Promising Methods for Improving Quality Through the Faster Spread of Best Practices

Michael H Kanter, MD[1,2,3]; Patrick T Courneya, MD[4]

Improving quality in medical care has always been a challenge, and the identification and spread of best practices that improve care can be particularly complex. On average it takes 17 years from publication of high-quality research findings to their widespread usage in clinical settings.[1] Faced with this significant delay, it is incumbent on organizations to find quicker, more effective, and more systematic ways to translate research into clinical practice.

From education through system design, several models have emerged to speed the dissemination of best practices while ensuring necessary rigor around quality, safety, and an evidence-based approach. One such example is Kaiser Permanente's (KP's) use of the E-SCOPE (Evidence Scanning for Clinical, Operational, and Practice Efficiencies) system[2] to accelerate identification and implementation of new evidence-based practices in Southern California. E-SCOPE expedites the spread of newly published, high-quality clinical and operational practices through systematic evidence searches, fast-track decision making, implementation support, and ongoing monitoring of process and outcome metrics. An example of the program's success: In 2015, research was published connecting weight loss interventions to reduction in severity of psoriasis symptoms.[3] Within 8 months, KP reached out to nearly 18,000 members with psoriasis about weight management classes.

Another means to get farther faster is the publication of abstracts from the KP National Quality Conference (NQC). We began this practice in 2017, publishing 25 selected abstracts out of 134 that were submitted.[4] Demonstrating a growing interest in submitting promising work to the NQC, these numbers increased in 2018 to 43 published abstracts out of nearly 170 submissions.[5] This year we are pleased to again publish 44 abstracts out of nearly 200 total submissions.

These abstracts reflect the critical importance of a forum for presenting promising quality efforts. Meetings focused on quality improvement, such as those hosted by the Institute for Healthcare Improvement, the American Medical Group Association, and many other organizations, represent a relatively small percentage of all scientific medical meetings. The publication of abstracts from a dedicated quality event such as the NQC allows those within and outside of KP to learn about new and potentially unfamiliar practices that could improve care.

A third method of identifying and implementing new evidence-based practices is the creation of medical education that supports quality improvement projects.[6] To date, KP has more than 130 ongoing quality improvement projects and more than 5000 physicians have completed such projects for Maintenance of Certification credit.[7] New ways of educating future clinicians will embed quality improvement into the medical school curriculum from day one. The KP School of Medicine just received preliminary accreditation from the Liaison Committee for Medical Education and will be accepting its first class to start in 2020.[8] As part of the curriculum, students will be required to perform scholarly work, which may include quality improvement projects. Other medical schools also promote such activities, although the KP system is perhaps uniquely suited to excel in this arena because of our integration, access to data, and ability to spread and scale good practices.

Another way to accelerate the adoption of new evidence-based practices is to engage high-performing unit-based teams to identify and share successful quality improvement projects.[9] To facilitate spread, KP provides unit-based team leads with comprehensive assessment tools to understand if a group is ready to share or receive a successful evidence-based practice outside of its area. Teams are also required to adopt or distribute a successful practice as part of the progression path to "high-performing" status.

Organizations can also benefit from the use of embedded researchers in quality improvement projects.[10] In this case, researchers join quality improvement teams from the beginning and bring their analytic skills to the project. This participation improves the rigor with which the project is conducted and evaluated, and increases the likelihood of publication and spread. Organizations can also bring this same discipline to study the spread of best practices. By more precisely understanding the factors that improve the identification and spread of these practices, we can continue to improve care. This ability to learn is what defines the learning health system.[11]

The goal of all these efforts is not simply to reduce the 17-year time lag, but to do so while assuring safety, quality, and fidelity to the solid research findings in which the work is rooted. Although we have only provided a partial listing of ways for organizations to learn, learning at an institutional level can be done using any

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of the previously mentioned means. It is key to effectively addressing the Institute of Medicine's 6 domains for health care quality: Safe, timely, effective, efficient, equitable, and patient centered.[12] ❖

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Abstracts from the Kaiser Permanente 2019 National Quality Conference

BEHAVIORAL HEALTH

From Northern California

1. The Impact of an Innovative Patient-Practitioner Therapeutic Community on the Management of Chronic Pain

Karen Peters, PhD; Barbara Gawehn, RN, LAc

Background: The opioid epidemic begs for advances in chronic pain treatment. Literature suggests chronic pain and addiction share motivational and reward circuitry. To date, there is no treatment model addressing this connection in the long-term management of chronic pain. Kaiser Permanente Santa Clara bridges the gap with an innovative model that combines standard multidisciplinary chronic pain management approaches with a modality commonly used in addiction treatment to motivate patients, the therapeutic community. Initial outcomes are very promising.

Methods: Using mixed methodology, a comparative analysis of utilization (Emergency Department visits, Primary Care office visits, benzodiazepine and opioid prescriptions) was conducted on 2 patient groups. One group (n = 286) completed the Region's standard chronic pain treatment at Santa Clara: Level 2, 9 to12 sessions, years 2007 to 2011. The other group (n = 193) completed a therapeutic community-based program: The Pain Management Rehabilitation Program (PMRP) at Santa Clara, intensive phase/24 sessions with ongoing rehabilitation, years 2015 to 2017. Wilcoxson rank sum tests compared utilization, 1 year pre- and postintervention. A qualitative approach using constructivist-grounded theory compared 47 patients' responses with program assessment questionnaires used in both models. Staff responses to the same questions were also analyzed.

Results: The reductions in utilization were greater in the PMRP group: Opioid prescriptions decreased 83%, compared with the Level 2 group at 34%. Benzodiazepines decreased 80% in the PMRP group, while they decreased 39% in the Level 2 group. Emergency Department visits decreased 52% in the PMRP, whereas they increased 15% in the Level 2 program. Group differences were statistically significant. In the PMRP primary care office visits decreased 21%. In the Level 2 group they decreased 14%, with no statistically significant difference between groups. Level 2 increased understanding of chronic pain yet patients wanted more time to interact and practice techniques. Disappointment that pain did not go away was common. PMRP participants voiced that belonging to an ongoing community that practices techniques eases suffering and increases motivation to self-manage pain. They reported changes in attitudes, humor returning, and appreciation for comprehensive care and practitioner enthusiasm. Practitioners echoed with comprehensive care and a practitioner-patient community as being peak career experiences.

Discussion: Reduction of opioid and benzodiazepine prescriptions, along with Emergency Department visits and Primary Care office visits, and ongoing participation in a patient-practitioner therapeutic community motivates patients to self-manage pain, thus decreasing costs and potential fatalities. Patient and staff narratives suggest community is an intervention that affects motivation and engenders understanding and support in a way that is inherently rewarding to patients and staff. We surmise that community membership is an interpersonal neurobiological intervention that therapeutically affects brain mechanisms common to chronic pain and addiction. Narrative themes point to it having a revitalizing effect, both upon patients' lives and practitioners' passion to provide care to this difficult population.

From Northwest

2. Zero Suicide Implementation

**Jacqueline Ryan, MPH; Pavan Somusetty, MD; Han Liang, MD;
Eli Pahl, LCSW, CADC III;**

Background: Suicide claims more than 47,000 American lives each year, with each death leaving devastating and immeasurable impacts on surviving loved ones for decades or longer. Research shows that nationwide, almost half of those individuals had sought medical care in the last month before their death, often for other unrelated health care needs. In Oregon and Washington, suicide has risen to become the 8th leading cause of death. Kaiser Permanente Northwest's (KPNW's) Zero Suicide Initiative seeks to strengthen its health care system to prevent these tragic deaths by identifying its highest-risk members and by ensuring they receive timely and appropriate evidence-based interventions once identified.

Methods: The population included members of KPNW seen in Mental Health, Addiction Medicine, Primary Care, Pain Clinic, Obstetrics and Gynecology, and Pediatrics who answered a Patient Health Questionnaire (PHQ-9) used for screening and monitoring depression or those who otherwise indicated suicidal ideation directly to health care providers. We increased depression screening in Primary Care to all members and created consistent and reliable escalation pathways for anyone seen in the above departments who indicated a positive 9th question (the screening question for suicide) on the PHQ-9 by applying the Columbia-Suicide Severity Rating Scale (C-SSRS) during the visit before the patient left the office. The answers to this tool were collected as discrete data. Those who were seen outside of Mental Health and Addiction and scored a 3 or higher on the C-SSRS were provided a warm transfer to a behavioral health clinician (either in person or by phone) to collaboratively develop a safety plan intervention with rapid follow-up in a specialty mental health clinic. Those who were already being seen in a specialty mental health or addiction medicine clinic collaborated with their provider directly on the safety plan before leaving the office. Our outcome measures were: Depression screening rate, C-SSRS Utilization and Completion in Response to Elevated PHQ-9 9th item, and Suicide Incidence Rate in Mental Health and Addiction Medicine.

Results: Updated workflows in documentation for Pediatrics in April 2018 resulted in a significant increase in the depression screening rate from a baseline of 17.6% to 35.8% in September 2018. Universal screening for depression in the adult population began in August 2018, and we anticipate a similar increase in depression screening rates for adults in the coming months. Our baseline C-SSRS utilization rate (in response to a positive response to the 9th question on the PHQ-9) in December 2017 was 0.4% and by Q3 of 2018, this rate had increased to 60.1%. In May 2018, all mental health and addiction medicine clinicians were trained in the Stanley & Brown Safety Planning Intervention. Since this training, the Mental Health and Addiction Medicine Department has seen 2 calendar months of 0 suicides within the department.

Discussion: Tying the C-SSRS to the PHQ-9 workflows in departments that already use the PHQ-9 was a successful strategy in rolling out widespread suicide risk assessments. Collecting and reporting on measures and investing in training all mental health and addiction medicine clinicians in an evidence-based safety-planning intervention proved to reduce suicide incidence and helped to shift the culture at KPNW around suicide prevention. Our next steps include data collection for when safety plans are being used in response to an elevated C-SSRS score by capturing safety plans in the electronic medical record as discrete data, exploring the use of a risk calculator to further help determine those who would benefit from a C-SSRS even with a negative response to the PHQ-9, and engaging more departments in suicide risk identification, including the Emergency Medicine and Urgent Care.

From Hawaii

3. Implementation and Dissemination of Cognitive Behavioral Therapy for Depression in Kaiser Permanente Hawaii: Impact and Lessons Learned

Bradley E Karlin, PhD, ABPP; Gregory K Brown, PhD; Shari Jager-Hyman, PhD; Kelly L Green, PhD; Michi Wong, PhD; Diane S Lee, LCSW, CSAC; Andrew Bertagnolli, PhD; Thekla Brumder Ross, PsyD

Background: When delivered, cognitive behavioral therapy (CBT) is generally provided with low fidelity. This pilot initiative implemented a CBT approach adapted for the Kaiser Permanente system with a focus on depression and co-occurring anxiety to bridge the research-to-practice gap, with emphasis on fidelity, the therapeutic alliance, and individualization of training and treatment to enhance treatment outcomes and engagement. The initiative involved a state-of-the-art approach to competency-based training in CBT designed to establish internal and ongoing capacity to deliver CBT.

Methods: Competency-based training in CBT for depression (CBT-D) among Kaiser Permanente Hawaii mental health practitioners included training and implementation of the protocol by therapists in training, along with system implementation and sustainability supports. Evaluation of training and implementation included assessment of both therapist and patient outcomes. Changes in therapist competency in CBT were assessed by expert raters using the Cognitive Therapy Rating Scale (CTRS). Changes in depression and anxiety among patients were assessed using the Patient Health Questionnaire-9 (PHQ-9) and the Generalized Anxiety Disorder-7 (GAD-7), respectively.

Results: In the initial training cohort, 3 out of 14 therapists demonstrated minimum competency in CBT at baseline. At the end of CBT training, 14 out of 14 therapists reached competency. In the second training cohort, 0 out of 11 therapists demonstrated competency in CBT. At the end of CBT training, 11 out of 11 therapists reached competency. Among patients enrolled in the initial training cohort (n = 36), there were statistically and clinically significant decreases in depression and anxiety symptoms from pre- to posttreatment.

Discussion: Although CBT is highly recommended in clinical practice guidelines, few therapists exhibited minimum CBT competency at the start of training. At the end of training, all therapists demonstrated CBT competency (and improvements in general therapy skills), providing support for the utility and effectiveness of this competency-based training approach. The implementation of CBT-D by therapists in training was associated with clinically significant reductions in depression and anxiety among patients. Findings provide additional support for training in and implementation of CBT in health care systems. Limitations of this program included lack of a control group, given the nature of the project as an effectiveness evaluation within a real-world treatment setting, and the relatively small numbers of participants. Next steps include focus on CBT-D sustainability and sharing of learnings and resources to promote spread to other regions.

From Washington

4. Lessons from Implementation of Behavioral Health Integration in Kaiser Permanente Washington

Rebecca Parrish, MSW; Ryan M Caldeiro, MD; Amy Lee, MPH

Background: Behavioral health conditions and psychosocial and resource barriers to accessing care are ubiquitous in primary care settings and are associated with poor physical health and increased health care costs when undertreated or unaddressed. Kaiser Permanente (KP), like other health systems in Washington and across the country, is working to improve access, reliability, and quality of care for patients with mental health and substance use concerns through behavioral health integration (BHI) within primary care clinics.

