

Physician competence and Health Information Technology

The relationship between the doctor and the patient, central to the healthcare enterprise, is changing drastically. Health information technology (HIT) and Obamacare along with other major forces are having a profound impact on the healthcare industry. Health related web based information, mobile applications and other health management tools are utilized by more and more Americans. These must be used with the goal of promoting and maintaining health of the individual, treat the sick, heal them faster, and help them stay well. Used effectively HIT provides tools that may enhance the doctor patient relationship and improve health outcomes. HIT can be viewed as a “physician extender” as well as alert and error reduction system. In order to effectively utilize HIT the physician must possess knowledge, skills and most importantly the attitude to carry out her responsibilities. This section will utilize a framework of Physician competencies describes by Gonella and Louis to explore how to utilize HIT to enhance the doctor patient relationship and improve healthcare outcomes.

In this section we will:

- discuss the various competencies for physicians
- discuss how HIT can enhance these competencies
- identify the features of HIT that will support the competencies
- review barriers to utilizing HIT to improve patient care
- recommendations for utilizing HIT to improve health outcomes
- "clinical" examples for using HIT the clinical practice
- resources

Physician core competencies

Gonnella (the former dean of Jefferson Medical College) and Louis, describe the physician's responsibility for healthcare. They note that physician's patient care responsibilities require that they act as **clinicians, managers, and teachers**. The physician's role as a manager and teacher are core to effectively discharging their responsibilities as clinicians. Each of these roles and responsibilities will be discussed with special emphasis of what is the current situation, how HIT can be used to improve clinical outcomes and available products.

The clinician core competencies of the physician include the following:

1. Understanding the importance of risk factors, such as obesity, smoking, hypertension, and social stress in their patients
2. Recognizing diseases at their earliest possible stages. To achieve this goal, hypotheses must be generated with regard to health problems, relevant data (for example, history, physical, laboratory) must be collected and medical judgments must be made. The hypotheses must be tested; new hypotheses must be formulated or new data needs to be collected
3. Recommending diagnostic and therapeutic strategies based on logical medical judgments with the participation and understanding of patients (and their families when appropriate)
4. Utilize consultation
5. Provide appropriate, timely, and skillful treatment
6. Monitoring the outcome of the treatment
7. Recognize the long-term physical, mental, and social consequences of medical problems and outlining long-term rehabilitation. For chronic diseases, information in addition to biological data should be collected to document functional well being.

The manager core competencies of the physician include the following:

1. Participating in planning activities for the optimal utilization of resources based upon documented need
2. Properly delegating and coordination tasks among a variety of people. Human and other resources must be mobilized to achieve the desired health care outcomes at the level of today's knowledge
3. Securing and evaluating required information
4. Maintaining records to document the previous steps

The educator and coach competencies of the physician include the following:

1. Educating their patients about the dangers of risk factors and outlining a regimen that may reduce them
2. Assuring that their patients understand their illness and the recommended treatment
3. Considering how risk factors or medical problems of their patients affect other family members
4. Motivate and inspire patients to achieve their health and wellness goals

1. Understanding the importance of risk factors, such as obesity, smoking, hypertension, and social stress in their patients

The challenge:

To identify all individuals in their practice that have a treatable risk factor for medical disease and to be able to provide cost-effective interventions that will lower the risk.

It is well known that many medical conditions could be prevented with individuals lowering their risk factors. The implications for the individual, family, society by even a small change in risk factors will be enormous. The physician should be able to recognize, assess, and “treat” risk factors. The physician needs to have the time, motivation, knowledge and skill to provide the individual patient with the appropriate intervention. With the rapid increase in our understanding of disease and its prevention, a quick easy and effective way to disseminate the information will be useful.

The current situation:

There is significant evidence that addressing risk factors by the physician can lower the risk of morbidity and mortality in their patients. There are numerous evidence based guidelines for prevention of risk factors that have been established. There is a wide disparity between the actual recommendations and the actual practice of providing the information and the tools for patients to address their risks. For various reasons, risk factors are not routinely assessed and addressed in medical practice.

The opportunity:

All patients should be fully informed about their risks and what they can do to lower them. Many would probably not change their behavior. There is increasing evidence that the physician has some impact on changing risks for the patient. Addressing risks for stroke, heart disease, etc can have significant impact on morbidity and mortality. Provide the patient credible tools and information to make decisions based on their particular risk factors and their values. In an ideal world where informed decision making was universal and physicians were reimbursed for the time and effort they put into prevention, addressing risk factors with patients would be universal.

