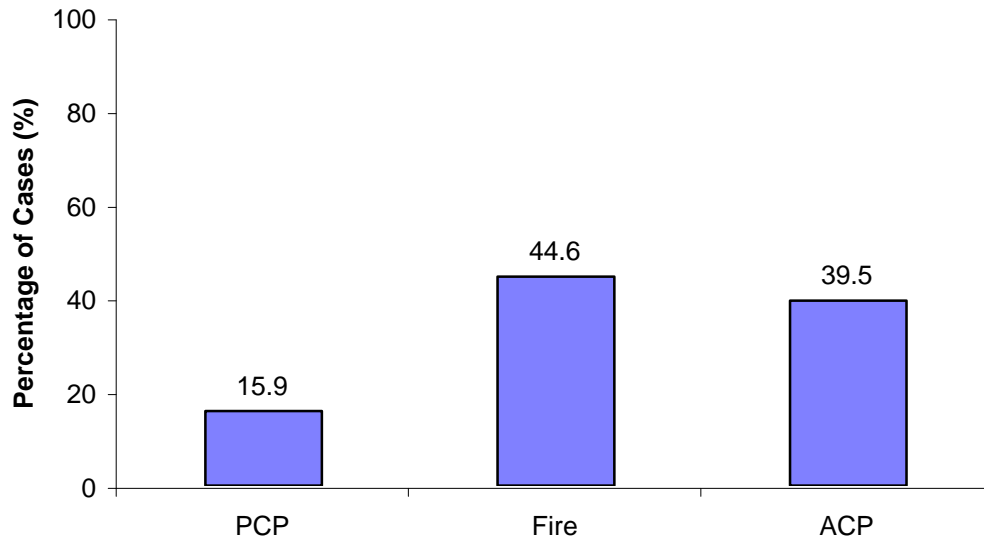


Advanced Care Paramedic Response 11 Min. or Less (N=947)



* Missing data are due to EMS-witnessed arrests

First to Scene (N=1214)



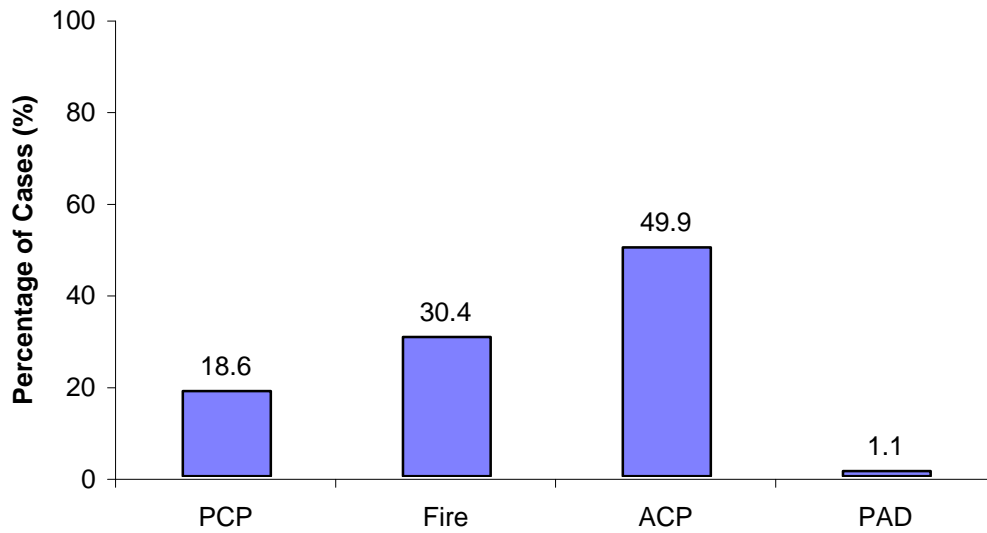
* Missing data are due to EMS-witnessed arrests

Illogical* Time to First Analysis (N=1376)

No	1273	(93%)
Yes (Ambulance)	88	(6%)
Yes (Fire)	13	(1%)

*Illogical times normally indicate a problem with defibrillator clock synchronization.

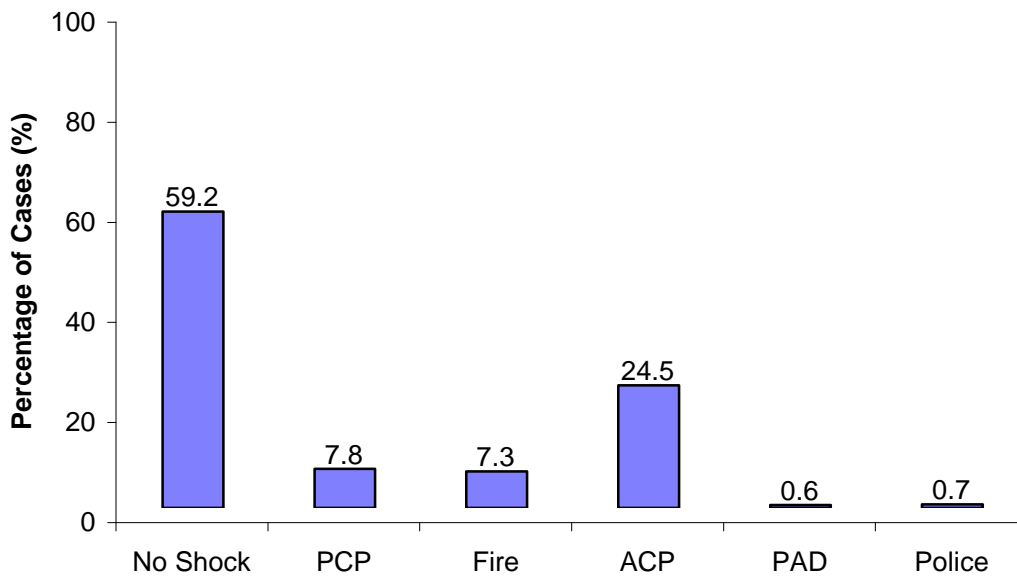
First Analysis (N=1134)



* Missing data are due to EMS-witnessed arrests or incomplete defibrillation records.

