

# Public health issues of aging populations health and social care essay



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### **INTRODUCTION — ALL**

Electronic Health Record (EHR) systems are software-based technology systems that enable hospitals to store and retrieve complete patient information which can be used by health care providers, support staff, patients and care givers when a patient is given care in a clinical setting and across other care settings. The United States Government, coupled with public health officials have decided that the implementation of EHR software on a national level will improve patient outcomes and drive down costs in the long run, hopefully leading to a compression of morbidity. The government through the Centers for Medicare and Medicaid Services (CMS) has established a stepwise system of incentives for appropriate implementation of EHR's into their practices, realizing that for the benefits to be realized on a community health level the system must be implemented and supported nationwide. Clinical Decision Support Systems (CDSS) are an intrinsic and an important feature offered by EHR Systems where they help the health care staff and EHR users to make very precise and well-informed decisions based on prior clinical knowledge and established workflows. CDSS is one of the most innovative usages of technology in EHR systems since the technology is not just used to present information to the user but rather data collected is analyzed in an algorithmic manner and analytical logic is applied to the selections made by the EHR user and then accordingly presented to them. CDSS also hold the burden of responsibility to not only present the

information based on the data analysis but also force the EHR user to make a decision based on the selection made. This is very critical especially when EHR users are presented with options and their choice of selection can have drastic implications and affect the health of the patient. In this paper we have collectively tried to identify the importance of EHR systems and the role they place in helping to compress and prevent morbidity. CDSS also help to identify workflow issues and help to improve clinical workflow within the organization thereby reducing the errors and mistakes committed by the EHR users. These errors can in turn be helpful in preventing morbidity for the patients they are caring for. EHRs with clinical decision support systems provide a safety net to help providers who are very busy in their normal day work with alerts and guidelines to comply with the multitude of standards and policies.

## **OBJECTIVES:**

This reflection paper seeks to evaluate and identify the usefulness of EHRS and CDSS as an innovative approach that could be developed and implemented to compress morbidity in elderly persons with chronic conditions. How it can be used to reduce or eliminate functional decline, empower the elderly with better quality of life, nutrition, social inclusion and enhancing activities of daily living both within and outside the home. This paper will also evaluate possible barriers and limitations that can be associated with using this technological measure in compressing morbidity with the aim of possible intervention in proposed areas of limitations to achieve meaningful impact.

## **ELECTRONIC HEALTH RECORDS - OBI**

An electronic health record (EHR) is an official health record for an individual that is shared among multiple facilities and agencies. An EHR will include the following: Contact information, Information about visits to healthcare professionals, Allergies, Insurance information, Family history, Immunization status, Information about any conditions or diseases, A list of medications, Records of hospitalization, Information about any surgeries or procedures performed. 1. EHR are a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. The patient information usually is listed as below: Patient demographics, Progress notes, Problems, Medications, Vital signs, Past medical history, Immunizations, Laboratory reports, Radiology reports. 2. Why are they needed? EHRs have been theorized to be needed due to their benefits. Some of their benefits include clinical outcomes (e. g. improved quality, reduced medical errors), organizational outcomes (e. g. financial and operational benefits) and societal outcomes. These include improved ability to conduct research, improved population health, and reduced costs. The benefits of EHRs include: The ability to automatically share and update information among different offices and organizations. More efficient storage and retrieval. The ability to share multimedia information, such as medical imaging, results, and interpretation among locations. The ability to link records to sources of relevant and current research. Provision of clinical decision support systems (CDSS) for healthcare professionals. Lowered redundancy or effort. Lower cost to the medical system once implementation is complete as a result of the above benefits. How good and reliable are they? Here are a few testimonials: A clinician utilizing EHR said " With EHR I <https://assignbuster.com/public-health-issues-of-aging-populations-health-and-social-care-essay/>