Methods: Primary care-based universal screening for adults age 18 years and older for depression and unhealthy alcohol, marijuana, or other drug use. Positive test screenings are assessed with evidence-based tools with results documented in the electronic health record, resulting in patient-centered care including preventive advice and shared decision making to determine appropriate treatment. Licensed clinical social workers and community resource specialists function as core members of the primary care team who can help support the care needs identified from screening. Outcome measures include screening and assessment rates for depression, alcohol- and substance-use disorders, as well as suicide risk assessment and decrease in referrals to specialty mental health.

Results: Screening and assessment rates for common and easily treatable mental health conditions improved significantly following implementation of BHI. Prelaunch, 10% of patients received depression screening vs an organizationwide 90% screening rate in September 2018. Similarly, 6% of patients received depression

assessment prelaunch vs organizationwide assessment rate of 97% in September 2018 when BHI was launched in all KP Washington (KPWA) clinics. Improved screening and assessment rates have been sustained for more than 3 years in clinics that led the development of the work in 2015. In a recent KPWA provider poll, BHI was rated in the top 5 primary care investments that supported improved patient experience, improved practitioner experience, improved quality, and decreased costs.

Discussion: Integrating behavioral health into primary care has substantially improved the ability of KPWA to identify and to treat common mental health and substance-use concerns. Key facilitators to success include: Intentional staff engagement around implementation; defined standard work to support screening, assessment, and treatment of identified conditions; and the addition of staff members dedicated to supporting the needs identified via screening. Well-executed BHI results in: Improved patient care and experience, improved organizational performance on mental health quality measures, and increased practitioner satisfaction. KPWA learnings applied in your Region can support more fully integrated health care.

WELL BEING

From Northern California

5. 100,000 Quitters and Counting—Striving for a Tobacco-Free Generation

Renee Fogelberg, MD; Mariko Muzzio, MPH; Annida Brunato; Karin Dove, MPH; Debora Sawyer, MD; Christopher Lee, MHSA

Background: Given the known morbidity and mortality of tobacco use, and the multiple touch points in our system, we can dramatically reduce usage rates with targeted intervention.

Methods: Northern California tobacco cessation work covers a population of more than 4 million members. In 2012, Kaiser Permanente Northern California had a tobacco-use prevalence of 9.4%. To address this known issue, we developed an intervention strategy to target any member with a documented history of active smoking or tobacco use. This strategy employed a multipronged approach:

- Inreach—defining and codifying workflows to discuss quit options and resources with relevant patients during every visit with their primary care physician
- Outreach—systematic engagement with relevant patients that highlights quit options and helpful resources in between visits
- Strategic engagement—defining and codifying workflows to discuss quit options and tailored resources to relevant patients during "teachable moments" (pregnancy, inpatient admissions, perioperative discussions, etc).

Success of this multipronged strategy was measured through quit rates, medication-use rates, counseling rates, longer-term hospital readmissions, and perioperative complications.

Results: Within 7 years, our tobacco prevalence dropped from 9% to 7.4%; our medication-use rate increased from 3% to 7% (prescription fill rates); the number of smokers we counsel increased dramatically (telephonic coaching service); and perioperative quit rates approached 50%.

Discussion: Smokers represent a small subset of our members yet the associated immediate and long-term consequences owing to first- and second-degree exposure are significant. For those reasons, we chose to adopt an every-patient, every-visit approach, which included assessing and intervening with personalized cessation aids as appropriate. Ideally inreach and outreach approaches should be designed to identify at-risk populations. Workflows to support relapse prevention are also critical.

From Mid-Atlantic States

6. The POWER Journey of a Mid-Atlantic Permanente Medical Group Physician (Pursuit of Wellness, Engagement, and Resilience through Social Support)

Susan Leggett-Johnson, MD, MBA; Gene Gincherman, MD; Mary Zmuda, MPH

Background: A 2018 Medscape Report of 15,000 physicians averaged 42% reporting burnout; burnout rates vary: Physicians younger than age 45 years at 35%, age 45 to 54 years at 50%, age 55 to 69 years at 41%. Burnout can be caused by work demands, difficult interactions, limited access to resources, and lack of social support. The symptoms are emotional exhaustion, depersonalization, and low sense of meaning in work and life, leading to a decrease in joy in the workplace, which affects patient care, collegiality, turnover, and personal well-being.

Methods: The methods employed to impact burnout and cultivate joy in the workplace through social support are two-fold: 1) obtain leadership buy-in and lay the organizational foundation for a supportive culture—A) Value Equation updated to include "Physician Experience" as a component of organizational success; B) Physician Opinion Survey enhanced to include validated questions from Physician Wellness Inventory and American Medical Association's Mini-Z Burnout Survey; 2) develop a diverse package of programs and events, offered at various touch-points, that enhance social support among colleagues and are in alignment with the Stanford WellMD Model of Professional Fulfillment.

Results: Although Mid-Atlantic Permanente Medical Group (MAPMG) collects event-specific feedback, MAPMG recently added a multitude of wellness-related measures to the Physician Opinion Survey. The following measures will be used for evaluation of the impact of the social support journey (T1-T2 comparison available in 2019). "I feel valued as a physician in MAPMG." "My Chief does a good job of recognizing people for their accomplishments and contributions." "I have the support I need from others in my department to do my work." "I have meaningful and supportive relationships with others in my department." "I actively participate in my community or [Kaiser Permanente's] volunteer opportunities, or in one of MAPMG's Wellness Program activities." "My work brings joy into my life." "Feeling compassion for others is a regular part of how I work."

Discussion: The overarching goal of providing a comprehensive social support journey throughout the career span of a MAPMG physician is to improve joy in the workplace, which directly correlates to outcomes such as increased engagement, resilience, health, and satisfaction. An important learning is that cultivating "joy," "well-being," and "support" mean different things to each unique

individual, so it is necessary to be broad, but focused, in the approach. The next steps with MAPMG's social support journey are to continue to reinforce the message that all offerings are cohesive and connected to a larger goal, and are not just individual offerings.

From Hawaii

7. Malama Ola—Taking Care of Your Well-Being

Sharin Sakurai Burton, MD, PhD; Casey Akana, RN; Sandra Tompkins, RN; Kristy Yoshikawa; Julia Gregory, RN; Hyewon Jun, MD; Mae Lynne Swoboda, MPH; Courtney Farris, MA, MINTee; John Banagan, MPH, CHES; Eric Kamimura, DPT; Steve Nakata, COTA, MBA; Derek Chee, DPT; Quyen Nguyen, PhD; Jennifer Davis, RD; Kimberly Oshita, RD; Merle Miura-Akamine, MD; Kaipo Pau, MD; John Sheehan, MD

Background: One person dies every 12 minutes of an opioid-related overdose. Our practitioners have decreased opioid utilization in chronic pain patients; however, recent guidelines for managing chronic pain emphasize nonopioid medications and access to complementary and alternative treatment protocols. Increasing function is now a focus of assessing therapeutic response to treatments for pain. Our patients with chronic pain need assistance with developing skills to increase their functional status while managing their pain with decreased opioid use.

Methods: Any patient with chronic (on opioid therapy for > 90 days) nonmalignant pain will be eligible for referral to the Malama Ola chronic pain wellness program. Those who enroll in the program will be offered access to complementary treatment options that emphasize self-care and increasing function. We will compare patients who enroll in the Malama Ola program to patients not enrolled in the program. Outcome measures include decrease opioid usage and increase function using the Brief Pain Inventory—Pain, Enjoyment, General Activity, Sleep questionnaire.

Results: With advice from the Patient and Family Center Care member advisors, we created Malama Ola, a chronic pain wellness center that is part of the Integrated Physical Rehabilitation clinic (staff include pain and physiatry practitioners). The patient is at the center of care. By removing the word "pain" from the clinic name we redirect the focus of opioid-based therapy to treatment-based on rehabilitation and integrated care. Patients with chronic pain can be referred directly to Malama Ola and a lifestyle coach navigates their care. We changed the name of our 6-week lifestyle program to active coping and training, which focuses attention on increasing function. Patients actively engage in self-care skills to increase function while managing pain that is not based only on opioids.

Discussion: Opioids are only 1 part of a multimodal treatment plan for chronic pain. Helping patients understand the mindset shift to increasing function and managing pain while reducing opioid use is a crucial part of managing pain. Member advisors from the Patient and Family Center Care committee were enlisted during the development of our Malama Ola class presentation and attended our first session. Their input allowed for more effective communication strategies to engage patients in our chronic pain wellness program. The next step is to develop patient-centered support groups with the Patient and Family Care Center to ensure sustainability of the self-care skills our members have learned.

From Northwest

8. Increasing Team Safety and Response to the Threatening Member

Bradley Christie, PhD; Laura Ketterman, HEM

Background: Health care worker violence or injury rates are 4 to 6 times that of other professions. Every assault has potential "stop" points to de-escalate and/or provide effective care. Assault prevention is not completely effective with standard security or violence-prevention models. Kaiser Permanente Northwest (KPNW) has a co-ownership and joint-responsibility model that addresses and integrates the quality, service, security, and clinical elements, which all contribute to risk solutions including: Staff reporting, notifications, preparations, with shared safety and care briefings for high-risk incidents, along with health care focused de-escalation and defense training.

Methods: The KPNW program is building data dashboards, and best-practice standards from clinical, security, and quality sources. Population data sets are being collected including injuries, reported incidents and levels, alongside training efforts with pre-post measures (showing a marked improvement in usability and support of our training efforts). This integrative approach supports member relations, quality, service data, patient and staff satisfaction data, and although quantitative data sets are difficult to measure, this integrative approach is built as a broad-based preventive strategy that supports improving security data outcomes and reducing the need for a traditional security "fix the problem" approach.

Results: The KPNW has experienced 4- to 5-fold increases in reporting potential and actual threat events with fewer unmanaged events, lower injury data, reduced charting of events, with increased staff satisfaction of threat management and team support.

Discussion: In this session we will discuss how an integrated culture of threat management and safety influences the reporting, response, and risk-reduction strategies for provider teams while also increasing member satisfaction and clinical outcomes.

The elements of safe engagement include reporting any incident however minor, with clear response and support processes for safety needs, service recovery efforts, and a threat management response. We will provide safety and support tips, scenario reviews, and team engagement strategies.

CARE MANAGEMENT

From Southern California

9. Continuing Care Quality Management: Practice, Performance, Proof

Peter Khang, MD, MPH, FAAFP; Jennifer Cortez; Christine Jordan, LCSW; Artem Aghourian, MBA

Background: The postacute care marketplace is segmented with high degrees of variability among skilled nursing facility (SNF) leadership, care quality, and outcomes. Appropriate and adequate governance of the care provided and oversight of our members in

SNFs, ensures they receive care that is consistent with what they received in the hospital.

Methods: Continuing Care Quality Management (CCQM) aims to improve the quality outcomes and utilization of skilled nursing care for members in SNFs or to those considered for it (most often Medicare/65+ members). To do so the Kaiser Permanente Southern California Region implemented CCQM, which emphasizes appropriate and timely care for members in SNFs and ensures the appropriateness of SNF placements from the hospital. We compared our results with historic outcomes and utilization, and other utilization trends in the organization. To track our outcomes, we measured SNF patient day rate, SNF discharge rate, average lengths of stay, and 30-day readmissions (posthospital and post-SNF discharge).

Results: The primary metric for success has been the SNF patient day rate—measuring the number of skilled days per 1000 members. During the course of nearly 3 years (2015-2018), we have seen the SNF patient day rate drop by nearly 33%. This metric is comprised of the volume of members entering a SNF and the length of stay. As CCQM and Inpatient Quality Management work together to send patients home when possible, our volume of SNF members has decreased, while our average length of stay remained the same. We have observed a modest decrease in the Healthcare Effectiveness Data and Information Set readmission observed/expected ratio, despite a 12% increase in the expected rate in the 2 years; and a significant reduction in our 30-day post-SNF readmission rate.

Discussion: The CCQM model enhances the timeliness and appropriateness of care for members, improves working relationships (internal and external), and produces patient satisfaction and business outcomes. Throughout the implementation process the Southern California Region has been able to identify multiple practices that help drive CCQM performance for various medical centers. Understanding those practices, why they are important, and what impact might be expected supports other Regions in the implementation as well.

From Mid-Atlantic States

10. The Hepatitis C Care Cascade: Increasing Comprehensive Screening and Diagnosis

M Cabell Jonas, PhD; Michael Horberg, MD; Jacquelyn Redd, MD; Dana Sloane, MD; Eric Wollins, MD; Carla Rodriguez, PhD; Bernadette Loftus, MD

Background: Chronic hepatitis C is the most common US bloodborne infectious disease, affecting the large baby boomer-age population (born 1945-1965) and those at-risk because of blood exposure. Hepatitis C virus (HCV) kills more Americans than any other infectious disease. Significant gaps persist for screening, diagnosis, triage to care, and curative treatment.

Methods: The Kaiser Permanente Mid-Atlantic States (KPMAS) HCV Pathway is a technology-driven, coordinator-supported process to screen at-risk patients for HCV chronic infection (initial testing with HCV antibody, confirmed by HCV RNA), coinfection testing, liver assessment (including staging), and physician referral. The multistep pathway closes patient care gaps, improves quality, and eliminates unnecessary physician work.

Results: The HCV Pathway has improved regional screening rates, increased the percentage of total baby boomers screened, and improved testing quality across the testing cascade (including HCV RNA testing, coinfection testing, HCV genotype testing, and liver stiffness assessment).

