

October 2012 Volume 9, Number 2

From The Chair, Tiffany Kelley



Greetings!

I hope that you all have had a great year so far! We are looking forward to seeing all of you at the AMIA Annual Symposium in Chicago this November. We have several opportunities for the AMIA student members to network and interact with our STWG Executive Committee. We have our Annual Business Meeting on Sunday November 4th from 5:30 until 7:00pm. We hope you will be able to join us at the meeting!

This newsletter covers current hot topics in the field of informatics. We hope that you will consider submitting a piece of work in the next newsletter. As always, feel free to share any ideas you have for the student working group. You may contact me directly (Tiffany.Kelley@Duke.edu) and I will be sure to pass the information along to the Executive Group for discussion. Thank you and enjoy your time at the Symposium!

Best Regards,
Tiffany Kelley Ph.D. MBA RN
Chair, AMIA Student Working Group

From The Editor, Edmond Ramly



It is time to meet again at the annual symposium! These continue to be exciting times for biomedical and health informatics and this year's conference promises to be the biggest yet. Many of the student working group members are contributing to the proceedings this year. You can find a list of some of the papers, podium presentations, panels, and tutorials that your peers in the student-working group are involved with. The list is not exhaustive,

but should give us all a flavor of what our colleagues are working on, and hopefully pave avenues for collaboration and conversation. In addition to some of the highlights to look forward to at the conference, the newsletter contains an in-depth look at a timely issue, the imminent shift in the standard classification of diseases used in the US, from ICD-9 to ICD-10, a difficult but long overdue change.

At the conference, the student working group will have its annual meeting on Sunday night and a lunch on Monday near the hotel. In addition, we will have a hospitality suite for mingling and networking from 10-12 on Monday and Tuesday. More details will be provided at the meeting, so I look forward to seeing you there!

AMIA 2012 Student WG Meeting

**Sunday Night November 4th
5:30 PM - 7:00 PM Marquette
Hilton Chicago**

Join us for our annual student working group meeting at the AMIA symposium, and if you have just received a hardcopy of this newsletter at the meeting, we're glad you could come!

Reminder: Don't forget to link in!



Did you know we have a LinkedIn Group? Join us at "AMIA Student Working Group" on linkedin.com, and feel free to jump into existing conversations or start new ones.

With the AMIA conference coming up, you'll be glad to have a way to stay in touch with the potential collaborators you are bound to meet!

AMIA Student Working Group News is published 2-3 times a year by the Student Working Group of the American Medical Informatics Association. Visit our web site for more information or to get involved.
www.amia.org/programs/working-groups/student
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Member Contributions

(Still) Coming a Long Way: The Differences Between ICD 9 and ICD 10 Diagnosis and Procedure Codes

By Dr. Sashank Kaushik

International Classification of Diseases (ICD), published by the World Health Organization (WHO), is used worldwide for healthcare service statistics and to conduct public health surveillance. This system was designed to promote international comparability, yet the US still uses an outdated version, ICD-9 which was implemented in the US back in 1979, the year the Nobel Prize was awarded for the CT scanner. Since then, healthcare has come a long way. WHO first endorsed and published the ICD-10 in 1990. As of 2007, the US is the only country in the industrialized world still using ICD-9. The US Department of Health and Human Services (HHS) has finally mandated ICD 10 implementation in the US by October 1st 2014. In preparation for that change, this article will attempt to elucidate the key differences between ICD 9 and ICD 10.

Diagnosis Codes

The first issue with ICD-9 is that it has run out of space. Medical science keeps making new discoveries and there are no more available codes to assign to these diagnoses. In some cases, new codes are assigned to different chapters making it difficult to locate all available codes. ICD-10 codes have increased code character length to 7, in comparison to a maximum of 5 characters in ICD-9. This has greatly expanded the number of available codes, from 13,000 codes in ICD-9 to approximately 68,000 in ICD-10. This will also make it less likely that chapters will run out of codes in the future.

The second issue with ICD-9 is the lack of specificity and laterality (identify right vs. left) of information conveyed in the codes. For example, for a patient presenting with a burn on the left arm, the same code will be used if that same patient presents with a burn on the right arm a few weeks later. Additional documentation will be required to claim

reimbursement for the treatment to explain that the burn treated was different from the burn treated previously, introducing documentation redundancy.

