Transforming Global Health

Akshay R. Yadav[1]*, Kaustubh V. Gavali[2], Manisha D. Rajput[3], Dr. Shrinivas K. Mohite[4]

[1,3,4]Department of Pharmaceutical Chemistry, Rajarambapu College of Pharmacy, Kasegaon, Maharashtra, India

[2]Department of Pharmaceutics, Appasaheb Birnale College of Pharmacy, Sangli, India

*Corresponding author E-mail: akshayyadav24197@gmail.com

ABSTRACT

Fifty years ago, the essential job of drug specialists has only been to apportion solutions. Giving clinical drug store administrations at the medical clinics' wards spoke to the development of the calling. Be that as it may, the social insurance framework, around the world, is persistently creating. Today, the drug specialist's unmistakable new jobs have emphatically added to human services and society around the world. Drug specialists are presently accepting more prominent accountability for patients' well being status and advancing the results of medication use. Different orders of social insurance where particular drug specialists are utilized to incorporate oncology offices, irresistible sickness control, general wellbeing, medicate data, toxicology and toxic substance control, atomic medication, and sustenance support. Specific instruction programs are required. New drug specialists should be appropriately qualified. Rehearsing drug specialists need to adjust the essential information and required aptitudes, therefore, they can build up their training and jobs to address evolving issues. Although EHR systems are anticipated as having positive effects on the performance of hospitals, their implementation is a complex undertaking. This systematic review reveals reasons for this complexity and presents a framework of 19 interventions that can help overcome typical problems in EHR implementation. This framework can function as a reference for implementers in developing effective EHR implementation strategies for hospitals.

Keywords: Global health, Healthcare Management, Global Health Projects, Electronic Health Record System.

I. INTRODUCTION

Transform global health is an initiative to improve the state of healthcare globally. Current approach to healthcare isn't working[1]. Medical science has made progress by leaps and bounds with the advent of antibiotics, modern surgery, and the increasing application of technology to every area of healthcare,

that has improved human life expectancy and recovery from disease. However, the way we provide healthcare to people across the world needs massive improvement[2]. Not only is it preventing us from realizing the full benefits of the medical advancements we have made, but it is also holding back our true potential for progressing medical science to benefit humanity[3-4].

Poor Quality Health Services are Impacting Health care Globally in Countries at all Income Levels

10% of hospitalized patients can expect to acquire an infection during their stay in low and middle income countries -7% in high-income countries, and one in ten patients is harmed during medical treatment in high income countries. Health care workers in seven low- and middle-income African countries were only able to make accurate diagnosis one third to three quarters of the time, and clinical guidelines for common conditions were followed less than 45 % of the time on average. A mixture of inaccurate diagnoses, medication errors, inappropriate or unnecessary treatment, and unsafe clinical facilities or practices is an issue in healthcare services across the globe[5]. Low- and middle-income countries suffer most, where, despite acquired infections being easily avoided through better hygiene, improved infection control practices and appropriate use of antimicrobials, 10% of patients hospitalised can expect to acquire an infection during their stay, compared to 7% in high-income countries. Also, one in ten patients is harmed during medical treatment in high-income countries. This is according to findings seen in the report 'Delivering Quality Health Services–a Global Imperative for Universal Health Coverage', which also highlights that sickness associated with poor-quality healthcare imposes additional spending for families and health systems[6-7].

- There is a deficiency of healthcare infrastructure and a lack of physicians and healthcare professionals across vast regions of the world.

- At least half of the world's population cannot obtain essential health services.

- 5 billion people lack access to safe, affordable surgical and anesthesia care when needed, and 143 million additional surgical procedures are needed each year to save lives and prevent disability.

- The world will have a shortage of 12.9 million health-care workers by 2035 (in 2013, that figure stood at 7.2 million). The Association of American Medical Colleges projects that USA will have a shortage of over 100,000 physicians by 2030.

- Global spending on health is expected to increase from US$7.83 trillion in 2013 to $18.28 trillion in 2040.

- Many low-income and lower-middle-income countries will not meet internationally set health spending targets, while developed nations continue to spend too much.

- For almost 50 years, spending has grown by 2 percentage points in excess of GDP growth across all Organization for Economic Co-operation and Development (OECD) countries. If this trend continues by 2080 Switzerland and USA will spend more than half their GDP on health care and by 2100 most OECD countries will reach this level of spending[8-10].

What impact does low-quality healthcare have on the economy?

