About MySTEMI Network

The National Heart Association of Malaysia is embarking on a project named “MySTEMI Program” for the Klang Valley region. A regional based network that provides the best care (primary PCI) to patients suffering from a myocardial infarction in the critical early stages.

A hub-and-spoke concept has been adopted, in which a few hospitals (spoke) will feed their patients to a hub hospital with a cardiac catheterization laboratory.

Central Committee Members
Datuk Dr Rosli Mohd Ali, Chairperson
Dr Mahathar Abd Wahab
Dr Abdul Kahar Abdul Ghapar
Dr Choo Gim Hooi
Prof. Dr Wan Azman Wan Ahmad
Dr Mohd Rahal Yusoff

Advisors
Prof Dr Sim Kui Hian
Tan Sri Dato Seri Dr Robaayah Zambahari

Since MySTEMI network kick-off on 15th December 2015, a total of 264 primary PCI (pPCI) cases were conducted within the network.

Figure 1 shows the distribution of the pPCI cases referred to Hub Centres and their referral centres. The MySTEMI network demonstrated active referral activities at Spoke Centres level. At Hub centres, a steady increase were noted for STEMI cases presenting directly to the Emergency Department (ED) of Institut Jantung Negara (IJN), Hospital Serdang, University Malaya Medical Centre (UMMC), and University Teknologi MARA (UITM).

Continued on page 2
(Continued)

Between January and May 2016, Hospital Kuala Lumpur (HKL) remains the highest referring Spoke centre. Hospital Serdang ED saw a 5-fold increase from 6 cases in January, to 31 cases in May. Likewise, the following hospitals recorded 2-folds increase or more in the total number of patient referral since January 2016: Hospital Sungai Buloh, Hospital Tengku Rahimah, Hospital Putrajaya and Hospital Kajang. Following the Ethical Committee approval obtained for UMMC, the pPCI cases for UMMC were reported to MySTEMI Data Centre and UMMC ED recorded second highest referral for pPCI cases, with 49 cases by end of May 2016. Hospital Ampang, Hospital Shah Alam and recently Hospital Selayang started to refer STEMI patient to their respective Hub centres for pPCI.

The MySTEMI network activity recorded a total of 60 pPCI cases in March 2016. However, the number of cases saw a dip in April, with a reduction of 16 pPCI cases as shown in Table 1. These numbers of cases improved marginally to 47 cases by end of May 2016. In summary, MySTEMI network remains active and the pPCI cases conducted remains on-track with the projected target of 1000 pPCI cases by end of 2016 as shown in Figure 2.
PPUKM received Ethics Committee Approval

Ethics Committee (EC) approval for MySTEMI was recently obtained from PPUKM Ethics Committee (PPUKM EC). The data collection team in PPUKM can now initiate data collection and transmit the completed MySTEMI forms. To date, the EC approvals were obtained for IJN Ethics Committee (IJN EC), Medical Research Ethics Committee (MREC) and UMMC Medical Ethics Committee (UMMC MEC) as shown in Table 2.

<table>
<thead>
<tr>
<th>EC Name</th>
<th>IJN EC</th>
<th>MREC</th>
<th>UMMC MEC</th>
<th>PPUKM EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission</td>
<td>26-Jan-16</td>
<td>05-Feb-16</td>
<td>05-Feb-16</td>
<td>07-Apr-16</td>
</tr>
<tr>
<td>Approval</td>
<td>23-Feb-16</td>
<td>06-Mar-16</td>
<td>11-Mar-16</td>
<td>12-May-16</td>
</tr>
</tbody>
</table>

Table 2. Ethics Committees submission and approval dates for participating Hub and Spoke Centres

---

Data Collection: Update and Data Management

Data collection using standardized case report form (CRF) was implemented for MySTEMI network. Table 3 summarized the data collection and transmission to MySTEMI Data Centre for the active 4 sites, namely Institut Jantung Negara (IJN), Hospital Serdang, UiTM Hospital and University Malaya Medical Centre (UMMC). Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM), recently obtained EC approval will up and running soon.

MySTEMI data collection integrates the MySTEMI CRFs with data from the National Cardiovascular Disease Database (NCVD) Acute Coronary Syndrome (ACS) Registry and Percutaneous Coronary Intervention (PCI) Registry. The data collection for all three forms is to be completed within 14 days. Figure 3 presents the median days of data transmission.

Continued on page 4
for all Hub centres. The UiTM and Hospital Serdang median days were 2.5 days and 5 days, respectively. On the other hand, UMMC and IJN saw improvement in median days of data transmission of 7 days and 17 days in May 2016, from 60 days and 32 days in March 2016, respectively.

The completeness of the data for MySTEMI and NCVD are presented in Table 4 and Figure 4, respectively. For MySTEMI, overall the data completeness is satisfactory, however further improvement is required for ‘transfer time’ data point. For NCVD, in March 2016, IJN and UMMC achieved data completeness of 71.3% and 86.5%, respectively. On the other hand, data completeness for Hospital Serdang and UiTM was 22% and 62.3%, respectively. By end of May 2016, all of the sites achieved more than 80% data completeness. Strong support and timely data entry from data collection team at Hub centres contributed to the overall improvement noted in NCVD data entry for both ACS and PCI registries.

### Table 4. Percentage of completion for MySTEMI network CRF time points

<table>
<thead>
<tr>
<th>Time Points</th>
<th>IJN</th>
<th>HSD</th>
<th>UiTM</th>
<th>UMMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time &amp; date of onset</td>
<td>92.7</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Triage Time</td>
<td>87.8</td>
<td>100.0</td>
<td>100.0</td>
<td>97.0</td>
</tr>
<tr>
<td>FMC</td>
<td>80.5</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1st ECG</td>
<td>89.0</td>
<td>100.0</td>
<td>100.0</td>
<td>97.0</td>
</tr>
<tr>
<td>Transfer Time</td>
<td>43.9</td>
<td>100.0</td>
<td>100.0</td>
<td>93.9</td>
</tr>
<tr>
<td>Arrival Time ED</td>
<td>95.1</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Arrival Time Cath Lab</td>
<td>95.1</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

![Figure 4. Percentage of completion for required NCVD data points for MySTEMI network.](image)

---

### MySTEMI Development History

<table>
<thead>
<tr>
<th>Month</th>
<th>Event Description</th>
</tr>
</thead>
</table>
| Jan-2015 | 1st NHAM Stakeholder meeting  
  *Start of MySTEMI planning*  |
| Apr-2015 | 2nd NHAM – MYCEP meeting  
  *HKL-IJN STEMI network update*  |
| Jun-2015 | 3rd NHAM @ MYLIVE meeting  
  *MySTEMI KL pilot network introduction*  |
| Aug-2015 | Medtronic NHAM partnership  
  *Memorandum of Understanding established*  |
| Sep-2015 | 1st MYSTEMI Core Team Meeting  
  *Deep dive into MySTEMI needs and findings*  |
| Dec-2015 | MySTEMI Network Kick-off  
  *Begin patient diagnosis and management according to protocol*  |

<table>
<thead>
<tr>
<th>Month</th>
<th>Event Description</th>
</tr>
</thead>
</table>
| Jan-2016 | Global LUMEN KL – MySTEMI  
  *Economic model findings presentation to Minister of Health and Director General (Ministry of Health)*  |
| Feb-2016 | MySTEMI Network Data collection  
  *MySTEMI network data collection*  |
MySTEMI Events: Gallery

MySTEMI Workshop
NHAM Heart House
20th Feb 2016

MySTEMI Meeting
Le Meridien KL
30th Mar 2016
This study was supported by an unrestricted research grant from Medtronic International.