Future Direction of IMIA Standardization

Report from the IMIA Standardization Working Group

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Summary

Objectives: Standardization in the field of health informatics has increased its importance and global alliance for establishing interoperability and compatibility internationally. Standardization has been organized by standard development organizations (SDOs) such as ISO (International Organization for Standardization), CEN (European Committee for Standardization), IHE (Integrating the Healthcare Enterprise), and HL7 (Health Level 7), etc. This paper reports the status of these SDOs' activities.

Methods: In this workshop, we reviewed the past activities and the current situation of standardization in health care informatics with the standard development organizations such as ISO, CEN, IHE, and HL7. Then we discussed the future direction of standardization in health informatics toward "future medicine" based on standardized technologies.

Results: We could share the status of each SDO through exchange of opinions in the workshop. Some WHO members joined our discussion to support this constructive activity.

Conclusion: At this meeting, the workshop speakers have been appointed as new members of the IMIA working groups of Standards in Health Care Informatics (WG16). We could reach to the conclusion that we collaborate for the international standardization in health informatics toward "future medicine".

Keywords

Standardization, ISO, health, HL7, WHO

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Workshop Description

Standardization in the field of health care informatics has tried to achieve international compatibility and interoperability between independent information and communications technology (ICT) systems including health information system (HIS). Standardization has been organized by standard development organizations: ISO (International Organization for Standardization), CEN (European Committee for Standardization), IHE (Integrating the Healthcare Enterprise), and HL7 (Health Level 7) etc.

Medical informatics standardization has been worked on by TC 215 (Technical Committee 215) of ISO. Currently TC 215 is divided into the following working groups: CAG 1 (Executive council, harmonization and operations), WG 1 (Data structure), WG 2 (Data interchange), WG 3 (Semantic content), WG 4 (Security), WG 6 (Pharmacy and medicines business), JWG 7 (Joint ISO/TC 215 - IEC/SC 62A WG: Application of risk management to information technology (IT) networks incorporating medical devices), WG 7 (Devices), WG 8 (Business requirements for Electronic Health Records), and WG 9 (SDO Harmonization).

Standardization in the field of Health Information and Communications Technology (ICT) has been also worked on by TC 251 (Technical Committee 251) of CEN. TC 251 is divided into the following working groups: WG 1 (Information models), WG 2 (Terminology and knowledge representation), WG 3 (Security, safety and quality), and WG4 (Technology for interoperability).

Fig.1 Opening remarks by Jun Nakaya

International healthcare informatics interoperability standards have been also developed by HL7 (Health Level Seven), a non-profit organization. HL7 is also divided into several committees and special interest groups.

In this workshop, we reviewed the past activities and the current situation of standardization in health care informatics by the standard development organizations, ISO, CEN, IHE, and HL7. Moreover we discussed the future direction of standardization in health care informatics to realize EHR (electric health record) and PHR (personal health record) for establishing the "future medicine" in a standardized way.

At this meeting, the workshop speakers were the new comer members of the IMIA working group of Standardization in Health Care Informatics (WG16)[1]. The co-chairs of this working group are Prof. Dr. Jun Nakaya and Prof. Dr. Beatriz de Faria Leao.

[1] http://www.imia-medinfo.org/new2/node/153

Workshop Speakers

The workshop speakers were as follows:

- Jun Nakaya, M.D., Ph.D., Director of Medical IT Center, Professor of School of Medicine, Tohoku University, Sendai, Japan
- Michio Kimura, M.D., Ph.D., Department of Medical Informatics, School of Medicine, Hamamatsu University, Hamamatsu, Japan
- Amnon Shabo, Ph.D., Head of Healthcare and Life Sciences Standards Program, Haifa Research Lab, IBM, Haifa, Israel
- Il Kon Kim, Ph.D., School of Electrical Engineering and Computer Science, Kyungpook National University, Daegu, Korea
- Charles Parisot, Ph.D., GE Healthcare Milwaukee, Wisconsin, USA and Buc, France
- Beatriz de Faria Leao, M.D., Ph.D., Health Informatics Consultant at Bleao Informática em Saúde, Porto Alegre, Brazil
- Extemporaneously Dr. Tom Oluoch joined us. He presented about status of CDC Kenya.