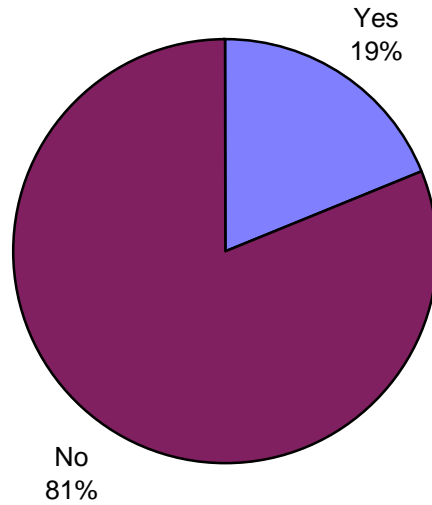
** Public Access Defibrillation Program

First Shock Administered (N=1376)

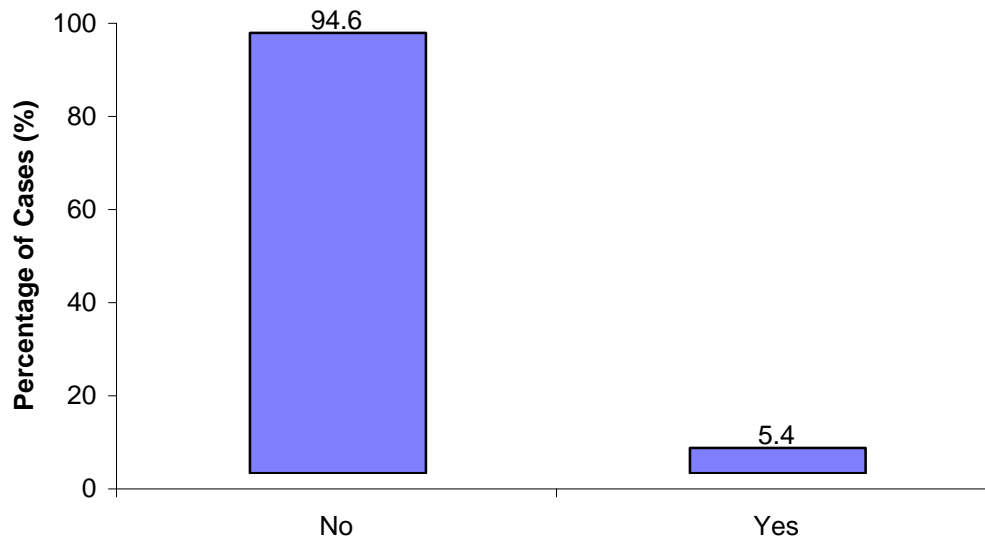


** Public Access Defibrillation Program

Return of Spontaneous Circulation (N=1375)

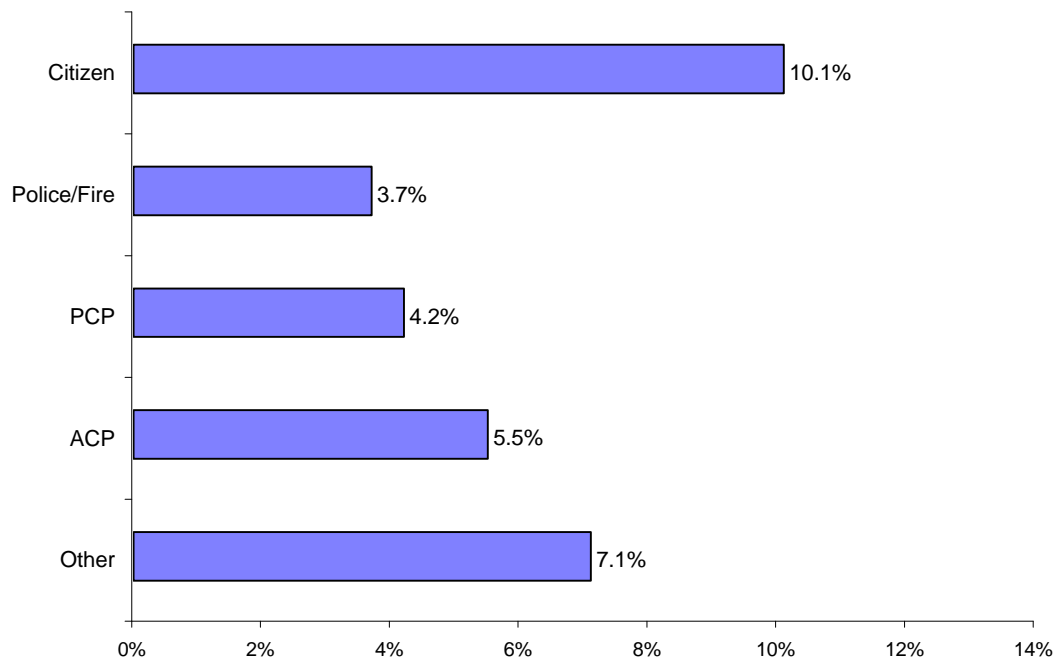


Discharged Alive (N=1372)

