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Title of Abstract: (no more than 200 characters with spaces):	Evaluation of tacrolimus trough concentration and tacrolimus administration time (MAR) for appropriate blood draw times
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Problem: The backbone of immunosuppression for the majority of solid organ transplant patients is use of a calcineurin inhibitor (CNI), most commonly tacrolimus. Accurate measurement of tacrolimus trough concentrations is critically important as dose adjustments are based on trough levels. Standard drug administration times for twice daily drugs at University of Colorado Hospital (UCH) are 0900 and 2100. Tacrolimus trough blood draw times and administration times have been erratic, potentially leading to inappropriate dose changes and increased risk of adverse events, including rejection. QI Approach: Quality improvement approach to obtaining accurate tacrolimus trough concentrations included two interventions. The first intervention was to change the administration time of tacrolimus from 0900 and 2100 to 0600 and 1800 in EPIC as trough draws are usually between 0400 and 0600. The second intervention was pharmacist to nurse education regarding appropriate tacrolimus administration. Charts were retrospectively reviewed in EPIC during two time frames, 9/19/16 through 9/30/16 and 2/13/17 through 2/24/17 to evaluate the effect on accuracy of tacrolimus troughs after these interventions. Outcomes: There were 87 levels evaluated during the initial 2-week period and 61 tacrolimus levels evaluated during the second 2-week period. Over the first 2-week period, 8 levels (9.5%) were drawn within 60 minutes of the next dose, 6 levels (7.1%) were drawn within 61 to 120 minutes, 70 levels (83.3%) were drawn greater than 120 minutes before the next dose was administered, and 3 levels (3.6%) were drawn post-administration. During the second 2-week period, 9 levels (14.8%) were drawn within 60 minutes of the next dose, 28 levels (45.9%) were within 61 to 120 minutes, 19 levels (31.1%) were drawn greater than 120 minutes before the next dose was administered, and 5 levels (8.1%) were drawn post-administration. Next Steps: While there has been a decrease in the percentage of trough drawn greater than 120 minutes before the administration of the next dose, there is still room for improvement in increasing the percentage of accurate trough draws. Further education of health technicians for appropriate timing of blood draws for tacrolimus trough levels and of nurses for appropriate timing of tacrolimus administration is warranted.

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Title of Abstract: (no more than 200 characters with spaces):	Decreasing tobacco use through system change at Denver Health
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Intro: Denver Health (DH) serves some of Denver's most vulnerable populations, many of whom smoke. In the March of 2013, 25.1% of DH patients smoked. However, only a small fraction of these smokers (2%) started a comprehensive tobacco cessation intervention like the Colorado QuitLine. In response, DH has introduced a comprehensive evidence-based health system change to decrease patient tobacco use. Methods: In March, 2013, Denver Health created a Tobacco task force to implement organization wide system change around tobacco abuse. The important changes included: 1. Introduction of "Ask Advise Refer" protocol by medical assistants at DH clinic visits. 2. Creating a tobacco smart set (documentation, ordering, and patient education) templates in the new electronic health record (EHR) system to facilitate treatment of tobacco abuse. 3. Introducing tobacco intervention as a clinical performance metrics for providers. 4. Introduction of six tobacco cessation clinics through out DH. Results: 1. After training, the "asking" of tobacco use by medical assistants at time of patient check has slowly increased from 53.3% in July, 2016 to 59.1% in February, 2017. Medical assistant advice rates of quitting to smokers remains steady during the same period (20.2% vs. 22.7%). 2. Enhancements to the EHR system, addition of resources for smoking cessation, and inclusion of the tobacco intervention as a quality metrics has significantly increased primary care provider intervention rates amongst patients who smoke (21.4% to 40.9% between July 2016 and February 2017). 3. Addition of tobacco cessation clinics across DH has resulted in dramatically improved rates of smoker engagement in the quitting process. From April 20, 2016 to February 20, 2017, 395 smokers were referred to DH tobacco cessation clinics. 210 (52%) started treatment with the tobacco cessation clinics. 4. As a result of these system wide interventions the prevalence rate of smoking among DH patients has decreased from 25.1% to 21.6% from March, 2013 to March, 2017. Conclusions: System wide changes targeting tobacco abuse has resulted in a significant drop in smoking prevalence among DH patients. Continued enhancements of our processes should result in a further decline in smoking rates.

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Title of Abstract: (no more than 200 characters with spaces):	A Multidisciplinary Action Plan to Decrease Hospital-Onset Clostridium Difficile Infection
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Background: Clostridium difficile infection (CDI) affects over 500,000 patients annually and was responsible for almost 30,000 deaths in 2011 (Lessa 2015). C. difficile is a spore-forming organism that can live on environmental surfaces for weeks to months (Anderson 2017). To prevent hospital onset CDI (HO-CDI), a number of factors must be optimized including hand hygiene and personal protective equipment, environmental cleaning, antimicrobial stewardship, and diagnostic testing. In Q3 2015, Denver Health noted an increase in HO-CDI. Our infection prevention, antimicrobial stewardship, and environmental services (EVS) teams formulated a multifaceted action plan to decrease HO-CDI. The goal of this study is to track the HO-CDI rate over time and evaluate the interventions. QI approach: The rate of both community onset CDI (CO-CDI) and HO-CDI has been tracked at Denver Health since 2014. HO-CDI is defined as a CDI test that is positive on or after hospital day 3 whereas CO-CDI is defined as tests positive before hospital day 3. Beginning Q1 2016, the HO-CDI reduction interventions included: evaluation of current inpatient antibiotic use; pharmacy review of antibiotics for patients diagnosed with CDI; electronic hand hygiene (eHH) monitoring; substitution of peracetic acid as the preferred hospital cleaning agent; purchase of 2 additional ultraviolet (UV-C) light machines; ATP swabs of environmental surfaces; and development of a cleaning protocol for shared medical equipment. Linear regression was used to compare pre- and post-action plan time periods. Outcomes: The overall rate of HO-CDI was 0.77/1000 patient days from Q2 2014 through Q4 2015 and showed an increasing trend (+0.05 infections per 1000 patient days per quarter). After the introduction of the action plan, the overall rate of HO-CDI was 0.70/1000 patient days and showed a decreasing trend (-0.06 infections per 1000 patient days per quarter). The CO-CDI rate showed similar decline. UV-C light utilization improved from 52.6% in May 2016 to 84.0% in February 2017, and eHH rates increased substantially. Next steps: We will continue to track CO- and HO-CDI rates to determine if the declining rates are sustained. We will implement and assess further prevention measures including probiotic administration, fecal transplantation, and laboratory testing patterns.

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Title of Author:	Fellow
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Title of Abstract: (no more than 200 characters with spaces):	A Low Stakes Electronic Medical Record-based intervention to improve adherence to recommendations for chronic proton pump inhibitor use
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Proton pump inhibitors (PPIs) are commonly prescribed and overprescribed medications. Due to known and recently described possible long-term side effects, there is an increased need to ensure appropriate use. As gastroenterologists frequently evaluate patients on PPIs, they can play an important role in appropriate administration. To evaluate inappropriate PPI use in GI clinic, we abstracted data retrospectively from the UCH GI fellows' clinic for 3 consecutive months (10-12/2016). We selected charts from patients on PPIs according to the medical administration record. We assessed for documentation of indication of PPI use, PPI administration instructions, plans to titrate to the lowest effective dose and discussion of risks of chronic PPI use. As our intervention, we created a "dot phrase" to help fellows facilitate discussions. The dot phrase was introduced via email and in person with a summary of indications for PPI use, recommendations to wean when able and data regarding risks. During the pre-intervention assessment, 114 of 203 (57%) patients seen in GI fellows' clinic were on PPIs. Use of PPI was mentioned in the assessment and plan in 47% of cases (in 53%, PPI noted only in medication list). In PPI-users, a clear indication was documented in 60% of notes (GERD most common; 56%). Counseling on appropriate administration (30-60 minutes before meals) was documented in only 7% of charts, counseling on weaning to lowest effective dose in 8% and there was no documentation of possible adverse effects. By looking at a small cohort of patients in GI fellows' clinic, we demonstrated that in a clinic population with frequent (>50%) PPI use, there exists a lack of appropriate counseling and documentation regarding PPI administration, dose de-escalation and potential risks. We hypothesize that the creation and sharing of a dot phrase summarizing appropriate PPI use and their potential risks will remind providers to discuss chronic use with their patients and lead to greater rates of appropriate use, dose reduction and discussion of potential side effects. Next steps will be to evaluate use of the dot phrase in the post-intervention period and to assess rates of PPI prescription change (dose reduction and PPI discontinuation).

