

Part I – ICT Vertical Market Report

# Japan ICT Opportunities – Health IT

Tokyo  
September 19, 2006

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# Executive Summary

# Executive Summary

- ▶ ICT industry has been one of the fastest growing sectors in Japan over the last decade and claimed the top position among Japan's eight major industries.
- ▶ Japanese government has launched the “e-Japan Strategy” since 2001 designed to position ICT as a top level national priority. There are a number of latest policy guidance and regulation changes that encourage market development in the ICT sectors.
- ▶ As Japanese ICT sectors continue to grow, it presents significant market opportunities for a variety of industry players.
- ▶ This market research project has in particular investigated five ICT vertical markets in Japan, i.e. Health IT, Telecommunications and Wireless, Payment Solutions, Digital Contents, and Transport and Logistics.
- ▶ In the health IT market, the penetration of advanced IT systems in Japanese hospitals and clinics is still largely behind that in advanced countries. The healthcare market is probably one of a few sectors in Japan where IT development is significantly slower than other industries. Therefore the health IT market presents good opportunities for health IT vendors in coming years. However, healthcare practice in Japan has its unique characteristics. The fragmented customer base and traditional distribution approach could pose a significant challenge for a foreign new entrant. Channel partnership consideration will be one of the critical elements of market entry strategy.

# **Introduction and Research Methodology**

# Introduction & Research Methodology (1/2)

- ▶ Through the Aichi World Expo held in Japan in 2005, New Zealand Trade & Enterprise (NZTE) identified ICT as one of the potential opportunities for New Zealand companies to do business in Japan, and is keen to further understand the Japan ICT market opportunity and how to best enhance the market development capabilities of New Zealand exporting ICT companies.
- ▶ NZTE has identified 5 key ICT verticals (i.e. health IT, transport & logistics, telecommunications and wireless technologies, payment solutions, and digital content) as the scope of a Japan ICT market research project. The overall objective of the project is:
  - To identify commercial opportunities in Japan around New Zealand’s key ICT verticals;
  - To facilitate a collaborative effort in assisting New Zealand ICT companies to take advantage of opportunities and enhancement of their international reputation; and
  - To build the profile of the New Zealand ICT industry in Japan and strengthen linkages.
- ▶ The research project has been conducted in two parts:
  - Part 1: General research on the five selected ICT verticals; and
  - Part 2: Customized individual company research based on each participating company’s specific interest (there are seven New Zealand companies participating in this project)

## Introduction & Research Methodology (2/2)

- ▶ Booz Allen Hamilton was selected by NZTE as the consulting firm to undertake this Japan ICT market research project. Booz Allen formed a project team with consultants based in both the Tokyo and Auckland offices and worked together with NZTE over a period of six weeks.
- ▶ Since this research project has been conducted in a rather limited time frame but with broad scope, the Booz Allen team has worked on a best efforts basis and collected as much information as possible that could help NZTE and the New Zealand companies understand the selected ICT vertical market in Japan in terms of market overview, latest trends, competition, distribution structure, and market entry implications.
- ▶ This market research work is primarily based on three sets of activities.
  - Interviews and discussions with Booz Allen industry experts in the Tokyo office to establish the initial market understanding and key issues to be addressed in the research work. The Booz Allen industry expert team covers sectors of healthcare, telecommunications, financial services, transport and public service, automotive, financial service, and retail.
  - Desk research on market information from a variety of data sources, e.g. third party specific market segment reports, financial analyst reports, Japanese business and IT newspapers and magazines, and industry association publications.
  - Interviews with industry associations, makers, potential customers and channel partners to gain further market insight and validate specific issues.

# ICT Vertical Market Report – Health IT

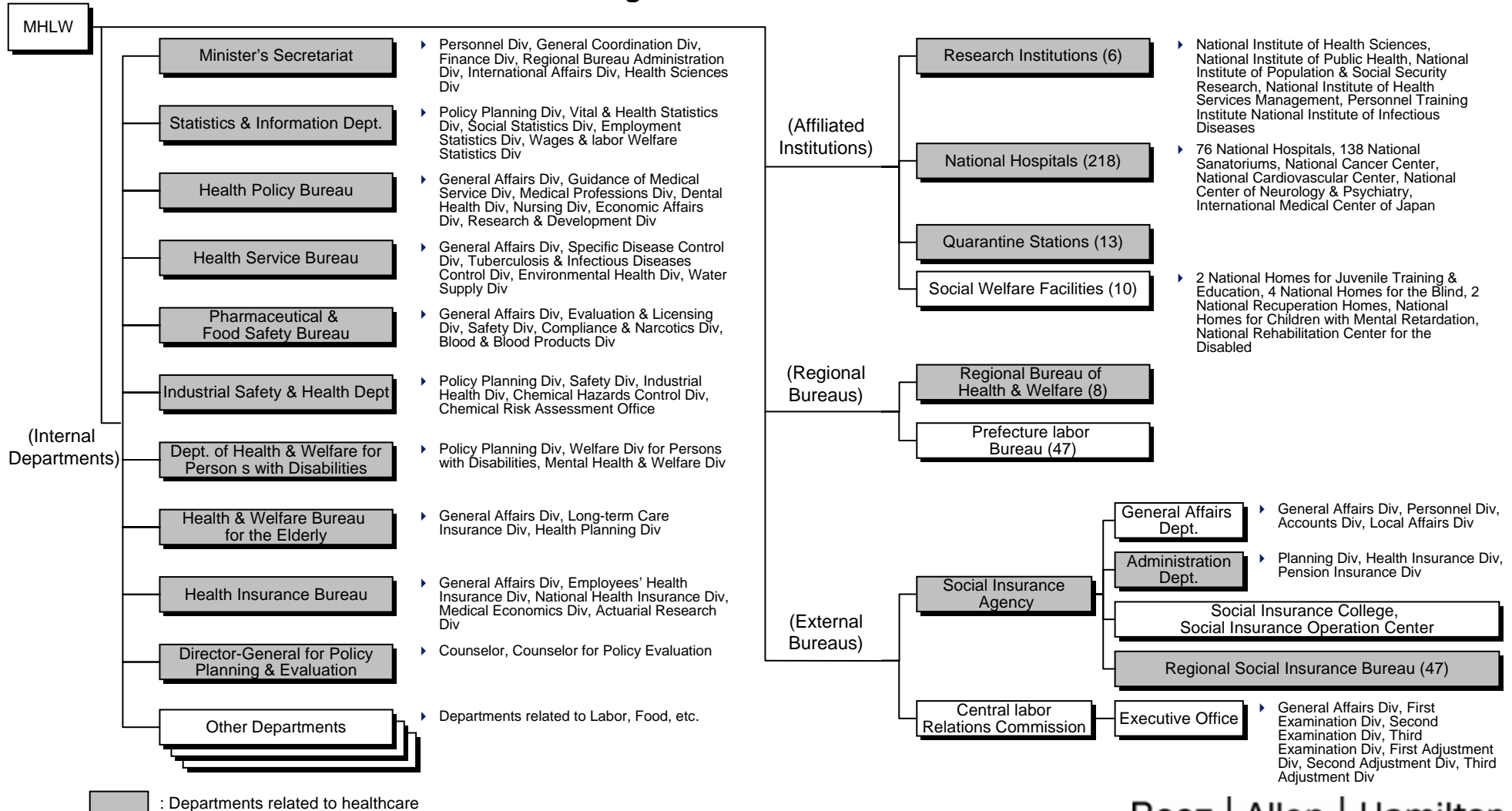
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# ICT Vertical Market Report – Health IT

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  - Japanese Medical Care System
  - Health IT Development in Japan
- ▶ Market Segmentation and Competitive Analysis
- ▶ Distribution and Sales Promotion Strategy
- ▶ Market Entry Strategy
- ▶ Glossary

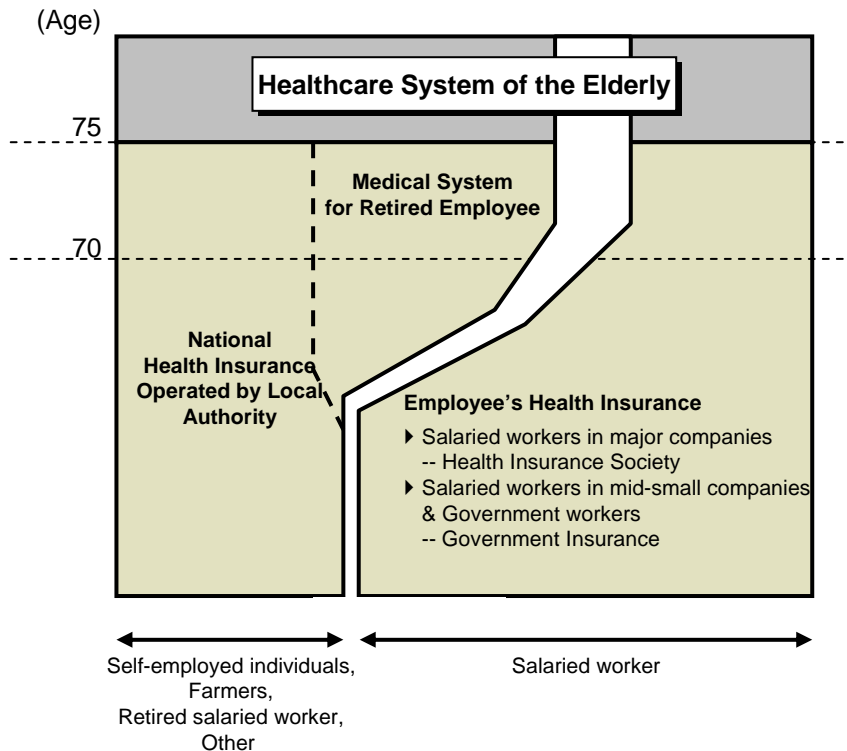
# Japanese medical care system is controlled by Ministry of Health, Labor and Welfare (MHLW), who design and implement national medical care policy/regulations, and monitor market development

## Org Chart of MHLW



# Japanese medical service system is characterized by “universal health care system” and “free access”

## Universal Health Care System



Source: Ministry of Health, Labor and Welfare

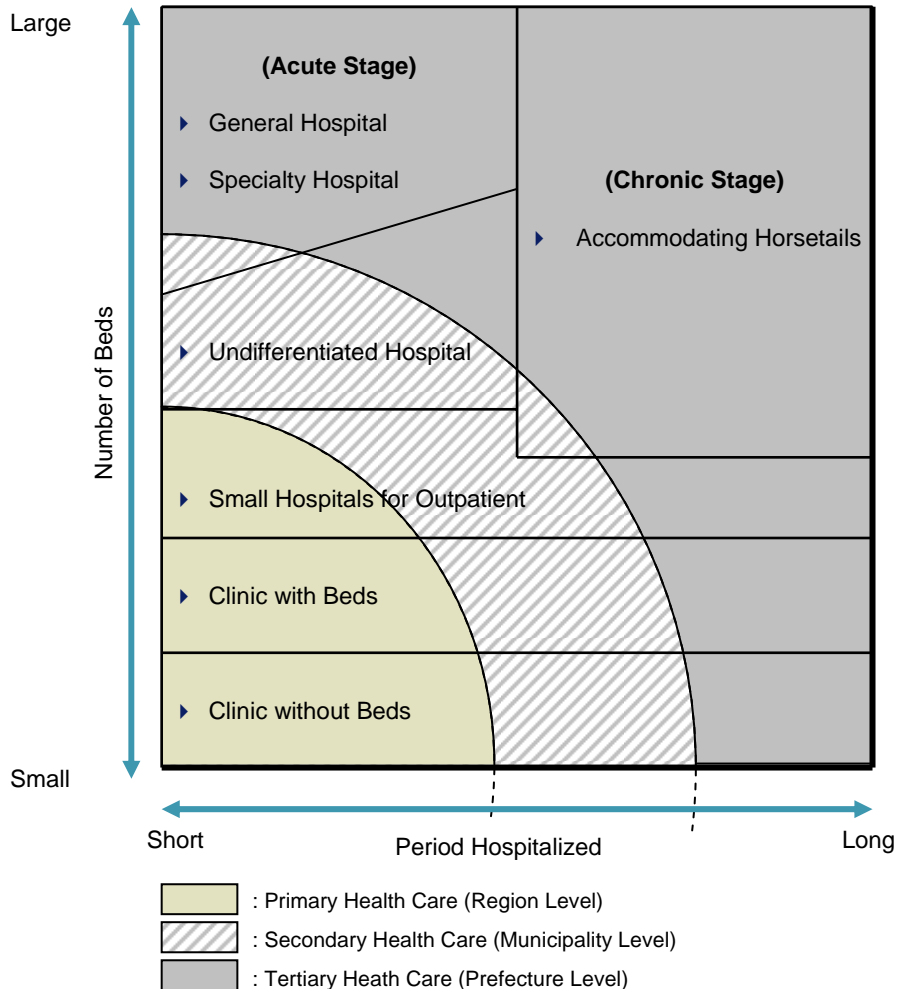
### Free Access

- ▶ Patients are allowed to visit any medical institution without referral.
  - Patients with minor symptoms are allowed to go to large hospitals.
  - Small clinics are allowed to recruit patients who require highly specialized care.
- ▶ That leads to inefficient allocation of medical expenditure as a whole country – the national total cost of health care would be high.
  - Even small hospitals / clinics purchase expensive machines such as CT and MRI to attract patients.
  - Utilization of expensive machines purchased by large hospitals are not optimized.

**The system is having a deteriorating effect on national finance**

# The concept of General Practitioner (GP) or Family Physician (FP) does not exist in Japan—a patient will visit a clinic or a hospital whenever medical care is needed

## Medical Care Institutions in Japan



## Definition and Requirements Regarding Hospitals and Clinics in Japan

		Hospital	Clinic
Definition by # of Beds		20 or More	19 or Less
Minimum Requirement	Number of Physicians	3	1
	Number of Pharmacists	1	-
	Number of Nurses	1 for each 3 patients	-

## Category of Hospital Bed

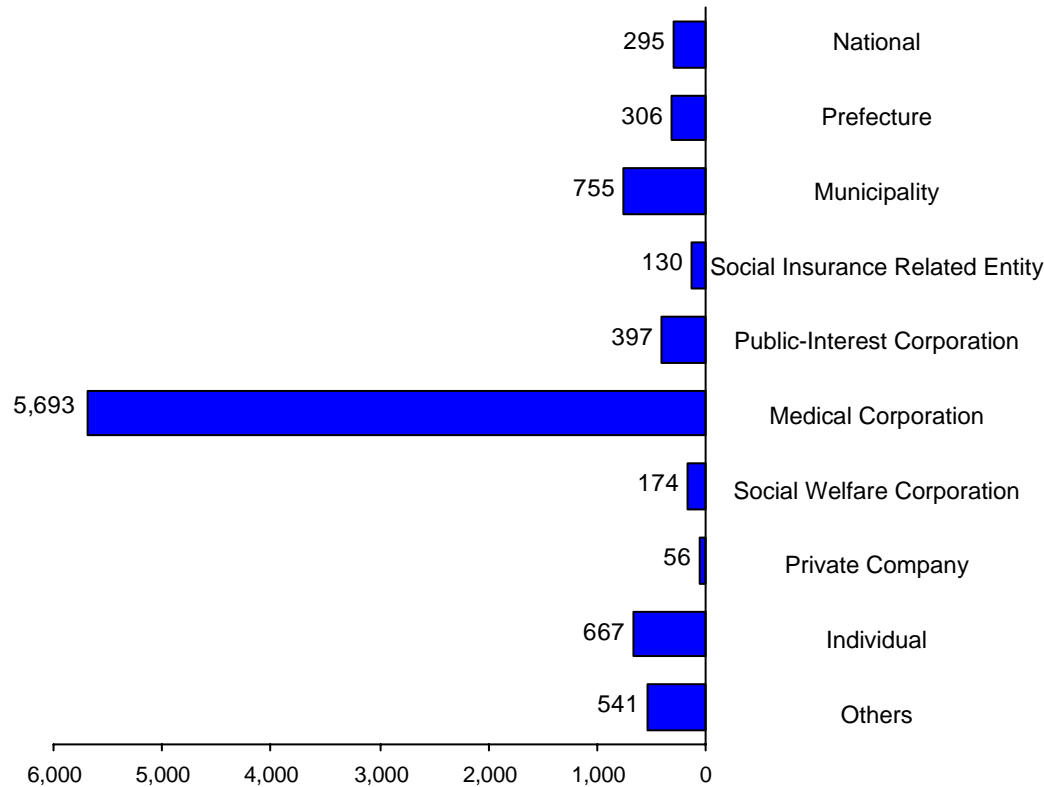
Bed Type	Maximum Number of Patients per Medical Staff		
	Patient / Nurse	Patient / Nursing Assistant	Patient/Nursing Care Workers
ICU	2	-	-
High Care Unit	4	-	-
Sub acute Stage	2.5	-	-
Rehabilitation for Recovery Stage	3	6	-
Chronic Stage	5	-	4-5
Nursing Care Facility	*	*	*

Acute ↑  
Chronic ↓

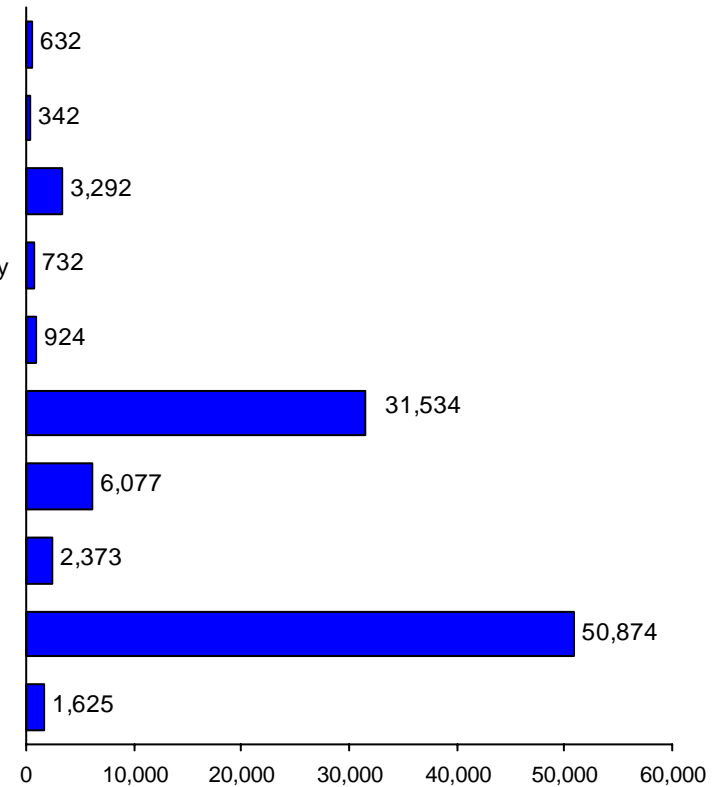
\*: Depends on facility

# Clinics and hospitals are operated by a variety of public and private entities, all required to be non-for-profit organizations

