Building a Disease Management System

HST.921 Information Technology in the Healthcare System of the Future
April 19, 2007

The task in class on Thursday will be to design a disease management system for a large urban teaching hospital and an African diabetes association.

In preparation for the discussion in class on Thursday on Disease Management, please rank order (1,2,3) your first three choices of the role you wish to play in this case-based, role-playing scenario. The case is summarized briefly below. Your background reading is very important and should prepare you for the role you will play. By Wednesday morning you will receive your assignment by e-mail for the role play in class on Thursday.

You will receive on Wednesday by email some guidance about the role that you have been assigned to play. You may also check with your colleagues, classmates, or friends to get some advice about your position, or call one of the faculty members. Be prepared to be called upon in class to suggest ideas or to critique those offered by others. Nametags will be available in class that have your name and assigned role on them. Please be sure to wear them as they will facilitate the exercise.

Feel free to make contact with your "colleagues" to do any advance planning or lobbying before class on Thursday.

- Steve Locke

I. Resource-rich setting

A. Setting: Boston General Hospital (BGH)

BGH is a 520-bed voluntary hospital located in an inner city neighborhood with a large Medicaid patient population from the surrounding neighborhood, as well as a substantial secondary and tertiary referral network of employer-insured and Medicare patients from the adjacent metropolitan and suburban communities. It has both adult and pediatric services and a full range of medical and surgical specialties. BGH is a world leader in patient care, medical education, and research, and is consistently named to US News and World Report's Honor Roll of top hospitals. As one of the finest hospitals in the city of Boston and the surrounding area, BGH is a major teaching hospital of Harvard Medical School and is a world-renowned center for advanced patient care — known for pioneering work in virtually every area of medicine.

During the recent JCAHO site visit, the hospital received low scores on the percentage of patients with diabetes who had had a retinal exam or a foot exam within the past year. Only 45% of patients on insulin or oral hypoglycemics had a glycosylated hemoglobin value in their chart, and of those, only 34% had one done in the past year. The CEO was distressed that such a fine hospital was performing so poorly on standard quality indicators and thought that perhaps the emphasis on offering the very best acute care might be interfering with the hospital's mission to provide care for those with chronic medical conditions with an equal commitment to excellence. The CMO created a diabetes disease management task force charged with designing and implementing a diabetes disease manage program within six months. Today is the first meeting of the task force. There are a number of observers present for this first meeting.

B. Roles

Here are the roles from which you can choose:

1. Hospital Administration

a. CEO and President
- developing the organization's strategy and strategic plan
- managing key external organizational stakeholders
- recruiting a high performance senior management team
- ensuring the achievement of the organization's goals as set by the Board

b. Senior VP and Director of Nursing
- developing approaches to delivering high quality nursing care
- ensuring that care delivery meets the highest standards
- recruiting nursing staff and ensuring that those staff are highly trained
- maintaining very good working relationships with other clinical leadership (e.g., the medical staff)

c. Chief Financial Officer
- developing strategies needed to ensure solid financial health of the organization
- monitoring and reporting the status of the organization's financial status
- managing the operations of patient accounting, general accounting and material management
- leading organizational efforts to manage costs and improve productivity

d. Chief Information Officer
- developing the organization's information system strategic plan
- managing the information systems organization
- ensuring the delivery of needed application systems on time and on budget
- implementing new information technologies to improve organizational performance

2. Diabetes Disease Management Task Force

a. Head of Diabetes Nurse Educators
b. Chief of Psychiatry
c. Chief of Primary Care

d. Director of Quality Assurance
e. Chief of Endocrinology
f. A primary care clinician who works in the primary care clinic

3. External stakeholders:

<to be played by faculty members>

C. Situation

Each character is facing a different perspective on the situation.

1a. CEO and President
You are very disturbed to learn that your institution, one of the finest hospitals in the world, has been cited by JCAHO for substandard performance in this domain of care. Across town in a competing healthcare system is one of the premier centers for diabetes care in the world. They were praised by JCAHO and have recently won national recognition and an award for the quality of their care for diabetic patients. You are adamant that this problem will be solved – and fast.