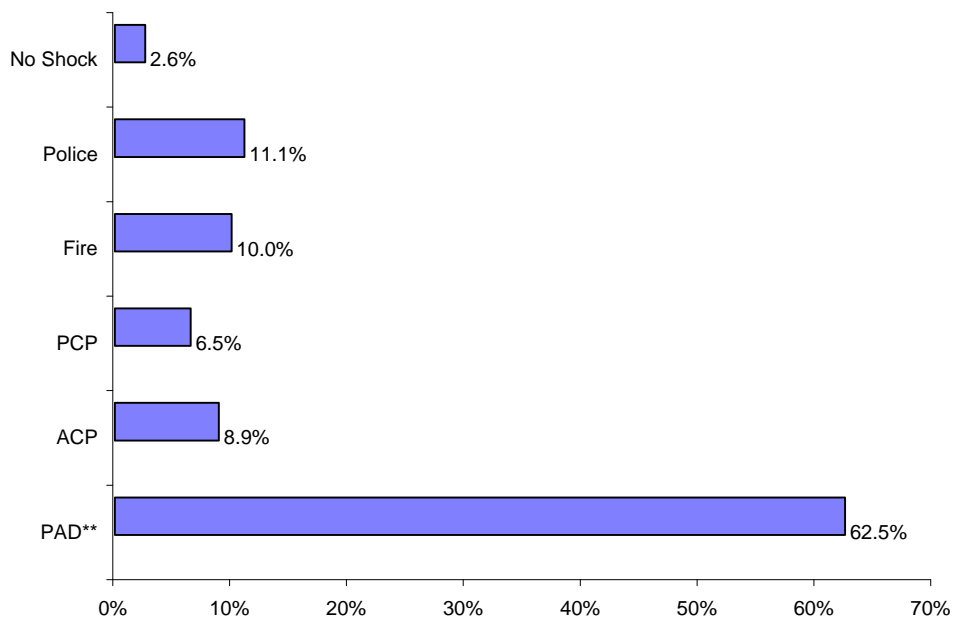


Survival Subgroups

Discharged Alive by
Who Started CPR (N=1364)

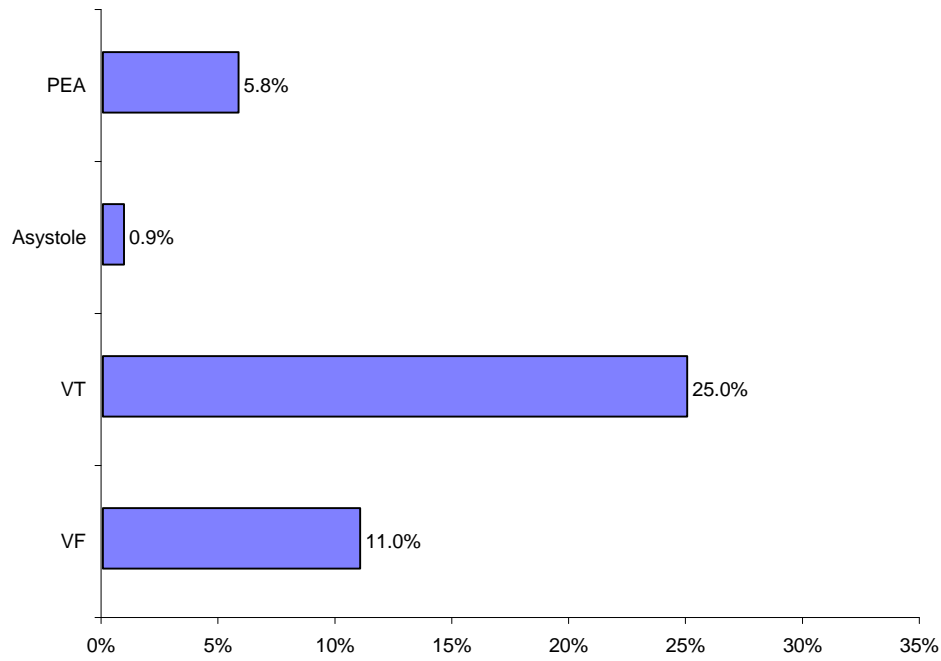


Discharged Alive by
Who Administered First Shock (N=1372)

