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Population Health News
 1101 Standiford Avenue, Suite C-3
 Modesto CA 95350
 Phone: 209-577-4888 | Fax: 209-577-3557
info@populationhealthnews.com
www.populationhealthnews.com

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Making A Case For Population Health

HealthEast Partners Leverages Digital Messaging to Target Total Joint Replacement

by **Todd Smith, M.D., Betsy Weaver, Ed.D., Bill Lindsay, Laura France, M.D., Josh Averbeck, Sara Roslansky and Lori Schiller, LPN**

Program Objectives:

- Use existing and proactive, digital “push” messaging via mobile email for total joint replacement (TJR) patients (starting when a surgery is scheduled) to improve care, while reducing overall costs for:
 - Unnecessary day of surgery cancellations (DOSC).
 - Length of stay (LOS) in the hospital.
 - Discharge to home rather than to a rehabilitation facility (when appropriate).
 - Post-op emergency department (ED) visits.
 - Hospital readmissions within 30-days post-op.
 - Patient satisfaction scores.
- Change patient expectations, behavior and thus, outcomes, while reducing cost of care and creating opportunities for new revenue.
- Develop a system that could be easily integrated, customized and updated over time.
- Seek to automate a messaging process through electronic health records (EHRs) and use an opt-out approach for every eligible patient.

Program Description: HealthEast, a four-hospital healthcare system based in St. Paul, Minn., has used a two-way, digital email connection with its obstetric patients for 10 years. It has been highly successful and popular with patients and staff.

Research¹ and HealthEast’s experience with obstetrics suggested that if patients knew what to expect and hospital services communicated with them through a whole episode of care,² this could result in “far-reaching cost savings while maintaining excellent quality outcomes.”³

Digital health could help patients self-monitor; encourage behavior change; improve comprehension of diagnoses and discharge plans; and permit dynamic interchanges between patients, their healthcare data and clinicians.⁴

Because the hospital system wanted to avoid using additional labor to create or deliver two-way, digital messages to patients and their families, who are also encouraged to enroll, its orthopaedics team sought to utilize disseminated, low-resource solutions to help its patients confidently “take ownership of their healthcare journeys.”

Anticipating that a messaging intervention would trigger FAQs, HealthEast provided patients with “need-to-know” information and instructions at precisely the right time.

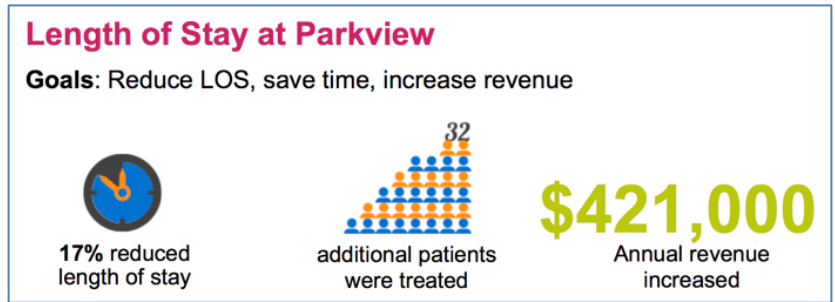
The intervention for TJR patients includes 19 digital connections, automatically delivered to a patient’s mobile phone, tablet or computer. Triggered by surgery dates, messages are personalized to a patient’s stage in a care episode, from pre-op through six months after discharge.

Based on the results of a study at Parkview Medical Center in Pueblo, Colo., involving the same messaging intervention, HealthEast Chief Medical Information Officer Todd Smith, M.D., noted that Parkview’s LOS for joint replacement patients had decreased enough over the course of a year to allow for 32 new patients, which translated into new revenue potential of \$421,000. Smith believed HealthEast could replicate—even surpass—the Parkview results.

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“The orthopaedics team sought to utilize disseminated, low-resource solutions to help its patients confidently ‘take ownership of their healthcare journeys.’”

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Planning began in October 2016, with the collection of HealthEast’s baseline data for TJR cases during FY 2016. During the first quarter of 2017, orthopaedic clinicians reviewed the digital intervention content, requesting a few revisions to match HealthEast’s specific practices. In the spring of 2017, HealthEast Orthopaedics and Dr. Smith began to work with the IT team to automate the process of enrolling TJR patients to receive the intervention.

