CLINICAL NO-SHOW RATES

Is Technology a Contributor?

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DIVURGENT

Introduction

Following the 2001 Institute of Medicine's landmark report "Crossing the Quality Chasm: A New Health System for the 21st Century"[1], a great deal of attention has been given to the transformation of care. With the implementation and utilization of technology involved in most transformational efforts, many processes can be streamlined and made more efficient. However, implementation of technology can also have a disruptive affect as well as unintended consequences. This study will examine the current body of literature surrounding patient "no-shows" to a medical appointment and will look at how one system's transformation of care, involving implementation of electronic scheduling and electronic health record, disrupted many aspects of transitional care, ultimately leading to a higher no-show rate.

Importance of a Healthy No-Show Rate

There is considerable literature dedicated to the study of medical patient no-shows. When a patient no-shows to a medical appointment, there are multiple effects felt by the provider, staff, system, as well as the patient.[2] These effects include:

- Health risk of the patient that doesn't show
- Health risk of the patient seeking an appointment, unable to book in that no-show slot
- Delayed care for both the no-show patient and the patient unable to book in that slot
- Poor staff utilization
- Poor continuity of care
- Patient liability risks
- Impedance of resident education
- Loss of multiple streams of revenue (Staff utilization, provider productivity, etc.)

The literature also offers many reasons for patients to not show for an appointment, as well as general characteristics of a no-show patient: [3,4,5,6,7,8,9,10]

Reasons Given by Patients	Typical Demographic Profile
• Cost • Transportation • Coordination, logistics, and/or couldn't get off work • Forgot Appointments • Felt Better • Felt too bad to leave home	• Younger • Lower Socio-economic status • History of failed appointments • Government-Provided health benefits • Decreased understanding about the purpose of the appointment • Greater amount of time between scheduling of appointment and appointment date • Longer wait times→Lower Satisfaction→Higher incidence of no-show

Given the amount of literature dedicated to improving no-show rates, there is very little discussion of the actual no-show rates. According to one study, the average rate of no-show's nationally was 5.5% in 2000.[11] This study also found that:

- 37% of practices do not track missed appointments/cancellations
- Of the 63% that did track, only 46% had policies to address this issue
- This study also looked at an academic practice which had a 30% no-show rate
- 12% of the academic practices patients accounted for 35% of the no-show

Transition of Care

Post-hospital visits have long been problematic regarding the assurance of a smooth and effective transition of care from the hospital to outpatient setting. A significant amount of literature is dedicated to the subject with few solutions that are effective on a wide-scale basis. With the progress of the EMR and technology, however, tools are becoming more available to ensure cross-setting communication and collaboration. Specifically, these tools need to address the following:[12]

- Timing of communication related to admission and discharge
- Mode of communication (phone, email, etc.)
- Process and accountability for scheduling post-hospital follow up visits
- Specific elements of hospital discharge summary or ED visit summary that are essential for appropriate follow up care

In 2009, six physician organizations (ACP, SHM, SGIM, AGS, ACEP, SAEM) developed consensus standards to address the quality gaps in the transitions between inpatient and outpatient settings.[13] The following principles were established:

- Accountability
- Communication
- Timely interchange of information
- Involvement of the patient and family member
- Respect the hub of coordination of care
- All patients and their family/caregivers should have a medical home or coordinating clinician
- At every point of transitions the patient and/or their family/caregivers need to know who is responsible for their care
- National standards
- Standardized metrics

Follow-up Care and Its Affect on Morbidity/Mortality

Over the last few years the literature has produced high-impact findings regarding the importance of follow-up care after hospital discharge. A 2004 study found that about half of readmissions within 30 days did not have ambulatory follow up.[14] A study in 2009 looking at Medicare claims found similar findings; approximately 50% of Medicare beneficiaries requiring readmission within 30 days did not have a follow-up clinician visit.[15] One of the best-known studies on follow

up is the 2010 study looking specifically at heart failure patients. Similar to the 2009 study above, Duke looked at Medicare data and found that heart failure patients following up within a week of hospital discharge were less likely to be readmitted within 30 days.[16]

Pre-appointment Calls

A study looking at the impact of care coordinators providing telephone based support to patents recently discharged from the hospital, nursing facility, as well to other high-risk patients.[17] Results led to "significant reductions" in hospitalizations and emergency room visits with an increase in follow-up care, medication compliance, and patient/family satisfaction. This study had an increase of 75% in their follow-up care, and cost savings were calculated at $4 million dollars.

