Motorcycles in EMS

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Motorcycles in EMS













The Motorcycle Medic







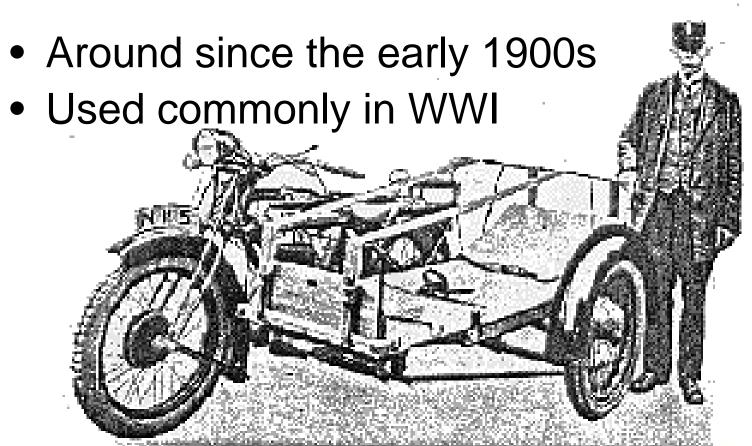
Paramedic Motorcycle



Offered on e-bay (free shipping in UK!)



Motorcycle EMS (not new!)



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.....





Mar 23, 2009

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)



Australia

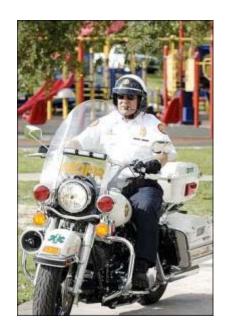
 "Response times as little as 3.5 mins vs 8 mins for ambulances"

"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)</p>



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





Motorcycle Special Events Team





Faster Response Times?

What is the published evidence?



Singapore Study

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

Marcus Ong, Yiong Huak Chan, Venkataraman Anantharaman. Improved Response Times with Motorcycle Based Fast Response Paramedics in an Urban Setting. SGH PROCEEDINGS. 2003;2(3): 214-219.



- 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

Lin CS, Chang H, Shyu KG, Liu CY, Lin CC, Hung CR, Chen PH. A method to reduce response times in prehospital care: the motorcycle experience. Am J Emerg Med 1998;16:711-713



- In Portugal
 - 63% of cases of simultaneous dispatch resulted in the motorcycle arriving <u>before</u> the ambulance

Soares-Oliveira M, Egipto P, Costa I, Cunha-Ribiero LM. Emergency motorcycle: has it a place in a medical emergency system? Am J Emerg Med 2007;6:620-622.



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

Veen AA van der, Zwakhals SLN, Hazelzet-Krans B, Manen JW van. Niet zonder zorg, een onderzoek naar de doelmatigheid en kwaliteit van de ambulancezorg. RIVM rapport (Not without care, a study of efficiency and quality ambulance care. RIVM Report) 270556002 2001.



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

Nakstad AR, Bjelland B, Sandberg M. Medical emergency motorcycle – is it useful in a Scandinavian Emergency Medical Service? Scand J Trauma Resusc Emerg Med. 2009 17(1):9 http://www.sjtrem.com/content/17/1/9



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 <u>without</u> <u>tying up an ambulance</u>

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.

Nakstad AR, Bjelland B, Sandberg M. Medical emergency motorcycle – is it useful in a Scandinavian Emergency Medical Service? Scand J Trauma Resusc Emerg Med. 2009 17(1):9

OF THE NATIONAL ACADEMIES

Ambulance Sparing

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

Nakstad AR, Bjelland B, Sandberg M. Medical emergency motorcycle – is it useful in a Scandinavian Emergency Medical Service? Scand J Trauma Resusc Emerg Med. 2009 17(1):9



Treat and Release

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

Lin CS, Chang H, Shyu KG, Liu CY, Lin CC, Hung CR, Chen PH. A method to reduce response times in prehospital care: the motorcycle experience. Am J Emerg Med 1998;16:711-713

Treat and Release

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

Soares-Oliveira M, Egipto P, Costa I, Cunha Ribiero LM. Emergency motorcycle: has it a place in a medical emergency system? Am J Emerg Med 2007;6:620-622.

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

Van der Pol H, Mencl F, de Vos R. The Impact of an Emergency Motorcycle Response Vehicle on Prehospital Care in an Urban Area. Eur J Emerg Med 2011 18(6)328-333.

Transport & Treat and Release

	TRANSPORTED	REFERRED TO HOSPITAL BY OWN MEANS
MOTORCYCLE	40%	9%
AMBULANCE	72%	1%

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 <u>usually</u>

need



Emergency Call

 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 <u>may</u> 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 then adding another ambulance!

And provide follow-up options as well





And If Motorcycles Make you Nervous

The future?

Rural Patient Transport Device – AmbiCycleTM



US Patent Pending Jan 09 Dr. Mark E. Benden CPE Dr. Eric Wilke