



Going Back to Basics: the Applied Health Informatician

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The Emergence of the Health Informatician

What the heck is a “health informatician” and how does a person with this designation differ in terms of competencies from the classic worker in an Information Services (IS) department? I have learned that there are still many in the ehealth arena who can’t adequately answer this question, so I thought it would be useful to explore this space again.

It is useful to review the definitions of Health Informatics (HI) itself before we look deeper. Of particular importance is the recognition that “Health Informatics” is the discipline behind ehealth. Health Informatics comprises the understandings we achieve, the lessons we learn and the theory, models, concepts, principles and the like that we derive from research. Health Informatics research addresses the nature of the health system and its stakeholders, its need for and its management of information, and the use of methods and tools – like information systems – to assist its operation. Ehealth can be thought of as the product that HI research delivers to the health system.

What is Health Informatics?

While, in Canada, the term “Health Informatics” has emerged as the all-encompassing term for the field, in the United States, the terms “Biomedical Informatics”, “Biomedical and Health Informatics”, or more rarely “Medical Informatics” are used. All of these are umbrella terms for many sub-disciplines, including Nursing Informatics, Public Health Informatics, Pharmacoinformatics, Imaging Informatics, and Dental Informatics... and there are others as well! We like “Health Informatics” as in enfranchises all health professions.

Ted Shortliffe defines Biomedical Informatics as the scientific field that deals with the storage, retrieval, and optimal use of biomedical information, data, and knowledge for problem-solving and decision-making. He classes Health Informatics as a sub-discipline of Biomedical Informatics...vive la difference!

I prefer a simple definition of Health Informatics: the application of computer, information, social and management sciences to the management and use of

information in health and health-related disciplines. However, there are tens of definitions in the literature, all of them somewhat similar to the above.

Types of Health Informatician

So, let’s assume we have at least a broad idea of what HI is. It turns out that there are 2 categories of HI professionals, both called Health Informaticians, but with 2 different modifiers.

Research and Development Health Informaticians are the researchers, teachers and innovative developers of HI concepts, methods and tools. These are the folks who have roles like professor or researcher and are mostly found in academic organizations – although quite a few can be found in private industry and government laboratories and research units.

A more familiar beast is the Applied Health Informatician. These professionals select, deploy, manage, support, evaluate and guide the use of ehealth solutions in health settings. They take the concepts, methods and tools produced by the Research and Development Health Informaticians and put them to productive use. These are the crucial deliverers of ehealth to the health system. If you would like to review Applied HI competencies and assess yourself against the competencies required for various roles, go to: <http://learningspace.uwaterloo.ca/hi/>.

There are many who serve in both of these capacities, doing research, teaching and yet being integrated into the IS organization. Some of the outstanding leaders in the field of HI are of this genre.

Informatics-Enabled Professionals

This, of course, isn’t where it all ends. There are other individuals who are needed to realize the promise of ehealth: the physicians, nurses, and other care providers. However, they do not need to become Health Informatics professionals to play their role. But they do need to become competent to use ehealth systems and to apply the concepts, methods and tools of HI in their own work. We have called these “Informatics-Enabled Clinicians” and have defined continuing education programs to teach the required knowledge, skills, experience and attitudes.

“Applied Health Informatician... a person who understands not just the tool (technology) but the entire health system context, the nature and issues of health information, vocabularies and ontologies, the systems and their roles in improving information management, and all the other matters addressed by Applied Health Informatics... (enabling) the realization of the greatest possible value from the professional!”

Current IS Roles and the Applied Health Informatician

Confusion begins when we look at all the current roles in IS departments. There are Chief Information Officers, directors of IS, IS team managers, database and network managers, programmer analysts, implementers, project managers, IS-clinical department liaison individuals, and many other categories of worker. How does this integrate with the health informatician concept?

The answer is that describing someone as a health informatician is really telling which competencies the person has, but it does not limit the roles the person can play. For example, our own work on competencies¹ produced a list of more than 20 categories of competency that are required to be an Applied Health Informatician. COACH used a different approach and recently published its definition of the behaviors an informatician should be able to exhibit, but failed to indicate that these referred to Applied Health Informaticians². Nurses have done similar work³ as have many other health disciplines relative to their own disciplines. The American Medical Informatics Association is in the process of defining the competencies of the (Applied) Clinical Informatician as yet another example.

A person who qualifies for example as an Applied Health Informatician can serve in a variety of roles, e.g., as a CIO, director, manager, or in any of the specialist roles I mentioned.

The Value of Applied Health Informaticians

So, what is the value of being a health informatician if I am a database specialist or a manager? The answer is in the depth and breadth of what an individual can bring to the table. Being qualified as a database manager means the person has mastered database theory and practice, especially the capabilities and idiosyncrasies of different database tools like Oracle and Sybase. Take a person with these competencies and add on top of this the competencies of an applied health informatician. Now you have a person who understands not just the tool but the entire health system context, the nature and issues of health information, vocabularies and ontologies, the systems and their roles in improving information management, and all the other matters addressed by Applied Health Informatics. This will enable far greater independence of thinking and acting and enhanced effect. It will, in fact, allow the realization of the greatest possible value from the professional!

Why Not Everybody be an Applied Health Informatician?

Regardless of the potential, we should realize that even in ten years there will probably be a lot of people working in IS departments who are not applied health informaticians.

Why?

- Well, it could be because sometimes we will just need a database manager or an applications specialist.
- Another possibility is that we might not be able to afford an applied health informatician to serve in one of those roles. There is a message here for those who are in existing roles: there might be greater financial rewards associated with becoming an applied health informatician!
- There is the reality that few health organizations have informed themselves regarding Health Informatics and they continue to recruit without requiring the competencies of health informaticians.
- A likely reality for at least the next 5-plus years is that there will not be sufficient numbers of applied health informaticians produced by academia...and part of the reason is that there is a dearth of teachers being produced in our Masters and Ph.D. programs.

Unfortunately, even the existing capacity of HI education programs⁴ is not being used. There are several reasons for this:

1. Potential students are not aware of the field and the opportunity that it represents,
2. Many who are already in the health system either ignore education opportunities or decide just to stay as they are, and
3. Our health organizations provide little incentive and less money to support the advancement of their staff.

Take-Home Messages

I would like to suggest the following take-aways from this article:

1. We have now reasonably well-defined the field of Health Informatics and we know which competencies are required of applied health informaticians and what they can do for the health system.
2. There exists an array of learning opportunities⁴ both within colleges and universities and even on one's own turf.

3. Very few qualified applied health informaticians are currently practicing in our health system. The consequence of this is that the value of these professionals cannot be realized.
4. If we are to realize the value of applied health informaticians, we need to remove the barriers that impede their incorporation into the system, including:
 - a. recognizing the importance of recruiting those with the requisite qualifications,
 - b. raising awareness among students of the opportunity of getting into this field,

- c. promoting the value of advancement to those already in the system, and
- d. providing funding assistance to staff who are willing to advance their qualifications.

What this all comes down to is recognizing that the success of ehealth in delivering valued outcomes in the health system is dependent on people, qualified people: applied health informaticians.

My hope is that both administrators and staff will listen and will hear. Opportunity for both sides is knocking.

Answer the door! ●

References

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