Discussion: Modeling studies in the literature indicate programs that simultaneously address multiple points along the HCV care cascade result in better outcomes and higher value than interventions that target single steps. Broader implementation of a multistep technology and coordinator-assisted HCV Pathway, such as the KPMAS program, can improve regional HCV screening rates (particularly among the at-risk baby boomer-age population), can improve HCV testing efficiency (and coinfection testing), and can link patients to care more consistently. Resources are available to spread this program to other sites.

From Southern California

11. Measuring Diagnostic Error: A Review of Patient Complaints

Michael H Kanter, MD; Lawrence D Lurvey, MD; Kerry C Litman, MD; Ronald K Loo, MD; William Strull, MD; Mimi Hugh, MPH, MA; Maverick Au

Background: Diagnostic error, as defined by the Institute of Medicine's 3 key elements (failure to establish a *timely, accurate* diagnosis that is appropriately *communicated* to the patient), is increasingly recognized as an important contributor to delayed diagnosis and can be a source of serious medical harm, yet measuring diagnostic error can be a challenge. Although claims data can give an indication of missed diagnoses long after the fact, measuring diagnostic error from the patient's perspective provides insights and opportunities to identify and potentially to mitigate diagnostic issues at an earlier stage. Member Services is the first portal to collect patient complaints; nonclinical staff summarize and code each complaint; 7-code description categories fit the definition of diagnostic error and contain significant volume to allow useful analysis.

Methods: From the 7-code description categories that fit the definition of diagnostic error, 158 cases were randomly selected for review from 2 perspectives: 1) the *patient*—via review of the intake summary, and 2) the *physician*—via review of the patient's medical record. These cases were evaluated for any of the 3 elements of diagnostic error in the intake summary and in the patient's medical record. Ten physicians reviewed and assessed the cases using a uniform evaluation tool to document their findings. Tabulated results determined whether the diagnostic-related codes of complaints were accurate indicators of potential diagnostic error.

Results: From the patient's perspective, 2 categories, Diagnosis Delayed/Missed/Incorrect and Test Results Delay, yielded high specificity (81% and 93%) of diagnostic errors. Other categories had low volumes or did not meet the definition of diagnostic error. From the physician's perspective, diagnostic error was identified at much lower rates on the basis of documentation in the medical record of accurate and timely diagnosis and communication to the patient. In the routine review of complaints, the majority had potential quality issues (94% and 63%) and were forwarded to the Quality Department for further investigation, but only a few cases had quality issues that led to peer review scoring of a minor or significant opportunity for improvement; most had no quality issues. Perception of the quality of communication may explain this difference; it may be assumed by

the physician that adequate communication occurred if documented in the medical record, whereas patients may not have felt they were adequately informed.

Discussion: The addition of *communication* to the definition of diagnostic error has shed light on a common problem. The patient's perspective should be the gold standard regarding adequate communication, and whether the diagnosis was well understood, its implications, and a plan of care. Adequacy of communication may be documented in the medical record, but may not convey the patient's true perceptions. In addition, the Institute of Medicine definition does not define *timely*; the patient's perspective should be used in determining timeliness, because it is less subject to interobserver variation from physician reviewers. Identifying diagnostic error rates from patient complaint data may be a useful way to measure diagnostic error over time in a more rapid manner than current methods, allowing more timely investigations and system improvements to reduce future harm.

From Northern California

12. No Place Like Home: Surgical Home Recovery

Michele Knox, MD; Wendy Rabinov, MD; Michael Nwynn, MD; Ashima Garg, MD, PhD; James Chang, MD; Claire Spanbock, MBA, RN, CNOR; Edgar Servais; Bijal Shah, MHSA; Tamar Fendel, MPH; Annie Davis, MPH; Joeffrey Hatton, MBA

Background: Surgical home recovery builds on total joint home recovery and enhanced recovery after surgery, both of which focus on decreasing opioid use and improving pain control resulting in decreased length of stay. Similar techniques were used to improve same-day discharge rates to: Improve patient experience by enabling recovery at home with familiar food, environment, surroundings, and loved ones; free up hospital beds; and reduce exposure to hospital associated harm (eg, infection).

Methods: We identified lower acuity procedures with variation in current discharge practice. Specific criteria were applied to exclude patients with medical necessity for hospital admission including patients with a hospital stay of 2 or more nights. We identified surgeons with high rates of home recovery and identified best practices supporting home recovery. These were shared with all relevant surgeons through various forums. We developed an extensive performance reporting tool including: Statistical control charts trending 2-year performance for home recovery by Region, facility, procedure type, and surgeon, plus return to care data (return to Emergency Department, Operating Room, and/or hospital admission) with similar breakdowns.

Results: Procedures included: Anterior cervical discectomy and fusion Level 1 and 2, ankle fractures, 1-level laminectomy and discectomy, laparoscopic appendectomy, mandible osteotomy, mastectomy, parathyroidectomy, prostatectomy, thyroidectomy, tonsillectomy, shoulder arthroplasty, and vaginal hysterectomy. Between October 2017 and October 2018, home recovery for all procedures increased from 68% to 84%, statistically significant deviation from the mean for the past 8 consecutive months. This resulted in 2300+ bed days saved, representing annualized cost savings of approaching $7 million. During this same time frame, procedures with the highest increase in home recovery were: Prostatectomy or transurethral resection of the prostate (47% to 92%), mastectomy (37% to 79%), shoulder arthro-

plasty (38% to 74%), and laparoscopic appendectomy (66% to 83%). The most improved medical centers were San Rafael (68% to 96%), San Jose (59% to 85%), and Roseville (58% to 82%).

Discussion: Surgical home recovery can be accomplished without compromising quality, is preferred by most patients and families while hospital beds are freed up for others. We achieved statistically significant higher rates of home recovery within a few months. Success is attributable to: 1) self-nominated surgeon champions; 2) dedicated time for surgeons to discuss best practices, surgical techniques, and review data; 3) revealing reports identifying unknown variation in physician practice and highlighting opportunities by facility and procedure; 4) additional tools to share best practices: Video and written guidelines. These practices could quickly be adopted by other Kaiser Permanente Regions.

From Mid-Atlantic States

13. Mid-Atlantic States Chronic Heart Failure Program

Farzaneh Sabi, MD; Machelle Behzadi, MHA; Betty Rice; Jessica Kane; Blair Van-Horn

Background: Heart failure (HF) is a chronic condition affecting millions of people every year. During the course of this condition, heart function may deteriorate, especially in people with poor diet and exercise habits, other chronic conditions, and poor compliance with medications. Investments in the early diagnosis and treatment of heart failure, including support with medication adherence, improving diet and reducing sodium intake, as well as increasing daily physical activity, can improve the overall quality of life and decrease the morbidity and mortality rates associated with heart failure.

Methods: The HF Program focuses on outreach and support for members with HF who demonstrated signs of decompensation or progression of their chronic condition. The goal of the program is to have high-frequency outreach with members to support them in gaining the knowledge to manage their HF. In collaboration with the members' primary care physician/cardiologist, the nurses work closely with the members to review their compliance with medication, diet, and exercise recommendations by their physicians. This is achieved by performance improvements and monitoring of medication titration and adherence, lifestyle management, nutrition counseling, and life care planning through a combination of in-person consultations, telephone appointments, and classroom education by program registered nurses.

Results: The Regional HF Program launched in March 2018, and approximately 900 members were enrolled in the program as of December 31, 2018. This represented 11% of all Kaiser Permanente Mid-Atlantic States members with the diagnosis of heart failure. Members enrolled in the program had a 65% reduction of urgent care/clinical decision unit (CDU) utilization, a 19% reduction in their Emergency Department utilization, and a 56% reduction in their hospital utilization. Forty-nine percent of members in this program also had diabetes, and 98% were up to date on their annual hemoglobin A_{1c} measurements. Eighty-one percent of members in this program had documentation of life care planning discussions, and 17% had an advanced directive on file. One hundred seventeen members successfully graduated from this program through demonstration of improvements in their clinical conditions, demonstration of understanding and adherence to medication regimens, daily

weight and blood pressure measurements, and sustained lifestyle changes to improve their overall health and outcomes.

Discussion: Intensive outreach programs focusing on medication adherence and understanding and changes in lifestyle including diet, exercise, and smoking cessation, led to improvements in overall health and reductions in avoidable Emergency Department and hospital visits for members with decompensating HF.

From Northern California and Southern California

14. Patient-Centered Management for Chronic Disease—A Model Applied to Parkinson Disease Care in Southern California

Jason Cheves, MSBA; Steve Cedrone, MBA; Todd Sachs, MD; Kathy Kigerl, RN, MN

Background: Recent research indicates specialized physical, occupational, and speech therapy can help delay the progression of Parkinson disease (PD) and can help patients manage disease symptoms. Furthermore, evidence from ParkinsonNet in the Netherlands suggests specialized therapy correlates to reduced fracture rates and Emergency Department (ED) visits. Additionally, our "Voice of the Customer" work has shown patients and caregivers want relevant and abundant information about their disease, along with inclusion in the decision-making process of their care.

Methods: There are currently more than 11,000 Kaiser Permanente patients with PD in Southern California. Intervention includes disease-specific training for select ancillary practitioners; refinement of existing workflows to ensure patient referrals to these experts for care; creation of multidisciplinary expert teams to prioritize and coordinate care; a Web site platform designed to provide information to patients, caregivers, and practitioners; and involvement and sponsorship of community events. Patients also complete questionnaires to inform the physician as to their current emotional and physical state and to provide an overall patient perspective of the level of care and service they are receiving. All data are collected, analyzed, and reported monthly.

Results: Parkinson's Care was implemented regionwide between 2014 and 2015. Since its inception, more than 125 Southern California ancillary practitioners have received PD-specific training. Data suggest patients are receiving more frequent ancillary therapies, and referrals and visits for therapy have approximately doubled regionwide. Approximately 67% of therapist visits are with PD-trained therapists, higher than the rates observed by ParkinsonNet at Radboud University (Nijmegen, The Netherlands). ED visits and inpatient admissions have decreased approximately 22% and 17%, respectively, and fracture rates have decreased approximately 56% for this population. Patient and caregiver feedback has been positive regarding improved access to care, patient-centered and collaborative visits, and information received. These successful results have garnered Kaiser Permanente-authored article publications and submissions in leading global public health journals.

Discussion: Parkinson's Care has demonstrated successfully that a patient-centered model, with input from patients, caregivers, and specialized care, coupled with relevant and abundant information, can improve quality of care, patient safety, and member satisfaction in dealing with chronic diseases. Key components of this approach include: 1) a Web site platform, used for collaborative communication, information, and support; 2) specially disease-trained ancillary practitioners; 3) patient-centered care to collaboratively treat the "whole person," not just one symptom; and 4) and community involvement. Given these compelling results, we believe the Parkinson's Care model could be implemented and spread to other Regions and conditions.

From Northwest

15. Coordinated Regionwide Care Management Intervention for Patient with Chronic Obstructive Pulmonary Disease at Risk of Acute Exacerbation Reduces Hospital Days

Richard Mularski, MD, MSHS, MCR; Sanja Uskokovic, MS, PMP; David M Mosen, PhD; Bryan L Skalberg, MS; Achikam Haim, PhD; Marianne C Turley, PhD; Nancy L Lee, RPh; Wui-Leong Koh, MD

Background: Chronic obstructive pulmonary disease (COPD) affects 12 million to 29 million individuals resulting in 800,000 yearly hospitalizations in the US. Implementation deficits for COPD care results in excess acute exacerbations (AEs), lowered quality of life, reduced functional status, and compromised survival. We developed and tested a targeted intervention across the Northwest Region to identify patients at high risk, provide guideline-recommended proactive care, and evaluate process and outcome metrics for this population.

Methods: We identified an at-risk COPD population in 2 phases for implementation defined by (phase 1) age older than 65 years by International Classification of Diseases-10 visits and 2 or more AEs in the prior year with systemic steroid dispensing or (phase 2) age older than 40 years with any COPD AE hospitalizations in the previous year. Multiple coordinated care management teams completed an action plan (standardized symptoms linked to actions such as start medications) with patients, facilitated influenza/pneumococcus vaccines, and provided rescue medications. Process measures assessed care delivery components; outcome metrics (included AEs, utilization, and death) were compared with historical controls and completers (received all planned interventions/medications) were compared with noncompleters.

Results: We identified 149 patients in phase 1 and 264 in phase 2; respective historical cohorts had 118 and 149 patients. Action plans were delivered in 55% of outreached patients; vaccine rates improved from < 50% to 65% (p < 0.01); and rescue medication orders improved from < 1% to 20% (p < 0.0001). Nonsignificant trends were seen in hospital admissions (26% postimplementation vs 31% preimplementation) and 30-day readmission (18% vs 35%). Hospital days were reduced in completers (0.94 ± 2.51 days) vs those who did not receive all components (1.90 ± 5.58 days, p < 0.05). Similar trends were seen in other measures of utilization. Additionally, in the completer group, mortality trended down from 6.0% to 1.3% (not significant), as did overall AEs from 25.0% to 20.5% (not significant) compared with noncompleters.

Discussion: Our analysis showed that a proactive program coordinating care management for at-risk COPD patients had a favorable impact on care delivery and utilization. We completed a second year of the intervention (evaluation pending summer 2019) and are preparing for regionwide spread of these improvements in care delivery with all primary care providers to further attempt to reduce AEs and

hospitalizations for patients with COPD. Using a population-based strategy supported by our Region's learning health system work, we identify individuals for preventative services. Multiple coordinated care management teams are trained; using electronic medical record-based strategies clinicians contact patients, compete an action plan, facilitate vaccine completion, and provide rescue medications to be used at early signs of AE.

