How ICT has contributed to regional healthcare collaboration?
--Japan’s perspective--

0900-1030 Research Workshop
Development of E-Health and Telemedicine
-How ICT Has Contributed and Will be Contributed?

Miki Akiyama
Keio University, Japan
Agenda

❖ Background
   ❖ Current Japan’s healthcare situation
   ❖ Health ICT policy overview

❖ Case Study on Regional Health Record
   ❖ Case of palliative care
   ❖ Other usage

❖ Challenges and Next Steps
### Background: Japan’s Healthcare System

1. Universal Coverage with Fixed Universal Price (revise every 2 yr)
2. Patients’ free access is guaranteed (insurance coverage: 70%)
3. Many hospital beds for long-term care

<table>
<thead>
<tr>
<th></th>
<th>Length of Stay in hospital (Acute care)</th>
<th>Number of Hospital Bed/1000</th>
<th>Number of Doctor/1000</th>
<th>Number of MRI/1000</th>
<th>Number of CT/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td>30.6 (17.2)</td>
<td>13.3</td>
<td>2.3</td>
<td>46.9</td>
<td>101.3</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td>9.1 (7.7)</td>
<td>8.3</td>
<td>4.1</td>
<td>11.6</td>
<td>18.7</td>
</tr>
<tr>
<td><strong>France</strong></td>
<td>10.1 (5.7)</td>
<td>6.3</td>
<td>3.3</td>
<td>9.4</td>
<td>14.5</td>
</tr>
<tr>
<td><strong>UK</strong></td>
<td>7.1 (5.9)</td>
<td>2.8</td>
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<td>6.1</td>
<td>7.9</td>
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**Primary Goals of Japan’s Health Reform**
- Avert costly visits to hospitals and shorten the length of stay
- Optimize hospital beds

Sources: OECD Health Data, 2015, Statistics Bureau Japan
Japan’s Health Policy (2009)
Connecting Regional Medical Institutions
Japan’s Health ICT Policy (2016)
“Connecting Data” person-centered approach

4-2. 患者・国民中心にデータを「つなげる」

- Acute care
- Rehabilitation
- Health support
- Clinics
- Emergency・Disaster

Nation’s leadership in standardizing health data

Health IT implementation for regional providers’ collaboration

Many regions newly implemented IT system using gov’s funding

(n=270)
**Terms**

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<td><strong>EMR</strong>&lt;br&gt;Electronic Medical Record</td>
<td>Stand-alone closed medical record system within one organization.</td>
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<td><strong>EHR</strong>&lt;br&gt;Electronic Health Record</td>
<td>System that has the ability to connect/interact with other systems (e.g. EMR, pharmacy, lab, other EHR, etc.)&lt;br&gt;Most EHRs only focus on medical record functions.&lt;br&gt;Some of EHRs more focus on communication functions among different professionals in different organizations.</td>
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<td><strong>RHR</strong></td>
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**Focus**
- Medical data exchange
- Health and well-being

**Today's topic**
- Regional Health Record (RHR)
RHR as a assistive tool for regional collaboration

「Net4U」

Tsuruoka City (140k) 120 users
Niigata City (810k) 360 users
Koyabe City (30k) 30 users
Saku City (130k) 80 users
Komoro City (30k) 30 users
Nichinan City (60k) 40 users

Users in Net4U City (population) n. of Health providers
RHR as a assistive tool for regional collaboration

「Net4U」
Case study: Palliative Care

When a hospital discharge a patient, the hospital explains to the patient and family and get IC of sharing medical record data with providers giving homecare.

Net4U allows everybody in the region to work in a team.
Case of Ms. A (48yrs old)

- **June 2010:** Compression fracture (S: Back pain) and hospitalized to Shonai Hospital (acute care hospital) in Tsuruoka city
- **August 2010:** Diagnosis confirmed as metastatic bone tumor by MRI
- **October 2010:** Pain and symptom management, calcium and nutritious management at Shonai Hospital.
- **December 25, 2010:** Discharged

Started information sharing on Net4U among doctors and nurses at the hospital, doctors at clinics, a community-based nurses and rehab therapists.
• Dec 25 : Discharged
• Jan 5  : Home nursing started
• Feb 5  : Home rehab started
• March 2-4 : Hospitalized for respite
• March 24 : Hospital pall care team visited patient’s home
• April 1-11 : Hospitalized for check up
• May 27-June 8 : Hospitalized for symptom control
• June 9  : Discharged
• June 11 : Died at home
Messages exchanged on Net4U (Dec 25-Jun 11)

- Home doctor: 50
- 3 home nurses: 40
- 2 rehab therapists: 13
- The physician in charge at the hospital: 4
- 4 of the palliative care team members at the hospital: 17

- Total info exchanged: 119
- Total n. of participants: 11
Voice: Home Doctor

- Although I did not have enough experience practicing palliative care for cancer patient, I felt assured because I could consult with members of palliative care team at the hospital all the time by using Net4U. Without such a tool, I wouldn’t have been able to take good care of the patient.

