

HOUSE

Journal of the University of Washington
Housestaff Quality and Safety Committee

FIRST EDITION | 2015



UW Medicine

GRADUATE
MEDICAL EDUCATION

HOUSESTAFF QUALITY
& SAFETY COMMITTEE

HOUSE

Journal of the University of Washington
Housestaff Quality and Safety Committee

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Simona Lazar

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Contributing Photographers

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Emily Rasinski

Art Director

Nancy Forrest Design

Front Cover Photography

Emily Rasinski

Back Cover Photography

Clare McLean

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A Note from the Editors

Dear UW Medicine Reader,

We at the UW Housestaff Quality and Safety Committee (HQSC) are proud to present the first issue of the new journal, HOUSE. This publication is intended to promote the science and art of improvement of patient care quality improvement at UW Medicine. HOUSE showcases quality improvement (QI) and patient safety (PS) projects, research, or notable experiences with active and significant housestaff involvement.

Residents and fellows are vitally important to the delivery of care to all UW patients. We are front-line clinicians, present at nearly all points of care for our patients. We often see what processes work well and others that might be improved. It is now not only an ACGME requisite but a fundamental value within our profession to continuously strive to improve quality and increase the safety of our care.

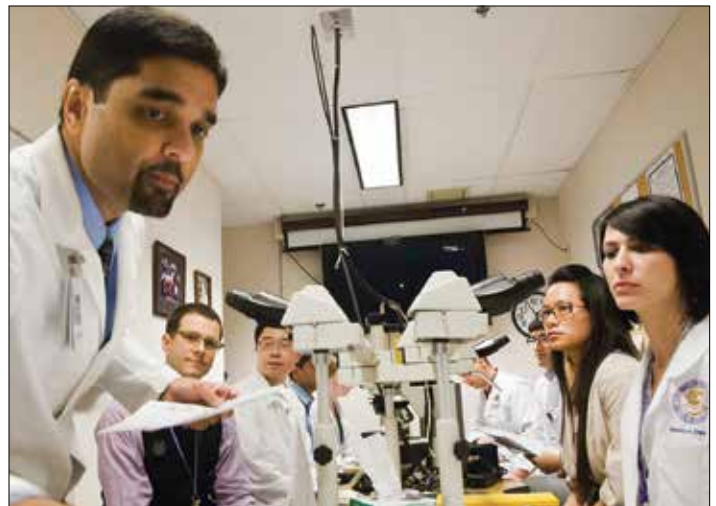
HOUSE is one of several programs developed by the HQSC, a group of residents and fellows selected from a diverse array of specialties at UW Medicine, who serve as the voice of housestaff for all things QI and PS. Our programs seek to educate trainees on the fundamentals of QI and connect them with opportunities to get involved at UW Medicine. They include the Liaison program, Graduate Quality and Safety Certificate, Choosing Wisely initiative, QI Match, and this publication. You can learn more about the group at www.uwhqsc.org.

We thank all the HQSC members for their hard work and commitment to the endeavor of continuous improvement. The HQSC also thanks our faculty advisors for their sage guidance and generous, unwavering support, as well as UW Medicine administrators and staff for their continued encouragement and backing.

As you read this journal, please remember that all content contained within are to be held confidential. All contributions are considered quality improvement within the UW Medicine enterprise. You may not copy or distribute any of the works without the permission of UW Medicine, the Office of GME, and the HQSC.

Enjoy!

Irving Ye and Nick Meo
HQSC Co-chairs 2014–2015



Getting Involved in Quality Improvement

Whether you're an intern or in the middle of your second extended fellowship, there are many opportunities to participate in quality improvement (QI) during residency. Here are some of the more popular options out there:

Housestaff Quality and Safety Committee

The University of Washington Housestaff Quality & Safety Committee (HQSC) is a trainee-led organization functioning in partnership with the UW Patient Safety and Quality Coordinating Committee and Graduate Medical Education Committee that strives to engage council members in the quality and safety work pursued throughout UW training sites. Formed in 2011, the HQSC is comprised of residents and fellows representing a diverse group of programs. Members meet throughout the year to learn the skills needed to become future leaders in QI and patient safety (PS). The HQSC also serves as the voice for the housestaff at UW on QI and PS matters by participating in numerous projects and committees throughout the health system.

Applications are sent out in the spring for the following academic year.

See <http://www.uwhqsc.org> for more details.

Housestaff Quality and Safety Committee Liaison Program

UW-affiliated training hospitals have regularly scheduled committee meetings where various initiatives are discussed. These often include QI and PS issues important to trainees that would benefit from their input. The HQSC is coordinating with committee chairs to give housestaff a voice and a seat at these meetings.

Trainees can now attend monthly meetings of certain committees on an ad-hoc basis as part of the Liaison program. The HQSC will staff these meetings with a rotating base of residents and fellows as their schedules allow.

By simply expressing interest in the HQSC Liaison program, all housestaff are eligible to review a monthly schedule of meetings. If your schedule allows, sign up to attend. We hope that members can attend at least 1-2 meetings over the course of the year.

See <http://www.uwhqsc.org> for more details

QI Match

QI Match is a web-based database of QI projects throughout UW Medicine that are seeking trainee involvement.

See <https://apps.uwmedicine.org/qimatch> for more details.

De-identified Clinical Data Repository

The DCDR is a tool to directly query the medical record at UWMC and HMC. It returns an aggregate count or summary of the patients who meet whatever criteria you set. An example query in this interface would be of the form: "Provide me a count of patients, age 18-34 with a diagnosis of diabetes mellitus, who were discharged within the past six months." It is free for any resident use after completing a short training module.

See <https://www.iths.org/investigators/services/bmi/dcdr> for more details.

IHI Open School Certification

The IHI Open School offers a range of online courses in patient safety, improvement capability, quality, cost value, person- and family-centered care, triple aim for populations and leadership.

These are free to use for residents and can lead to a certificate if completed.

See <http://www.ihl.org> for more details.

Access to Excellence

Access to Excellence is an electronic quality dashboard of key metrics used to display our current progress towards our Patients Are First and other quality goals. Access to Excellence is updated monthly.

All metrics are protected and require your AMC login to view. A mouse click on each overall measure will provide access to detailed quality data behind that goal. This function can provide you with performance information specific to your unit, service, or department. There are also dashboards for key department/centers of emphasis accessible by clicking on the department/center's initials in the upper right hand corner.

Access to Excellence is a great resource to understand what the current efforts in QI and PS are at UWMC and HMC. Each metric has a champion, and his or her contact information is displayed if you would like to reach out. Click on the **Access to Excellence banner** on the HMC or UWMC intranet webpage to access.

HQSC Subcommittees

The UW Housestaff Quality and Safety Committee was divided into four subcommittees for 2014-2015. Each team worked together throughout the year to devise and implement a quality improvement project. They learned from quality and safety experts from across UW and the local Seattle area at each monthly meeting, online resources like the IHI Open School and HQSC's own "QI Boot Camp." The results of their work around UW Medicine are featured in this section.

HQSC 2014-2015

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Utilizing the Bedside Patient Communication Dry Erase Board to Enhance Discharge Communications, a Work-in-Progress Report

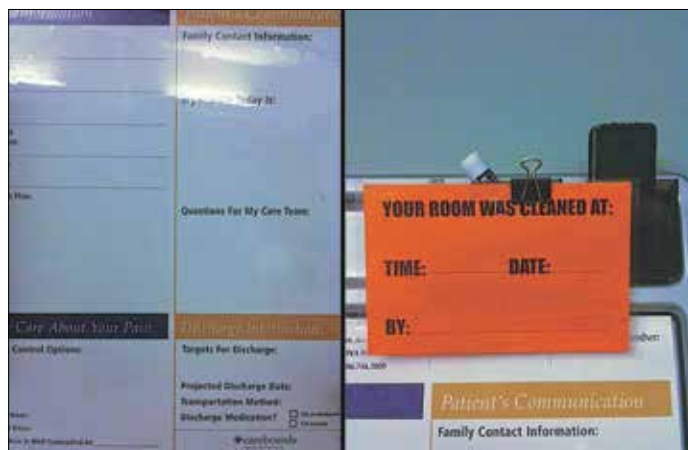
Authors: Chenwei Wu, MD; Reiko Emtman, MD; Blake Mann, MD; Kathy Hare, RN MN; Elizabeth McNamara, RN MN; Jacob Berman, MD MPH

Faculty Advisor: Anneliese Schleyer, MD MHA

INTRODUCTION

Inefficiencies in the patient discharge process can have significant negative consequences. Longer bed occupancy slows admissions flow, increases emergency department boarding times, strains the hospital both operationally and financially, and impacts patient satisfaction.^{1,2} We have identified several steps in the patient discharge process, some provider-sided (e.g., early medication reconciliation and discharge form completion) and others patient-sided (e.g., arranging transportation, preparing the home), that can contribute to delays if not executed in a timely manner. An earlier resident-driven quality improvement project focused on the provider-sided tasks.³ In the current effort, we sought to foster early dialogue surrounding discharge and to encourage creation of a shared discharge timeline between patient and provider using the dry erase communication board located at each patient's bedside (Figure 1). Our efforts complement a greater initiative to enhance patient-centered communication at Harborview Medical Center (HMC). They were carried out with support of the UW Housestaff Quality and Safety Committee, HMC administration, the HMC Hospital Medicine group, and unit nurse managers.

Figure 1. Representative communication board assigned to each patient bed at Harborview Medical Center. Box for supplies in close up.



AIM

We aimed to have 100% of communication boards on two of seven HMC inpatient medicine services, the Medicine E and Hospital Medicine Service (HMS) teams marked with “48 hrs until discharge (specify date)” for all patients falling inside this discharge window by the end of May 2015.

METHODS

All improvement work was carried out at HMC. HMS and Medicine E attending physicians were briefed on the goal of specifically discussing anticipated discharge dates with patients and writing the expected discharge date on patients' communication boards at least 48hrs before actual discharge. Responsibility for adding information to the board was assigned to attending physicians rather than residents. Boards were surveyed daily by nurse managers on the 3-EH, 4-EH, and 5-EH wards and information regarding the following collected: board stocked with marker and eraser (structure measure), discharge date written (process measure), and patient perception that a discharge plan had been discussed (process measure). All measures were assessed as yes/no. Outcome measures such as length of stay (LOS), discharge before noon, and patient satisfaction as evaluated by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) post-discharge survey will be queried at a later date. Likewise, balance measures centered on physician and nurse feedback to the added work task will be continually solicited.

In addition to Medicine E and HMS teams for which pre- and post-intervention data will be compared, performance for a separate medicine ward team not exposed to this initiative was also tracked to serve as control. At the time of this report, a two-week baseline observation period had been completed as well as a single intervention Plan-Do-Study-Act (PDSA) cycle of similar length. Following the baseline period and supporting broader hospital efforts to increase patient recognition of core team members, attending physicians were also asked to write their names and the team name on communication boards, and this task was later added to our process measures. Although planned, no formal statistical analysis has yet been completed.

RESULTS

A total of 181 and 166 daily observations were recorded for the baseline and first intervention periods, respectively. These spanned 71 unique patient encounters in the former instance and 61 in the latter. During both periods, communication boards were kept well-stocked (Table 1). In very general terms, performance in the HMS teams appears to have improved both in terms of verbal discussions concerning discharge and having a written date on the board. As expected, there were no gains in the control ward medicine team in either of these measures from baseline to intervention. Medicine

	Team	Baseline		Intervention					
		Percentage	N	Percentage	N				
Supplies		98%	177/181	97%	160/165				
D/C discussed	Control	67%	14/21	67%	6/9				
	Med E	93%	14/15	70%	7/10				
	HMS	63%	20/32	76%	13/17	57% (4/7) HMS 1	90% (9/10) HMS 2		
D/C date	Control	9%	2/22	0%	0/10				
	Med E	27%	4/15	20%	2/10				
	HMS	26%	9/34	41%	7/17	43% (3/7) HMS 1	40% (4/10) HMS 2		
Attending Name	Control			81%	13/16				
	Med E	N/A		82%	9/11				
	HMS			89%	17/19	88% (7/8) HMS 1	91% (10/11) HMS 2		

Table 1. Raw data for all process and structural measures displayed as percentages and absolute observations. Number of Hospitalist Medicine Service (HMS) teams was downsized from three to two in the interval between baseline and intervention periods; baseline performance was calculated using the composite of HMS 1-3. For the intervention period, both the composite and individual HMS team performances are provided.

E performance was more variable, but interpretation of all accumulated data thus far is severely limited by small sample size as discussed next (Figures 2-3). Percentage of communication boards displaying attending names was similar across teams (Table 1)

DISCUSSION

The current project very much remains a work in progress with only a single PDSA cycle concluded. Even this has been instructive, however, and we have planned several refinements to the data gathering process moving forward. As is plainly visible, the first intervention cycle suffered from an inadequate N, resulting in large percentage swings with each adjustment of the numerator. This effect should be dampened as we accumulate more observations but makes our results uninterpretable in their present state.

Furthermore, since all patients on a given ward were surveyed daily, and not all of them were nearing discharge, it is likely that we have underestimated the true number of patients who would have had discharge planning discussions and a firm date affixed prior to leaving the hospital. We are working on matching our data to the HMC discharge census to correct this issue.

The ultimate goal of fostering a clear and collaborative discharge plan between patient and care team is to minimize last minute delays such as unarranged transportation that needlessly prolong LOS. Having a visual cue of the anticipated discharge date, even if wrong by a day or so, at least compels both ends of the patient-provider dyad to start preparing for that moment. It would also serve as a reminder to visiting family, therapists, and consulting teams that the patient is nearing discharge. And in spite of the already-acknowledged deficiencies in our dataset, what is clear from glancing at Figure 3 is that all of us have room to refine our discharge communications. While there will always be some minority of discharges that are unexpected, it is not a stretch to claim that we are still far away from reaching that asymptote.

Figure 2. Percentage of patients responding in the affirmative that care team members had discussed discharge plans with them

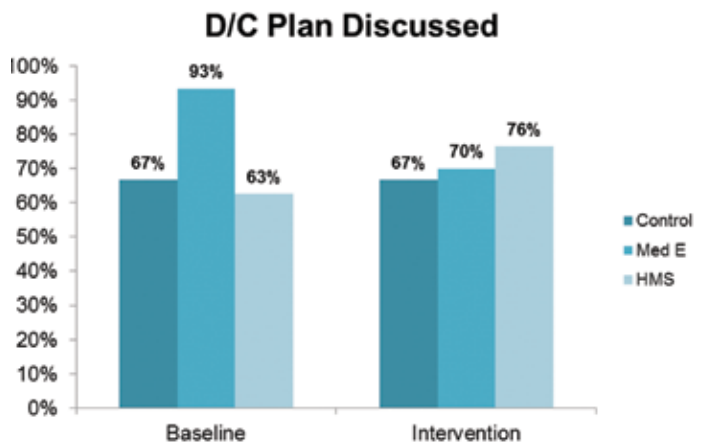
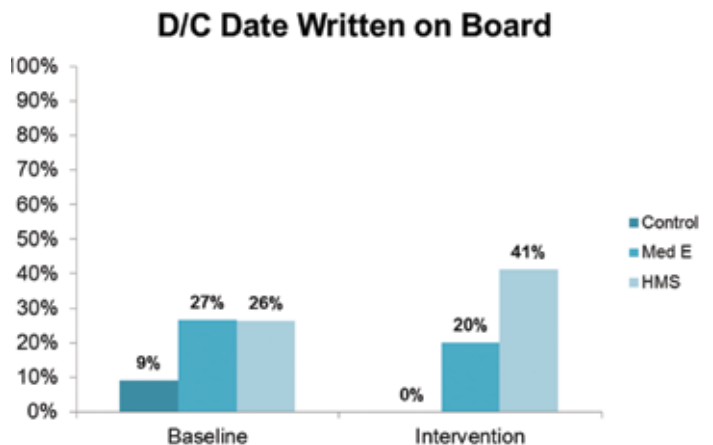


Figure 3. Percentage of communication boards displaying a firm discharge date (denominator represents unique patient encounters)



FUTURE PLANS

We hope to carry this work into the next academic year, ideally process measures through multiple PDSA iterations and beginning to explore their effects on harder outcomes such as LOS, patient satisfaction, and discharge by noon. We would also like to refine and automate as much as possible the data collection and reporting process, anticipating that this may serve as a prototype for transmitting discharge-related feedback to care teams.