Other issues addressed in ICD-10 include full code titles and appropriately reflecting advances in medical knowledge and technology. The ICD-10 Code Structure is as follows:

- Characters 1-3 – Category
- Characters 4-6 – Etiology, anatomic site, severity and other clinical details.
- Character 7 – Extension

The following examples show a comparison of the forms of ICD-9 and ICD-10 diagnosis codes.

Please see examples in tables 1 and 2 below.

The ICD-10 diagnosis code set also expands on the use of combination codes. Combination codes are a single code that can be used to classify 1) two diagnosis or 2) a diagnosis with an associated secondary process or a diagnosis with an associated complication. Combination codes allow for the reporting of a single code to express multiple elements of the diagnosis.

Please see the example in tables 3 below.

ICD-10 codes reflect advances in medicine and medical technology making the code set significantly more complex and more importantly relevant to current understanding of diagnoses. It also provides an improved ability to measure health care service and conduct public health surveillance.

Procedure Codes

ICD-10-PCS (Procedure Coding System) will not be implemented in outpatient and office settings. However the Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS) code sets which are used for procedures in hospitals will be replaced by ICD-10-PCS on Oct 1st 2014, as mandated by HHS.

The advantages of ICD-10-PCS over ICD-9 are similar to those we discussed in diagnosis codes. ICD-10-PCS codes comprise of 7 alpha numeric characters, approximately 87000 codes are available for use (as against 3000 in ICD-9-PCS); reflect current usage of medical terminology and devices; are flexible for adding

new code; are specific, and contain information about body parts, laterality, approach, and device used, and qualifying information.

Please see tables 4 and 5 below.

Conclusion

ICD-10 diagnosis and procedure code sets are not simply increased, renumbered and with

increased detail ICD-9 codes but in essence a move to keep up with the advances in medical science and technology. The switch may not be easy, however it is long overdue.

Source: "Preparing for the ICD-10 code Set". Fact Sheet published by American Medical Association in June 2, 2010

Table 1:

ICD-9 Diagnosis Codes		ICD-10 Diagnosis Codes	
382.0	Acute Suppurative Otitis Media without spontaneous rupture of ear drum	H66.00	Acute Suppurative Otitis Media without spontaneous rupture of ear drum
N/A	<i>Cannot identify right vs. left</i>	H66.001	Right ear
N/A	<i>Cannot specify initial vs. recurrence of same problem.</i>	H66.004	Recurrent, right ear

Table 2:

ICD-9 Diagnosis Codes		ICD-10 Diagnosis Codes	
813.4 5	Torus fracture of lower end of radius (alone), closed	S52	Fracture of forearm
		S52.5	Fracture of lower end of radius
		S52.52	Torus fracture of lower end of radius
N/A	<i>Cannot specify laterality in ICD9</i>	S52.521	Torus fracture of lower end of <u>right</u> radius
N/A	<i>Cannot specify initial vs. subsequent encounter in ICD 9</i>	S52.521 A	Torus fracture of lower end of right radius, <u>initial encounter</u> for closed fracture

Table 3:

ICD-9 Diagnosis Codes		ICD-10 Diagnosis Codes	
415.0	Acute cor pulmonale	I26.01	Septic pulmonary embolism with acute cor pulmonale
415.1 2	Septic pulmonary embolism		

Table 4:

ICD-10-PCS code structure in the Medical and Surgical section

Character #	Usage
1 st	Name of Section
2 nd	Body System
3 rd	Root Operation
4 th	Body Part
5 th	Approach
6 th	Device
7 th	Qualifier

Example illustrating the meaning of the code:

Right knee joint replacement = OSRC0JZ

Character	Definition
1 st : O	Medical and Surgical Section
2 nd : S	Lower Joints
3 rd : R	Replacement
4 th : C	Knee Joint, Right
5 th : 0	Open
6 th : J	Synthetic Substitute
7 th : Z	No Qualifier

Table 5:

Some Student Talks to Look Out For

Here are some of the contributions of student working group members (highlighted in bold). Names of primary presenters are underlined.