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Title of Abstract: (no more than 200 characters with spaces):	Creating a Laboratory for the Robust Validation and Compliant Testing of Diagnostic Biomarkers by University Faculty
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Creating a Laboratory for the Robust Validation and Compliant Testing of Diagnostic Biomarkers by University Faculty Ashley Frazer-Abel, Joshua M. Thurman, V. Michael Holers Statement of the Problem: Clinical laboratory testing contributes substantially to patient diagnostics, and the development of new biomarkers presents an opportunity to expand diagnostic potential. When taking a test from the research level to use in patient diagnostics, it is imperative that the test be fully validated and in compliance with relevant FDA regulations. It can be difficult for faculty members to find a partner for such validation of unproven biomarkers, particularly for orphan or highly novel conditions. With the increased FDA focus on such testing, this process is also becoming more difficult, despite the fact that such testing and the quality of this testing can be key to patient care and the practice of quality medicine. QI Approach: A joint enterprise between the Department of Medicine and the Division of Rheumatology initiated a biomarker clinical testing laboratory, Exsera BioLabs, in 2016 July. The team assembled includes scientists with years of experience in clinical laboratory medicine and with the regulations involved. The US FDA has proposed increasing the validation requirements around novel biomarkers used in patient diagnostic, bring them to a level similar to that required for new drug development. Therefore it is a benefit that the Exsera team has experience working toward compliance with the US FDA regulations around new drug development. Exsera BioLabs was established with the goal of creating a robust regulatory environment. Outcome: Exsera BioLabs started with the recruitment of a director and a lead medical technologist. The lab launched the first validated test to industry partners in November 2016. Since that time three tests have been accepted for testing by UCHealth. This initial work with industry has laid a strong foundation to support subsequent endeavors with faculty using a collaborative development and shared financial risk/benefit model. This first phase of development of Exsera BioLabs is preparing the laboratory for a

	future in novel biomarker translation. Next Steps: With the complement testing firmly underway, Exsera BioLabs will soon be able to work, through the Advisory Council, on the first round of novel biomarkers developed by the physicians and scientists of the DOM and Division of Rheumatology. The strong clinical environment of the DOM and UCHealth will facilitate the important clinical validation piece of test development. Combining that with the expertise and regulatory environment of Exsera BioLabs, the team is set to move forward with development and utilization of robust, quality testing for the benefit of our patient populations.

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Title of Abstract: (no more than 200 characters with spaces):	Improving continuity of care: streamlining the follow-up process in a resident ambulatory care clinic
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Continuity of care is an important aspect of primary care medicine. Longitudinal physician-patient relationships have been shown to improve quality of care, resource utilization, and healthcare expenses (Raddish 1999). Internal medicine residents at the University of Colorado are required to participate in meaningful primary care experiences including managing a panel of clinic patients and participating in primary care clinic regularly. Unfortunately, establishing interpersonal continuity is difficult in resident clinics. This is due, in part, to electronic medical record scheduling constraints that limit future appointments to 30 days or less, and limited resident clinic time. Each resident is in clinic for only 1 out of every 5 or 10 weeks depending on vacation schedules. In this quality improvement initiative, internal medicine residents at Eastside Adult Clinic at Denver Health aimed to increase the percentage of their own primary care patients seen during their scheduled resident clinic week. This was accomplished by streamlining the patient scheduling process at the end of a visit via a standardized check-out form. Residents also worked with clinic staff to expand the scheduling window from 30 days to 5 weeks in advance so patients could leave clinic with an appointment for follow-up, rather than needing to call back. With these interventions, the average percentage of patients seen by their assigned resident primary care provider increased from 21% to 33% in the first plan-do-study-act (PDSA) cycle. The next PDSA cycle involves increasing the scheduling window from 5 to 10 weeks to improve longer-term follow-up. With better continuity, we hope to enhance both the physician-patient care relationship and the resident ambulatory experience.

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Title of Abstract: (no more than 200 characters with spaces):	A collaborative telehealth antidepressant monitoring program involving pharmacists in primary care
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of Problem: Due to suicidality risk and frequent antidepressant self-discontinuation, guidelines recommend patient follow-up within two weeks of antidepressant initiation or uptitration, but limited resources and time constraints are barriers to systematic follow-up. QI Approach: Clinical pharmacists and primary care providers (PCP) collaborated at two internal medicine clinics to provide a telehealth monitoring program to improve outcomes of depression therapy and minimize suicide-related liabilities. Patients > 18 years diagnosed with depression and instructed by their primary care team to initiate or increase an antidepressant were identified by automated reports and called by the clinics' pharmacists within two weeks. With each call, patients were asked if they made the antidepressant change or accessed specialty care if referred, and screened for adverse effects and suicidal ideation. If applicable, pharmacists assessed patients' reasons for not following providers' instructions. Pharmacists then worked with the care team to identify interventions to optimize patients' care and therapy. All calls were documented in the electronic health record. Patients with multiple antidepressant changes were outreached more than once. Outcomes: Of 490 calls attempted between May to October 2016, 298 calls (258 unique patients) were successfully completed, primarily after antidepressant initiation. Patients reached were predominantly female with moderate-to-severe depression and mean age of 54 years. Patients reported antidepressant non-adherence during 56 (19%) calls, primarily due to adverse effect concerns. Patients reported adverse effects, such as mood instability, sleep disturbances, and nausea/vomiting, during 81 (27%) calls, and expressed suicidal ideation during 13 (4%) calls. One patient expressed new onset ideation after antidepressant change, self-discontinued the antidepressant, and was instructed to follow-up with PCP. Pharmacist interventions included reinforcing initial plan for 60 (20%) calls, recommending new administration time for 9 (3%) calls, and recommending new medication or dosing regimen for 5 (2%) calls. Of 68 scenarios where specialty care was ordered, patients reported not accessing it in 31 (46%) instances, citing transportation, work, and lack of appointment as main reasons. Next Steps: The pharmacist-PCP collaborative service identifies patients needing early interventions after initiating/increasing antidepressants. To maximize resources, we are working to identify patients who benefit most from this service.

