The Quality Journey of New Territories West Cluster, Hong Kong

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The Sick Hospital

• Medical treatment improves with new drugs, equipment, technology and procedures.

• Delivery of health care becomes more complex.

• Hospitals grow with little thoughts on efficiency or effectiveness.
Processes in Healthcare

- Healthcare, like all other industries, is composed of many processes.
- Typically, care in a hospital is organized around different functions.
- Individual elements are not integrated into a coherent whole required for safe, effective care.
- Non-value added activities lead to wastes.
The Long List of Symptoms

• Do you have any of these problems in your hospital?
  – Dissatisfied patients
  – Excessive waiting
  – Medication errors
  – Crowded A&E
  – Duplication of work
  – OSH problems
  – Lack of standardized procedures
  – Limited storage space (linen and supplies)
  – Lack of coordination of patient care…
The Sick Hospital

- The problem isn’t the people working in hospitals.
- The problem is the system, its lack of a shared focus and its defective processes.
Perfect Processes?

• A process is a set of actions or steps, in proper sequence at the proper time to create value for a customer or patient.

• A perfect process creates precisely the right value for the customer.

• A perfect process is also satisfying for people to perform, managers to manage, and customers to experience.
Process Management is Not New to Healthcare

• “Surgical nurse hand instruments to surgeons as called for, instead of the surgeon taking time away from the patient to retrieve them.”

Frank Gilbreth, 19th century

Lilian and Frank Gilbreth
What do the Healthcare Experts Say?

• The Institute for Healthcare Improvement believes that many management and operations tools in other industries can be applied successfully to health care.
Philosophy

• Seeing and improving the system, rather than blaming individuals.

• Oftentimes, waste is so insidious that the organization is blind to it.

• Improving the system in a concerted manner where staff of all levels are involved.
Teamwork

Best Quality

Waste Reduction

Tools

- Genchi-Genbutsu
- 5 Why’s
- Eyes for Waste
- Problem Solving
- Continuous improvement
- Jidoka
- Poka-yoke
- Just-In-Time
- Customer Pull
- One-piece Flow
- Standardisation
- Value stream mapping
- Visual management
- 5S
- Cross-trained
- Common goals
- Develop Exceptional People
- Safety
- Teamwork
- Fairness
- Innovation
- Respect
- Teamwork

NTWC Lean Balloon
Philosophy

Wastes created due to facility or technology limitations, unchallenged practices.

The 7 Wastes to be Eliminated
1. Overproduction and early production
2. Waiting
3. Transportation
4. Inventory
5. Motion
6. Over-processing
7. Defective units
Our Footprints
People Development

Advanced Level
- 40 graduated

Intermediate Level
- 615 trained

Basic Level
- 4,874 participated
Our Monthly Sharing
Senior Walkrounds

- Since Jul 09
  - Recognition
  - Support and advise
  - Promulgate good practice

- News Express
Example in NTWC

Antibiotics Optimization Programme in septic shock patients requiring ICU admission

- Set up protocol on administration of broad spectrum antibiotics by ICU consultation

Almost 3 hours Faster!!!
Example in NTWC

Reducing turnaround time for blood coagulation test

1. Rearrange specimen arrival → Demand leveling
2. Review repeat test criteria → Reduce over-processing

Example from Department of Clinical Pathology, TMH
Example in NTWC

<table>
<thead>
<tr>
<th>Task</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design time-slot system in existing IT platform</td>
<td>Tackle patient batching</td>
</tr>
<tr>
<td>Redesign workflow of patient record management</td>
<td>Smoothen patient flow/reduce interruption to doctors</td>
</tr>
<tr>
<td>Rearrange consultation rooms in different buildings</td>
<td>Facilitate patient flow</td>
</tr>
<tr>
<td>Design automated visual panels</td>
<td>Convey real-time waiting status</td>
</tr>
</tbody>
</table>

A reduction of 31 minutes (41%) in consultation waiting time was achieved.

Example from Tuen Mun Mental Health Centre, CPH
Example in NTWC

Equipment Checking System
- Redesigning workflow for daily equipment checking

Time required each day

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Before</td>
<td>30 mins</td>
</tr>
<tr>
<td>After</td>
<td>18 mins (↓ 40%)</td>
</tr>
</tbody>
</table>

Example from Physiotherapy Department, TMH
Example in NTWC

Redefine default A/C settings

Annually energy savings = 168,986 kWh
= 118.29 tonnes CO$_2$ emission

Reduced >10k steps in staff motion in adjusting A/C temp every year

Agreement on de-lamping

Annual energy savings = 18492 kWh
= 12.94 tonnes CO$_2$ emission!!

<table>
<thead>
<tr>
<th>Conservation Items</th>
<th>Projected Annual Savings ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/C Savings</td>
<td>$139,854.06</td>
</tr>
<tr>
<td>Delamping Savings</td>
<td>$54,455.04</td>
</tr>
<tr>
<td>Total</td>
<td>$194,309.91</td>
</tr>
</tbody>
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Example from Administrative Department, POH
Conclusions

• Process management is working.

• Process management is about looking at how we do our work and figuring out ways to improve how that work is done.

• Process management is about improving quality and productivity.
Example in NTWC

Simplify waiver arrangement for A&E fracture cases at occupational therapy dept.

Unnecessary walking eliminated

<table>
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<tr>
<td>Walking distance</td>
<td>180 meters less</td>
</tr>
<tr>
<td>Occupational therapist waiting time</td>
<td>15-30 minutes less for each case</td>
</tr>
</tbody>
</table>

19 patients benefited per month

Example from Occupational Therapy Department, POH
Example in NTWC

Revamping of T&D workflow

- Redesign workflow of training application
- e-communication within HR

- Improve payment procedures (both direct payment and reimbursement items)

Applicants receive approval 8.5 days earlier.

Reduced unnecessary transactions b/w applicants and admin staff.

Save 5400 pieces of paper per year.

Example from Human Resources Unit, NTWC
Example in NTWC

Relocate DR equipment to A&E Trauma Room

**Urgent X-ray in A&E**

**Before**

Radiographer runs $100 \times 3 = 300$ meters!

**After**

Radiographer travels once only 100 meters

- More timely treatment: Radiography processing time reduced by up to 26 mins

Example from Accident and Emergency Department, POH
Example in NTWC

Reconfigure items in blood taking trolley

- Motion reduced. Efficiency enhanced
  - Blood taking preparation from 30 sec to 15 sec
  - Over 700 procedures in concerned ward
Summary on Selected Projects

- Quantifiable results from select projects

<table>
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<tr>
<td>Patient waiting in hospital (minutes)</td>
<td>116,449 hours</td>
</tr>
<tr>
<td>Reduced appointment delay (days)</td>
<td>31,884 days</td>
</tr>
<tr>
<td>Staff time (minutes)</td>
<td>1,253 hours</td>
</tr>
</tbody>
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Combined result of 14 selected projects in NTWC hospitals