navigate my patient's clinical data faster and more efficiently, and I don't have to wade through other physicians notes to get to my own notes. It's quicker to electronically prescribe than to write out a paper prescription, and it bypasses the sloppy handwriting problems that can lead to errors. This results in better patient care and can lead to sharply reduced malpractice risk. In addition, our response time to patient inquiries has improved greatly, which is something our patients have gladly noted." 3Another clinician said " Because of the efficiency gains EHR brings to our practice, the staff now spends less time reviewing patient's charts for quality and completeness, which has directly enhanced the level of patient care. Patient's satisfaction levels have also notably increased, as has the physician's confidence in the comprehensiveness and quality of the clinical data." 3The above is just a few of the gains and reliability of the EHR as reported by first hand users. What does it help with? Just like every drug with side effects, the EHR also has its challenges; I call them the ugly side of EHR. Like the benefits we will also report testimonials of users. A clinician writes " We are a 200+ physicians group that signed with an EHR vendor 3 years ago. Satellite offices that have already gone live on the EHR system are still using paper charts and writing prescriptions by hand. Our central office planned to implement this fall, but we have suspended that indefinitely since the other offices that are already live on the EHR had patients lined up out the door due to slowness and difficulty using EHR." 3Another clinician stated " After trying to use the EHR and failing, we SHUT IT OFF! We have 7 doctors- our head doctor made numerous calls to the higher-ups at the EHR vendor to try to get the program to work. Nothing worked and he is 100% convinced that they just don't understand our specialty." 3The drawbacks associated with EHRs include the high

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upfront acquisition costs, ongoing maintenance costs and disruptions' to workflow that contributes to temporary losses in productivity that are the result of learning a new system. 4The challenges tend to involve practice-wide workflow disruption, unexpected increase in expenses, and decreased patient satisfaction. 5Professor Trish Greenhalgh, lead author of UCL'S Department of Open Learning, said EHRs are often depicted as the cornerstone of modern healthcare, capable of making care better, safer and cheaper. Yet, clinicians and managers the world over struggle to implement EHRs6Dr. Greenhalgh's study found the following: While secondary work like audit and billing may be more efficient by EHRs, primary clinical work can be made less efficient; Paper, far from being technologically obsolete, can offer greater flexibility for many aspect of clinical work than the types of electronic record available; Smaller more local EHR systems appear to be more efficient and effective than larger ones in many situations and settings; Seamless integration between different EHRs is unlikely ever to happen, as human input will probably always be required to re-contextualize information for different users. 6EHR's implications-legal, medical, staff, patient service etc. Failure or damages caused during installation or utilization of an EHR system has been feared as a threat in a potential lawsuit 7. Similarly it is important to recognize that the implementation of EHRs carries with it significant legal risks. 8 There is increasing concern that such an electronic documentation could open physicians to an increased incidence of malpractice suits. The idea of a centralized EHR system has been poorly received by the public who are wary that governments may extend the use of the system beyond its purpose. There is also the risk of privacy breaches that could allow sensitive health care information to fall into the wrong

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hands. Some countries have enacted laws requiring safeguards to be put in place to protect the security and confidentiality of medical records as it is shared electronically and to give patients some important rights to monitor their medical records and receive notification for loss and unauthorized acquisition of medical information. The United States and the EU have imposed mandatory medical data breach notifications. 9 It will be especially interesting to see how the model of EHR implementation in the developed world affects its use or disuse in the developing world.

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## **Clinical Decision Support Systems (CDSS) – Actionable Alerts & their role to help with compression of morbidity – manI**

Clinical Decision Support Systems (CDSS) – What are they? The name itself does sound very complex but in reality is it actually complex? Let us start with trying to understand what are CDSS? Clinical Decision Support Systems (CDSS) are "active knowledge systems which use two or more items of patient data to generate case-specific advice" 1. Let us analyze this definition of CDSS more closely. It says they are 'active knowledge systems which use two or more items of patient data'. This means that CDSS are in-built technologies in Electronic Health Record Systems (EHRs) which utilize the patient data currently stored in the EHR to actively alert, monitor (or) warn the user using the EHR system. So, based on the more detailed analysis of this definition, we can identify CDSS in simple terms as a technology based system in EHRs which can help the users to act on alerts based on two or more patient data residing in the EHR systems.

### **CDSS – how do they help?**

CDSS and their actionable alerts provide a great deal of help for the EHR users. Some of the key areas where they a pivotal role is: They are presented in the EHR system at the right time – This is referred to as "just in time" alerts. For example: when a nurse is trying to enter the blood pressure details of a patient examined and if he/she enters an incorrect value (like 1200 instead of 120), the alert mechanism immediately throws a pop-up specifically mentioning this error and requesting input to modify the value. Non-intrusive and highly visible – This type of alerting is very important since



it is highly visible and is not intrusive to the workflow of the EHR user. An example of this could be not entering the breakfast details taken by a patient. This is more of an 'For Your Information' (FYI) for the EHR user.

