Microsystems Approach: Tan Tock Seng Hospital Experience

29th February 2012

Outline of Sharing

1. About TTSH – Background and Challenges
2. Our Foundations before Adopting Microsystem Approach
3. Active Engagement of our Patients and Staff
5. Celebrations
About TTSH
Background and Challenges

Our Mission

- Building on our tradition
- Reaching out to the community
- Doing our best to serve, care and heal
- Together, we aim for excellence in cost effective healthcare, education and research
TTSH is a part of the National Healthcare Group (NHG) which is a leader in public healthcare in Singapore.

Care is provided through an integrated network of primary healthcare polyclinics, acute care hospitals, national specialty centres, innovative virtual specialty centres and business divisions.

Together, we bring a rich legacy of 325 years of medical expertise to the philosophy of patient-centric care.

168 Years of Patient Care

1844 – 1908
Founding Years - The Pauper’s Hospital
Established in 1844 by Philanthropist, Tan Tock Seng
First hospital to be funded privately
Mission was to care for the sick of all races

1909 – 1964
Pre Independence – The Pioneering Hospital
First Hospital to produce Singapore’s pioneer batch of graduate doctors
Designated the centre for tuberculosis treatment
First hospital to administer penicillin injection for lung abscess

1965 - 1990
Post Independence – The Government Hospital
Established an Artificial Limb Centre
Established the Communicable Disease Centre for infectious diseases
Established the departments of Neurology and Neurosurgery
First to successfully carry out open-heart surgery and coronary by-pass
First to carry out bone marrow transplant
Pioneered Geriatric Medicine and Rheumatology and Immunology
First to set up Rehabilitation Medicine for treatment of stroke, orthopaedic conditions and neurological disorders
168 Years of Patient Care

1992 – Present
The Restructured Hospital
Developed core disciplines—RAI, Respiratory, Geriatric Rehab, and Neurosciences
TTSH Community Charity Fund is set up to assist the less fortunate
First Hospital to provide MRI
New centres for Heart Failure, Infectious Disease Research, Chronic Obstructive Pulmonary Disease and Advanced Laparoscopic Surgery
Established a one-stop cancer centre with The Cancer Institute and NHG
Established Johns Hopkins Singapore International Medical Centre to provide world-class oncology care
First hospital to successfully perform macular translocation in Southeast Asia
First hospital to successfully perform fit-bone surgery in Asia
First hospital to be awarded the joint certification for ISO14001 and OHSAS 18001
Designated the national hospital for the treatment of SARS patients
Regional Trauma Training Hub
Designated Hospital to treat H1N1

TTSH at a GLANCE
- Established since 1844
- One of the largest multi-disciplinary hospitals in Singapore
- 1,515 Operational Beds, 79 ICU & HD Beds
- 6,383 staff
- 27 Clinical Disciplines
- Collaboration with world renowned cancer centre, Johns Hopkins – Singapore International Medical Centre
- Multiple Quality Awards winner
A Day in TTSH (Year 2012)

167 Admissions
2,160 SOC Attendances
466 ED Attendances
96 Ambulance Cases
260 Operations
29% Inpatients
71% Ambulatory (Day Surgery)
1,073 Radiological Investigations
10,860 Lab Tests
1,558 Therapy Attendances
167 Admissions
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Our SERVICES

Division of MEDICINE
- Cardiology
- Endocrinology
- Gastroenterology and Hepatology
- General Medicine
- Haematology
- Infectious Disease
- Medical Oncology (Johns Hopkins)
- Neurology (NNI@TTSH)
- Psychological Medicine
- Renal Medicine
- Respiratory and Critical Care Medicine
- Rheumatology, Allergy & Immunology

Division of SURGERY
- Anaesthesiology, Intensive Care & Pain Medicine
- General Surgery
- Neurosurgery (NNI@TTSH)
- Ophthalmology
- Orthopaedic Surgery
- Otorhinolaryngology
- Urology

Division of AMBULATORY & DIAGNOSTIC MEDICINE
- Diagnostic Radiology
- Emergency Department
- Laboratory Medicine
- Pathology Department

Division of INTEGRATIVE & COMMUNITY CARE
- Geriatric Medicine
- Palliative Medicine
- Continuing & Community Care
- Rehabilitation Medicine

27 Clinical Departments
Our SERVICES

**Specialist Centres**
- Communicable Disease Centre (CDC)
- Complementary Integrative Medicine
- Dental Clinic
- Endoscopy Centre
- Health Enrichment Centre
- Johns Hopkins Singapore International Medical Centre
- Pain Management Clinic (PMC@TTSH)
- Pre-admission Counselling and Evaluation (PACE)
- Radiotherapy Centre
- Sports Medicine and Surgery Clinic
- The Breast Clinic @ TTSH
- Travellers’ Health and Vaccination Clinic (THVC)
- Tuberculosis Control Unit (TBCU)