HIT is utilized to:

Provide evidence based information regarding the benefits of risk assessment for relevant medical conditions.

Selectively present timely and relevant risk assessment questionnaires in a periodic manner that reflect the current state of knowledge and follow expert guidelines. Prior to a health visit the patient will complete a risk assessment questionnaire sanctioned by the physician.

Develop treatment plans that work in reducing the risk and early detection. The information is used to minimize health risks including: information about early detection, life style changes and the motivational tools to succeed. Additionally, it is connected to a reminder function that will inform the user of necessary health related activity.

Utilize patient data to inform the physician of individualized risks to patient and provide recommendations that are relevant to the particular patient.

A customized personalized treatments plan can be created during the visit.

Provide information on local resources available for activities and products to target risk factors.

Tools to improve communication with patients to monitor progress and provide encouragement for sustaining healthy behavior.

Identify the particular match with patient and particular prevention approach. Assess preferences and barriers to behavioral changes. Address interventions that are specific to the patients learning style, interest etc. Utilize social media and gamification strategies.

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2. Recognizing diseases at their earliest possible stages (Screening and early detection)

The challenge:

To be able to recognize and identify diseases at the earliest stage in the natural course. In recognizing the importance of the earliest detection of the disease, it is essential to utilize evidence based screening as well as other early detection methods to identify and treat the disease. The role of the physician in early detection of diseases through screening and early diagnosis is crucial.

Screening: Provide screening activities that reflect a true informed understanding of the risk and benefit of the screening activity. Early screening tests can identify diseases in the earliest possible stage, and improve the chances for positive outcome. The concept of the natural course of the illness is changing as more knowledge is gained about the genetic basis of diseases. Epidemiological research is helpful in identifying variables that predispose the person to a particular medical condition.

Early Diagnosis: It is said that 80% of the diagnosis is done with a good history, health problems, relevant data (for example, history, physical, and laboratory) must be collected and medical judgments must be made. The hypotheses must be tested; new hypotheses must be formulated or new data need to be collected. How to incorporate the patients input into decision making ordering of tests.

The current situation:

Most physicians do not follow well established evidence based guidelines for early screening. Currently, the collection of information occurs in the short visit with the physician based on an interview based on the physician's memory and limited by various factors such as the time available, information sources, doctor's knowledge frame of reference. Referrals to specialists often lack specificity thus make assessment problematic. Patients are exposed to confusing information of the importance of a particular screening activity.

The opportunity:

Every patient is provided the opportunity to have recommended individualized screening and early detection tools.

The following can be improved utilizing HIT:

1. Provide the patient user friendly information about screening recommendations.
2. Prior to the visit the patient may prepare relevant and important information associated with their particular problem.
3. Recognize people at risk and in need for screening, provide reminders and follow up, motivate to follow up with the recommendations.
4. Log symptoms over time provide ahead of the visit that includes relevant family history, environmental history and risk assessment.

5. Information regarding prior treatments, explanation to patient ahead of time of what to expect.
 6. Track if the patient is following up with the recommended diagnostic process.
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3. Recommending diagnostic and therapeutic strategies

The challenge:

To develop the most cost effective diagnostic and therapeutic strategy that takes into account the severity of the symptoms the patient's values, the cost, etc. and achieve the best possible outcome.

The current situation:

It is estimated that 25% of health care costs are due to unnecessary and bad healthcare services. There are numerous obstacles for the physician and her patient who in undertaking the best diagnostic and therapeutic strategy. Achieving the proper diagnosis for presenting symptom requires a relevant and meaningful understanding of the symptoms, and choosing the appropriate medical studies and consultation when appropriate. Studies show that patients condition in misdiagnosed, patients are provided the wrong therapeutic plan, patients do not adhere to the diagnostic plan, test results and consultation reports are followed up.

1. Information overload
2. Time limitations
3. Coordination and administrative challenges
4. Physician factors
5. System factors
6. Patient factors

The opportunity:

Every patient is provided the evidence based diagnostic and therapeutic strategy that addresses their clinical situation. This includes choosing the appropriate test/ procedure; communicate it to patient for decision making, finding out available resources.