**Actionable** – This is one of the most important features of CDSS alerts. Most of the alerts are actionable which means the EHR user has to act on it (or) has to forward to another user to act on it. For example: if a nurse enters the information that a patient has requested a flu shot then he/she would have to forward that request to act on that who would have to sign off on the request. This process is referred to as "Approval" process for requests which are initiated by CDSS alerts.

## **CDSS in preventing medical errors**

Some of the examples of CDSS in an EHR system as outlined in a report defined by the National Academy of Sciences<sup>2</sup>: Service reminders which must be prevented Alerts regarding possible drug interactions Guideline & standards compliance alerts So, if an EHR system is not used in a clinical practice then the operational and clinical staffs have to go through a laborious process of looking at several reference texts to ensure there is no patient harm expected for any kind of activity they have to undertake. They also might need to refer to several articles, handbooks and additional literature before they actually work on a patient's case. This might be very counterproductive for them. Finally, they have to take into account everything like the patient's health, drug interactions, literature references and then finally take the respective action on the patient's case. As we all know, we as humans are prone to make mistakes and to take this into a more perspective manner, medical errors accounted for between 98,000 and 195,

000 excess deaths per year<sup>3, 4</sup>. These are staggering numbers and CDSS can prove to be a certain way to help prevent medical errors to a reasonable extent.

### **CDSS – preventing and compressing morbidity**

CDSS alerts are highly reliable in helping with all the three aspects of prevention of morbidity – primary, secondary & tertiary. For primary prevention, CDSS alerts will alert the EHR user for a patient who is due for their vaccinations and for secondary prevention, CDSS alerts can alert the EHR user when the laboratory results for a patient is populated in the EHR system & a specific value needs attention. This could help with early detection of a condition which otherwise the EHR user could have missed. And for tertiary prevention, CDSS alerts can help immensely in compressing disability especially with identifying drug interactions for patients taking several medications, suggesting other methods of treatments, forcing workflow changes in EHR systems to better detect and reduce the severity of the condition and finally to alert for additional patient input in certain situations so that the condition can be better understood and handled. For the two important determinants of health – ‘health behavior’ and ‘environment’, CDSS alerts provide a mechanism to healthcare staff to document patient related information in a more concrete manner and accordingly alert the EHR user to act on the determinants to improve patient health and prevent morbidity. Examples for CDSS actionable alerts for a diabetic patient are: Medication adherence and over dosage avoidanceDiet monitoring adherenceAppropriate documentation monitoring

## **Example of a CDSS Actionable Alert – Screenshot**

Below I have provided a screenshot of an actionable CDSS alert as viewed in an EHR (Practice Fusion – freely available EHR) for a test patient whom I added. Figure 1: Screenshot of CDSS Alert in Practice Fusion EHRAs you can clearly observe, the CDSS alert provides several high-level functional areas: Qualifying patient population Recommended actions Rationale and Clinical Recommendation This provides a very in-depth analysis for an EHR user when they are acting on this patient record and helps in prevention of morbidity in providing a meaningful clinical recommendation.

## **Summary**

In summarizing, CDSS integrates data referred by clinical and health care staff directly into their workflow and checks for errors & omissions. The most important aspect of CDSS is that it is a pro-active approach rather than a reactive approach wherein it stops the clinical process & workflow in proceeding further when an error has occurred. It helps in planning for optimal solutions to clinical challenges in patient care and thereby preventing and compressing morbidity.

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## **compression of morbidity and our goal towards it – udy**