**Allied Health Services**
- Care & Counselling
- Nutrition and Dietetics
- Occupational Therapy
- Physiotherapy
- Podiatry
- Prosthetics & Orthotics
- Psychological Services
- Respiratory Therapy
- Speech Therapy

**Challenges**
- Ageing population profile in the community we serve
- Primary partner with third Medical School – ramping up capabilities
- Effective Chronic Disease Management strategy – clarifying role in acute care setting
- Collaboration with community partners – more needs to be done
- Restructuring the way we deliver care to meet patients’ expectations
- Staff engagement, manpower retention & recruitment
- Develop research capabilities to strengthen healthcare delivery
PROCESS Improvement through MyCARE FRAMEWORK
  ➔ Lean Healthcare - Faster, Better, Cheaper & Safer
  ➔ Clinical Practice Improvement Programme

PRODUCT (Care) Improvement through TTSH CARE MODEL
  ➔ Destination Care, Evidence Care, Personalised Care & Team-based Care

SERVICE Improvement through APPLE SERVICE PHILOSOPHY
  ➔ Be ExCEPtional (Care, Empathy & Professionalism)

INNOVATION through RESEARCH, IT & AUTOMATION
  ➔ Health Services & Outcomes Research Unit (1st in S’pore)
  ➔ Real-time Bed Management & Clinic Resource Management (1st in S’pore)
  ➔ Electronic Medical Records (Stage 6 HIMMS Award)
  ➔ Laboratory Automation (1st in the region)
  ➔ Closed Loop Medication Management System (SiTF Award 2011)
Our Foundations before Adopting Microsystem Approach

- Initial review of Toyota Production System & its application in healthcare
- Early experiments
- Senior management buy-in
- Identification & training of core team
- Develop roadmap
  - Education / training programme
  - Culture transformation
  - Top-down approach
  - Bottom-up improvements
- Engage sensei
- Just-Do-It

MyCare Journey
VISION/MISSION/VALUES

Best In Class
Empowerment
Quality Standards
Foundation

Benchmarking

EXCELLENCE IN HEALTHCARE

TRUE NORTH METRICS

CONTINUAL DAILY IMPROVEMENTS/6S

APPLE PHILOSOPHY

CLINICAL COLLABORATIVES

GOVERNANCE

IQEMS

PROCESS, ENVIRONMENT, HEALTH & SAFETY

PDS PEOPLE

VISION/MISSION/VALUES

Empowering Staff, Patients First

Faster, Better, Cheaper

Deliver Value, Understand Issues

Faster, Better, Safer, Cheaper

Re-design Care

Go & See

Developing Leadership in Our People
Enhancing Skills, Capabilities, Building Systems & Terms
Providing Support: HR Processes, IT, Facilities

Confidential

MyCare Framework

TIMELINESS
Zero needless waiting

QUALITY
Zero inpatient falls

HUMAN DEVELOPMENT
Zero staff dissatisfaction
100% staff engagement
Zero patient complaints
100% patient satisfaction

COST
Zero non-value added activities
Active Engagement of our Patients and Staff

Engaging the Ground Staff

Since 2008, TTSH has been actively engaging the ground in improvement activities.

Competent and passionate staff identified to be “line trainers”. Upon completion of training, they will train new colleagues and facilitate Basic projects in their respective divisions.

Each staff encouraged to be involved in projects/DIs upon completion of training.

The walkabouts by the senior management facilitate sustenance and spread of best practices, display leadership support and enable senior management to publicly recognize staff efforts.

One of our Roadshow cum learning events

A TTSH Nursing Manager speaking in one of our lunchtime talks about daily improvements
Microsystem deployment and TTSH Vision 2016

Delivering Patient Centric Care
- Care good enough for myself & my loved ones
- Easy to understand, navigate & use
- Hassle free to patients, families & caregivers
- Care, services & information are all seamlessly linked
- Where appropriate, reliable & safe care are the norm
- Where care is coordinated and delivered with genuine concern

A Benchmark Institution
- Areas of clinical & operational excellence
- Leader in innovation & processes
- Delivering services beyond expectations
- Leading in quality & safety
- An employer of choice

A Great Place to Work
- I wake up inspired to go to work every morning
- My talents are recognized and developed
- I have the autonomy to make changes to be more effective at work
- My colleagues are like my family
- My dreams can be fulfilled here
- Great work & care are carried out daily

