Information System for Health Promotion in JAPAN
(esp. Traceability for patient safety)

Takashi Taniguchi MD, PhD,

GS1 Healthcare Conference, Tokyo, Japan
28 October 2008
Health Care System in JAPAN

1. Health Promotion Program
   (1) Nationwide Regulation
       Training for Profession & Construction Standard of Hospital
   (2) Local Government
       Appropriate Distribution of Medical Facilities & Human Resources

2. Health Insurance System
   All the country is covered by the system since 1961
Today’s Serious Subject

1. Structural Changes of Target Disease
   Drop in the Birth Rate
   Acceleration of Aging Society

2. Increased Need for Advanced Medical Services
   Dynamic Progress in Medical Science
   Popularization of Informed Consent
Solution of the Difficulty

Reconstruction of
Medical Infrastructure/System

High Quality
Patient Safety
Improvement of Efficiency
IT ・ ・ ・ as a Useful Measures for Improvement of Health Care System

“Grand Design for Computerization in Health System” (MHLW 2001)

Standardization of Medical Terminology/Code
Promotion of EHR/Telemedicine
Health Service IT Network in Each Area
“e-Japan Strategy : Advanced Plan” (MHLW 2005)

Further Promotion of

☆ Computerization in Reimbursement System
☆ Adoption of EHR
☆ Telemedicine
☆ Sharing of Medical Data through IT Network
Patient Safety Program through IT in National Hospital
How can we manage patient safety?

- We need
  - the Real-time Consumption Data Capturing System
  - Collects, manages, and uses consumption data
    - at the point of consumption (e.g. Hospital bedside)
      - In the form of When, Where, Who, to Whom, Why, What, How (6W’s, 1H)
  - The first application is hospital
    - International Medical Center of Japan (since 2002)
  - Current technology is PDA/bar code,
    but RFID technologies are in process for the future
- Single item management with unique serialized number
What can IT do?

- By collecting data from wireless PDAs, examination room terminals, and laboratory equipment,
- Single item management (ex: POAS) can:
  - Record medical actions in detail, everywhere
  - Assist practicing medical treatment to patients
  - Monitor patient symptoms continuously
  - Comprehend logistical data by the “minimum unit”
- In real-time.
What can IT improve?

- **RISK MANAGEMENT**
  - Prevent medication errors □ patient safety

- **HOSPITAL MANAGEMENT**
  - Cost saving because waste is decreased
  - Optimize inventory level of Material (Medical Materials and Medicine)

- **DATA MANAGEMENT**
  - Re-engineering by simulation with system dynamics
  - Accumulate accurate data for clinical research and clinical trials
  - Allows for more accurate cost analysis

- **DISTRIBUTION MANAGEMENT**
Background on POAS (Point of Act System)

<table>
<thead>
<tr>
<th>When</th>
<th>When</th>
<th>POAS Data (6W’s, 1H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td>Who – MD, Nurse, etc.</td>
<td></td>
</tr>
<tr>
<td>To Whom</td>
<td>To Whom – Patient</td>
<td></td>
</tr>
<tr>
<td>Where</td>
<td>Where</td>
<td></td>
</tr>
<tr>
<td>Why</td>
<td>Why - Disease</td>
<td></td>
</tr>
<tr>
<td>What</td>
<td>What – Drugs and Medicines</td>
<td></td>
</tr>
<tr>
<td>How</td>
<td>How – Medical Acts</td>
<td></td>
</tr>
</tbody>
</table>
How is this different from conventional systems?

Conventional systems

Enter schedule
Granularity of Invoice slip = by one day
Nurse station/Out Patient dep.
Medical affairs section

For Patient safety

Enter action
Granularity of single item = real time
Bedside
What can IT improve?