From Southern California

16. Decreasing Sleepless Nights for Patients and Practitioners by Fast Tracking Patients with Diagnostic Images Highly Suspicious for Cancer

Rischl Alindogan, BSN; Brian Doerning, MD; Robert Lin, MD; Jamie Difiori, MD; Harold Chow, MD; James Carter, RPA; Cynthia Payne, PhD

Background: Development of the No Sleepless Nights program began in 2015, with a goal of streamlining the patient's care experience after receiving diagnostic images highly suspicious for cancer. A chart review of the top 10 diagnosed cancers within the Baldwin Park service area showed a 35-day average between the time of highly suspicious diagnostic imaging to specialty appointment. This chart review also revealed variances with examinations and referrals ordered for the same type of cancer.

Methods: A committee of hospital administrators, specialists, primary care practitioners, radiologists, pathologists, and nurses organized to analyze current processes and formulated the No Sleepless Nights program. The program entails the use of a closed-loop system, and under specialty-developed protocols and direct supervision of specialty services, a nurse coordinator contacts the patient with examination results, places orders for tests and referrals on behalf of primary care, and assists with scheduling these appointments. After program implementation, the length of time from highly suspicious diagnostic imaging to specialty appointment was tracked and reported to the committee throughout the year.

Results: Implementation of the No Sleepless Nights program has reduced the average number of days from highly suspicious diagnostic imaging to specialty appointment from 35 to 10 days. In addition, this program has developed standardized guidelines for cancer workup, optimized use of the organization's resources, and improved patient care. The program exceeds 1050 participants, has captured 39 different cancer types, and has wide acceptance and appreciation by patients, families, primary care practitioners, and specialists. As a byproduct of this program, patients are reaching the specialty department with the necessary workup completed, therefore, saving precious time for both the patient and physician. Furthermore, patients have an additional resource of support as they navigate this uncertain and frightening time involving their health.

Discussion: This program has been limited to patients within the Baldwin Park service area. Because this program has been chosen for regional spread, we anticipate an expansion of its utilization and overall development. With regional spread, access to services outside of the Baldwin Park service area, such as positron-emission tomography scans and radiation therapy, will enhance and further streamline the No Sleepless Nights program. We have identified the importance of forming a multidisciplinary team committed to the

program's goal, along with excellent leadership and administrative support, as keys for the successful development and implementation of the No Sleepless Nights program.

From Northwest

17. Combining Minimally Invasive Thoracic Surgery Techniques and a Multidisciplinary Care Model Leads to Superior Outcomes

Brian Timm, PA-C; Christopher Mutrie, MD; Piotr Starosta, PA-C; Julie Faulk, PA-C; German Collazo, PA-C; Yong Shin, MD; William Shely, MD; Thomas Lampros, MD; David Tse, MD

Background: The mission of Kaiser Permanente (KP) is to provide high-quality, affordable health care services and to improve the health of our members and the communities we serve. Combining skilled minimally invasive surgical techniques and a multidisciplinary approach to caring for complex patients has proved successful in serving this mission, which benefits our members and the health care team that serves them.

Methods: Of the lobectomies performed in the KP Northwest Region, 96% are minimally invasive, compared with the Society of Thoracic Surgeons (STS) average of 76%. All thoracic surgery patients are cared for by a multidisciplinary team. Our team, physicians (surgeons, intensivists, internists), physician assistants, nurses, pharmacists, physical therapists, dieticians, care coordinators, and social workers, round twice daily on each patient. The commitment to skilled surgical techniques and the multidisciplinary care model has established a culture of clear communication, daily goal setting, team accountability, and group decision making, and has resulted in proven excellent outcomes including: Low mortality rate, decreased length of stay, and lower-than-average pneumonia rates.

Results: Combining our minimally invasive surgical techniques and multidisciplinary care model has led to the following excellent results: Overall mortality rate of 0.0%, postprocedure length of stay of 1 day compared with the STS average of 4 days, and postoperative pneumonia rates of 1.1% compared with the STS average of 3.7%

Discussion: Modeling the KP Northwest approach to caring for complex thoracic surgery patients will result in improved program quality and patient outcomes which further serves KP's mission of providing high-quality, affordable health care services and improving the health of our members and the communities we serve. Quality is becoming an increasing driver of reimbursement, therefore sustainability is directly linked to quality outcomes.

From Colorado, Georgia, Hawaii, Mid-Atlantic States, Northern California, Northwest, Southern California, and Washington

18. Patient-Centered Redesign of Total Joint Replacement Care: Achieving the Quadruple Aim

Kate Koplan MD, MPH, FACP, CPPS; Violeta Rabrenovich, MHA, CHIE

Background: The National Total Joint Replacement Initiative (NTJRI) Home Recovery Program was implemented across Kaiser Permanente—in the inpatient and ambulatory setting with a purpose of

improving patient and physician experience, quality, and affordability of orthopedic care. The NTJRI team provides consultative support and facilitates spread throughout the program. Locally, each Region built on ongoing efforts within orthopedic services by carefully engaging orthopedic patients and clinical teams in proactive patient care and discharge planning, streamlining perioperative services, and designating a Total Joint Replacement Initiative (TJRI) case manager to ensure coordination of services throughout the whole episode of care.

Methods: The population includes patients who are clinically eligible based on evidence-based clinical recommendations and who agree to pursue a same-day elective unilateral hip or knee replacement. A method to spread and to implement the NTJRI program is an NTJRI playbook that includes preoperative evaluation, shared decision-making tools, home safety evaluation where available, patient education, pain control protocols, and instructions for follow-up care with physicians and physical therapy. A key intervention is having a TJRI case manager or an equivalent resource in care coordination and/or follow-up. Key inpatient components include appropriate anesthetic technique, and trained postsurgical physical therapy and ambulation. NTJRI metrics include an average length of stay (LOS) and the percentage of 0-day, 1-day, and 2-day stay procedures. In addition, we carefully monitor hospital readmissions, returns to Emergency Department or Urgent Care services, and surgical complications. The NTJRI dashboard incorporates all NTJRI safety measures and regional LOS targets. We also developed methodologies to assess physician and patient satisfaction with the NTJRI Home Recovery Program.

Results: As of third quarter (Q) 2018, programwide results were: 1) average LOS declined to 0.74, compared with 1.37 in Q4 2016; 2) 44.1% 0-day LOS surgeries, an increase of 34.7% from Q4 2016; 3) 44.0% 1-day LOS surgeries, a decrease of 15.3% from Q4 2016; 4) 30-day readmissions rate (2.4%) has decreased 0.2% since Q4 2016, whereas return-to-care rate (6.3%) has decreased 0.5% since Q4 2016; 5) For 0-day LOS, return to care was < 8% in 5 of 7 Regions and readmissions were < 3% in all participating Regions. The 2018 NTJRI Physician Satisfaction Survey results demonstrated improved physician experience compared with 2017 results: 93% vs 80% in 2017 of respondents agreed that they are welcomed to contribute to improvement efforts; 80% vs 76% in 2017 of respondents reported that the overall changes in the last 6 months has made the total joint replacement service better; and 83% vs 76% in 2017 of respondents reported that they are satisfied with their own practice. The results also improved physicians' perception about NTJRI Home Recovery Program LOS (ie, 62% of respondents reported they are comfortable with a planned 0-day LOS). According to the 2018 NTJRI Patient Satisfaction Survey results, overall experience for total joint replacement was highly rated by most patients (93% report excellent/very good; approximately 80% reported extremely satisfied); shorter LOS (or same-day discharge) is associated with better care experience and patient reporting feeling ready to leave the facility; patient satisfaction with surgeons and other medical staff was 99% and 97%.

Discussion: As an integrated care delivery system, Kaiser Permanente is well positioned to codesign and integrate input received from patients and clinicians in an evidence-based care delivery program. The NTJRI Program provides a model that can be replicated in other programwide improvement efforts. Both patient and clinician engagement strategies and monitoring of their experience with the program are important outcome and balancing indicators of successful spread and implementation.

From Washington
19. HIV/AIDS: A 30-Year History of Care Delivery

Patricia L Philbin, RN; Karen Lewis Smith, MHA; Susan McDonald, RN, MSN; Kathy Brown MD, FACP, AAHIVS; Dan Kent, PharmD

Background: The ability to manage a chronic disease is critical to the Triple Aim. HIV is a chronic disease and with successful management of the disease we can offer the individual the ability to live longer and have a higher quality of life. We can also improve both health outcomes and cost. When we successfully reduce the transmission of HIV to others, we improve our community.

Methods: The HIV program at Kaiser Permanente Washington is based in primary care. The program provides consultative services to the primary care practitioners/champions as well an annual HIV training and monthly updates. In addition, the HIV program works closely with the Special Medication Pharmacy to follow adherence to treatment regimens. The HIV program has taken the key elements of its success and has added a Pre-Exposure Prophylaxis (PrEP) program in the last 3 years. These programs continue to demonstrate a high-quality, cost-effective care model.

Results: Since its inception in 1988, the HIV program has been managed in primary care with an HIV chief expert. The program has evolved from an Excel (Microsoft, Redmond, WA) spreadsheet with a few practitioners to a program with an extensive Epic (Epic Systems Corp, Verona, WI) registry and primary care champions in all our primary care clinics. The program has had many iterations but critical components of the program include establishing a close partnership with our HIV clinical pharmacist, our Special Medication Pharmacy, our Epic partners as well as the HIV community at large. We work diligently with our state, county, and city to assure safety nets for our HIV population. We have used the knowledge we have gained from our HIV model to develop a successful PrEP program.

Discussion: One of the most important take-home messages is the role primary care can and does play in managing HIV as a chronic condition. It does work. One of the limits and learnings of the program is the ability to assure new practitioners are always aware of the resources the program offers. This is particularly true for patients who enter the system with stable HIV disease and have not chosen an HIV champion. Another challenge, as funding sources change, is to continue to be vigilant about community resources that have provided safety nets. Finally, we hope to replicate this model as we further develop our care for the transgender population.

From Northern California
20. Enhancing Dispositions from the Emergency Department—the Northern California Journey to Care for Increasingly Complex Populations

Rayne Soriano PhD, RN; Vivian Reyes, MD; Jo-Ann Griffin, RN

Background: Amidst the challenges with overcrowding, Emergency Departments (EDs) across the nation, including Kaiser Permanente's, are experiencing an increase in utilization from complex patient cases such as the frail and elderly, the homeless, and those with behavioral

health conditions. Homeless patients, for example, are 50.8% more likely to be readmitted to hospitals and stay 2.3 days longer, resulting in increased utilization and costs.

Methods: Focusing on complex patient populations, 6 ED engagements were conducted to highlight systemwide opportunities to reduce ED length of stay, ED admission rates, ED visits, ED readmissions, and to improve care for our diverse patient populations, while also defining standard work for all medical centers. As part of the design, a new role—care without delay director—was formed to work during the ED's busiest times to be a catalyst in enhancing patient dispositions. This work also facilitated the development of a comprehensive Enhanced ED Disposition scorecard to monitor and sustain quality care in the ED.

Results: These engagements generated systemwide enhancements: AllScripts technology in the ED; standard work for leaders and frontline staff; role clarity for the continuum aligned with a "pull strategy" from the ED; and an insight-driven scorecard for ED Care Without Delay performance. Throughout the pilots, we learned qualitative and quantitative outcomes revealing continued opportunities to improve our design and measurement strategy for Enhanced ED Disposition. Feedback from leaders and frontline caregivers have been positive, and as we finalize the design and evaluation of a model for spread, our pilot sites have shown improvements in ED admit rates and ED length of stay. Work plans for local leaders were also developed to sustain a culture of care without delay in the ED.

Discussion: This work raised the awareness for the need of systemwide solutions and a measurement strategy to guide next steps of enhanced ED disposition. The details gleaned from the engagements validated the depth of the challenges of complex dispositions from the ED and provided a new line of sight into ED operations while strengthening partnerships between the ED, rehabilitation medicine or risk management, home-based support, and the continuum to solve problems in real time. These enhancements will be incorporated into the foundational hospital model of care for 2019. The following opportunities were also revealed: Specialized geriatric ED care, homeless pathways, nonmember workflows, and enhancing ED behavioral health.

From Mid-Atlantic States
21. Mid-Atlantic States Hospital Patient Day Rate Reduction

Farzaneh Sabi, MD; Pam Galley, MAOL; Claire Pagano, MHA; Blair Van-Horn

Background: Between 2015 and 2017, the Kaiser Permanente Mid-Atlantic States (KPMAS) patient day rate (PDR) rose by 18.25% (251.5 in 2015 to 307.5 in 2017). The increase in the PDR was multifactorial, including variables of increased membership, changes in member mix (Medicaid, Affordable Care Act), in the setting of ongoing capacity restraints in their partnering hospitals. KPMAS does not own or operate any Kaiser Foundation Hospitals in their Region.

