

October 2009



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Implementing New Health Technology

A model of applied clinical informatics is presented

Applied clinical informatics is a new discipline that can be defined as “the science and art of applying and managing data and information technology to improve health processes and outcomes in medical care and disease prevention for individuals, groups, and populations.” A journal by the same name has been launched, and in its opening editorial, the editors attempt to shed light on this concept of medical informatics and how it can be applied.

Applied Clinical Informatics presents informatics as an iterative

intellectual activity that starts with model formulation, the acquisition and transmission of biomedical information, moves to system development, where technologies are created and delivered to healthcare providers, system installation, where

programs are implemented, and finally the study of effects, which allows for examination of the implemented program.

As technologies are researched and discovered, some will be successful and some will not. The phase of exploration before implementation is sometimes referred to as foundational or “pure” informatics.

Once an information technology application has become accepted in a health domain such as a hospital or physician’s office, it is thought to move from informatics research to clinical practice.

Applied informatics, then, encompasses the activities that take place once the new system has been incorporated into workflow. Activities at that point tend to include further analysis, problem solving, and standardization.

New informatics systems require thorough scrutiny – at the design, implementation, deployment, and evaluation stages.

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New informatics systems require thorough scrutiny — at the design, implementation, deployment, and evaluation stages. While research is an important first step, each organization and setting will have unique needs, reactions, and experiences. Communication within the system often presents a challenge and opportunity for growth. Professionals with expertise in systems application are therefore needed to ease the transition and act as

a resource. Adoption of health informatics is time- and labor-intensive, but it is a crucial component to improving healthcare in this country.

Source: Kim GR, Lehmann CU. 2009. In search of dialogue and discourse in applied clinical informatics. *Applied Clinical Informatics* 1:1-7.

Pre-stroke TIA Not Common

Most stroke patients do not have prior warning, highlighting the need for other tools

Only one in 8 stroke patients experiences a pre-stroke transient ischemic attack (TIA), according to a cohort study published in *Neurology* on September 29, 2009. Large-artery ischemic strokes were more likely to be preceded by TIA than other types.

It is well established that TIA puts patients at greater risk for later stroke (often within the first 3 months), and recent research suggests that early management of TIA may reduce this risk by as much as 80 percent. The authors of the current study note that this effect will not have the positive impact it could if TIA before stroke is relatively uncommon. Therefore, they used the Registry of the Canadian Stroke Network (RCSN) to investigate further.

No prior TIA was associated with poorer prognosis: these patients were significantly more likely to die in the hospital and have in-hospital cardiac arrest, and less likely to be discharged home.

They prospectively identified patients with a final diagnosis of acute stroke who were admitted to one of 12 Ontario hospitals between July 1, 2003 and September 30, 2007.

The authors excluded patients who had in-hospital stroke or unknown final diagnosis from

their analysis, leaving 16,409 participants. Prior TIA was most common — 20.5 percent — in patients who had large-artery ischemic stroke and least common — 4.6 percent — in patients who had hemorrhagic stroke. Older adults with comorbidities such as diabetes, hypertension, and peripheral arterial disease were most likely to have had a pre-stroke TIA. No prior TIA was associated with poorer prognosis: these patients were

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significantly more likely to die in the hospital and have in-hospital cardiac arrest, and less likely to be discharged home.

The authors conclude that TIA clinics might help prevent some of the stroke burden, but that “these data highlight a need for risk profiles that accurately identify and stratify individual risk for first stroke.”

Source: Hackam DG, Kapral MK, Wang JT, et al. 2009. Most stroke patients do not get a warning: a population-based cohort study. *Neurology* 73:1074-1076.

Hot Topic Highlights

Neuroscience Domain recently posted the following Hot Topics to your website:

Surgery Improves Carpal Tunnel Syndrome

Surgery is a modestly better option than non-surgical treatment for people with carpal tunnel syndrome, according to the results of a study published in the *Lancet*. The study followed 44 patients who had surgery and 52 patients who had non-surgical treatment, including physical therapy and ultrasound. Patients who had surgery had better function and less severe symptoms than non-surgical patients after surgery and after a one-year follow-up period, although the difference was modest.

Sources:

Jarvik JG, Comstock BA, Kliot M, et al. 2009. Surgery versus non-surgical therapy for carpal tunnel syndrome: a randomised parallel-group trial. *Lancet* 374:1074-1081.

Atroshi I, Gummesson C. 2009. Non-surgical treatment in carpal tunnel syndrome. *Lancet* 374:1042-1044.

Women with Diabetes at Increased Risk for Heart Rhythm Problem

Women with diabetes are more than twice as likely to experience a heart rhythm disorder called atrial fibrillation than women without the condition, according to a study published in the October 2009 issue of *Diabetes Care*. In a comparison of 34,744 people (half with diabetes, half without), women with diabetes had an increased risk for atrial fibrillation of 26 percent, but men did not appear to be at increased risk.

Source:

Nichols GA, Reinier K, Chugh SS. 2009. Independent contribution of diabetes to increased prevalence and incidence of atrial fibrillation. *Diabetes Care* 32(10):1851-1856.