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Title of Abstract: (no more than 200 characters with spaces):	WHO'S ON FIRST AND WHAT'S ON SECOND: A STUDY OF RN WORKFLOWS IN CONTACTING THE CORRECT PROVIDER
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	BACKGROUND: Identification of a patient's primary care provider is critical for timely delivery of care. University of Colorado Health utilizes the physician scheduling software AMION, and Epic for all patient records. AMION provides up-to-date, provider contact numbers. Epic contains a patient sign-in system where a provider (RN or provider) can add themselves to a patient's treatment team for easy identification. Despite these systems, a 2015 modified Hospital Survey on Patient Safety Culture performed on a medical floor revealed inefficiencies in provider to nursing communication. Further examination of this issue found that difficulty identifying a patient's primary provider was a regular occurrence. In an effort to address additional communication concerns, implementation of a Priority Structured Paging (PSP) system provided an opportunity to understand how RNs and providers identify a patient's primary care giver. PURPOSE: Understand how RNs and providers utilize AMION and Epic to identify the correct primary care giver. METHODS: During PSP implementation, a two-week pre-intervention data collection phase occurred where RNs on a medical, surgical, and a mixed step-down unit recorded multiple aspects of their pages on provided data forms. This was followed by a pre-intervention survey where RNs and providers were questioned on their methods of contacting the correct provider. Once the survey period completed, and appropriate education had been given to affected RNs and providers, an intervention period occurred, where RNs tagged their page with their level of concern (911, 1, 2, or 3, corresponding to emergent, high, medium, and low priorities of the pre-intervention phase), and recorded similar variables as during the pre-intervention phase. The intervention phase was followed by a nurse and provider survey. All data was entered into an excel workbook. Data was reviewed, and accuracy was confirmed by the primary investigator. RESULTS: 124 wrong provider pages (56 of 2,037 pre-intervention pages, and 68 of 2,440 intervention pages) of 4,477 total pages (2.77%) were recorded during PSP. Survey data demonstrated only 54.5% of RN, and 38% of providers agree/strongly agree that they can easily identify and call their patient's primary care provider. Consistent with this finding, survey data showed RNs use multiple modalities in an attempt to contact the correct provider. Epic's treatment team sign-in function, in conjunction with AMION, is utilized 24.8% of the time. Despite the minimal utilization of the Epic sign-in function, 89.4% of RN respondents "sign in" to the Epic treatment team. Conversely, only 28% of provider respondents (26 of 92) routinely "sign in" to the Epic treatment team. 55% of RNs (104 of 189), and 14% of providers (13 of 92) agreed/strongly agreed that the Epic treatment team is easy to reference. 28% of RNs (53 of 189), and 5% of providers (5 of 92) agreed/strongly agreed that the Epic treatment team is up to date. In addition to the Epic treatment team, and in conjunction with AMION, RNs also use provider names on progress notes (6.4%; 20 of 311), patient lists (29.6%; 92 of 311), and electronic "sticky notes" (24.4%; 76 of 311). RNs strongly agreed that difficulties in identifying the correct provider diminish job satisfaction (31.2%; 59 of 189), and compromise patient safety (56.1%; 106 of 189) and quality of care (50.8%; 96 of 189). CONCLUSIONS: Despite built-in Epic support, and physician scheduling software, RNs and providers alike are frustrated with difficulties in identifying the correct primary

	care giver (RN or provider). Multiple RN workarounds emphasize the inadequacy of current systems, and the need for an easily used and referenced system that moves care giver identification from hard to easy. If accomplished, patient safety and quality care are likely to be positively impacted.

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Title of Abstract: (no more than 200 characters with spaces):	THE SILENT TREATMENT: A STUDY OF NO RESPONSE PAGES
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	BACKGROUND: Despite its limitations, numeric paging is the predominant means of communication at the University of Colorado Hospital (UCH). On a 2015 modified Hospital Survey on Patient Safety Culture performed on a medical floor, inefficiencies in provider to nursing communication were highlighted as an area of staff concern. In an effort to address communication deficiencies, a Priority Structured Paging (PSP) system was adopted across multiple nursing units, caring for a mix of patient type and acuity. Data recorded during PSP implementation revealed a high percentage of pages that did not receive a response. PURPOSE: Analyze nursing unit, service paged, time of page, and PSP's impact on the burden of No Response pages. METHODS: During a two-week pre-intervention phase, RNs on a medical, surgical, and a mixed step-down unit recorded aspects of their pages on provided data forms. Multiple aspects of the page were recorded. Pages that did not receive a response were noted with an "X", and hereafter are referred to as a "No Response" page. After a pre-intervention survey was completed, and appropriate education was given to affected RNs and providers, an intervention period occurred. During this period, RNs tagged their page with their level of concern (911, 1, 2, or 3, corresponding to emergent, high, medium, and low priorities of the pre-intervention phase), and recorded similar variables as during the pre-intervention phase. "No Response" pages were again noted by an "X". All data was entered into an excel workbook by the investigators. Data was reviewed, and accuracy was confirmed by the primary investigator. No Response pages were filtered from the existing data set, and analyzed by Chi-square analysis, analysis of variance, and multivariable regression. RESULTS: 13.3% (271 of 2037 recorded pages) and 8.81% (215 of 2440 recorded pages) of pages recorded during PSP were No Response pages. PSP resulted in a statistically significant decrease in No Response calls (χ2=14.87, p=0.0006). This result was driven by a less than expected number of No Response pages of both low priority (*3), and high priority (*1) urgencies, and greater than expected number of No Response pages of medium (*2) priority in the intervention group. No Response occurrences were dependent on nursing unit (χ2=10.54, p=0.0051), and service paged (χ2=32.45, p<0.0000), but not time of day (AM or PM; χ2=1.08, p=0.3). Survey data demonstrated that PSP implementation results in more appropriate provider response times (p<0.0000), and more timely RN and provider communication (p=0.0202). CONCLUSIONS: PSP provides RNs

	a timeframe to expect a return call; as such, PSP can be used to decrease number of No Response pages, and prevent repeat pages. While the exact cause of No Response pages is unclear and likely multifactorial (nurse perception, correct provider identification, proper phone use/function, and provider activity), units with higher acuity patients cared for by mixed and more procedurally based service lines have a greater amount of No Response pages. Additional study of No Response pages should include automated data to more precisely track from where, to who, and when No Response pages occur.

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Title of Abstract: (no more than 200 characters with spaces):	BEE BAA BOO - THE NUMBER YOU HAVE DIALED HAS BEEN DISCONNECTED – PLEASE TRY AGAIN
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	BACKGROUND: One-way numeric paging remains the dominant method of communication at the University of Colorado Hospital (UCH). On a 2015 modified Hospital Survey on Patient Safety Culture performed on a medical floor, inefficiencies in provider to nursing communication were highlighted as an area of staff concern. Further examination of this issue found that difficulty identifying a patient's primary provider, referenced as "Wrong Provider" pages hereafter, is one factor affecting nursing perception of safety. In an effort to address additional communication concerns, implementation of a Priority Structured Paging (PSP) system yielded data that provided insight into the nature and burden of Wrong Provider pages. PURPOSE: Quantify and characterize wrong provider pages, PSP's impact on their occurrence, and discern the impact of this issue on job satisfaction, patient safety, and quality of care. METHODS: During PSP implementation, a two-week pre-intervention data collection phase occurred where RNs on a medical, surgical, and a mixed step-down unit recorded multiple aspects of their pages on provided data forms. Pages that received a response, but from the wrong provider were indicated by RNs as "Wrong team", and hereafter are referred to as a "Wrong provider" page. Pages that did not receive a response were recorded as "X", and hereafter are referred to as a "No Response" page. RNs often retrospectively realize the incorrect provider was paged due to an alternative provider being successfully contacted with a subsequent page. These events are hereafter described as "Wrong Page No Response". After a pre-intervention survey was completed, and appropriate education was given to affected RNs and providers, an intervention period occurred, where RNs tagged their page with their level of concern (911, 1, 2, or 3, corresponding to emergent, high, medium, and low priorities of the pre-intervention phase), and recorded similar variables as during the pre-intervention phase. The intervention phase was followed by a nurse and provider survey. All data was entered into an excel workbook. Data was reviewed, and accuracy was confirmed by the primary investigator. Wrong provider pages were filtered from the existing data set and analyzed. RESULTS: 124 wrong provider pages (56 of 2,037 pre-intervention pages, and 68 of 2,440 intervention pages) of 4,477 total pages (2.77%) were recorded during PSP. Wrong provider, pre-intervention urgency distribution was 22 low (2.76%), 19 medium (2.00%), and 15 high priority pages