Methods: KPMAS reduced avoidable hospital days by improving care coordination in the ambulatory and acute settings. This included proactive outreach and enrollment of high-risk populations into case management (CM), an investment in the CM workforce, and efficiencies through standardization of workflows and documentation. Rounding and care coordination in the acute setting was standardized across the Region with pairing of hospitalists and patient care coordinators, twice daily huddles, bedside multidisciplinary rounds, utilization manage-

ment reviews, and standardized handoffs from the acute teams to the ambulatory teams. Appropriate surgical procedures were internalized to Ambulatory Surgery Centers (ASC). Investments were made in the pharmacy team to support members' medication reconciliation.

Results: A 4.4% decrease in overall PDR was achieved in 2018. The major driver of the reduction in PDR was a 6.6% decrease in the admission rate. This is a result of the work done by improving care coordination in the ambulatory setting through the KPMAS complex care program, proactive care management programs, case management, and access to urgent care and clinical decision units. Internalization of appropriate surgical procedures to the ASC lead to a 19.7% decrease in the surgical admission rate. The rate of medication reconciliation by transitional pharmacists for all members discharged from the hospital doubled in 2018. In addition to the support of the transitional pharmacists in the inpatient setting, transitional pharmacists provided medication reconciliation and support for members in the clinical decision units and skilled nursing facilities.

Discussion: Hospital utilization rates are multifactorial and impacted by membership mix, management of chronic conditions in the ambulatory setting, access to care in the ambulatory setting, care coordination, and engagement of members with their health care teams. KPMAS has been on a journey of investments in the ambulatory infrastructure, which improves quality, access, and member satisfaction while driving down avoidable outside medical services utilization.

From Northwest
22. Preventing "Silent Droppers": Standardizing Interventions to Prevent Lung Function Decline in Patients with Cystic Fibrosis

Jennifer Bass, MD; Adrienne Aldredge, MS; Ashley Addington; Richard Cohen, MD; Megan Danish; Susan Mikkelsen, MD; Kay Pasquesi; Kimberly Rondeau; Megan Wackford; Eric Walter, MD

Background: Patients with cystic fibrosis (CF) often experience progressive declines in lung function over time as measured by the forced expiratory volume in 1 second (FEV_1). To account for age, race, and lung size (height), FEV_1 is reported as a percentile of expected for that individual (FEV_1%). The more a patient's FEV_1% declines, the higher the risk of poor outcomes including hospitalization, infection, and ultimately respiratory failure. By intervening early and carefully tracking follow-up when FEV_1% declines occur, the care team can help patients better maintain lung function over time and reduce hospitalizations and complications.

Methods: All children and adults followed by the Kaiser Permanente Northwest CF Center who were able to do pulmonary function testing (age 6 and up) were included in the project. Our center developed an algorithm to recognize and treat pulmonary exacerbations (decreases in FEV_1% of 5% or more from baseline). We tracked practitioner/patient adherence to the standardized protocol as well as scheduled follow-up. We monitored posttreatment FEV_1% and compared it with baseline FEV_1%. We reviewed monthly run charts tracking FEV_1%, adherence to protocol and follow-up visits. We compared patients on standardized protocol with patients not adherent to protocol. Our outcomes were relative decline in FEV_1% over time compared with

baseline FEV_1%, adherence to protocol, and percentage of patients with a follow-up visit in 2 to 6 weeks.

Results: From January 1, 2017 to December 31, 2018, there were 218 pulmonary exacerbations in which FEV_1% decreased by 5% or more. Adherence to the protocol was associated with a better chance of posttreatment FEV_1% recovery. Posttreatment, patients who adhered to the protocol (183) had a relative decline of 5.1% compared with those who did not adhere to the protocol (35) who had a relative decline of 13.7%. Children (< 18 years) had the best FEV_1% recovery with relative decline of 0.4% upon follow-up. Those treated with intravenous antibiotics had a better chance of recovery than those who took oral antibiotics or only increased chest therapy (-3.9% vs -7.7% and -6.6%). Overall protocol adherence improved from 76.6% in year 1 to 91.7% in year 2. The percentage of patients with a follow-up appointment scheduled in 2 to 6 weeks averaged 80% to 82%. Median FEV_1% for pediatric patients has improved from 80.3% in 2015 to 87.3% in 2017 and 91.3% in 2018.

Discussion: The CF patient population is small but medically complex. Patients require frequent interaction with the health care system. By standardizing our interventions for these patients, we ensured that clinic visits were used effectively to track progress, modify treatments, and schedule follow-up appointments. Protocol adherence was associated with improved outcomes, especially for children and those on intravenous antibiotics. FEV_1% in our pediatric population is improving. Engaging all members of the care team to help design, implement, problem solve, and analyze the results from this project was key to our success. We have shared our project with other Kaiser Permanente Regions at an interregional CF meeting and at the North American Cystic Fibrosis Conference.

EQUITY

From Program Offices

23. Igniting an Inclusive Movement—Utilizing ILEaD (Inclusively Leading Through Equity and Diversity)

Laura Long, MBA; Susan Terrill

Background: Kaiser Permanente (KP) aims to cultivate an inclusive climate beginning with the Inclusively Leading Through Equity and Diversity (ILEaD) program. This learning experience is part of a greater effort launched in late 2018—The Inclusive Climate Shift. This enterprisewide effort was informed and inspired by the feedback from KP employees and our bold ambitions from the Shared Agenda. ILEaD is a way for KP to cultivate an inclusive climate that makes our employees feel a sense of belonging, psychological safety, and empowerment.

Methods: We have an inclusive climate problem. By helping participants understand that each person's identity is an amalgamation of our shared experiences, we overcome biases, build trust and connectivity, and minimize blind spots—all vital to increased engagement and shifting mindsets. Through a series of exercises, microlearnings, and facilitated discussions that can be replicated, Leading Inclusively is a necessary tool for developing agents of change.

Results: In our Leading Inclusively Executive Round Table pilot, we conducted a pre-self-assessment inclusion survey. The aggregate survey results were then distributed and discussed among participants and followed-up by individual assessment results. The findings were fascinating; for example, in every trait of the 7 attributes assessed, there was a large disparity between one's own perceptions and the perceptions made by one's peers. Since its inception, ILEaD workshops have been facilitated across all Regions in the enterprise and 2000 KP employees have engaged with this workshop and tool kits to date.

Discussion: In our efforts to increase engagement in the Inclusive Climate Shift across the enterprise and ultimately to create a more inclusive climate for all current and future KP employees, we strove to build engagement and excitement around inclusion, and to create and practice tangible new habits of inclusive leadership, building inclusive practices into regular team meetings, and generating commitment and behavior change.

From Hawaii

24. Addressing Disparities in Health with Motivational Interviewing

Deborah Baker, PhD; Hyewon Jun, MD, MPH; Dee Keyser; Peggy Latare, MD

Background: Behavioral change is a key intervention in treating chronic disease, such as diabetes or obesity. Our patient population is diverse as evidenced by our health care disparities, and this requires many approaches. Motivational interviewing (MI) is fundamental in personalizing care and discovering a patient's motivation in changing behavior toward wellness. With the rate of physician burn out, this technique helps clinicians connect to patients, build resiliency, and find joy in practice.

Methods: Codesign started with a patient advisor who had expertise and passion for this work. We chose to adapt the curriculum on the basis of the MI work of Steven Malcolm Berg-Smith, MD, as well as The Permanente Medical Group Regional Health Education. We cotaught this work with a patient advisor rather than using actors for skills practice in the 3 medical office buildings where we piloted the program. We started with two 2.5-hour sessions offered with continuing medical education credits and meals on 2 islands: Oahu and Maui. Clinicians volunteered to attend. We invited primary care physicians, psychiatrists, therapists, health coaches, dieticians, and pharmacists. Each session was limited to 10 participants.

Results: We have 600 practitioners in our Medical Group and approximately 75 primary care physicians in the 3 medical office buildings in which we piloted the program. Thirty-three practitioners participated and gave positive feedback. We had mixed disciplines in each of the groups. We collected information from participants before and after the workshop. On the basis of their feedback, we adapted our curriculum over the 3 pilot sites, which resulted in two 2-hour sessions. After-hours sessions were challenging for clinicians and our last pilot was performed during an extended lunch. On the basis of this pilot, this program will now be offered regularly to all staff in addition to Art of Medicine, Shared Decision Making, Communicating Unanticipated Adverse Outcomes, and Communication Skills Intensive.

Discussion: A patient advisor codesigning and teaching an evidence-based model with clinicians resulted in an effective and efficient program. MI helps clinicians cultivate a stronger relationship with patients, thus finding a deeper joy in their practice. Witnessing the

resilience in their patients through their stories results in practitioners rediscovering this resilience in themselves. With the diversity of patients in Hawaii, MI is the patient- and family-centered way to engage with patients in their health care. As a Region, we already rank high in quality (National Committee for Quality Assurance rankings and Medicare 5-Star status). MI will reduce disparities hidden within these measures.

From Southern California
25. The Community Action Poverty Simulation

Lakiesha C Tidwell; Madalynne Wilkes-Grundy, MD; Shari G Chevez, MD; Anna Khachikyan

Background: The Community Action Poverty Simulation promotes a greater understanding of poverty in breaking down stereotypes and allowing participants to experience poverty and step into the real-life situations of others. During the simulation, participants role-play the lives of low-income families from single parents trying to care for their children to senior citizens trying to maintain their self-sufficiency on Social Security. The simulation opens your eyes to poverty and barriers to health care access.

Results: According to the Official Poverty Measure, 14.9% of all Californians, and 20.3% of California children, lived in poverty in 2013. California had the 16th highest overall poverty rate of the 50 states, and the 17th highest child poverty rate. The 2014 US Census has 16.4% of California population living in poverty. Poverty is a major cause of ill health and a barrier to accessing health care when needed. This relationship is financial: The poor cannot afford to purchase those things that are needed for good health, including sufficient quantities of quality food and health care. More than 90% of children living in the US and living in poverty were born in the US. Children from lower socioeconomic backgrounds have poorer health outcomes.

Discussion: The Community Action Poverty Simulation is a powerful, interactive experience designed to help participants understand what a typical low-income family goes through just trying to survive from month to month. A goal is to sensitize participants to the realities faced by low-income people and how those social and cultural contexts impact health care. A deeper understanding of barriers to health care access, as well as of their causes and impacts on people living in poverty's experience of care would help physicians and health care workers overcome these challenges and provide socially responsive care. Most importantly, it moves people to make a difference.

MEDICATION MANAGEMENT

From Colorado, Georgia, Hawaii, Mid-Atlantic States, Northern California, Northwest, Southern California, Washington, Program Office
26. Reducing Opiate Use in Children and Teens: A Strategic Approach to a National Challenge

Anna Grosz, MD

Background: Opiate overuse and abuse is a national concern. One area that has received little attention is in pediatrics, even though many opiate addictions start in childhood or teenage years. Opiate addiction often starts in adolescence from a physician's prescription. Additionally, codeine is known to increase risk of respiratory depression and death in children, especially after a tonsillectomy. Patient safety, particularly that of our youngest and most vulnerable patients, was the critical driver of this project.

Methods: Starting in Kaiser Permanente (KP) Northwest (KPNW) and spreading to all other KP Regions, electronic health record tools and opioid-reduction protocols were shared with head and neck surgery and other leaders in other Regions and with KPNW surgical services, pediatrics, and pharmacy committees. Electronic health record tools included order sets, smart groups, restriction locators, alternative alerts and patient instructions. Champions were identified, and leaders were engaged to spread this work throughout KP Regions. Pediatric opioid use has been measured from 2012 to 2018 with ongoing modification of protocols to further reduce usage.

Results: Starting with KPNW in 2012 and expanding to include KP Colorado, KP Hawaii, KP Northern California, and KP Southern California, there has been an overall 6-fold reduction in opioid use in young children after tonsillectomies through 2017. Opioid prescriptions for children younger than age 7 undergoing tonsillectomies dropped from an average of 72% to 13%. Post-tonsillectomy opiate use in young children went from 79% to 9% in KPNW; 88% to 7% in KP Colorado; 83% to 2% in KP Hawaii; 80% to 21% in KP Northern California; and 64% to 4% in KP Southern California. Additionally, several Regions have achieved meaningful reductions in overall pediatric opiate use stemming from interregional collaboration. KP Washington, KP Mid-Atlantic States, and KP Georgia have now joined this work.

Discussion: Keys to successful spread include starting with a passionate leader, identifying regional champions, using strategic interpersonal alliances, and using data to drive change. It is also important to identify and address barriers and resistance to change as well as a plan to maintain success. This interactive seminar will provide tools to drive change, receptivity, and appreciation of the new protocols; audience participation through guided-reflective inquiries and scenarios; small group discussion about related change management initiatives; and audience question and answer sessions.

From Mid-Atlantic States, Northern California
27. Impact of Medication Reconciliation Programs on Reducing Readmission Rate and Enhancing Medication Safety During Transitions of Care

Alfonso Becerra, PharmD; Donald Yee, RPh; Karen Cham, PharmD; Sheireen Huang, PharmD; Shubhi Nagrani, PharmD; Adenola Akilo, PharmD; Karina Briones, PharmD; Kelvin Chan, PharmD; Carolyn Woo, PharmD; Chad Friday, RPh

Background: Medication reconciliation upon hospital and skilled nursing facility (SNF) discharge allows for early identification of medication discrepancies and improves transitions of care, which affects hospital readmission. The Mid-Atlantic Transitional Care Clinical Pharmacy and Continuing Care Team focuses on the Comprehensive Medication Reconciliation (CMR) program for more than 35,000 members per year. Similarly, Northern California Regional Pharmacy

and Continuum Teams has focused on the SNF Medication Reconciliation program for SNF patients discharged to the community. Health and safety outcomes are trended to evaluate impact.