According to the report there has been some progress in improving the quality of healthcare, such as cancer and cardiovascular disease survival rates. However, the economic and social costs of poor-quality care, including long-term disability, impairment and lost productivity, are estimated to amount to trillions of dollars each year. OECD secretary general Ángel Gurría said: "Without quality health services, universal health coverage will

remain an empty promise. "The economic and social benefits are clear, and we need to see a much stronger focus on investing in and improving quality to create trust in health services and give everyone access to high-quality, people-centred health services[11]."

Ensuring good-quality healthcare services

WHO director general Dr Tedros Adhanom Ghebreyesus commented: "At WHO we are committed to ensuring that people everywhere can obtain health services when and where they need them. "We are equally committed to ensuring that those services are good quality. Quite honestly, there can be no underlined universal health coverage without quality care[12]."

What else was found in the report?

- Healthcare workers in seven low- and middle-income African countries were only able to make accurate diagnoses one third to three quarters of the time, and clinical guidelines for common conditions were followed less than 45% of the time on average[13];

- Research in eight high-mortality countries in the Caribbean and Africa found that effective, quality maternal and child health services are far less prevalent than suggested by just looking at access to services. For example, just 28% of antenatal care, 26% of family planning services and 21% of sick-child care across these countries qualified as 'effective'; and

- Around 15% of hospital expenditure in high-income countries is due to mistakes in care or patients being infected while in hospitals[14].

Transform Global Health Projects

Universal health information network will be universally available to everyone for free, com-pletely open source, completely community driven, economically self-sustained, and not owned by any entity. Providing a truly universal health information network that is ever pre-sent and freely available to everyone, and all individuals and organizations can use it for managing health information. This is in contrast to the traditional approach of implementing software as enterprise systems and then finding ways to integrate these enterprise systems to achieve interoperability, which is costing billions of dollars every year with limited results and is prohibitively costly for most underprivileged and developing nations to implement[15]. Today, there is high health risk across vast regions of the world. There are issues with the quality of care including inaccurate diagnosis, medical errors, and problems with medical practices in all countries at all economic levels. Healthcare infrastructure is lacking across most regions in the world and there is a severe lack of physicians and medical staff virtually everywhere. Underprivileged and developing nations severely lack health infrastructure and services, while the cost of healthcare is getting prohibitively high in advanced nations, increasing at a rate where it will become over 50% of the gross domestic product (GDP) before the end of the century, a level of expenditure that can bankrupt most countries! There is a global deficiency of physicians and medical staff. While poor nations are the worst hit, developed nations are facing a severe problem as well, with the USA projecting a shortage of more than 100,000 doctors by 2030. Even this doesn't give a fully accurate picture, as the lack of trained, experienced physicians makes the situation even worse. Perhaps the most alarming and disturbing problem caused by today's approach and systems is the rampant corruption in healthcare at a global scale. Physicians all over the world get kickbacks for prescribing medication[16-17]. Doctors in India routinely perform procedures such as putting unnecessary stents in patients' arteries or performing unrequired hysterectomies on the poorest women after childbirth to collect government insurance. Patients have to pay bribes in places like France, Germany and China for getting proper healthcare. Even in today's information age, health information is not managed or handled properly. With the corporate inspired, enterprise driven approach most of the

world is taking, economically challenged and developing nations cannot afford the expenditure for implementing electronic health records and advanced nations like the USA have severely flawed implementation resulting in health systems that fail to communicate with each other, do not empower patients or provide them more transparency, and cause resentment and burnout amongst physicians and medical staff. Indeed, fully 50% of physicians in the USA say that they do not want their children to take up medicine, a disturbing trend that is bound to catch up with us in the worst way possible. Looking at all these problems, it is apparent that the state of healthcare is a "global epidemic"! We must do something about it. We must take a fresh approach. We must bring about a global transformation. Transform Global Health is an initiative to help achieve this. It is an action oriented program that will not just highlight global healthcare issues and bring our voices together, but also fund and implement actual, large scale, impactful projects that will achieve concrete results in transforming healthcare. The first two projects we have undertaken are to implement the universal health information network (UNHIN), and to create a model hospital system that implements efficient technology, ethical practices and the controls required to provide the highest quality of care[18].