Following data showing that pre-appointment reminder calls reduce the no-show rate, a study was conducted in 2007 to examine the difference between automated calls and calls made by a "human being".[18] As expected, it was found that both a human and automated calls were superior to no call ($p < .004$). However, the automated system was found inferior to an actual person making the call ($p < .01$).

Face-to-Face

A study by the Annals of Emergency Medicine in 1995 examined factors surrounding follow-up from emergency room visits in a department utilizing an in-department scheduler.[19] The emergency department (ED) examined in the study was found to have significantly higher compliance with follow-up compared to similar hospitals, and this was felt to be in large part to the patient receiving the follow-up appointment prior to discharge from the ED. A follow-up study in 2005 wanted to directly examine the importance of a patient having their appointment made while in the emergency department versus giving them a phone number to call.[20] Results showed a much higher probability of follow-up compliance with the appointment being made prior to discharge.

Exit Interview

Exit interviews have been shown to aid in increasing patient education and decreasing no-show rates. In one study of a residency clinic in a socio-economically challenged area, a significant reduction (29%) was seen in the no-show rate with the implementation of an immediate post-visit exit interview.[21]

Strategies in Socio-economically Challenged Areas

A 2008 study looked at a "culturally and linguistically diverse group of patients admitted to a small community teaching hospital".[22] The goal was to find a "low-cost intervention designed to promptly reconnect their patients to their 'medical home' after hospital discharge". Key aspects of the study:
- The patient to receive a comprehensive, "user-friendly" discharge instruction form
- Electronic transfer of the discharge instruction form to RNs at the patient's primary-care site
- A primary-care RN to call the patient by the next business day to monitor his or her condition
- The review and modification of the discharge plan by the primary-care provider as needed, including follow up care

Findings included:

- Dropped their failed to follow-up rate from 40.8% to 14.9
- Lowered undesired outcomes from 55% to 25%
  - Undesired outcomes:
  - No follow up within 21 days
  - Readmission within 31 days
  - ED visit within 31 days
  - Failure of PCP to complete outpatient workup recommended by hospital MD's

Similar results have been documented in other studies.

Key Points from the Literature:

1. Practices have historically done a poor job tracking no-shows

2. Practices have historically done a poor job addressing no-shows problems

3. Reasons for patients failing to keep an appointment are numerous

4. There is usually more than one issue that causes a patient to miss an appointment

5. Fragmented care and poor transition of care processes play a significant role in readmission and follow-up rates

6. There is a strong correlation between follow-up and readmission rates in heart failure patients, and this is likely true for some other diagnoses as well

7. There are no strategies to decrease no-show rate that work for all populations; strategies must be tailored to the population of interest

8. Post-discharge/pre-appointment calls have been shown to be a significant part of lowering the no-show rate, improving care, and reducing costs

9. Automated calls are inferior to actual staff making calls regarding the no-show rate, additionally they are unable to address patient questions or concerns

10. Having appointments made prior to discharge is shown to increase appointment compliance

11. A "user friendly" discharge form has been linked to improving the no-show rate

12. Typically a small amount of patients (10-20%) account for a large amount of no-shows (20-40%)

The implications of having processes and technologies that align with scheduling and reporting on patient appointment compliance will become more and more important as the industry advances toward shared savings programs such as Accountable Care Organizations (ACO). Timeliness of care, one of the dimensions of quality cited in "Crossing the Quality Chasm", is represented in the ACO measurement in numerous questions on the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey that will be used as one of the measures within the Patient/Caregiver Experience domain to participate in the Medicare shared savings program.[23]

CASE STUDY

Can Technology Negatively Impact the No-Show Rate?

The Project

Divurgent was requested to conduct an evaluation of the elements involved resulting in a high no-show rate at one of the nine outpatient practices. This outpatient practice was selected because it handles the largest volume of the patient appointments (approximately 20% of all appointments seen in the network of nine practices), provides both medical and specialty follow-up within an educational (resident) framework, has a challenging socio-economic patient demographic, and appears to have a significant no-show rate. Looking at the clinic, a centralized appointment call center, inpatient and emergency room areas, Divurgent set out to evaluate the people, processes, and technologies that play a role in the appointment making process and patient follow-up behavior.

The discovery process included interviews with key personnel from the clinic, the emergency department, and inpatient areas. The utilization of computerized appointment making, patient tracking, and interactions of the multiple systems involved were evaluated with cross-validation of reports from each system. Appointment scheduling reports were obtained for a 7-month contiguous period of time, with a focus on a single month, to provide base-line data involving the creation of appointment as well as how this data corresponded to patient appointment behavior.