### **INTRODUCTION**

Compression of morbidity is a public health hypothesis that was proposed by Professor James Fries of Stanford University School of Medicine, California, USA. 1 Following a study by 1700 University of Pennsylvania alumni between 1978 and 1998, the hypothesis was eventually confirmed. 2The hypothesis states thus: " the burden of lifetime illness may be compressed into a shorter period before the time of death, if the age of onset of the first chronic infirmity can be postponed"; or, in other words, " the age at first appearance of symptoms of aging and chronic disease can increase more rapidly than life expectancy". 3 This is, however, a contrast to the opinion of " Failures of Success" 4, which argues that as the age of the population in any country increases over time, the population becomes progressively more sick and therefore the healthcare costs to such a country increases in leaps and bounds. This may lead to economic collapse and an escalation of depression for the elderly. Most of the morbidity and declined health-related quality of life, along with high health care costs occur at an advanced age, beginning at usually 65 years and above, and terminating at death. If the age of onset of the first chronic age-related disease were to be delayed, then by the time of death, the total lifetime morbidity would have been reduced into a much shorter span<sup>1</sup>. The health strategies required to achieve compression of morbidity, according to the hypothesis, was to be fundamentally centered on delay of ill-health by prevention of chronic disease. 5-7 The ultimate goal of

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compression of morbidity is therefore to reduce the period the elderly person spends in ill health towards the end of life. The figure below presents possible settings for morbidity and longevity in the future. It shows the present lifetime morbidity, depicted as the shaded area, and is compared with three possible future settings. Compression of Morbidity Theory: Compression of Morbidity TheorySource: Fries, JF. Measuring and monitoring success in compressing morbidity. *Annals of Internal Medicine*. Sept 2003; 139: 455-9.

## **HEALTH PROMOTION AND COMPRESSION OF MORBIDITY**

It is a difficult thing for people to change their life style, as certain studies have shown. With more effort on health promotion, these changes can be achieved. In order to delay the onset of chronic illness at old age, certain healthy lifestyles must be adhered to, and these include:

### **Regular and sufficient amounts of sleep**

This helps to give the body a chance to repair and renew all the metabolic functions required by the body. Old cells are regenerated, wastes are gotten rid of, and cell damage is repaired.

### **Regular, healthy balanced diet at meals, including breakfast**

A regular, healthy, and balanced diet provides energy, maintains normal weight and lowers the risk for diseases like heart disease, hypertension, diabetes, and cancers.

## **Physical activity and a healthy body weight**

Physical activity helps the body to utilize the calories consumed more effectively. That way, weight loss and maintenance is achieved. Also, about 60 minutes of regular physical activity helps to maintain normal weight in most people.

## **Avoid tobacco products**

Regular exposure nicotine which is contained in tobacco has been found to accelerate coronary artery disease, chronic respiratory diseases, and lung cancer. Avoiding these products – smoking, chewing and sniffing – will prevent or delay the onset of these diseases.

## **Moderate or no use of alcohol**

Excessive consumption of alcohol is a risk factor for cardiovascular disease, hypertension, cancers, accidents, violence, and other behavioral problems, including suicide.

## **ACHIEVABLE STRATEGIES**

Compression of morbidity can be achieved if we have a proper strategy and plan. Such a strategy should have Primary, Secondary and Tertiary

Prevention plans. 8The Primary prevention plans are those which prevent people from developing a disease or injury in the first place. Examples include creating awareness about good nutrition, the importance of regular exercise, and the dangers of tobacco and alcohol. Another example is regular health check-ups that monitor risk factors for disease, immunize against infectious disease, and create safety procedures to reduce potential hazards at home and at work. Secondary prevention plans are those that are

put in place after an illness or serious risk factor is already diagnosed. The aim is to slow down or, if possible, stop the progress of disease at the early stages. Examples include recommending daily, low-dose aspirin to prevent heart attack or stroke; recommending regular health check-up especially in people with known risk factors for certain diseases and providing modified environments and suitable gadgets for people who have been injured.

(Checkups were used as an example for both primaries)The Tertiary prevention plans focus on helping people to manage chronic health conditions like diabetes, heart disease, cancer and arthritis. The aim is to prevent further deterioration and to help them maximize their quality of life. Examples include Low Vision rehabilitation for the severely visually impaired, stroke rehabilitation programs, chronic pain management programs, and patient support groups.

## CONCLUSION

Compression of Morbidity is an essential model for healthy aging. This also completes the cycle of good health throughout life. Many studies of population aging and random lifestyle intervention in the elderly have proved that this is possible. The approach is supported by the physiologic, psychological, biochemical, medical, and cognitive studies that have linked lifestyles with health outcomes. 9, 10 The Compression of Morbidity model is therefore becoming a very welcome and familiar concept from which one can assess gains and losses in health.

