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Evidence-based strategies for reducing post-discharge Hospital E.R. Visits and Patient Initiated Calls in the post craniotomy population

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Introduction

Post-cranial surgery patients have multiple health concerns, including those that can lead to emergency-room visits or readmissions after discharge that could have been avoided with key follow-up care measures.

These individuals are part of a broad and persistent challenge that has been documented by various levels of research over the years, a pattern that has created unnecessary inconvenience for patients and caused medical costs to rise significantly. Even though prominent medical organizations and government agencies have highlighted the problem, and despite Medicare's relatively recent imposition of a financial penalty for preventable readmissions, the issue is far from resolved. It continues to affect everyone from stroke patients to those with diabetes, cancer, brain tumors, pneumonia and so forth.

The statistics are undeniable: For example, an article in the Canadian Medical Association Journal said in 2009, almost 20 percent of Medicare beneficiaries in the United States were readmitted to the hospital within 30 days of their initial admission – at a total expense of \$17 billion (Van Walraven, Jennings & Forster, 2011). Similarly, in Washington, D.C., the Medicare Payment Advisory Commission reported to the Senate Finance Committee that more than three-quarters of all Medicare hospital readmissions between the years of 2000 and 2004 were avoidable (Medicare Payment Advisory Commission, 2007).

Factors contributing to the protracted trend are not difficult to imagine. They largely stem from lack of – or poor – coordination between a patient's medical providers. The Centers for Medicare and Medicaid Services, the Institute of Medicine and independent scholars (such as Berenson, Paulus & Kalman, 2012) have identified the following challenges as prime reasons for avoidable visits to the emergency room or outright hospital readmissions:

- Premature discharge from the hospital.

- Insufficient or unclear instructions regarding what medications a patient needs to take, the appropriate dosing, which side effects are common and which necessitate prompt attention by a medical professional, and any potentially troublesome interactions between drugs prescribed in the hospital and those the patient was already taking upon admission.
- Inadequate or no information about whom a patient should call with post-discharge treatment questions; this dearth of details can spur certain people to visit the emergency room for issues that can be managed by a primary-care physician, home health nurse, physical therapist, etc.
- Substandard discussion with a patient's family members or other caregivers about post-discharge care.
- Subpar, minimal or even nonexistent communication between a patient's hospital staff and his/her primary-care providers on issues ranging from the next required medical appointments, to rehabilitation needs, to whether the patient has help at home for daily routines.
- Questionable or lack of planning for next-transition care, including whether a patient has end-of-life documents completed and whether he/she should enter hospice. The confusion surrounding this coordination gap can spur caregivers to bring a patient back to the hospital instead of taking other treatment steps.

Let's consider just one aspect of the preceding list of factors: post-discharge medications and testing.

It is common for patients' medication regimens to be updated during their hospital stay, sometimes repeatedly. Doctors may discontinue or change the dosing of a medication that was being taken before admission, switch medication classes, introduce one or more new drugs to the

regimen, stop prescribing a certain medication halfway through a patient's hospitalization, ask the pharmacy team to give instructions on drug interactions and related dietary needs. For instance, a study reported that among the elderly who were hospitalized in this country, 40 percent of their medications were stopped between admission and discharge while 45 percent of all prescriptions ordered at the time of discharge had been initiated during hospitalization (Kipralani, Jackson, Schnipper & Coleman, 2007).

In addition, surgeons, oncologists and other physicians typically intend for patients to undergo various diagnostic work-ups, tests and medical visits after they leave the hospital.

Yet for one reason or another, frequently the post-discharge medication list and the desired spectrum of follow-up procedures are not followed fully. One research project concluded that after their hospital stay, 49 percent of patients had one or more mistakes in terms of compliance with the prescribed medication regimen, post-discharge testing or outpatient diagnostic work (Kripalani et al., 2007).

During discharge, physician-patient interaction is usually rushed. Patients are frequently discharged during morning rounds or by residents who are hurrying to get to another duty that they view as more important. It is often the most junior resident, who has the least knowledge and understanding of patients' needs, who is responsible for their discharge. These residents have typically received little to limited training in wound issues or how to review what can be a daunting list of medications for the patient. Also, communication problems can occur because physicians use medical terminology that typically comes off as foreign jargon to patients – and the physicians might not bother to verify whether their patients are truly comprehending what's being said.