Acknowledgements

In addition to critical project support provided by HMC administration, nursing leadership, and the Hospital Medicine group, we wish to also thank individually Laura Newcomb, Nate Rozeboom, Miryah Hibbard, Laura Martin, and the coordination of care nurses for their invaluable assistance with this work.

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Understanding Barriers to Structured Documentation of Depression Screening in a Primary Care Resident Clinic at University of Washington Medical Center

Authors: Naomi Avery, MD; Marissa Black, MD; Andrew Dervan, MD MBA; Patrick Mathias, MD

Faculty Advisor: Kristina Toncray, MD

ABSTRACT

Annual depression screening for adults is a component of high value care. However, when documentation of screening is not in a specific and structured part of the electronic medical record (EMR), querying whether screening has taken place is challenging. At the University of Washington (UW) primary care clinic, structured documentation of depression screening is as low as 1% of eligible patients. Our goal was to clarify and evaluate the current process of depression screening to identify areas for improvement.

METHODS

In October 2014, we created an alert when PHQ-2 scores were entered in the free text part of the note informing the provider to use the structured data tab. We monitored monthly the number of patients who had PHQ-2 score entered into the structured part of the medical record at their annual visit. In March 2015, we surveyed 24 of the 36 internal medicine residents in the clinic about whether patients completed the pre-visit PHQ-2.

RESULTS

Sixty-five percent of patients completed the paper PHQ-2 screening form just prior to their visit. However, 10% or fewer patients had a properly recorded PHQ-2 score in the EMR. Of note, input of structured PHQ-2 scores rose by tenfold from 1% to 10% over 6 months of observation.

CONCLUSION

Annual depression screening in the form of the PHQ-2 is both underutilized and under-documented at the UW primary care clinic. Our attempt to understand the workflow around depression screening has identified areas for optimization to improve both the publication and documentation of screening.

BACKGROUND

Depression is commonly encountered in primary care, leading

to worse health outcomes and increased healthcare costs when untreated. Centers for Medicare and Medicaid Services and the United State Preventive Services Task Force both recommend depression screening in the primary care setting to prevent illness and disability. The PHQ-2 is a two question screening questionnaire to identify patients who should be formally assessed for clinical depression. As organizations such as UW Medicine transition to accountable care models, measures such as depression screening are increasingly used as quality benchmarks and influence clinical reimbursement.

The University of Washington (UW) outpatient clinics switched from a Cerner-based electronic medical record (EMR) to an Epic-based EMR in 2014. This switch encouraged the use of prebuilt health maintenance notifications to help staff better adhere to national guidelines for preventive screening, including screening for depression with the PHQ-2. Residents in the UW primary care clinic recognized that both utilization of the PHQ-2 and appropriate documentation of PHQ-2 scores in a discrete, trackable section of the Epic EMR were low. There was no standardized process to: 1) alert a provider if a patient is due for depression screening; 2) encourage the patient to answer the PHQ-2 questions; 3) inform the provider that the patient completed the PHQ-2 prior to the provider entering the room; 4) teach the provider about proper data-entry technique; and 5) easily allow the provider to enter PHQ-2 data into the EMR such that it can be tracked across time rather than “lost” as free text.

Prior to our study, the PHQ-2 was included in the standard patient intake packet, which is given to patients when checking for annual visits (40 minute appointments). Patients variably complete this several page document while in the waiting room, and the PHQ-2 is in the middle of the packet. Notably, the PHQ-2 in the packet is an outdated version, as it included “yes/no” questions (Figure 1a) rather than a Likert scale (0-3; Figure 1b).

Figure 1. (a) Current PHQ-2 screen, (b) validated PHQ-2 screen

(a) Over the past two weeks, have you experienced the following? (circle your answer choice)				
1. Little interest or pleasure in doing things?	yes	no		
2. Feeling down, depressed, or hopeless?	yes	no		
(b) The Patient Health Questionnaire 2 (PHQ-2) Over the past 2 weeks, how often have you been bothered by any of the following?				
	Not at all	Several Days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things?	0	1	2	3
2. Feeling down, depressed, or hopeless?	0	1	2	3

METHODS

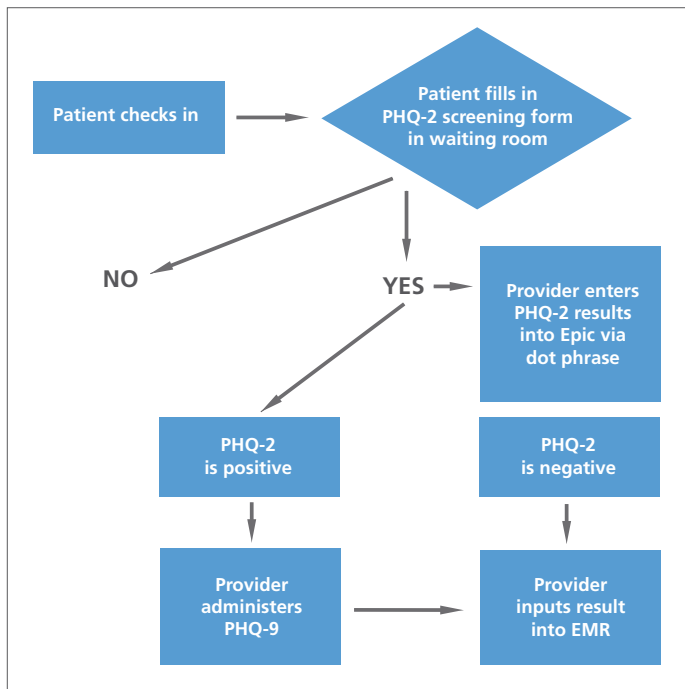
Intake Form:

In order to assess how many PHQ-2 questionnaires are completed by patients in the waiting room, a short survey was administered to 24 resident providers on six clinic days during March 2015. Providers were asked, “Of the number of new/wellness visit patients you saw today, how many had filled in the PHQ-2 screen prior to being seen by the provider?”

EMR Input:

Once the PHQ-2 is completed by the patient, the provider should review the result and accurately input the PHQ-2 data into a discrete section of the EMR (and not simply type the result into the free text portion of the visit note, **Figure 2**). To determine the rates of structured PHQ entry into Epic, we queried the PHQ table built from the Epic Clarity data warehouse that is used by UW Medicine (i.e. this is the structured, trackable portion of the EMR where PHQ scores should be documented). The table contains PHQ-2 or PHQ-9 scores (or NULL entries for missing data in one or both of the PHQ fields for all patient encounters that include a structured entry form for PHQ data). The PHQ data were filtered to include only encounters at the UW primary care clinic starting July 1, 2014. The percentage of annual/wellness visits with a recorded PHQ score was calculated dividing the number of encounters with either a PHQ-2 or a PHQ-9 by the annual visits scheduled for 40 minutes. The PHQ-9 questionnaire is a longer, more specific tool used to diagnose (rather than to screen for) depression.

Figure 2. Depression screen clinic flow at UW primary care Roosevelt clinic



RESULTS

During the month of July 2014, the data showed that approximately 1% of eligible patient visits had a recorded PHQ score. This increased to greater than 6% after the EMR was altered in October 2014 to encourage PHQ entry in a consistent location, whereby some tools facilitating free text entry of PHQ scores were removed. The rate of structured PHQ score entry in eligible patient encounters peaked at ~9% in January 2015 (**Figure 3**). Because providers in the clinic believed the rate of PHQ-2 completion on paper forms by patients was higher, we did a random manual verification over the course of March 2015, (n=19 patients) which revealed that 65% of PHQ-2 screening forms in the pre-visit packet had been completed (**Figure 4**).

Figure 3. PHQ-2 free text entry by providers

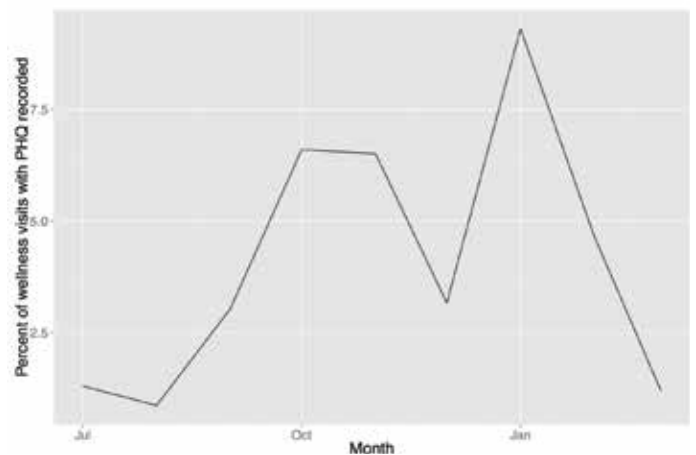
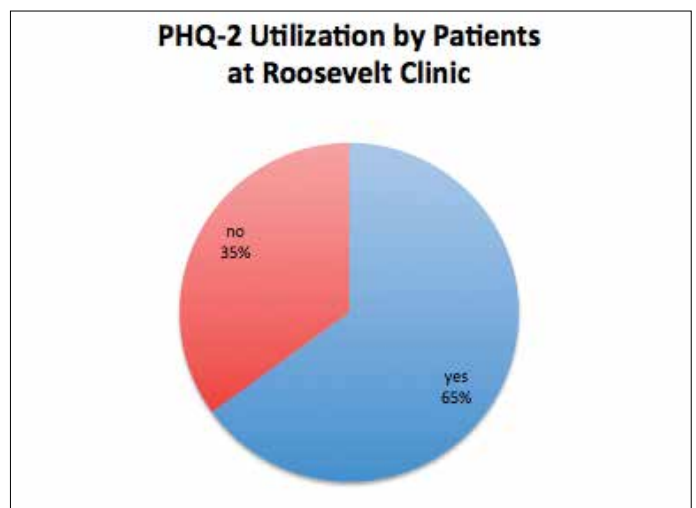


Figure 4. Rate of patient completion of PHQ-2



DISCUSSION

Our team identified multiple issues related to depression screening: 1) low usage of a simple, high value screening tool (the PHQ-2) by both patients and providers; 2) use of an outdated PHQ-2 in clinic paperwork; 3) imprecise structured data entry into Epic given the outdated PHQ-2 form; 4) lack of provider familiarity with how to properly document PHQ-2 screening in the EMR such that it can be reliably tracked for patient care and quality benchmarks; and 5) flawed tools for querying depression screening even with structured EMR data. No existing report of PHQ utilization data exists (by clinic or provider) in Epic. At the initiation of the project, the structured PHQ score data were not consolidated in one place, making analysis cumbersome. Moreover, access to these data were restricted, limiting their use for feedback to clinical teams.

Identified areas for improvement include: 1) review of depression screening workflow by permanent clinic staff (leadership, nurses, LPNs, MAs, front desk staff); 2) update to the PHQ-2 questionnaire in the patient packet or ideally, streamlined input of patient answers into the EMR without duplicated work by providers (i.e. no paper forms, but rather direct patient input into the EMR); and 3) improved process for incorporating depression screening into annual visit care, which needs to be easily monitored via improved database tools.

For future work, we hope to collect pre-intervention data on the rate of PHQ-2 screens completed in Epic, to implement a validated PHQ-2 form for patients as part of a new intake process for annual visits, and to collect post-intervention data on the rate of PHQ-2-specific screening. As an extension of this work, we believe that the patient intake process should be studied and revised to maximize efficient use of the EMR.

CONCLUSIONS:

The ultimate goal is to identify patients with undiagnosed depression and to start them on treatment. However, a number of process improvements in workflow and documentation must be addressed before progress can be made in the primary outcome of improved clinical care. The importance of easily accessible data is paramount for rapid cycle quality improvement in the outpatient environment, and lack of effective data analysis tools can be a barrier to understanding and studying process improvements.

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Post-Operative Transfer of Care at Harborview Medical Center: A Multidisciplinary Quality Improvement Initiative

Authors: Aalap Shah, MD; Meghan Flanagan, MD MPH; Katherine Flynn-O'Brien, MD MPH; Barbara DeWitt, RN BSN; Elizabeth Visco, CRNA MHA

Faculty Advisor: Thomas Varghese, MD

INTRODUCTION

Transfers of information represent high-risk, error-prone patient care episodes and typically occur while there are many competing demands on attention. Standardization and electronic documentation of the post-operative transfer-of-care (TOC) has been recommended to improve handover quality. Through a collaborative, multidisciplinary quality improvement initiative, we introduce and implement a team-based checklist approach to the post-operative TOC at our medical center. Furthermore, we will conduct a pre-/post implementation analysis of checklist utilization and evaluate its impact on information reporting, validated handover quality assessment measures and nursing task burden.

METHODS

Intervention: As a quality improvement initiative undertaken at Harborview Medical Center, (HMC), this project was considered exempt from IRB review. A structured checklist containing the smallest number of items thought essential during intraoperative handoff was developed by the authors, with the intent of physical implementation in each patient bay in the recovery room. An electronic form (PACU RN PowerNote), was also drafted in parallel with the checklist and approved through our compliance committee for inclusion in the electronic health record. Chief resident surveys and an educational video were created as educational supplements to increase familiarity and utilization of the checklist.

Data collection: From January 2015 to September 2015, we are employing two trained individuals to observe post-operative TOC of elective inpatient procedures in a single recovery room at HMC. PACU nursing staff were given a validated handoff domain assessment tool (Handoff CEX; Horwitz 2011) and chief residents were queried with confidential surveys to elicit recommendations for checklist content. Data collection was divided into three phases: pre-implementation (January 27 to March 27, 2015), implementation (March 27 to May 31, 2015), and post-implementation (June 1 to September 30, 2015) phases.

RESULTS

Pre-implementation audits (n=78) confirmed surgeon presence

for 57.7% of handovers. Average TOC time was 3.81 +/- 2.05 minutes, and average length of stay (LOS) (i.e, PACU time until discharge ready) was 90.17 +/- 43.39 minutes. Information items with frequent omissions included PONV prophylaxis (41.0%) and last antibiotic dose (29.1%). Frequently omitted items related to anticipatory guidance included a pain-management plan (54.4%) and call triggers (2.5%). Handoff CEX scores (n=204) included scores of 5 or greater in all domains; overall satisfaction score was 7.70 +/- 2.13 (median 9). PACU RNs sent an average of 1.03 +/- 1.46 pages to the surgeon or anesthesia provider for order clarifications. Implementation data collection is underway, and post-implementation analyses will commence in June 2015.