## Number of Hospitals by Operator type

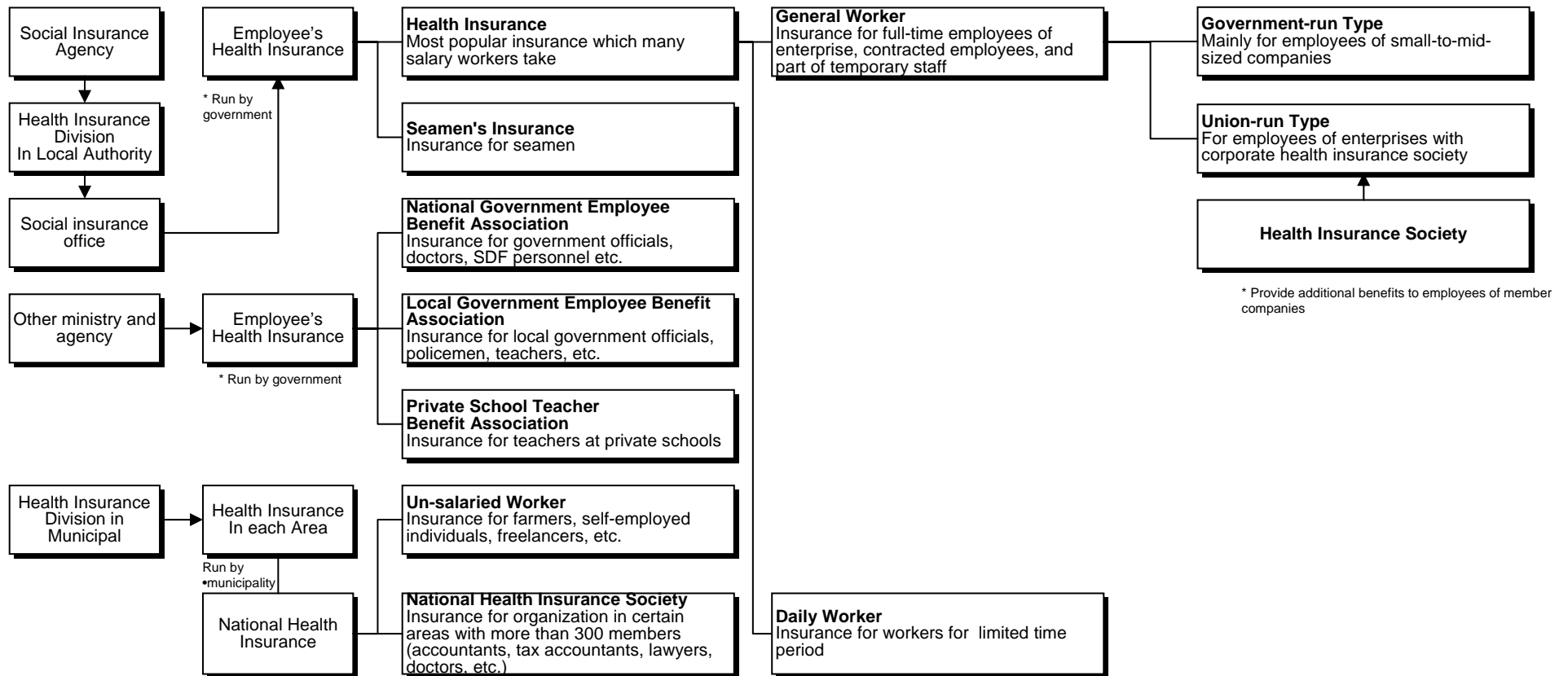


## Number of Clinics by Operator type



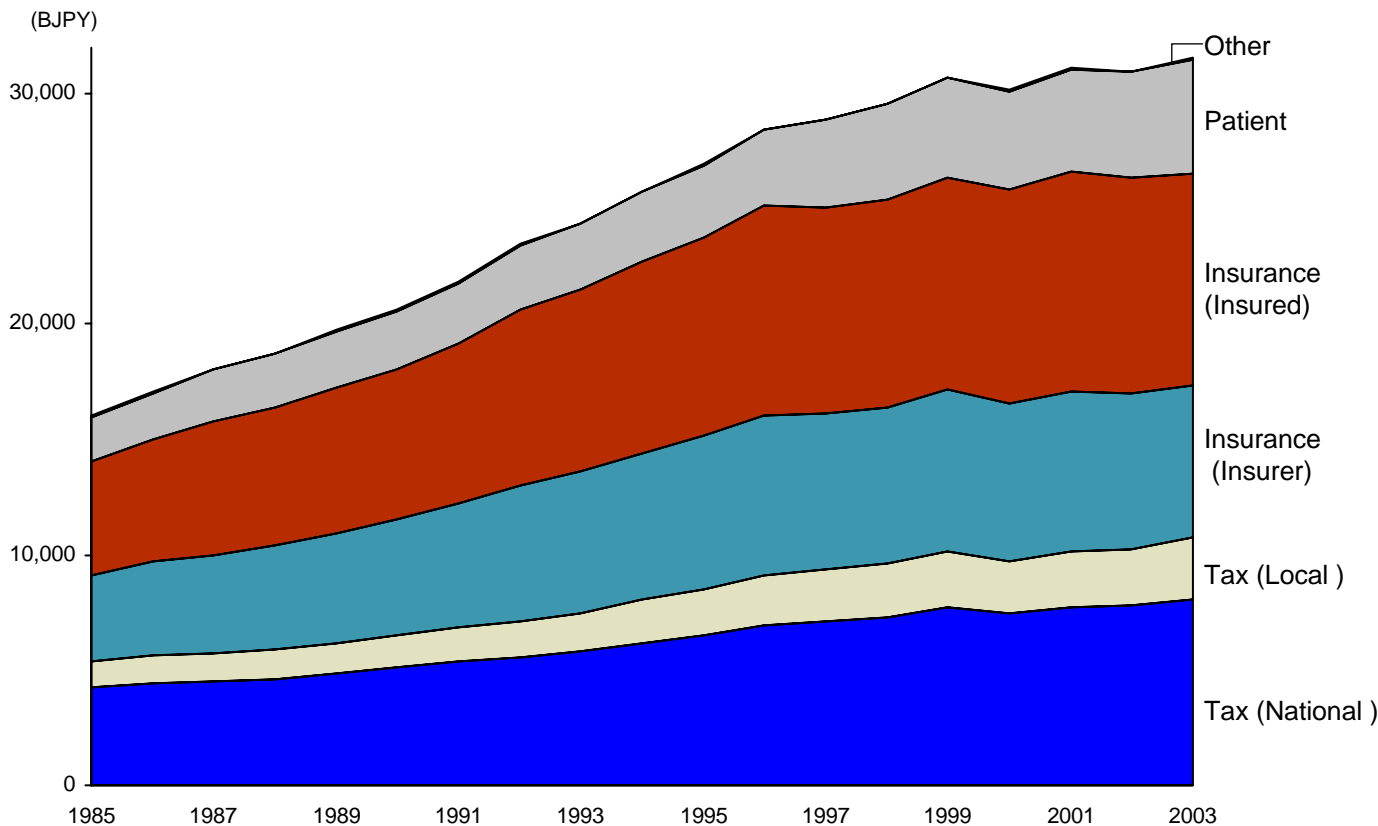
# There are many types of public health insurance in Japan

## Overview of Public Health Insurance



# Increasing healthcare expenses become a burden to national treasury – the Japanese government is pressured to reduce healthcare costs by increasing patients' self-payment

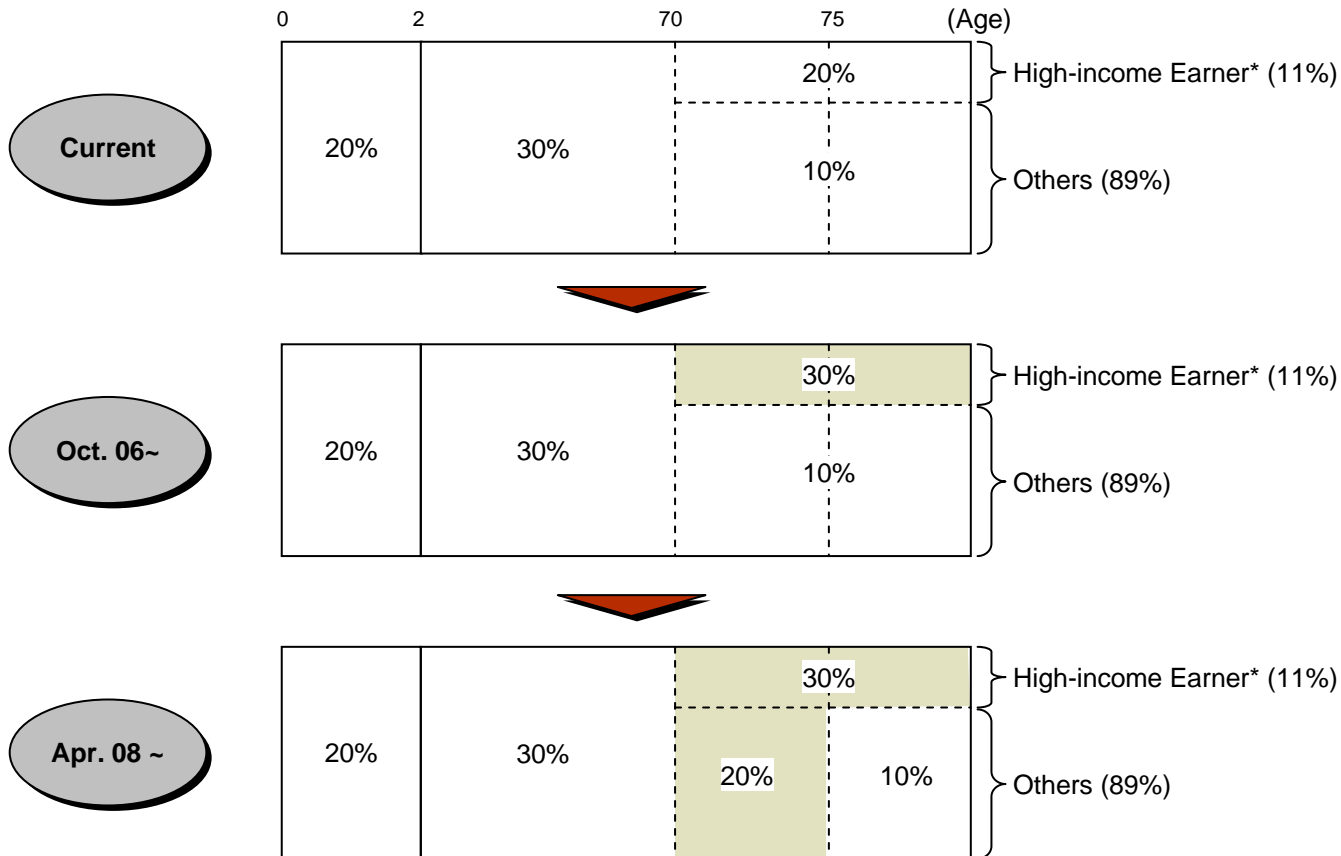
Trend of Healthcare Cost by Payer



Comment
▶ As the population is rapidly aging, the healthcare cost is increasing.
▶ Financial status of insurance system is deteriorating. <ul style="list-style-type: none"> <li>– Medical cost is increasing.</li> <li>– Insurance revenue is not increasing.</li> </ul>
▶ National financial status is also deteriorating.
▶ Therefore, government is turning to patients' self-payment.

# The Japanese government plans to change the insurance system to increase the self-payment ratio of older people

## Policy Change on Self-Payment Ratio



Description
<ul style="list-style-type: none"> <li>▶ Bill for “Medical Care Reformation” just passed at the diet on Jun. 15, 2006</li> <li>▶ By this law, government will increase self-payment ratio of older people                             <ul style="list-style-type: none"> <li>– High-income earners (Oct., 06)</li> <li>– People under 75 years old (Apr., 08)</li> </ul> </li> </ul>

\*: People whose household income is above 5.2 MJPY  
 Source: MHLW, Weekly Diamond

# The Japanese government has recently laid out a medical system reform framework, with one initiative on promotion of patient-centered medical care...

## Framework for Promoting Patient-centered Medical Care

### Provide Sufficient Medical information

#### Support Selection of Appropriate Medical Care by Providing Medical Information

- ▶ Gather and disclose the information collected by the prefectures
  - Medical institutions notify medical function of the facility to the prefectures
  - The prefectures institutionalize the mechanism to provide information in an easy-to-understand manner
- ▶ Disclose the status of medical care in the local areas within the medical plan
  - Medical functions
  - Coordination among medical institutions
- ▶ Expand the range of items which could be advertised

### Provide Safe, Secure, and High-quality Medical Care

#### Offer Seamless Medical Care by Promoting Differentiation and Cooperation of medical function

- ▶ Develop system for coordination among medical institutions through revising medical vision – systems will differ by the domain such as cerebral stroke, cancer, and emergency medical care for children
- ▶ Regarding local medical cooperation system, provide seamless medical care through promoting regional cooperation critical path

#### Regional cooperation critical path

Medical care plan for the period starting from acute hospitalization, passing through recovery phase, and to return home.  
By sharing regional cooperation critical path, medical institutions can provide efficient and high-quality care that would relieve patients

- Secure appropriate medical care considering the treatment after changing/ leaving hospital

### Enable Patients to Return Home Quickly

#### Improve QOL (Quality of Life) of Patients Enhancing Quality of Home Care

- ▶ Develop system for providing home care within local areas so that home care will be an option for a patient in a chronic stage
- ▶ Introduce quantitative target in the medical plan
  - E.g., Rate of patients who die at home-for cerebral stroke, diabetes, cancer, etc.
  - E.g., Rate of home return
- ▶ Enhance valuation of home care within the medical fee system
  - E.g., 24h home care
  - E.g., terminal care

### Develop infrastructure for Safe, Secure, and High-quality Medical Care

Provide patients with appropriate information such as delivering documents

Promote initiatives for enhancing medical safety

Promote EBM (Evidence Based Medicine)

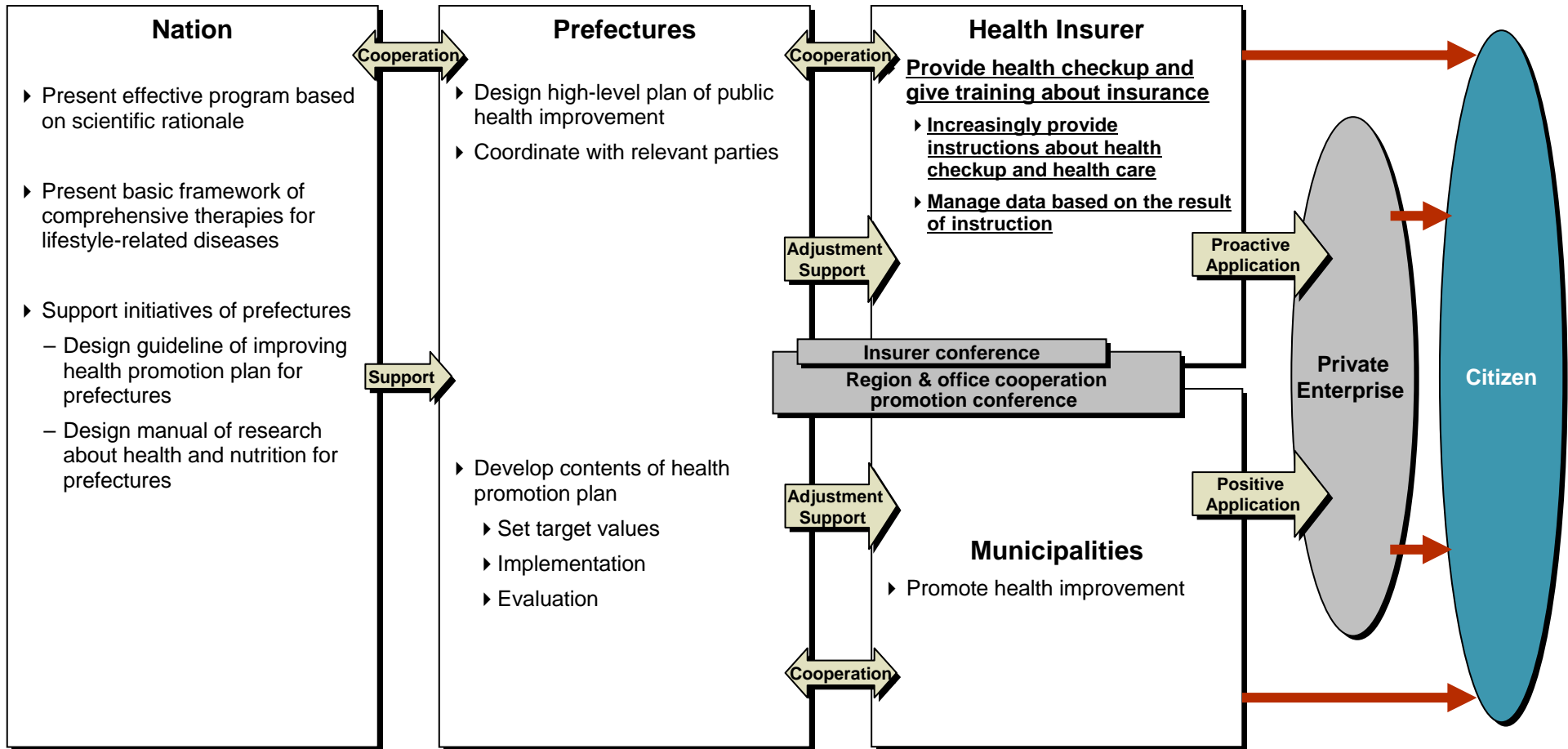
Take measures to realize more even distribution of physicians among geographies and specialty