	(5.47%). Of these, 14 Wrong Provider pages did not receive a response (7 low, 1 medium, and 6 high). Wrong provider, intervention urgency distribution was 13 low priority (1.95%), 52 medium priority (3.32%), and 3 high priority pages (1.58%). Of these, 8 Wrong Provider pages did not receive a response (2 low, and 6 medium priority). Chi square analysis revealed a statistically significant impact of PSP on priority of wrong provider pages (p=0.0000), and proportion hypothesis testing revealed a near statistically significant decrease in Wrong Page No Response pages (14 of 56, and 8 of 68, p=0.055). Analysis of wrong provider pages by nursing unit type (medical, surgical, and step-down unit) and priority yielded no dependency (□2=1.29, p=0.87). Analysis of wrong provider pages by service paged and priority required grouping of similar services into two groups, medicine and surgery, in order to attain test validity. This analysis yielded dependency between service paged and priority on number and priority of wrong pages recorded (□2=6.25, p=0.0439). Survey data demonstrated that Wrong Pages are more common with new (first 24 hours of hospital stay) admissions (148 of 189 RN and 45 of 92 Provider respondents agree/strongly agree), and negatively impact nursing and provider job satisfaction (136 of 189 RN and 41 of 92 Providers respondents agree/strongly agree), patient safety (169 of 189 RN and 56 of 92 Providers respondents agree/strongly agree), and quality of care (170 of 189 RN and 54 of 92 Providers respondents agree/strongly agree). CONCLUSIONS: Despite a low percentage of calls, wrong provider calls are a significant issue at our institution, commonly occurring with new admissions, and negatively impacting job satisfaction, patient safety, and quality of care. Wrong page frequency is affected by service paged, and PSP. PSP decreases the number of wrong page no responses, presumably by prompting responses with priority levels. Despite PSP's positive impact on wrong provider pages, survey data suggests that a more dedicated effort aimed at improving correct provider identification should be undertaken.

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Title of Abstract: (no more than 200 characters with spaces):	COLACE OR A CODE? IMPLEMENTATION OF A PRIORITY STRUCTURED PAGING AT AN ACADEMIC INSTITUTION
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	BACKGROUND: One-way numeric paging is commonly used method of communication. On a patient safety culture survey performed on a medical floor, inefficiency in provider to nursing communication, specifically inability to communicate urgency, was highlighted as an area of staff concern. After successfully piloting a Priority Structured Paging (PSP) system on single nursing unit, the system was expanded to include a more diverse patient population and different types of nursing units. PURPOSE: Deploy a paging structure that numerically implies page priority across multiple nursing units that is easy to understand, remember, and use. METHODS: A multidisciplinary taskforce developed a Priority Structured Paging (PSP) system whereby nurses could convey their level of urgency by tagging their page with a numeric priority indicator. In the pre-intervention phase, nurses blinded to the intervention collected data, recording response times and their

	perceived level of concern (low, medium, high, or emergent). After 3 weeks, a pre-intervention survey was disseminated to nurses and providers by email. After a response period, an intervention phase began by reminding nurses to tag sent pages with a numeric urgency indicator (*3, *2, *1, *911, corresponding to low, medium, high, and emergent urgencies), and record multiple aspects of their pages. Receiving providers were educated about the different priority tiers and respective response time expectations. The intervention phase was concluded after 2 weeks, and was followed by a nurse/provider survey. RESULTS: 3,551 of 4,447 pages were directed to services that received priority tier education. There was dependency between project phase, and priority tier usage (p=0.0000), with a preference for the *2 priority tier. Pre-intervention response times did not differ among perceived urgency levels (p=0.78). Intervention response times demonstrated decreasing response times from *3 to *911 priorities (p=0.0000). A greater number of nurse/provider survey re spondents agreed/strongly agreed that when PSP is implemented, urgency is communicated, numeric paging is an effective way to alert providers, providers respond time is appropriate, and timely communication is improved (p's<0.05). Pre-intervention and post-intervention survey respondents were consistent that PSP improves quality of care and patient safety (p's>0.05). IMPLICATIONS FOR PRACTICE: Numeric paging can be made more effective by adopting a PSP system. PSP decreases perceived RN urgency, and aligns provider response time and nursing concern. PSP had a positive impact on several aspects of provider and nurse communication, and can be easily expanded to diverse patients and nursing units. When considering the results, recorder and survey bias must be considered.

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Category:	Safety
Title of Abstract: (no more than 200 characters with spaces):	NEED YA NOW: A STUDY OF RN USE OF HIGH PRIORITY INDICATOR
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	BACKGROUND: Paging is a commonly used, yet limited means of communication. Based on a 2015 modified Hospital Survey on Patient Safety Culture performed on a medical floor, inefficiencies in provider to nursing communication were highlighted as an area of staff concern. Implementation of a Priority Structured Paging (PSP) system whereby pages were tagged with priority indicators based on nursing concern generated provider concern about usage of the high priority tier. PURPOSE: Understand RN high priority perception and usage, as well as provider agreement. METHODS: During a two-week pre-intervention phase, RNs on a medical, surgical, and a mixed step-down unit recorded aspects of their pages on provided data forms. Multiple aspects of the page were recorded, inclusive of the RNs subjective urgency (low, medium, high, or emergent). After a pre-intervention survey was completed, and appropriate education was given to affected RNs and providers, an intervention period occurred. During this period, RNs on multiple units tagged their pages with their level of concern (911, 1, 2, or 3, corresponding to emergent, high, medium, and low priorities of the pre-intervention phase), and recorded similar variables as during the pre-intervention phase. All data

	was entered into an excel workbook. Data was reviewed, and accuracy was confirmed by the primary investigator. High and emergent priority pages were filtered from the existing data set, and analyzed by Chi-square analysis, analysis of variance, and multivariable regression. RESULTS: Of the 2,037 and 2,440 pages recorded during the PSP pre- and intervention phases, 464 high, and 27 emergent priority priorities were recorded. PSP had a statistically significant impact on priority usage ($p<0.0000$), shifting pages that were perceived as high urgency during the pre-intervention phase, to medium urgency during the intervention phase. Evaluation of nursing units involved in both pre-and intervention phases revealed a large decrease in high/emergent pages from the surgical unit, pushing the chi square statistic towards statistical significance ($\square 2=3.44$, $p=0.1792$). Use of high/emergent priorities was dependent on time of day (AM > PM; $\square 2=5.2$, $p=0.0226$), and service ($\square 2=33.7$, $p=0.001$). Review of RN comments on perception/use of the emergent priority tier revealed limited variance, as usage correlated with medical emergency team, stroke alert, or life threatening abnormality (arrhythmia, acute abdomen, acute pain crisis). Provider post-intervention survey revealed a large percentage of responding providers received a high priority page (76 of 100 respondents; 76%) during the intervention phase, and 81.6% (62 of 76 respondents) reported agreement or strong agreement with the RNs use of the high priority. CONCLUSIONS: PSP provides RNs with a means to communicate their level of concern. Perception of priority changes when priority tiers are given expected callback timeframes. PSP data demonstrates appropriate utilization of high priority tiers (*1, and *911), as use occurs more often on higher acuity units, services (Hepatology and Bone Marrow Transplant), and in the setting of life threatening abnormalities. Providers generally agree with nursing use of high priority tiers.