DISCUSSION

Although survey tools used to evaluate TOC demonstrate excellent scores in all domains, pre-implementation data review suggests that certain items are frequently missed from the verbal handover report given by the surgeon and/or anesthesia representative. The results also highlight the deficiency of anticipatory guidance measures communicated to the recovery room nurse. Baseline data quality measures, such as LOS and handover time, will be useful when evaluating the effect of this process improvement on post-implementation efficiency.



Choosing Wisely: Rational Use of Respiratory Viral Panel

Authors: Carolyn Sy, MD; Lacey LaGrone, MD; Rachel Chard, MD; David Dorsey, MD; Mitchell Kim, MD; Jane Kuypers, PhD; Andrew White, MD

INTRODUCTION

Clinical decisions made by resident physicians often account for the majority of variability in lab utilization at academic centers.¹ Because residents regularly witness this variation and work daily with imperfect order entry systems, they are particularly well-positioned to identify and implement cost-reducing measures in the inpatient setting. There are limited reports of resident-led initiatives to reduce healthcare spending in the literature.^{2,3} Motivated by the American Board of Internal Medicine Foundation’s “Choosing Wisely” initiative, a taskforce within the UW Housestaff Quality and Safety Committee determined to decrease a costly practice at our institution that lacks clinical value: inappropriate ordering of respiratory viral panels.

This project was born of collaboration with laboratory medicine colleagues, who identified the redundant and inappropriate ordering of these panels. Prior to this intervention, our inpatient computerized provider order entry (CPOE) system offered providers the options of a “respiratory virus semi-quant” and an “influenza A/B and RSV” test. The “semi-quant” option cost \$538 per test and included several relatively rare viruses which are of clinical significance generally only in immunocompromised persons. The “influenza” option cost \$197 per test and was the appropriate test for ruling out influenza in immunocompetent persons. Prior to the intervention, not only were immunocompetent patients undergoing the more expensive, extensive panel, they often in addition received the appropriate, but redundant, less expensive panel.

We hypothesized that a resident-led education and awareness campaign, above and beyond the CPOE changes, would further alter the rate of inappropriate testing. Thus, the main purpose of the study was to investigate relative effectiveness of two dissemination methods.

METHODS

We conducted a pre-post intervention study with concurrent control at two academic hospitals. We included all patients admitted between December 1, 2013 and January 31, 2015 except immunocompromised patients with oncology and organ transplant diagnoses. At both study hospitals, the CPOE system was changed to include a highlighted, non-interruptive warning embedded in the influenza testing order set. The warning notified providers to “not order both tests on the same specimen.” In addition, the “respiratory virus semi-quant” order name was changed to the more

intuitive “extended respiratory viral panel.” At one of the two study hospitals we conducted an extensive education campaign including in-person engagement of clinicians and saturation of workspaces and point-of-use locations for physicians, advanced practitioners, and nurses with educational project posters (“CPOE plus education”). Laboratory utilization data was gathered to evaluate the intervention, including a 12 month baseline and two months of post-intervention data. We defined an inappropriate test as the performance of both viral panels within a 12 hour period.

Proportion of inappropriate tests ordered at each institution before and after the intervention was compared using McNemar’s Chi-Square test for significance. A binomial generalized linear model with logit link and robust standard errors was used to compare whether the change in proportion of inappropriate lab orders differed between the CPOE intervention and the CPOE plus education intervention.

Cost savings were calculated by first determining the average cost of an inappropriate test at each hospital. This varied based on proportion of inappropriate testing which included the extended respiratory viral panel. This was then multiplied by the difference in the relative number of tests pre- and post-intervention at each institution.

RESULTS

The proportion of inappropriately ordered respiratory viral labs decreased significantly at both facilities after the intervention (CPOE alone: 23.8% to 18.9%, $p < 0.001$; CPOE plus education: 13.4% to 9.6%, $p < 0.001$). The relative decrease was the same under the CPOE alone and the CPOE plus education intervention (20.5% vs. 27.9%, $p = 0.97$). At interval assessment, mid-way through the flu season, the intervention was associated with a total \$6,700 cost savings, with anticipated \$8,900 savings by the end of the season.

DISCUSSION

Altering the computerized provider order entry (CPOE) system to include intuitive order names and non-interruptive decision support to discourage duplicate respiratory viral tests was associated with a 20-28% decrease in inappropriate lab ordering. Addition of an educational campaign did not significantly improve on appropriate lab use above and beyond CPOE changes. A significant limitation of our study design is the collection of data from only two flu seasons and thus the inability to determine whether or not the measured difference is part of a secular trend. These simple CPOE changes are anticipated to be associated with an almost \$9,000 cost savings over this flu season.


Acknowledgments:

Ravi Sood, MD for statistical expertise.

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**Stop wasting money!
Think Before You Swab**



**Rational Guide to
Virology Panels!**

Flu-like Symptoms?
Start with the suspected flu power plan

➔

Flu A/B+RSV Test


Most Patients

Flu-like Symptoms?
Start with the suspected flu power plan

➔

Extended Resp. Viral Panel

Immunosuppressed



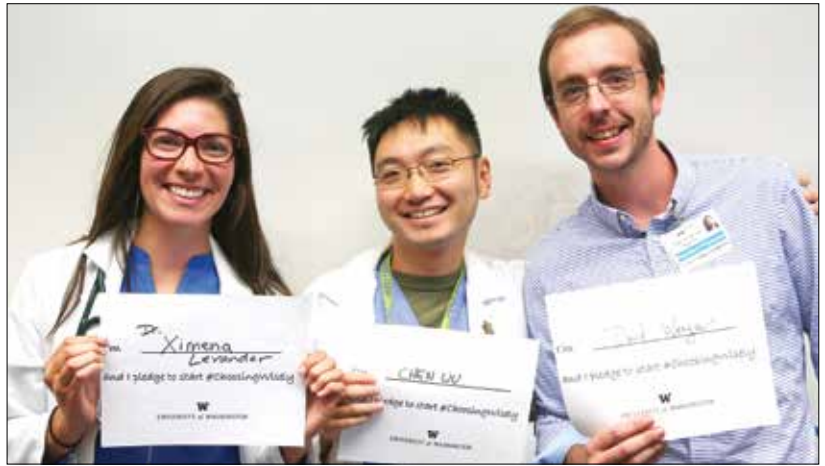
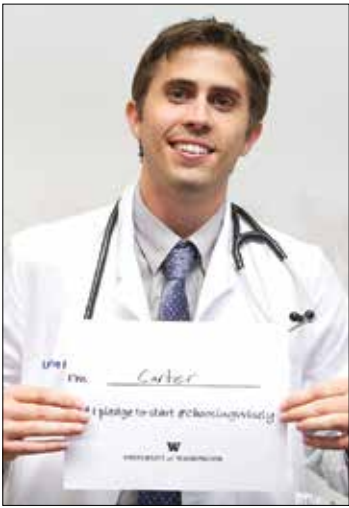
- 1) Use the new **Flu Power Plan**
- 2) The **Extended Respiratory Virus Panel** already contains Flu.
-Don't order both!
- 3) The **Extended Respiratory Virus Panel** is only for **immunosuppressed*** and other high risk patients

*cystic fibrosis, solid organ transplant, bone marrow transplant or HIV

Figure 1. Educational Poster

Residents and Medical Students take a pledge to Choose Wisely at Harborview Medical Center





The next section features exceptional work conducted by the residents and fellows of UW Medicine in the field of quality improvement. Through their research and actions, the entire institution can better conceptualize and provide quality patient care.

Choosing to Start Choosing Wisely

Authors: Nicholas Meo, MD¹; Jessamyn Blau, MD¹

Affiliations: 1. Department of Internal Medicine, University of Washington, Seattle, WA

INTRODUCTION

Recent efforts have focused on identifying low value care throughout our healthcare system, and much momentum has centered on the American Board of Internal Medicine's (ABIM) Choosing Wisely project.¹ Partnering with professional societies, the campaign has generated over 60 "Top 5" lists of common wasteful practices, totaling over 320 recommendations.² However, few graduate medical education (GME) training programs have created formal curricula in cost conscious care and program directors have identified several key barriers to implementing curricular changes.^{3,4} Components of successful High Value Care education include experiential learning, culture change and clinical support.⁵ Our goal was to create a grassroots campaign centered on engaging trainees in high value care throughout our GME community.

METHODS

Our primary objective was to have trainees in each residency and fellowship program identify local wasteful practices and generate a "Top 5" list for dissemination. Our secondary objective was to create a generalizable GME Top 5 list that would be relevant for many types of trainees and align with institutional priorities.

A task force was formed from members of the Housestaff Quality and Safety Committee Liaison Program, a group comprised of 92 residents and fellows from 31 residency and fellowship programs, representing 7% of all trainees at UW. Contacts were generated from the task force to identify trainees in unrepresented programs. Each task force member was responsible for proposing five items for consideration. We encouraged task force members to engage residents or fellows in their own program by setting aside part of a morning report or other housestaff meeting to brainstorm potential suggestions. The suggestions could be, but did not have to be, based on existing Choosing Wisely lists for different specialties.

The campaign is ongoing currently. Once completed, "Top 5" lists will be compiled for aggregate review and each task force member will rank the items based on relevance, impact, generalizability and measurability. Based on this ranking, the list will be narrowed to twenty items. Administrative leadership and content experts will review the final twenty items for alignment with existing goals of the institution. Each member will review the leadership and expert input and will again score each item. Based on this ranking, the list will be narrowed to ten items. The

ten item list will be put to a GME housestaff-wide vote for the selection of the top five items, which will constitute the GME Choosing Wisely "Top 5" list

RESULTS

The campaign is ongoing. To date, 10/23 residency programs and 3/82 fellowship programs have submitted "Top 5" lists comprising 60 program level recommendations. Twenty-five percent of the recommendations generated are novel and 75% are concurrent choosing wisely recommendations. Forty-one percent of recommendations overlap with another program. Types of waste identified include 44% medication or therapy, 23% lab testing, 23% imaging testing and 10% communication.

All lists will be published for review on the Housestaff Quality and Safety Committee website.⁶

DISCUSSION

As our campaign is currently underway, the degree of engagement and participation from training programs is exciting. Much of the low level of fellowship participation is likely due to not identifying a trainee to contact for participation amongst our task force. We plan to reach out to program directors in fellowship and residency programs to suggest a trainee for partnership in the near future.

Once we have identified a representative in each program, we will begin the process of narrowing our list to ten recommendations that all of the housestaff can vote on. With both a program specific and a more generalizable GME list in hand, we will promote the results with posters and emailing throughout UW Medicine. We hope that the final "GME Top 5" recommendations will be able to be tied to discrete measurements so we may assess the impact of our campaign.

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Process Improvements for Timely Initiation of Epidural Infusion for Post-Operative Pain Control

Authors: Aalap Shah, MD¹; Michelle McGauvran, MD¹; Bala Nair, PhD¹; Laurent Bollag, MD¹

Affiliation: 1. Department of Anesthesiology & Pain Medicine, University of Washington, Seattle, WA

INTRODUCTION

Preoperative epidural catheters placed for post-operative pain management are often only started after conclusion of the surgery. Consequences of delayed epidural initiation include increased post-surgical pain and prolonged recovery room stay time by delaying patient discharge, and it is thus recommended that these infusions be started early on during surgery.¹ In our institution, a large academic medical center, a baseline audit of patients receiving pre-operative epidurals revealed that infusions were started pre or intra-operatively only 57% of the time despite them being placed pre-operatively. We describe specific process enhancements including pharmacy, system-based interventions as well as use of a near real-time decision support system to improve compliance with starting epidural infusion.

METHODS

A comprehensive review of pertinent steps when placing and running an epidural infusion was performed. Areas of improvement included the pharmacy (improved order processing time and infusion delivery to the theaters), equipment supplies (daily restocking) and locations (pertinent equipment stored at the same location) as well as other institution-specific workflows. Additionally, we used an Anesthesia Information Management System (AIMS) based decision support system using repeated pop-up messages, reminding the anesthesia care team to start the epidural infusion or enter a contraindication. As part of the patient time-out feature, we instituted an optional checkbox to note whether an epidural has been placed for post-operative pain control. If the provider checked "yes", Smart Anesthesia Manager (SAM) system generated reminders every 24 minutes via "pop-up" screens to encourage providers to start and document the epidural. The messages are stopped when either an epidural infusion is started or the provider documents an epidural contraindication. We reviewed compliance for one month before (baseline: September 2014) and one month after the SAM intervention was instituted (intervention: November 2014). To assess efficacy of the new measures, a data sheet was created that documented technical data pertaining to the epidural placement, post-operative pain scores assessed in the PACU (scored $\times/10$) (Figure 1), and epidural start time. Epidurals that were noted to be started intraoperatively constituted "timely" initiation. Obstetric cases were excluded.

RESULTS

Sixty-five survey sheets were collected, 39 before and 23 after the intervention. Pre-intervention, 69% of epidural infusions ($n=27/39$) were started pre or intra-operatively. Post-intervention, 91% of epidural infusions ($n=21/23$) were started pre or intra-operatively, representing a modest increase in initiation rate ($p=0.06$). Averaged maximum PACU pain scores were 5.7 \pm 3.6 (timely initiation) compared to 7.2 \pm 4.0 (late initiation); $p=0.26$. Averaged observed pain scores at the time of recovery room departure were 3.0 \pm 2.3 (timely initiation) compared to 4.5 \pm 2.5 (late initiation; $p=0.06$). However, during the intervention period, providers used the checkbox for post-operative pain control epidural only 25% of the time ($n=334/1322$ cases done at our institution). Also, among the 92 pre-operative epidurals placed during the intervention period in only 32 instances was there a confirmatory answer in the AIMS epidural checkbox (34.8% compliance). Compliance to starting epidurals in cases when providers documented a confirmatory answer in the AIMS epidural checkbox, thus triggering a SAM reminder, was 100%. This was higher than the 65% compliance for cases that did not use the AIMS checkbox and SAM reminders ($p=0.01$). The time elapsed until epidural initiation was shorter in patients for whom an answer was provided to the SAM prompt, compared to those in whom the prompt was ignored (35.4 vs 58.5 min), a statistically insignificant trend ($p=0.10$).

CONCLUSION

Epidural workflow improvements including pharmacy and equipment changes combined with electronic alerts resulted in a 22% increase in timely initiation of epidurals. This also coincided with a slight decrease in post-operative pain scores throughout the recovery room stay. Near real-time notifications to initiate epidural infusions were modestly effective. An optional documentation feature in AIMS to note whether a patient has an epidural for postoperative pain management had poor compliance, which in turn meant SAM reminders were not triggered for a significant number of epidural patients. Triggering SAM reminders based on epidural orders in the hospital EMRs, rather than on voluntary documentation may be a more effective way to improve compliance to epidural initiation. Further studies evaluating effects of epidural start time on postoperative outcomes are warranted.