Methods: The Kaiser Permanente (KP) Mid-Atlantic States (KPMAS) CMR program targets all patients discharged from the hospital. At discharge, hospitalized patients with a calculated LACE score (length of stay, acuity of admission, comorbidities, number of Emergency Department [ED] visits) and patients with no LACE score are tracked. This is compared with baseline measures in prior years. The outcome measure includes readmission rates. The KP Northern California (KPNC) SNF Medication Reconciliation program targets all patients discharged from 27 contracted SNFs. Medication reconciliation is provided following SNF discharge. The comparator includes baseline hospital readmission and ED visits. The outcome measures include hospital readmission and ED visits, the number of medication interventions, and intervention types (ie, adherence, omissions, etc).

Results: Medication reconciliation in both the KPMAS CMR program and KPNC SNF Medication Reconciliation showed potential impact on hospital readmission. In the KPMAS CMR program, patients with a LACE score and medication reconciliation are up to 20% less likely to be readmitted than patients without. Among discharged patients with LACE ≥ 10, 16% of patients with medication reconciliation were readmitted compared with 37% of patients without medication reconciliation. In the KPNC SNF Medication Reconciliation Program, preliminary pilot results show a reduction in inpatient readmission by 4.4% and overall ED utilization rate by 11.8%. Almost 80% of SNF patients discharged had at least 1 medication intervention with an average of 3 interventions per patient. The most common intervention included gap in drug therapy followed by vaccination recommendations.

Discussion: Medication reconciliation has a positive impact on health outcomes. Both programs have demonstrated how medication reconciliation can be leveraged to facilitate transitions of care with minimal disruptions. The KPMAS Region has surpassed the regional goal of completing medication reconciliation for 95% of patients discharged from a core hospital. The Transitional Care Clinical Pharmacy and Continuing Care Teams will continue to collaborate with health care practitioners, and track readmission data. KPNC Regional Pharmacy, Continuum teams, centralized outpatient pharmacists, and contracted SNFs, have identified the need for medication interventions throughout transitions of care. This program is being implemented to the remaining approximately 50 contracted SNFs.

PATIENT ENGAGEMENT

From Program Office

28. Human-Centered Design at Kaiser Permanente: A Creative Approach to Problem Solving

Jeff Hall; Connor Shea; Estee Neuwirth, PhD

Background: Human-centered design (HCD) has been identified as a key strategic capability across multiple industries. Member and customer experience are crucial to the success of transforming organizations. HCD at Kaiser Permanente (KP [HCD@KP]), in particular, is important in health care where the member voice is critical to delivering relevant and high-quality outcomes. HCD@KP is an internal effort to equip employees with best-in-class skills that empower them to deliver on KP's mission to provide high-quality, affordable, health care experiences for our members.

Methods: HCD@KP is for all employees of KP with a particular focus on quality. The program customizes and spreads the HCD and codesign processes within KP's unique cultural environment and the health care industry.

Results: As of 2018, HCD@KP programs have reached more than 5000 KP employees. The 2017 HCD@KP advanced program scored a 9.3/10 average satisfaction rating from participants from across KP in the program that included clinicians, staff, and program administrators. In the same survey, 100% of the 26 newly trained HCD@KP practitioners reported that they felt they could get better customer engagement with HCD@KP and that learning HCD tools and methods was instrumental in improving work outcomes. Eighty-eight percent also felt that they were able to produce solutions that were more innovative; 85% felt that using HCD will enable solutions that better meet customer needs. HCD@KP capability building programs are continuing to be in high demand across KP, reflecting the rapid spread HCD@KP application of processes, mindsets, and methods to deliver innovative customer-centered outcomes across KP regionally and nationally.

Discussion: Truly delivering person-centered care involves engaging with members and end-users such as clinicians and staff at every stage of our work. To deliver on person-centered care, individuals and teams within KP must be supported with best-in-class mindsets, methods, and tools. HCD@KP's robust framework and proven ability to bring member and customer experience into projects ensures that practitioners and members are alongside KP employees building solutions that are truly relevant to their needs. HCD@KP represents 1 core initiative working in partnership with other groups within KP to put the member and customer at the center of everything we do.

From Southern California

29. Meeting Members' Wishes in the Last Year of Life: A Journey Toward Concordance in Southern California

David Glass; PhD Michael Kanter, MD; Paul Minardi, MD; Susan Wang, MD

Background: There is a large body of literature that posits that much of the medical care delivered during the last year of life is unneeded and unwanted. However, there is little evidence about how members view the amount of care, the types of care received, and whether that care matches their wishes. This study fills that gap. It provides insight into where Southern California does well and not so well from the member perspective, and why that occurs.

Methods: The results are based on 2 samples. The first was a survey with next of kin of 715 Southern California members (age 65 years or older) who died in April and May of 2017. The second involved administering the same survey to next of kin of 332 deceased members who died between June 2016 and May 2017 and whose costs during the last year of their life were in the top 10% of the costs of all members who died during this period. We examined the wishes, values, and health care experiences of the random sample of deceased members, then compared them with high-cost deceased members.

Results: The Southern California Permanente Medical Group (SCPMG), by and large, delivers care and treatments that strongly match the values and desires of its members at the end of their life. SCPMG does quite well on meeting members' wishes overall, the amount of treatment, the specific types of treatments, avoiding delivery of unwanted treatments, and providing desired treatments. However, 3 areas stand out in which SCPMG might improve its performance: A) enabling those desiring to die at home to do so; B) avoiding cardiopulmonary resuscitation, mechanical respiration, or artificial feeding for those not wanting it; and C) managing the levels of pain. Surprisingly, those who received the most care (in the top 10% of costs) were less satisfied with almost all aspects of their care and treatments.

Discussion: A key quality metric is the degree to which members' wishes and values are honored. It is reassuring that during the fraught period of the last year of life, SCPMG performs reasonably well and for the first time we have a comprehensive overview of our performance. There are several surprises underneath this broad finding, including 1) most members had engaged in end-of-life discussions with next of kin and physicians, contrary to claims that patients avoid these discussions; 2) most members said the amount of care was "just right," again contrary to much of the literature; and 3) 38% of those receiving cardiopulmonary resuscitation did not want it.

From Colorado, Georgia, Hawaii, Northern California, Northwest, Southern California, Washington, Program Office

30. Using Insights from End-of-Life Care Survey to Drive Improvement of Care at the End of Life

Margaret C Wang, PhD, MPH; Diane Brown, PhD, RN, FNAHQ, FAAN; Peter S Khang, MD; Ruma Kumar, MD

Background: Patient-centeredness, a key aspect of high-quality health care, is especially important among patients with advanced illness. However, there are very few measures available to enable consistent assessment of a patient's care experience across various care settings at the end of life. To address this knowledge gap and Kaiser Permanente (KP) organizational need, we developed, field-tested, and implemented a 21-question survey administered to deceased members' next of kin in 7 KP Regions, including KP Northern California, KP Southern California, KP Colorado, KP Georgia, KP Hawaii, KP Northwest, and KP Washington.

Methods: Survey respondents included the next of kin of recently deceased KP members who were age 18 years or older. Some of the deceased members received various forms of supportive services (eg, palliative care, hospice care, or both). Survey results were compared between those who received supportive services and those who did not, and across other factors of interest. Primary outcomes were: 1) overall rating of end-of-life quality, adopted from Veterans Administration's Bereaved Family Survey and endorsed by National Quality Forum; 2) KP providing care that met members' wishes; and 3) physicians and staff including members' preferences when discussing treatment options and care plans.

Results: There were 2701 surveys completed (25.6% response rate). Respondents were close family members (81.8%); familiar with the decedents' health issues (92%) and discussed end-of-life care preferences with them (87%). Overall care in the last month of life was rated "Excellent" or "Very Good" by 80% of respondents. Respondents for members who received supportive services were more likely to rate care "Excellent" or "Very Good" (82%), compared with those who did not (69%). Care experience varied meaningfully across KP Regions (eg, overall care rating of "Excellent" or "Very Good" ranged from 74% to 84%). Regions are using the data to inform and validate strategic planning, implementation, and for further understanding (eg, drill down to service level or patient-specific circumstances) to enhance care for members at the end of life.

Discussion: The End-of-Life Care Survey provides KP's first interregional patient-centered quality measure for this important and sensitive care. Insights are used to facilitate learning across Regions and to support leaders in Specialty Palliative Care and Life Care Planning initiatives to assess aspects of care aligned with Specialty Palliative Care and Life Care Planning and to better understand the relationship between program participation and care experience. Additional opportunities to leverage this rich data to improve end-of-life care should be explored (eg, analyzing data from open-ended comments to guide further focus group explorations, linking survey and clarity data to better understand the relationship between care delivery and care experience).

From Colorado, Georgia, Hawaii, Mid-Atlantic States, Northern California, Northwest, Southern California, Washington, Program Office

31. Reducing Preventive Flips to Diagnostic— A Holistic Approach to Improving the Financial Experience for Members

Peter Gazanian; Erin Bilvado, MBA

Background: Rising medical costs are in the national spotlight and have been a growing concern for our members. Kaiser Permanente (KP) surveys show 50% of members are surprised by bills they receive. Contact centers report more than 20% of service billing complaints are a result of visits scheduled as preventive, then billed as diagnostic. Members are reaching out for help, even to the office of Bernard J Tyson. Improving our members' financial experience is of utmost importance as we transform internal operations to uphold the KP mission of providing affordable health care.

Methods: The study targeted preventive encounters that commonly result in surprise diagnostic charges and member complaints. Member complaints are identified through the financial service recovery program, which provides a stopgap by empowering contact center representatives to resolve issues and, if appropriate, adjust charges within set guardrails. On the basis of the documented reasons for complaints, cross-functional teams, including Patient Financial Services, Permanente Medical Groups, Revenue Cycle, and Benefits, review accounts and conduct data analysis to determine key root causes and options for resolution of the issues. The initial focus is reducing negative experiences and member complaints around preventive examinations.

Results: Analysis of complaints received for scheduled preventive visits billed as diagnostic revealed 70% were indeed preventive examinations. In the KP California Regions, 3.4 million preventive examinations occurred in 2018 with 617,000 visits (18%) resulting in additional patient cost share. Of the 617,000 visits, 16% resulted in members reaching out to the contact center with 9% resolved through

an adjustment of charges and 1% through a formal grievance. Analysis of these member complaints revealed 2 major scenarios: 1) cases where preventive services were documented and system alignment could potentially resolve the issue, and 2) cases where nonpreventive services were present.

Discussion: Solutions to the complex issues in our organization and industry will not be determined or designed while staying within the silos of our departments or functions. We must work together—holistically and iteratively—with shared accountability to achieve a truly integrated care and coverage experience that has our members at the center. As next steps, priority opportunities are being identified and driven to address the preventive examination issue under executive leadership across Patient Financial Services, Permanente Medical Groups, Revenue Cycle, and Benefits. Additional improvement efforts are in the queue, including vision and laboratory services.

TOTAL HEALTH

From Colorado, Georgia, Hawaii, Mid-Atlantic States, Northern California, Northwest, Southern California, Washington, and Program Office
32. How Healthy Is My Community—Designing a Measurement System for Leaders and Implementers

Pamela M Schwartz, MPH; Elisa Wong, MPH; Allen D Cheadle, PhD; John M Vu, MPH

Background: How does a health care organization measure the health of the communities it serves? How can it track the impact of its strategies on community health and use the information to drive decision making and planning? The Kaiser Permanente (KP) Community Health (CH) measurement framework provides a vehicle for monitoring the health of KP communities, tracking the impact of our work, and facilitating shared accountability.

Methods: The KP CH strategy reaches beyond the CH Department to bring in contributions from the entire organization, including purchasing, hiring, clinical care, and environmental stewardship. Two questions guide the measurement framework for the CH strategy: 1) how healthy are KP communities? and 2) how does KP contribute to community health? To answer question 1, the CH report compares health indices for KP communities based on the County Health Rankings with national benchmarks computed using data from all 3000+ US counties. To answer question 2, a CH dashboard provides a snapshot view of performance on key community health efforts on a quarterly basis and tracks the short- and long-term outcomes of each initiative to help us better understand our impact.

Results: We will present selected data from the 2018 CH report showing percentile rankings for the health indices, along with data from the 2018 CH dashboard showing initiative progress. We will describe how these data are used throughout the organization for planning, program improvement, and accountability.

Discussion: The KP measurement framework provides senior leaders with information to understand impact and make decisions, while at the same time providing staff implementing the work with information for monitoring and program improvement. The panel discussion and interactive activities will describe the measurement strategy; the implementation and communications plan; and the challenges, barriers, and lessons learned to date. The activities should be useful for other health care organizations seeking to both improve community health and document their progress toward achieving this challenging goal.

From Program Office, Colorado, Georgia
33. If You Want to Know How Mrs Smith is Doing, Ask Her! KP's Improved Medicare Total Health/Social Risk Assessment

Tracy Lippard, MD, FACP; Carole Gardner, MD, AGSF; Matt Stiefel, MPA, MS; Ranu Pandey, MHA; Juliana Oronos, MPH

Background: Older adults are an important growing member demographic. Of the US population, 20% will be age 65 years or older by the year 2030. Our recommended approach for the Medicare Total Health Assessment (MTHA) aims to improve members' physical, mental, social, and functional health and well-being and positively impact what matters most to them. Our approach aligns with Kaiser Permanente's mission to provide high-quality care while managing utilization and cost. It has the potential to improve Health Outcomes Survey (HOS) performance. Because the MTHA responses are highly correlated with HOS items, the MTHA serves as a reasonable proxy for the HOS, enabling examination of factors associated with HOS performance, prediction of HOS scores, and evaluation of interventions.