Improvement of nature of health workers

Reform Medical corporation system

# ...and another initiative on development of a system to reduce lifestyle-related diseases

## Framework of Systems for Reducing Lifestyle-related Diseases

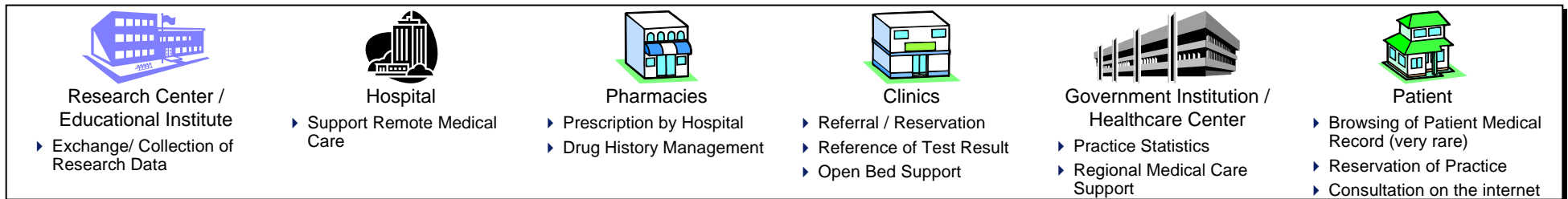
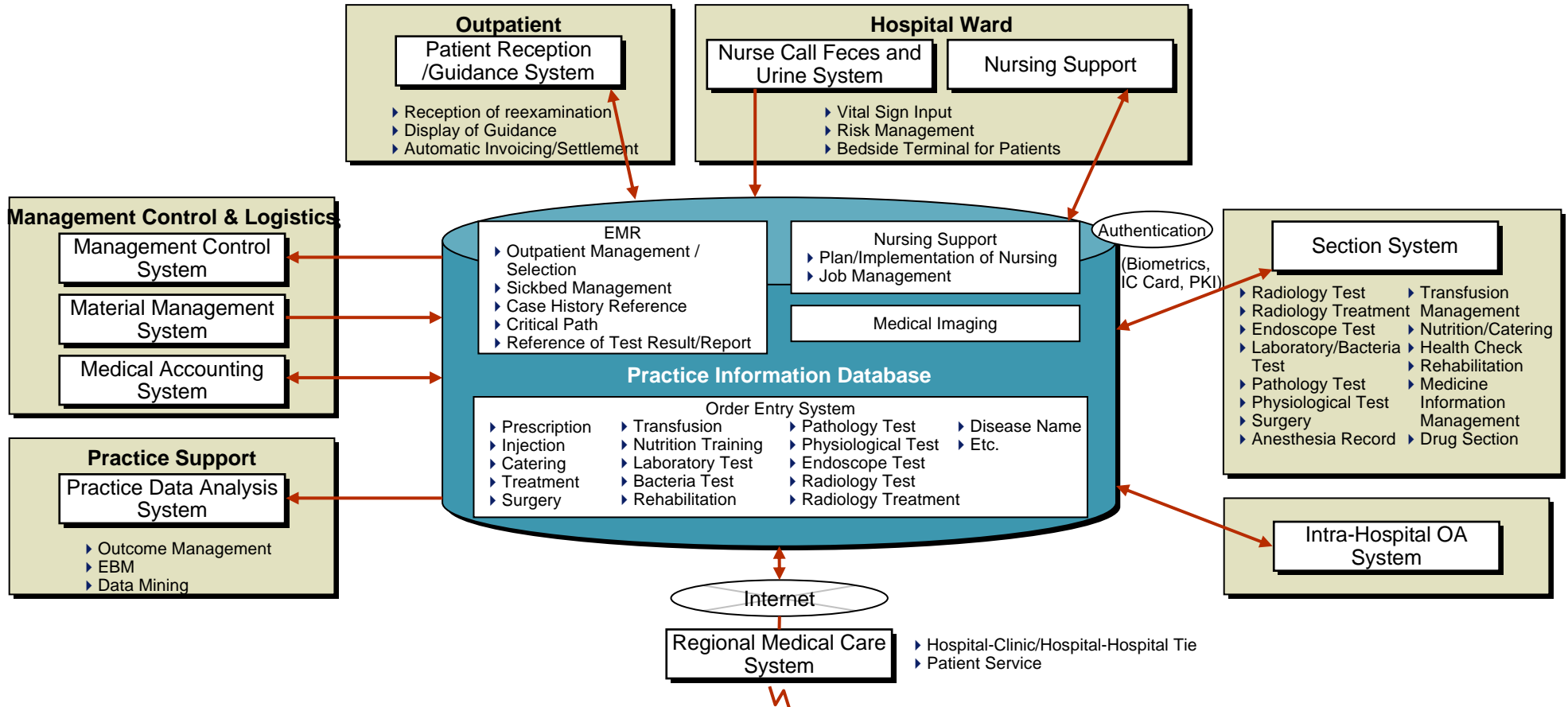


# ICT Vertical Market Report – Health IT

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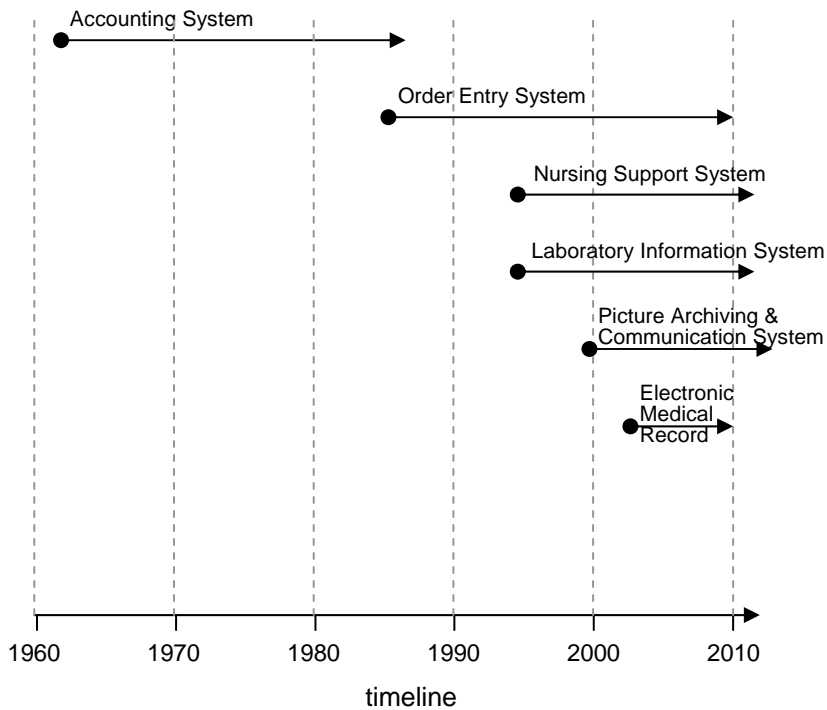
# Japanese medical IT systems consist of many modules, which are often provided by different IT vendors

Example of Typical Medical Information System in Japan

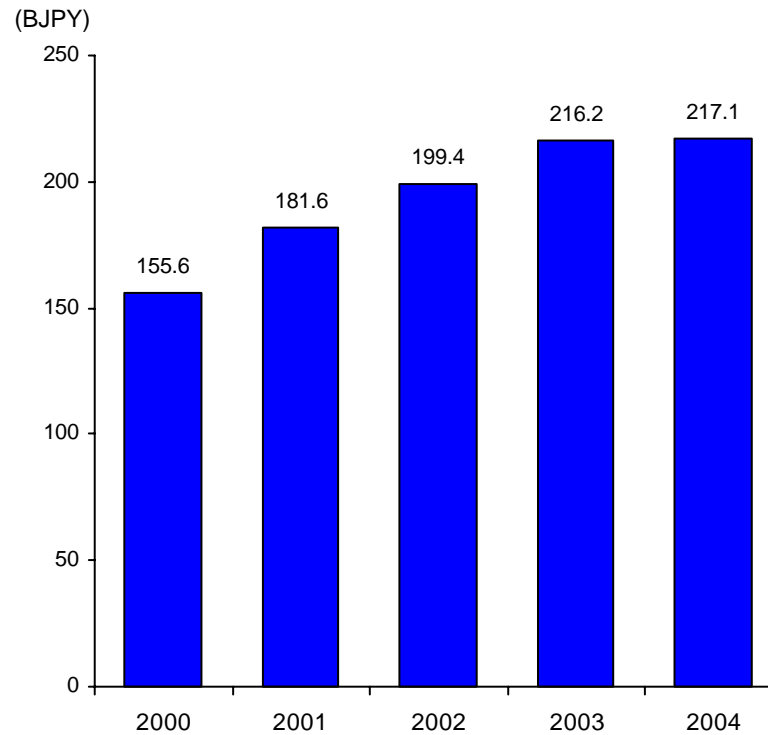


# The Health IT system in Japan has experienced several introduction stages since 1960s, and has become a market worth over 210 billion yen today

Evolution of Health IT System Introduction



Health IT System Market Size



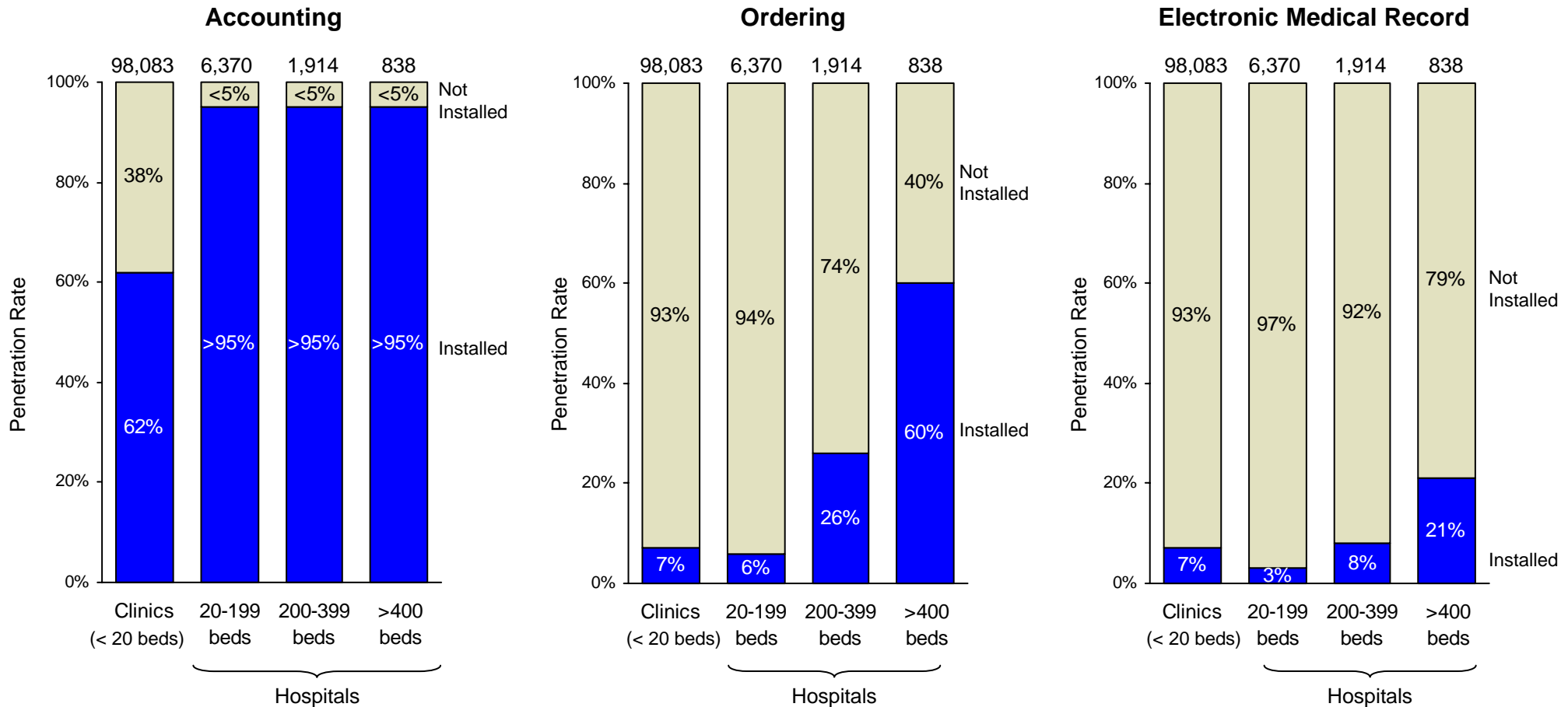
Health IT System Segment included
Electronic Medical Record
Order Entry System
Accounting System
Picture Archiving & Communication System
Laboratory Information System
Nursing Support System
Radiology Information System
Logistics / Inventory Management
Other*

\*: Other include management control, pharmaceutical, canteen, etc

Source: Yano Research Institute

# However, penetration of advanced health IT solutions (such as order entry system and EMR) in Japanese hospitals and clinics is still at low level

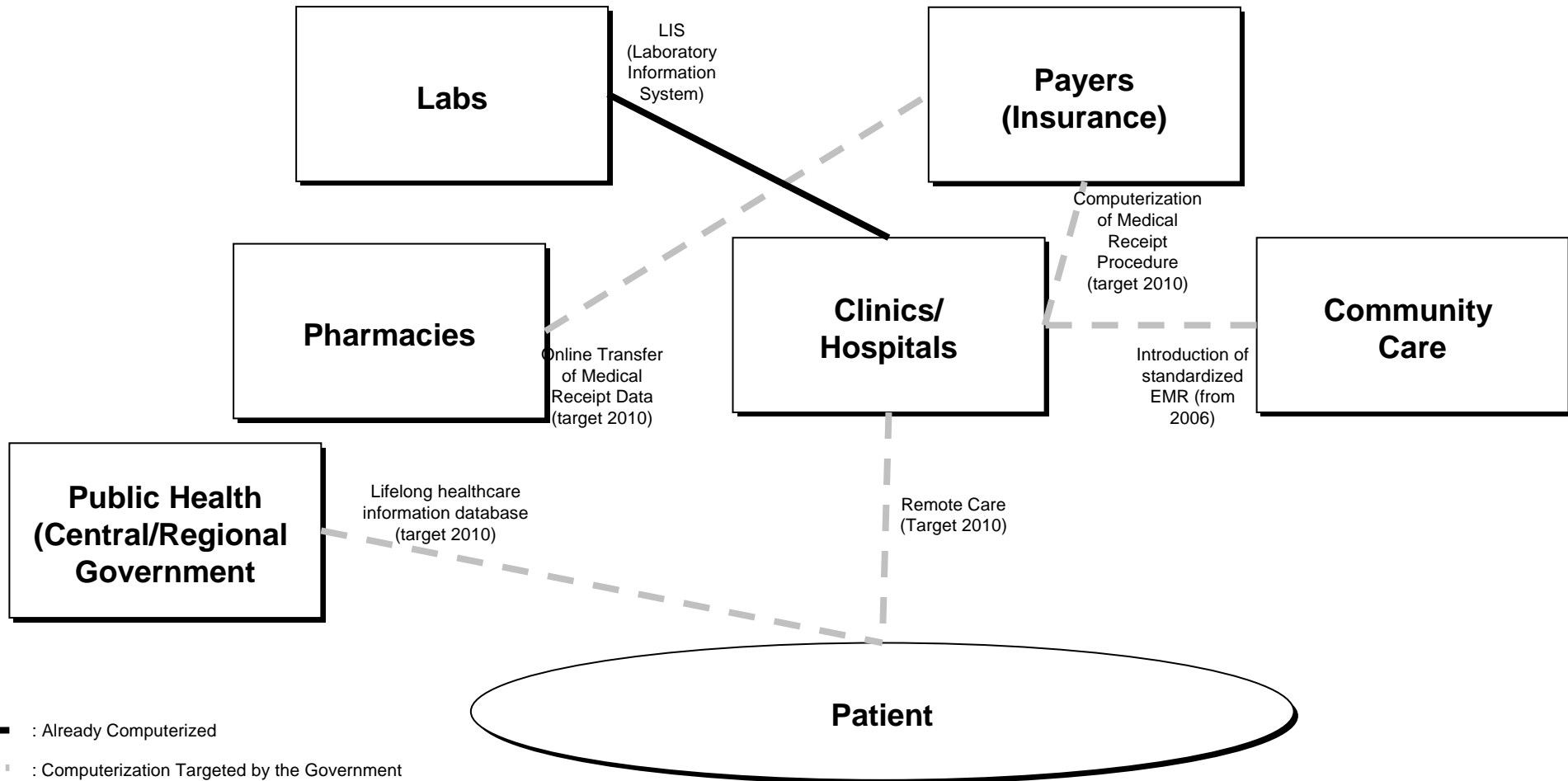
Penetration Status of Major Health IT System (2005)



Source: Yano Research Institute, Booz Allen analysis

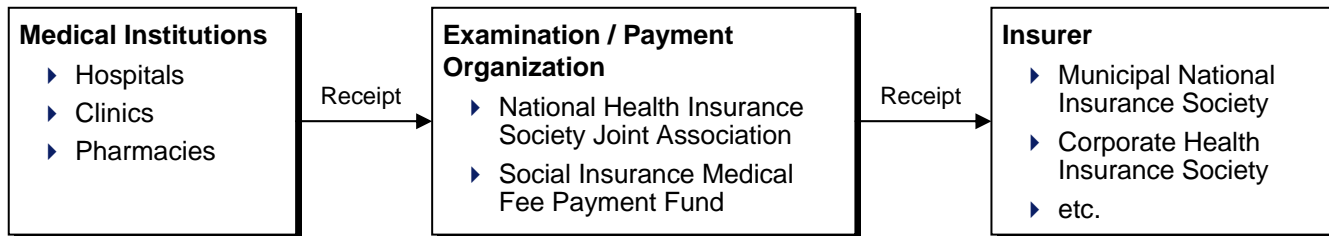
# Existing health IT systems still largely manage the information flow within each block of the medical care supply chain

## Information Flow Among Parties



# For example, currently medical fee receipts are mostly exchanged by paper, where government is promoting electronic data exchange