Whether it's inadvertent or intentional, some doctors' dispositions may strike the patient as apathetic, uncaring or detached, or they may give the impression that questions shouldn't be asked because the doctors are hurrying to their next task. Even when doctors try to engage patients, they may encounter obstacles such as the following (Kripalani et al., 2007):

- Patients who hail from cultures that view physicians as an all-knowing source of authority, thereby discouraging any questions or healthy skepticism.
- Patients and/or caregivers who aren't fluent in English but are reticent to request a translator from the hospital.
- Limited literacy by the patients and/or their families, which hinders their ability to grasp verbal and/or written instructions. The study by Kripalani and fellow researchers showed that low literacy is associated with elevated utilization of E.R. services, a greater chance of being hospitalized and larger medical expenses overall.
- Receiving "yes" or "no" answers, which yield little information, from patients because they had not been asked open-ended questions in circumstances that called for such conversations. Likewise, patients can find it convenient to simply respond "no" to boilerplate-sounding queries like "Any questions?" or "Do you have any questions?"

Description of Project

While I work as a nurse practitioner specializing in neurology, I have also been a hospital patient myself and have taken my elderly mother to the emergency room on several occasions. All three capacities have enabled me to clearly see medical providers' coordination deficiencies, as well as the struggles that many patients face in obtaining and acting on details for their post-

discharge recovery. Health-care professionals are compassionate and well meaning, but the infrastructure in which they function often has made the continuum of care between hospitals, outpatient settings and patients' homes far from seamless.

The mission of our project was to decrease neurosurgery patients' non-essential, post-discharge phone calls and E.R. visits.

In my years of working with neurosurgeons, hospitalists, nurses, pharmacists, physical therapists, social workers and others at the University of California – San Diego, it is hardly an uncommon experience to find patients who have forgotten to fill prescriptions after leaving the hospital, are overwhelmed by home-care scheduling, are confused about upcoming appointments, do not know how to identify an appropriate neuro-oncologist and/or radiation oncologist for ongoing care, etc.

Our project goal was to substantially reduce avoidable post-discharge phone calls and E.R. visits by focusing on three crucial time points with patients and their caregivers: education during pre-op clinic visits, followed by a phone call 24 hour after hospital discharge and finally another call 72 hours after discharge. Elaboration on this strategy is included in the section titled "Program Development and Implementation."

Evidence-based Framework: Iowa Model

Evidence-based medical practice has gained increasing popularity since its introduction in the latter part of the 20th century, and today it commands a dominant presence in clinical work, medical policies, health-care management and medical education across the world (Rycroft-Malone, J et al., 2004).

Within the realm of evidence-based medicine, the Iowa Model was developed by a group of clinicians at University of Iowa Hospitals and Clinics in the early 1990s (Steelman, V., 2016).

This approach has several steps: First, pinpoint a problem within the organization that you would like to resolve. Next, establish a team of stakeholders related to the topic. Then the team will search for relevant evidence and assess the quality of literature on the targeted issue. Afterward, the team undertakes a pilot project to determine its effectiveness – and if the project succeeds, the stakeholders would develop the EBP standard, implement it and evaluate the results.

Utilizing the Iowa Model, the team for my pilot project will consist of a neurosurgeon, mid-levels, residents and administrative assistants. These individuals will help to implement the pilot project and then enlarge it into a department standard if initial success is achieved.

Proposed Evidenced-based Solutions

Research has indicated that among patients in the same diagnosis grouping, those who were readmitted within a month of initial discharge stayed, on average, 0.6 of a day longer than those who did not have to be re-hospitalized for at least six months.

To realize meaningful reductions in post-discharge problems, and thus lower medical expenditures, health-care providers need to look at treatment in a holistic manner – taking into consideration both the mechanisms and overall context of care (Tuso, Ngoc Huynh, Lindsay, Watson & Kanter, 2012). That kind of broad-based approach means not only addressing medications, wound care and physical therapy, but also the patient's home environment and circles of support (i.e., spouse, children, friends).

