Motorcycles in EMS

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Motorcycles in EMS

The Motorcycle Medic

Paramedic Motorcycle

Motorcycle EMS (not new!)
- Around since the early 1900s
- Used commonly in WWI
Motorcycle EMS (not new!)

- Resurgence in interest isn’t new
  - Hong Kong (since at least 1990)
  - United Kingdom (since 1990)
  - Singapore (since 1992)

And its use is widespread...........

Utrecht Netherlands

Japan

- Japanese fire depts use off-road motorcycles as emergency vehicles

Sao Paulo Brazil

- Deployed in two-man teams
  - the lead vehicle carrying a first aid kit & IV fluids
  - the rear vehicle cares more advanced equipment
- Hundreds more bikes ordered recently

Hong Kong Paramedic Motorcycle

- From 15 (in 2000) to 35 paramedic motorcycles (2008)

http://en.wikipedia.org/wiki/Motorcycle_ambulance
Australia

- “Response times as little as 3.5 mins vs 8 mins for ambulances”
- “The ave response time for a motorcycle crew was 3 minutes, well below standard crew average of 10 mins”

Miami

- Results
  - 1,300 dispatched calls
  - for immediate life threatening calls < 3 min response time (vs 6 - 8 mins with ambulance)

Nantucket’s Special Ops Motor Medics

The Motor Medics are located at key downtown districts
Population goes from 6,000 to >60,000 in the summer

Motorcycle Special Events Team

- Volunteers supporting community events, providing on route emergency care & communications.

Motorcycle Special Events Team

- A registered First Responder Org
- State certified & credentialed providers
- Medical Direction under the Austin/Travis County EMS System

http://www.emsresponder.com/article/article.jsp?id=3978&siteSection=1
http://www.mset-tx.org
http://www.mset-tx.org
http://www.massfiretrucks.com/MASS%20N.htm
Faster Response Times?

- What is the published evidence?

Singapore Study

- Simultaneous dispatch - Ambulances average **4.96 mins** longer than motorcycles (p<0.001, 95% CI 2.61-7.31)


Response Times

- In a congested urban setting (Taiwan)
  - Motorcycles simultaneously dispatched with an ambulance arrived on scene **1.4 minutes sooner during rush hour and 0.9 minutes faster in non-rush hour traffic**


Response Times

- In Portugal
  - **63%** of cases of simultaneous dispatch resulted in the motorcycle arriving **before** the ambulance


Response Times

- A Dutch study
  - found a **2 minutes faster** response time for motorcycles distances up to 7 kilometers


Response Times

Does it matter?
Norwegian Study

• In Oslo 3 patients were resuscitated by the motorcycle responders prior to the arrival of the ambulance and 2 achieved ROSC


Outcomes

• To date few studies have addressed and most are seriously underpowered

• Most focus on response times

But wait there is more….

You Call – We Haul

Non Transports

• City of Akron in 2011 had a 30% (8783/28,853) non-transport rate (refusals, medics initiated non-transport, DOA etc)

Assessment

• In unclear calls/invalid assists or those felt unlikely to need an ambulance the Motorcycle Medic can assess without tying up an ambulance

Ambulance Sparing

• In Oslo
  – 1/3 of all motorcycle dispatches were specifically dispatched to clarify the need for transport
  – another 1/3 was dispatched as the closest available unit.

Ambulance Sparing

- In almost ¼ (23.5%) of all motorcycle missions ambulance use was avoided!


Treat and Release

- Lin (Taiwan) had a 32% non-transport rate
  - but the ambulance was dispatched along with the motorcycle and was therefore always readily available for transport


Treat and Release

- In Portugal 18% of motorcycle medic cases the patient were not transported


Dutch Study

- 1842 total emergency dispatches:
  - 1664 were primary dispatches
    - 468 by the motorcycle (often roaming)
    - 1196 by ambulance (in station mostly)
  - 178 in response to requests for assistance by the originally dispatched unit


Transport & Treat and Release

<table>
<thead>
<tr>
<th></th>
<th>TRANSPORTED</th>
<th>REFERRED TO HOSPITAL BY OWN MEANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTORCYCLE</td>
<td>40%</td>
<td>9%</td>
</tr>
<tr>
<td>AMBULANCE</td>
<td>72%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Remainder were released

Treat and Release

- More likely to occur when the motorcycle medic responded irrespective of complaint!

- Except the elderly – they were more likely to be transported irrespective of response mode
Emergency Call

- In the first few minutes you don’t usually need ....

- The maximum response option is usually unnecessary, frequently dangerous and always costly

Emergency Call

- But you do need ....

- Can be delivered by a motorcycle medic

What About?

- Additional uses:
  - Locked in/lonely (freq callers)
  - Invalid assists
  - Nontransports and refusals

- Excellent PR and good QA

Take Home Points

- They are fast, highly mobile and may make a difference when response times matter

Take Home Points

- Provide a highly mobile and rapid extra set of hands for back up to ambulance crews
Take Home Points

• Motorcycles provide more response options for less than adding another ambulance!

• And provide follow-up options as well

And If Motorcycles Make you Nervous

The future?

Rural Patient Transport Device – AmbiCycle™