A Living, Learning and Teaching Organisation
- Embrace knowledge
- Where learning & unlearning is not feared
- A culture of inquiry, trust & confidence that embraces change
- Value and uses knowledge management to make informed decisions
- Continuously improves itself to better serve our patients

A recognised key asset & resource by our population – A GREAT INSTITUTION
Vision 2016 (5 year Plan)

Value Based strategy-
Patient & Staff Values

1-liner “Rally Call”

Hospital Level KPI

Hospital-level KPI for Staff
“Engage our People”

Hospital-level KPI for Patient
“Engage our Patients”

Products Standards (1-3)
1a) Link ourselves to partners / Support patients in the community
1b) Integrated Clinical Services Cluster
   - Teams versus professions, disciplines
   - Organize into ‘clusters’
   - Review care delivery to match needs (Solution Shops, VAP)
2) Wellness / Health Promotion
3) Identify and Develop ‘areas’ of Clinical Excellence

Process Standards (4-6)
4a) Develop Engaging Policies
   - Hiring
   - New joiners
   - Daily habits
   - Reward & Recognition
4b) Empowerment
5) Learning Organisation
6) Operational Excellence

Services Standards (7)
7a) Service Standards Principles
7b) Training
7c) Standards

Resources Needed

Organisational Wide Deployment Framework

- Creating the environment for CONNECT

1. Department Goal
2. Engagement
3. Local Improvement

Top Down Initiatives
Sustainability, Spread

Developing leaders, Building capability
# MicroSystem Preparation

## Core Competencies for Facilitators/ Microsystem Leaders

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<tr>
<th>No</th>
<th>Name</th>
<th>Description</th>
<th>We design and deliver care based on patient needs and values</th>
<th>We protect our patients and ourselves</th>
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<td>Demonstrates understanding of the healthcare business – trends &amp; culture, systems &amp; structures, products &amp; services, patients &amp; stakeholders</td>
<td>Coaches teams to analyze and apply patient data and values to improve systems &amp; processes</td>
<td>Focuses and guides teams to manage resources to meet improvement targets and timelines</td>
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Develop CONNECT competencies for our Microsystem team leaders, facilitators and coaches.

## The Introduction of MicroSystem

Building on our success in staff engagement, we introduce the concept of MicroSystem in 2011 to build high responsive, high performance, self managing teams.

- Idea Formation
- Literature Review
- Contextualisation
- Deployment (Customised)
- Learning Double Loop/ Reflection

We are still in our early phases of the MicroSystem journey and are still going through multiple rounds of PDSA cycles to refine our organizational wide deployment.
Our MicroSystem Quality Improvement DIY Toolkit

MicroSystem Preparation

Equipping our teams with our MicroSystem Soft Managerial Skills
Our MicroSystem Approach (Dept level)

PATIENT ENGAGEMENT

PATIENT CENTRED CARE

SYSTEM THINKING

LEARNING (TEACHING) ORGANIZATION

STAFF ENGAGEMENT AND EMPOWERMENT

A combination of rigour and relevance, CONNECTing the 6Ps systematically

Case Example - Cardiology Clinic

Milestones of Cardiology Clinic CMS Journey

2008

1. Select line trainer

2. 6S, TWI Training

3. Several 6S, standardisation projects done

2011

4. Daily Improvements

5. Engagement Project

6. World Cafe

7. Patient Voices

8. Team Leader Soft Skills Training

2012

9. Team Leader Meeting with Members

10. Improvement Projects
Case Example - Cardiology Clinic

PATIENT ENGAGEMENT
-Facilitated Sessions of Open Questions to Capture Patients’ Voices

PATIENT CENTRED CARE

SYSTEM THINKING

LEARNING (TEACHING) ORGANIZATION

STAFF ENGAGEMENT AND EMPOWERMENT
-World Café Discussions

The light yellow boxes are the 6Ps. ‘Pattern’ exists during project diagnostics.
Each line CONNECTS the previous step to the next step.

Simple Rules

Jonkoping’s 7 Rules

- We protect the patients and ourselves
- We are a system with partners and it’s the system’s result that count
- We learn, develop and improve continuously and share results with others
- Health care comes from the patient’s value, need and wishes
- Either solve the problem or take responsibility for the handing over to next step
- Feedback to the step before
- Work with guidelines
7 Simple Rules to C.O.N.N.E.C.T.