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Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	Electronic Hand Hygiene Monitoring: A Tool to Drive Improvement, Measure Impact, and Sustain Results
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Background: Hand hygiene (HH) is a basic infection control practice, yet national HH adherence is approximately 40% (Erasmus 2010). There are a number of challenges in improving HH rates including finding an effective way to promote change, collecting unbiased observations, and sustaining the improvement. Our institution implemented an electronic HH (eHH) monitoring system on select units. The goal of this study was to use eHH to drive improvements in HH, to measure the magnitude of our interventions, and to describe their sustainability. QI approach: In April 2016, Denver Health installed the HillRom Hand Hygiene Compliance Solution monitoring system in 4 inpatient units (2 medical/surgical wards, 1 intensive care unit, and 1 progressive care unit). Sensors were installed on all waterless hand sanitizer and soap dispensers on the units. Registered nurses and

	certified nursing Assistants wear badges to track both their position on the floor and to measure their rate of eHH upon entry and exit from the room. Appropriate eHH is defined as the use of waterless hand sanitizer or soap within 60 seconds of entering or exiting a room. Baseline data was collected for 2 months; a series of interventions were undertaken beginning in June 2016 (Figure 1). Descriptive statistics, chi-squared tests, and interrupted time series analyses were used to analyze the data. Outcomes: The median number of total daily observations was 4083 (IQR 3801-4437). The mean total eHH adherence rate in the baseline period (April/May 2016) was 46% (IQR 44%-49%) and increased to 76% (IQR 75%-78%) in February 2017. There was a significant decreasing trend in the proportion of staff members with eHH rates <50% on all units ($p<0.0001$, Figure 2) and a significant increasing trend in the proportion of staff members with eHH rates ≥80% on all units ($p<0.0001$, Figure 3). Visual cues did not impact eHH adherence (poster 1: 6% immediate increase with change in slope -0.4%, $p=0.72$; poster 2: -7% immediate decrease with change in slope 0.1%, $p=0.94$). Next steps: We will determine the sustainability of our improvement in eHH. We also will determine increased eHH rates have resulted in fewer healthcare-associated infections.

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Title of Author:	Fellow
Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	Reduction of Anemia in Hospitalized ESRD Patients
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Aims statement: Reduce the percentage of ESRD patients discharged with hemoglobin levels less than 10 mg/dL by 33% in 6 months. Statement of the Problem: Anemia is a common complication is patients with end stage renal disease (ESRD) due to decreased production of erythropoietin in the diseased kidneys. Erythropoietin stimulating agents (ESAs) have been developed to combat anemia in ESRD, and now are widely used to maintain hemoglobin levels in the range of 10 - 11 in ESRD outpatients. Hemoglobin levels below the goal range have been associated with worse outcomes in the outpatient population. ESRD patients who are hospitalized are at greater risk to develop anemia than their outpatient counterparts,

	due to frequent blood draws, blood loss from surgery, and discontinuation of their ESA. Despite these known associations, ESA use rates in the hospital for patients with ESRD patients are exceedingly low. Given the known harms associated with anemia in the ESRD population, the high rates of anemia following hospitalization, and the low use of ESAs in the inpatient setting, we set out in this QI project to decrease anemia rates using the interventions below. Magnitude Assessment: Our magnitude assessment shows that 57% of patients are at or above a hemoglobin of 10 mg/dL at admission, but only 26% are discharged at or above that goal. Only 30% of patients received their ESA while an inpatient at UCH. QI Approach (Key Interventions): 1. Implement a standardized ESA dosing protocol for all ESRD patients based on their outpatient dose and inpatient hemoglobin values 2. Minimize blood lost for lab draws in ESRD patients by implementing microdraws in all ESRD patients 3. Implement a protocol to check iron stores in all ESRD patients admitted to the hospital, with repletion if no contraindication exists. 4. Reduce filter clotting during dialysis by continuing outpatient dialysis heparin dosing if not contraindicated. Next Steps: 1. Continue to undergo PDSA cycles until our aim of a 33% reduction in anemia is achieved consistently. 2. Ensure ongoing compliance by establishing regular department review of anemia in ESRD.

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Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	Continuous Renal Replacement Therapy Dosing in Critically Ill Patients
Please copy and paste your abstract here: (See Abstract	Aims statement: Deliver a 20-25 mL/kg/hr average daily dose of CRRT in >80% of daily sessions by July 2017.

Guidelines on left pane. No more than 350 words):	Statement of the Problem: Continuous Renal Replacement Therapy (CRRT) is a commonly performed procedure in critically ill patients with acute kidney injury (AKI) in the intensive care unit (ICU). National guidelines from Kidney Disease Improving Global Outcomes (KDIGO) give a level 1A recommendation that CRRT should be prescribed to achieve a daily dose of 20-25 ml/kg/hr. Both underdosing and overdosing in CRRT have been shown to have negative consequences for the patient, and should be avoided. Unfortunately, nationwide prescribing practices are quite variable, including among renal staff at the University of Colorado Hospital (UCH). QI Approach (Key Interventions): 1. Modified CRRT flowsheet in EPIC to display actual delivered dose in terms of mL/kg/hr 2. Developed a "CRRT Provider Protocol" to standardize CRRT delivery across the department 3. Updated the CRRT ordersets within EPIC. 4. Implemented a CRRT overview session into the clinical fellows' core curriculum conference. 5. Updated the CRRT procedure note to include the 24-hour average delivered dose. Outcomes: Prior to the implementation of our interventions, <45% of patients had an average daily delivered CRRT dose in the range of 20-25 mL/kg/hr. The above implementations were employed starting in January 2017. From 2/13/17 to 2/26/17, the percent of patients within the correct dosing window was 53%, and has risen to 67% since 2/27 (further data will be available by April's poster presentation). Nurses accurately charted the dosing variables 87% of the time when the new flowsheet was implemented, which has since risen to 96% charting accuracy. 100% of nurses surveyed feel their workload is the same or less with the new flowsheet. Next Steps: 1. Continue to undergo PDSA cycles until our aim of 80% is achieved consistently. 2. Further improvements to CRRT quality include prolonging filter life, increasing the overall daily time on dialysis, and decreasing access issues. Upon achieving our dosing aim, future QI projects will work to improve our performance within these QI metrics as well.

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Title of Abstract: (no more than 200 characters with spaces):	Improving Smoking Cessation Intervention Rates at the Denver Health Webb Clinic – A Resident Quality Improvement Project
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Background: Tobacco use is the largest preventable cause of death and disease in the United States. There is a higher prevalence of tobacco use in patients of lower socioeconomic status. Denver Health, a safety-net hospital, has a comprehensive set of interventions to help patients stop smoking. Despite a comprehensive intervention plan, the Denver Health Webb Clinic has a tobacco cessation intervention rate for adult cigarette smokers of less than 25%. Objective: We sought to improve the tobacco cessation intervention rate among all providers in the Webb Center for Primary Care from 23.2% in July 2016 to greater than 60% by March 2017. Approach: Denver Health acknowledges a tobacco cessation intervention when there is documentation that a patient has received one of the following: educational handout, direct counseling, referral to cessation resources, or prescription of cessation therapies. Our first intervention cycle involved modifying the workflow of our Healthcare Partners; they screened each patient for tobacco use and attached an educational handout to each smoker's After Visit Summary. The second intervention cycle entailed providers using Epic smart phrases to increase documentation of smoking cessation interventions, which included direct counseling; referral to the Colorado QuitLine, Tobacco Cessation Clinic, or text-message based iQUIT program; or prescription of nicotine replacement therapy, varenicline, or bupropion. Finally, the Webb clinic's Clinical Addiction Specialist was utilized for in-depth, individual counseling. Intervention rates were recorded after each cycle. Outcomes: Cycle 1, from September through November 2016, showed an increase in tobacco cessation intervention rates from 23.2% to 51.2%. Interestingly, there was an anomalous decline in our intervention rates for the month of October; this led us to uncover a system-wide error with Denver Health's capture of tobacco intervention documentation. Cycle 2, which lasted from November 2016 through January 2017, demonstrated a further increase in intervention rates to 65.4%, surpassing our original goal. Next Steps: Nicotine replacement therapy and pharmacologic therapy are more efficacious smoking cessation interventions than in-person or telephone counseling. We are currently working to identify barriers to residents using these interventions. Our next goal is to increase the use of pharmacologic therapy to assist with smoking cessation.