Methods: The MTHA collects self-reported information about Medicare members' overall health and functional status, health conditions/symptoms, behavioral and psychosocial risks, and activities of daily living. The current version does not include a robust social risk assessment, but we need and value this information for providing quality care and to help identify interventions to support HOS performance to address issues identified by the MTHA, a systematic approach to follow-up and documentation is recommended. The intervention includes use of the revised MTHA questionnaire (integrating social needs items, simplifying language) and implementation of a systematic approach to follow-up and documentation. The comparison is the MTHA version 1.0 or no MTHA. Outcome measures include member-reported health risks and health outcomes including Kaiser Permanente's Your Current Life Situation questionnaire or HOS.

Results: The MTHA has demonstrated the ability to identify older adults struggling with urinary incontinence, pain, sleep problems, mental/emotional health issues, increased fall risk, and food insecurity. The revised version will expand screening for social/economic risks and health literacy/numeracy issues that can negatively affect health, patient activation, and self-care. A survey of physicians and staff using the current MTHA found that 56% of primary care physicians and 78% of nurses and medical assistants believe that having members complete the MTHA before the annual wellness visit is extremely or very valuable. Additionally, 70% of members surveyed believe that health issues not typically addressed by their primary care physician were discussed during their annual wellness visit because of the MTHA. MTHA data are also being used for population health management (eg, assessing and reporting prevalence of health-related functional and social/economic risks), quality improvement, and predictive analytics.

Discussion: The MTHA is a tool for population management, highlighting risks that may not otherwise be identified in a standard visit. It was developed to meet Centers for Medicare and Medicaid Services requirements for the annual wellness visit-covered benefit that provides health-risk assessment and a personalized prevention plan. The MTHA collects self-reported information about overall health, functional status, health conditions/symptoms, and behavioral and psychosocial risks. It identifies important health issues, social concerns, and functional disabilities for clinical, operational, and research purposes. Using the revised MTHA and enhancing processes to address positive triggers, will even further enable identification of important medical and nonmedical risks, positively impact HOS measures, and allow us to improve the lives of our members.

From Mid-Atlantic States

34. Bridging Barriers to Care Access and Delivery: The Automation of Nonemergent Transportation in Kaiser Permanente Mid-Atlantic States

Kyle M Heidenberger; Rachel E Hill; Melissa Baldwin, MS, MBA; Jason C McCarthy, PharmD, MBA

Background: Transportation remains a major care delivery barrier for Kaiser Permanente Mid-Atlantic States (KPMAS) members. Through partnering with an external vendor, SafeRide Health, care team members are able to leverage an online platform to arrange rides for members requiring nonambulance transportation assistance. The SafeRide Health platform also provides on-demand analytics to report actionable ride utilization behaviors and patterns.

Methods: To automate and to centralize transportation arrangements, SafeRide Health was launched in KPMAS. Implementing SafeRide Health has allowed for integration of a Web-based platform to arrange rides on the basis of level of need with real-time analytics. Other considerations included ride share vendors, which could be only used to transport staff, and other health care transportation vendors that did not include an adequate level of reporting or potential for integration into the electronic health record. Reportable outcome measures tied to the overall initiative include decreases in outside medical spending, avoidable delays in hospital discharge caused by transportation-related conflicts, missed appointments owing to failed or lacking transportation, and Clinical Decision Unit/Emergency Department or hospital visits. There will also be an expected reduction in ambulance volume by offsetting with nonemergent medical transportation alternatives.

Results: Within the first few months of implementation, SafeRide Health has resulted in reduced transportation expenses, increased efficiencies for care delivery staff, and real-time analytics. It has also saved staff time as the online, centralized booking platform has replaced a manual, fragmented process that required staff to enter in member information for tracking and to place phone calls to members to arrange transportation. Utilization patterns are also tracked by reason, geography, and line of business coverage, allowing for appropriate planning and budgeting, as well as providing valuable data in anticipation of transportation-benefit exploratory discussions. The platform is expected to generate $68,064 in transportation cost savings for ambulatory rides via Lyft and $648,470 in savings

for nonemergent medical transportation with hospital transfers in year 1. Additional metrics are being monitored for further reported care delivery impacts.

Discussion: By leveraging technology via SafeRide Health, care delivery teams can efficiently arrange transportation for members at varying levels of need. The platform is also generating insight into regional transportation-demand drivers, which is growing our transportation program to appropriately meet member needs and to support access to comprehensive care delivery. To track key metrics, an interactive, actionable dashboard was developed to track utilization metrics against key population health indicators, such as age, race, and chronic disease program enrollment. Data reported through the dashboard, in addition to trending use patterns from SafeRide Health's analytics, will support planning and development discussions going forward, in addition to meeting specific strategic operating plan goals.

From Colorado, Georgia, Hawaii, Mid-Atlantic States, Northern California, Northwest, Southern California, Washington, Program Office

35. Addressing Social Needs: Organizational Learnings and Connecting with Our Communities

Sarita A Mohanty, MD, MPH, MBA; John F Steiner, MD, MPH; Nicole Friedman, MS; Briar Ertz-Berger, MD, MPH

Background: Social determinants of health account for 40% of health outcomes. Within Kaiser Permanente (KP), 30% of members live below 250% of the federal poverty level. KP lacks a systematic approach to assess social needs, to refer members to resources, to confirm that needs have been met, and to collaborate with community-based organizations (CBOs). The Social Needs Network for Evaluation and Translation (SONNET) promotes shared learning by helping design projects that employ effective measures, incorporate successful staffing and information-technology solutions, and evaluate outcomes rigorously to inform leadership decisions.

Methods: Social interventions have proliferated across KP, but outcomes are rarely evaluated. SONNET gathered information about program goals, design, measures, and outcomes and compiled this information into an online inventory, using a "care-continuum" model to report the findings in an online scoping review. These findings influenced key features of the Social Services Resource Locator (SSRL), including identification of member needs, submission and tracking of referrals to CBOs, reporting and analytics, and development of community partner networks. Staff, practitioners, members, and caregivers will have access to this tool and will work closely with community networks. The SSRL will provide extensive data to deepen the understanding of the effectiveness of social interventions.

Results: SONNET identified 35 KP programs, most of which included patients with complex needs or high costs. Food insecurity (8%-38%), housing instability (3%-11%), energy/utility needs (7%-24%), transportation barriers (16%-34%), and medical cost concerns (8%-37%) were common. Of members, 13% to 45% with basic needs were referred to community organizations, and 12% to 23% indicated that basic resource needs were met. One program found 7% to 12% reductions in utilization for members with predicted high costs. SSRL predeployment activities have included design sessions, review of

vendor tools, and assessment of and planning with deployment sites. Evaluation in early deployment sites will include characteristics of members, description of needs and community resources, referral counts, and communication with CBOs. Qualitative assessment will describe the experience of staff and clinicians, members, and community partners.

Discussion: KP has accumulated substantial organizational knowledge in program planning and implementation, but significant gaps remain in outcome assessment. The SSRL provides an opportunity to fill these knowledge gaps, and particularly to assess the health outcomes of social interventions. Anticipated benefits of the SSRL program include improved health outcomes; staff and practitioner satisfaction; and confidence in addressing total health, member satisfaction, and alignment with new federal and state regulatory requirements. The SSRL enables KP to be a leader in health care delivery by understanding and supporting the social needs of its members, while promoting system transformation and community-level capacity development and partnership-building.

TEAMS

From Northern California and Northwest

36. The Kaiser Permanente Northwest Ventricular Assist Device Program

Barbara Amos, RN, MSN, CNS; Timothy Jacobson, MD; Yong Shin, MD; Ryan Morrissey, MD; Siobhan Gray, MD; Pamela Montes, RN, MSN; Allison Lipnick, LCSW

Background: Approximately 670,000 people in the US are diagnosed with heart failure each year, with half dying within 5 years of diagnosis. The ventricular assist device (VAD), an implanted mechanical pump, is a promising treatment. Although VAD therapy is complex, high risk, and expensive, it has been shown to improve survival and quality of life.

Methods: Kaiser Permanente (KP) Northwest (KPNW) launched its VAD program to improve outcomes and patient satisfaction, with an eye toward creating a national model. Candidates are rigorously evaluated for degree of illness, ability to undergo implant, and availability of postdischarge support. Evidence-based protocols guide the interdisciplinary team, and detailed scripts ensure smooth transitions at each point of the care journey. This approach has yielded impressive results. The VAD program exceeds national standards for hospital length of stay, 30-day readmission, and 1-year survival. Patients also score higher on quality-of-life measures.

Results: Average length of stay is 12 days, compared with 23 days nationally. Thirty-day readmissions are 0%, compared with 28% nationally. Survival at 38 months is 100%, compared with 60% nationally. In addition, the KPNW VAD program has implanted in 17 patients without using blood transfusions during the operative phase; although this is not reported data, this is an outlier among all implanting centers.

Discussion: The KPNW multidisciplinary approach to VAD patient care with proven successful outcomes can stimulate a national discussion among KP Regions who are involved in VAD therapy to improve outcomes, decrease variability, enhance patient selection, standardize protocols, decrease the financial impact to KP, and improve the lives of our members nationally.

From Mid-Atlantic States

37. In-Basket Management: Empowering Nurses to be First Responders for Patient Messages, Providing The Right Care at The Right Time

Dones M Trojillo, MSN, RN; Maia M Patel, MD, ScM

Background: Patients increasingly send email messages regarding their health care, but not all messages require physician input. Our prior state routed all incoming messages through the bottleneck of overloaded physician in-baskets, increasing response times and lowering both physician and patient satisfaction. Launching our project in August 2017 helped us meet the needs of our rapidly growing membership and achieve our operations goal to "deliver exceptional care" and "deliver an extraordinary consumer experience" in the Mid-Atlantic Region.

Methods: Over 10 months, high-touch in-basket message management training was provided to 205 nurses in adult and family medicine. Patient vignettes were used to train each new functionality, including the use of standardized SmartPhrases and QuickActions created specifically for patient message replies. We continue to follow weekly and monthly metrics, tracking "hours to first touch" for each incoming message, the percentage of messages "screened out" by nurses (messages handled to completion without any physician input), and the percentage of messages researched and staged by nurses well enough that only "one touch" is required by physicians to complete the message.

Results: We saw an 83% decrease in the time to first touch for all incoming messages, cutting our regional response time from an average of 22.3 hours at baseline to 3.8 hours. Addressing the goal to have all health care team members working at the top of their licenses, we saw a 207% increase in the number of messages able to be handled entirely by nurses, moving from a baseline screened-out rate of 14%, to an average of 43% of all incoming messages screened out by nurses. Anecdotally, nurses are happier being empowered to triage and to manage patient requests from the outset, and our data confirmed that some of our top-performing nurses have truly taken ownership, screening out 70% of all incoming messages.

Discussion: Although we already had an optimal message pool design within Kaiser Permanente HealthConnect, we relied on physicians to "edit in" to those pools to manage incoming messages. By redefining our regional workflows, we are better leveraging the skills of our highly trained nurses in providing more timely responses to patient inquiries. In Adult Family Medicine, we are continuously monitoring outcomes, and evaluating the staffing model to sustain this success. We have extended our in-basket message management to the Pediatric and Obstetrics/Gynecology Departments, and will expand to specialty services in the Mid-Atlantic Region in 2019.

From Northern California

38. The Implementation of High-Reliability Organization Model for the Environmental Services Department at Santa Clara Medical Center

Eric Williams, MHSA; Kari Frank, MS; Marc Smith, MHA

Background: Establishing a strong foundation that is supported from executive leadership down to the front lines is necessary to achieve a high-reliability organization. Once a reliable health care system is achieved, the organization will be able to quickly identify sources of problems and be able to quickly and effectively respond to unexpected events. This resiliency leads to reduction in patient harm and workplace safety events.

Methods: In 2018, Santa Clara Medical Center's Environmental Services (EVS) underwent a process improvement journey. EVS found itself with high workplace safety accepted claims rates (ACR) and *Clostridium difficile* standard infection ratios (*CDiff* SIR) that were higher than regional standards. The EVS leadership team, consisting of directors and managers, participated in a value stream analysis in which they focused on hardwiring certain tools including leader standard work, daily management system, visual boards, and defining process metrics and outcome metrics. These efforts allowed them to increase their ratings in quality and safety by reducing *CDiff* SIR to meet regional benchmarks and improving their workplace safety ACR.

Results: For workplace safety, we looked at our ACR, total incidents, and supervisor first report. We compared our last quarter with our first 3 quarters of the performance year. We used this because we started to implement our tools and standard work at the beginning of the final quarter. For ACR, we went from an average of 8.98 for the first 3 quarters and dropped our ACR to 0.0 for the final quarter. For *CDiff* SIR, we had a SIR of 0.9 for the 2017 performance year. We were able to reduce our *CDiff* SIR to 0.79 for the 2018 performance year.