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Implementation of an ERAS Radical Cystectomy Clinical Care Pathway: Initial Results

Authors: Brian Winters, MD¹, Jane Cardoso, MS², Jana Ghosn, RN,BSN³, Emily Schade, DNP, ACNP-BC¹, Sarah Hunt, ARNP¹, Jonathan Wright, MD, MS¹

Affiliations: 1. Department of Urology, University of Washington, Seattle, WA 2. Transformation of Care Department, University of Washington Medical Center, Seattle, WA 3. University of Washington Medical Center, Seattle, WA

ABSTRACT

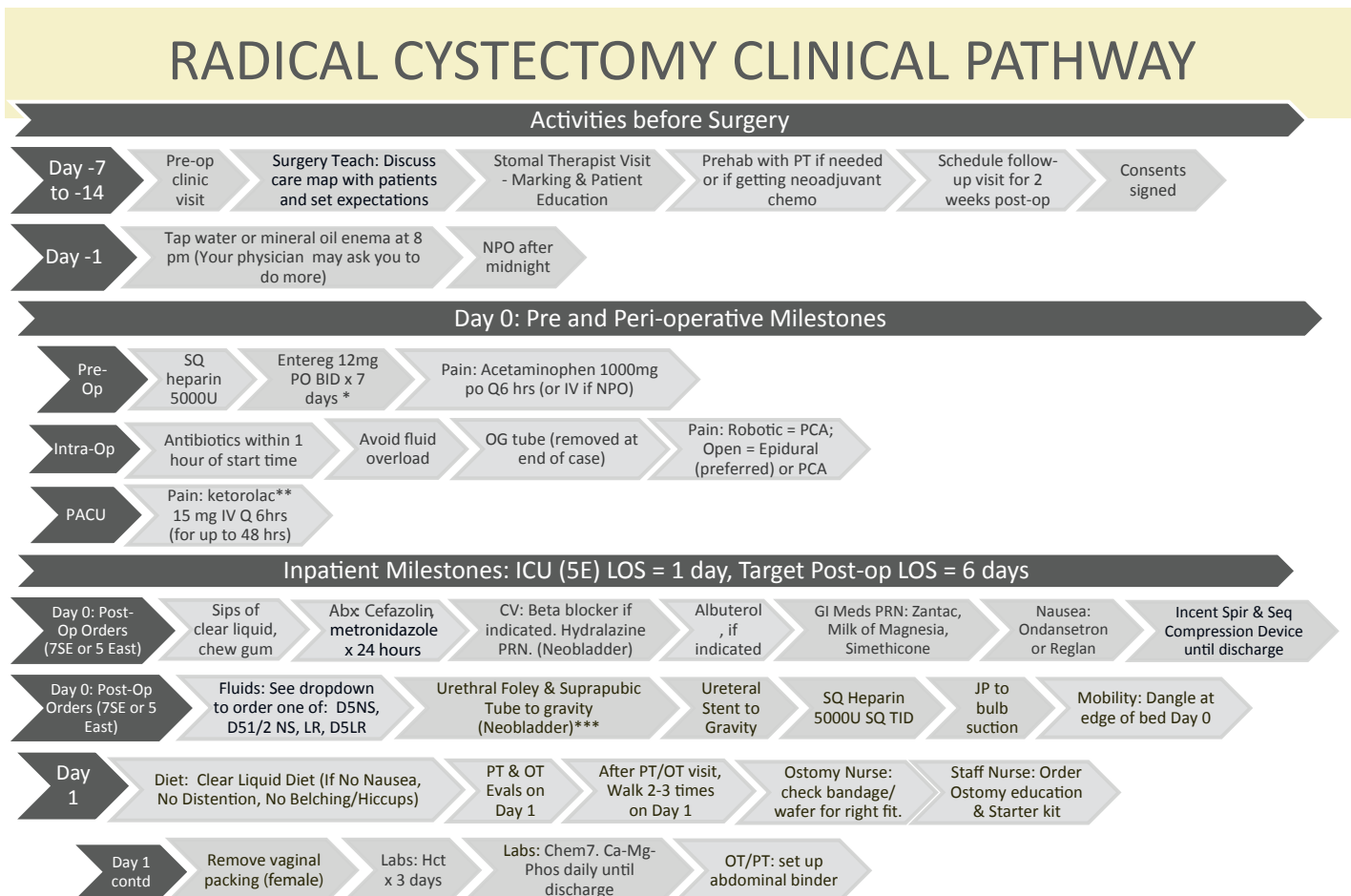
Background

Radical cystectomy (RC) surgery for bladder cancer is highly morbid with considerable complication and readmission rates. Enhanced Recovery after Surgery (ERAS) protocols have the potential to improve perioperative outcomes. We describe implementation and initial results of an ERAS RC clinical care pathway.

Methods

A multidisciplinary team was assembled and a care pathway drafted based on best practice literature and surgeon preference. Consensus documents including a clinical care pathway, patient-friendly care map, and an ORCA post-operative order set were derived and implemented February 1, 2015. Outcome data are tracked with indicators of perfor-

Figure 1.1 Radical Cystectomy Clinical Pathway pre and peri-operative



* [Entereg] – Not for patients with elevated creatinine.

**[Ketorolac / Toradol U.S. Boxed Warning]: Contraindicated in patients with advanced renal impairment. Patients with moderately-elevated serum creatinine should use half the dose with a max of 60 mg/day

*** For patients with CCUR, the foley catheter will be through the stoma.

Note: ~10% of patients go to ICU

Last updated: 3/26/15



mance efficiency and quality.

Results

Baseline RC patients (N=64) are compared to post-implementation patients (n=6). Preliminary data reveal post-implementation RC patients experienced less ICU (1.5 vs. 0 days) and shorter hospitalizations in the first month of implementation (7.98 vs. 5.33 days) but not the second month (8.67 days). Data are immature to evaluate comparable complication and readmission rates. Post-implementation RC patients provided \$3,477 in cost savings in the 1st month but \$2,611 cost increase compared to controls in the 2nd month (a net decrease of \$424 overall per case).

Conclusions

Initial data of post-implementation RC patients is encouraging.

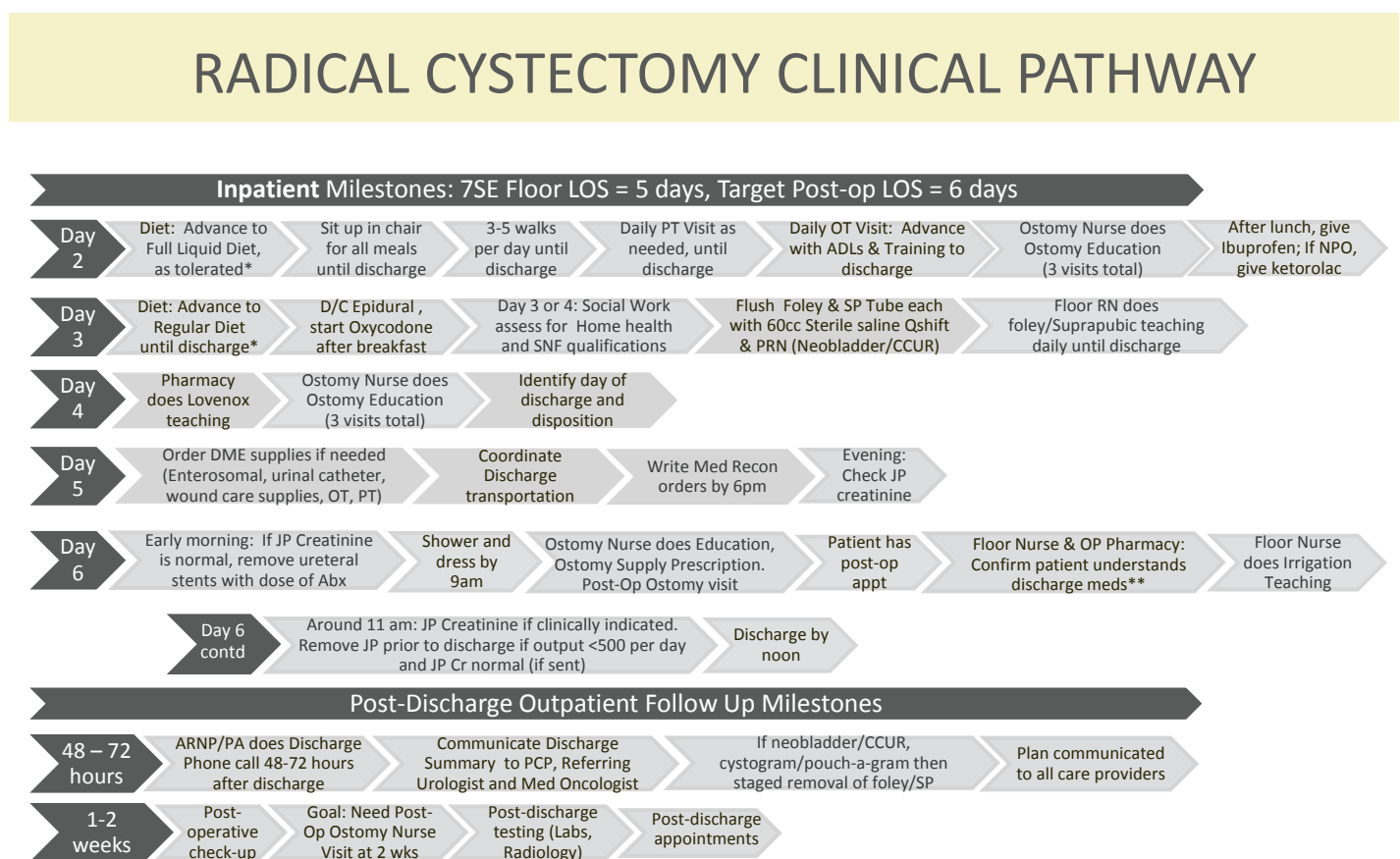
Ongoing longitudinal data tracking will describe the effects on complication and readmission rates of RC patients with survey data describing patient satisfaction.

INTRODUCTION

Radical cystectomy (RC) is considered the standard of care for locally invasive bladder cancer¹ and despite improvements in surgical technique and perioperative care, RC remains a highly morbid operation with hospital stays often >8 days,²⁻⁴ complication rates ranging from 26-66%^{2,4-8}, and readmission rates approaching 21-32%.^{4,5,9}

With the aim of improving surgical quality, so called 'fast-track' protocols also known as Enhanced Recovery after Surgery (ERAS) protocols have been developed.¹⁰ Originally described in the colorectal literature, the ERAS consensus group was established in 2001 as a collaborative of five European universities with the goal of developing a

Figure 1.2 Radical Cystectomy Clinical Pathway post-operative and post-discharge



* If No Nausea, No Distention, No Belching/Hiccups,
 ** Standard discharge meds : Colace, Oxycodone, Tylenol and Lovenox



Last updated: 3/26/15

clinical pathway to accelerate recovery after abdominal surgery.¹⁰ Tenets of this program (22 in all) include preadmission counseling, limited bowel preparation, fluid and carbohydrate loading (no fasting), adjuvant non-opioid analgesics, balanced IV fluid management, early mobilization, and early enteral nutrition.¹⁰ These efforts aimed at improving perioperative care have been validated in several small randomized controlled trials¹¹ and a recent review of over 2,300 patients in 13 centers revealed that increased ERAS compliance correlates with fewer complications and shorter hospital stays.¹²

Given the perioperative morbidity surrounding RC, this would seem an excellent target for a multi-modal clinical pathway. Several published studies have described single or dual intervention RC pathways with few groups employing the multimodal approach.¹³ Two US institutions have described implementing a multimodal ERAS-type program for RC patients with encouraging initial results.^{14,15} Herein, we describe our


initial experience of instituting an ERAS clinical care pathway at the University of Washington Medical Center (UWMC).

METHODS

The UW Medicine cystectomy care pathway was designed, reviewed and implemented by a multidisciplinary team including urologic surgeons, fellows, residents, nurse managers, unit nurses, urologic clinic nurses, stomal therapists, physical and occupational therapists, patient care coordinators and representatives from nutrition and pharmacy.






The process included UWMC drafting an initial care pathway based on literature and single surgeon experience (JW). A gap analysis was then conducted to examine best practices compared to current UWMC practices in RC care. Consensus was then built across all urologic surgeons performing RC (N=5) via review of the literature and individ-

Figure 2.1 Cystectomy CareMap: Your Hospital Stay
How to prepare and what to expect



Cystectomy CareMap: Your Hospital Stay

How to prepare and what to expect


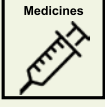
Before Surgery Day		Surgery Day
<p>During the 2 weeks before surgery:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Surgery teaching <input type="checkbox"/> Stomal therapy visit, if needed <input type="checkbox"/> Physical Therapy (PT) visit for Prehab, if needed <input type="checkbox"/> Sign your consent papers <input type="checkbox"/> Make sure your follow-up visit is scheduled for 2 weeks after your surgery <p>The day before surgery:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Receive a call from the hospital with your assigned arrival time <input type="checkbox"/> Take a shower with the antibacterial soap that was prescribed  <p>The night before surgery:</p> <ul style="list-style-type: none"> <input type="checkbox"/> At 8 p.m.: Do your tap water or mineral oil enema (your doctor will tell you how many times to do this) <input type="checkbox"/> After midnight: Do not eat or drink anything  	<p>Before you leave home:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Take another shower with the antibacterial soap that was prescribed  <p>At the hospital:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Check in at Surgery Registration at your assigned arrival time <input type="checkbox"/> A nurse will call you to come to the Pre-Op area <input type="checkbox"/> An IV tube will be placed in your arm to give you fluids and antibiotics  <input type="checkbox"/> An Anesthesiologist will talk with you about placing either an epidural line or a PCA pump to give you pain medicine <input type="checkbox"/> You will be given a heating blanket to keep you warm, improve healing, and lower the risk of infection (keep the blanket on even if you feel warm enough) <div style="text-align: center; margin-top: 20px;">  </div>	<p>After surgery, you will:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Wake up in the recovery area <input type="checkbox"/> Be moved to a bed in a hospital unit <p>You will have:</p> <ul style="list-style-type: none"> <input type="checkbox"/> An IV in your arm to give you fluids and antibiotics <input type="checkbox"/> Compression devices on your legs to help blood flow <input type="checkbox"/> Either a pain medicine catheter (epidural) in your back or a PCA connected to your IV to give you pain medicine <input type="checkbox"/> A Jackson-Pratt (JP) tube to drain fluids that build up in your body after surgery <p>If you have:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A neobladder, you will have a Foley catheter and a suprapubic tube to drain urine from your bladder <input type="checkbox"/> A continent cutaneous urinary reservoir (CCUR), you will have a catheter in your stoma and a suprapubic tube to drain urine from your reservoir <input type="checkbox"/> An ostomy, you will have a bandage and wafer to protect your wound <p>Medicines</p> <ul style="list-style-type: none"> <input type="checkbox"/> You will receive medicines to help with digestion and nausea <p>Activity</p> <ul style="list-style-type: none"> <input type="checkbox"/> Your nurse will help you sit on the edge of the bed <p>Diet</p> <ul style="list-style-type: none"> <input type="checkbox"/> Your nurse will encourage you to take sips of clear liquids and chew gum to help your digestion work <p>Self-care</p> <ul style="list-style-type: none"> <input type="checkbox"/> Your nurse will teach you how to use your incentive spirometer and remind you to use it 10 times each hour, every day while you are in the hospital

ual preferences. The project manager then interviewed the remaining members of the cystectomy team for perspective on the current state of RC care and opportunities for improvement. All team members met to review and finalize the pathway with the following communication and operational documents created: 1. Clinical care pathway (Figure 1), 2. Patient-friendly care map (with day-by-day progression of hospital stay, Figure 2), and 3. ORCA post-operative order set. A communication plan was then designed and the pathway implemented February 2, 2015. Ongoing feedback from physicians and ARNPs is gathered and integrated into the pathway as appropriate. Outcome data are tracked using indicators of performance efficiency (length of stay, cost comparisons between case and historical controls and quality (overall mortality, 30-day readmission rates, and patient satisfaction).

