

## ***Healthcare Information Technologist***

***Certified by Japan Association for Medical Informatics (JAMI)***

### **Background**

#### ***Japan Association for Medical Informatics (JAMI)***

It has been more than 25 years since the academic society for Medical Informatics was established in Japan. Historically, the first academic society for Medical Informatics was organized in 1980, when the Medinfo 80 (the 3rd World Congress on Medical Informatics) was held in Tokyo. The society was taken over by the Japan Association for Medical Informatics (JAMI) that was established in 1983. JAMI has been the official academic society dedicated to Medical Informatics in Japan since then. Presently the President of JAMI is Professor Ryuichi Yamamoto, MD., Ph.D. of University of Tokyo. There are about 3,200 members as of March 2009. JAMI holds annual fall academic conference which has 2,500 to 3,000 entries and annual spring symposium with about 1,000 entries.

#### ***Need for Human Resources in Healthcare Information Technology***

Healthcare in Japan, as well as in many other countries, is facing many challenges, including delivery of efficient and high quality care, continuity of care, sustainable care, patient safety, healthcare cost containment, and so on. Information and communication technologies (ICT) play an increasing role for healthcare sectors, and advancement in Health and Medical Informatics has been and is being contributing greatly to better delivery of care. Although the advantages of having health information available electronically have been well recognized and hospital information systems and electronic patient record systems have become prevalent around the country, there exist such problems as the systems in general are not flexible enough to produce various indicators, hospitals are not able to propose their requirements to vendors due to lack of expertise, and among other things, both hospitals and vendors lack human resources with specialties in health information systems and health information processing. There was an increasing recognition of the needs for health information professional and for the cultivation of specialized human resources in healthcare sectors as well as in industry.

#### ***Certification for Healthcare Information Technologist - Overview***

In responding to social need, the Japan Association for Medical Informatics (JAMI) inaugurated the Healthcare Information Technologist (Healthcare IT) Certification in 2003, and JAMI Healthcare Information Technologist Fostering Taskforce (JHIFT) was established. The mission of the Taskforce is to cultivate human resources in the field of healthcare information technology and support career advancement of health information professionals, both in healthcare sectors and industry in Japan. Taskforce is responsible for providing a comprehensive and coordinated approach to the Certification Program, and for administration and operation of the program. There are sub-committees in charge of curriculum development, examinations, tutorials and seminars, text books and e-Learning, and so on. The activities of the sub-committees are supported by about a hundred JAMI members.

The certification is intended not only for healthcare professionals but also for people from industry including software engineers, managers, vendors, or others, involved in the fields of healthcare. Students are also among the expected examinees. The first examination was given in August 2003 where the number of examinees was 3,521. 979 people out of 3,521 passed the examination, and

the overall pass rate was about 28%. Since 2003, certification examination is given annually, and as of Nov 2008, a total of 7,040 people are certified as Healthcare Information Technologists.

At the time of inauguration of the certification examination, it was planned to start certification for “Senior Healthcare Information Technologist (Senior Healthcare IT)” in five years. Senior Healthcare IT is positioned to be higher than Healthcare IT. The first Senior Healthcare IT certification examination was given in 2007. The examination consists of the first-stage and the second-stage, where the former is paper based test and the latter consists of a short essay and an interview.

## ***Healthcare Information Technologist***

A Healthcare Information Technologist is, as a health and welfare professional, conversant with the special characteristics of healthcare, and is cable of making use of and providing health information adequately and effectively, employing information technology best suited to a given application.

### ***Core Competency***

The required knowledge and skills for the Healthcare Information Technologist are made up of the following three fields (Fig. 1):

- a) Information Technology
- b) Health Care
- c) Health Information Systems

The core competencies of the three fields are shown in Table 1. In addition to knowledge and skills, abilities of

*Communication,*  
*Collaboration, and*  
*Coordination*

are considered essential to a qualified Healthcare Information Technologist, and these are called “three C’s of Healthcare IT.”

### ***Textbooks***

The first editions of the textbooks composed of following volumes were published in March 2004.

- a) Health Informatics - Information Technology
- b) Health Informatics – Health Care
- c) Health Informatics - Health Information Systems

The revised versions were published in March 2007, and new editions are to be published very soon as of May 2009. As side readings, some supplementary reading materials are also published.

The three fields are of equal importance for both healthcare professionals and information technology (IT) professionals, but in acquiring knowledge and skills of Healthcare IT, a particular emphasis should be placed on “a) Information Technology” for healthcare professionals and on “b) Health Care” for IT professionals, and everyone should learn “c) Health Information Systems” deeply regardless of his or her background.

