Clinical Microsystem Approach in Re-designing Electroconvulsive Therapy (ECT) Service in Institute of Mental Health, Singapore

Our Mission and Vision

VISION
A tertiary centre of excellence and global leader in mental healthcare

MISSION
Promote mental health
Provide person-focused service that is integrated, comprehensive, accessible and cost effective
Pursue continuous learning and research

Loving Hearts, Beautiful Minds
A Member of the National Healthcare Group
**Purpose**

Re-design the current ECT process to achieve the best possible outcomes for patients by providing **safe care** and **effective treatment** with no incidental harm, no pain, no wait and no anxiety.

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**Strategic Thrusts**

- **Re-design** the current ECT process to achieve the best possible outcomes for patients by providing **safe care** and **effective treatment** with no incidental harm, no pain, no wait and no anxiety.
Training by the Gurus

Ms Pernilla Söderberg August 2012

Mr Goran Hendriks September 2012

Dr Jason Stein November 2012

Senior Management Support

IMH CEO and CMB at the training on clinical microsystem

Senior Management Members with Ms Pernilla Söderberg
Evidence for re-design

- High cancellation rate, resulting in delay to patient care
  - 45 cases from Jan 2011 to Apr 2012 (cancellation occurs in every 10 days)
- Unsafe practices from JCI audits
  - medications not labeled
  - time out not properly conducted

Introduction – Reason/s for Action

- Year 2010 >>> 1351 I/P cases and 103 O/P cases
- Year 2010 >>> 1497 I/P cases and 96 O/P cases

Annual increase of 9.5%
Patient

Who are our patients
Inpatients who are:
  – Acutely unwell
  – Highly suicidal
  – Disturbed
  – Catatonic
  – Treatment resistance

Outpatients who require maintenance ECT

Process / Facilities Review Workshop

Objectives:
To evaluate our current process/procedures, manpower, facilities and equipment for ECT services.

Sponsors:
Our CEO and COO

Team members:
The multi-disciplinary team, support staff, administrator and patients
1. Please indicate your role in ECT:
MO - Medical Officer
A - Anesthetist
WN - Ward Nurse
ECTN - ECT Nurse
O - Others

2. Are there clear guidelines which list the required (i) preparation/ (ii) administration/ (iii) post-therapy procedures for ECT?
Y - Yes
N - No
Staff Survey

3. Which of the following are valid sources of information which helps you to execute your tasks?
   WI - Written Instructions
   I - Intranet
   IB - ECT Information Booklet
   OJT - On-job Training
   VI - Verbal Instructions

4. What gap(s) can you identify among existing ECT processes/procedures?

ECT Survey

5. What are your suggestion(s) for improvement(s), if any?

- Permanent ECT team
- Enhanced competency levels of ward nurses
- Prompt sending and fetching of pts
- Moderated workload
- Accurate iPharm records
- Pts to be restrained before ECT procedure starts
- Expansion of ECT room and addition of equipment
- Use number cords to identify sequence of pts receiving treatment
Patients’ Needs

- Findings from a survey conducted in May revealed that patients want:
  - Clear information (pre & post procedure)
  - Shorter fasting duration
  - Shorter turn around time
  - Convalescent environment

Process Map
## Current Gaps and Future State (Key points)