- **RISK MANAGEMENT**
  - Prevent medication errors for patient safety

- **HOSPITAL MANAGEMENT**
  - Cost saving because waste is decreased
  - Optimize inventory level of Material (Medical Materials and Medicine)

- **DATA MANAGEMENT**
  - Re-engineering by simulation with system dynamics
  - Accumulate accurate data for clinical research and clinical trials
  - Allows for more accurate cost analysis

- **DISTRIBUTION MANAGEMENT**
  - Optimize supply chain management (SCM) in the medical/pharmaceutical industry
Alarm status according to different time segments

Time segments with higher alarm rates become even clearer when seen in 30-minute increments.

Number of errors for different time segments (30-minute increments) and error rates.

Hand-over time

Before hand-over time

= Hand-over time

After hand-over time

Hand-over time

(0:30–1:00)

Hand-over time

(8:30–9:00)

Hand-over time

(16:30–17:00)
What can IT improve?

- **RISK MANAGEMENT**
  - Prevent medication errors → patient safety

- **HOSPITAL MANAGEMENT**
  - Cost saving because waste is decreased
  - Optimize inventory level of Material (Medical devices and Medicine)

- **DATA MANAGEMENT**
  - Re-engineering by simulation with system dynamics
  - Accumulate accurate data for clinical research and clinical trials
  - Allows for more accurate cost analysis

- **DISTRIBUTION MANAGEMENT**
  - Optimize supply chain management (SCM) in the medical/pharmaceutical industry
Automatically acquired information: Digitize

- Order
- Purchase
- Inventory
- Injection order
- Pharmacy
- Change order
- Ward
- Audit
- Mixing
- Injection / Shot
- Accounting
- Waste

Consumption point of conventional electronic medical charts

Consumption point of conventional systems used by the Pharmaceutical Division

Waste consumption point

Optimize

most dangerous, unnecessary costs.
IT can be improved hospital management.

- Prevent medical accidents.
- Thorough inventory management
- Keywords are “real-time entry” and “serialization” for single item management.
- The accurate acquisition of information on bedside actions is crucial.
- Acquire cancellation and change data.
  - Only about 60% can be acquired in conventional systems.
  - POAS gives an overall picture.
  - POAS can save 1 million dollar per year.
- This improves medical safety and management efficiency.
What can IT improve?

- **RISK MANAGEMENT**
  - Prevent medication errors → patient safety

- **HOSPITAL MANAGEMENT**
  - Cost saving because waste is decreased
  - Optimize inventory level of Material (Medical Materials and Medicine)

- **DATA MANAGEMENT**
  - Re-engineering by simulation with system dynamics
  - Accumulate accurate data for clinical research and clinical trials
  - Allows for more accurate cost analysis

- **DISTRIBUTION MANAGEMENT**
  - Optimize supply chain management (SCM) in the medical/pharmaceutical industry
Revenue by physician experience

Trends in average revenue (operations / treatment corrections) for physicians and interns (years / description)

- Interns (first year / generalist)
- Interns (first year / other than generalist)
- Interns (second year / generalist)
- Interns (second year / other than generalist)
- Physicians

![Graph showing revenue trends by physician experience and intern status over months.]
What can IT improve?

- **RISK MANAGEMENT**
  - Prevent medication errors and patient safety

- **HOSPITAL MANAGEMENT**
  - Cost saving because waste is decreased
  - Optimize inventory level of Material (Medical Materials and Medicine)

- **DATA MANAGEMENT**
  - Re-engineering by simulation with system dynamics
  - Accumulate accurate data for clinical research and clinical trials
  - Allows for more accurate cost analysis

- **DISTRIBUTION MANAGEMENT**
  - Optimize supply chain management (SCM) in the medical/pharmaceutical industry
Standardization - ISO/TC 215

- the International Organization for Standardization’s (ISO) Technical Committee (TC) on health informatics.
- TC 215 works on the standardization of Health Information and Communications Technology (ICT), to allow for compatibility and interoperability between independent systems.
  - WG 1: Data structure
  - WG 2: Messaging and communications
  - WG 3: Health Concept Representation
  - WG 4: Security
  - WG 5: Health Cards
  - WG 6: Pharmacy and Medication
  - WG 7: Devices
  - WG 8: Business requirements for Electronic Health Records
Thank you for your attention.

Have A Nice Day In Japan!