## Receipt Flow



## Current / Planned Data Exchange Format in Receipt Flow

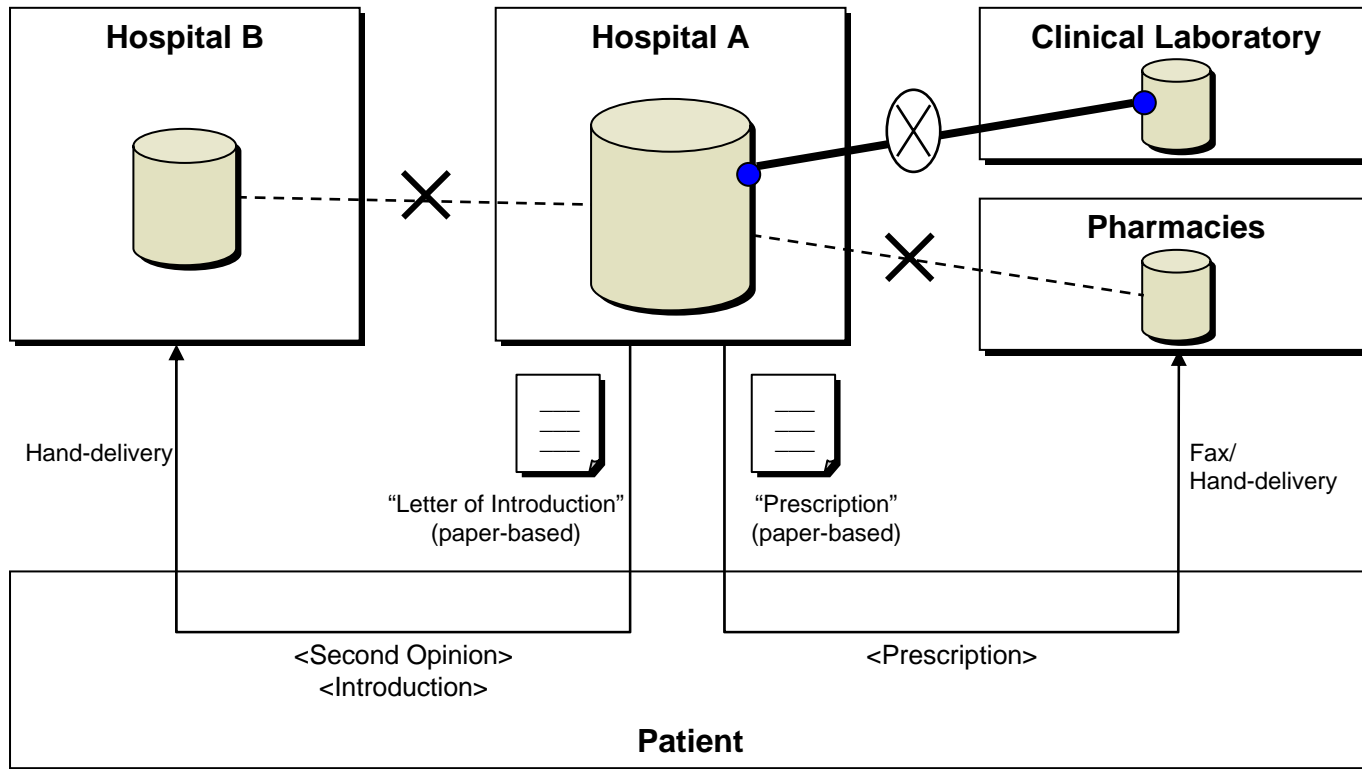
	Medical Institution to Examination / Payment Organization	Examination / Payment Organization to Insurer
Current	<ul style="list-style-type: none"> <li>▶ Hybrid               <ul style="list-style-type: none"> <li>- Paper</li> <li>- Electronic storage device</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Paper</li> </ul>
Mid-term Target (start from 2006)	<ul style="list-style-type: none"> <li>▶ Hybrid               <ul style="list-style-type: none"> <li>- Paper</li> <li>- Electronic storage device</li> <li>- Online</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Hybrid               <ul style="list-style-type: none"> <li>- Paper</li> <li>- Electronic storage device</li> <li>- Online</li> </ul> </li> </ul>
Long-term Target (2011)	<ul style="list-style-type: none"> <li>▶ Online</li> </ul>	<ul style="list-style-type: none"> <li>▶ Online</li> </ul>

## Government Policies to Support Computerization of Receipt

- ▶ Support introducing common code system
  - Develop software to convert current data into common code system (2006)
  - Distribute software above (from 2007)
- ▶ Modify service fee system to give incentives for introducing electronic receipt data exchange

# Also, inter-institutional exchange of medical information is mostly paper-based - it is expected to be computerized as the EMR introduction rate increases

Example of Medical Information Flow



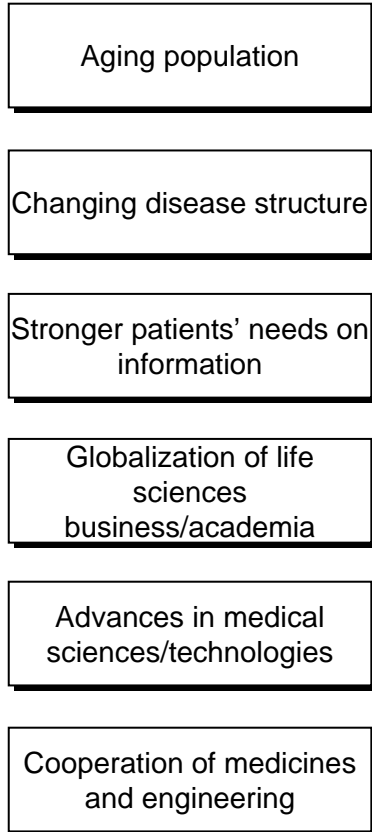
**Background**

- ▶ Data exchange among institutions is difficult – data format is not widely standardized

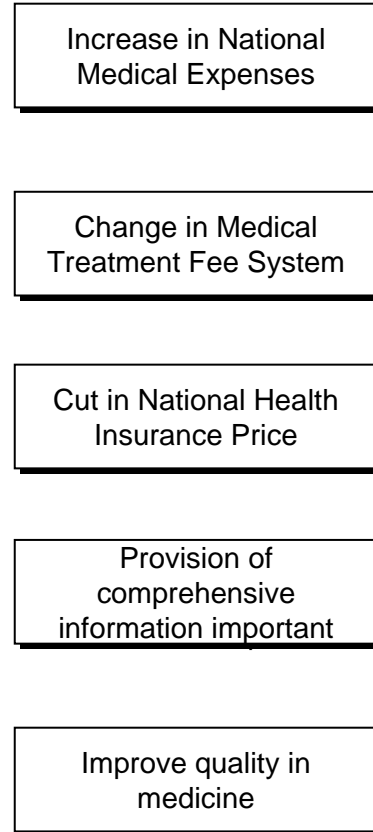
# Recent healthcare IT development in Japan is influenced by a number of key drivers

## Key Market Change Drivers

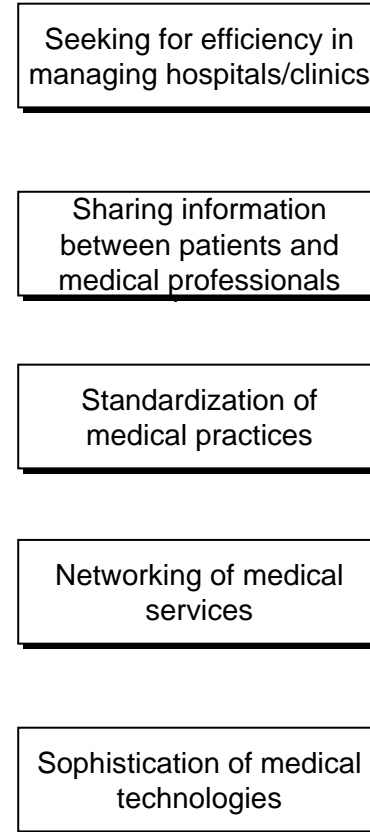
### Changing Environment



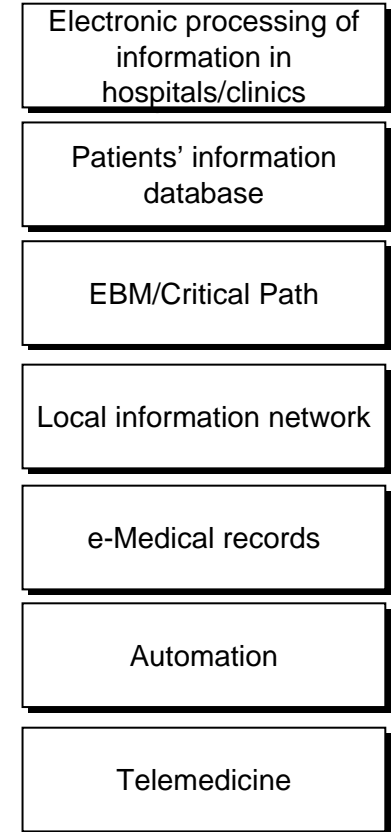
### Trends



### Impact



### Implications on IT



**Although these market drivers are expected to bring significant changes into the Japanese health IT market, it is hard to predict the exact timing of the change. It may be similar to the phenomenon in some other industries in Japan where a prolonged period is needed for the change to occur**

# The Japanese government has been promoting health IT systems as a lever for structural reform in the healthcare industry

## Government Initiative Announced in 2001

- ▶ Government will promote introduction of health IT systems
  - Introduce EMR in 60% of large hospitals (with ≥400 beds) and clinics by 2006
  - Introduce computerized receipt to 70% of hospitals by 2006
  - No target based on number of patients

## Current Status

- ▶ In 2005, introduction rate of EMR is far below the target (21% for hospitals with >400 beds, and 7% for clinics)
- ▶ This is due to lack of systematic support
  - No favored treatment in calculating service fee
  - Codes and terms have not been well standardized

## New Reformation Strategy for Health IT Announced in Jan 2006 (Excerpt)

- ▶ Reduce operation cost and promote preventive medical care by fully computerizing procedures of receipt handling
  - Enable online processing of receipt in 2006
  - Mandate online processing by 2011
- ▶ Develop infrastructure to enable citizens to utilize lifelong health care information
  - Develop scheme for collecting and managing health care information by 2007
  - Develop infrastructure for utilizing health information such as database and systems for collecting and managing health care information using IC card by 2010 (starting 2008)
- ▶ Promote remote medical care through improved communication
  - Develop infrastructure for remote medical care by 2010
  - Make pre-consultation medical care (such as guidance of emergency treatment and setting of consultation office for emergency medical care for children in practice by 2010 (start pilot test by 2007)
- ▶ Develop ICT Infrastructure of medical care
  - Install integrated medical information system (e.g., order entry system, integrated EMR) to most of hospitals with >200 beds by 2008 (≥400 beds) or by 2010 (<400 beds)
  - Install low-cost EMR to clinics and small hospitals by 2010
  - Reduce system maintenance/ introduction cost by implementing standardized data format and exchange protocol on medical information systems – start in 2006
  - Start utilizing ubiquitous network technology such as RFID by 2010
  - Develop HPKI (Healthcare Public Key Infrastructure) for securer identification and data exchange by 2008
  - Develop systems for training ICT staff by 2008
- ▶ Develop new ICT grand design for promoting cross-sectional ICT development by 2006

# Disclosure of medical information has not yet been strongly promoted in Japan, potentially slowing down the digitalization of moving medical data across healthcare institutions and patients

## Medical Record

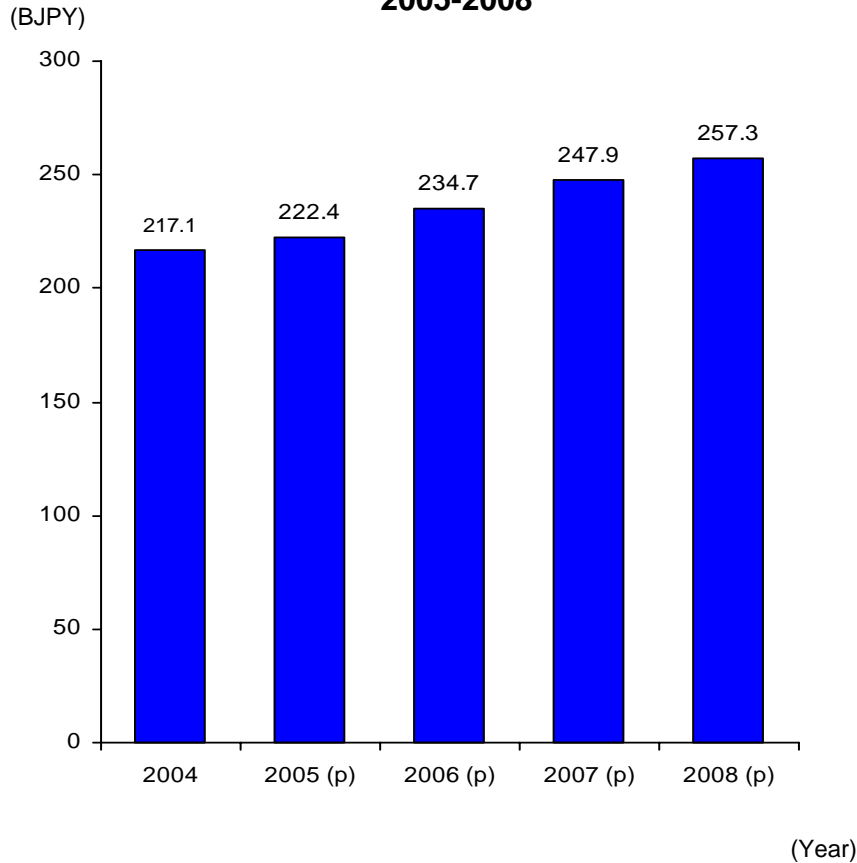
- ▶ Today, there is no enforcing rule about disclosure of medical record for patients
  - Government issued guideline to promote disclosure of medical record in 2003
  - However, no deadline or penalty will be imposed if a medical institution does not disclose
- ▶ Also, there is no formal rule for exchanging patient data among medical institutions
  - Information to deliver is left to doctors' discretion
- ▶ There is no governmental initiative for further disclosure

## Information of Medical Institutions

- ▶ Currently, there exist virtually no rules about disclosure
  - No legal obligation exists for medical institutions
  - Prefecture office set medical security support center and provide general counseling
- ▶ In 2005, government stated in the "Outline of Medical Care Reform" that it will promote disclosure
  - Institutionalize disclosure of information about medical institutions by each prefecture
  - Obligate medical institutes to submit receipt with cost breakdown
- ▶ The bill became law, but no concrete obligations have been agreed
  - The bill passed the Diet on Jun 15, 2006
  - However, concrete obligations were left to prefecture government's discretion

# The introduction of advanced health IT solutions is expected to grow in Japan

**Health IT Market Growth Projection  
2005-2008**

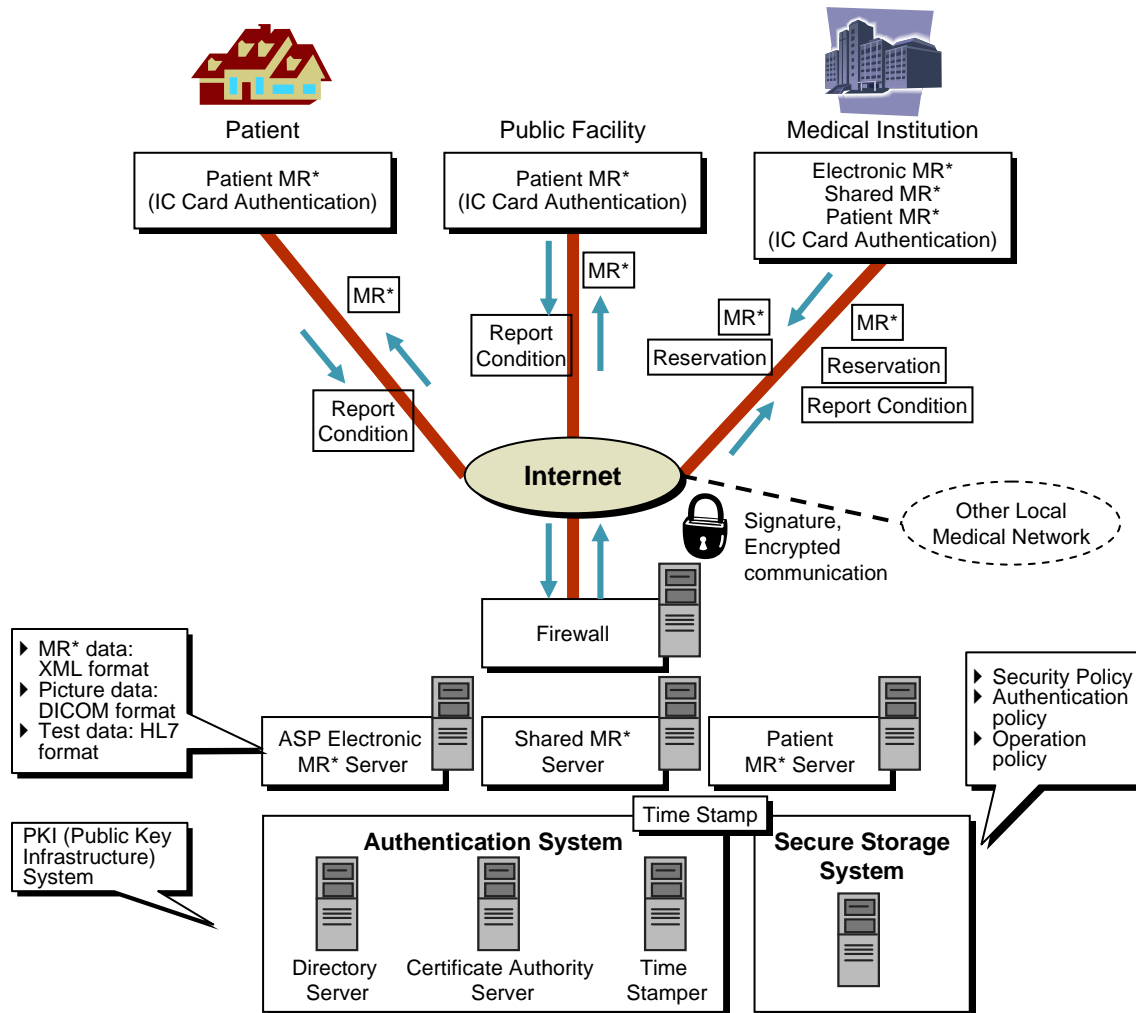


**Key Issues/Drivers for Market Growth**

Party	Market Growth Drivers/ Key Issues
Government	<ul style="list-style-type: none"> <li>▶ Continuously provide incentives</li> <li>▶ Standardize data format</li> <li>▶ Set EHR as target model</li> </ul>
IT Industry	<ul style="list-style-type: none"> <li>▶ Reduce time and cost for introduction</li> <li>▶ Provide solution service</li> <li>▶ Improve functionality of proposing solution to medical institutions</li> <li>▶ Support and maintenance service to ensure operation improvement</li> </ul>
Medical Institutions	<ul style="list-style-type: none"> <li>▶ Train/recruit staff for managing information systems</li> <li>▶ Redefine work flow for effective practice</li> <li>▶ Continuous and strategic assessment of investment</li> </ul>

# The pilot phase of area wide medical networks has just started, a growing field for new health IT solutions

## Example of Trial Project (Kameda Hospital)



## Key Issues of Area Wide Medical Network

- ▶ Increased data format standardization
  - Japan is relatively slow in standardization
  - Recently effort have been made to adopt standard protocols (e.g., HL7)
- ▶ Government need to give incentives to promote area wide networks
  - Introduction of wide area network serves as public good and would benefit the whole medical system
  - However, it does not benefit individual institutes which invested the money