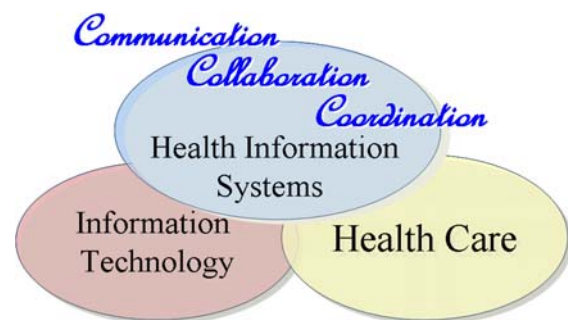


Fig. 1 The required knowledge and skills

### ***Lectures and eLearning***

Class room lectures have been provided by JAMI in seven to eight cities around the country since 2003. DVD learning material was published and eLearning sessions started in 2008, and lectures are now becoming more electronic based and/or distance-learning based.

Table 1 Required knowledge and skills for Healthcare Information Technologist

<b>Information Technology</b> <ol style="list-style-type: none"><li>1. Fundamentals of Computers</li><li>2. Network Technology</li><li>3. Database Technology</li><li>4. Information Security</li><li>5. Information Systems Development</li><li>6. Systems Administration</li></ol>
<b>Health Care</b> <ol style="list-style-type: none"><li>1. Medicine and Healthcare – Overview</li><li>2. Healthcare System and Social Medicine</li><li>3. Healthcare Administration</li><li>4. Clinical Medicine and Nursing</li><li>5. Laboratory Test and Diagnosis</li><li>6. Procedure and Treatment</li><li>7. Healthcare processes</li><li>8. Health Records</li><li>9. Statistics and Assessment</li></ol>
<b>Health Information Systems</b> <ol style="list-style-type: none"><li>1. Special characteristics of Healthcare Information and Healthcare Information Systems</li><li>2. Hospital Information Systems - Architectures and Functionality</li><li>3. Hospital Information Systems - Introduction and Operations</li><li>4. Information Systems for Medicine, Welfare and Health</li><li>5. Wide Area Healthcare Information Systems</li><li>6. Standards in Health Informatics</li><li>7. Data Analysis and Evaluation for the Support of Healthcare</li><li>8. Deployment of Health Information Systems from now onward</li></ol>

### ***Certification Examination***

Certification examination of Healthcare Information Technologist is given annually. The first examination was given in August 2003. There were 3,521 examinees and 979 people passed the examination (28% pass rate). Since 2003, around 1,000 people passed the examination every year, and as of Nov 2008, there are 7,040 certified Healthcare Information Technologists. Shown in Table 2 are the number of examinees and the passers of in the past six years. Fig. 2 a) and b) show the place of employment of the passers in 2004 and in 2008. Fig. 3 shows age distribution of the passers in 2003 and 2008, and the recent trend is that there are more young people than before.

Table 2 Number of Examinees and Passers of Health IT Certification Examination

Year	Number of Examinees	Number of Passers	Pass Rate
2003	3521	979	27.8
2004	3806	1217	32.0
2005	4375	1648	37.7
2006	3737	1292	34.6
2007	2987	951	31.8
2008	2781	953	34.3

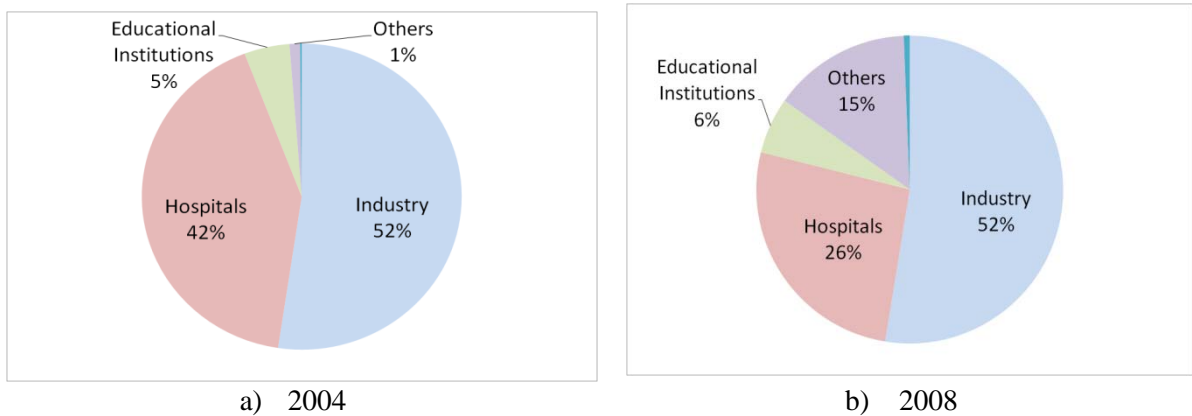


Fig. 2 Passers Place of Employment in 2004 and 2008.