<table>
<thead>
<tr>
<th>Current gaps</th>
<th>Future state</th>
<th>Projected benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process (before procedure)</strong></td>
<td></td>
<td></td>
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<tr>
<td>1) Lack of consultation with Anaesthetist resulting in cancellation of ECT for patient</td>
<td>1) Email consult on patient’s medical condition and abnormal results between doctor and anaesthetist</td>
<td>1) Decrease the number of patients sent to ECT room with unstable medical condition</td>
</tr>
<tr>
<td>2) Ward staff send inpatients to ECT room by batches and end up waiting at holding area.</td>
<td>2) Inpatients are scheduled by appointment basis. Ward staff will prepare patient 30mins before appointment. ECT staff will bring patient down with proper handover conducted.</td>
<td>2) Minimal waiting time as there is no batching of patients. Increase in patients’ safety as proper handover is conducted. One piece flow as patients will be pushed into procedure area upon reaching ECT room.</td>
</tr>
<tr>
<td>3) Outpatients will register at clinic B before being directed to ECT room.</td>
<td>3) Outpatients will register at ECT room directly.</td>
<td>3) Reduce unnecessary touch points. Increase patients’ satisfaction.</td>
</tr>
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<td><strong>Process (during procedure)</strong></td>
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<td></td>
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<tr>
<td>1) No standard protocol for timeout</td>
<td>1) ECT nurses will be trained to conduct timeout according to SOP</td>
<td>1) Enhance patients’ safety</td>
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**Loving Hearts, Beautiful Minds**

A Member of the **National Healthcare Group**
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<td><strong>Process (recovery)</strong></td>
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<td></td>
</tr>
<tr>
<td>1) Excess movement due to the need to hook patients onto monitoring devices</td>
<td>1) Each recovery bay will be equipped with monitoring device.</td>
<td>1) Increase patients’ satisfaction and safety. Reduce movement waste as staff need not push patients around.</td>
</tr>
<tr>
<td>2) Excess waiting as only the anesthetist can discharge patients</td>
<td>2) Only patients with medical history and abnormal parameters need to be reviewed by anesthetist. ECT nurse can discharge patients with no abnormalities after treatment.</td>
<td>2) Discharge procedure is hastened without compromising on patients’ safety. There will be lesser patients at the recovery bay and hence less traffic. More space for staff and trolleys to maneuver.</td>
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<td><strong>Infrastructure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) No access to toileting facilities</td>
<td>1) En-suite toilet will be built for access to toilet facilities</td>
<td>1) Increase patients’ satisfaction. Reduce delay associated with toileting needs</td>
</tr>
<tr>
<td>2) ECT room is warm and stuffy</td>
<td>2) ECT room will be air-conditioned</td>
<td>2) Increase patients’ satisfaction and comfort</td>
</tr>
<tr>
<td>3) Unsightly wirings and conduits are exposed at the ceiling</td>
<td>3) Ceiling boards will be installed to cover the exposed ceiling</td>
<td>3) Increase aesthetic and makes the environment more convalescent for patients</td>
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<td>1) Several forms with similar information need to be completed</td>
<td>1) Forms will be revised with duplicated information removed</td>
<td>1) Process is streamlined and standardized</td>
</tr>
<tr>
<td>2) Forms are in hard copy</td>
<td>2) Electronic templates will be implemented</td>
<td>2) Prevent misplacement of form. Information can be readily accessible by authorized staff</td>
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Timeline

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<tr>
<th>Activity</th>
<th>Planned Date</th>
<th>Actual Date</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>2P for ECT</td>
<td>Feb to Apr 2012</td>
<td>Feb to Apr 2012</td>
<td>Completed</td>
</tr>
<tr>
<td>FMEA</td>
<td>May to Sept 2012</td>
<td>May to Sept 2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Patients’ survey</td>
<td>May to June 2012</td>
<td>May to June 2012</td>
<td>Completed</td>
</tr>
<tr>
<td>PDCA 1 – Zero Cancellation for patients going for ECT treatment in all acute ward</td>
<td>October 2012</td>
<td>May to October 2012</td>
<td>Completed</td>
</tr>
<tr>
<td>Pilot – To Perform ECT procedure in the morning</td>
<td>March 2013</td>
<td></td>
<td>Planned</td>
</tr>
<tr>
<td>Review pilot results and refine process</td>
<td>March to April 2013</td>
<td></td>
<td>Planned</td>
</tr>
<tr>
<td>Full scale future state ECT implementation</td>
<td>May 2013</td>
<td></td>
<td>Planned</td>
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**Cause & Effect Diagram**
### Pareto Chart