Program

The program was as follows:

- 13:45-13:50
  Opening remarks by Jun Nakaya (Fig.1)
- 13:50-13:55
  Michio Kimura, M.D., Ph.D., Department of Medical Informatics, School of Medicine, Hamamatsu University, Hamamatsu, Japan (Fig.2)
- 13:55-14:10
  Jun Nakaya, M.D., Ph.D., Director of Medical IT Center, Professor of School of Medicine, Tohoku University, Sendai, Japan (Fig.2)
- 14:10-14:20
  Tom Oluoch, CDC Kenya (Fig.3)
- 14:20-14:30
  Amnon Shabo, Ph.D., HL7 including Genomics, Head of Healthcare and Life Sciences Standards Program, Haifa Research Lab, IBM, Haifa, Israel (Fig.4)
- 14:30-14:40
  Il Kon Kim, Ph.D., School of Electrical Engineering and Computer Science, Kyungpook National University, Daegu, Korea (Fig.5)
- 14:40-14:50
  Charles Parisot, Ph.D., GE Healthcare Milwaukee, Wisconsin, USA and Buc, France (Fig.6)
- 14:50-15:00
  Beatriz de Faria Leao, M.D., Ph.D., Health Informatics Consultant at Bleao Informática em Saúde, Porto Alegre, Brazil (Fig.7)
- 15:00-15:15
  Roundtable discussion (continue to Day 2)
  Closing remarks by Beatriz de Faria Leao

Fig. 2 Joint presentation by Jun Nakaya (Fig 1) and Michio Kimura about Japanese National Projects and previous IMIA STD WG projects

Fig. 3 Tom Oluoch presenting about CDC Kenya

Fig. 4 Amnon Shabo presenting about HL7 activities

Workshop Report

Jun Nakaya gave the opening remarks and started the session. Michio Kimura provided his presentation slides to introduce what he did as a former chair of standardization working group and to report the current situation of EHR in hospitals and clinics in Japan. Tom Oluoch introduced the situation of standardization in heath information in Kenya and Africa. Jun Nakaya presented the Japanese national projects around the great east japan earthquake toward standardization: the Tohoku Medical Megabank project and the Miyagi Medical and Welfare Information Network (MMWIN) project. Jun proposed the basic concept of regional medical and welfare information network as Miyagi model (Fig. 8). Amnon Shabo briefly summarized the overview of standards in health information, and presented the challenges in standards and the current situation of standards in genetic testing report. Il Kon Kim presented the mobile health standards including mobile EHR and PniP (proximity-based neighbor identification protocol) (Fig.9). Charles Parisot presented reflections on today's challenges for ehealth interoperability. Charles pointed out the slow progress in deploying the standards we already have, and he discussed solutions to improve this (Fig.10). Beatriz de Faria Leao summarized the presentations and discussions in this session, and determine the direction of the discussion in the next morning session.

In this discussion, we recognized that we are facing many hurdles and problems to be solved. Some typical basic questions were as follows:

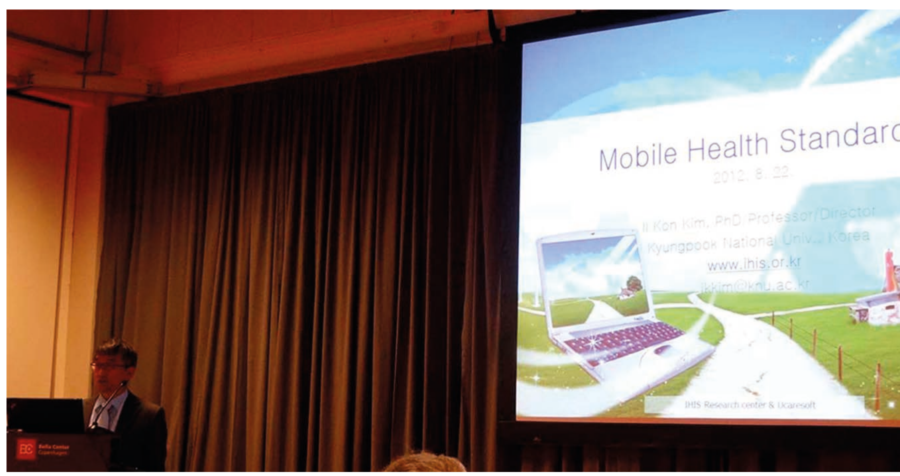

Fig. 5 Il Kon Kim presenting about the mobile health standards

Fig. 6 Charles Parisot presenting reflections on today's challenges for ehealth interoperability

Fig. 7 Beatriz de Faria Leao summarized the presentations and discussion in this session

Q1 Why does use of standards progress slowly ?
Q2 How can we accelerate the use of standards especially in developed countries ?
Q3 What should IMIA Standardization WG do?
Q4 What is the role of IMIA Standardization WG in case of having these background?