Background

The outpatient practice being evaluated is a part of a health system consisting of a 476-bed academic teaching hospital with nine satellite outpatient offices, offering a variety of services covering all medical specialties. The system serves a community with significant ethnic and cultural diversity, with approximately half of the patient population being non-English speakers.   The primary outpatient site being studied is located within the hospital, has full resident coverage, offers both medical and specialty appointments, and primarily serves the uninsured and Medicaid population.

Over the course of the past decade, the health system has undergone multiple "transformations" with the implementation of various technologies to enhance different areas of clinical practice. This involved the introduction of PHS, an electronic scheduling tool. This tool was adopted by both the hospital for ancillary appointments as well as the outpatient clinics

for physician appointments. Years later, the outpatient clinics would adopt the electronic health record eClinicalworks (eCW), while the parent hospital would continue to use the standard paper chart. Most recently, the hospital has begun their phased-in integration of the electronic health record, which is a different product from what the clinics utilize, with a portal to cross ancillary data over to eCW. While the appointment program does cross into both the hospital EHR as well as the clinic EHR, the data from the hospital EHR only partly crosses to the clinic side. Additionally, a separate program is used to track and coordinate the patient demographic database as well as hospital admissions, discharges, and transfers. This program has the ability populate information to the hospital EHR, PHS, and eCW.

The Challenge

From the onset of evaluation, it was clear that the implementation of technology was fragmented and poorly coordinated across the system. Not only did the clinic not know their actual no-show rate, they were unaware of how to get the data to calculate the rate, or other key statistics. One benefit of their current software (eCW) is that it provided them a dashboard of key statistics on appointment utilization, including no-shows; however, the data used to create the dashboard was unreliable due to how patient visits and data were being populated into the system (more below).

One of the most difficult aspects of this project was to collect data from the different IT departments charged with the various databases, and then cross-validate those various reports to ensure accuracy and provide robust analysis and recommendations. For example, only the clinic application (eCW) produced a no-show report. However, in order to know where that appointment originated, the length of time from appointment being made to the actual appointment, and other key elements, the clinic data (eCW) would then need to be cross-checked with the original data in the appointment database (PHS).

Once the reports were obtained, it was clear that there were multiple issues with data errors and inconsistencies. There were also issues found at check-in, where processes in place resulted in patients being "cancelled" (approximately 10% of visits) when they were actually no-shows. When calculating the no-show rate, the inclusion of "cancelled" would nearly double the no-show rate. Another process had front desk clerks "pre-registering" patients before they arrived to accelerate the process once the patient had arrived. In order to pre-register, the patient had to be put in the status of "Arrived", and it was found that approximately 5% of visits were left in the "arrived" status, also likely representing no-shows. These types of database errors, both in creation and handling of data, while not contributing to the no-show rate, made it difficult to establish the baseline rates. Moving forward, these types of errors will make it difficult to apply and calculate the metrics that will be established.

Other process or database errors were found to have an actual impact on the no-show rate. When appointments were moved or rescheduled in the legacy scheduling program (PHS), the original appointment would remain within the database and on reports. This type of error created multiple problems both in data analysis, as well as the printing of the pre-appointment call list as it would contain appointments that were no longer valid. Analysis of one week of hospital discharge appointments found that out of the 36 appointments that occurred (found in eCW) over the 5-day period, 24 of those records in PHS (scheduling) were incorrect. This essentially invalidated the usefulness of PHS for generating reports for pre-appointment calls, an activity strongly supported in the literature for no-show reduction.

The Processes

A few of the key findings from the various clinical areas are as follows:

Key Findings from ED Process Review

1. Discharge paperwork in ED is confusing, information sometimes inaccurate

2. No phone number automatically placed on ED discharge paperwork to contact ED, hospital or clinic

3. Approximately 35% of follow-up appointments made while patient was still in department

4. Some patients are told to go to the clinic without appointment (walk-in)

5. Appointments are being made without direct contact with the patient (appointment made and then message left)

6. ED provider referrals are sometimes not in alignment with clinic guidelines

7. No dedicated slots at clinic for hospital discharges (ED or I/P)

8. Orthopedic specialties are overbooked weekly, the fracture clinic is book out for 3 weeks

Key Findings from Hospital Process Review:

1. Discharge paperwork is confusing, information sometimes inaccurate

2. Discharge paperwork often completed incorrectly, including mistakes by provider and/or clerk

3. Discharge paperwork confusing to staff (providers) filling it out

4. There are over 100 clerks that are involved in booking in PHS, many are unfamiliar with the system

5. Review conducted on one unit of previous days discharges: Five of nine were done incorrectly, including one heart patient leaving without an appointment (MD asked for 3-day follow up in clinic)