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Category:	QI

Title of Abstract: (no more than 200 characters with spaces):	Mending the Discharge Fence: Implementation of a Community Health Hospitalist Ambassadorship Program
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of Problem: Since the advent of hospitalist medicine there has been an increasing division of labor between inpatient and outpatient providers leading to fractured care, decreased provider satisfaction and the potential for errors in discharge transitions. Objectives of Program: The goals of this program were to: 1) improve communication between inpatient and outpatient providers, 2) identify transitional care practices needing improvement, 3) improve provider satisfaction. Description of program: In a vertically integrated system with a 525 bed hospital and 9 federally qualified community health centers with a shared electronic health record (EHR), communication between hospitalists and primary care providers (PCP) is not standardized, and there was a perceived lack of communication and collaboration on issues pertaining to transitions of care. Through a Transitions of Care (TOC) workgroup comprised of hospitalist and PCP leaders, hospitalists volunteered as "ambassadors" to each CHS clinic and would attend clinic staff meetings on a quarterly basis. This provided a point-of-contact and opportunities for regular face-to-face interactions with PCPs. The TOC workgroup would review findings of the CHHAPs program in monthly meetings, and identify system-based processes needing improvement. We hypothesized that the CHHAPs program might improve communication and feedback between hospitalists and PCPs, and identify interdisciplinary solutions to address system-wide gaps in transitional care. We also hypothesized that increasing hospitalists' engagement in the community they serve might improve collegiality and satisfaction among both hospitalists and PCPs. Measurements of success: Questionnaire of PCP and hospitalist leadership was used to measure sense of community and collaboration between PCPs and hospitalists and provider satisfaction with CHHAPs. Findings to date: 100% of 11 identified PCP and hospitalist leaders responded. 64% of respondents identified a lack of time as a barrier to communication between PCP and hospitalists. 82% found that the use of CHHAPs provides a means to address barriers in communication. 64% found that CHHAPs improves sense of community between departments identifying themes of feeling connected, improving team work in patient care and developing collaborative partnerships. 82% identified CHHAPs as a means of improving provider satisfaction. CHHAPs has had an integral role in QI projects in improving the accuracy of admission medication reconciliation and process of home oxygen ordering upon discharge. Key Lessons for dissemination: A hospitalist ambassadorship program may improve communication and increase satisfaction and engagement among PCPs and hospitalists, and create a venue for systematically studying the needs of community health as they relate to transitions of care and developing collaborative solutions to address unmet needs. While this program has been sustainable in a vertically integrated system, it may also be of benefit in non-academic, community based settings that lack shared resources and EHR.

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Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	Evaluation of an Oral Ribavirin Protocol for Treating Community Acquired Respiratory Virus (CARV) Infections in Patients with Hematologic Malignancy
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Background: Treatment of respiratory syncytial virus (RSV) in patients with hematologic malignancy (HM) and hematopoietic stem cell transplantation (HSCT) has relied on nebulized RBV (nRBV) administration. Several reports have demonstrated comparable activity with oral ribavirin (poRBV). Purpose: To assess the impact of a quality improvement initiative on the management of CARV infections following implementation of a treatment protocol utilizing poRBV preferentially. Method: Beginning March 2016, adult patients with HM receiving chemotherapy, allogeneic-HSCT recipients, and autologous-HSCT recipients within 6 months testing positive for RSV, human metapneumovirus (HMPV), or human parainfluenza virus (HPIV) received treatment with poRBV. Prior to this time, these patients were treated with nRBV. Dosing was 10 mg/kg once, followed by 20-30 mg/kg/day in 3 divided doses (doses rounded to nearest 200 mg) for poRBV, and nRBV was dosed 2 gm every 8 hours. Results/Outcomes: 5 patients were treated with nRBV in the months preceding protocol implementation and 8 patients received poRBV. Of these, 80% (4/5) and 88% (7/8) tested positive for RSV with lower respiratory tract (LRT) involvement at presentation in 60% (3/5) and 50% (4/8) of the nRBV and poRBV patients, respectively. HSCT was present in 80% (4/5) nRBV and 50% (4/8) poRBV recipients, with graft-versus-host disease (GVHD) present in 20% (1/5) and 38% (3/8). No infection-related mortality or adverse drug events were noted in either group. One patient in the nRBV and 2 patients in the poRBV had readmission within 30-days, none related to CARVs. All nRBV patients were admitted to the hospital whereas only 38% (3/8) required admission in the poRBV group; mean length of stay 10.4 days vs. 5 days for nRBV and poRBV, respectively. Direct cost savings estimated to be $960,000 for the 2015-2016 season. Implications for Practice: In patients with HM and HSCT at our center, preferred use of poRBV does not appear to impact clinical or safety outcomes when used for RSV upper and LRT infections. This change has demonstrated substantial direct savings, with indirect savings through decreased admissions and length of stay. Next Steps: We are currently gathering 2016-2017 data from 21 carefully-selected patients with HM/HSCT utilizing poRBV for CARV infections.

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Title of Author:	Faculty
Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	Proactive Implementation Strategies for a Kidney Injury Stewardship Intervention Alongside Existing Antimicrobial Stewardship Program
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	a) Nephrotoxic medication mediated AKI (NTMx-AKI) occurs commonly in hospitalized children, at rates 10-fold higher than CAUTI and 3-fold higher than CLABSI. NINJA (Nephrotoxic Injury Negated by Just in Time Action) is a systematic screening program designed to identify patients at high risk of NTMx-AKI. Many antimicrobials are nephrotoxic; 20/62 medications included as nephrotoxic medications in NINJA are antimicrobials. Antimicrobial stewardship programs (ASPs) often discuss risks for NTMx-AKI both formally and informally with providers. Implementation of NINJA at an institution with a robust ASP necessitates proactive design, collaboration, and creativity to ensure that both NINJA and ASP prosper from a mutually beneficial partnership. b) Children's Hospital Colorado (CHCO) is a 444-bed quaternary care pediatric hospital with a nationally respected ASP. In 2016, the Pediatric Kidney Injury & Disease Stewardship (PKIDS) was formed as a quality improvement initiative at CHCO with the aim of improving the kidney health of children. Among several clinical initiatives, PKIDS intends to implement NINJA at CHCO to define and reduce our rates of NTMx-AKI. During the design process for NINJA, PKIDS collected baseline data and enlisted the advice of our ASP to ensure implementation of NINJA benefits all involved parties. c) Hospital data from 2015 demonstrated 23% of patients that would have triggered into the NINJA screening program developed AKI; the diagnosis was recognized 50% of the time. PKIDS and ASP identified three aims to ensure NINJA and ASP will operate complimentary to one another. The identified aims for proactive collaboration were: consistent communication to ensure efficient and aligned recommendations, establish a predefined role for NINJA to augment ASP, and prevent duplication of work through aligned workflows. d) NTMx-AKI is a common and significant preventable harm experienced by children. The existing ASP at CHCO frequently discusses the risk of nephrotoxic injury from antimicrobials when evaluating the risks and benefits of treatment decisions with patient teams. Nephrotoxic medications remain clinically necessary for patient care; however NINJA represents an opportunity to reduce preventable harm. Proactive design is necessary for NINJA to be implemented in a mutually beneficial capacity at a pediatric institution with an active and effective ASP.