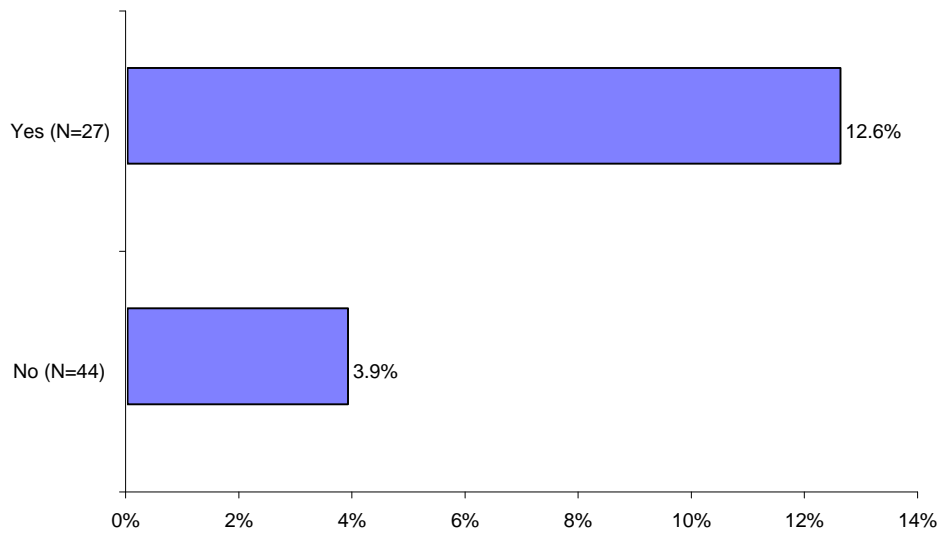


**Public Access Defibrillation (N=5)

**Discharged Alive by
Initial Rhythm (N=1332)**



**Discharged Alive by
Witnessed VF/VT (N=1332)**



Defibrillation Response
Arrival at Scene Response Characteristics (by Month)
January 1 2003 to December 31 2003

MONTH	Total Number of Eligible Cardiac Arrest Cases	Number of Eligible Cases with Valid Times	Percentage of Cases to Scene in 8 Min or Less	Percentage of Cases in which Fire Arrived First
Jan 03	154	135	92.6%	46.7%
Feb 03	108	92	88.0%	43.5%
Mar 03	118	102	98.0%	45.1%
Apr 03	114	100	88.0%	48.0%
May 03	128	110	92.7%	41.8%
Jun 03	94	85	90.6%	45.9%
Jul 03	95	81	86.4%	38.3%
Aug 03	108	93	95.7%	47.3%
Sep 03	110	93	95.7%	45.2%
Oct 03	106	100	84.0%	42.0%
Nov 03	97	87	90.8%	50.6%
Dec 03	144	130	90.8%	43.8%
Overall	1376	1208	91.2%	44.9%

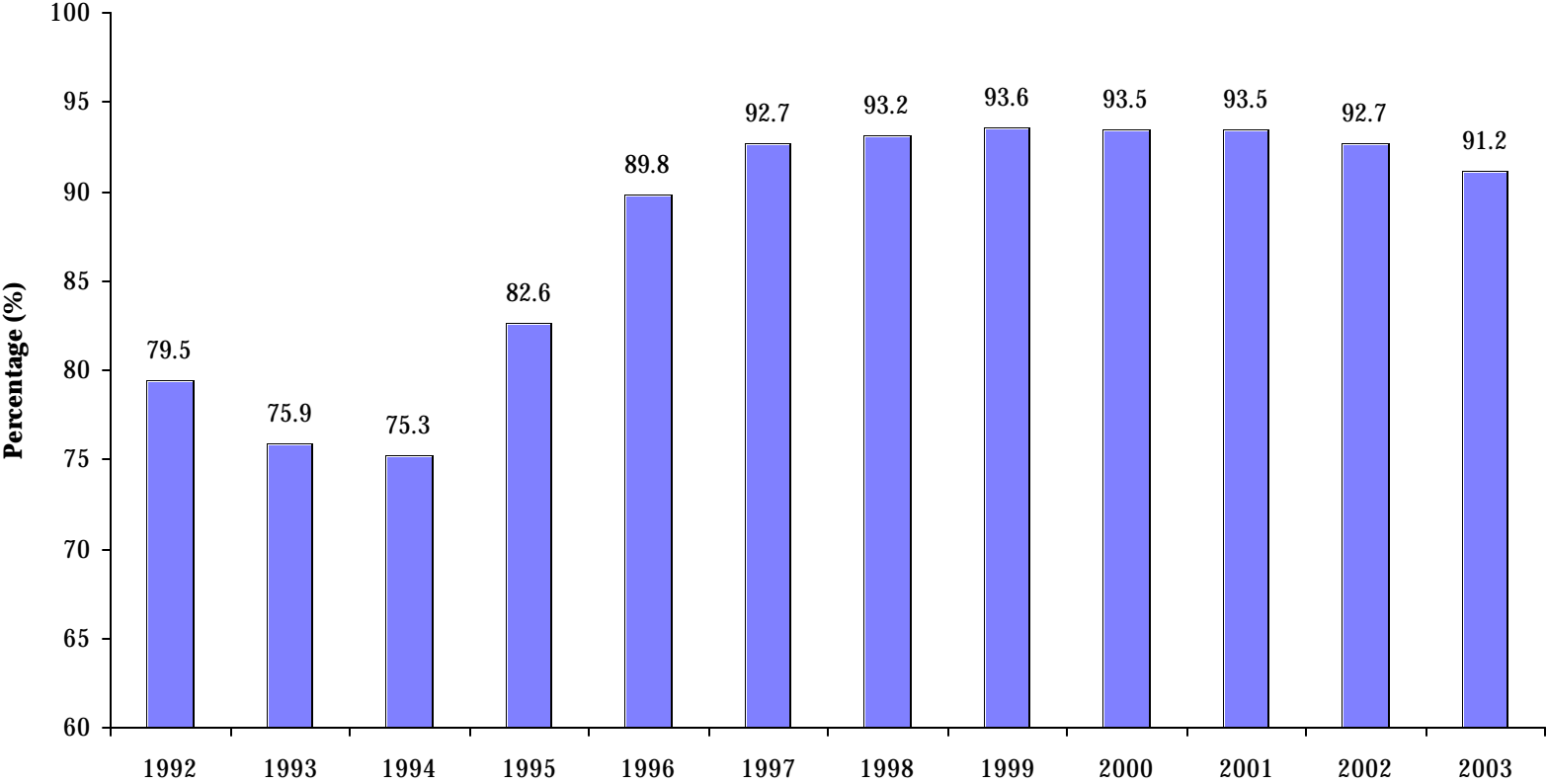
Advanced Care Paramedic Response Characteristics (by Month)