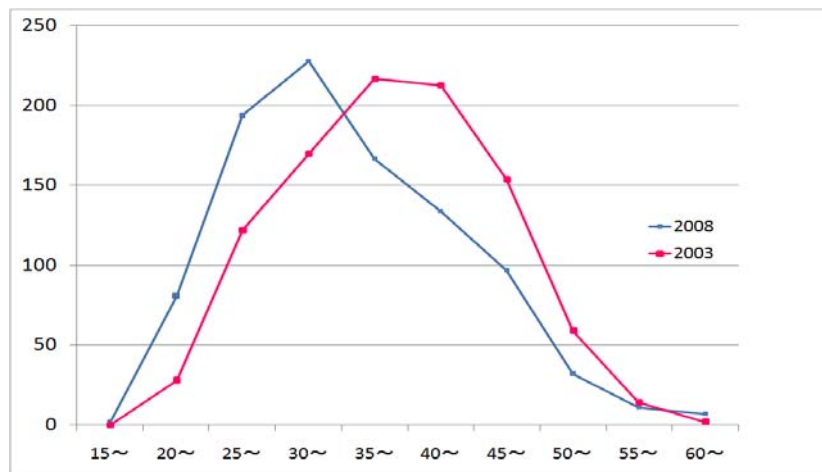


Fig. 3 Passers age distribution in 2003 and in 2008.

### ***Senior Healthcare Information Technologist***

Senior Healthcare IT is, upon the introduction of an information system in the healthcare field, capable of setting up a project based on an analysis of present state, and is capable of assuming the role of a project leader in developing, introducing, and administrating an information system, based on in-depth understanding of the proper procedures.

### ***Certification Examination***

As prerequisite to take the certification examination, a candidate should

- 1) be certified as Healthcare Information Technologist
- 2) have the experience of either
  - at least five years in healthcare information systems, or
  - at least five years in information systems and some experience of (regardless of length) healthcare information systems.

The examination consists of two stages. The first-stage is a paper test, and Table 3 shows the priority subject areas of the test. The second-stage consists of an essay and an interview.

Table 3 Coverage of the First Stage Exam - Priority Subject Areas

1. Health Information Ethics
2. Healthcare System and Related Laws and Regulations
3. Health and Welfare Facilities and Professionals
4. Healthcare Service Administration, Business Administration and Safety Management
5. Healthcare Processes
6. Health and Healthcare Information Systems
7. Health and Healthcare Data Analysis
8. Support for Clinical Studies
9. Healthcare Information Education and Training
10. Standards in Health Informatics
11. Information Security
12. Trend in Healthcare related Information Technology
13. General Knowledge, English Proficiency
14. Recent Topics in the Health Information field

\* Reference Book

- Health Informatics – Information Technology
- Health Informatics – Health Care
- Health Informatics – Health Information Systems
- Health Informatics – Side Readings

The first certification examination was given in 2007. In all 466 people took the first-stage examination, and there were 125 passers. Among the passers, 121 people took the second stage examination, and 81 people passed. In the end, 81 people were recognized as the Senior Healthcare Information Technologist (the final pass rate was 17.4%). Table 4 shows the number of examinees and passers for the year 2007 and 2008. Fig.4 and Fig.5 show the place of employment and age distribution of the passers respectively in 2007.

Table 4 The result of the first certification examination (2007) for Senior Healthcare Information Technologist

		Examinees	Passers	Pass rate
2007	First-stage	466	125	26.8%
	Second-stage	121	81	67.5%
2008	First-stage	284	58	20.4%
	Second-stage	90	24	26.7%

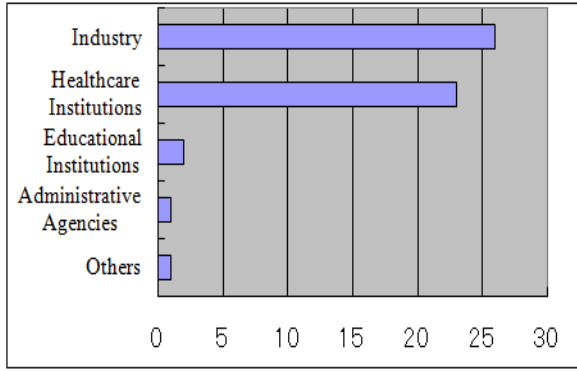


Fig. 4 Place of employment of the passers

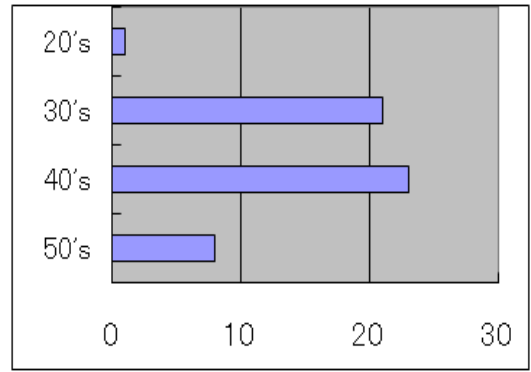


Fig. 5 Age group distribution of the passers