All that was needed to enroll patients was determining their surgery dates (the trigger to scheduling the delivery of the intervention’s timely “touches”), along with their names and email addresses; however, it wasn’t really as simple as it appeared. While the intervention could have used an application programming interface (API) to automate patient enrollment from the beginning, enrollment was complicated by the fact that email addresses were not routinely collected when orthopaedic surgeries were scheduled.

To remedy the situation, HealthEast’s clinical administrative staff collected patients’ email addresses manually when scheduling their pre-op instruction classes. These details were then entered into the Epic EHR; automatically output to a digital report that was retrieved by the intervention platform provider, UbiCare; and used to enroll patients for appropriate pre- and post-op messaging.

Unfortunately, the pre-emptive collection of email addresses did not solve the entire problem; fewer than 50% of scheduled TJR patients had (or were providing) email addresses early enough in the pre-op process, when intervention could have the most impact on outcomes. Those patients with cell phones, however, were able to receive text messages instead of emails.

Evaluation Process: Data on patients’ engagement (open the site and click) with the intervention is tracked and then paired with their post-op outcome data and compared to baseline data from 2016. To date, 235 patients have participated in the intervention.

Results:

Intervention Group Patient Details

- 235 TJR patients receiving messages
- **Surgery:** 70% knee; 30% hip
- **Gender:** 67% female; 33% male
- **Average age:** 66-years-old
- **Payer:** 58% private; 38% Medicare; 4% Medicaid
- **Average spread:** 17 days between sign-up and surgery date

Intervention Group Engagement Data

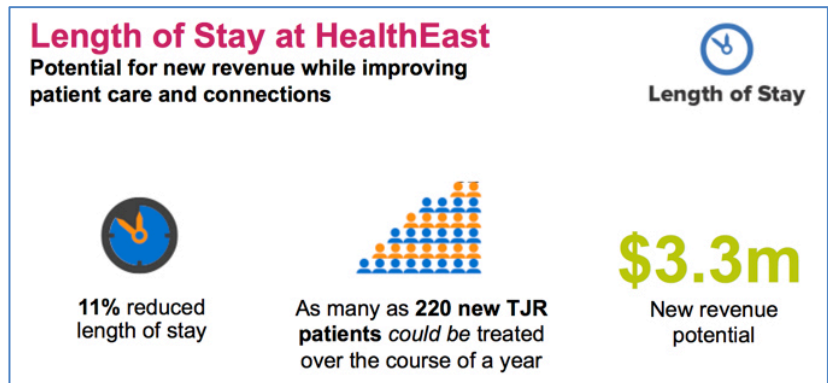
- 2,422 messages have been delivered.
- 69% highly engaged; 12% medium; 19% low
- **Overall:** 63% open rate; 51% click rate

Intervention Group Outcome Data

- 190 patients are post-surgery date.
- **Cancellations:** 12 (6.7%). Four cancellations (2.2%) were DOSC; of these, two had zero engagement with the intervention. **2016 Baseline:** 7.32% cancellations (76% of which were DOSC).
- **Average LOS:** 2.26 days (169 patient stays) **2016 Baseline:** 2.55 days

Because of its higher TJR surgery volume, HealthEast’s reduced LOS time per surgery represents potentially much higher new revenue than was seen in the original Parkview study.

- **Discharge Destination:** 13 (7.7%) to skilled nursing facility (SNF); the rest to home. **2016 Baseline:** 415 (24.7%) to SNF
- **ED visits:** 8 (4.7%). **2016 Baseline:** 26 (1.5%)
- **Readmissions:** 5 (3.0%). **2016 Baseline:** 66 (3.8%), representing a 21% reduction so far



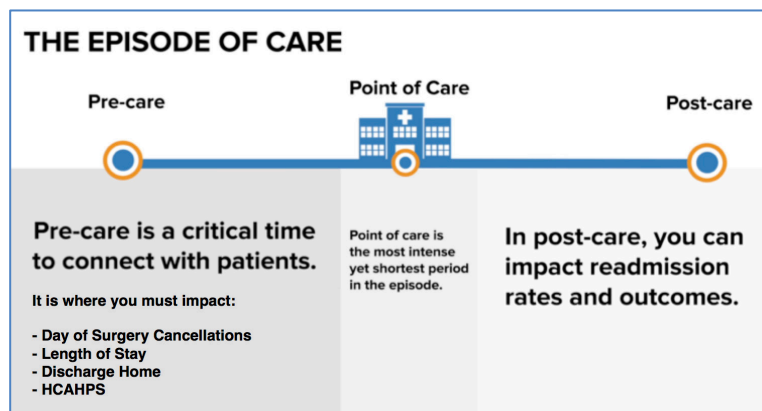
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Intervention Group Patient Satisfaction