1b. Senior VP and Director of Nursing
Oh, no. Not more pressure from the CEO about another pet program. They are <u>all</u> important. Our nurses are stretched to the limit. We can't pay enough to attract nurses away from other institutions and there is a shortage. Furthermore, a lot of older nurses are retiring. How am I going to provide the staffing for this program?

1c. Chief Financial Officer
We cannot develop any new programs unless they generate revenue. Every tub on its own, bottom. That is the rule of the day this year.

1d. Chief Information Officer
We have sixteen affiliated hospitals and clinics. Some are still using paper records. How are we going to get everyone up on the same system? And what about electronic alerts?

2a. Head of Diabetes Nurse Educators
We have only 6 DNEs and 12,000 patients with diabetes. How are we going to serve this population? I will need to double the size of my staff. I cannot do this job without that support. I have to make that clear to them. And I need better IT support as well. Maybe we should be subcontracting this out to a vendor. Hmmm….

2b. Chief of Psychiatry
These people don't realize that 20-25% of their diabetes patients suffer from depression. It's no wonder they are non-compliant. In fact, I'll bet 20-25% of the <u>staff</u> are depressed! No wonder they can't keep on top of these quality indicators. They are overworked and getting burned out. JCAHO doesn't even care whether we screen for depression or not. Its not even a HEDIS measure! The Diabetes DM program definitely should have a 0.2 FTE psychiatrist in the budget – but it can't come from my budget. There is no fat left.

2c. Chief of Primary Care
These administrators are clueless as to what practicing primary care is like nowadays. We have eight minutes to spend with each patient. Maybe this is the time to reorganize the OPD into multidisciplinary health care teams and try to distribute these responsibilities. Maybe the idea of using a contracted DM vendor to oversee these self-care activities might be worth considering. But where would the money come from.

2d. Director of Quality Assurance
If this is not fixed by the next JCAHO visit, I'll be out of a job. Furthermore, Risk Management has been on my case ever since that lawsuit was filed by the patient who sustained kidney failure before the diagnosis was even made. How can I get the clinicians to understand the importance of these quality

measures? They don't realize that if we can't keep our quality indicators ahead of our competition across town, the doctors will be out their jobs, too. I have to have another talk with the CFO about my plan for a quality adjuster for the physician salaries…

2e. Chief of Endocrinology
The problem is, they have set it up so that the PCPs take care of these complicated patients. They take up too much of their time and they don't have the training that we have (the endocrinologists). I think we should stratify our population and have all the moderate to high-risk patients care for in the Endocrine clinic. We'll need more diabetes nurse specialists and two more FTEs for endocrinology fellows. It is short-sighted to think that an ordinary PCP can care for these complicated patients.

2f. A primary care clinician who works in the primary care clinic
This is a no brainer. All the diabetes patients should be cared for in the Endocrine clinic by diabetologists. Barring that, we need more physician assistants and diabetes nurse specialists in the primary care clinic, as well as better IT systems. Having an EMR is not much help if you don't have a diabetes registry and the reports that let you see if your patient has had a HgbA1c or eye exam.

II. Resource-poor setting

A. Setting: Tanzania Diabetes Association

A survey in early 2004 showed that about a third of healthcare staff at the regional hospitals were sufficiently aware of key aspects of diagnosis, treatment, education, and complications in diabetes. Similarly, more than two thirds of patients with diabetes surveyed at hospitals in 2004 were unaware that their problems were related to high or low concentrations of glucose in their blood and did not know that they could or should monitor those concentrations.

Tanzania has already experienced a rapid rise in the burden of diabetes. In the 1980s, the prevalence of type 2 diabetes was among the lowest in the world: 0.8% in cities and towns and 0.9% in rural areas. A study in 2000 highlighted a marked increase in diabetes in urban (4.0%) and rural (1.3%) populations, and now 300 000-350 000 of Tanzania's 32 million people have diabetes.