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### **technology expectations to help with compression of morbidity – jimmy**

Technology has been at the center of many of the greatest changes that have shaped the current world in which we live in. The current state of our national health is a direct result of increased health care access, medical advancements in care and technology, and improvements in nutritional and hygienic practices that have been brought about by major public health movements. All of the above have been greatly influenced by the massive increase of information sharing provided by the introduction of information technology as well as the internet becoming commercialized and accessible



in the mid 1990's. 1 Prior to this you were forced to do all of your research in books, databases were compiled in large computers and transferred into even larger documents for use, and information sharing was difficult, time consuming, and laborious. Now the world is literally at your fingertips and information sharing has become an instantaneous pre-requisite for all people, organizations, and even health care providers. Public health practitioners have realized that information technology advancements could benefit population health statuses if utilized correctly. As we have pointed out, electronic health records have been produced with the intention of benefitting the overall public health of the population who uses it. Additionally we have pointed out that a major goal of the public health community is to reduce morbidity within the lives of individuals—especially as people begin to live longer and as we begin to see the increase in chronic debilitating conditions in the latter years of one's life. So what is it that can be expected of one of the newest and most all-inclusive changes in medical delivery—the implementation of EHR's? The United States has lead the way in the adoption of EHR's. Through sweeping policy changes implemented by the Obama Administration's first presidential term, several mandates with associated incentive plans to improve compliance have been put in place. The illusive term health care practitioners have come to be very familiar with as it relates to the effective use of implementing EHR's to ensure that the positive expectations of its implementation are being realized is " Meaningful Use." We will explore Meaningful Use in the latter part of this chapter but first will strive to understand why implementation of EHR's is so important. The concept of EHR implementation has always been one that centers around positive outcomes for the providers and most importantly the

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patient. These positive expectations that have been presented to health care providers by the implementation of EHR's primarily center around three major areas. Firstly, the user of the EHR should have access to a complete and accurate database pertaining to the patient's history prior to their interaction with them. In other words, the EHR provides a detailed listing of the patient that may easily be accessible by the practitioner including all pertinent medical, social, and insurance issues necessary to examine and treat the patient safely and efficiently. Secondly and possibly most exciting from a practitioner's point of view, is the ability to seamlessly share pertinent medical records, plans, and assessments from other practitioners that may influence treatment. The instantaneous sharing of information through EHR's that are linked to one another via the internet or a network offer the ability to monitor for drug interactions, reduce redundancy in testing by various health care providers, and hopefully result in better health outcomes and cost reductions for the patients. Lastly and most impressively EHR's offer patient empowerment. The fact that a patient's medical information will now be stored on the computer and then accessible through the internet allows the patient to have access to their medical records at all times. It also allows them to share that information very easily to seek out second opinions and engage loved ones in their care with accurate continuing care documents shared with them by their health care providers. Certainly as EHR's continue to gain support in clinical practice the positive outcomes continue to present themselves, but the above listed expectations are the main underlying reasons for their adoption and the enforcement of "Meaningful Use" to gain national acceptance. Meaningful Use was

implemented by the Center for Medicare and Medicaid Services (CMS)

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incentive program. The government realized that much like any successful public health program they would need support from as many health care providers as possible to make the positive expectations of implementing EHR's a reality. So they made it a law. Health Care practitioners implementing the EHR program prior to 2014 would actually get a financial bonus from the government provided they were utilizing the EHR to its greatest potential as defined by CMS in Meaningful Use. Once 2014 comes, if you have not yet switched over to EHR's then you will be fined based on a scale from CMS. The first piece of legislation was the Health Information Technology for Economic and Clinical Health (HITECH) Act. HITECH gave the Department of Health & Human Services (HHS) the ability to establish programs to improve health care quality, safety, and efficiency through the promotion of "health IT" 2. This happened to encompass EHR's. HITECH was the legislation that defined the incentives that health care providers and hospitals were able to achieve and how. The website [www.healthit.gov](http://www.healthit.gov) lists four regulations to date. Two define meaningful use objectives that must be met to receive incentive payments, and the other two define technical aspects of the EHR that the IT engineers must complete to be a licensed EHR. The government has additionally broken down Meaningful Use into Stages to be more easily processed by providers in the field. The first step for eligible providers and hospitals is deciding on a certified EHR technology. This decision can be difficult as there are now hundreds of eligible options on the market. The stages as provided by [healthit.gov](http://healthit.gov) and are Stage 1 Data capture and sharing (2011-2012), Stage 2 Advance clinical processes (2014), Stage 3 Improved outcomes (2016). 2 Provided is a table which was obtained on [healthit.gov](http://healthit.gov) which outlines the stages of Meaningful Use implementation. <https://assignbuster.com/public-health-issues-of-aging-populations-health-and-social-care-essay/>