RESULTS

Baseline RC patients were included from January 1, 2014 through December 31, 2014 (n=64) while RC patients post-implementation includes those from February 15, 2015 onward. Descriptive data are shown in Table 1. Case mix index (a university algorithm based on diagnoses, patient characteristics, comorbidities, etc.) was slightly higher in the baseline population (3.04 vs. 2.54). Sixteen percent of patients in the baseline population were readmitted within 30 days (n=10/64) while 30% have been readmitted post-implementation (n=2/6, both in second month). Overall length of stay was 2.65 days shorter in the first month post-implementation, while the second month was associated with slightly longer hospital stay of 0.69 days compared to controls (likely driven by one outlier with 12 day LOS). When evaluating direct cost of the hospitalization, the post-implementation group saved \$3,458 dollars compared to baseline in the first month, however there

Figure 2.2 Cystectomy CareMap: Your Hospital Stay
How to prepare and what to expect

	Day 1	Day 2	Days 3, 4, 5, or 6	Discharge (Day 5 or 6)	After Discharge
Pain	<input type="checkbox"/> You will have control of giving yourself pain medicine as needed, either through your epidural or PCA		<input type="checkbox"/> When you can handle solid food, your epidural or PCA will be removed and you will be given medicine by mouth (oral)	<input type="checkbox"/> Receive oral pain medicine at discharge	<input type="checkbox"/> Drink LOTS of fluids, at least 2 liters (about 8 cups) every day. Staying hydrated is very important for your recovery.
Diet	<input type="checkbox"/> Start clear liquid diet	<input type="checkbox"/> Advance to full liquid diet	<input type="checkbox"/> Advance to regular diet until you leave the hospital		<input type="checkbox"/> To help with healing, try drinking nutrition drinks such as Ensure or Boost.
Activity	<input type="checkbox"/> A Physical Therapist (PT) will evaluate you <input type="checkbox"/> Do not get out of bed without help from a PT, nurse, or patient care technician until the PT has said it is OK <input type="checkbox"/> Aim to walk 2 to 3 times today	<input type="checkbox"/> Sit in a chair for all of your meals. <input type="checkbox"/> Aim to be out of bed for 6 hours a day and walk 3 to 5 times a day. The more you move, the faster your body will heal. <input type="checkbox"/> Do NOT get out of bed without a nurse beside you. <input type="checkbox"/> A PT will visit you until no longer needed. <input type="checkbox"/> Try to use your incentive spirometer 10 times each hour to keep fluid out of your lungs.			<input type="checkbox"/> Make sure your catheters are fixed at all times.
Self-care	<input type="checkbox"/> An Occupational Therapist (OT) will evaluate you <input type="checkbox"/> Sponge bath	<input type="checkbox"/> An OT will help you with shower training and activities of daily living (ADLs)	<input type="checkbox"/> Discharge day: Shower and dress in your own clothes by about 9 a.m.		<input type="checkbox"/> The ARNP or PA from your hospital stay will call you 48 to 72 hours after discharge to check in and answer any questions or concerns.
Ostomy	<input type="checkbox"/> An ostomy nurse will check the fit of your bandage and wafer	<input type="checkbox"/> Receive an Ostomy Starter Kit and ostomy educational materials <input type="checkbox"/> An ostomy nurse will visit every 2 or 3 days to teach you about ostomy care <input type="checkbox"/> A nurse will teach you about your ostomy before discharge			<input type="checkbox"/> If you have an ostomy: Return for a follow-up visit with the ostomy nurse 2 weeks after discharge.
Drains			<input type="checkbox"/> Day 3: If you have a neobladder or CCUR, your team will start flushing your drainage tubes <input type="checkbox"/> Day 5 or 6 (Discharge day): Ureteral stents will be removed		<input type="checkbox"/> A follow-up clinic visit with an RN or ARNP will be set up for a few weeks after discharge.
Cancer			<input type="checkbox"/> Day 4 or 5: A pharmacist will teach you how to give yourself Lovenox shots 	<input type="checkbox"/> A pharmacist will teach you about all your discharge medicines <input type="checkbox"/> Receive 28 days of Lovenox at discharge	
Planning			<input type="checkbox"/> Days 3-5: Meet with a social worker to talk about any concerns you have about your plans after discharge		

Category	Baseline	Implementation 1st Month	Implementation 2nd Month
Cases	64	3	3
Case Mix Index	3.04	2.54	2.54
30-day readmission (%)	10 (16)	0 (0)	2 (66)
ICU LOS (days)	1.50	0	0
LOS (days)	7.98	5.33	8.67
Direct costs (SD)	\$1,380,043	\$54,325	\$72,522
Direct cost per case	\$21,563	\$18,105	\$24,174

Table 1. Outcome data in RC patients before and after establishment of a clinical care pathway

was an increased cost in the second month of \$2,611 (a net savings of \$424 per case overall).

DISCUSSION

As mentioned, RC is a morbid procedure with high complication^{2,4,8} and readmission rates.^{4,5,9} Previous institutions have published their experience with multi-modal cystectomy programs with one group describing shorter hospital stays on subgroup analysis (prokinetic agents and gum chewing)¹⁴ while the other described a decreased median hospital stay in the ERAS cohort compared to historical controls.¹⁵ Neither group performed robust post-implementation analysis compared to baseline.

Data from the current study is preliminary, and so complication and long-term readmission rates cannot be described. We have shown encouraging trends in decreased cost of hospitalization and shorter hospital stays relative to historical controls in the first but not the second month. Further longitudinal follow up will allow comparison of cost, complication, and readmission rates both within the UWMC patient population and relative to existing series. Planned follow up survey analysis will examine physician and patient satisfaction with ERAS RC clinical care pathway.

Acknowledgments:

This work has been the product of many individuals and we would like to thank the following: ORCA CPOE assistance: Aharon TenBroek and Diane Matsuaka; Transformation of Care Department: Shilpa Kasukurthi; urologic surgeons: John Gore MD, MS, Daniel Lin MD, Bruce Dalkin MD, William Ellis MD; patient care coordinators: Theresa Blaser, Lindsey Tosfrud, Irene Kelleppan, Margaret Marcy; 7SE nursing staff: Christine Eley; ostomy nurse manager: Colleen Karvonen; Physical Therapy: Jaimee Sulzman; Occupational Therapy: Pam Kiltz; Urology clinic nurses: Donnetta Cook and Martha Foster.

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Managing Departmental Contacts: Workflow Improvements Using Obvibase

Authors: Aalap Shah, MD¹; Chenwei Wu, MD²; Chris Fiset¹; Kay Gowan¹

Affiliation: 1. Department of Anesthesiology & Pain Medicine, University of Washington, Seattle, WA 2. Department of Internal Medicine, University of Washington, Seattle, WA

BACKGROUND

There exists a plethora of quality improvement and medical literature examining the “information transfer” process across healthcare specialties and professions (i.e. MDs, RNs, etc.) as well as between provider and patient. Most of these studies have focused on interventions intended to improve the accuracy as well as quality of handovers and patient communications. However, there are relatively few studies investigating technological initiatives geared towards improving intradepartmental communication (i.e. among healthcare workers on the same team, or between junior and senior colleagues).

Intradepartmental communication is a continuous process engaging staff members literally every minute. Examples relevant to our argument include the following:

1. Pre-operative evaluation: An Anesthesiology resident must contact his/her attending to discuss patient cases the night before scheduled surgery. This usually requires a page sent from the resident to the attending. In many cases, an attending may prefer to be contacted via cell phone or SpectraLink phone if working in the operating rooms. This does not include additional phone calls made with other providers (i.e. consulting cardiac anesthesiologists), interdepartmental consultants, and even patients.

2. Patient care/intraoperative alerts: While a patient is under anesthesia, Anesthesiology providers must contact the attending physician when they are ready to induce or emerge the patient; these are time-sensitive tasks that directly affect care and require speedy responses to pages and SpectraLink calls. Of course, any intraoperative urgency must be dealt with using the same communication modalities in an expedited manner.

3. Staffing/service line coordination: The coordinating Anesthesiology attending or resident at each hospital must be able to efficiently communicate and coordinate resource needs and schedule changes to both individual providers and clinical services within the department (i.e. Pain Relief Service, Recovery Room/PACU resident, etc.). This requires having the SpectraLink and pager number of each of these services readily available.

Our project revolves around developing an infrastructure to improve accuracy, user facility, and efficiency of patient care-related communications tasks between providers. In the pursuit of a high-fidelity, user-friendly, and portable contact database management system for our

institution, we propose adopting:

1. Obvibase for collaborative contact database management and job-specific report generation
2. A standardized Change Request Form to routinely solicit contact information revisions
3. Dropbox as a distribution and sharing mechanism for the departmental directory, institution-specific contact lists, and smartphone contact files.

OBJECTIVES

- Create a single, high-fidelity workspace which is routinely maintained through a shared/collaborative approach
- Ensure the accuracy and detail of individual contact information
- Expand the directory to include service line and operating room phone numbers
- Streamline the conversion of job title-specific smartphone files from the departmental directory.
- Improve communication efficiency by making contact information more readily retrievable.

CURRENT STATUS

The UW Department of Anesthesiology and Pain Medicine (UW APM) is a large academic department that is well integrated into the workflows of several surgical subspecialties providing care for the largest catchment area of any medical center in the country. The department includes more than 400 personnel providing clinical care (attending, fellow and resident physicians and clinical nurse registered anesthetists [CRNAs]) in almost 100 operating and non-operating settings at five disparate location (Table 1).

Communication processes are also quite resource-heavy (Figure 1). Until February 2015, employee contact information was maintained in a Microsoft Access database (“master spreadsheet”), from which a monthly Excel spreadsheet (“departmental directory”) would be generated and distributed to all members via e-mail as well as posted on the department website. A smartphone file containing the contact pager information (iPage) is generated from the “departmental directory” at the same frequency. Furthermore, institution- or hospital-specific administrators create site-specific “contact lists”. However, it was noted by the primary investigator that 1) several contacts had incomplete or inaccurate information at either the departmental directory or contact list level and 2) new staff members were not added to the list until several months into their employment, while departed staff members were still included. An investigation into the current workflow exposed the following issues:

1. No clear division of responsibility: It was not previously clear within UW APM Human Resources who was responsible for receiving and incorporating updates to the database, nor how often these updates should be occurring.
2. Limited distribution mechanisms: Distribution of the department directory and contact lists relies on e-mail and user access to the

departmental website, which may be infrequent.

3. Redundant data: There exist multiple sources of contact information that contributed to the original database. Discordant information between the departmental directory and individual contact lists is primarily due to two mechanisms:

a. Bidirectional communication: This occurs when edits (additions, deletions) are made to information at the contact list but not departmental directory level. Because the contact list itself can be a contributing data source to the departmental directory, it is possible for errors in the former to contaminate the latter.

b. SpinFusion: Institution-specific administrators often use SpinFusion software to maintain the contact information and clinical schedules of their staff. As above, there is no mechanism to automatically and rapidly synchronize changes between these disparate management systems.

4. Limited contact information categories: Information regarding mobile and home phone numbers was previously not included in the departmental directory.

5. No selective sort function: In a list of more than 500 entries, employees must use Excel search and sort functions to find specific individuals. In addition, the departmental directory iPage file cannot be configured by job title or institution and must be downloaded in its entirety to a smartphone. These factors result in duplication of contact entries and publication of unwanted contact details.

6. Limited user facility:

a. iPage file access is limited to Apple iOS devices.

b. Attending and resident physicians in an administrative capacity must work through multiple steps to contact individuals and service lines. This is a time-consuming process that occurs in the context of a rapidly changing perioperative environment.

METHODOLOGY

Manual Data Update–October 2014:

We gathered the most up-to-date contact lists from each of the UW institutions and cross-referenced all contact entries with the most recent departmental directory e-mail. This became our active “working copy” for this project.

Column Data: We added columns for home phone number, mobile phone number, SpectraLink number, and e-mail (with hyperlink). We also added sort columns to help distinguish job titles (e.g. professor), job category (e.g. Anesthesiology) and location (e.g. HMC).

Operating Room and Service Lines: To the working copy, we added phone numbers for the Anesthesiology workstations inside UWMC and HMC operating suites as well as contact information for service line (e.g. Pain, Regional) and service area (e.g. Pavilion) hot pagers and phones.

Intervention: Obvibase/Dropbox as Working Model: (January 2015)

After investigating various sharing platforms including OneDrive, we came across Obvibase, an on-line database management system

designed for collaborative work. Obvibase 1) allows real-time collaborative edits, including file attachments to individual records; 2) enables selective sorting and report generation based on any sort variable, and 3) permits convenient bulk editing of multiple records.

Request for Updates–March 2015:

In order to obtain the most up-to-date information from current departmental staff, we created and distributed a Change Request Form (Google Form) soliciting revisions to the current departmental directory alongside the March 2015 contact list. These forms are completed and submitted by staff members, and the specific changes to be made populate a separate spreadsheet. These changes can then be entered into the departmental directory by an Editor (see below).

We received 30 forms concerning incorrect information and 25 forms concerning incomplete information from staff and human resource administrators encompassing more than 60 members of the department. Updates were quickly made to the departmental directory prior to the next monthly release in April 2015.

Discussion with UW APM Human Resource Staff (January–May 2015):

We have met several times with UW APM human resource administrators (“Editors”) and have trialed the Obvibase system with them. All members have expressed satisfaction with the system, and Editor training has been ongoing since February 2015. We have also presented our proposed workflow changes to Dr. Michael Crowder (Department Chair) and Susan Marx (Business Director). We uploaded the April 2015 version of the departmental directory into Obvibase, and Editors have been using the system since then.

PROPOSED WORKFLOW

Figure 2 depicts the proposed workflow utilizing Obvibase as the new departmental directory / contact database management system. While only Editors (3-4 people) have editing privileges with Obvibase, institutional administrators can access Obvibase and utilize the selective sort functions to create site-specific contact lists containing only the information they wish to disseminate. All users can submit a Change Request Form to update personal information.

“Editors” refer to UW APM human resource staff who possess Obvibase access privileges and shoulder the primary responsibility for maintaining the departmental directory. Editors rely on employment records and Change Request Form submissions to update the departmental directory. Updates occur at a minimum once a month, but Editors are strongly encouraged to make changes in Obvibase as soon as any completed Change Request Form is received.

“Eyes and ears” include all chief residents, CRNAs, and support staff working within the operating room environment at UW Medicine sites. Primary responsibilities are to observe, collect, and submit changes concerning contact details (i.e. new attending physician SpectraLink, new resident cell phone number) to Editors via the Change Request Form on an as-needed basis

“Distributors” refer to site-specific institutional administrators

Table 1.