\*: MR stands for medical record

# In principle, all market segments are contestable although there are several concerns for new entrants

- ▶ In principle, all market segments are “contestable” and no market segments in Japanese health IT market are regulated and “not contestable” by foreign players – for example, the following foreign players can be observed in the Japanese health IT market
  - IBM (EMR, order entry, etc.)
  - Philips (PACS)
  - InterSystems (Database, Integration Engine)
- ▶ The general market trends apply to both domestic and foreign players. No market trends have been identified that are only favorable for foreign players while not for domestic players
- ▶ However, there are several concerns which could be entry barriers for foreign players
  - Language – software is required to be in Japanese
  - Traditional business practice – Japanese's health care industry is quite conservative about new business partners. Distribution channels depend heavily on relationships and reference from known networks.
  - Frequent policy change regarding service fee – software related to accounting requires updating about once in two years

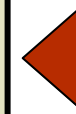
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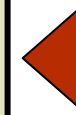
# Today EMR is being recognized as one of the core systems when considering introduction of new health IT systems

## 5 Levels of EMR Defined by JAHIS

Level	Definition	Representative System
Level 1	Handle electronic patient data within a division	LIS RIS PACS
Level 2	Handle electronic patient data between divisions	Order entry system HIS-PACS
Level 3	Handle electronic patient data within overall medical institute	Integrated patient information system
Level 4	Handle electronic patient data within multiple medical institutes	Area wide medical network Patient information exchange
Level 5	Handle information about health and welfare on top of electronic patient data	Lifecycle health information management system



▶ Most EMR products currently proposed by vendors



▶ Vendors started to propose those systems on an experimental basis

**EMR and EHR are often used interchangeably in Japanese market**  
**We define EMR as level 3 and 4 as described above throughout this report**

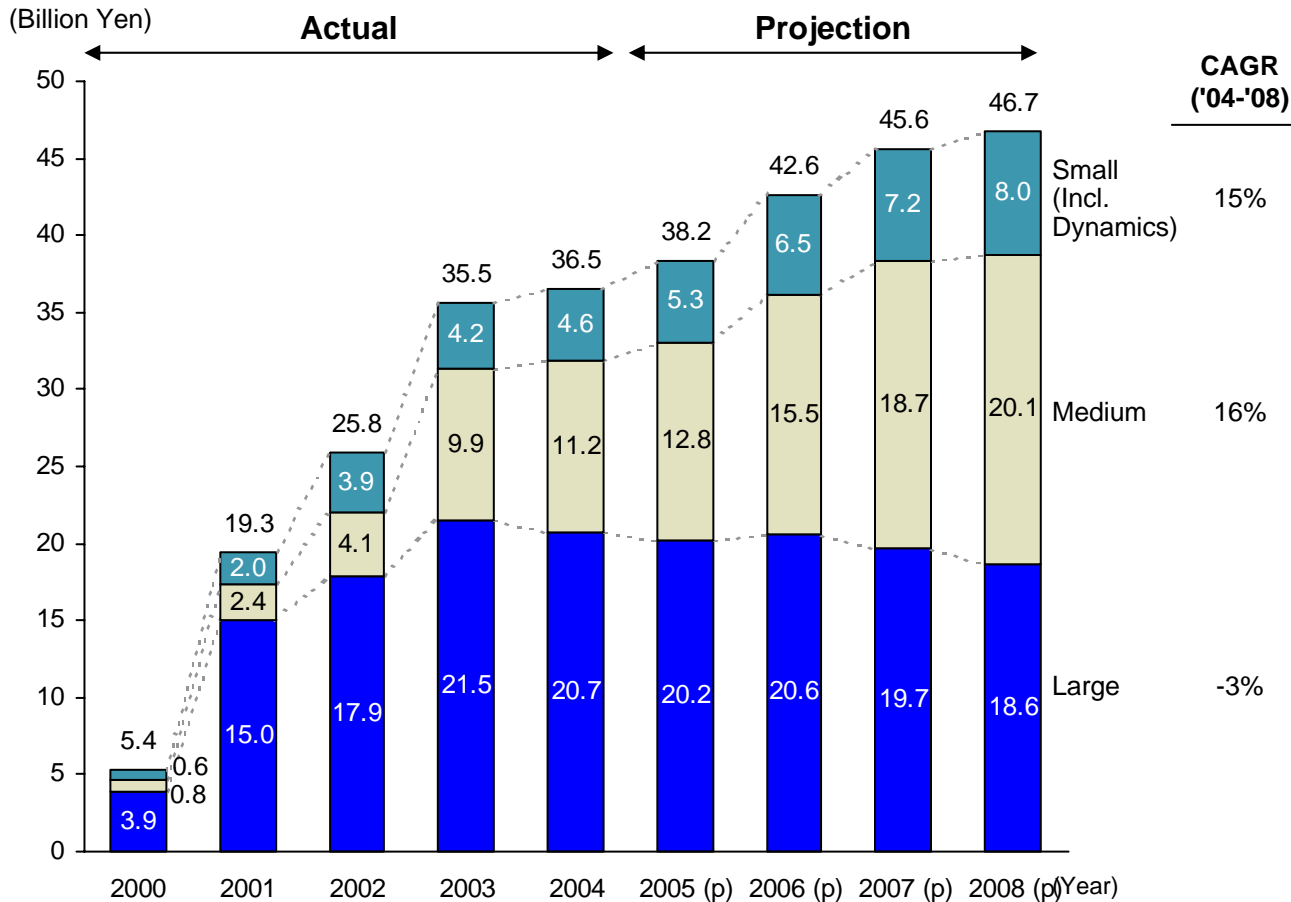
# The EMR system could be divided into four segments

## Segments of EMR Market

Category	Characteristics	Target institutions	Major players	Estimated cost for introduction
Large-size	<ul style="list-style-type: none"> <li>▶ Integrated system of all functions including ordering and PACS</li> <li>▶ Strong function of area wide data exchange</li> <li>▶ Require tailored solutions for each hospital</li> <li>▶ Expensive</li> </ul>	<ul style="list-style-type: none"> <li>▶ Hospital complex with more than 400 beds</li> <li>▶ Typically university hospitals, local core hospitals</li> <li>▶ Typical operated by universities, government, and major medical corporations</li> </ul>	<ul style="list-style-type: none"> <li>▶ Fujitsu, NEC, IBM, Kameda Health informatics Institute</li> </ul>	<ul style="list-style-type: none"> <li>▶ More than 300 MJPY</li> <li>▶ Some exceed 1 BJPY (e.g., university hospitals)</li> <li>▶ Rapidly decreasing due to increase of package type solution</li> </ul>
Medium-size	<ul style="list-style-type: none"> <li>▶ Mainly packaged system with reduced customization</li> </ul>	<ul style="list-style-type: none"> <li>▶ Main target is hospitals with 200 - 400 beds</li> <li>▶ Typically operated by private hospitals</li> </ul>	<ul style="list-style-type: none"> <li>▶ Fujitsu, NEC, Software Service, CSI, etc</li> </ul>	<ul style="list-style-type: none"> <li>▶ 100 - 300 MJPY for EMR, ordering, and accounting systems</li> <li>▶ Sectional systems would increase cost</li> </ul>
Small-size	<ul style="list-style-type: none"> <li>▶ Mostly packaged software</li> <li>▶ Limited function</li> <li>▶ Mainly provide medical practice support for clinics</li> </ul>	<ul style="list-style-type: none"> <li>▶ Mainly small hospitals and clinics</li> <li>▶ Small hospitals with less than 200 beds could be the target</li> </ul>	<ul style="list-style-type: none"> <li>▶ Sanyo, BML, CSI, Software service</li> </ul>	<ul style="list-style-type: none"> <li>▶ Range from 2M JPY to more than 100 MJPY</li> <li>▶ BML offer very low price (e.g. 500,000 JPY) and bundle clinical laboratory service</li> </ul>
Dynamics	<ul style="list-style-type: none"> <li>▶ Package software developed on MS-ACCESS</li> <li>▶ Integrated package with EMR and accounting functions</li> </ul>	<ul style="list-style-type: none"> <li>▶ Clinics without beds</li> </ul>	<ul style="list-style-type: none"> <li>▶ Dynamics</li> </ul>	<ul style="list-style-type: none"> <li>▶ 50,000 - 300,000 JPY</li> </ul>

# The market for mid-to-small size EMR systems is growing, while the large size system market peaks out

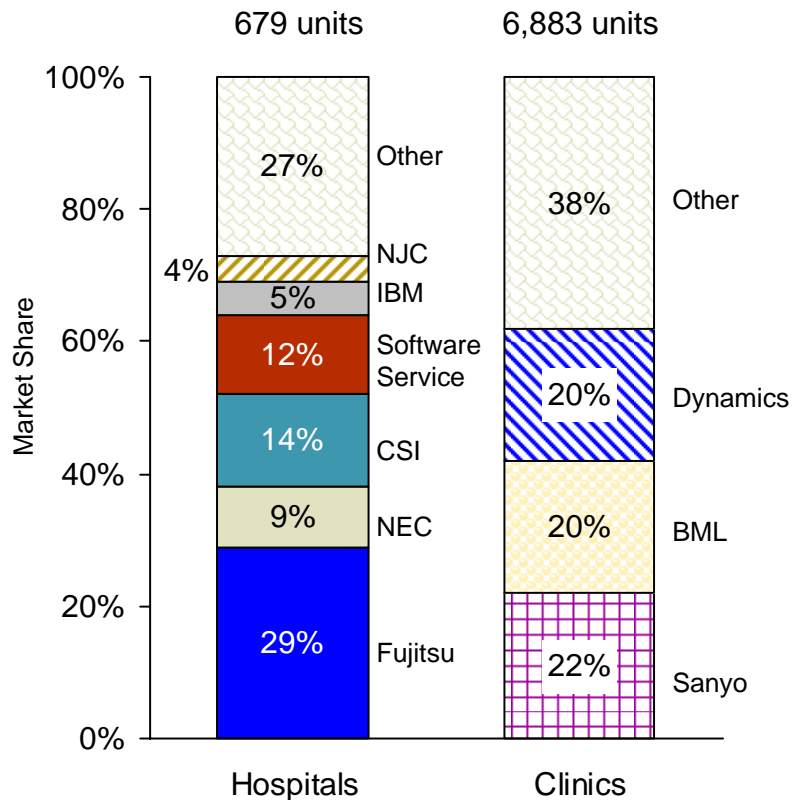
Japan Market Trend – EMR



Key Trend	
▶	Sales of large scale EMR will decrease
–	Price range is decreasing as needs for customization declines with improved package solution
–	Most of very large hospitals (e.g., > 600 beds) which purchase expensive systems have already installed EMR
▶	Sales of mid-to-small scale will increase
–	Price range will not change dramatically since products for this segment do not rely on revenue from customization
–	There are still many target customers out in the market as penetration is less than 10%

# The strength of EMR vendors are different depending on customer segments

Japan Market Share – EMR (2005)

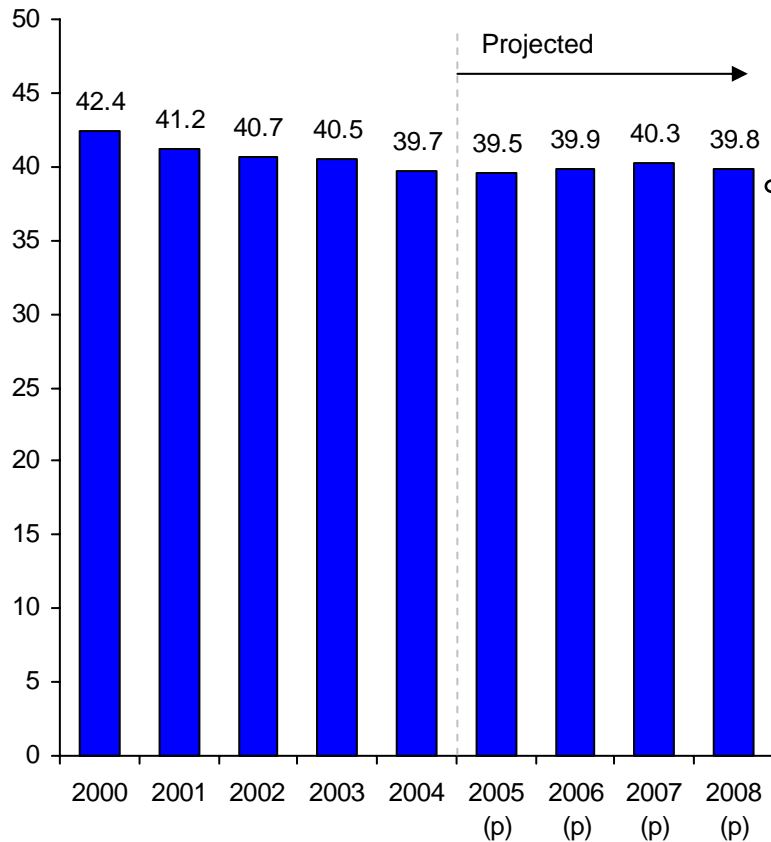


Key Trend	
For Hospitals	<ul style="list-style-type: none"> <li>▶ Fujitsu is the market leader and has extended lineup to cover large-medium scale hospitals                             <ul style="list-style-type: none"> <li>– Originally strong in large scale systems</li> <li>– Improving medium scale systems</li> </ul> </li> <li>▶ CSI and Software Service has advantage in package software for medium scale hospitals</li> <li>▶ NEC and CSI integrated products to the same brand</li> </ul>
For Clinics	<ul style="list-style-type: none"> <li>▶ Sanyo is cross-selling EMR systems to the customers of its medical accounting system</li> <li>▶ BML (major player of clinical laboratory service) approach potential customers by holding seminars for supporting the openings of clinics</li> </ul>

# The order entry system market is expected to remain at the current level

**Japan Market Trend – Order Entry System**

(B JPY)

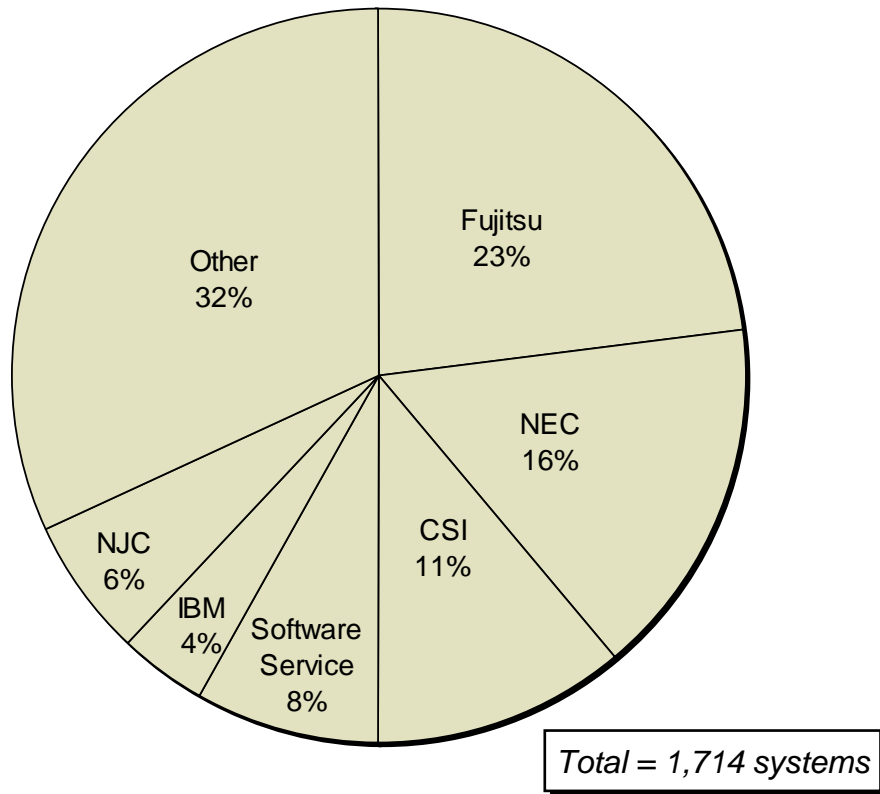


**CAGR ('04-'08)**  
**0%**

Key Trend	
<b>For hospitals</b>	<ul style="list-style-type: none"> <li>▶ Introduction of systems for large scale hospitals will remain at current level</li> <li>▶ Introduction of systems for medium scale hospitals is expanding                             <ul style="list-style-type: none"> <li>– Number of hospitals are large</li> <li>– Penetration rate is still quite low</li> </ul> </li> <li>▶ However, price level is decreasing due to the improvement of package software                             <ul style="list-style-type: none"> <li>– Currently, price level is around 200 MJPY for medium scale hospitals (with 200 – 399 beds)</li> <li>– Price level is expected to decrease to 100 – 150 MJPY</li> </ul> </li> </ul>
<b>For Clinics</b>	<ul style="list-style-type: none"> <li>▶ Very few clinics introduce order entry system                             <ul style="list-style-type: none"> <li>– Clinics have little demand for order entry system – most clinics do not have multiple sections</li> </ul> </li> </ul>