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Title of Author:	Fellow
Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	The optimal timing for prandial insulin in hospitalized patients with diabetes
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	The current standard of care for basal/bolus insulin regimens recommends adjusting the dose of prandial insulin based on pre-meal blood glucose (BG) levels and the amount of meal consumed. It is VA hospital safety policy that prandial insulin be given immediately after meals and within 30-60 minutes of BG check in the inpatient setting. However, prolonged glucose to insulin time (GIT) has been observed frequently. We hypothesized that a prolonged GIT of > 60 minutes results in hyperglycemia. We investigated the mean GIT throughout the day during hospitalization. GIT was defined as the time between prandial insulin injection and blood glucose check. From a total of 170 patients with diabetes who were hospitalized on medicine teams at the Denver VA hospital between May to July 2016, 59 patients with type 2 diabetes with a minimum hospital stay of 3 days who received ≥ 4 prandial insulin injections were included in this analysis. We collected 1922 BG levels, of which 45% were in the hyperglycemic range (>180mg/dL), 54% euglycemic (70-180mg/dL), and 1% hypoglycemic (<70 mg/dL). The mean GIT for breakfast, lunch, dinner, and bedtime were 115±37, 70±20, 75±16, and 40±37 minutes respectively. There was more hyperglycemia after a prolonged GIT (>60 minutes) when compared to GIT≤60 (45% vs 39%). In conclusion: we found an increased rate of hyperglycemia after a prolonged GIT in hospitalized patients with type 2 diabetes. In future research we plan to educate the hospital staff on the importance of implementing GIT<60 and plan to collect similar data after the intervention. In addition, we will compare the GIT of an "on demand" as compared to a "fixed schedule" meal system to test whether the type of meal delivery plays a role.

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Title of Author:	Fellow
Category:	Patient Experience
Title of Abstract: (no more than 200 characters with spaces):	Synchronous Telemedicine Care in Rheumatology in a Dispersed Veterans Affairs Health System
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of the problem: Rural Veterans with inflammatory arthritis (IA) in the Veterans Affairs (VA) system lack access because of geographic and other barriers. A national shortage of rheumatologists exists, particularly in rural settings. Telemedicine is an emerging care delivery mechanism which has been employed in a variety of disease settings and nations. Few studies have examined specialty-specific and patient-centered outcomes, quality of care, patient satisfaction, or cost-effectiveness related to synchronous telemedicine. We have prospectively investigated these issues in a VA rheumatology setting. Approach: Veterans with IA who receive arthritis care at the Denver VA medical center and primary care in Grand Junction (GRJ) were enrolled in a pilot program consisting of periodic synchronous telemedicine follow-up from GRJ. Human-centered design was used in the rollout and ongoing implementation of this clinic. Data were collected longitudinally before and after initiation of enrollment in the program, including patient-reported costs and distances travelled, validated disease activity instruments, and select patient satisfaction items adapted from standard VA surveys and previously published rheumatology telemedicine questionnaires. Similar data were collected on patients enrolled in usual (in-person) clinics. Linear regression analyses were performed on these results. Outcomes: On univariate analysis, an initial cohort (n=12) demonstrate higher patient satisfaction scores after entering remote follow-up compared to baseline in-person scores (β =3.93, CI 1.09-7.09, p<0.01). Significant personal cost ($/visit, β=-119.30, CI -181.56 to -57.04, p<0.01) and distance traveled (miles/visit, β =-409.11, CI -537.95 to -280.27, p<0.01) savings were observed. For all in-person visits (n=31), initial multivariate regression analyses suggest distance travelled to an appointment predicts lower satisfaction scores (β=-0.01, CI -0.02 to <0.01, p<0.01). Interestingly, lower RAPID3 scores (a validated measure of disease activity in rheumatoid arthritis) predict improved satisfaction only when accounting for the effects of distance (β=-0.15, CI -0.25 to 0.05, p<0.01). Next Steps: Synchronous telemedicine appears to be a viable alternative to routine IA follow-up, with favorable patient satisfaction results. Human-centered design principles will inform the ongoing rollout of these services. Continued recruitment is ongoing at the GRJ site, with plans in place for a similar clinic from Cheyenne, WY.

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Category:	QI
Title of Abstract: (no more than 200 characters with spaces):	A multidisciplinary approach for reducing the prescription of opioid pain medications at the United States Air Force Academy and Fort Carson Army Hospital.
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of the Problem: Since 2007, there has been an alarming volume of patients being prescribed opioid pain medications at the United States Air Force Academy and Fort Carson Army Hospitals. Additionally, changes of station, temporary duty assignments, and deployments prevent consistent patient-provider relationships. As a result, many high-risk patients are managed by healthcare providers that are unfamiliar with the complexity of the patient's chronic pain management and their social risk factors. QI Approach: To reduce the morbidity and mortality associated with high opioid prescribing patterns, the Primary Care Pain Work Group was implemented and developed by the Air Force Academy. High-risk patients are identified by a primary care physician or other healthcare provider, and are then referred for a multidisciplinary review by the Primary Care Pain Work Group. Each month, recommendations are made for 4-14 patients, which are then documented in the electronic medical record. Next, the primary care physician is notified of the team's recommendations and the patient is scheduled an appointment to discuss the plan of action. After initial development at the Air Force Academy in 2012, the Primary Care Pain Work Group was introduced at the Fort Carson Army Hospital in 2015. Outcomes: Retrospective cohort analysis demonstrated a 48% reduction of morphine-equivalent doses (MEDs) prescribed to high-risk patients treated by the Primary Care Pain Work Group ($n = 138$). The average monthly MEDs prescribed before intervention was 70.72, and 36.76 at 3-months post-intervention ($n = 138$, $P < 0.001$). There was a complete discontinuation of opioid medications in 26% of patients, 11% of patient had a > 75% reduction in monthly MEDs, 26% had a 50-75% reduction, and 32% had a 5-50% reduction. There was an increase in average MEDs prescribed for 5% of patients treated. Among the participating physicians that were surveyed, 89% expressed overall support of the program ($n = 18$). Next Steps: Based on the analysis of this study, as well as the feedback received from the Physician Engagement Survey, recommendations have been made for the Primary Care Pain Work Group currently operating at both the Air Force Academy and Fort Carson.

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Title of Abstract: (no more than 200 characters with spaces):	A Novel Workshop-Based Quality Improvement and Patient Safety (QIPS) Curriculum
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of Problem: Educational programs in QIPS are becoming increasingly important given the importance of medical errors and systematic defects in the way care is provided in the United States. However, few QIPS use adult learning theory to teach to learners, and fewer still demonstrate measurable improvement in outcomes. For example, of the X number of residency programs in the United States, only six have published QIPS with outcome data. QI Approach: Lean Six-Sigma methodology was employed to define, measure, analyze and intervene on the existing QIPS didactics. Our problem definition is to educate and empower learners through an innovative QIPS curriculum that incorporates what is known about adult learning theory and that is measurable with a validated instrument. We measured the baseline knowledge of our residents using the Quality Improvement Knowledge Application Test-Revised (QI-KAT-R), which is a validated tool to measure quality improvement knowledge in health profession learners. The residents in each clinic week took the QI-KAT-r instrument before the initiation of the curriculum. The average score was 6.3 out of a total score of 9 (n-25.) We analyzed the current didactic structure, used the literature to look for existing curricula, and solicited feedback from previous residents regarding the effectiveness of the QIPS didactics. Our intervention was to develop a seven part workshop based lecture series. Outcomes: Growth in QI-KAT-r Score during and after the delivery of the workshops as well as resident satisfaction. Next Steps: Post curricula QI-KAT-r surveys and satisfaction surveys of participating residents.