January 1 2003 to December 31 2003

MONTH	Total Number of Eligible Cardiac Arrest Cases	Number of Eligible Cases with Valid Times	Number of Cases with an ACP on Scene	Percentage of Cases with an ACP on Scene	Percentage of Cases with an ACP in 11 Min or Less	Number of Patients where Intubation Attempted	Percentage of Patients Successfully Intubated	Number of Patients where I.V Attempted	Percentage of Patients with Successful I.V Start
Jan 03	154	135	135	87.7%	77.0%	131	94.0%	130	87%
Feb 03	108	92	103	95.4%	87.0%	97	95.0%	97	88%
Mar 03	118	102	111	94.1%	87.3%	108	94.0%	106	91%
Apr 03	114	100	110	96.5%	83.0%	106	93.0%	105	90%
May 03	128	110	116	90.6%	76.4%	113	88.0%	107	89%
Jun 03	94	85	90	95.7%	74.1%	84	98.0%	86	90%
Jul 03	95	81	88	92.6%	76.5%	83	95.0%	82	91%
Aug 03	108	93	98	90.7%	69.9%	93	98.0%	92	84%
Sep 03	110	93	102	92.7%	77.4%	96	99.0%	94	94%
Oct 03	106	100	97	91.5%	77.0%	95	98.0%	89	87%
Nov 03	97	87	88	90.7%	79.3%	82	93.0%	82	89%
Dec 03	144	130	126	87.5%	76.2%	121	88.0%	114	90%
Overall	1376	1208	1264	91.9%	78.4%	1209	94.0%	1184	89%