The table does an excellent job at explaining exactly what is expected from the implementation of the EHR program on a national level. Of note are the advances in health information exchange, patient access to self-management tools, and lastly the culmination in improved population health. Naturally if successful we can expect a reduction in morbidity caused by health care errors from poor information exchange, and a decrease in costs which will hopefully free up funds for preventative care programs. For the final goal to be successful however there must be a robust participation and "buy-in" from practicing health care professionals. Many providers are still stuck in their ways of doing things, citing that if it's not broke it should not be fixed. However, a review of the current status of the health care system can clearly show that there is much to be improved upon and this, if implemented and accepted nationally is a step in the right direction.

Stage 1: Stage 2: Stage 3: Electronically capturing health information in a standardized format  
More rigorous health information exchange (HIE)  
Improving quality, safety, and efficiency, leading to improved health outcomes  
Using that information to track key clinical conditions  
Increased requirements for e-prescribing and incorporating lab results  
Decision support for national high-priority conditions  
Communicating that information for care coordination processes  
Electronic transmission of patient care summaries across multiple settings  
Patient access to self-management tools  
Initiating the reporting of clinical quality measures and public health information  
More patient-controlled data  
Access to comprehensive patient data through patient-centered HIE  
Using information to engage patients and their families in care

Improving population health Obtained from [www. healthit. gov](http://www.healthit.gov) -April 2013

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## morbidity – technology limitations – UKI

### Background

Demographic transition in recent times shows that the world is indeed ‘ graying’ and this foretells of a future where the workforce will gradually begin to shrink and there will be fewer ‘ younger’ generation to shoulder all socio- economic responsibilities globally<sup>1</sup>. Alongside longevity is the issue of quality of life potentially threatened by one chronic problem or the other which more often than not leads to disabilities and functional limitations. The hypothesis of Compression of Morbidity came to light in 1980, when it was first postulated that the onset or severity of morbidity can be shortened or compressed in the elderly into a shorter time before death<sup>2</sup> such that elderly persons can sustain health and remain active as long as it is possible.

### Objectives

This chapter seeks to evaluate the challenges/ limitations that are presently associated with technologically based approaches that are being developed and implemented to deliver quality, evidence based health care and also assists in enhancing quality of life in elderly persons with chronic conditions. The use of technology as an intervention measure to compress morbidity is

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mostly at the secondary and tertiary levels of prevention because one or more chronic problems should be present to indicate its use.

## **Discussions**

### **Limitations of CDSS and EHRs in Compression of Morbidity**

Earlier chapters have discussed the concept of CDSS and EHRs in enhancing health care management especially in compression of morbidity. Some limitations associated with their use are as follows: The transitory phase right now in the US to the use EHRs has elicited complaint from patients about time now spent by clinicians typing on their computers rather than focusing on them during consultations as was the case before. Doctors also observed they are spending less time with patients and more time filling boxes on the computer with the advent of the EHRs, so there is less interaction with patient and consequently, less understanding of patient's needs. A doctor gave an instance where he 'inherited' a female patient through EHRs, who had 45 health conditions checked for her by previous health providers but he chose to ignore that and spent time instead chatting with the woman and ended up finding out she really had just six real health conditions<sup>3</sup>. Some individual health records have huge data, flipping through each record from previous care providers for a particular patient is time consuming according to doctors, so more time is spent on consultation per patient with the EHRs and incompatibility of different EHR systems is also a challenge when it comes to retrieving data. <sup>3</sup>For the CDSS to be very effective, it needs a complete medical knowledge base to give accurate and consistent recommendations on specific health conditions, however these