The following can be improved utilizing HIT:

1. Patient can keep track of the relevant information about their symptoms prior to contact with clinician.
2. The patient receives useful information about the diagnostic work up where and how to get it etc.
3. The patient receives information about the various options and the proper preparation for diagnostic tests.
4. The patient receives information about various labs that provides those services.
5. The clinician receives advice (via expert system software) on test selection and therapeutic options that is specific to their particular patient
6. The clinician and patient receive information about the guidelines and easy to use expert information.
7. Clinician and patient have user friendly, secure communication tools to follow up regarding the results and related issues.
8. Track if the patient is following up with the recommended diagnostic process.
9. The clinician receives test and consultation results in a timely and useful manner and can follow up with the patient regarding status of the work up.

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4. Provide appropriate, timely, and skillful treatment

The challenge:

Making sure the patient has the information to make the appropriate decision for them and to make sure that the treatment works as well as it can leading to optimal results.

The current situation:

Limited treatment choices are presented to the patient who may have difficulty understanding the relevant. The process of acquiring informed consent for a particular treatment course is hampered due to knowledge limitations, behavioral issues of patient and physician. The limited participation in the decision making process makes the patient less likely to adhere to instructions. There are frequent side effects of the treatment, including medications, surgery and various devices. Communication with the physician in order to clarify the needed information is limited.

The opportunity:

Every individual requiring medical care will have the right treatment for their condition. The treatment will be provided at the right time, the right cost and will reflect the desires of the patient. The treatment will be monitored to achieve the optimal outcome for the patient, avoiding complications and unnecessary continuation of the interventions.

The following can be improved utilizing HIT:

1. Provide the patient with a user friendly tool to help make informed decisions related to their condition. This will include information about the condition, appropriate guidelines of research proven treatment options, including no treatment, and expected outcomes.
2. Access to time unlimited, easy to use, patient friendly information that empowers the patient and assures compliance. For example, when starting a new medication provide information about potential side effects.
3. Availability of communications to address the patient's concerns and questions on an ongoing manner.
4. Provide information on the cost of the treatment. For example, help the patient with administration issues such as getting affordable medications, continuous access to medication refills, a system to dispense the medications safely and efficiently.
5. Ability to track their clinical course using shared logs, journals etc. and use them effectively to improve outcomes.
6. Monitor the treatment with timely and affordable engagement. For example reminders and coordination of laboratory and imaging studies to track chronic conditions.
7. Provide information for local resources, such as support groups, home help, spiritual support that can improve outcomes.

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5. Monitoring the outcome of the treatment

The challenge:

To assure that patients are getting the best and safest treatment for the proper duration.

The current situation:

There is evidence that many individuals do not adhere to the recommended treatment, experience preventable adverse outcomes, stay on medications for longer than needed. Additionally, patients do not have the best information on the cost of the treatment.

The opportunity:

The patient and the physician can define what are the outcomes desired. The interaction between the patient and the physician assures that the treatment recommended achieves the results and outcomes desired by the patient. Timely monitoring and adjusting the treatment based on the results.

The patient receives the best outcome for:

Medication management
Physical Therapy
Medical devices

The following can be improved utilizing HIT:

1. Use of digital technology in various platforms to track the efficacy of a particular treatment. For example, the person can monitor the intensity of their pain, and the response to various treatment approaches.
2. The patient and physician communicate about results and other relevant information between in-person visits.
3. The patient receives information and needed referrals for additional tests and consultation.
4. The patient receives relevant targeted information to answer the patient's questions and suggestions to improve outcomes.
5. The patient receives information to manage cost and other concerns about their medications to improve adherence with the treatment.
6. Keep ahead of needs for medication refills, online refills.

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6. Recognize the long-term physical, mental, and social consequences of medical conditions

The challenge:

How to provide the information and resources for patients with chronic problems that assure they are functioning at the highest level possible given their situation. Chronic medical problems can have profound impact on the individual and their family. The patient suffering with medical condition experiences mental and social consequences in addition to the physical manifestations. The patient may require adjusting their social and occupational life, engaging with various insurance and governmental agencies. They require long-term rehabilitation in physical, social and spiritual areas.

The current situation:

The care of the individual suffering with a chronic medical condition is complex and requires coordinated care including social and spiritual concerns. The current experience of the patient is complicated by lack of coordination, poor documentation and lack of resources. Patients are often left to “fend for themselves” when confronted by need to access resources available.

The opportunity:

Utilizing various HIT applications the patient and their physician share information and resources that address the bio-psychosocial spiritual aspects of the patient and their care givers. The patient is able to join online groups for support.

The following can be improved utilizing HIT:

1. Provide a platform for recording and saving needed information associated with contact with various agencies
2. Provide online support groups to address the particular medical issues

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