6. Many patients scheduled for follow-up at the clinic have a PCP in the community

7. No standardized review process to ensure staff discharging patients properly

Key Findings from Clinic Process Reviews

1. Inconsistencies in the way that patients are checked in at clinic resulting in data inconsistency

2. Workflows that led to further data inconsistency (i.e. Pre-registering of patients)

3. High variability of no-show rate from provider to provider, attributed by staff and literature to physician education of patient on importance of follow-up and style of care

4. Many regularly scheduled appointments being ignored or missed by patient due alternate appointment being made secondary to hospital visit, or patient actually being inpatient at time of appointment

5. Day-before appointment reminder calls not being made on a consistent basis

Lessons Learned

Some of the most striking lessons learned on this project was the problem of no-shows was wide-spread, poorly understood, and that no one strategy worked for all populations. In this case, technology made the actual no-show rate and data misleading, as well as hampered many activities that are shown to decrease the no-show rate. With no one person tracking the data across the continuum of care and different systems, this data discrepancies had gone unrecognized and thus uncorrected.

One of the other most important findings in the literature was the correlation with no-shows to discharge instructions/ paperwork including instructions/paperwork from ED visit, hospital visit, as well as a regular clinic appointment. In the setting of this study, in all three settings (ED, hospital, clinic), there were significant discrepancies found in the discharge paperwork. In the ED, where the paperwork was created by the EMR, it was poorly formatted and not text rendered resulting in an instruction page that was difficult to follow and not "patient friendly". Additionally, it contained a mix of pre-populated text, drop down menu text, and free-form text in a way that resulted in multiple follow-up instructions being given on the same sheet. Although the in-patient form was done by hand, similar problems were found.

Overall, the project highlighted the need for good analytics and integration when implementing technology within clinical practice. This is especially true when adding on technology around a legacy system. Moving forward, those analytics must include clinical quality measures, which CMS defines as "processes, experience, and/or outcomes of patient care, observations or treatment that relate to one or more quality aims for health care such as effective, safe, efficient, patient-centered, equitable, and timely care." With technology serving as the primary tool of process improvement and the manner in which we gather data to measure the effectiveness of those processes, it is critical that we have a firm understanding of how the outputs are created from the inputs. While "garbage in, garbage out" still applies, even worse is spending considerable recourses to ensure that good information is being put into a system to find that the way the system handled that data is inappropriate.   In the end, without valid data output and analytics, we are simply unable to fix broken process. Even worse, we won't know they are broken.

ABOUT THE AUTHORS

Brad Boyette, MPA, PA-C, is a Senior Consult of Clinical Transformation at DIVURGENT. Mr. Boyette has over 15 years of healthcare delivery, operational, and strategic planning experience in a wide variety of environments. While practicing full-time as a Physician Assistant, he worked concurrently in an ambulatory, inpatient, and emergency department settings providing him the unique perspectives of the complexities, and challenges, that exist across the spectrum of healthcare delivery. Mr. Boyette has a keen understanding of how people, processes, and technology are best leveraged to provide workflows and systems that provide what he considers quality care: *Care that is safe, based on best-practices, and results in high patient satisfaction.*

Mary Staley-Sirois, MBA, PT, CPHIMSS is Principal of Clinical Transformation at DIVURGENT. Ms. Sirois has nearly 20 years of healthcare operational and strategic planning experience across a wide spectrum of providers and academic environments. As a physical therapist by clinical background, she has worked with large and small healthcare systems on the planning necessary for clinical transformation as a result of an EHR deployment, organization governance and change management, medical and clinical staff collaboration on best practice and evidence-based processes, regulatory compliance readiness and issue resolution, organizational budget development and related benefits realization projection, and detailed project planning. Ms. Sirois' work is focused on leveraging the skills and team of the healthcare organization in the deployment of strategic initiatives - from product development, to operational management, to transformation of clinical process and practice, to EHR adoption. Ms. Sirois is well-published on HIPAA compliance and is a public speaker in healthcare operations and regulatory compliance. In addition to her work in the healthcare provider market, Ms. Sirois works closely with international organizations for the development of operational and educational programs to improve healthcare in developing countries.

COMPANY OVERVIEW

DIVURGENT was founded by a team of consulting veterans who are well versed in the healthcare industry. As a premier healthcare consulting firm, DIVURGENT is focused on the business of hospitals, health systems and affiliated providers. We provide advisory, activation management, clinical transformation, and revenue cycle management services to help you improve patients' lives. Recognizing every organization is unique, we leverage the depth of our experienced consulting team to create customized solutions, utilizing best practices and methodologies.

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