Hospital Information and Electronic Health Record System (HIS) Implementation

As a part of the UNHIN program, Transform Global Health (TGH) is providing a comprehensive, integrated Hospital Information and Electronic Health Record System to hospitals and medical practices across the world. This is an enterprise-grade imple-mentation providing market leading features and functionality and a fully integrated system that will digitize the entire medical processes of the hospital[19]. In dealing with the complexity of EHR implementation in hospitals, it is helpful to know which factors are seen as important in the literature and to capture the existing knowledge on EHR implementation in hospitals. As such, the objective of this research is to identify, categorize, and analyze the existing findings in the literature on EHR implementation processes in hospitals. This could contribute to greater insight into the underlying patterns and complex relationships involved in EHR implementation and could identify ways to tackle EHR implementation problems. In other words, this study focusses on the identification of factors that determine the progress of EHR implementation in hospitals. The motives behind implementing EHRs in hospitals and the effects on performance of implemented EHR systems are beyond the scope of this paper. To our knowledge, there have been no systematic reviews of the literature concerning EHR implementation in hospitals and this article therefore fills that gap. Two interesting related review studies on EHR implementation are Keshavjee et al. and McGinn et al. The study of Keshavjee et al. develops a literature based integrative framework for EHR implementation. McGinn et al. adopt an exclusive user perspective on EHR and their study is limited to Canada and countries with comparable socio-economic levels[20]. Both studies are not explicitly focused on hospitals and include other contexts such as small clinics and national or regional EHR initiatives. This systematic review is explicitly focused on hospital-wide, single hospital EHR implementations and identifies empirical studies (that include collected primary data) that reflect this situation. The categorization of the findings from the selected articles draws on Pettigrew's framework for understanding strategic change. This model has been widely applied in case study research into organizational contexts, as well as in studies on the implementation of health care innovations. It generates insights by analyzing three interactive dimensions – *context*, *content*, and *process* – that together shape organizational change. Pettigrew's framework is seen as applicable because implementing an EHR artefact is an organization-wide effort. This framework was specifically selected

for its focus on organizational change, its ease of understanding, and its relatively general dimensions allowing a broad range of findings to be included[21-24]. An organization's context can be divided into internal and external components. External context refers to the social, economic, political, and competitive environments in which an organization operates. The internal context refers to the structure, culture, resources, capabilities, and politics of an organization. The content covers the specific areas of the transformation under examination. In an EHR implementation, these are the EHR system itself (both hardware and software), the work processes, and everything related to these (e.g. social conditions). The process dimension concerns the processes of change, made up of the plans, actions, reactions, and interactions of the stakeholders, rather than work processes in general. It is important to note that Pettigrew does not see strategic change as a rational analytical process but rather as an iterative, continuous, multilevel process[25].

Methods:

Search strategies

In order for a systematic literature review to be comprehensive, it is essential that all terms relevant to the aim of the research are covered in the search. Further, we need to include relevant synonyms and related terms, both for electronic medical information systems and for hospitals[27-29]. By adding an * to the end of a term, the search engines pick out other forms, and by adding " " around words one ensures that only the complete term is searched for. Further, by including a ? as a wildcard character, every possible combination is included in the search. The search used three categories of keywords. The first category included the following terms as approximate synonyms for hospital: "hospital*", "healthcare", and "clinic*". The second category concerned implementation and included the term "implement*". For the third category, electronic medical information systems, the following search terms were used: "Electronic Health Record*", "Electronic Patient

Record*", "Electronic Medical Record*", "Computeri?ed Patient Record*", "Electronic Healthcare Record*", "Computeri?ed Physician Order Entry". This relatively large set of keywords was necessary to ensure that articles were not missed in the search, and required a large number of search strategies to cover all those keywords[30-35].

Data analysis

The quality of the articles that survived this filtering was assessed by the first two authors using the Standard Quality Assessment Criteria for Evaluating Primary Research Papers. In other words, the quality of the articles was jointly assessed by evaluating whether specific criteria had been addressed, resulting in a rating of 2 (fully addressed), 1 (partly addressed), or 0 (not addressed) for each criteria. Different questions are posed for qualitative and quantitative research and, in the event of a mixed-method study, both questionnaires were used. Papers were included if they received at least half of the total possible points, admittedly a relatively liberal cut-off point given comments in the Standard Quality Assessment Criteria for Evaluating Primary Research Papers. The next step was to extract the findings of the reviewed articles and to analyze these with the aim of reaching general findings on the implementation of EHR systems in hospitals. Categorizing these general findings can increase clarity. The earlier introduced conceptual model, based on Pettigrew's framework for understanding strategic change, includes three categories: context (A), content (B), and process (C). As our review is specifically aimed at identifying findings related to the implementation process, possible motives for introducing such a system, as well as its effects and outcomes, are outside its scope[36-39].