SATURDAY, NOVEMBER 03, 2012

Tutorials

User Centered Design for Public Health & Consumer Health Information Systems
[T05] (AMIA-0030-A2012.R1)

Barbara Massoudi; **Rupa Valdez**

8:30 AM - 12:00 PM; Boulevard B

SUNDAY, NOVEMBER 04, 2012

Papers – Consumer Informatics

Association of patient characteristics and telehealth alerts with key medical events experienced by patients with heart failure (HF) in homecare [S09] (AMIA-0325-A2012.R1)

Kavita Radhakrishnan; Kathryn Bowles;
Alexandra Hanlon; **Maxim Topaz**

3:50 PM – 4:10 PM; Northwest 2

MONDAY, NOVEMBER 05, 2012

Poster Session 1

AMIA-0083-A2012.R1. Implementation of Thailand's First Prototype for Exchanging of Laboratory Results Using HL7 Version 3 and LOINC

Supachai Parchariyanon; Kavin Asavanant;
Sireerat Srisiriratanakul; Chaiwiwat
Tongtaweekhaikit; **Nawan Theera-
Ampornpunt**; Chusak Okascharoen; Artit
Ungkanont

The Comparison of Survey Items in a Community-based Survey with the Patient-Reported Outcomes Measurement Information System (PROMIS)

(AMIA-0850-A2012)
Manuel Co Jr.; Adam Wilcox; Suzanne
Bakken

TUESDAY, NOVEMBER 06, 2012

Panel by the Student Working Group

The Paths Toward Informatics Careers in the Post-HITECH Era (AMIA-0239-A2012.R1)

Nawan Theera-Ampornpunt; **Tiffany
Kelley**; **Edmond Ramly**; **Ryan Shaw**; **Saif
Khairat**; **Frank Sonnenberg**

1:45 PM - 3:15 PM; Waldorf

Papers – Data Management and Analysis

Clinician Perspectives on the Quality of Patient Data Used for Clinical Decision Support: A Qualitative Study [S65] (AMIA-0066-A2012.R1)

James McCormack

2:05 PM - 2:25 PM ; Williford B

Note from James: “my dissertation work is in handling external clinical information (test results, summaries, consults, etc.) in small primary care practices. If anyone else is doing informatics studies in independent practices, I'd love to meet up and compare notes.”

Poster Session 2

5:00 PM – 6:30 PM; Exhibition Hall

Explore the Use of a mHealth Intervention for Alcohol Addiction among Patients Who Lapsed vs. Not (AMIA-0640-A2012)

Ming-Yuan Chih; **Fiona McTavish**; **David
Gustafson**

Informatics Opportunities for Better Anticoagulation Management

(AMIA-0751-A2012)

Mustafa Ozkaynak; **Bengisu Tulu**; **Abir
Kanaan**; **Jennifer Donovan**; **Adam Rose**;
Sharon Johnson

Identifying Key Descriptors of Breast Aesthetics for a Standardized Rating Scale

(AMIA-0084-A2012.R1)

Clement Sun; **Min Kim**; **Melissa Crosby**;
Gregory Reece; **Elisabeth Beahm**; **George
Baum**; **Michelle Fingeret**; **Mia Markey**

Designing a Learning Technology for Community Health Workers (AMIA-0519-A2012)

Claire Loe; **Trevor Cohen**; **Jiajie Zhang**;
Maria Fernandez; **Amy Franklin**

WEDNESDAY, NOVEMBER 07, 2012

Papers – Planning and Prediction

Impact of Discharge Planning Decision Support on 30 and 60 Day Readmissions [S83] (AMIA-0276-A2012)

Kathryn Bowles; **Diane Holland**; **Sheryl
Potashnik**; **Maxim Topaz**; **Alexandra Hanlon**

9:10 AM - 9:30 AM; Continental B

Papers - Interoperability and Information Exchange

Guiding the Design of Evaluations of Innovations in Health Informatics: a Framework and a Case Study of the SMART SHARP Evaluation [S99] (AMIA-0999-A2012)

Edmond Ramly; **Patti Brennan**

SCHEDULE TBD

Comparing NLP Classification Methods on Their Ability to Predict The SLE Status of Subjects and Their Associated EHR Clinical Notes

Adrian Nida