Diabetes in Tanzania is placing an increasing economic burden on the population and on the national budget for health care. A study in the Kilimanjaro region showed that the total direct costs relating to the treatment of diabetes accounted for a quarter of the minimum wage, resulting in about 46% of the patients having permanent financial difficulties. Research from Dar es Salaam reported that only 1 in 5 of people with diabetes was receiving government-funded treatment for the disease.

Communicable diseases, such as HIV/AIDS, tuberculosis, and malaria, make up the greatest burden of disease facing sub-Saharan Africa. Within the next two decades, however, non-communicable diseases such as hypertension and diabetes are expected to contribute to more deaths than communicable diseases. There is an urgent need to develop awareness, education, and accessibility of care in line with the World Health Organization's aims of sustainable intervention, by helping countries develop their own infrastructure and professional expertise in health care.

A significant barrier is the existing human resources in health crisis (HRH) it is estimated that there are only 3 doctors and 37 nurses available to meet the health care needs of every 100,000 Tanzanians. The chronic shortage workers is associated with several factors, including natural attrition without replacing those lost due to retirement or resignation or death, bottleneck delays in the hiring process, and need to strengthen retention mechanisms for health workers posted to rural areas.

The ultimate objective of the Tanzania Diabetes Association and its partnerships is to allow Tanzanians to continue independently towards providing truly sustainable and accessible care for diabetes management in the long term.

B. Roles

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3. External stakeholders:

<to be played by faculty members>

C. Situation

Each character is facing a different perspective on the situation.

1a. CEO and President – National Hospital
You are aware that there is a growing need to address chronic diseases within Tanzania, especially diabetes. However you are also faced with two very specific realities; a) an acute shortage of trained health care workers to focus on emerging health problems and b) limited funding from the Ministry of Health to support non-essential health problems. To date diabetes is not listed as an essential health problem. But at the last Annual National Health Care Review Meeting, the Minister of Health stated that chronic diseases are becoming an issue that cannot be avoided any longer.

1b. Chief Financial Officer – National Hospital
We cannot develop any new programs unless they generate revenue. Every tub on its own bottom. That is the rule of the day this year. However, recently there has been a pitch made by the head of the Private Hospital Association to enter in a referral agreement that would provide a revenue sharing arrangement for all patients referred for private treatment and counseling.

1c. Chief Information Officer – National Hospital
We have twenty two affiliated regional hospitals and over 124 district hospitals. All are still using paper records. How are we going to integrate a new disease management module? Who will pay? However, there is a new initiative sponsored by the Government of Ireland to help to create a connected Tanzanian regional hospital system by 2008.

2a. Head of Diabetes Nurse Educators, Ministry of Health
We have only 1 DNEs per every 30,000 patients with diabetes. How are we going to serve this population? I will need to double the size of my staff. But we are facing a human resource crisis. Where will we get the staff to manage this. We do not even have enough to manage Malaria and HIV/AIDS. I cannot do this job without that support. I have to make that clear to them. And I need better IT support as well. Hmmm….

2b. Chief of Primary Care, National Hospital – Dar Es Salaam
These administrators are clueless as to what practicing primary care is like nowadays. We have 1 doctor for 10,000 patients, one of the lowest in any country in the world. I agree that diabetes is a major concern, but over staff is already overwhelmed, I can not see them taking on a new disease area beyond what they already have. May be there is a way to recruit doctors from overseas or provide expertise through the

mobile phone? But where would the money come from if the Ministry of Health does not see this as a priority issue?

2c. A primary care clinician who works in a primary care clinician Musoma Region

This is a no brainer. Diabetes has been on the rise the last 5 years I have been working here. Barring that, we need more physician assistants and diabetes nurse specialists in the primary care clinic, as well as better IT systems. Also we have very infrequent training to keep us up to date. It would be great to offer in-service training on how to manage diabetes care.