<p>University of Washington Department of Anesthesiology and Pain Medicine (December 2014)</p> <p>135 Residents and fellows 28 Interns 35 Research faculty 37 Administrative staff 9 Roosevelt</p>
<p>UWMC</p> <p>60 Attending physicians 37 CRNAs 11 Operating room technicians 25 Operating rooms</p>
<p>HMC</p> <p>25 Attending physicians 37 CRNAs 11 Operating room technicians 25 Operating rooms</p>
<p>SCH</p> <p>4 Attending physicians 11 CRNAs 8 Operating room technicians 15 Operating rooms</p>
<p>VAMC</p> <p>10 Attending physicians ~5 CRNAs ~4 Operating room technicians 8 Operating rooms</p>

Figure 1. Current workflow

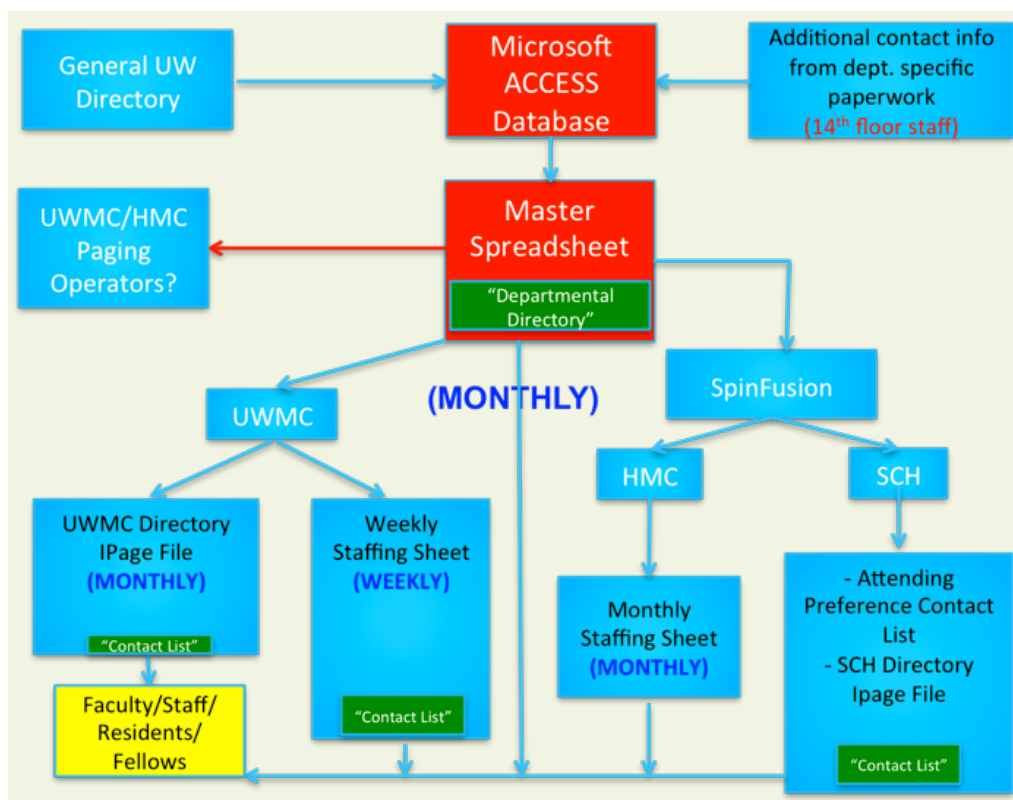
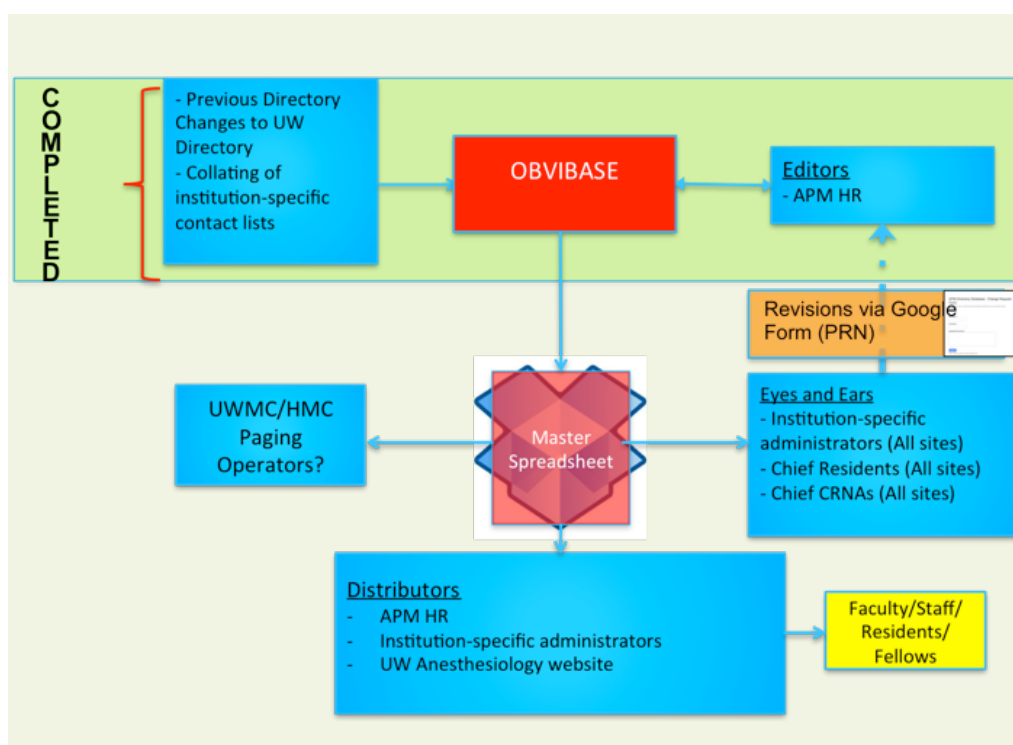


Figure 2. Proposed workflow



Articles

charged with maintaining contact information at the contact list level. Several currently utilize the SpinFusion software. However, we propose distributors standardize to Obvibase and instead generate contact lists using the selective sort function of this program. Distributors can simultaneously convert these reports to smartphone files (.csv or .vCard format) and disseminate as appropriate.





Prep Clinic: An Intervention to Improve Colonoscopy Completion Rates, Quality of Bowel Preparation, and Polyp Detection

Authors: Stephen Vindigni, MD MPH¹; Tatiana Dejneka, RN²; Susan Pochepan, RN²; Kathryn Stiff, ARNP²; Johanna Taniguchi, RN²; John Inadomi, MD¹; Elizabeth Broussard, MD¹

Affiliations: 1. Division of Gastroenterology, University of Washington, Seattle, WA 2. Harborview Medical Center, Seattle, WA

ABSTRACT

Background & Aims

Local and national data demonstrate high rates of no-shows and cancelations for scheduled colonoscopies. Additionally, up to 20% of patients who complete colonoscopy have suboptimal bowel preparation limiting polyp detection and contributing to longer procedure times with inherent risks. We developed and instituted a bowel prep clinic aimed at improving colonoscopy completion rates, the quality of bowel preparation and polyp/adenoma detection rates (PDR/ADR).

Methods

Established in February 2013, the Prep clinic enrolled English-speaking patients referred for colonoscopy (screening and diagnostic) prior to the scheduling of the procedure. Prep clinic attendees were educated about the indications for colonoscopy, procedure details, the procedure day agenda and how to perform bowel preparation. Patient demographic data, colonoscopy details (e.g., prep quality), and pathology results were recorded and de-identified. Data were stratified and analyzed comparing results among Prep clinic attendees vs. non-attendees.

Results

In 2012, pre-intervention, 61.6% of scheduled colonoscopies were completed. During the intervention period (February 2013 to June 2014), 86% of Prep clinic attendees went on to complete a colonoscopy. Prep clinic attendees were more likely to have excellent bowel prep (64% vs 41%, $p < 0.001$) with the greatest improvements seen in female attendees (OR 2.54, 95% CI 1.69-3.81) and attendees <50 years old (OR 2.35, 95% CI 1.33-4.14). Prep clinic attendees also had significantly improved PDR compared to nonattendees (79.6% vs 67.5%, 95% CI 1.20-2.98), but no significant change with ADR.

Conclusions

The development and institution of a bowel preparation clinic is a simple intervention that significantly improves colonoscopy completion rates, the quality of bowel preparation and polyp detection rate.

BACKGROUND

The quality of bowel preparation for colonoscopy has significant impact on procedure length, the quality of mucosal visualization and adenoma detection rate (ADR).¹⁻³ Over 40% of patients do not attend a scheduled colonoscopy; among completed colonoscopies, over 20% have suboptimal bowel preparation.^{2,4-6} This is important since poor bowel preparation reduces the ability to detect small lesions, but also results in longer procedure times with inherent complication risks and additional anesthesia requirements.^{1,3,4} Therefore, any improvement in bowel preparation, and ultimately polyp (PDR) or adenoma detection rate (ADR), would be beneficial—to decrease risks during an initial colonoscopy and negate the need for a repeat colonoscopy.

We anticipated the implementation of a bowel preparation clinic would result in improved colonoscopy completion, enhanced bowel preparation, and increased PDR/ADR.

METHODS

A bowel preparation clinic (Prep clinic) was established in February 2013 at Harborview Medical Center. Patients enrolled in the clinic included those referred for screening, surveillance, hematochezia, family history of colorectal cancer or a positive fecal occult blood test/fecal immunochemical test (FOBT/FIT); patients also had to be English speaking. Patients of University of Washington Neighborhood primary care clinics were excluded. The clinic was of no cost to patients and colonoscopy was scheduled within 30 days of clinic attendance. During the 30-minute clinic, topics discussed included procedure details with significant focus placed on bowel preparation including preprocedure laxatives and foods to avoid with images shown.

Data collection

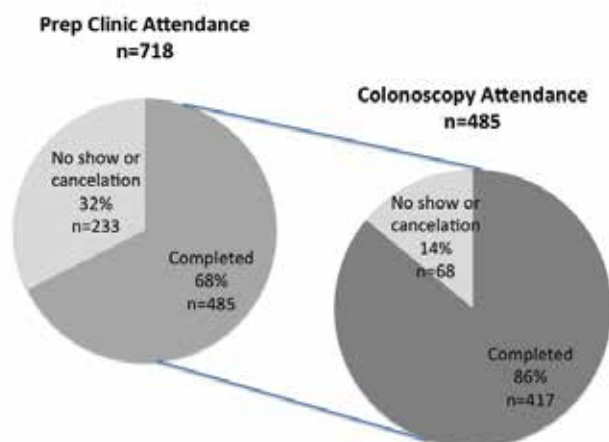
Colonoscopy completion rates from 2012 were reviewed prior to the initiation of the Prep clinic. For this study, we retrospectively reviewed electronic medical records for all colonoscopies (excluding combined EGD-colonoscopies) performed from January 2013 to June 2014. Abstracted information included age, gender, primary language, and insurance coverage. For each colonoscopy, we also abstracted information on bowel preparation quality. Pathology reports were reviewed to assess for adenomas or colorectal cancer. Data were stratified by patients who attended the preparation clinic compared to those who did not.

Data analysis

All data were de-identified prior to analysis. Descriptive analysis was performed using Microsoft Excel (Renton, WA). The type I error was specified as 0.05. All statistical analyses were performed using SAS software V9.4 (SAS institute, Cary, NC). Chi-square test and t test were performed to evaluate differences of demographic variables between Prep clinic attendees and non-attendees. The associations between Prep clinic attendance and quality of bowel preparation, PDR, and ADR were analyzed using multiple factor logistic regression models with

adjustment for the confounders. Additional statistical details are available upon request.

Figure 1. Colonoscopy completion rates, January 2013 to June 2014



RESULTS

In 2012, 61.6% of scheduled colonoscopies were completed, with 28.8% canceled appointments and 9.5% no shows (n=2664). From January 2013 to June 2014, 718 patients were assigned to the Prep clinic with 67.5% (n=485) attending the session. Of these, 86% (n=417) went on to complete a scheduled colonoscopy (Figure 1).

Characteristics of Prep clinic attendees and non-attendees are presented in Table 1. Compared with non-attendees (n=2359), Prep clinic attendees were slightly older (56.5 vs 54.8, p<0.0001), male gender (p=0.0001), and insured by Medicaid or charity care (p<0.0001); most patients were primary English speakers.

Comparing the quality of bowel preparation among Prep clinic attendees (excluding cases where this information was not available, n=33), 64% had excellent bowel prep compared to 41% in the control group (p<0.001, Figure 2). Attendance at Prep clinic was significantly associated with the quality of bowel preparation (p<0.001). Prep clinic attendees had significantly improved bowel prep quality by 1.95 times (95% CI, 1.56- 2.44) compared to non-attendees. Although this find-

Figure 2. Bowel preparation quality among participants, Jan 2013–June 2014

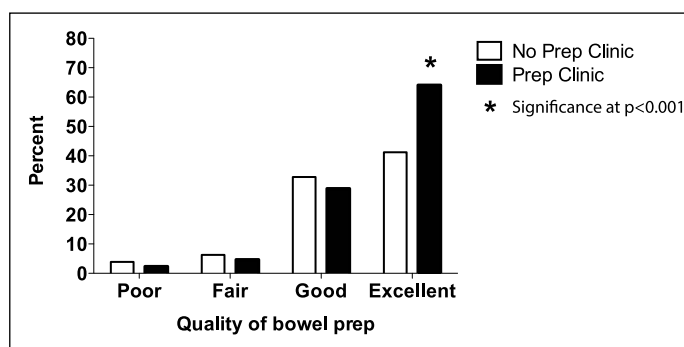


Table 1. Distribution of selected characteristics among patients, Jan 2013 – June 2014

	Characteristic	Attended Prep Clinic (n=417)	Did Not Attend (n=2359)	Adjusted Odds Ratio (95% CI)
Age, yr				
	Mean (95% CI)	56.47 (55.7-57.3)	54.82 (54.3-55.3)	1.02 (1.01-1.04)
	≤55	194 (46.5)	1167 (49.5)	
	>55	223 (53.5)	1192 (50.5)	
Sex				
	Female	142 (34.0)	1041(44.1)	ref
	Male	275 (66.0)	1318(55.9)	1.58 (1.25-2.01)
Language				
	English	338 (81.1)	1781(75.5)	ref
	Spanish	54 (13.0)	154(6.5)	1.82 (1.21-2.73)
	Vietnam	16 (3.8)	114(4.8)	0.60 (0.34-1.03)
	Other/Unknown	9 (2.2)	310(13.1)	0.13 (0.07-0.26)
Insurance				
	Medicare	110 (28.0)	657(30.5)	ref
	Medicaid	135 (34.4)	527(24.5)	2.04 (1.50-2.77)
	Private	69 (17.6)	759(35.3)	0.66 (0.47-0.93)
	Charity	76 (19.3)	183(8.5)	2.84 (1.90-4.24)
	Other/Unknown	3 (0.8)	27(1.3)	0.77 (0.23-2.63)

ing was significant regardless of gender, the quality of bowel prep was improved in women (OR 2.54, 95% CI 1.69-3.81) compared to men (OR 1.73, 95% CI 1.32-2.26). Controlling for categorical age cohorts, the frequencies of good or excellent bowel preparations were higher in Prep clinic attendees among all ages (p=0.03), but the greatest improvement was seen in patients younger than age 50 (OR 2.35, 95% CI 1.33-4.14, Table 2). Prep clinic was also found to significantly improve PDR 1.89 times among Prep clinic attendees compared to non-attendees (79.6% vs 67.5%, p=0.006); we did not see any significant effect on ADR (60% among Prep clinic attendees vs 51.4% among controls, p=0.13), (Figure 3).

