Comparison of mean on-scene times: road versus air transportation of critically ill patients in the Western Cape of South Africa

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Aero medical services

Integrated with EMS

Advantage

- Decrease time to definitive care
- Decrease morbidity & mortality

Perception

- Air transports take too long
Call
Depart base
Arrive at patient
Depart with patient
Drop-off
Western Cape
Study design

Retrospective analysis
Critically ill patients within W-Cape
1 Sep 2005 – 31 May 2006
Study population

Inclusion
Red triage

Exclusions
Times not documented
No triage indicated
Mission type not indicated
No patients transported
Search & Rescue missions
Outgoing missions
Red patients

Road
  - Scene
  - Inter-facility

Air
  - Scene
  - Inter-facility
Total transports: 176,796

Total red transports: 49,425

- Red transports included: 7,924
- Red transports excluded: 41,500
Red excluded
41 500

Road
40 473
- No times
  30 013
- No patient
  6315
- Uncertain mission type
  5145

Air
27
- No times
  19
- Search & Rescue
  5
- Outgoing
  3
Red
n = 7924

Road
n = 7580
(95.7 %)

Air
n = 344
(4.3 %)

Scene
n = 4124

Inter-facility
n = 3456

Scene
n = 70

Inter-facility
n = 274
Mean on-scene time

Road

27.9 min
(95% CI 27.5 to 28.4)

Air

53.2 min
(95% CI 51.1 to 55.4)

\( p < 0.001 \)
Air vs Road

Current effect: F(1, 7922) = 521.04, p < 0.01 Mann-Whitney U p < 0.01

Effective hypothesis decomposition
Vertical bars denote 0.95 confidence intervals.
Road

Scene

24.6 min
(95% CI 24.0 to 25.2)

IFT

31.9 min
(95% CI 31.2 to 32.6)

p < 0.001
Air

Scene
31.7 min
(95% CI 27.1 to 36.3)

IFT
58.7 min
(95% CI 56.4 to 61.1)

p < 0.001
Air vs Road
Scene vs IFT
Air
53.2 min

Scene
31.7 min
Urban
24.00 min
Rural
37.79 min

IFT
58.7 min
Urban
45.22 min
Rural
59.20 min
Other SA data

Netcare911 Gauteng helicopter base
384 flights (January – December 2008)
Median on-scene time
  10 min
  24 min (advanced procedures)

Semenovskay et al. EMSSA 2011.
USA data

Scene flights:
Mean on-scene time: 9.9 min (SD = 6.3)

Inter-facility transports
Road: 25 min (SD = 13)
Air: 31 min (SD = 11)

Braude et al. Air Med J 2005
Svenson et al. Air Med J 2006
Prolonged on-scene time

Patient preparation
Medical > Trauma
Children > Adults
Less urgent
SA setting

Healthcare personnel
Equipment
Poor understanding
Road
  Lack of ALS

Lack of ALS
Balance

Optimal stabilisation

Minimal on-scene time
Conclusions

Prolonged on-scene time compromise main advantage

Appropriate stabilization & packaging by ground crew
Questions