II. CONCLUSION

Eventually, rehearsing drug specialists need to adjust the essential information and required aptitudes, therefore, they can build up their training and jobs to

address evolving issues. Although EHR systems are anticipated as having positive effects on the performance of hospitals, their implementation is a complex undertaking. This systematic review reveals reasons for this complexity and presents a framework of 19 interventions that can help overcome typical problems in EHR implementation. This framework can function as a reference for implementers in developing effective EHR implementation strategies for hospitals. The findings presented in this article can be viewed as an overview of important subjects that should be addressed in implementing an EHR system. It is clear that EHR systems have particular complexities and should be implemented with great care, and with attention given to context, content, and process issues and to interactions between these issues. As such, we have achieved our research goal by creating a systematic review of the literature on EHR implementation. This paper's academic contribution is in providing an overview of the existing literature with regard to important factors in EHR implementation in hospitals. Academics interested in this specific field can now more easily access knowledge on EHR implementation in hospitals and can use this article as a starting point and build on the existing knowledge. The managerial contribution lies in the general findings that can be applied as guidelines when implementing EHR in hospitals. We have not set out to provide a single blueprint for implementing an EHR system, but rather to provide guidelines and to highlight points that deserve attention. Recognizing and addressing these aspects can increase the likelihood of getting an EHR system successfully implemented.

III. REFERENCES

[1]. Heeks R. Health information systems: Failure, success and improvisation. Int J Med Inform. 2006; 75: 125–137.

[2]. Boonstra A, Govers MJ. Understanding ERP system implementation in a hospital by analysing stakeholders. N Technol Work Employ. 2009; 24(2): 177–193.

[3]. Keshavjee K, Bosomworth J, Copen J, Lai J, Kucukyazici B, Liani R, Holbrook AM. Proceed of the 11th International Symposium on Health Information Mangement Research – iSHIMR. 2006. Best practices in EMR implementation: a systematic review:. 1–15.

[4]. McGinn CA, Grenier S, Duplantie J, Shaw N, Sicotte C, Mathieu L, Leduc Y, Legare F, Gagnon MP. Comparison of use groups perspectives of barriers and facilitator to implementing EHR – a systematic review. BMC Med. 2011; 9: 46.

[5]. Pettigrew AM. Context and action in the transformation of the firm. J Manag Stud. 1987; 24(6): 649–670.

[6]. Hartley J. Case Study Research. Chapter 26. In: Cassel C, Symon G, editors. Essential Guide to Qualitative Methods in Organizational Research. London: Sage; 2004.

[7]. Hage E, Roo JP, Offenbeek MAG, Boonstra A. Implementation factors and their effect on e-health service adoption in rural communities: a systematic literature review. BMC Health Serv Res. 2013; 13(19): 1–16.

[8]. ISO: Health informatics . Draft Tech Report. 2004. Electronic health record - Definition, scope and context: 03–16.

[9]. Hayrinen K, Saranto K, Nykänen P. Definition, structure, content, use and impacts of electronic health records: A review of the research literature. Int J Med Inform. 2008; 77: 291–304.

[10]. Kaushal R, Shojania KG, Bates DW. Effects of computerized physician order entry and clinical decision support systems on medication safety: a systematic review. Arch Intern Med. 2003; 163(12): 1409–1416.

[11]. Weir C, Lincoln M, Roscoe D, Turner C, Moreshead G. Dimensions associated with successful implementation of a hospital based integrated order entry system. Proc Annu Symp

Comput Appl Sic] in Med Care Symp Comput Appl Med Care. 1994; 653: 7

[12]. Yadav A, Mohite S. A Novel approach for treatment of COVID-19 with Convalescent Plasma. Res. J. Pharma. Dosage Forms and Tech. 2020; 12(3): 227-230.

[13]. Yadav A, Mohite S. A Review on Novel Coronavirus (COVID-19). International Journal of Pharma Sciences and Research. 2020; 11(5): 74-76.

[14]. Yadav A, Mohite S. A Review on severe acute respiratory infection (SARI) and its clinical management in suspect/confirmed novel coronavirus (nCoV) cases Res. J. Pharma. Dosage Forms and Tech. 2020; 12(3): 178-180.

[15]. Aarts J, Doorewaard H, Berg M. Understanding implementation: The case of a computerized physician order entry system in a large dutch university medical center. J Am Med Inform Assoc. 2004; 11(3): 207–216.

[16]. Aarts J, Berg M. Same systems, different outcomes – Comparing the implementation of computerized physician order entry in two Dutch hospitals. Methods Inf Med. 2006; 45(1): 53–61.

[17]. Ash J, Gorman P, Lavelle M, Lyman J, Fournier L. Investigating physician order entry in the field: lessons learned in a multi-center study. Stud Health Technol Inform. 2001; 84(2): 1107–1111.

[18]. Ash JS, Gorman PN, Lavelle M, Payne TH, Massaro TA, Frantz GL, Lyman JA. A cross-site qualitative study of physician order entry. J Am Med Inform Assoc. 2003; 10(2): 188–200.