Early education and post-discharge outreach by designated medical support staff – nurses, pharmacists, nurse practitioners – can go a long way in helping to boost patients'

assessments of the care they have received while lessening the volume of unnecessary, subsequent ED visits or readmissions.

According to one study on this topic, for example, “simple phone calls after discharge can help the patients to feel supported during the vulnerable time of postoperative period. Follow-up phone calls connect the patients with their providers and provide communication to reinforce the discharge instructions. Higher satisfaction with medication instruction and lower emergency room visit rates were reported in the intervention arm of a study like mine.” (Soong, Kurabi, Wells, Caines & Bell, 2014).

Program Development and Implementation

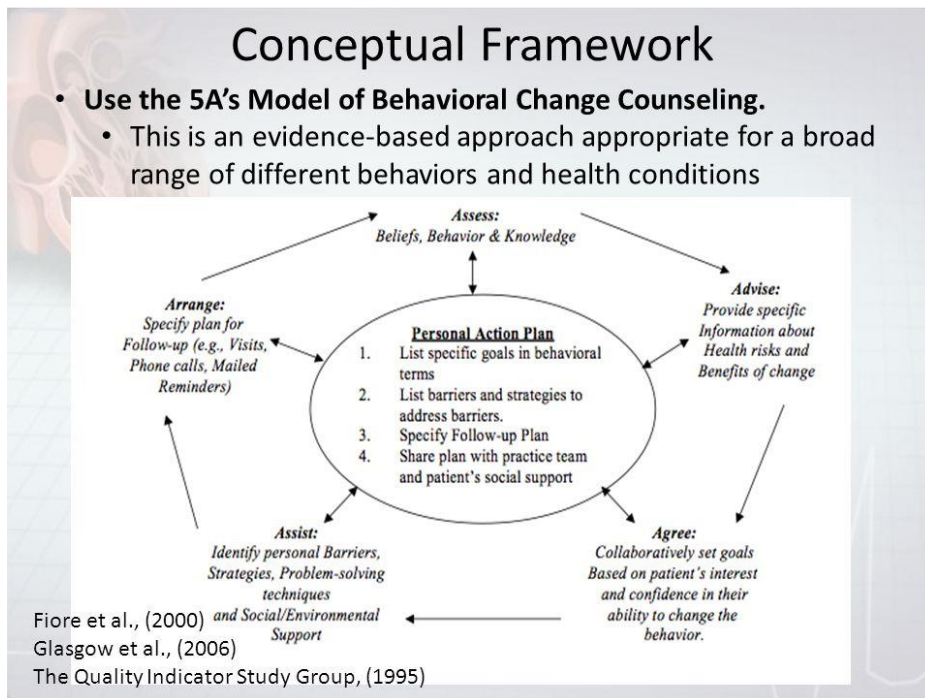
Our pilot project was launched in September 2017, when I started collecting pre-implementation data. Implementation of its main steps began in December 2017, with a projected duration of three months for interaction with patients and data accumulation.

During patients’ pre-op clinic visits, I educated them about what to expect before, during and after their brain surgeries. This included going over details about their home environment, their caregiver(s), their transportation needs, the likely process for their post-discharge, home health care, infection-control efforts, what symptoms are clear signs for needing emergency care (vs. symptoms that are part of the normal recovery process), what phone numbers are best to call if they have additional questions that have not been addressed by me or other staff members, etc.

The UC San Diego neurosurgery team’s administrative assistant was trained on the project’s protocols, which include clear criteria for when to contact me with patients’ questions and compilation of a daily list of newly discharged patients.

Using these daily lists, We made telephone calls to patients around 24 hours after their hospital departure, and then again at the 72-hour mark. In general, these calls were meant to re-inforce the spectrum of follow-up care and encourage patients to raise any concerns or questions they might have.