DISCUSSION

Our study illustrates the multiple benefits of a bowel preparation clinic including increases in procedure completion rates, significantly improved quality of bowel preparation and significantly increased PDR. Comparing our baseline data from 2012 to our 18-month intervention period, we find 86% of Prep clinic attendees went on to

	MEN			WOMEN			OVERALL		
	Prep	No Prep	AORa (95% CI)	Prep	No-Prep	AOR (95% CI)	Prep	No-Prep	AOR (95% CI)
Age, y	384	2064	1.95 (1.56-2.44)	252	1155	1.73 (1.32-2.26)	132	909	2.54 (1.69-3.81)
All	65	620	2.35 (1.33-4.14)	45	342	2.34 (1.20-4.56)	20	2782	2.59 (0.87-7.72)
<50	88	326	1.80 (1.12-2.89)	62	194	1.56 (0.89-2.73)	26	132	2.76 (1.09-7.04)
50-55	93	358	2.10 (1.33-3.34)	58	207	1.93 (1.09-3.43)	35	151	2.51 (1.14-5.56)
	138	760	2.03 (1.40-2.95)	87	412	1.78 (1.12-2.81)	51	348	2.66 (1.39-5.09)

Table 2. Association between Prep clinic and quality of bowel preparation, January 2013 to June 2014

complete a colonoscopy; representing an increase of 24.4%.

We demonstrate fewer colonoscopies with suboptimal preparation among Prep clinic attendees. This should translate into less sedation risk to patients through shorter procedure times (e.g., less time required for cleansing stool from underlying mucosa) and less anesthetic required. Additionally, by avoiding a repeat colonoscopy, patients would avoid taking another 1-2 days off from work or inconveniencing a friend/family member to provide transportation following procedure sedation.

With improved bowel preparation, smaller polyps can be visualized and removed. We demonstrate a significantly increased PDR among Prep clinic attendees compared to controls. We did not find statistical significance of ADR; however, we do demonstrate high ADR in both the intervention and control groups, notably higher than the U.S. national benchmark for ADR set at 25% in men and 15% in women. We anticipate that with ongoing data collection, we may achieve enough power to see an effect on ADR as well.

Our study has several limitations to note. We excluded patients scheduled for combination procedures (i.e. EGD and colonoscopy). It is probable that patients scheduled for a combination procedure had a diagnostic indication and not screening; therefore, any findings would not have affected PDR/ADR.

This study also sets the foundation for additional quality improvement opportunities. With these positive results, we have expanded the clinic to Spanish and Vietnamese speakers, two of the most common primary languages in Seattle.

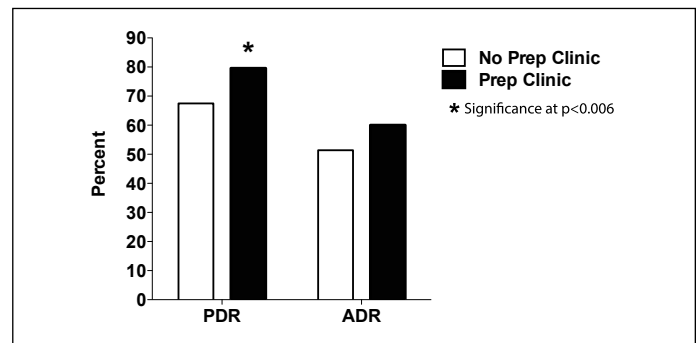
CONCLUSION

This study demonstrates the institution of a bowel preparation clinic is a simple intervention that significantly increases procedure completion rates, the quality of bowel preparation and PDR with a trend towards increased ADR.

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Figure 3. Effects of Prep clinic on polyp and adenoma detection rate, January 2013 to June 2014



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Acknowledgements

We would like to thank the University of Washington Housestaff Association for provision of a resident research grant. We also appreciate the assistance of Stephanie Park with data collection, and both Miao-Shan Yen and Shin-Ping Tu for their assistance with data analysis.

Improving Colorectal Cancer Screening Rates Within Harborview Medical Center's Primary Care System

Author: Kara Walter, MD1; Elizabeth Broussard, MD2; Stephen Vindigni, MD MPH2

Affiliations: 1. Department of Internal Medicine, University of Washington, Seattle, WA 2. Division of Gastroenterology, University of Washington, Seattle, WA

ABSTRACT

Colorectal cancer (CRC) is a major cause of cancer-related death in the United States. Despite strong evidence showing that routine screening results in significant mortality reductions, screening rates remain low, especially among minority groups and the underserved. Among Harborview Medical Center's six adult primary care clinics, for example, only 48% of eligible patients between the ages of 50 and 75 were screened in 2012, with only 12% screened by non-invasive modalities, or fecal immunochemical testing (FIT). In this study, using an interrupted time series design, we assessed colorectal cancer screening rates before and after a population-wide intervention consisting of a streamlined FIT kit (one sample tube, toilet hat for ease of collection, and return envelope with pre-paid postage) as well as educational materials distributed in conjunction with FIT materials. At six months post-intervention, there was a statistically significant improvement in overall CRC screening rates (64% vs. 48%, $p < 0.05$) as well as fecal immunochemical testing rates (23% vs. 12%, $p < 0.05$) and colonoscopy rates (41% vs. 36%, $p < 0.05$). This preliminary analysis suggests that a simple population-wide intervention may represent an effective tool to improve CRC screening rates, thereby improving health outcomes and addressing health disparities.

BACKGROUND

CRC is the second leading cause of cancer-related death in the U.S. among both men and women. Strong evidence supports the notion that screening for CRC can result in significant mortality reduction. Though the USPSTF recommends screening for CRC in all adults of normal risk between the ages of 50 and 75, nationwide screening rates remain low, particularly among minority groups and the underserved. Additionally, while colonoscopy is cited as the most sensitive test for CRC screening, prior investigation found significantly lower patient adherence to colonoscopy screening versus noninvasive modalities, particularly among ethnic minorities, suggesting that noninvasive modalities may be more successfully implemented in this target population. HMC is a safety-net hospital located in Seattle, WA, that provides comprehensive care to an ethnically diverse, predominantly low income patient population. Among the medical center's six adult primary care clinics, CRC screening rates for 2012 were estimated at 48% of eligible

patients between the ages of 50 and 75 years, with only 12% derived from FIT. In an effort to improve these rates, we proposed a two-part intervention including streamlined logistics of non-invasive testing as well as an office-based educational tool together aimed at increasing patient adherence to FIT.

METHODS

We used an interrupted time series design to assess colon cancer screening rates before and after a population-wide intervention. Study participants included all patients eligible for CRC screening (aged 50-75 years without history of colonoscopy within ten years, flexible sigmoidoscopy within five years, or FIT within 12 months) who had at least two visits within the preceding 24 months to the same clinic at Harborview Medical Center. Those opting for non-invasive testing received a streamlined FIT kit (one sample tube, toilet hat for ease of collection, and return envelope with pre-paid postage) as well as educational materials distributed in conjunction with FIT materials. CRC screening rates were reassessed at six months, with plan for repeat assessment at 12 months.

RESULTS

At six months, rate of CRC screening completion for the study population was calculated at 64% of 5,651 eligible patients, compared to 48% of 5,566 eligible patients at the pre-intervention baseline ($p < 0.05$). Screening rates for FIT improved from 12% to 23% of the eligible population ($p < 0.05$), while screening rates for colonoscopy improved from 36% to 41% ($p < 0.05$).

CONCLUSIONS

Based on preliminary data analysis, this two-part intervention resulted in a statistically significant improvement in screening rates among this vulnerable patient population. While additional analyses are needed, including interrupted time series analysis to account for secular trends, these data suggest that simple population-wide interventions represent an effective approach to improving quality of care and targeting health disparities.

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Obstetrics and Gynecology Resident Knowledge of Pneumococcal Vaccination in Pregnancy

Authors: Emily Fay, MD¹; Kara Hoppe, DO¹; Jay Schulkin, PhD^{1,2}; Linda Eckert, MD¹

Affiliations: 1. Department of Obstetrics & Gynecology, University of Washington, Seattle, WA 2. Department of Research, American College of Obstetrics and Gynecologists, Washington, DC

BACKGROUND

The 23-valent pneumococcal vaccine is recommended for adults over 65 years of age and those younger than 65 with certain medical conditions. The Centers for Disease Control and Prevention (CDC) state insufficient evidence to recommend routine pneumococcal vaccination during pregnancy, but the vaccine is indicated for pregnant women with certain medical conditions. This project was designed to gauge obstetrics and gynecology (OB/GYN) resident knowledge of pneumococcal vaccination in pregnancy.

METHODS

We administered a 22-question electronic survey to OB/GYN residents about pneumococcal vaccination in pregnancy. We performed frequency and descriptive analysis for each question.

RESULTS

Two hundred thirty-eight OB/GYN residents responded. Overall, 69.3% of residents reported receiving training about vaccines and 86.0% reported having ready access to vaccine guidelines and safety data. Residents accessed immunization information from the CDC (92.7%), the American College of Obstetricians and Gynecologists (ACOG; 87.2%), and the World Health Organization (WHO; 24.8%), and stated satisfaction with these organizations (for CDC 96.7%, ACOG 92.5%, WHO 94.9%). Most residents knew that asplenia (78.2%), chronic pulmonary disease (77.3%), and HIV/AIDS (69.4%) are indications for vaccination but fewer knew that chronic cardiovascular disease (45.0%), diabetes (35.8%), asthma (42.8%), nephrotic syndrome (19.7%), and chronic renal failure (33.6%) are also indications for vaccination.

CONCLUSIONS

OB/GYN residents are taught about vaccines, have ready access to vaccine guidelines and safety data, and report satisfaction with these sources. However, knowledge of indications for pneumococcal vaccination in pregnancy is lacking. Potentially, the opportunity to provide the vaccine to at-risk pregnant patients is being missed.

Understanding Patients' and Providers' Attitudes on Online Patient Education Videos for Gastro-Esophageal Reflux Disease

Authors: Jasmin Zia, MD¹; Xinran Liu, MD²

Affiliations: 1. Division of Gastroenterology, University of Washington, Seattle, WA 2. Department of Internal Medicine, University of Washington, Seattle, WA

INTRODUCTION

Despite technological advances, the way patients are educated about their medical conditions remains largely antiquated. To advance us to current times, we created online patient educational videos on gastro-esophageal reflux disease (GERD). The primary aim of this study was to better understand patients' educational experiences while watching these videos with respect to comprehension, effectiveness, value, delivery and preferences.

METHODS

Five 5-minute educational videos were created on the etiology, symptoms, complications, lifestyle modifications and medical management of GERD. Ten adult patients with GERD were recruited to view these videos. A survey consisting of five-point Likert type scale statements and multiple-choice questions was then distributed to participants. A similar survey was also distributed to physicians.

RESULTS

Patients found the online videos extremely easy to understand (4.9+/-0.3SD) and effective for learning about their GERD (4.7+/-0.5SD). After watching these videos, they had a better understanding of GERD (4.4+/-1.3SD) and were extremely likely to change the way they manage it (4.5+/-1.3SD). The majority of participants, both patients (80%) and providers (76%), preferred online educational resources created or approved by physicians or hospitals over public search engines.

CONCLUSIONS

Patients valued and were extremely satisfied with the educational experience they received from watching online educational videos on GERD. Both physicians and patients showed a strong preference for accessing educational materials that have been created or approved by a hospital or clinic. The participation of providers to create and/or verify such materials, including online videos, should therefore be encouraged, including its optimal integration into the clinical workflow.



In Training: Stories From UW Graduate Medical Education

Josh Lacsina, MD, Internal Medicine Resident

Photography—Emily Rasinski

In September 2014, the GME Office debuted a new series entitled “In Training: Stories from UW Graduate Medical Education” on the UW GME Facebook page. This feature highlights the personal stories of residents and fellows during their training at the University of Washington.

We share their experiences working with patients in a variety of settings, from the Seattle Children’s Hospital pediatric intensive care unit to the sidelines of Nathan Hale’s High School football games at Memorial Stadium in Seattle Center. They are tales of professional growth, personal challenge, and rewarding connection.

These are their stories.

Josh Lacsina, an internal medicine resident, listens carefully as his patient’s daughters ask him questions.

“Is it two lumps or three? Is it already diagnosed? How do you know? What kind of cancer is it? Don’t you need a biopsy to be sure?”

“These are all very good questions,” Lacsina tells the two women “I want to make sure we explain it so that you understand.” He pauses and waits for medical interpreter Gammada Abraham to translate his words into Somali. Lacsina studies his patient and her family’s faces as they hear him respond that their mother has liver cancer.

“Today is really tough,” Lacsina said later in the afternoon.

It was his first day back at the International Medicine Clinic at Harborview after completing a medical rotation in Kenya, and he has had to discuss two new cancer diagnoses.



The International Medicine Clinic provides care for adult refugees and immigrants, and was opened in the 1980s to deal with an influx of refugees from Southeast Asia. Today,

the clinic serves patients from all over the world and now has 13 clinic rooms staffed by seven attendings, nine residents, nurses, medical assistants, translators, pharmacists, cultural mediators, and a social worker. Patients come from dozens of different cultures, the majority being from East Africa, Southeast Asia, and China. Nearly all need translators, with more than 70 different languages spoken in the clinic.

Language isn’t the only unique difference encountered while practicing in the International Clinic. For many of his patients, the clinic is their first exposure to medicine. They have no family history and the idea of preventive care is a foreign concept.

“Why do you need to go to the doctor when you feel fine?” many patients ask.

Another challenge is figuring out a patient’s real age. Some don’t know in what year they were born, and it’s not uncommon to see a birthday listed as January 1. That was the case with Lacsina’s first patient of the day from Ethiopia. Her record said she is 94 years old. She told Lacsina she was 80. Her son disagreed and said she is 100.

Lacsina’s interest in infectious disease initially led him to pursue a career in medicine. The challenge of helping the most vulnerable populations guided him to global health.

“I’ve never liked narrowly focused problems,” he said. “In global health you are dealing with sociology, economics, politics and ethics. These problems have a lot of different dimensions.”

He will return to Kenya this summer for



his chief residency at the Naivasha District Hospital with his wife and newborn child.

Despite his training in both the U.S. and abroad, one aspect of the job that will never get easier is delivering tough news, regardless of the language it is communicated in.

Lacsina’s last patient of the day is a woman from Egypt. The Arab translator is with another patient so he uses a telephone interpreter to speak with her. It’s the second cancer diagnosis of the day.

“I don’t know what to do,” she tells Lacsina after hearing the news.

“It’s a difficult situation,” he said and put his hand on her shoulder. “It’s completely normal to feel overwhelmed.”

She looks up and responds. “I will fight.”

“ It’s a difficult situation,” he said and put his hand on her shoulder. “It’s completely normal to feel overwhelmed.” ”



In Training: Stories From UW Graduate Medical Education

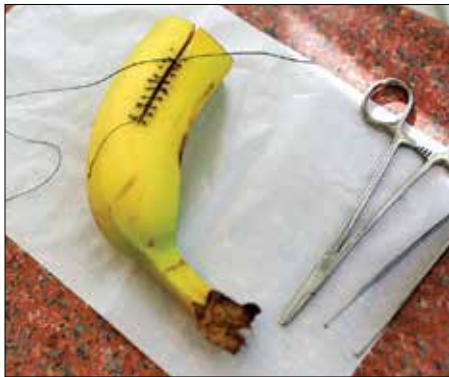
Estell Williams, MD, General Surgery Resident

Estell Williams walked around the tables and watched as each “student doctor” attempted to apply a row of stitches to their “patient.” She stopped in front of Marlisa Hall, 15.

“How are you doing?” she asked. “Need some help?”

Williams, a UW second-year general surgery resident, was volunteering at a “Doctor for a Day” workshop hosted by the Africatown Center for Education & Innovation in south Seattle. The program is aimed at introducing minority middle and high school students to careers in medicine.

She knelt down and put her arm around Hall and helped guide her hand as she put a suture in the skin of the banana in front of her.