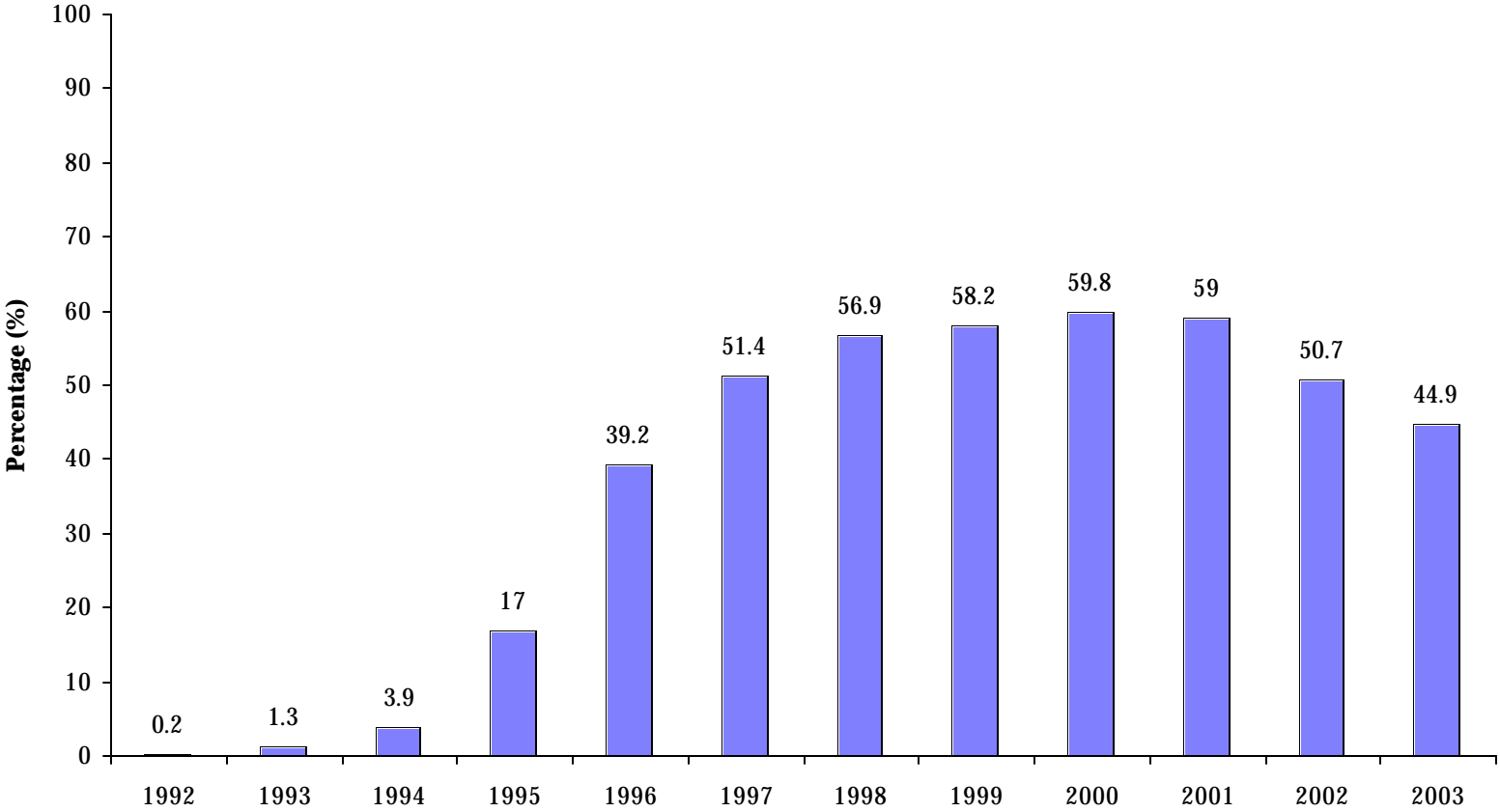
Annual Cardiac Arrest Statistics

**Percentage of Cardiac Arrest Cases with Defibrillator
Arrival at Scene 8 Minutes or Less (by Year)**



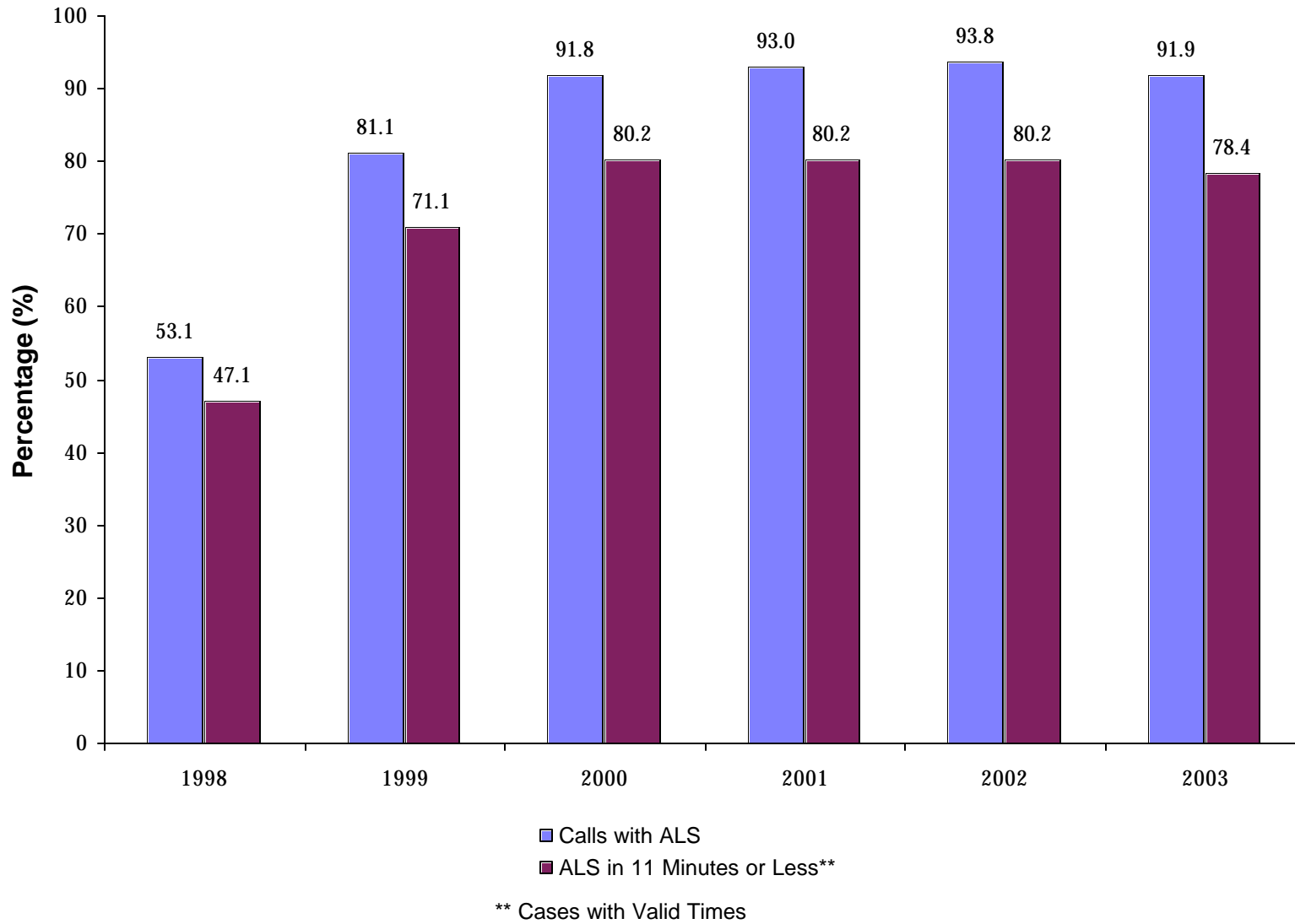
Annual Cardiac Arrest Statistics

Percentage of Cardiac Arrest Cases with Fire Arrival at Scene First (by Year)