- I felt connected. ...we all were in one team all the time.

- We were sharing enough information about the patient. And whenever I had any question, I asked to a specialist, who had known the patient.
Voice: Palliative care team doctor at the hospital

- We, hospital doctors want to know how our patients are doing at home after discharge. Net4U allowed us to check patients’ health status whenever we want.
- Mainly at night, after my work slowed down, I checked the patient record on Net4U and sent messages to home doctor such as “the quantity of dripping may be too much”. Then, HD and home nurses started to ask various questions to me and I answered to them.
- The good part about Net4U is that my message are read by all members relating to the patient at once. That’s much efficient than personal email.
Voice: Home nurses

- The biggest difference was that we could clearly understand the intention of Primary Care Physician’s order, which was based on diagnosis and treatment plan made by the doctor at the hospital.
- The context and content of communication between PCP and doctor at the hospital were shared to us on Net4U.
- Everything had been written and all information were referable. So any nurse could take good care of the patient even in emergency.
Voice: Home Rehabilitation Therapists

- For us, it is rare and quite hard to ask question to doctor at the hospital directly. Ne4U allowed us to communicate with doctors and nurses in the hospital, home doctor and home nurses.
- Whenever we wrote any question on Net4U, PCP and the palliative care doctor answered to us. It was really helpful. I felt really assured and confident.
Summary
Effects of ICT in palliative care

- Good ICT tool **enhance communication and collaboration of inter-professionals across different organization.**
- Good communication and information sharing using good ICT tool can **give assurance and confidence** to relatively unexperienced home medical staff to provide better care.
Case: Communication support for patient with neurological disease at home

Combining PHR and EHR supports patient at home to communicate with various medical professionals in the region.
Case: Nutrition Counselling

Combining PHR and EHR supports patients with lifestyle-related disease to communicate with nutritionists. It also support communication between the nutritionist and PCP, who order the nutritious support to patient.

**Net4U CORE**

- Supporting communication between nutritionist and PCP and documentation.
- Ordering form, Reporting form, Screening sheet, etc.

**Net4U NOTE**

- Supporting patient’s food logging and communication to nutritionist.
- Electric Food log

Official documents for reimbursement (diabetes and metabolic syndromes)
Visualizing Outcome

Regional stroke treatment path

Outcome of treated stroke patients in the region is analyzed and fed-back to all related providers.

Stroke patients treated at the hospital are tracked and followed by rehabilitation hospital and homecare providers.

Effective tool to improve better quality treatment and care throughout the region.
Challenges for ICT systems for regional medical collaboration

**Operation**
- Operation Scheme
- Operation Philosophy
- Governance

**Management**
- Who are Stakeholders?
- How to involve them?
- Who take the leadership?

**System Factors**
- **A** Data storage location
  - Could
  - Centralized DB
  - (Where is it?)
- **B** Devices
  - Laptop
  - Smartphone
  - Tablet
- **C** Functions
  - Medical Record
  - (What to share and what not to share?)
  - SNS
  - Information Bulletin
  - Event calendar, etc.
- **D** Role of Users
- **E** Security
  - Infrastructure
  - Access right
  - Compliance with National guideline
- **F** Privacy
  - Inclusive consent
  - Ad-hoc consent
  - Compliance with National privacy guidelines.

**Costs**
- Initial cost
- Operational cost
- Renewal cost

**Evaluations**
- Pay for Performance
- Quality of Care
- QOL
- Satisfaction of Users

**System Development**
- Policy and Philosophy
  - (i.e. allowance for secondary use of data)

**Governance**

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Report 2012 MHLW Special Research Grant “ICT utilization to enhance medical and care collaboration”
Next Steps

- Increase users of EHR (health provider side).
  - Visualize value produced by ICT.
  - Benchmarking.
  - Using aggregate EHR data to track chronic diseases in real time and allow policy makers to react more quickly to changes trends.

- Increase users of PHR (patients and citizens).
  - Enhance useful functions of PHR (i.e. educational information service, follow-up by medical staff, etc.)

- Nourish and share value with local citizens.
Thank you
Population trend by age group in Japan

Source National Institute of Population and Social Security Research
Sift in Super-aged Society
from “Provider-oriented” to “Consumer-oriented”

From acute to chronic disease and prevention
Self-care is important for good outcome.

Health technology advancement
Such technologies as Home Oxygen Treatment and opioid treatment enabled homecare for most terminally ill patients.

From paternalistic care to Patients’ self-autonomy

Improved information environment
The latest information on medicine and treatment based on scientific evidence are available on the internet. Patients’ personal experiences are exchanged on SNS.
Japan’s Health ICT Policy (2016)

Healthcare to care each citizen

Value for citizen produced by Health ICT

Evidence-based medicine using big data and AI

Telecare utilizing ICT

Health, Medical and Care Network

Innovation utilizing big data