# The strength of order entry system vendors is similar to EMR vendors

## Japan Market Share – Order Entry System

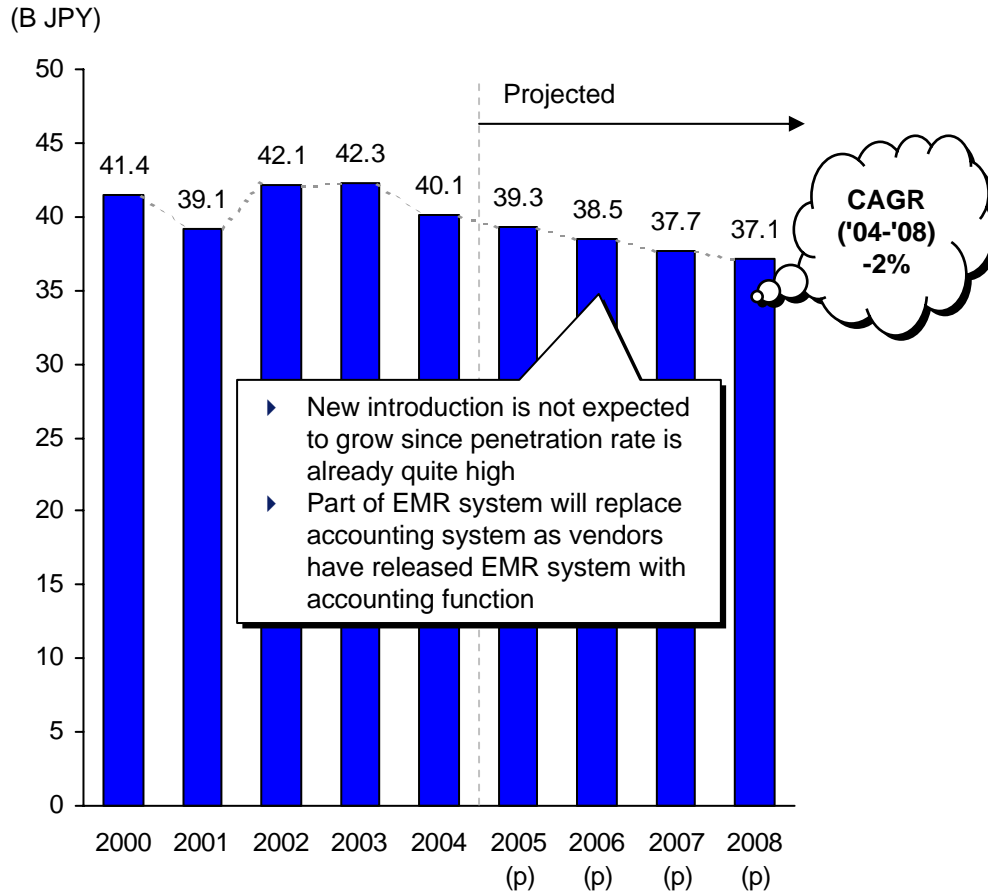


### Key Trend

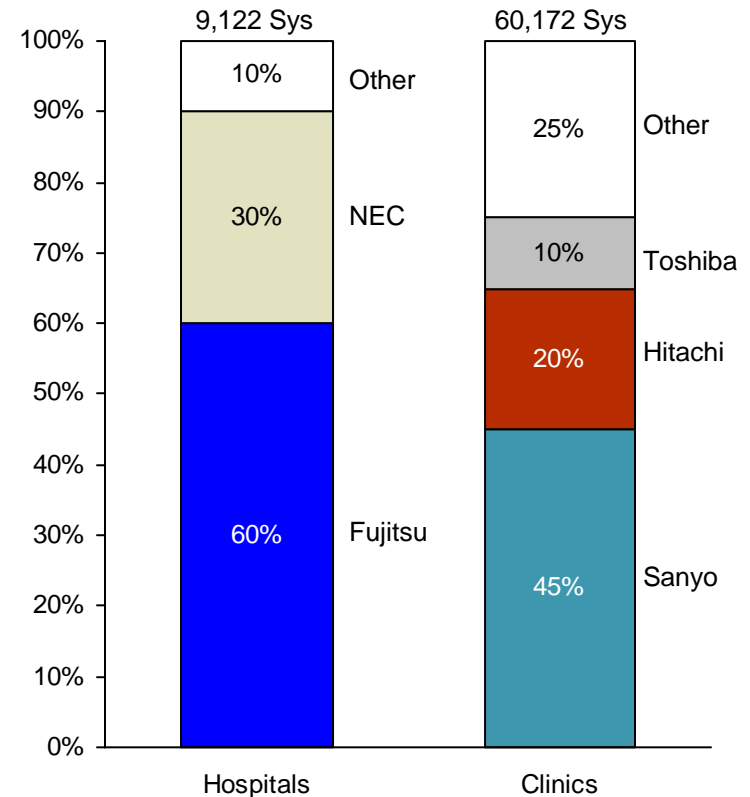
- ▶ Fujitsu and NEC are major vendors for especially large scale hospitals
- ▶ CSI and Software Service is especially strong for package software for medium scale hospitals
- ▶ Hospitals tend to introduce order entry system and EMR system of the same vendor
  - There is data exchange requirement between EMR system and order entry system, therefore, unity of data format is key

# The market for accounting systems is expected to decline slowly

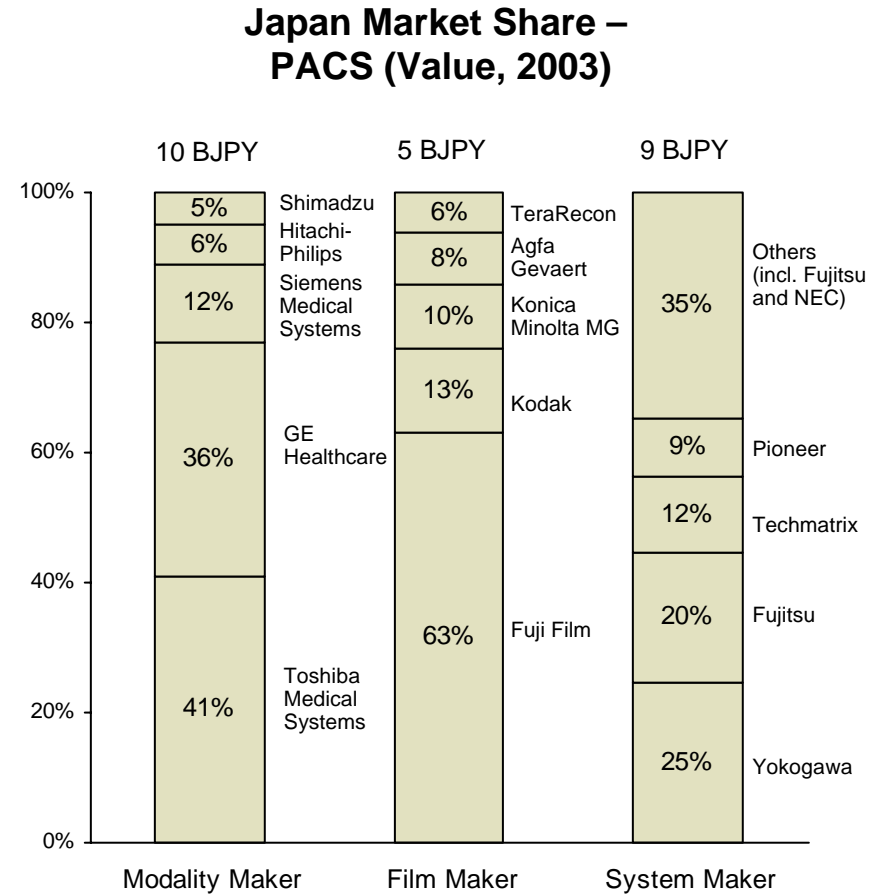
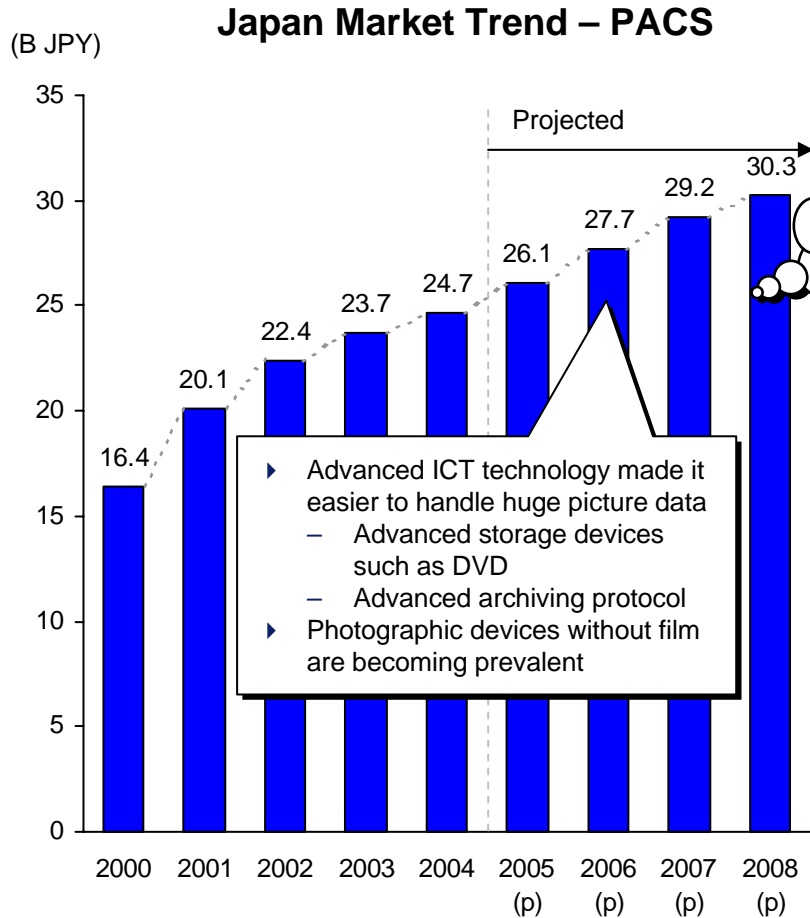
## Japan Market Trend – Accounting System



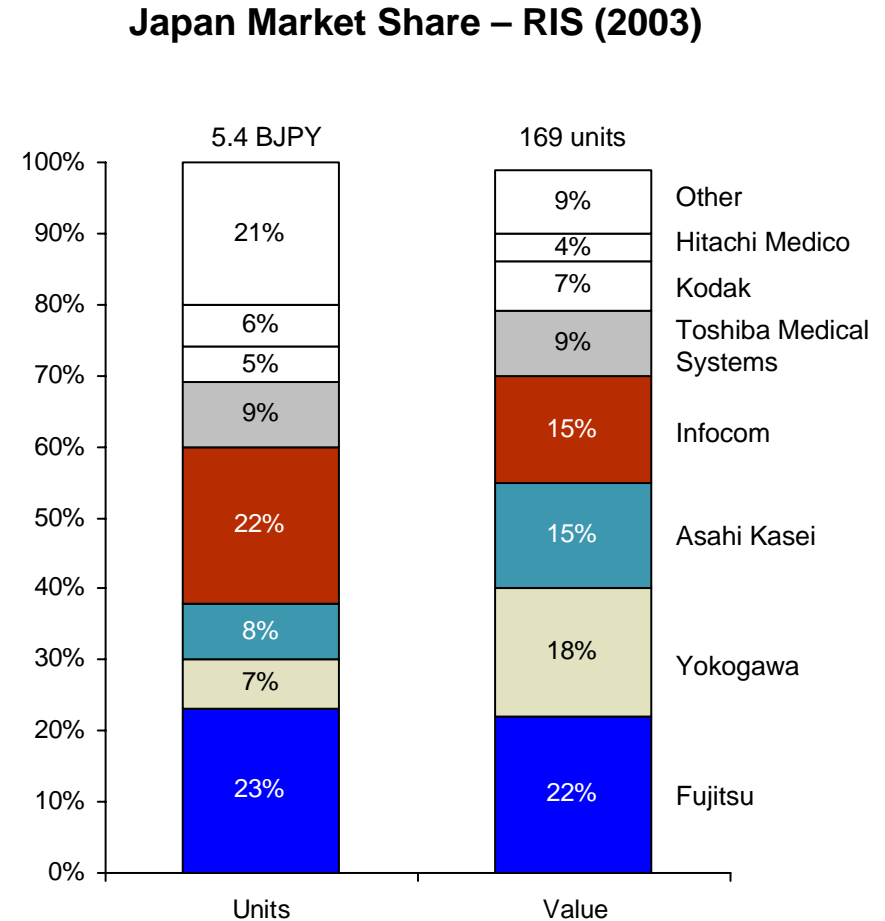
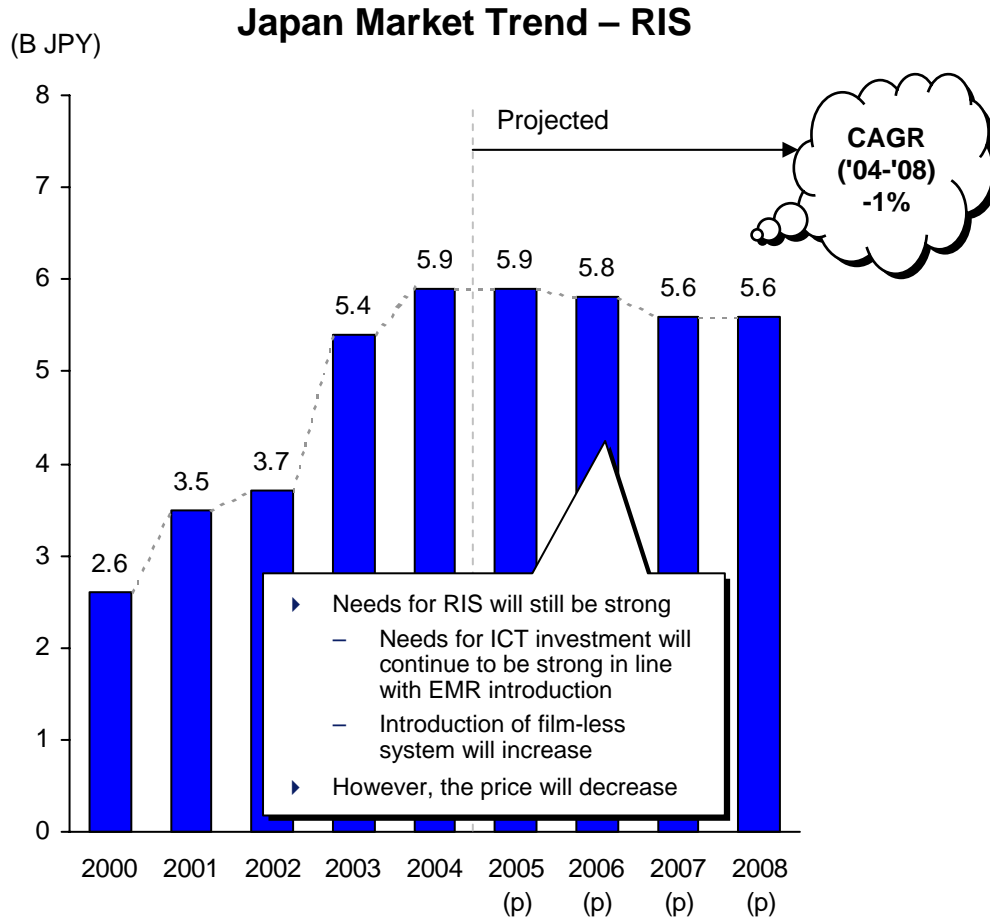
## Japan Market Share – Accounting System (2005)



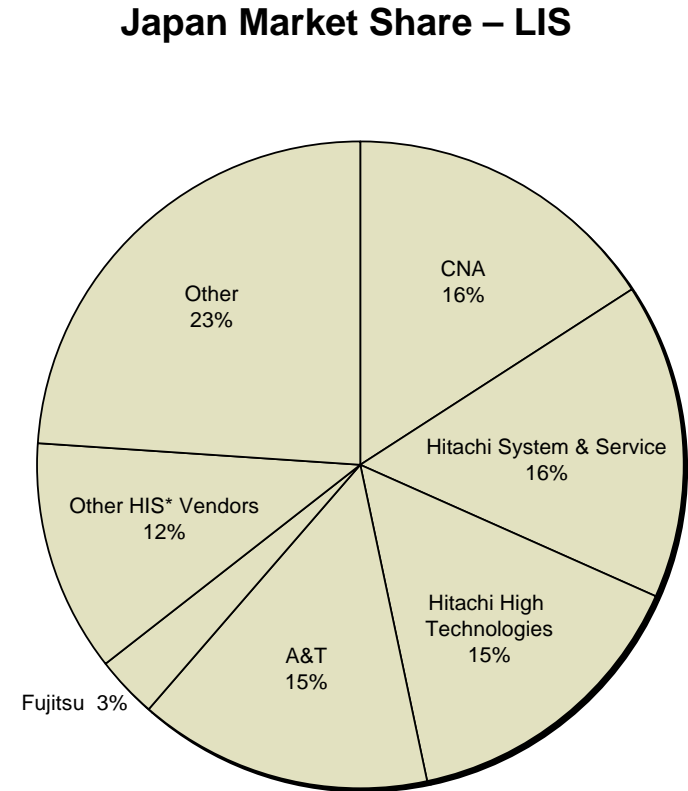
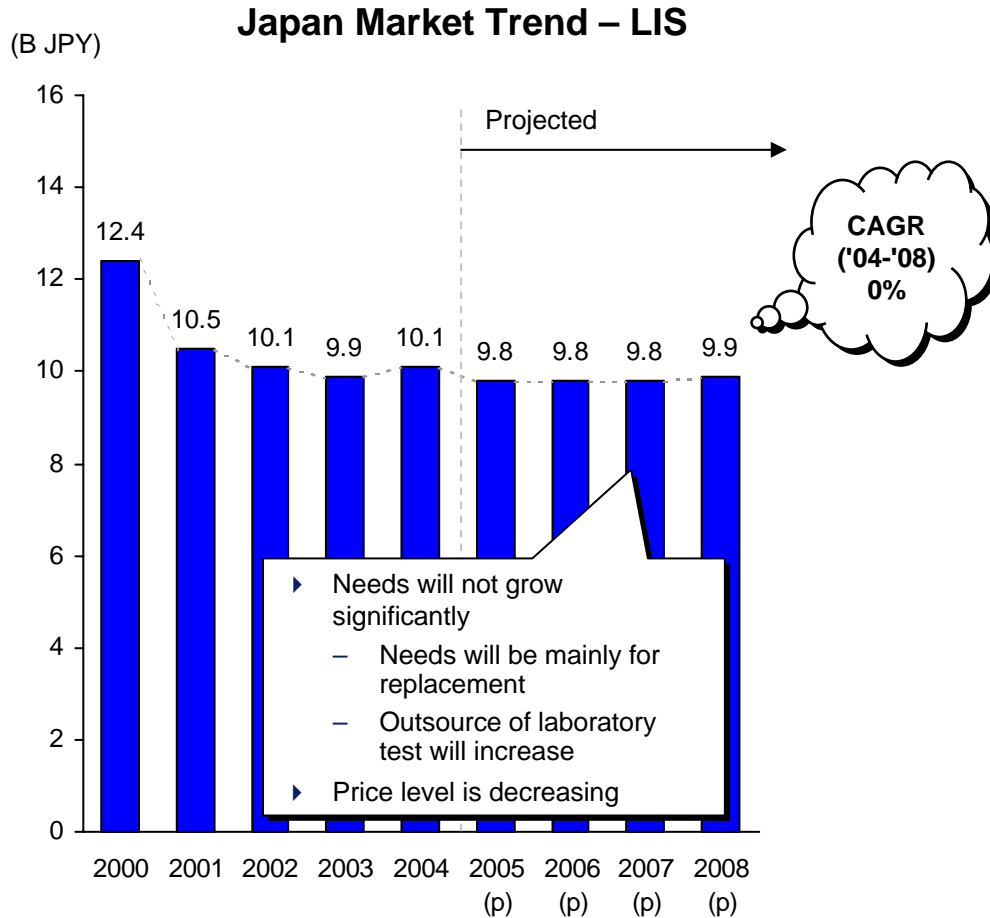
# The market for picture archiving & communication systems (PACS) is expected to grow sharply due to technology advancement