Annual Cardiac Arrest Statistics

**Percentage of Cardiac Arrest Cases with ACP
Arrival at Scene (by Year)**



OPALS Site Summary 2003

Study Community	Total Number of Cardiac Arrest Cases	Bystander Witnessed (Percentage)	Citizen CPR (Percentage)	Fire/Police CPR (Percentage)	Initial Rhythm VF/VT (Percentage)	Discharged Alive (Percentage)
Burlington	75	31%	5%	46%	34%	5.3%
Oakville	49	45%	18%	22%	31%	4.1%
Cambridge	60	33%	10%	43%	21%	6.7%
Kitchener/Waterloo	102	42%	12%	40%	40%	5.9%
Kingston	67	43%	19%	23%	30%	7.5%
London	165	32%	14%	26%	28%	4.2%
Grimsby	11	46%	0%	20%	0%	0.0%
Niagara Falls	52	40%	6%	35%	23%	9.6%
Port Colborne	17	59%	0%	25%	29%	0.0%
St. Catharines	80	31%	9%	30%	28%	1.3%
Welland	32	44%	0%	38%	34%	3.1%
Ottawa	292	38%	12%	35%	28%	6.9%
Lindsay	14	50%	7%	7%	21%	7.1%
Peterborough	44	34%	16%	25%	30%	4.5%
Port Hope/Cobourg	19	37%	26%	16%	39%	0.0%
Sarnia	55	51%	20%	27%	28%	5.5%
Sudbury	43	40%	19%	14%	48%	4.7%
Thunder Bay	69	33%	13%	44%	9%	7.2%
Windsor	121	38%	14%	31%	26%	4.1%
Overall	1376	40%	12%	32%	28%	5.4%

OPALS Site Summary 2003 Cont'd...

Study Community	Arrived Scene in 8 Min (Percentage)	Fire Arrived First (Percentage)	Arrival of ACP at Scene (Percentage)	ACP at Scene 11 Min. or Less (Percentage)	Call Receipt to Crew Notified (min) *	Crew Notified to Vehicle Mobile (min) *	Call Receipt to First Vehicle Stops (min) *
Burlington	96.7%	64%	100%	90%	0.88	0.62	4.98
Oakville	95.2%	50%	100%	91%	0.81	0.50	5.04
Cambridge	89.1%	47%	98%	89%	0.67	0.75	5.38
Kitchener/Waterloo	90.3%	55%	100%	80%	0.72	0.95	5.35
Kingston	89.1%	36%	99%	80%	0.65	0.75	5.40
London	88.1%	28%	90%	72%	0.52	0.78	5.27
Grimsby	100.0%	50%	100%	75%	0.39	1.00	6.38
Niagara Falls	100.0%	49%	92%	87%	0.55	0.88	4.95
Port Colborne	100.0%	53%	94%	88%	0.43	0.87	4.43
St. Catharines	92.3%	68%	83%	72%	0.54	1.03	4.80
Welland	85.7%	50%	84%	86%	0.78	1.02	5.68
Ottawa	88.1%	51%	89%	72%	0.70	0.00	5.28
Lindsay	100.0%	15%	93%	85%	0.50	1.23	5.97
Peterborough	97.5%	43%	80%	63%	0.75	0.05	5.60
Port Hope/Cobourg	100.0%	33%	63%	56%	0.52	0.83	5.17
Sarnia	89.6%	19%	82%	77%	0.35	0.81	5.07
Sudbury	97.4%	11%	98%	95%	0.47	0.86	4.41
Thunder Bay	90.5%	56%	96%	86%	0.35	0.67	4.10
Windsor	92.9%	44%	98%	84%	0.64	0.66	4.43
Overall	91.2%	45%	92%	78%	0.62	0.68	5.11

*Time intervals are expressed as MEDIANS.

OPALS Study Annual Report - 2002
Annual Cardiac Arrest Statistics

OPALS Yearly Summary

	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	2002	2003
Total Number of Cardiac Arrest Cases	1493	1626	1688	1632	1670	1769	1659	1754	1718	1519	1383	1398	1376
Bystander Witnessed (Percentage)	42.0%	45.0%	44.0%	46.0%	45.0%	44.0%	45.0%	44.0%	41.0%	41.0%	40.0%	39.0%	38.0%
Citizen CPR (Percentage)	14.0%	13.0%	13.0%	14.0%	15.0%	14.0%	16.0%	16.0%	14.0%	14.0%	13.0%	15.0%	12.0%
Fire/Police CPR (Percentage)	25.0%	25.0%	24.0%	26.0%	29.0%	34.0%	41.0%	41.0%	38.0%	39.0%	37.0%	34.0%	32.0%
Initial Rhythm VF/VT (Percentage)	37.0%	38.0%	37.0%	38.0%	40.0%	36.0%	35.0%	35.0%	34.0%	32.0%	32.0%	30.0%	28.0%
Discharged Alive (Percentage)	4.6%	4.2%	3.1%	5.0%	5.0%	4.8%	5.3%	5.7%	4.7%	5.1%	5.2%	5.0%	5.4%
Arrived Scene in 8 Minutes (Percentage)	79.5%	75.9%	75.3%	82.6%	89.8%	92.6%	93.2%	93.7%	93.4%	93.5%	92.8%	92.7%	91.2%
Fire Arrived First (Percentage)	0.2%	1.3%	3.9%	17.0%	39.2%	51.5%	56.9%	58.3%	59.6%	59.2%	55.6%	50.7%	44.9%
Valid Cases with ACP (Percentage)	---	0.0%	0.0%	0.0%	10.0%	25.0%	53.0%	81.0%	92.0%	93.0%	92.0%	94.0%	92.0%
ACP at Scene in 11 Minutes (Percentage)	0.0%	0.0%	0.0%	0.0%	7.5%	20.0%	47.1%	71.0%	80.3%	80.4%	80.7%	80.2%	78.4%
Call Receipt to Crew Notified (min) *	1.00	1.00	1.00	0.87	0.75	0.75	0.72	0.72	0.65	0.62	0.6	0.58	0.62
Crew Notified to Vehicle Mobile (min) *	1.00	1.00	1.00	0.85	0.72	0.75	0.72	0.72	0.8	0.75	0.8	0.8	0.68
Call Receipt to First Vehicle Stops (min) *	6.00	6.27	6.22	5.72	5.32	5.08	4.95	5.10	4.93	4.98	5.02	5.07	5.11

