

Telemedicine

Chapter 6

Impactful Telemedicine: Tele-Intake and Telemedicine Medical Screening

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1. Introduction

Since the turn of the 19th century, early accounts of “patient dumping” have described the inappropriate and the life-endangering practice of transferring a patient from one hospital to another hospital based presumably on the patient’s ability to pay for medical services [1]. During the mid-century as hospitals have evolved from private endeavors into public service, the concept of emergency care, offered without regards to the ability to pay at the time of presentation, has been designated as a community service obligation, as opposed to mandated by law [2]. Almost a century later, in the 1980’s, patient dumping had become the focus of several seminal articles that described the negative socioeconomic and medical impact of transferring patients from private to public hospitals [3,4]. In response and in 1986, President Ronald Reagan had signed into law the Emergency Medical Treatment and Labor Act (EMTALA) as part of the Consolidated Omnibus Reconciliation Act (COBRA), and what has become considered one of the most comprehensive laws guaranteeing nondiscriminatory access to emergency medical care and the health care system itself [5].

2. Evolution: From Regulation to Quality

The nature of EMTALA has been to protect patients from potentially discriminatory practices of turning away or transferring of patients seeking care at an emergency department within a Medicare participating hospital. Since the law’s enactment, the scope, the interpretation, and the enforcement of the rules have widened [6]. However, at the very core of the rule is the mandatory performance of an appropriate medical screening examination to determine if

a patient has an emergency medical condition and thus requiring appropriate treatment and management.

Quality Indicators

In the landmark report by the Institute of Medicine, health care quality can be quantified within six domains: timeliness, patient safety, effectiveness, efficiency, equity, and patient centeredness [7]. Hospital reported performance measures for Emergency Department care include the timeliness of care as a category of department efficiency and efficacy [8]. The interval measure that affects patient leaving before evaluation is the door-to-diagnostic evaluation by qualified medical professional, colloquially known as the “door-to-provider” time. Medicare qualified hospitals have been reporting this data in conjunction with other outcome measures through the Department of Health and Human Services website called Hospital Compare (www.medicare.gov/hospitalcompare/) along with several other measures: left-without-being seen rates, lengths of stay for discharged and admitted patients, and ED boarding and wait times [9]. Despite the increased collection and reporting of hospital quality measures, further research into the overall impact of these improvement measures has been recommended [10].

The Triage Liaison: Provider in Triage

Emergency Department visits continue to trend upwards to 145 million encounters in 2016, an increase of 5.6% from 2014 [11]. With increased ED crowding and the associated poorer patient outcomes and lower scores on hospital quality measures [12-14], in addition to the public reporting of hospital quality measures and pay for performance, have led to the ongoing incentivizing of quality improvement measures. Commonly treated medical conditions such as heart failure, myocardial infarction, pneumonia, and surgical entities such as coronary artery bypass grafting and joint replacements, have come under focus. Emergency Department care indirectly impacts these measures by placing an importance on early identification and treatment of patients targeted by these quality measures. EDs have attempted to match this ongoing increase in volume by strategic improvements in patient flow operations. The addition of a front-end, triage liaison physician performing medical screening examinations has appeared to improve leading indicators of quality of care such as length of stay and physician initial assessment [15,16]. Subsequent studies have shown similar benefit with the staffing of a resident physician or physician assistant as a substitute for an attending physician [17,18].

3. Role of Telemedicine

History

The historic passage of the Health Information Technology for Economic and Clinical Health Act (HITECH) as part of the American Reinvestment and Recovery Act (ARRA) of

2009 unleashes the purpose of health information technology (HIT) as a means of improving the quality of care, the health of populations, and healthcare efficiency [19]. Through this multibillion dollar investment, telemedicine, as a means of providing care, has been enabled as a potentiator for efficient and integrated HIT patient care systems [20]. The Health Resources and Services Administration (HRSA) defines telemedicine and telehealth as the use of electronic information and telecommunications technologies to support and promote clinical health care, patient and professional health-related education, public health, and health administration. Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications [21].

As Emergency Departments cope with overcrowding, optimizing front-end operations is paramount. The addition of dedicated medical personnel, as opposed to re-deploying existing staff has shown to be the staffing preferred model for triage liaison [22]. Salary cost and workspace considerations should be accounted for and may not be an option in resource-poor departments.

Telemedicine Intake / Telemedicine Medical Screening Exam

For four decades, telemedicine has been increasingly cost effective in comparison to face-to-face care and has evolved into an integrated technology in certain settings [23]. Historically, rural health systems have benefitted from telemedicine systems for specialists and reduction of costly hospital transfers, and mental health services [24-26]. As technology costs decrease and demand for services increase, Emergency Departments are rapidly adopting and deploying telemedicine within their practice space [27]. Patients, as consumers of telehealth mental health care services, may have influenced healthcare organizations to develop telemedicine services [28].

Performing a telemedicine intake (tele-intake) or a telemedicine medical screening exam (tele- MSE) requires the use of a synchronous video communication platform at the point of initial patient contact, usually at the time of ED triage. Nursing triage is performed as required and is distinct from the medical screening exam. Triage entails a brief, focused assessment and the assignment of a triage acuity level, which is a proxy measure of how long a patient can safely wait for a medical screening examination and treatment [29]. The tele-intake provider remotely evaluates the patient with relevant triage data and documents the medical screening examination with the presence of an emergent medical condition in the Electronic Health Record (EHR). Tele-intake allows the initiation of diagnostic testing, either by point-of-care testing (POC) or by computerized provided order entry (CPOE) allowing for the possibility of quicker decision-making or a definitive diagnosis. The telemedicine provider provides an additional medical resource that aids in the early recognition of potentially critically ill patients overlooked by the triage process.

4. Conclusion

United States healthcare costs continue to rise with nearly 18 percent of the nation's gross domestic product directed to hospital services, prescription drugs, and other professional services to the tune of \$3.6 trillion dollars in 2018 [30]. The existing healthcare system has been described as inefficient, unaffordable, unsustainable, and inaccessible [31]. Improvement of this system requires pursuit of the triple aim: (1) improving patient experience, (2) improving population health, and (3) reducing cost [32]. Telemedicine may be the means to achieve this lofty goal.

Tele-intake via telemedicine physician triage has been demonstrated to be technically feasible and accepted by patients [33]. Tele-intake has shown to be as accurate as standard in-person physician intake [34]. Tele-intake systems have demonstrated impactful improvements in publicly reported ED quality measures such as time-to-provider and left-without-being seen, despite no meaningful reduction in overall length-of-stay [35]. Although costs related to tele-intake has not been calculated, there may be an overall financial benefit from telemedicine systems in general [36]. Centralizing tele-intake for multiple ED locations may be feasible and cost-effective.

Significant barriers exist regarding surrounding tele-intake that are parallel to the adoption of telemedicine in general. Specific examples regarding the challenges revolve around technology and adoption may be overcome through provider training, change management techniques, and reimbursement policy [37].

Overall, the tele-intake or tele-MSE system is a rational, incremental approach to Emergency Department telemedicine adoption. Tele-intake systems can be successful with a careful appreciation of resources, a mindful disruption to workflows, and a thoughtful catalogue of implementation goals.

5. References

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