In particular, for these phone calls, we relied on a standardized questionnaire as my foundation and employ the 5 A's Behavior Change Model: assess, advise, agree, assist and arrange. I assessed each patient's pain level and, with his/her collaboration, set a goal for what pain level was expected and manageable. There were also reviews or other education about the patient's medications, from painkillers and steroids to stool softeners and anti-seizure drugs. The patient and I went over the status of home health nursing, plus what to anticipate at his/her next medical appointments. Last but certainly not least, I again provide the patient with my phone number in case any issues have been overlooked.



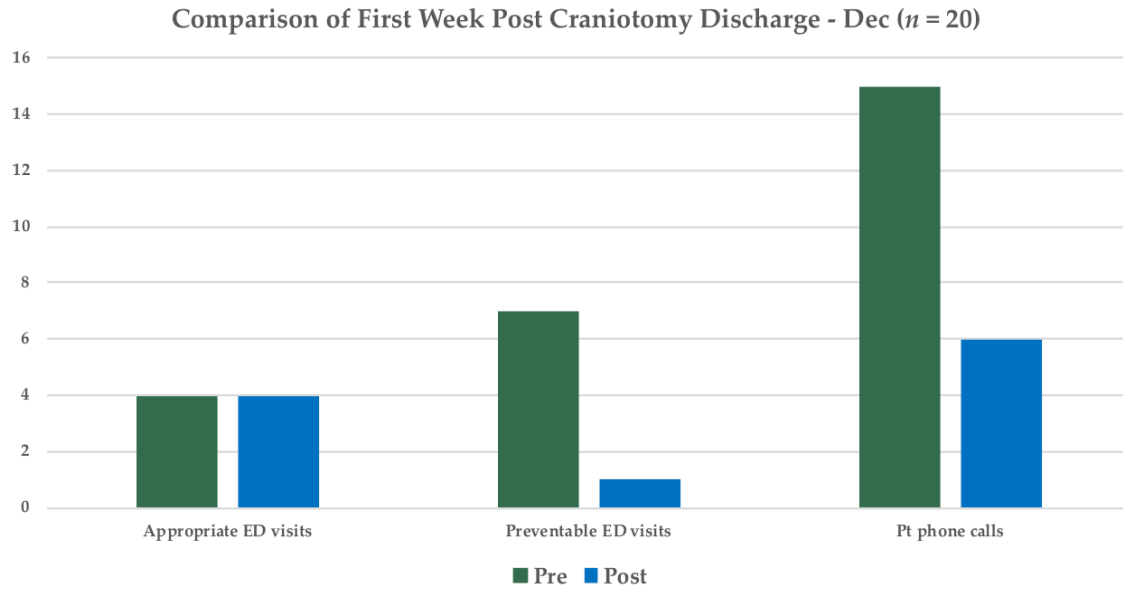
Project's Thresholds for Outcomes and Impact

As envisioned, the positive aspects of this project are that it is manageable because it involves a small team that already works together closely; that it has well-defined protocols; and that its results can be quantified. Effectiveness was measured by the number of patients' post-discharge phone calls and visits to the emergency room within days or weeks of discharge.

One key benchmark that I strove to fulfill was a 25 percent reduction in patients' post-discharge E.R. visits during the three-month project period, as compared with the same three months from the previous year. Another central objective was to lower the number of patients' post-discharge phone calls by 40 percent during the same project duration.

Conclusion and Summary

Studies have documented that well-timed, post-discharge phone calls by key medical personnel have reduced E.R. visits. Our study showed that similar results could be achieved in brain tumor patients. Widespread adoption of this proactive form of outreach can better bridge the current gap between hospital and home care, and the net result will be not only improved continuity of care and thus long-term outcomes.



Compared pre and post interventions.

Pre interventions there were 35% of group made avoidable E.R. visits.

Post interventions only 10% of group made avoidable E.R. visits post discharge.

Pre interventions there were 75% patient initiated calls to the office after discharge.

Post interventions there were 30% patient initiated calls to the office after discharge.

Search Engines for this Paper Included:

CINAHL, PubMed and Cochrance Database. Key words used were “readmissions,” “30 days readmissions,” “follow-up phone calls” and “care transition interventions.”

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