We discussed about these questions. Some important points or opinions were as follows:

1. Currently eight agencies work for global health worldwidely. To avoid losing time, losing energy, losing money, they should be integrated. At minimum, they should collaborate for global standardization.
2. From WHO, they gave us notification that WHO is serious about use of standards. Standardization of health informatics is very important for global health and has power to change the health care itself.
3. For future integration of eight agencies, we need to discuss about the issues around the financing, Education, policy, Teleconference, and Needs. We should have considerations about to avoid losing time, losing energy, losing money, and to facilitate the use of standards. We also should discuss about the Membership of integrated organization of eight agencies from the perspective of financial bases.
4. For broadcasting and spread around the importance of standardization, eHealth curriculum will be important and it can play a good role.
5. The Relationship with SDOs such as HL7 and IMIA is important.

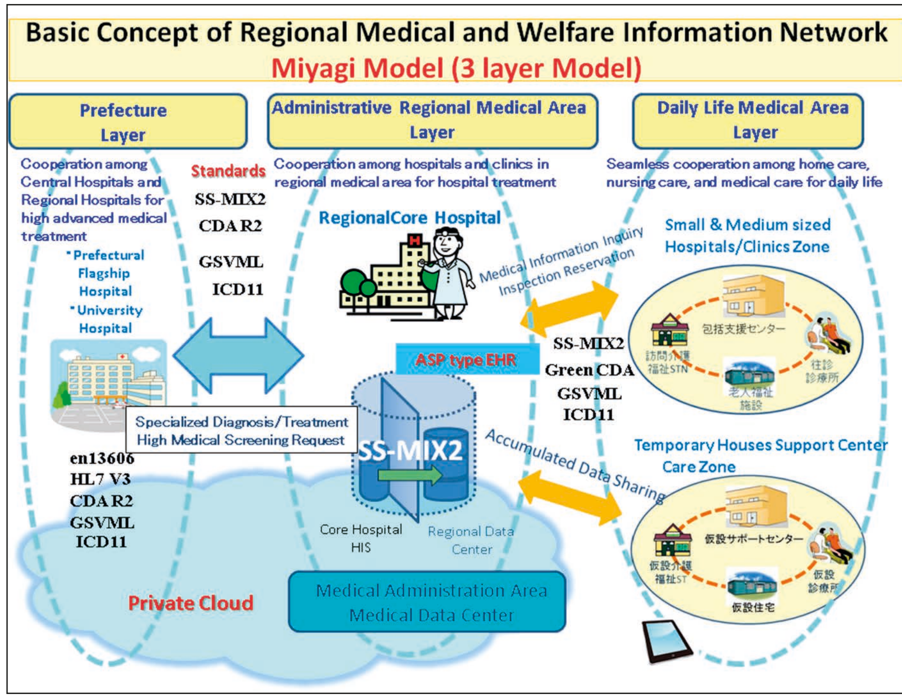

Fig. 8 Miyagi Model (Basic concept of regional medical and welfare information network)