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Category:	Safety
Title of Abstract: (no more than 200 characters with spaces):	From Bedside to Benchmark: A Novel Model for Teaching Patient Safety on Internal Medicine Rounds.
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of problem: In order to create a learning health care system that continuously improves outcomes of patients, identification and action on patient safety problems from front-line staff is imperative. However, there are very few effective mechanisms to teach and engage front-line staff in patient safety (P.S.), particularly in the context of their every-day work. QI Approach: Lean Six-Sigma methodology was employed to define, measure, analyze and intervene on the dearth of P.S. educational experiences as well as the defined clinical outcomes derived from the project. For a measure, we chose a common patient safety issue, medication errors and during the rotation, we developed a running list of errors identified. At the end of the rotation, we completed a dedicated patient safety session with the internal medicine team to present these errors and analyze them using an Ishikawa diagram and the five why's paradigm. The most common medication error measured was inappropriate deep vein thrombosis prophylaxis (DVT.) Of the twenty-one medication errors noted, 43% of those errors were related to DVT prophylaxis. About twenty percent of patients admitted during our rotation had inappropriate DVT prophylaxis according to the Padua criteria. The P.S. session helped the team identify that there is little guidance for DVT prophylaxis in their admission work flow. We developed a general admission order set that included the Padua Criteria as a clinical decision tool from this session. This patient safety educational model allows, through the application of adult learning theory, learners and front line workers to explore relevant patient safety topics, use common quality improvement tools to analyze events and generate working solutions in the context of their everyday work. Outcomes: The primary outcomes for this project are the measurement of appropriate DVT prophylaxis per the Padua score and the results of the modified Health Profession Education Survey in Patient Safety Survey (HPESPS) which is a validated educational survey. Next Steps: We will roll out the HPESPS in a pre/post analysis for March, 2017 for an inpatient medicine team as well as collect the data on the appropriateness of DVT prophylaxis over the rotation.

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Title of Abstract: (no more than 200 characters with spaces):	A Pharmacist-Guided Patient-Driven Interdisciplinary Program to Improve Blood Pressure Control in Patients with Hypertension
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of Problem Approximately one third of patients treated for hypertension do not meet blood pressure goals. New strategies are needed to improve this number given the high impact of hypertension on cardiovascular disease. Dietary approaches and patient-driven self-titration of BP medications have been shown to be effective and safe in clinical studies but are under utilized in clinical practice. Aims * Implement a pharmacist-guided, patient-driven self-monitoring and medication titration program. * Implement standardized evidence-based dietary counseling to hypertensive patients. QI Approach * The project was introduced at the University of Colorado Hospital CKD clinic and transitioned to the primary care setting at A.F. Williams Family Medicine. * Patients with uncontrolled hypertension ≥150/90 mmHg on ≤3 antihypertensives are included. * BP goals are established based on individual risk factors. * Patients are referred to the clinical pharmacist who devises a personalized plan for BP medication titration. * Education on dietary modification is provided to every patient during the pharmacist visit. Outcomes * Appeal to providers and patients via pre/post survey * Adherence/effectiveness via MyHealth Connection (MHC) * Adverse Events (via survey) Next Steps After 3 months of enrollment the team assessed the process utilizing PDSA principles, and identified the following barriers/solutions: 1. Enrollment in the CKD clinic was slower than expected. The most common exclusion criteria is severity of hypertension (already on > 3 agents). Team members anticipate this will be less of an issue in the primary care setting. 2. Initial plan for identifying potential patients using HealthyPlanet function of EPIC was not feasible due to inaccurate reporting including inaccurate providers and inaccurate BP despite the search criteria.

	Alternative means of recruitment included screening clinic lists and contacting eligible patients, and were adopted. 3. Tracking progress with BP goal/titration was also problematic; it was determined that utilizing MHC was cumbersome, thus patients were prompted to submit their BP log/titration progress to designated point contacts within the clinic. Future efforts are focused on remedying the online link and on mailing the patients instructions for MHC prior to their visit. 4. After accounting for the aforementioned barriers, the project has transitioned to the Primary Care setting at AF Williams Family Medicine.

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Title of Abstract: (no more than 200 characters with spaces):	Let's be smart about improving pain: a patient controlled analgesia (PCA) safety checklist quality improvement (QI) project
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	Statement of the problem: Safety checklists have been shown to improve patient care (1, 2). The inpatient palliative care consult service (PCCS) frequently manages opioids via PCAs for rapid pain control. A PCA safety checklist would serve as a safeguard against unintentional misses of priority safety measures in this high risk population. QI approach: An initial PCA safety checklist was developed by agreed upon fundamentals for PCA safety. Four checklist components (PCA initiation, PCA titration, PCA transition to oral opioids, PCA discharge handoff) were converted into EPIC Electronic Health Record (EHR) smart phrases to facilitate standardized documentation of PCA management. Fill-in-the-blanks PCA data trend tables were included in the smart phrases. Patient pain scores were documented at each encounter using the modified Edmonton Symptom Assessment Scale (ESAS). In cycle 1 (July-September 2015), smart phrases were implemented with team input. In cycle 2 (November 2015-January 2016), focused team reminders were utilized and smart phrases modified based on team feedback. Outcomes: Pre-intervention (March-May 2015), 58% (n=101/172 encounters) of PCAs managed by the PCCS had documented PCA trend tables. Reports of moderate-severe pain decreased to no-mild pain in 42% of patients within 2 days. Post-intervention cycle 1 revealed 84% (n=82/98 encounters) had completed PCA tables, and 94% (n=93/99 encounters) after cycle 2. Reports of moderate-severe pain decreased to no-mild pain in 85% (cycle 1) and 54% (cycle 2) of patients within 2 days.

	Next steps: Our PCA safety checklist smart phrases increased use of a safety checklist and documentation of daily PCA opioid trends, and correlated with more rapid improvement in moderate-severe pain levels. Next steps include sustaining the practice with routine team reminders. References: 1) Haynes AB, et al. A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population. N Engl J Med 2009;360:491-9. 2) van Klei WA, et al. Effects of the Introduction of the WHO "Surgical Safety Checklist" on In-Hospital Mortality. Ann Surg 2012;255:44–49.

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Title of Abstract: (no more than 200 characters with spaces):	Reducing Cardiovascular Risk by Improving Statin Use in Renal Transplant Recipients: A Quality Improvement Project
Please copy and paste your abstract here: (See Abstract Guidelines on left pane. No more than 350 words):	a) Statement of the problem Cardiovascular disease is the most common cause of death after renal transplant. Appropriate use of statin medication is an important part of treating dyslipidemia and managing cardiovascular risk. Insufficient lipid management was identified as a problem by the UCH Transplant Quality Assessment and Process Improvement Team (QAPI Team) based on benchmark data findings demonstrating that 64% of renal transplant recipients (RTRs) seen in clinic with an indication for statin therapy were prescribed a statin medication. b) QI approach An interdisciplinary QI team in the UCH Renal Transplant Clinic conducted this QIP to better assess and treat cardiovascular risk in RTRs. The AIM of the QIP was to reduce cardiovascular risk by increasing the initiation of guideline directed statin therapy in qualifying RTRs seen in the UCH Renal Transplant Clinic by 20%, from 64% to 77%, by February 28, 2017. All patients who had a renal transplant and were seen for a clinic visit in the UCH Renal Transplant Clinic between May 2016 and February 2017 were included in this QIP. An analysis of the various reasons leading to insufficient lipid management within the organization revealed five primary concepts creating barriers to statin prescribing: patient, provider, environment, informatics, and communication. Based on this analysis and the review of the evidence, interventions targeting those barriers were developed. Interventions targeting prescriber understanding of applicable guidelines, patient education, and identification of patients with an indication for statin use were implemented via PDSA cycles. A monthly audit of patients seen in clinic was conducted to determine the percentage of patients with an indication for statin use who were prescribed a statin.

c) Outcomes
Monthly audit data was collected and tracked via control charts. As of January 2017, 71% of seen that month who had an indication for statin use having been prescribed a statin.

d) Next steps
Monthly audit data will continue to be tracked via the QAPI Dashboard report. Additional protocols will be developed to assess and manage cardiovascular risk throughout the transplant continuum, with a QI approach to assess barriers and implement interventions.