[19]. Boyer L, Samuelian J, Fieschi M, Lancon C. Implementing electronic medical records in a psychiatric hospital: A qualitative study. Int J Psychiatry Clin Pract. 2010;14(3):223–227.

[20]. Cresswell KM, Worth A, Sheikh A. Integration of a nationally procured electronic health record system into user work practices. BMC Med Inform Decis Mak. 2012; 12: 15. 27.

[21]. Ford EW, Menachemi N, Huerta TR, Yu F. Hospital IT Adoption Strategies Associated with Implementation Success: Implications for Achieving Meaningful Use. J Healthc Manag. 2010; 55(3): 175–188.

[22]. Gastaldi L, Lettieri E, Corso M, Masella C. Performance improvement in hospitals: leveraging on knowledge assets dynamics through the introduction of an electronic medical record. Meas Bus Excell. 2012; 16(4): 14–30.

[23]. Houser SH, Johnson LA. Perceptions regarding electronic health record implementation among health information management professionals in Alabama: a statewide survey and analysis. Perspect Health Inf Manage/AHIMA, Am Health Inf Manage Assoc. 2008; 5: 6–6.

[24]. Jaana M, Ward MM, Bahensky JA. EMRs and Clinical IS Implementation in Hospitals: A Statewide Survey. J Rural Health. 2012; 28: 34–43.

[25]. Katsma CP, Spil TAM, Ligt E, Wassenaar A. Implementation and use of an electronic health record: measuring relevance and participation in four hospitals. Int J Healthc Technol Manag. 2007;8(6):625–643.

[26]. Ovretveit J, Scott T, Rundall TG, Shortell SM, Brommels M. Improving quality through effective implementation of information technology in healthcare. Int J Qual Health Care. 2007; 19(5): 259–266.

[27]. Poon EG, Blumenthal D, Jaggi T, Honour MM, Bates DW, Kaushal R. Overcoming barriers to adopting and implementing computerized physician order entry systems in US hospitals. Health Aff. 2004; 23(4): 184–190.

[28]. Rivard S, Lapointe L, Kappos A. An Organizational Culture-Based Theory of Clinical Information Systems Implementation in Hospitals. J Assoc Inf Syst. 2011; 12(2): 123–162.

[29]. Scott JT, Rundall TG, Vogt TM, Hsu J. Kaiser Permanente's experience of implementing an electronic medical record: a qualitative study. Br Med J. 2005; 331(7528): 1313–1316.

[30]. Simon SR, Keohane CA, Amato M, Coffey M, Cadet M, Zimlichman E. Lessons learned from implementation of computerized provider order entry in 5 community hospitals: a qualitative study. BMC Med Inform Decis Mak. 2013; 13: 67.

[31]. Takian A, Sheikh A, Barber N. We are bitter, but we are better off: case study of the implementation of an electronic health record system into a mental health hospital in England. BMC Health Serv Res. 2012; 12: 484.

[32]. Ward MM, Vartak S, Schwichtenberg T, Wakefield DS. Nurses' Perceptions of How Clinical Information System Implementation Affects Workflow and Patient Care. Cin-Comput Inform Nurs. 2011; 29(9): 502–511.

[33]. Ward MM, Vartak S, Loes JL, O'Brien J, Mills TR, Halbesleben JRB, Wakefield DS. CAH Staff Perceptions of a Clinical Information System Implementation. Am J Manage Care. 2012; 18(5): 244–252.

[34]. Yoon-Flannery K, Zandieh SO, Kuperman GJ, Langsam DJ, Hyman D, Kaushal R. A qualitative analysis of an electronic health record (EHR) implementation in an academic ambulatory setting. Inform Prim Care. 2008; 16(4): 277–284.

[35]. Van Aken J, Berends H, Van der Bij H. Problem solving in organizations. New York, USA: Cambridge University Press; 2012.

[36]. Botha ME. Theory development in perspective: the role of conceptual frameworks and models in theory development. J Adv Nurs. 1989; 14(1): 49–55.43.

[37]. Spetz J, Keane D. Information Technology Implementation in a Rural Hospital: A Cautionary Tale. J Healthc Manag. 2009; 54(5): 337–347.

[38]. Massaro TA. Introducing Physician Order Entry at a Major Academic Medical-Center. Impact Organ Culture Behav Acad Med. 1993; 68(1): 20–25.

[39]. Kanter RM, Stein BA, Jick TD. The Challenge of Organizational Change. New York, USA: Free Press; 1992.

[40]. Lundberg S, Bergman M. Tender evaluation and supplier selection methods in public procurement. J Purch Supply Manage. 2013; 19(2): 73–83.

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