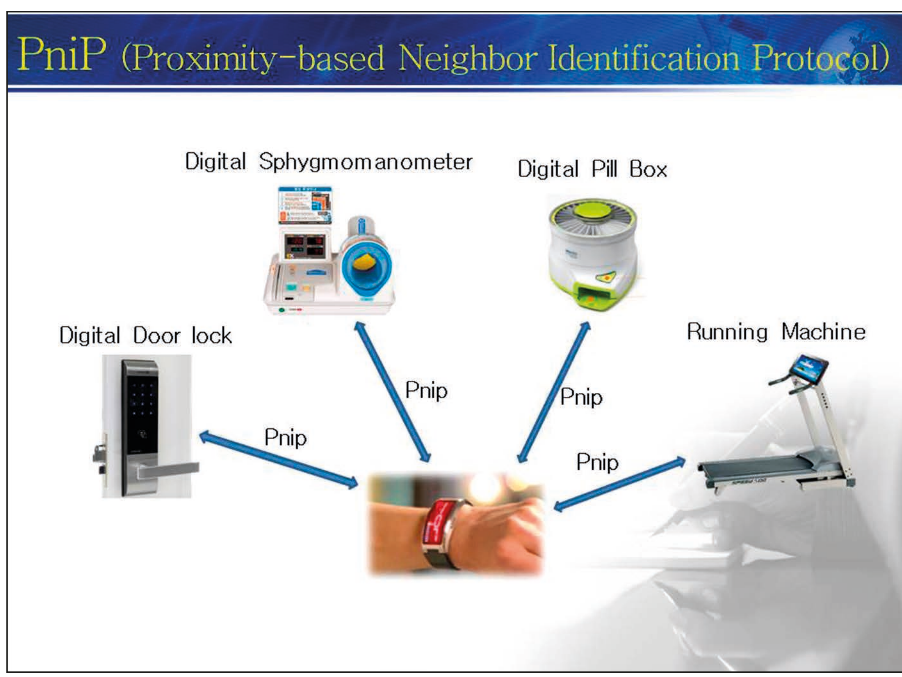

Fig. 9 PniP (Proximity-based neighbor identification Protocol)

6. The important role of IMIA STD WG is in the words of "Filling the gaps of standards, not create the standards".
7. The role of IMIA STD WG is to be the strategic integrator, strategic facilitator, strategic organizer to bridge persons of different standards regardless of their organization.
8. IMIA STD WG should propose the utilization strategy of existing standards based on user's requirements. WG should not create new standards.
9. Collaborating with related domains such as BioMedical informatics, genomics, and some other fields is important to plug into the future medicine.
10. To bring the people together from developing countries in the standardization field, we need to set the incentive and business reasons. Especially we need to set the reasonable financing such as free for cost and finding the founders.
11. As our action plan, we should start with Training and Education first. Starting action plan will be as follows;
    a. International Meetings using Teleconference System
    b. WHO will start Home Page creation in collaboration with HL7
    c. Elucidate the requirements to standards for Both in Disaster Medicine and in Future Medicine?
    d. Elucidate the strategy of utilization or combination of our standards in Disaster Medicine, in Future Medicine?

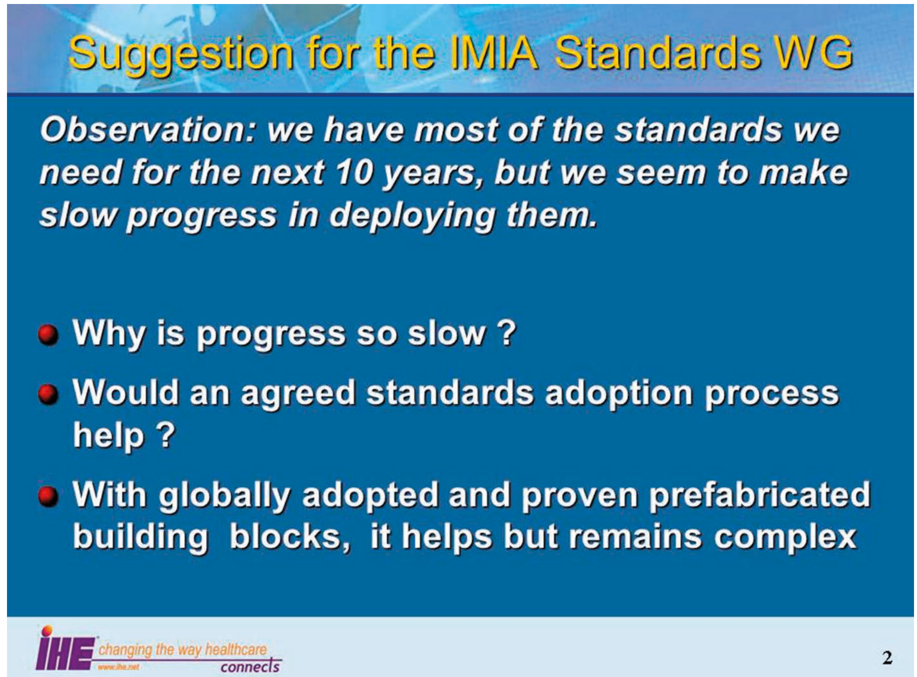

Fig. 10 Suggestions from Charles Parisot

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