Discussion: The leader standard work that is developed and directly tied to leading indicators and outcome metrics helps the staff reconnect the "why" behind the work that they are responsible for. It highlights the meaning to their roles and allows them to fully understand their purpose. Our journey has consisted of implementing our strategies at the management level. As we continue our journey, the next steps will be to have our managers champion the work and create daily management systems for the front-line staff so that staff from executive leadership down to the front lines find their work to be meaningful and worthwhile.

From Northern California

39. Building A Virtual Nursing Team: Implementation of the Advance Alert Monitor

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Background: Implementation of the Advance Alert Monitor (AAM) program has allowed us to create and to operationalize a virtual nursing care team that provides 24/7 support and consultation for inpatient adult medical/surgical population. The program comprised more than 30 critical care-experienced registered nurses with postgraduate education and leadership skills. Regionwide adoption of the AAM program resulted in the need to develop the infrastructure to manage a series of complicated workflows that ensure systematic implementation and feedback mechanisms for the virtual team.

Methods: Virtual team development began in July 2016 concurrently with the AAM pilot implementation at a single medical center. A small nursing team was formed to provide oversight up to 16 hours per day. Additional AAM implementation occurred throughout 2017. Significant staffing increases supported 24/7 monitoring beginning in October 2017. Full implementation to all 21 facilities will be completed by December of 2018. The virtual team developed structured work processes and communication techniques to build best practices and enhance their relationship with the hospital-based team, composed of the hospital-based specialist, rapid response team nurse, and leadership; this was paramount to the success of our team.

Results: Recent data released by Gabriel Escobar, MD, and the Department of Research revealed a statistically significant reduction in hospital and 30-day mortality rates for the patients who triggered the early-warning alert relative to a similar patient population at hospitals without the intervention. AAM has proved its ability to predict patients who may decompensate within a 12-hour time frame since 2017. Creation and continual evaluation of a sustainable workflow, virtual team growth to accommodate 24/7 coverage, and meeting rigorous timelines have been significant milestones throughout 2017 and 2018. We also simultaneously transitioned our program from a Web-based application to a dashboard built within our own electronic medical record system (Kaiser Permanente HealthConnect).

Discussion: Some key identified areas for successful team engagement include developing clear communication techniques, a rhythm within the team including regularly scheduled meetings, and leveraging available technologies. A shared leadership model, which creates opportunities to involve others, has been shown to increase engagement. When creating a clinical virtual nursing team, professional experience is essential, and the ability to use critical thinking skills and independent decision making is paramount. Specific competencies required for these nurses include technical training, critical thinking, and problem-solving skills, additionally, interest in looking to future opportunities, willingness to change, and a passion for providing safe care for our members.

From Northwest, Southern California, Washington

40. Improving Quality and Safety Together: Reducing Primary Cesareans Perinatal Core Measure Collaborative

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Background: In 2014, the Pacific Business Group on Health, San Francisco, CA, and the Leapfrog Group, Washington, DC, reviewed cesarean sections and determined a mother's chances of having a cesarean related to the hospital she was admitted to more than any other medical factor. Cesarean rates varied (18% to 84%). These groups set a goal of preventing unnecessary cesareans in low-risk mothers. This followed by the Joint Commission adopting the target rate of 23.9% as a publicly reported core measure.

Methods: Within Kaiser Permanente Southern California, NTSV (nulliparous, term, singleton, vertex) cesarean rates varied by hospital from less than 20% to more than 35%. To address regional gaps, Southern California Regional Core Measure Collaborative was formed in 2015. The Collaborative is driven by local champions and regional leadership. We adopted practices recommended by the California Maternal Quality Care Collaborative (CMQCC), set up a mentor group with Kaiser Permanente facilities, analyzed the data in the California Maternal Data Center, and recommended specific interventions for outlier medical centers. We then met with the outlier hospitals, coached them through a set of personalized recommendations, and helped them overcome specific barriers.

Results: In summer 2016, the CMQCC issued a tool kit to support vaginal birth. The Southern California Region embarked on implementation through the Perinatal Patient Safety Committee in collaboration with the Perinatal Core Measure Collaborative team. Development of tools and implementation extended through 2017. In 2017, we evaluated the status of CMQCC recommendations implementation and utilization at bedside and identified gaps and opportunities to reinforce. In 2018, we developed and implemented a coaching and accountability strategy to address medical center specific gaps. By using the process of analyzing fall outs, developing personalized recommendations for outlier hospitals, and 1:1 mentoring and coaching, we were able to drop our regional NTSV rate below 23.9% for the first time.

Discussion: Implementing and hardwiring the use of evidence-based standard tools is critical for success and can be challenging when working with multiple individual practitioners. By using the process of analyzing data, in-depth chart analysis of fallouts, developing personalized recommendations for hospitals, and 1:1 mentoring and coaching, a large and diverse region can lower their NTSV cesarean rate below the target goal of 23.9%. These strategies will continue to be implemented to assure safe and quality care is provided to all patients. Achieving this goal requires a combined effort from the entire labor and delivery team.

TECHNOLOGY

From Southern California

41. Leveraging Technology to Improve Appropriate Imaging Studies: There's an App for That!

Peter Huynh, MD; Paymann Moin, MD; Michael Flores; Pamela Galvan; Steven Ethington

Background: The use of radiographic imaging has steadily increased over the years and has become a routine patient-evaluation component in health care delivery. Unnecessary medical imaging tests result in increased health expenditure and ionizing radiation exposure, and can lead to poor clinical outcomes. Given the increased popularity of mobile apps in health care, we sought to develop and implement a mobile app at our medical center that would provide appropriate, cost-effective imaging guidelines based on evidence-centered medicine. The aim is to deliver high-value health care by reducing health care waste and increasing patient safety through improved imaging appropriateness.

Methods: We used Guidebook.com as a platform to develop a mobile app called iMAGING APPropriateness App (iAPP), an easy-to-use

application that provides high-value imaging recommendations based on health practitioner-encountered symptoms and diagnoses. iAPP uses validated and evidenced-based literature such as the Canadian Computed Tomography Head Injury Rules, the Pediatric Emergency Care Applied Research Network (PECARN) criteria, the HEART (history, ECG [electrocardiogram], age, risk factors, troponin) Pathway, and Choosing Wisely. The iAPP was made available as a clinical resource across the medical center in 2018. Practitioners were able to access the iAPP at the patient's bedside to determine whether an imaging study needed to be ordered. We compared imaging utilization 3 months before and after implementation. We used the Healthcare Effectiveness Data and Information Set (HEDIS) low back imaging metric as a quality measure.

Results: Three months after implementation, iAPP was accessed 825 times by 114 unique health care providers. The average session duration was 33 seconds. Overall imaging utilization decreased from 40.75 (relative value units x order volume per 1000 members) to 35.63 (relative value units x order volume per 1000 members), a 12.6% reduction. HEDIS quality low back imaging metric improved from 90% to 90.7% compliance.

Discussion: iAPP, a mobile app based on evidenced-based imaging algorithms and guidelines, was successfully designed, developed, and implemented at our medical center. Health care practitioners were receptive to using this new technology. Leveraging health information technology using a mobile app for imaging guidelines resulted in a reduction in overall imaging utilization and improvement in a HEDIS quality metric.

From Northwest and Southern California

42. Using Human-Centered Design to Expand Telehealth Into the Hospital and Continuum

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Background: As technology advances, telehealth provides a unique opportunity to meet the needs of members, care teams, and caregivers outside the traditional health care delivery setting. Compared with ambulatory arenas, telehealth in inpatient care and for posthospitalization care is limited, and the number of transitions, staff interactions, and acuity of patients causes additional complexities when designing a telehealth solution. Using human-centered design provides the opportunity to design a solution that can meet member, staff, and clinician needs while addressing the complexity of the setting.

Methods: Administrative and physician leadership in the hospital and continuum in Southern California and the Northwest were first interviewed to understand where there were opportunities for improvement in the hospital and continuum and how telehealth may be used to solve those gaps. After the interviews were synthesized, leadership, members, and caregivers then met to prioritize opportunities for further understanding and eventual design. Both Regions selected engaging family and caregivers of Medicare members through telehealth. Further ethnographic interviews, observations, and codesign sessions were held with Medicare members, caregivers, clinicians, and staff to develop solution concepts to better engage families and caregivers.

Results: Several distinct insights emerged: 1) caregivers felt overwhelmed by their new role and found it difficult to find the right

resources; 2) there are often multiple caregivers with different caregiving roles; 3) caregivers and patients do not feel equipped to manage patient medications; 4) caregivers, especially remote caregivers who were not by the patient's side in the hospital, often felt unprepared for discharge; and 5) caregivers and patients want a way to be able to connect to their care team for unexpected events postdischarge. These insights led to the design of an ecosystem of telehealth solutions that involves video, texting, and telephone capabilities to better connect members, caregivers, and the care team.

Discussion: Using human-centered design allowed for concepts to surface that may not have been considered if frontline staff, members, and caregivers were not involved in the design process. The next steps of this work are piloting in the Southern California and Northwest Regions. Because the solution is technology-focused, feasibility and cost must be considered throughout the design process and can be limitations to executing a design for which the technology is not available. Leaders play an important role in defining how a given solution can be made feasible in the short-term.

From Northwest

43. Home Health Virtual Complexivist Physician Program: Leveraging Increased Scope of Care at a Crucial Time

Alicia Ahn, MD; Sandra Barton, MD; Binitha X Surendran, MBA, MS

Background: The Home Health Virtual Complexivist Physician program was launched in 2014 as a grassroots effort by an innovative physician who saw a need to provide physician-level care to supplement the home-health visit. After 4 years of piloting workflows, the program now offers 3 virtual physicians who act as the temporary primary care physician for patients while they are receiving home-health services. These physicians take calls from field clinicians (nurses, therapists, and social workers) at the time of the home visit.

Methods: Kaiser Permanente members receiving home-health services from a Kaiser Permanente agency (n = 500) and multiple contracted agencies (n = 500) establish "Doctor of the Day" consultation line staffed by physicians to take calls from home-health nurses, therapists, and social workers when in the home. The program is primarily conducted using telephone calls but also uses a telemedicine resource ("telemdx") that enables 1-way radio and 2-way voice and is operated via cellular service, and thus is not dependent on home Internet or WiFi access. The physician can capture still photos from video and upload them to the patient chart. Metrics included hospital admission rates at 14 and 30 days, patient experience, home-health field clinician experience, and costs.

Results: Qualitative results include improved clinician experience. These field clinicians appreciate having a physician call at the time of the visit. The results identify improved timeliness, effectiveness, efficiency, and patient care experience as benefits of the program. The office-based primary care practitioners are appreciative of the care and coordination provided by the virtual physician team. The post-acute (skilled nursing facility) providers appreciate the opportunity to provide "warm hand off" to the home-health team for particularly complicated patients. Quantitative results show a sustained reduction in 14- and 30-day hospital admission and readmission rates from before the program was fully staffed (2013-2015) to full staffing (2016-2018). These data

are limited to the Kaiser Permanente home-health agency patients; we have not collected data from our contracted agencies at this time.

Discussion: The virtual physician service provides a unique opportunity to identify problems before they escalate. For patients who require transfer to acute care, the physician notifies the Emergency Department with warm handoff. Field clinicians appreciate physician consultation and teaching and can deliver more effective, patient-centered home-health care. Patients appreciate the opportunity to collaborate on a plan that meets their needs and wants. This often means a trial of "care at home" in which the physician will order services such as mobile imaging, phlebotomy, oxygen, and medications, and will arrange visits on a more frequent basis. Future innovations might include investigating a dedicated clinical nurse navigator to provide proactive outreach.

From Northern California

44. Improving Patient Safety Via Information Transparency and Performance-Improvement Infrastructure

Asia Plahar, MS, RN; Kathy Ricossa, MS, RN

Background: The Kaiser Permanente Santa Clara Medical Center created a performance-improvement infrastructure focusing on total harm reduction, which is a composite of the following measures: Central line-associated blood stream infection, hospital-acquired pneumonia, catheter-associated urinary tract infection, *Clostridium difficile*, falls, hospital-acquired pressure injury, and safety events. A transformational shift began in March 2016 when an infrastructure was created as a strategic plan to address total harm using a multidisciplinary team collaboration, evidence-based best practices, and performance-improvement methodology. In July 2017, this project of creating a data transparency system for total harm outcome and process measures was implemented.

Methods: The Total Harm Scorecard is composed of patient safety outcome and process measures. Outcome data are updated in real time and process-measures data are collected via rounding on patients daily. Outcome and process-measure data are visible through scorecards and control charts for medical center and departments. The Total Harm Scorecard is reviewed daily at the patient progression hub and managers report harm-reduction strategies in real time. The Total Harm Scorecard link is accessible to the entire medical center. The Total Harm Scorecard and department-level action plans are presented to the medical center's Quality Oversight Committees, which report to the Medical Executive Committee.

Results: In 2017, the Kaiser Permanente Santa Clara Medical Center achieved a 30% reduction in patient total harm, an 8.8% reduction in the rate of patients acquiring a nosocomial infection; 78 patients' lives were protected, 729 hospital days were avoided, and there was $1,526,928 in savings.

Discussion: The performance-improvement infrastructure and total harm data visibility has improved the safety of our patients and protected 78 patients from harm in 2017 at our medical center. The performance-improvement infrastructure and total harm data visibility system was created as a strategic plan to reduce patient harm. As the result, 78 patients' lives were protected and harm was reduced by 30% in 2017. This total harm reduction transformational model can be generalized to other health care systems nationally and internationally. ❖