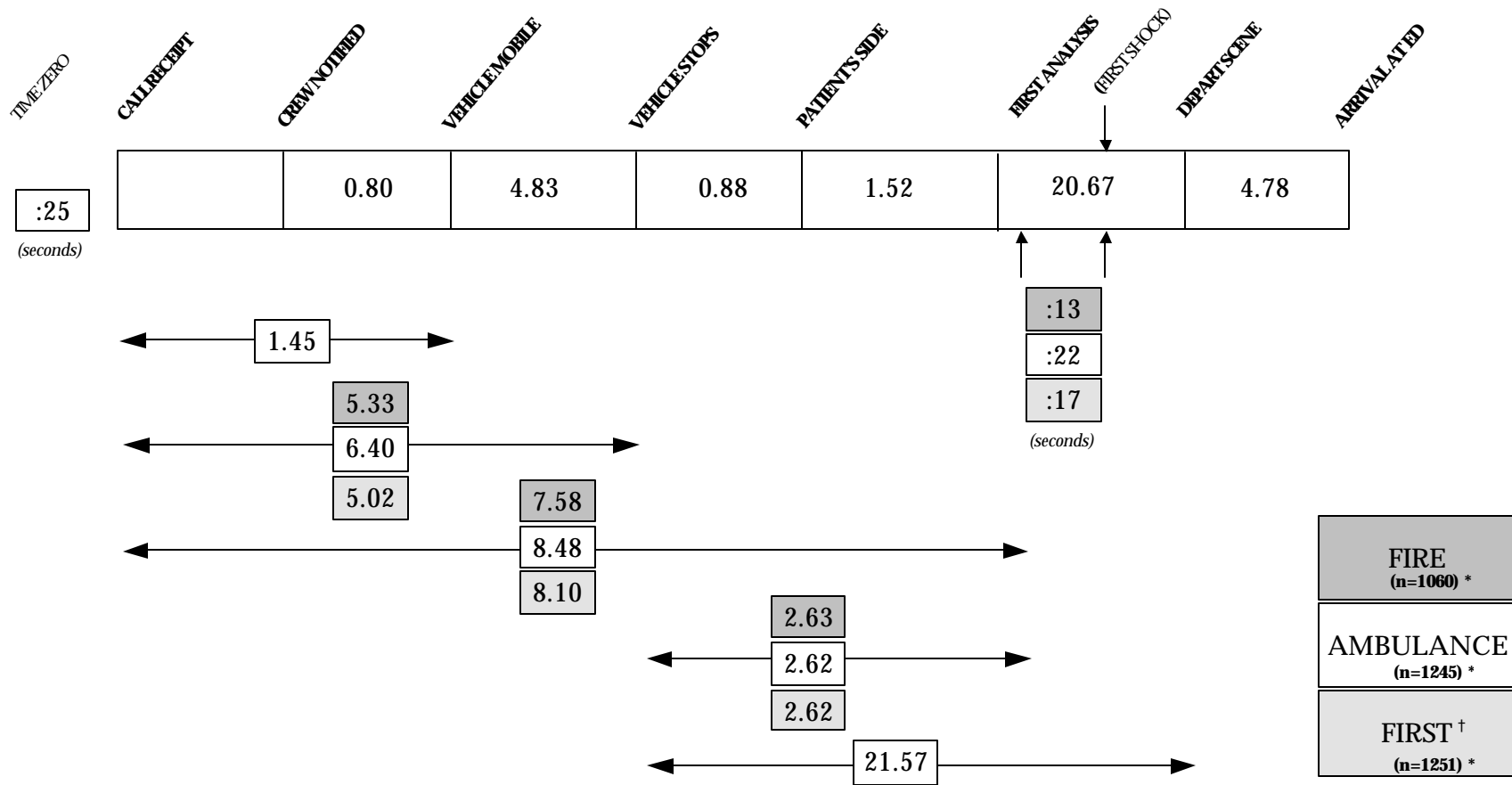
* Time intervals are expressed as MEDIANS.

ALS Procedures

July 1 1995 to December 31 2003

YEAR	Total Number of Cases with ALS at Scene	Number of Patients where Intubation Attempted	Percentage of Patients Successfully Intubated	Number of Patients where I.V. Attempted	Percentage of Patients with Successful I.V. Start
95/96	170	53	96%	51	94%
96/97	447	364	96%	361	90%
97/98	881	845	96%	821	89%
98/99	1422	1367	94%	1319	87%
99/00	1578	1520	93%	1474	89%
00/01	1415	1374	94%	1323	88%
01/02	1277	1226	93%	1205	88%
2002	1311	1233	92.6%	1208	89.6%
2003	1264	1206	94.10%	1179	89.1%

EMS Median Time Intervals (Minutes)



Note: Interval subtotals may not add up due to rounding and to different patient numbers.

* Approximate "n" (the number of cases included in the calculation of each interval may vary due to missing times).

† This average represents the response time of the FIRST responding unit which may be ambulance or fire.

This average may be faster or slower than that for FIRE alone since a greater proportion of calls are responded to by AMBULANCE.