# The market for radiology information systems (RIS) is expected to remain at the current level



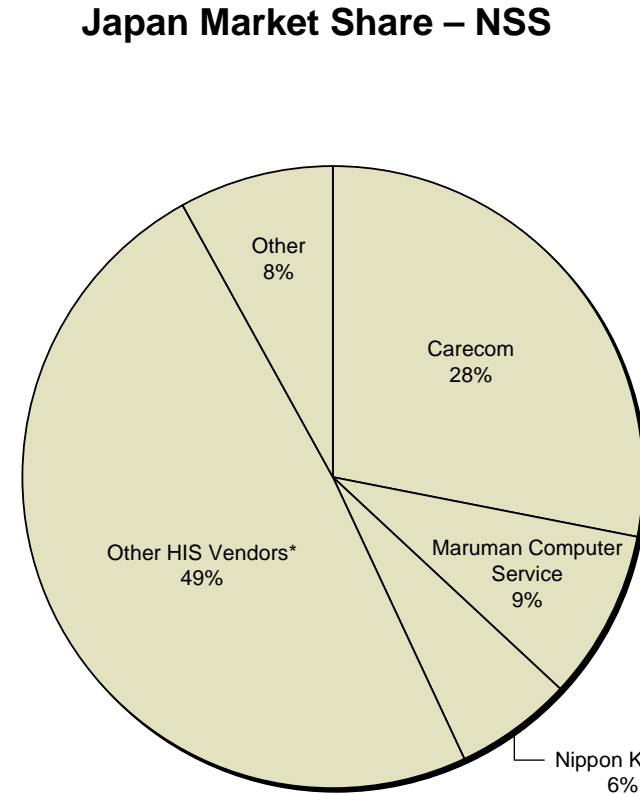
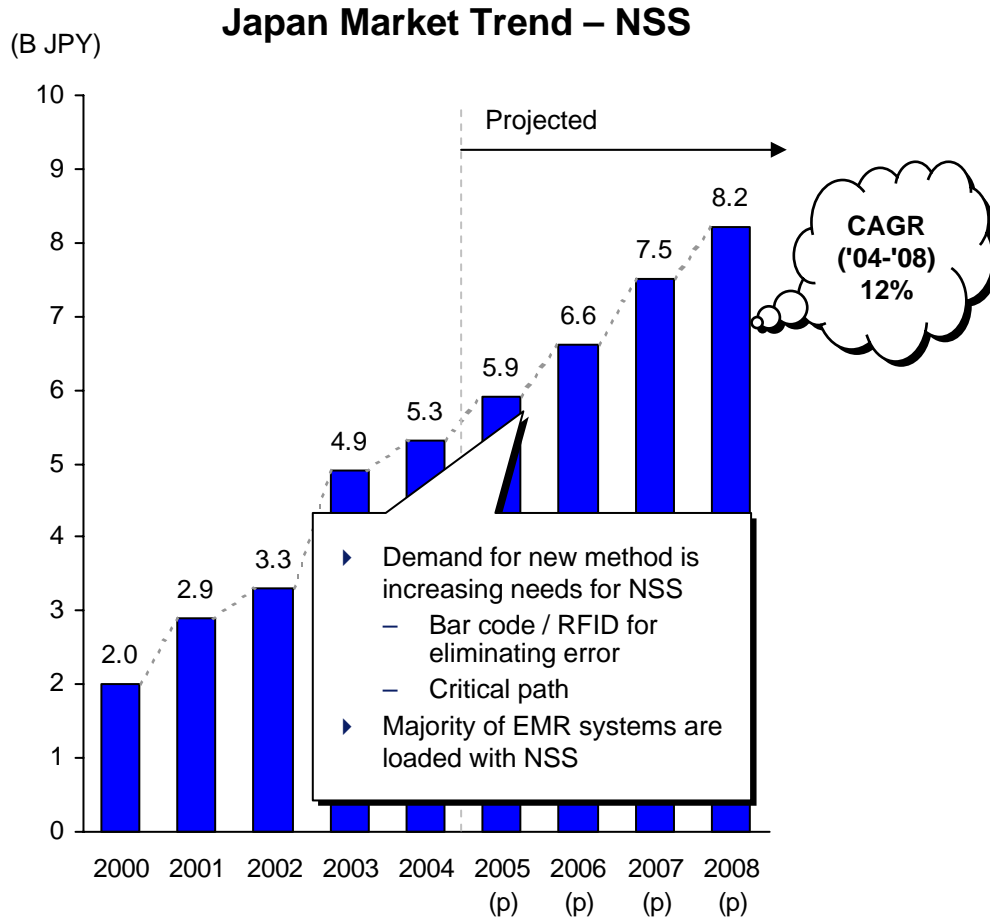
# The market for laboratory information systems (LIS) is not expected to grow further



Total = 2,063 systems

\*: HIS stands for healthcare information system  
 Source: Yano Research Institute

# The market for nursing support systems (NSS) is expected to grow steadily due to new demand for medical treatment



Total = 1,034 systems

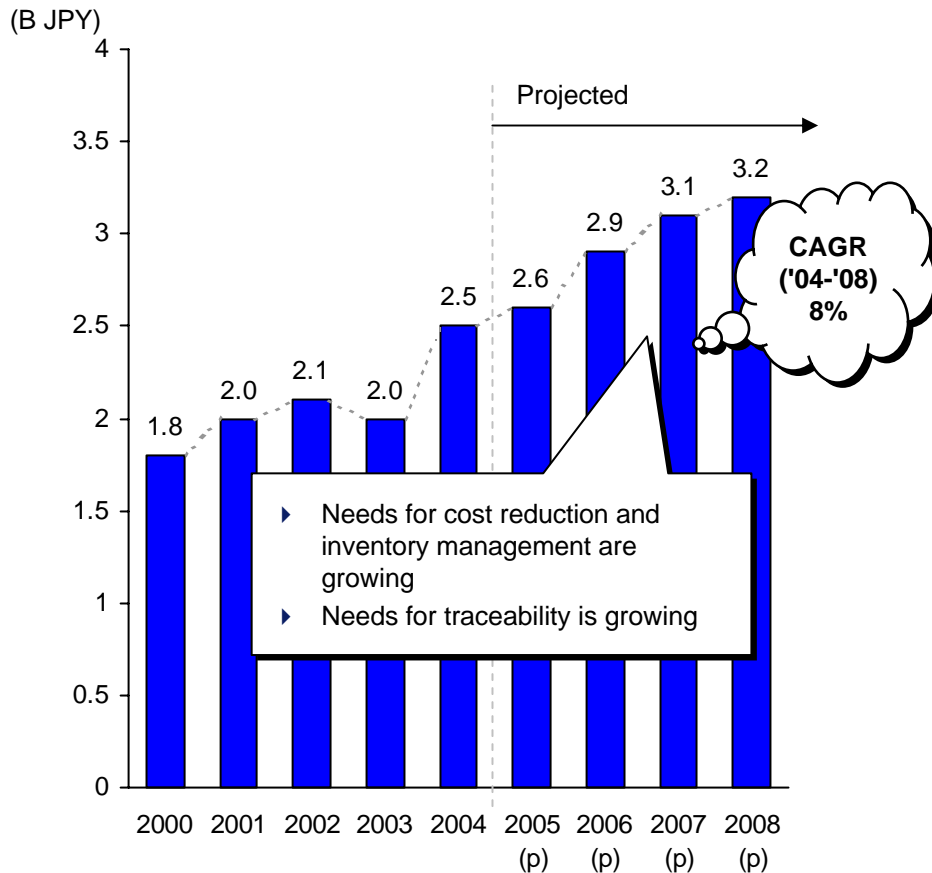
\*: Diagnosis Procedure Combination

\*\*.: Healthcare Information System vendor (e.g., Fujitsu, NEC, etc.)

Source: Yano Research Institute

# The market for Logistics / Inventory Management systems is expected to grow steadily

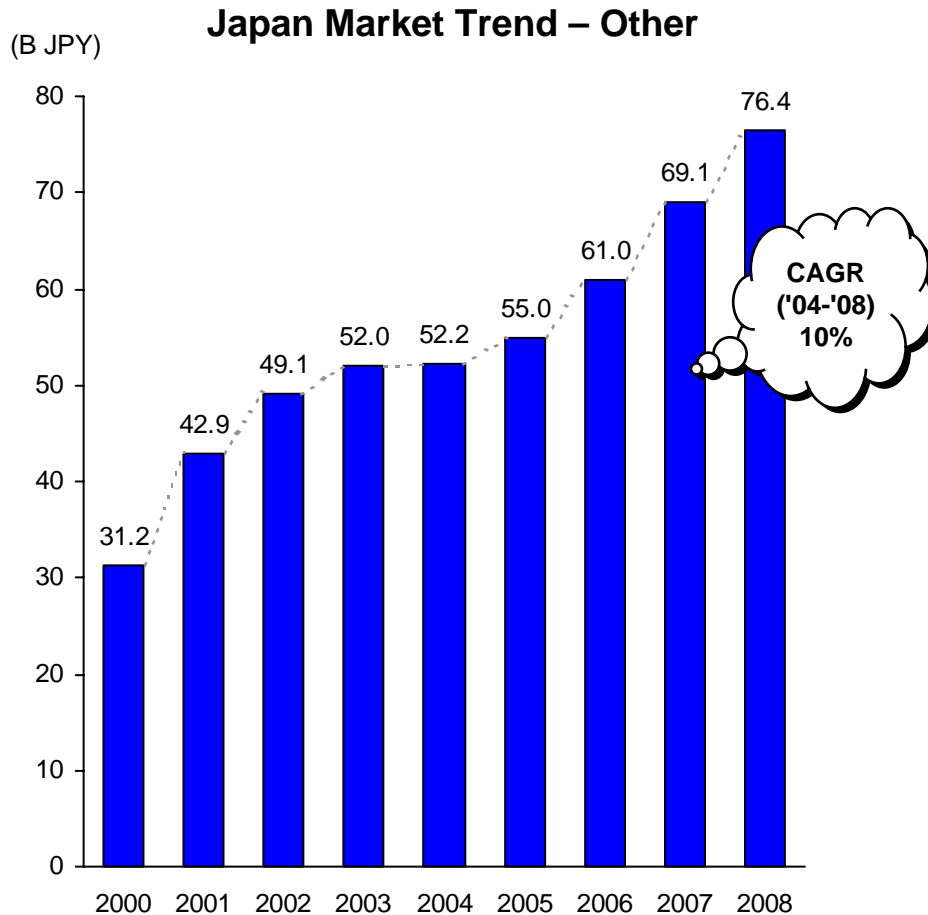
**Japan Market Trend –  
Logistics / Inventory Management**



**Major Players and Products**

Player	Products
Fujitsu	HOPE/PDSide
NEC	MegaOak-Me
CSI	Artima
JFE Systems	Kanri Meijin II
Aso Information System	Goods Management System
Fujitsu FIP	Medical DRUG
Konoike Medical	Shinzai Kangoka
Yuyama	MELS
Kuon System	Medi-Tom2
SFC Niigata	SFC Logistic System

# The market for other health IT systems is expected to grow from 55 BJPY to 76 BJPY over the next few years



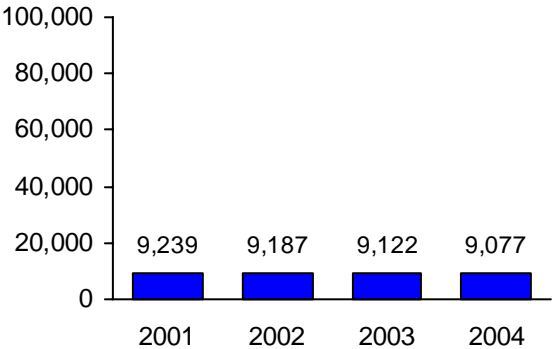
Comment
<ul style="list-style-type: none"><li>▶ “Other systems” include:<ul style="list-style-type: none"><li>– Management control systems</li><li>– Catering related systems</li><li>– Systems for surgery operation support</li><li>– Other customization (e.g., system linkage, area wide network)</li></ul></li><li>▶ Customize needs for new demand will increase<ul style="list-style-type: none"><li>– Area wide networks</li><li>– Security systems</li></ul></li></ul>

# ICT Vertical Market Report – Health IT

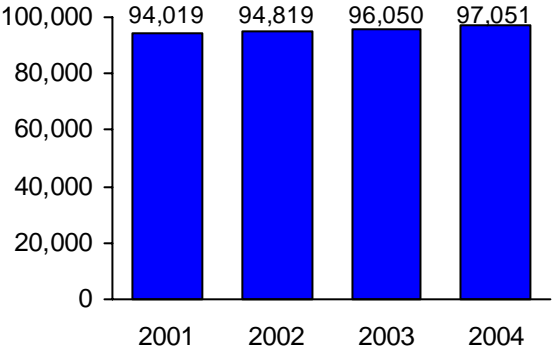
- ▶ Market Overview and Trends
  - Japanese medical Care System
  - Health IT Development in Japan
- ▶ Market Segmentation and Competitive Analysis
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- ▶ Market Entry Strategy
- ▶ Glossary

# Business development in the Japanese health IT market requires a deep understanding of customer needs and channel characteristics

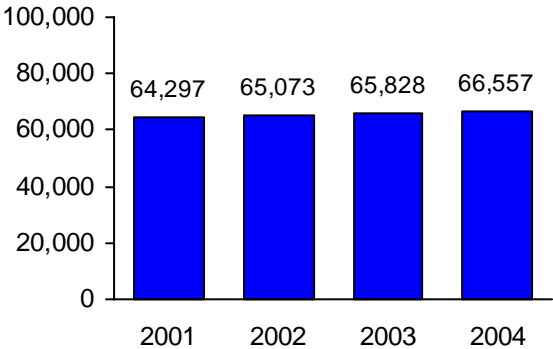
**Number of Hospitals**



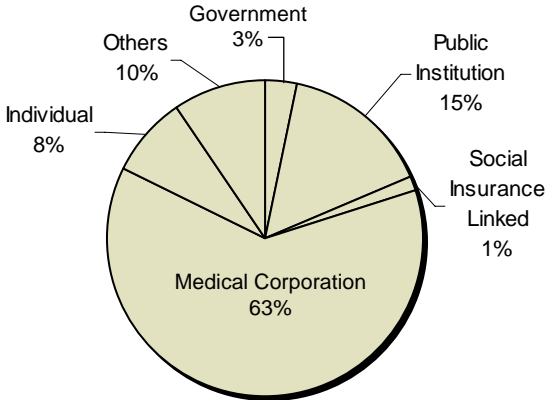
**Number of Clinics**



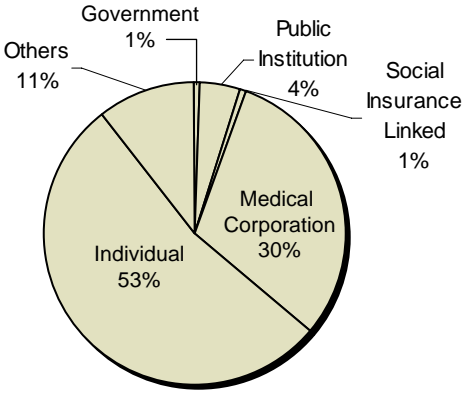
**Number of Dental Clinics**



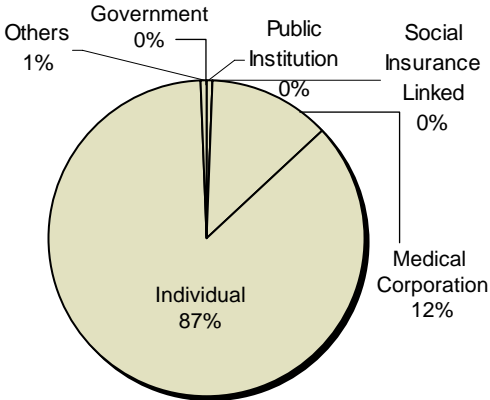
**Hospitals by Operator Type, 2004**



**Clinics by Operator Type, 2004**



**Dental Clinics by Operator Type, 2004**



Source: Yakuji Handbook 2006

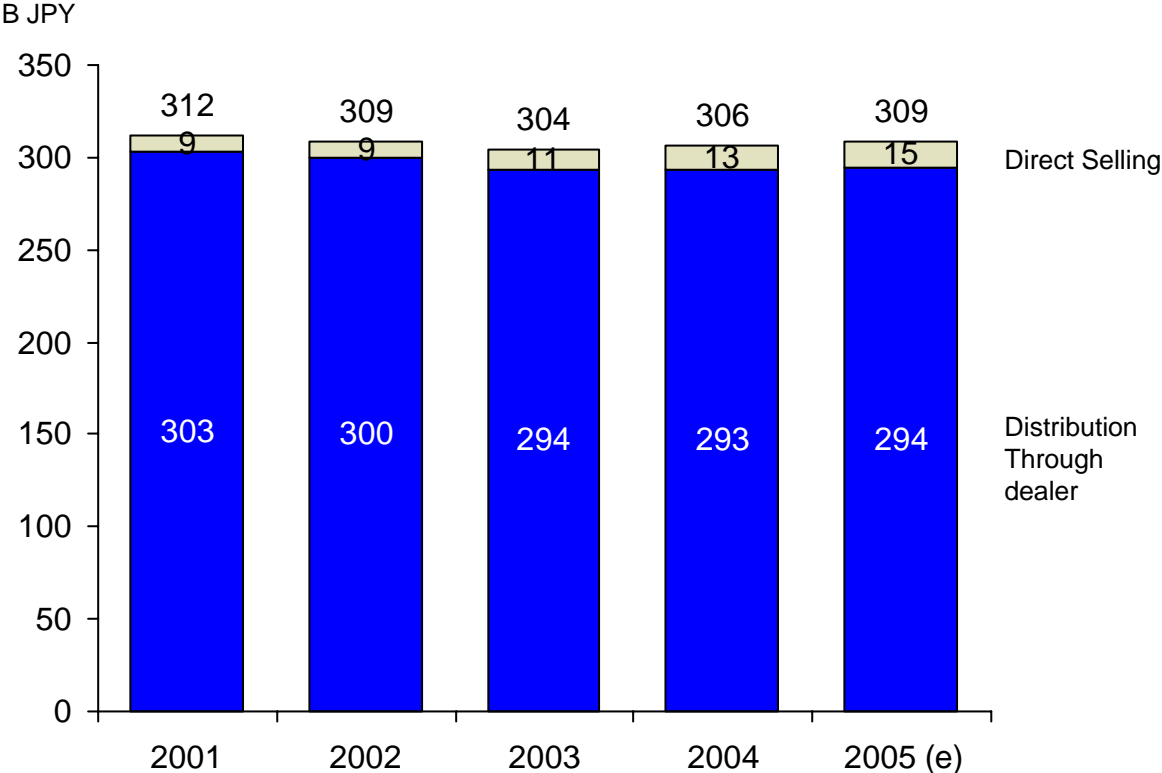
# It is often required to adopt different sales & marketing, distribution, and support & maintenance service approaches depending on the customer segment