data are rarely ever complete either due to insufficient evidence or it is not uploaded regularly. 4 There are tons of information on health being published almost daily, this information needs to be integrated into the CDSS almost simultaneously to enhance up to date information on case analysis. If a patient who has a critical condition or emergency that an input from CDSS would have helped but due to an incomplete knowledge base, the information needed could not be assessed, then the use of CDSS for that patient may very well have failed. Methods or designs needed to convert and extract information from the free text content of EHRs into a clear format easily understood by clinicians in computer code in CDSS 5 are still being upgraded to get better results. If health care providers are going to use the CDSS in the compression of morbidity, available information on a particular condition should be in a format well understood by most clinicians in order for them to make appropriate clinical decisions. Globally, how many clinicians know about and are equipped or financially viable to use the CDSS? A study revealed that the first scalable electronic medical record system has just been installed in Sub Saharan Africa<sup>6</sup>, one may infer here that awareness is not very high yet in Africa about scope of using EHRs/CDSS in health care generally. Moreover, in developed countries people readily go to health care facilities when the need arises, this is not so in most places in Sub Saharan Africa, hence only the few who registered in health care facilities using EHRs, can be computed into the system and monitored. The low speed and difficulty in its usage seems to account for a low demand for CDSS by clinicians in developed countries, limiting its usefulness and levels it can be explored to in improving health care delivery. Another reason could be the question of autonomy; who is actually responsible for the

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treatment/intervention given? Clinicians seem to war within themselves whether to stick with or override the recommendations made by the CDSS 7. This brings up ethical and legal issues within codes of individual professionalism, so to avoid this, many clinicians may just stay clear of it all together. Another sore point for clinicians using the CDSS is the lack of integral workflow. Most times, the CDSS is separate from the main report system used in most health care facilities, so if the need arises to use the CDSS, the clinician must pause from their current task to set up the CDSS, input data and get it ready for use. Most clinicians find this cumbersome and time wasting. Also the issue of ' alert fatigue', causes clinicians to ignore or override some alerts, amongst which could very well have been of critical importance to a patient's health. 7

## **Limitations in use of technological devices by elderly patients**

Another aspect to the use of technology in compression of morbidity is on the side of the patients directly, how they use and fare with monitoring, surveillance and assistive devices given or recommended for them.

Monitoring and surveillance devices are used for tracking the elderly to know their whereabouts and health status regularly, especially those with conditions like dementia who are prone to wandering around and also equip care givers and doctors with an easy way to track an elderly person's health<sup>8</sup>. While assistive devices are worn or used by patients to aid them in doing some basic activity of daily living, like using an electronically controlled hand by an arthritic patient to do some basic hand activity.

Mostly, use of these devices is for patients already diagnosed with one or



more chronic problem, so prevention of morbidity here is at the secondary and tertiary levels. Some of these devices include GPS systems on wristwatches or on shoes and sensors fitted into homes to give alerts or signals if there are emergencies or the person is outside a specified perimeter<sup>9</sup>. There is no doubt these devices can be beneficial in enhancing quality of life in the elderly, but there are some worries that potential abuse of it may set in like abandoning the elderly simply because we feel they are being monitored by some gadgets. Also, the notion they might begin to feel caged and monitored like prisoners may set in and while trying to reduce or eliminate severity of morbidity in one condition, we do not want to kick start another like depression. In Prof. Noel Shaky's view, who is an expert in the field of robotics<sup>9</sup>, these devices have the potential to make the elderly socially isolated, being forced to stay at home and be attended to mainly by machines. The crux of elderly care is being as non-obtrusive as possible, but these devices are anything but, alongside the loss of control they also may confer a sense of loss of freedom.

## Conclusion

The huge question of whether use of these technological devices is spilling over to yield less overhead cost in healthcare is something still under consideration. In the US, there is presently an incentive bonus attached to the use of the EHR system which is being threatened to be removed by 6 senators because they feel the money being spent on it is "ineffective and not achieving its goal especially in software interoperability" <sup>3</sup>. This raises the question also if the EHRS program can be sustained by physicians and hospitals if this incentive is removed as many say they will find it difficult to

financially continue. A recent survey estimates that doctors should expect an initial loss of about \$44, 000 on their investment once they switch over to the use of EHRs and even with government subsidies, an average of two-thirds of health practices using EHRS will still lose part of their initial investments 3. Considering the proposal of using CDSS and actionable alerts as a way to achieve compression of morbidity in the elderly, a re-evaluation on the areas of limitations mentioned above may be needed, so they do not become hindrances to its potentially high success rate.