#### Reasons of ECT Cancellation

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number of MUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of consultation scheduled # afternoon with anaesthetist</td>
<td>19</td>
</tr>
<tr>
<td>ECT patients</td>
<td>17</td>
</tr>
<tr>
<td>Too many forms</td>
<td>6</td>
</tr>
<tr>
<td>Patient lack of knowledge</td>
<td>5</td>
</tr>
<tr>
<td>No regular training programme available</td>
<td>4</td>
</tr>
<tr>
<td>Bad experiences of ECT side effects</td>
<td>4</td>
</tr>
<tr>
<td>Lack of medical physician</td>
<td>2</td>
</tr>
<tr>
<td>Inadequate RT</td>
<td>2</td>
</tr>
<tr>
<td>Nurse lack of training in medical condition</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Intervention - Lack of Consultation with Anaesthetist

<table>
<thead>
<tr>
<th>Root Cause</th>
<th>Predictions</th>
<th>Start Date</th>
<th>Implementation Location</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of consultation with anaesthetist</td>
<td>↓ 100% rate of patient being sent for ECT while patient situation is not stable or unwell</td>
<td>03 Oct 2012</td>
<td>All acute wards</td>
<td>Anaesthetist Doctors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ward staff</td>
</tr>
</tbody>
</table>

**1st Intervention**

Suggested anaesthetist to allow doctor email consult on patient’s medical condition or abnormal result prior to ECT

- Discussion with Consultants & Physician
- Discussion with Anaesthetist
- Guide for Staff
- Email to MUs
- Place intervention guide in the consultation noticeboard
1st Intervention - ECT scheduled in afternoon

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<tr>
<th>Root Cause</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ECT scheduled in afternoon</td>
<td>↓ 100% situations of patient taking food and water</td>
<td>16 Oct 2012</td>
<td>All acute wards</td>
<td>Ward staff, ECT staff, Patients</td>
</tr>
</tbody>
</table>

2nd Intervention

Patients going for ECT are divided into two groups to serve breakfast in different timing in order to reduce the duration of fasting to 7 hours only.

- **Grouping Criteria**
  - 1st Batch: to serve breakfast at 7am
    - private patients
    - patients with medical conditions
    - patients for 1st session ECT
  - 2nd Batch: to serve breakfast at 8am
    - the rest of patients

ECT team emails to Nurse Managers & Nurse Clinicians the ECT sequence list around 5pm:
1. On Monday for ECT on following Wednesday
2. On Wednesday for ECT on following Friday
3. On Friday for the following Monday

On day of ECT, ECT team will call the wards to send the patients according to the listing.

Outcome - Run Chart

- **Number of Cancellations from Jan 2012 till Now**
  - P1: 1st 10 Days during the month
  - P2: 2nd 10 Days during the month
  - P3: 3rd 10 Days during the month
Benefits

**Intangible Benefits**
- Improve Hospital’s Reputation
- Improve Patient Satisfaction
- Relieve Staff’s stress of monitoring patients

**Tangible Benefits**
- Reduce LOS & the Cost to Patient
- Reduce the Cost to Hospital
- Reduce Staff’s Work Hours

Summary

We are still in our early phases of the Clinical MicroSystem journey and are going through multiple PDSA cycles to refine our processes.

We believe that excellent care and services are attainable in microsystems, we need to understand what really matter to the patients and their family.
Thank You

Singapore.ppt
Imagine a world of 6 million people with 4 million in Asia

Think of the 3rd most densely populated country per square kilometre
One of the longest life expectancy in the World
One of the lowest infant mortality
One of the lowest fertility

Imagine a Singapore that was a village of 100 people, it would be something like this…
8 will be over 65 years of age
24 will be below 19 years of age

74 Chinese
13 Malays
9 Indians
3 Others
33 Buddhists
18 Christians
15 Muslims
11 Taoists
5 Hindus

17 have no religion

96 are able to read
I divorce for every 6 marriages

88 own their own homes

74 live in a 4 room flat or larger
Only 11 of us own cars

But we own 143 handphones

There are more doctors than lawyers

But not enough psychiatrists...
10 will have a mental illness
1 will be seriously ill