## Strategy for Sales, Distribution, and Support & Maintenance Service (EMR Players)

<u>Company</u>	<u>Main Customers</u>	<u>Strategy for Sales, Distribution, and support &amp; maintenance service</u>	<u># of Field Staff / Branches</u>	<u>Partners</u>
▶ Fujitsu	▶ Large hospitals	<ul style="list-style-type: none"> <li>▶ Sales and support &amp; maintenance service is mainly through partners</li> <li>▶ Direct sales is only for large hospitals (e.g., &gt; 400 beds)</li> </ul>	<ul style="list-style-type: none"> <li>▶ 60 branches</li> <li>▶ 300 staff</li> </ul>	▶ 24 affiliated system vendors
▶ CSI	▶ Medium hospitals	<ul style="list-style-type: none"> <li>▶ Sales and support &amp; maintenance services is mainly through partners</li> <li>▶ Started to enhance direct sales</li> </ul>	▶ N/A	▶ 27 affiliated system vendors
▶ BML	▶ Small hospitals and clinics	<ul style="list-style-type: none"> <li>▶ Sales and support &amp; maintenance service is mainly conducted directly leveraging the position of clinical laboratory vendor                             <ul style="list-style-type: none"> <li>– Have contact with new open hospitals at first stage</li> <li>– Field staff visit customer very often (e.g., once in two days)</li> </ul> </li> <li>▶ Jointly hold seminar with Microsoft and Intel</li> </ul>	▶ N/A	▶ Medical appliance dealers
▶ Dynamics	▶ Clinics	<ul style="list-style-type: none"> <li>▶ Sales is mainly through study sessions and web site</li> <li>▶ Support &amp; maintenance service is through mailing list and Hitachi Softech</li> </ul>	▶ 0	▶ Hitachi Softech

# For example, in the dental equipment market, distribution is mainly through dealers

Channel Composition of Dental Equipment Distribution

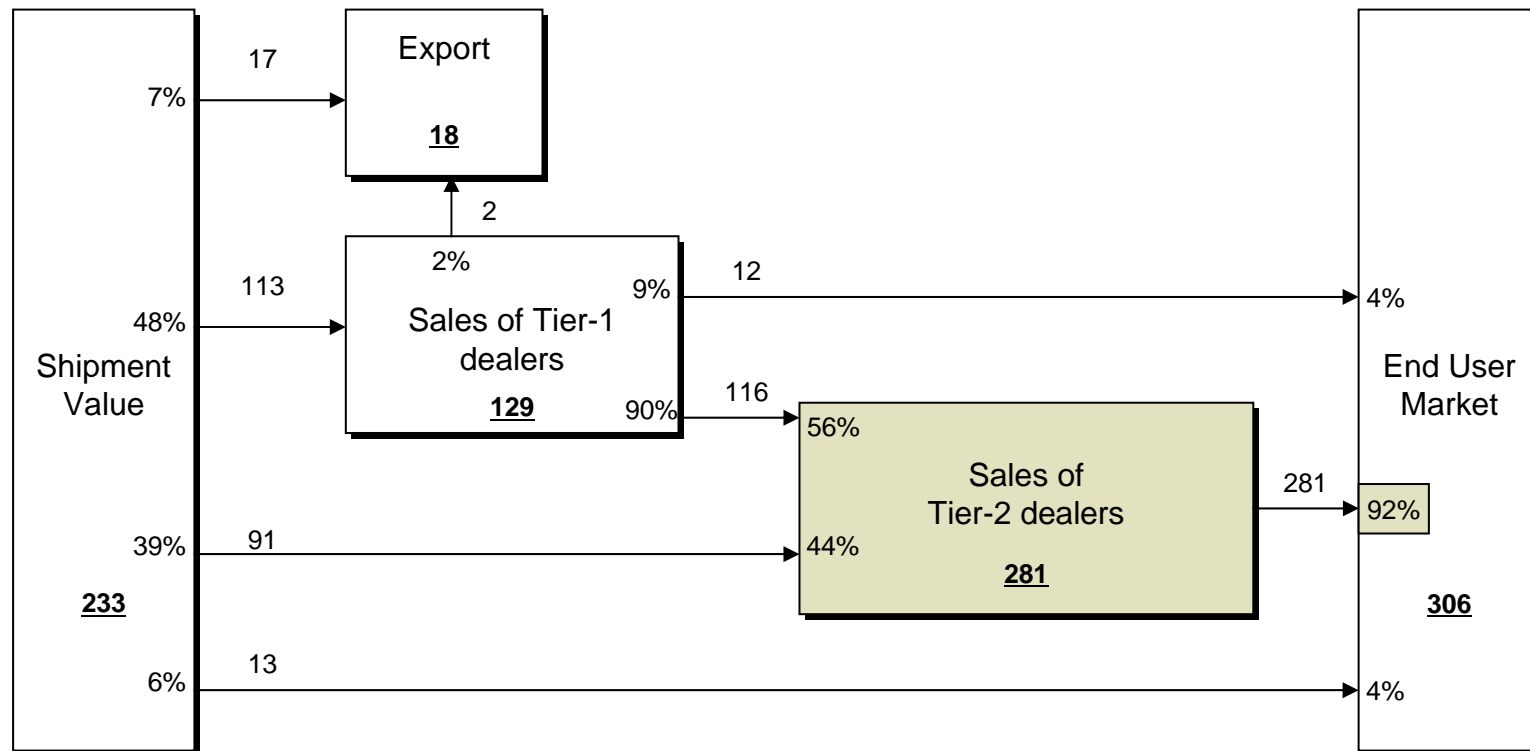


Description
<ul style="list-style-type: none"> <li>▶ Most dental equipment is delivered through dealers</li> <li>▶ However, the ratio of direct sales is increasing steadily – most of direct sales is through mail order</li> </ul>

Source: R&D Corp

# Dealers are split into two tiers, whereby tier-2 distributors play an important role to deliver most end products to dental clinics

Channel Example: Detailed flow of distribution (2004, B JPY)

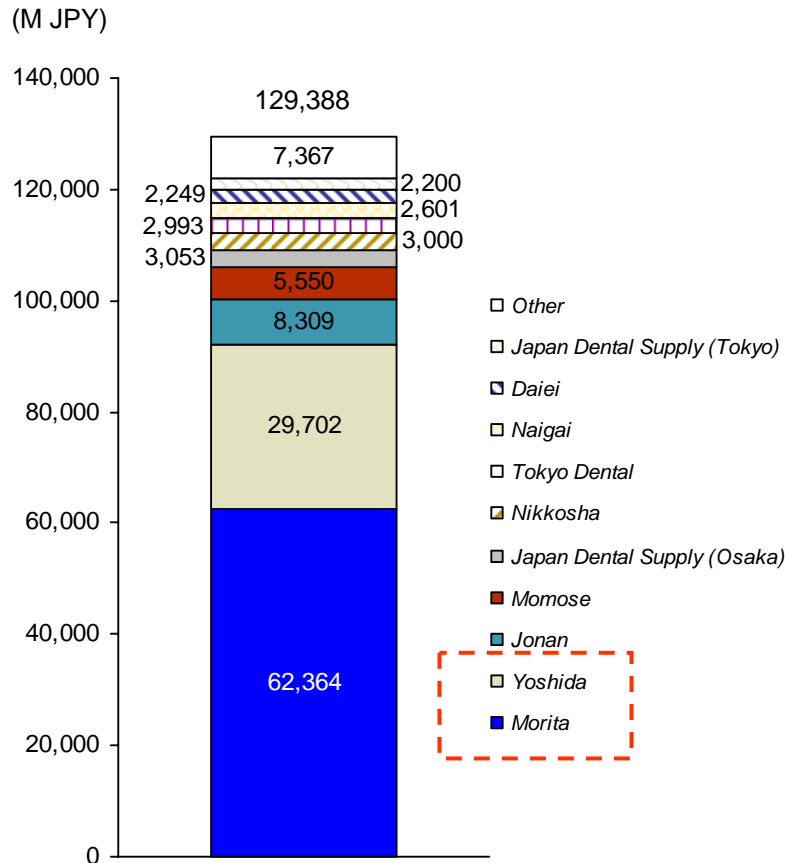


Note: Figures underlined are total sales amount/ other figures is sales amount per route

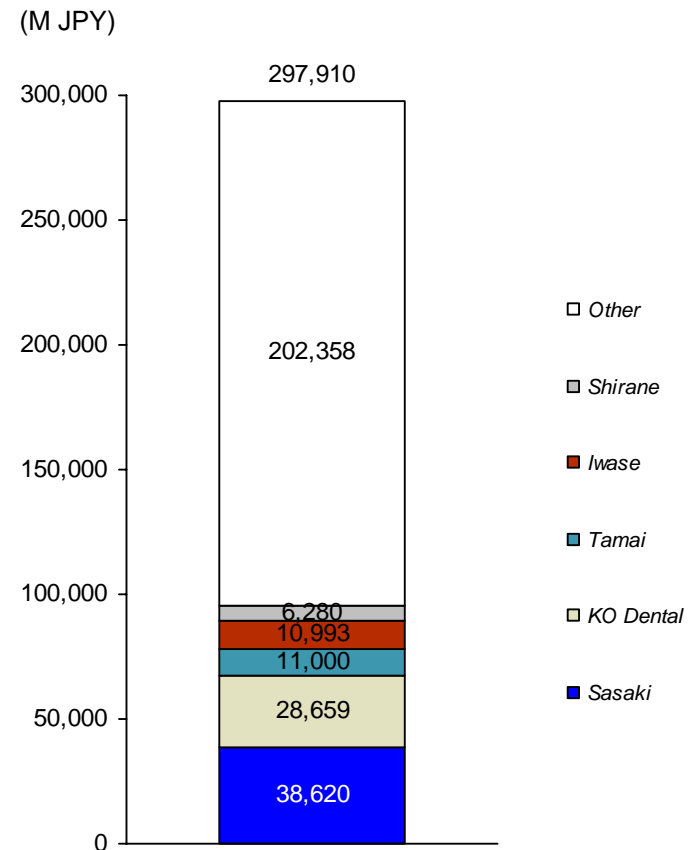
Source: R&D Corp

# The tier-1 wholesaler market is dominated by the big two players, while the tier-2 market is highly fragmented

Sales of Major Dental Equipment Dealers in 2004  
(Tier-1)



Sales of Major Dental Equipment Dealers in 2004  
(Tier-2)



It is important for a foreign new entrant to understand the distribution structure and select the proper channel partners

# In addition, there are a few issues to be considered by foreign new entrants

		Issue	Possible Solution
Language		<ul style="list-style-type: none"> <li>▶ Development of Japanese interface                             <ul style="list-style-type: none"> <li>– Understanding of Japanese language</li> <li>– Correspondence with multi-byte character code</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Develop Japanese interface with partner</li> </ul>
		<ul style="list-style-type: none"> <li>▶ Sales / service capability to Japanese customers</li> </ul>	<ul style="list-style-type: none"> <li>▶ Establish alliance with Japanese players</li> </ul>
Regulation / Policy	Governmental Guidelines (Japanese version of “21 CFR Part11 & HIPAA)	<ul style="list-style-type: none"> <li>▶ Security of authenticity                             <ul style="list-style-type: none"> <li>– Authenticate editor</li> <li>– Confirm timing and process of settlement</li> <li>– Include identifier of editor</li> <li>– Record audit trail</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Install password identification or biometrics</li> <li>▶ Add program to secure sufficient check by editor</li> <li>▶ Develop system to save editor information at the timing of settlement</li> <li>▶ Add program to record audit trail</li> </ul>
		<ul style="list-style-type: none"> <li>▶ Security of recorded information</li> </ul>	<ul style="list-style-type: none"> <li>▶ Eliminate computer viruses and inappropriate software</li> <li>▶ Define rules about data handling: “who access what data how/when/where?”</li> </ul>
		<ul style="list-style-type: none"> <li>▶ Security of readability</li> </ul>	<ul style="list-style-type: none"> <li>▶ Keep redundancy of system resource in case of emergency</li> <li>▶ Keep backup data at remote site</li> </ul>
	Policy Change	<ul style="list-style-type: none"> <li>▶ Frequent change of medical service fee system                             <ul style="list-style-type: none"> <li>– Medical point</li> <li>– Self payment ratio</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Keep close relationship with Japanese partner and update software quickly</li> </ul>
Unique Policy	<ul style="list-style-type: none"> <li>▶ Different definition of work allowed for co-medical</li> </ul>	<ul style="list-style-type: none"> <li>▶ Define the work with Japanese partner</li> </ul>	

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# Foreign new entrants may find difficulty trying to enter the Japanese EMR market alone, but could consider several types of potential channel partners

## Potential Channel Partner Considerations (examples, not exhaustive list)

Type of Player	Company Name (Example)	Distribution Capabilities	Service & Support Capabilities	Partnership Considerations	
				Pros	Cons
Medical office equipment dealer	▶ Kerun	▶ Connection with administration section	▶ Less understanding of clinical flow and IT system	▶ Capable of channel cooperation	▶ Cannot be service partner
Pharmaceutical dealer	▶ Suzuken ▶ Alfresa	▶ Connection with pharmacy section	▶ Less understanding of support and maintenance business and IT system	▶ Capable of channel cooperation	▶ Cannot be service partner
Medical equipment dealer	▶ Muto ▶ Yagami	▶ Connection with each specialist sections	▶ Less understanding of IT system	▶ Capable of channel cooperation	▶ Cannot be service partner
Clinical laboratories	▶ BML ▶ SRL	▶ Frequent contact (e.g, once in two days)	▶ Less understanding of IT system	▶ Capable of channel cooperation	▶ Difficult to be service partner
Local system vendor	▶ Tsuzuki Denki	▶ Weak connection	▶ Strong IT capability	▶ Capable of service	▶ Weak to be national channel partner
Major system vendor	▶ Fujitsu ▶ NEC ▶ IBM	▶ Connection with IT section	▶ Very strong IT capability	▶ Capable of both distribution and service	▶ Many products would compete with them

Consideration
▶ To secure a distribution channel, partnering is indispensable
▶ To provide support and maintenance service, entrants also need partnering with system vendors

# In the dental IT market, there are also several types of channel partners that could be considered

## Assessment of Potential Partners for Japan Market Entry

Type of Potential Partner	Company Name (Example)	Advantage	Concern
Tier-1 dealer	<ul style="list-style-type: none"> <li>▶ Morita</li> <li>▶ Yoshida</li> <li>▶ Jonan</li> <li>▶ Momose</li> </ul>	<ul style="list-style-type: none"> <li>▶ Distribution capability with wide area coverage</li> </ul>	<ul style="list-style-type: none"> <li>▶ Low IT capability</li> <li>▶ Difficult to partner with companies which have their own package of dental computer – M&amp;A might be required</li> </ul>
Tier-2 dealer	<ul style="list-style-type: none"> <li>▶ Sasaki</li> <li>▶ KO Dental</li> <li>▶ Tamai</li> <li>▶ Iwase</li> </ul>	<ul style="list-style-type: none"> <li>▶ Distribution capability within local areas</li> </ul>	<ul style="list-style-type: none"> <li>▶ Low IT capability</li> <li>▶ Limited area coverage</li> </ul>
Manufacturer of Dental Computer	<ul style="list-style-type: none"> <li>▶ Noza</li> <li>▶ Morita</li> <li>▶ Yoshida</li> <li>▶ Media</li> <li>▶ Mic</li> </ul> <ul style="list-style-type: none"> <li>▶ Sun System</li> <li>▶ Aquilax</li> <li>▶ Idens</li> <li>▶ GC</li> </ul>	<ul style="list-style-type: none"> <li>▶ Have relationship with tier-1 dealer</li> <li>▶ Have IT capability</li> </ul>	<ul style="list-style-type: none"> <li>▶ Difficult to partner with companies which have their own package of dental computer – M&amp;A might be required</li> </ul>
Manufacturer of Other Dental IT Equipment	<ul style="list-style-type: none"> <li>▶ Asahi X-ray</li> <li>▶ Takara</li> <li>▶ Bermont</li> <li>▶ Kinki X-ray</li> </ul> <ul style="list-style-type: none"> <li>▶ Hakusui Trading</li> </ul>	<ul style="list-style-type: none"> <li>▶ Have relationship with tier-1 dealer</li> <li>▶ Have IT capability</li> </ul>	<ul style="list-style-type: none"> <li>▶ High IT capability, but for different applications</li> </ul>

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# Glossary

Word	Description
Accounting System	▶ Information system which calculate medical service fee, record it in the storage devices. Some also send receipt information to evaluating institution on-line
Clinic	▶ Medical institution which has less than 20 beds
Electronic Medical Record (EMR)	▶ Information system to record and update information related to medical treatment. Currently used mainly for recording, sharing within institutions
Hospital	▶ Medical institution which has 20 or more beds
Nursing Support System (NSS)	▶ Information system to computerize inputting and transcription of vital data (such as temperature, heart rate, and blood pressure), nursing record, etc.
Order Entry System	▶ Information system that enables physicians to send order of prescription, clinical test, etc. without using paper slips
Picture Archiving & Communication System (PACS)	▶ Information system to manage X-ray picture information
Radiology Information System (RIS)	▶ Information system to manage overall operations related to radiology sector – target operations are booking management, test record, reporting, scheduling of radiology treatment, etc.
Logistics / Inventory Management System	▶ Information system to manage purchase and inventory of drugs and other materials

# Interview Quotes

- ▶ Generally, medical institutions are losing financial strength to invest on information systems
  - “Government is aiming to reduce medical service fee by 10% by 2011” (an orthopedic physician running a clinic)
  - Over half of medical institutions are losing money (survey conducted by Japan Municipal Hospital Association)
- ▶ Most clinics introduce accounting systems to reduce operation cost and to prepare for the policy change in the medical service fee system
  - “We are required to conduct complicated calculation of service fee, which is impossible without accounting software” (an orthopedic physician running a clinic)
  - “We will be required to submit receipt of service fee on-line by 2011” (an orthopedic physician running a clinic)
- ▶ Penetration of EMR is slower than governmental plan due to mismatch with clinical flow and lack of economical incentives
  - “In subjects like psychosomatic medicine, practice is based on face to face communication and physicians have no time to input data on EMR” (a psychosomatic physician running a clinic)
  - EMR introduction does not lead to economical benefit – “there is virtually no incentive in service fee system and also no tax merit” (an orthopedic physician)
- ▶ However, some physicians find other benefits of EMR introductions such as elimination of reception staff – “By introducing EMR, we could avoid hiring reception staff who are rarely trustworthy” (an orthopedic physician)
- ▶ Digital PACS system is becoming more prevalent than film type PACS – “We fear that film will be the thing of the past” (an orthopedic physician running a clinic)
- ▶ Regarding inter-system messaging, customers would value “lighter” products and “offline” efforts
  - “Current products are more complicated than what is needed by customers” (a hospital director)
  - “Also, efforts other than IT systems are required; for example, area-wide system require system to train related physicians” (a hospital director)