“I know this feels strange, but that was it!” Williams told Hall. “You’ll get stronger and better at it every time you do it.”

Hall looked up at Williams and smiled.

Williams always knew she wanted to be a doctor, but she never had a role model and didn’t know what that path looked like. The youngest of seven kids raised by a single father in East Oakland, she excelled in school, but those circumstances earned her the tags “at risk” and “disadvantaged”.

A program similar to the UW’s Careers in Healthcare Youth Outreach first enabled her to envision a future. In high school, Williams participated in the Stanford Medical Youth Science Program; program director, Dr. Judith Ned, became Williams’s mentor

and helped guide her through the college application process.

Even with help, the path to a medical degree was not easy. Hurricane Katrina interrupted her studies at Xavier University in New Orleans. She finished her undergraduate degree at San Francisco University while working full time to pay for tuition that was more than twice the cost of Xavier.

UW was one of the last schools she interviewed at for medical school. Though the interview was successful, Williams worried about the lack of diversity on campus.

“I left the interview thinking, ‘It’s a great school, but I don’t know if I fit in here.’ Then I received an invitation from the Office of Multicultural Affairs for a second look. That was a game-changer,” she said.

That day she met some future classmates.

“It felt like home. There were black, white, Filipino students, all like-minded individuals. They were and they still are the most amazing people,” she said.

William committed to the University of Washington and immediately started paying it forward. She volunteered with the Student National Medical Association, Alliance for Equal Representation in Medicine, and the Summer Medical and Dental Education program—all groups aiming to provide opportunities and exposure in medical careers to underrepresented students.

“When I think of diversity, I think in broad terms. However, I do think it’s important for kids to see someone who looks like them,” Williams said. “Things have to be more tangible for them. As you get older, you realize it’s a lot more complex than that. I still remember being star-struck when I first saw those individuals and thinking ‘That can be me.’”

Anita Koyier-Mwamba agreed. She is the mother of 12-year-old Ndalo Mwamba who attended the “Doctor for a Day” event and who dreams of being an obstetrician.

“This is a huge thing,” Koyier-Mwamba



said. “My child gets to experience what it feels like to be a doctor and she is being taught by people who look like her. This is a very powerful narrative.”

This is why Williams keeps volunteering, even with her busy, frequently changing rotation schedule.

“It gives me a recharge, gives me purpose,” she said. “It’s probably just because I remember that feeling of having people invest time in me and how great that felt.”

As students waited their turn to try the laparoscopic trainer, Williams engaged them in conversation. Shailah Fakhri, 15, said she wants to be a neurosurgeon; another expressed interest in general surgery. Each received encouraging words and a high five from Williams.

At the end of the day, as the students gathered to review what they had learned and hear about different medical career options, Williams spoke about what steps they should take now to achieve those goals.

“Never be afraid to ask,” she said. “You are never a bother. You have to ask if you want the opportunity. Even if someone tells you no, keep asking. Just keep asking.”

“ Never be afraid to ask,” she said. “You are never a bother. You have to ask if you want the opportunity. Even if someone tells you no, keep asking. Just keep asking. ”



In Training: Stories From UW Graduate Medical Education

Sarah Kolnik, MD, General Surgery Intern

The patient story is usually incomplete. This is the challenge that Sarah Kolnik, a general surgery intern, faced during her four-week rotation on the burn intensive care unit at Harborview Medical Center.

For example, one man came in with burns from a house fire—and then staff discovered he had also suffered a stroke.

“Which one came first? He can’t tell us what happened,” Kolnik said.

The man was burned on 30 percent of his body. Staff have had no luck locating his family, friends or landlord, and refer to the unidentified patient as Troy Doe.

Another patient was flown in from Alaska with burns on her head. But her explanation was inconsistent with the injury.

“She said her head caught on fire from lighting a cigarette, but the burns don’t match,” another doctor said.

“The story can tell us why it happened and help guide us where to go. But unfortunately



it’s the story that is often unclear,” Kolnik said.

The University of Washington Regional Burn Center opened in 1974 and has treated nearly 20,000 patients from Washington, Alaska, Montana and Idaho. It has a 97 percent survival rate.

Summer months are typically busiest for the unit, but this winter has seen an unusual spike. During Kolnik’s rotation, the unit treated about a dozen patients. She carried three pagers and two phones at all times.

Burn patients often have long hospital stays due to the complex nature of their injuries, and Kolnik saw patients throughout the whole process—from resuscitation to surgeries to weaning off of all interventions including mechanical ventilation and pain medication.

One patient’s recovery mirrored Kolnik’s rotation. A man, 35, was burned over 50

percent of his body in a car fire. He spent two weeks on a breathing machine and was heavily sedated.

“I was there when he was really, really sick and then was able to see him progress and get taken off the ventilator and start walking and talking,” Kolnik said.

He transferred to an acute-care floor on the last day of her rotation.

The unit was Kolnik’s initial exposure to critical care and treating acutely ill patients. Ultimately she hopes to pursue a fellowship in trauma surgery and critical care.

“This rotation has made me very aware of how much training I need to be able to provide the best care possible,” she said. “It seems daunting this early in my training, but I know that’s why this is a five-year training program. There is so much to learn.”

“ I was there when he was really, really sick and then was able to see him progress and get taken off the ventilator and start walking and talking. ”



In Training: Stories From UW Graduate Medical Education

Katie Ball, MD, Family Medicine Resident

It's late in the season and late in the game—a time when every yard gained takes on more meaning as players extend beyond their physical limits.

Injuries are the last thing the high school football players want to think about, which is why **Katie Ball**, a UW family medicine resident, finds herself standing on the sideline with about 30 Nathan Hale Raiders.

They're playing in Memorial Stadium at Seattle Center. "It's the real 'Friday Night Lights,'" she says, alluding to the TV series.

She leans forward and puts her hands on her knees, studying the players. The ball is snapped. Senior receiver Webb Hopkins runs a quick slant to pick up a first down but is tackled hard. One of the team's stars, Hopkins, has taken a beating tonight.

Ball watches, waiting. "There is that moment when they are just lying there before they get up," she says. "I hate when they just lie there."

Another second passes and then Hopkins springs up and jogs off the field.

"You OK?" she asks

"I'm fine," he responds nonchalantly.

Her eyes follow him as he joins his teammates.

"You have to keep your head on a swivel," she says. "If a kid goes down, you have to think about not just that play, but what happened in the last play and then keep watching them off the field. How are they interacting with their teammates? Are they interacting with their teammates?"

At Nathan Hale, a public school, Ball was one of two team physicians who worked this season alongside Erin Yingling, the school's athletic trainer, tending to injured players.

As the season progressed, injuries accumulated and players wore down as games took on more importance. This was especially true for the Raiders, a team whose scrappiness and work ethic made up for its



small size, one of the things Ball loved about the team.

In addition to learning more about sports medicine, Ball saw her position as an opportunity to interact with healthy teenagers, a patient population she doesn't regularly see in her family medicine practice.

"Adolescents are a really interesting and fun patient population," she said. "It is such an important time in their lives. They are starting to make decisions for themselves and come into their own."

Some of the decisions involve health and lifestyle choices. Ball recalled a discussion she had with a player whose legs were consistently cramping. She asked about his diet.

"He said he had eaten eight Pop-Tarts, five Mountain Dew's and Panda Express that day," she said with a smile. "He's probably not going to make any major lifestyle changes but it gives me the opportunity to have a meaningful conversation with him and explain that if we tweak your diet a bit, you won't get that cramp during a 50-yard

touchdown run. It's just about planting the seed and hoping that it will stick."

Ball, a former collegiate athlete herself, loves sports, especially football. That sparked her interest to get involved with local teams—but she also sees it as a way to know the community in a different way.

"Family medicine is about families and really getting to know all aspects of the community," she said. "This is just another avenue to do that. And it is just fun. When I am out there on a Friday night, I don't think about it as work."



“ Family medicine is about families and really getting to know all aspects of the community. ”



In Training: Stories From UW Graduate Medical Education

Andrew McCoy, MD, Emergency Medicine Resident

The call seemed routine at first. It was just after 1 p.m. and the radio alerted **Andrew McCoy** to respond to a car accident on Interstate 5.



McCoy, an emergency medicine physician, is the University of Washington's first Emergency Medical Services (EMS) fellow.

He had no idea until he arrived at the scene that one victim had to be extricated from the car's windshield.



He went to work alongside the paramedics and other responders. It was his sixth medical call of the day, and he hadn't had lunch yet.

"You can read about it all you want but you don't really get it until you are actually out there with limited resources in a challenging environment trying to figure out how you are going to take care of this guy," he said.

It was just three years ago that the American Board of Medical Specialties recognized EMS as a subspecialty. UW's fellowship is directed by Michael Sayre, professor of medicine and associate medical director for the Seattle Fire Department. It is funded in partnership with Physio-Control, a medical device manufacturer based in Redmond. The yearlong fellowship, which started July 1, will give McCoy the training to become a medical director of an EMS agency.

"When people come up through the system like I did, you had to learn on the job," Sayre said. "We are now allowing these fellows to build on the learning we did."

Fellows need to understand the world where care is delivered, Sayre explained.

"It's not in a nice clean hospital. It's important that young doctors get this experience. The potential impact this fellowship has on patient care is tremendous."

Sayre and McCoy see this role as a way of doing the greatest good for the greatest number of people. McCoy is eager to share his experience and knowledge with other physicians and clinical researchers far removed from the first responders at the accident scene.

"In the end it's about delivering advanced care to people who need it the most before they even hit the door to the hospital," McCoy said. "We want to provide the best care so they can go home at the end of the day. That's what we want, that's what the paramedics want, and that's what you would want if it were your family member or loved one in our care."



“ In the end it’s about delivering advanced care to people who need it the most before they even hit the door to the hospital. ”



In Training: Stories From UW Graduate Medical Education

Alok Patel, MD, Pediatric Resident

Diana Sage-Jenkins was the first to notice the connection between her daughter Sarah Jenkins, 6, and pediatric resident **Alok Patel**.

The young girl from Spokane was transported to Harborview Medical Center in August to be treated for an arterial aneurysm. Jenkins was in the pediatric intensive care unit and minimally responsive, unable to speak. However, her mother recognized a similar inquisitive personality in the resident as in her child.

"He just reminds me of Sarah," Sage-Jenkins said. "She likes to know as much as she can about people and the things she is learning about."

Patel calls Sarah his "home girl" and said she



swinging, playing soccer and wearing a Russell Wilson Seahawks jersey.

"It's a way for us to remember that we were treating their daughter, in her entirety," said Patel. "That the little girl, beneath her breathing tube, her arterial line and the electrolyte abnormalities, was actually a fun-loving, spirited, adventurous 6 year old."

Sage-Jenkins took comfort in Patel's approach.

"He is an advocate for her," she said. "He was the first to recognize that Sarah is Sarah and made us feel not so out of place here."

Their connection was further solidified when they realized they share the same birthday, March 5.

So when Sarah was transferred to Seattle Children's Hospital recently, her parents were ecstatic to find Patel had also made his way there.

"It was really nice to see his face," Sage-Jenkins said. "It was like 'OK Lord, this is where we belong.'"



encapsulates the central challenge of pediatrics.

"Pediatrics is medicine in its most raw form," he said. "You can't count on a child to tell you exactly what hurts or what their concerns are. What you're left with are clinical exams and essentially watching them to attempt to do what they do best—act like kids."

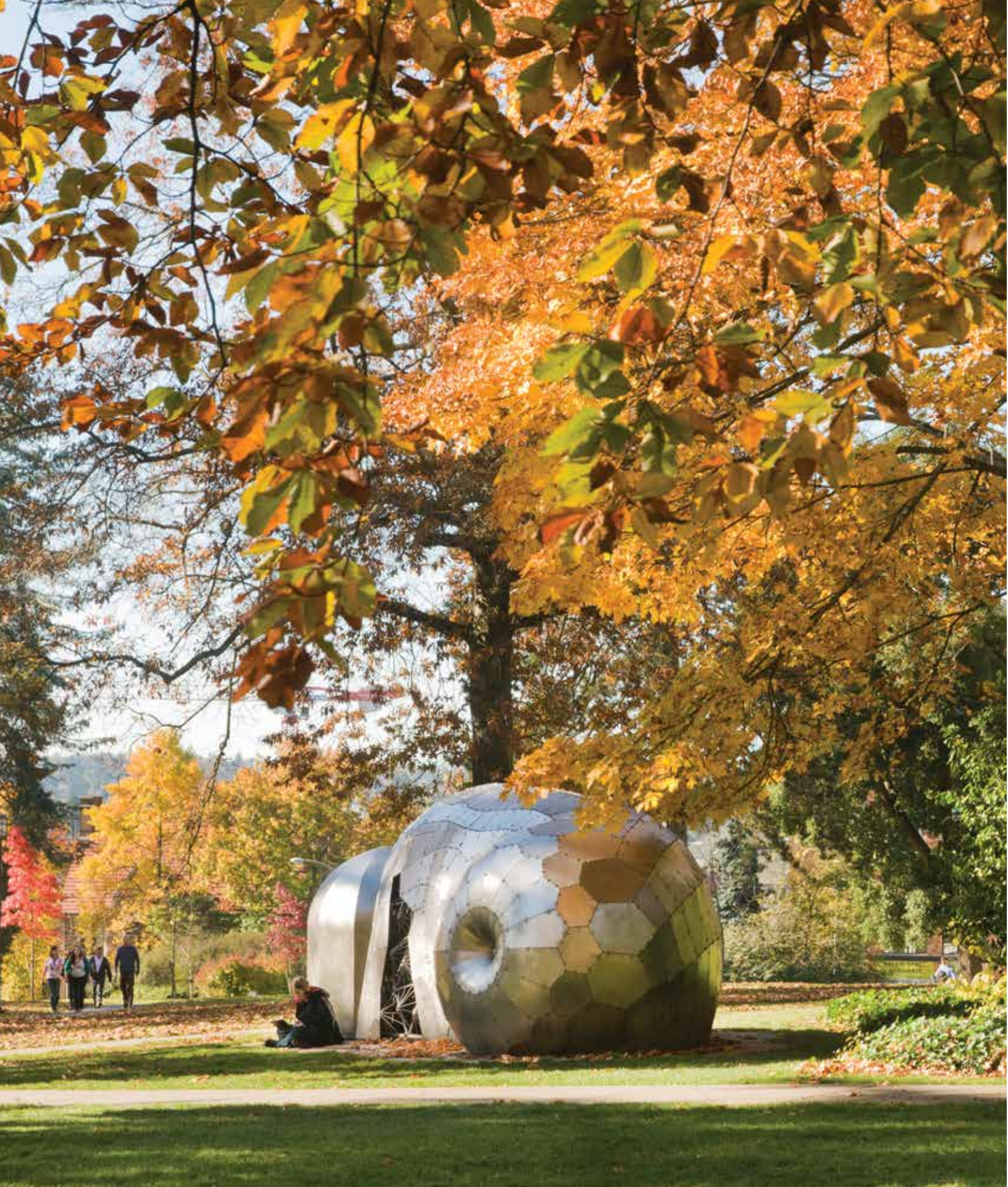
This case is even more challenging because Sarah cannot communicate verbally.

Throughout Jenkins's month-long stay, Patel encouraged her parents to personalize her room. They put up photos of her



“ Pediatrics is medicine in its most raw form. You can’t count on a child to tell you exactly what hurts or what their concerns are. ”





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