- Sixty TJR patients are now 90 days post-surgery date.
- Twenty-three (38%) responded to a satisfaction survey sent 90 days post-op (as of 1/8/18).
 - 78% say the information in the messages helped them take better care of themselves.
 - 87% say the information in the messages helped them feel more confident about managing their healthcare.
 - 78% say the messages usually or always helped them feel better prepared for their appointments.
 - 87% say the messages gave them a stronger sense of connection to the hospital.
 - 78% say the messages made them more likely to recommend the hospital to friends and family.

Lessons Learned: HealthEast Orthopaedics substantiated what it had learned from the same intervention used in obstetrics—connecting meaningfully with patients well before an inpatient care event by using “push communications” (so patients don’t have to go find a message or login to access it) is likely over time to impact some of the most costly issues—DOSC, LOS, discharge to home, readmissions and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. The healthcare system found it difficult to change behavior and expectations without that access.



1. **Any intervention for patients has to be digital.** Today, 98% of Americans are “wired”—regularly using email and text. Even older adults, those over 65 years old—the typical TJR patient in this intervention group is 67 years old—have a mean daily text rate of 4.7.⁵ More than 60% of U.S. seniors use the Internet daily so that it is key to enroll with an opt-out option and to use an EHR to automate the enrollment process.
2. **A program must start with baseline data, provide ongoing feedback in real time and prove efficacy.** In mapping TJR patient data pathways, HealthEast determined that OpTime (Epic’s surgical scheduling module), along with using both email and text access, were keys to automating timely pre-op enrollment from the Epic EHR, which was also the source of the post-op, patient outcome data. In comparing these data with baseline data, HealthEast found that being able to share even early impressions of the intervention was powerful and helped make things happen.
3. **Have the ability to update and customize an intervention in order to improve as the program grows.** The efficiencies of digital are essential, as are reducing FAQs and time spent on engaging and educating patients. In addition, digital “push” solutions must be able to evolve as data inform them especially in relationship to data on the individual and the population levels.

With its approach, HealthEast Orthopaedics can make changes along the way if it sees something working well or, conversely, not working as intended. For example, the orthopaedics staff could use messaging to remind patients that if they eat or drink anything after midnight before their surgery appointment, their surgery will have to be rescheduled—avoiding unnecessary costs. Messages also could be tailored to address specific needs that arise, such as a new trend or a reason why patients are cancelling surgeries.

Once the Epic EHR report on outcomes is automated for patients participating in the messaging intervention, expansion to other areas, such as spine surgery, sports medicine and ob/gyn, would be easier.

¹ Ellrich M, Yuy D. “The Benefits of Pre-Surgery Education.” *Gallup News Business Journal*. May 20, 2015.

² “2015 Supplemental QRURs and Episode-Based Payment Measurement.” Centers for Medicare & Medicaid Services. 2015.

³ Tarity TD, Swall M. “Current Trends in Discharge Disposition and Post-discharge Care After Total Joint Arthroplasty.” *Current Reviews in Musculoskeletal Medicine*. September 2017;10(3):397–403.

⁴ Birnbaum F, Lewis D, Rosen R, Ranney M. “Patient Engagement and the Design of Digital Health.” *Academy of Emerging Medicine*. June 2015;22(6):754–756.

⁵ Smith, A. “How Americans Use Text Messaging.” Pew Research Center Internet and Technology, Sept. 19, 2011.

Todd Smith, M.D., is vice president and chief medical information officer, information services at HealthEast Care System; Betsy Weaver Ed.D., is CEO/president of UbiCare; Bill Lindsay is executive vice president of content/UI/product at UbiCare; Laura France, M.D., is medical director, women’s and children’s health service, HealthEast Care System; Josh Averbeck is senior marketing specialist for orthopaedics and sports medicine at HealthEast Care System; Sara Roslansky is clinical practice lead for orthopaedics at HealthEast Care System; and Lori Schiller is an Epic analyst at HealthEast Care System. Todd, Betsy and Bill may be reached at tsmith@healtheast.org, betsy.weaver@ubicare.com and bill.lindsay@ubicare.com, respectively.