- Continuously learn, develop, improve & share results
- Offer feedback to step before
- Needs & values of patients determine how we deliver care
- Network as a system – the system’s results count
- Engage to protect patients and ourselves
- Commit to guidelines and standard processes
- Think solutions – solve the problem or hand over responsibly

Sprouts of MicroSystem

- SOC's: Cardiology, Geriatric, Eye, Endoscopy PACE
- Inpatient Units
- Emergency Dept
- Dept of Laboratory Medicine, Pharmacy
Sprouts of MicroSystem

CONNECTing the teams together

Through learning portal and learning festival

Results Thus Far

1. 80% Trained in MyCare
2. 1874 implemented daily improvements
3. 206 reported 6S projects
4. Many of our projects garner recognition in national, international and internal competitions or forums.
5. Currently there are many active projects, which have their focus both on staff and patients, within our MicroSystem teams.
   - Staff Engagement in Eye Atrium
   - Establishing Quality Advocates in Inpatient Units
   - Reducing Waiting Time to see a Specialist in Cardiology Clinic
   - Error Proofing Uploading of ECG Reports in Emergency Department
   And so on.
Learning Points

1. Contextualisation for relevance and ownership
2. Team based learning and reflection useful for MicroSystem teams
3. Management engagement, support, encouragement is essential
4. Positive behaviour reinforcements promote high employee involvement
5. Common ground of understanding of MicroSystem relationship with macro system is appreciated. Concepts such as CONNECT and deployment frameworks help to piece the relationship together.
6. Patients engagement is critical to success of MicroSystem
7. Continuous Journey of Learning and Improving

We hope to learn from you!

For Discussions

1. How do you define the success of the Clinical Microsystems approach?
   - No of projects? Business objectives? Staff morale, empowerment etc
   - Are you satisfied with current results?
   - Given opportunity to rethink, what are some of the areas you want to stop doing and what are some of the areas you want to continue to improve?

2. University of Birmingham research concluded that Clinical Microsystems do show some promising results, in the areas of teams, self, clarity of purpose, empowerment, commitment, but they have yet to see these impacts translating to patients’ outcomes. How we quantify these outcomes? (Williams et al, 2009)

3. Difference between Jonkoping and Dartmouth Clinical Microsystem?
   - Dartmouth model used the 5Ps more for diagnostic analysis. How about Jonkoping?
   - Templates?

4. How did the community contribute to the Clinical Microsystems?
5. If we depend on the Microsystems to deliver the results, how then do you orchestrate the alignment to the Macrosystem? Is Meso-system (the middle point) the critical point? What makes the Microsystems work in the manner we want them to be? Eg. Just like Cancer cells versus Normal Cells, how do you dictate the behaviour and how do you detect abnormalities?

6. On change management – any resistance to change? Top down or ground up approach? Why did Jonkoping select Clinical Microsystems as THE way? Clinician Involvement

7. Rewards and recognition? Eg, Geisinger Health System – Pay for Outcome, change the salary payment scheme, change the way the medical service is run?

8. On learning - most of the learning usually takes place in situ because of the nature of Clinical Microsystems.
   - How did you institutionalize the learning so that the whole organization benefits or learns?
   - Define learning? Eg, our 10/20/70 (Education, Exposure, Experience)
     How do you capture learning? Does the culture promote learning from failures?

9. How far do you take rigour and relevance in Clinical Microsystems? ie research, evidence based or practical? Does the faculty play any role in the Clinical Microsystems approach? This question is in response to their PhD programme and the Qulturum Faculty of Staff.

10. On knowledge creation, utilization, retention and enhancement – what role do you play in the festival? Why do you select a festival? Is the festival a sharing opportunity? Is the knowledge that is created, a collaboration effort with the community? How did you get the community involved? How did you get the community to learn?

11. How do you sustain the efforts? NHS has a sustainability model but I am not so sure if they do use it.

12. How do you prevent innovation fatigue or change fatigue? Do you even have such problem in the first place?

13. What is the ratio of patient to staff? What are the working hours for a typical Clinical Microsystems Team? Describe a typical day for a Clinical Microsystems team.

14. What is the one advice you will give us?
Thank you!

Connect Games - Activity

It means to
Join together
Put together
Associate with
Communicate with
Establish rapport
Be in touch
Play ball

C.O.N.N.E.C.T.

What Word Is This?
Brief Synopsis:

For the last four years, Tan Tock Seng Hospital had adopted and experimented with lean methodology to handle challenges like bed crunch, long wait time for consultation and ageing population. Core to our lean framework is our quality mantra of empowered staff with patient first mindset to deliver service faster and better in terms of cost and safety to our patients. Looking back at our short lean journey, some units/departments seemed to function better as a quality improvement unit better than others. When we performed gap analysis in the light of what Jonkoping shared about microsystem, we realised how Jonkoping’s approach of creating a sense of purpose, better engagement of patient, staff and system thinking could help our teams performance. Through this session, we would like share our experiments with microsystem deployments, how we equipped teams with soft skills like team facilitation, project management, etc. Through the sharing, we look forward to have a deep dive session with other practitioners on the same journey.