High patient mortality rate following RRS

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Background
In the Capital Region of Denmark, 5 Hospitals implemented medical emergency teams (MET) in 2007. When starting MET we had no assumption on what to expect for the outcome of patients seen on Rapid Response Systems (RRS) calls. 3 hospitals:  
- Gentofte, a smaller local hospital  
- Hillerød and Herlev, larger acute hospitals  
delivered sufficient data making it possible to compare patient’s outcome. All 3 hospitals have the same team structure, with ICU nurse and doctor. MET attend patients more than 15 years old. Decision about therapy limitation including DNAR is often made during calls.

Method
All citizens in Denmark have a unique identification number, Central Person Register number (CPR). Medical procedures performed in the hospital are registered in connection with CPR. RRS call is recognised as a medical procedure in Denmark and simple administrative data can be obtained for quality assurance.

3 hospitals chose to conduct a retrospective study with data from 2 years. Data collection included patient’s outcome when the hospital stay ends after RRS calls.
There were 3 possible outcome: Discharged, dead or transferred to another hospital.

Results
Aggregating data we had 2,936 calls for RRS, representing 2,307 unique patients.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Discharged</th>
<th>Dead</th>
<th>Transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentofte</td>
<td>36.8%</td>
<td>34.1%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Herlev</td>
<td>55.6%</td>
<td>40.7%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Nordjysk - Hillerød</td>
<td>49.5%</td>
<td>35.6%</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

Conclusion
A mortality rate of 35-40% is to be expected.

Discussion
Some patients die after receiving DNAR orders or other limitations in medical therapy after RRS, this can be a good quality of RRS. Missing warning signs of deterioration leading to patients death is important to track and to learn from, in order to improve RRS. The quality of RRS is thereby difficult to monitor with mortality rate as an indicator.

Using the mortality rate as a quality indicator requires a clear separation of the 2 groups of patients. We hope that a regional database will provide this opportunity.

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