The Role of Informatics in Prehospital Emergency Resuscitation and Defibrillation

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78 minutes in the life (and near death) of Fabrice Muamba

When Bolton Wanderers star Fabrice Muamba, 23, dramatically collapsed last Saturday he came perilously close to death. This is the remarkable story of the team that saved him.

At 18.13 GMT last Saturday, 43 minutes after kick-off in the FA Cup tie between Bolton Wanderers and Tottenham Hotspur, played at White Hart Lane, north London, home of Spurs, 23-year-old Fabrice Muamba collapsed. As the stadium fell silent and medical staff huddled around him, the match was abandoned.

He was already a Wales international when they met in 2007,
## The Challenge of Survival

<table>
<thead>
<tr>
<th>No treatment</th>
<th>Sinus Arrest VF</th>
<th>4min</th>
<th>8min</th>
<th>12 min</th>
<th>Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td><img src="image2" alt="Waveform" /></td>
<td><img src="image3" alt="Waveform" /></td>
<td><img src="image4" alt="Waveform" /></td>
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<tr>
<td>Delayed Defibrillation</td>
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<td><img src="image6" alt="Waveform" /></td>
<td><img src="image7" alt="Waveform" /></td>
<td><img src="image8" alt="Waveform" /></td>
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<tr>
<td>Early CPR</td>
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<td><img src="image10" alt="Waveform" /></td>
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<tr>
<td>Early access</td>
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<td><img src="image19" alt="Waveform" /></td>
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<td>30-40%</td>
</tr>
</tbody>
</table>

*WIN Conference – 26 January 2016*

*Dr Sarah N. Lim Choi Keung*
Importance of PADs
Epidemiology of cardiac arrest

Need for a national PAD database

Responder alert systems, third party apps, etc.

Database of AED locations and other information


Image left: http://www.theguardian.com/money/2012/jan/20/emergency-call-operator-999
Early recognition + early CPR

- Training and awareness sessions
- Call 999 to get help
- Mobile apps for first aid
  - e.g. British Red Cross first aid app, St John Ambulance first aid app
- Mobile apps and online maps for AED location
  - e.g. South Central Ambulance Service
Early defibrillation

- National register of AED locations
  - Shareable, Comprehensive, Up-to-date, Registration point

- Other information relating to AEDs
  - Owner/guardian information, maintenance of consumables

- Approaches for automatically locating and maintaining AEDs
  - UDIs, GPS, M2M

- AED mapping apps and systems
  - Maps, Responder alert, Dispatch of lay responders
  - e.g. PulsePoint, GoodSam, FirstAED, HeartSafe Living
Post resuscitation care

- Support for clinicians: Record hand-over between Ambulance Service and Hospitals

- Download of AED data: standardisation and process

- Linking to other datasets, e.g. cardiac arrest registry to support clinical care and research
  - Optimise location of PADs
  - Better manage care, e.g. hospital capacity
Thank You

This work has been supported by the British Heart Foundation as part of the National Public Access Defibrillation Database Feasibility Study.