National Evaluation of the effects on healthcare utilization and costs of the VA Patient Centered Medical Home initiative


**Background:** The Veterans Health Administration (VA) has committed $2 billion toward transforming healthcare delivery. The centerpiece is an initiative to implement a version of the patient-centered medical home model, entitled patient-aligned care teams (PACT) at each of its 972 outpatient clinics nationwide, beginning in 2010. We evaluated the effects to date of the initiative on health care utilization and costs.

**Methods:** Because all VA clinics participated in the PACT initiative the study design is an interrupted time-series analysis. The study sample included 8.5 million patients assigned to a primary care provider at any time from January 2003 through October 2012 at 972 clinics. Utilization outcomes included outpatient visits for primary care, specialty care, urgent care, and mental health; hospitalizations for ambulatory care-sensitive conditions (ACSC); and emergency department visits. Quarterly utilization rates were aggregated to the facility level and modeled as a function of patient demographics and risk factors, time-invariant facility characteristics, the facility-specific area unemployment rate, and time. Statistically significant changes in the intercept and time trend in the post PACT period was interpreted as evidence of an effect of PACT. Separate models were estimated for Veterans age <65 and 65+ to account for non-VA utilization by Veterans with Medicare benefits.

**Results:** Following initiation of PACT, significant departures from long-run trends in utilization were observed for several categories of utilization. Primary care visits increased by 1.0% (age <65= -1.2%, age >65= 3.5%; p<0.01), and specialty care visits increased by 2.0% (age <65= 2.0%, age >65= 2.0%; p<0.01). Utilization decreased by -7.3% for mental health visits (age<65=-7.8%, age>65=-5.2%; p<0.01) and by -1.7% for hospitalizations for ACSC (age<65=-4.2%, age>65=-0.2%; p=0.02). No significant effects were observed for emergency or urgent care visits, or specialist-provided procedures. $498 million in health care costs were avoided compared with an incremental investment to-date of $822 million (i.e., on top of “baseline” funding), for a net discounted cash flow of -$308 million. We found similar results for all categories of utilization when the study sample was restricted to patients who had at least two primary care encounters.

There are important limitations. The lack of a control group of Veterans who were not exposed to the PACT initiative necessitated an interrupted time-series design. The PCMH initiative is not yet fully implemented at all facilities. Variations in coding over time and among VA facilities likely contributed to null findings for emergency department and urgent care visits.

**Conclusions:** Modest but statistically significant departures from long run trends in utilization were found in several utilization categories over the first two years of the VA PCMH initiative. These changes are consistent with previous studies that found increased access to care and decreased hospitalizations for ambulatory care sensitive conditions associated with the adoption of PCMH. Although the PCMH initiative is still progressing, it has not yet yielded a positive return on investment.
Remedy at UCSF: A Sustainable Student-Run Initiative

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Needs and objectives: The US healthcare system annually discards over $200 million worth of medical equipment from operating rooms and spends additional millions in disposal costs. This translates to 33 pounds of waste per patient per day. Many health professional students do not recognize the magnitude of this waste, or the extent of worldwide healthcare discrepancies. Remedy at UCSF (R@UCSF), an interdisciplinary service-learning program, reduces medical waste and health disparities through socially responsible supply redistribution. Medical supplies are recycled and delivered based on identified need to international and local projects that support under-resourced regions.

Setting and participants: Founded by University of California San Francisco (UCSF) medical students in 2004, R@UCSF partners student volunteers from each of the UCSF health professional schools with nurses, medical assistants, midwives, operating room technicians and physicians working in under-resourced communities.

Description: R@UCSF provides a sustainable experiential curriculum for students to link essential medical supplies with underserved communities by recovering unused surplus at UCSF. Working with both hospital staff and resource-poor clinics, students first identify supplies that are often discarded due to federal regulations or procedural excess but remain in demand by recipient clinics. Students then hold educational sessions for staff to put unused medical supplies in 17 collection bins strategically placed throughout the hospital.

Through the UCSF Interprofessional Health Education Program, R@UCSF recruits nursing, medicine, dentistry, and pharmacy students. New students partner with current members to collect, transport, and sort medical supplies. Students then coordinate supply redistribution with UCSF staff traveling to in-need clinics. The hands-on experience exposes new students to the magnitude of medical waste and demonstrates which supplies recipient communities deem most useful. Students distribute supplies during summer volunteer projects and international fourth year rotations.

Evaluation: Quantitative and qualitative evaluation to inform program improvement is on-going. Over 50 students from across disciplines have engaged in the program. R@UCSF surveys students to determine how the program has impacted travel-abroad experiences, formation of career plans, and potential for scalability outside of UCSF. For example, students have recently integrated the R@UCSF model at Kaiser Oakland Hospital; the long-term goal is to replicate this throughout the Kaiser system.

The volume and type of collected supplies and donations to receiving communities are recorded. R@UCSF has donated over 26,000 pounds of supplies in the past four years. From 2010-2012, the organization directly supplied health projects in over 20 countries.

Discussion / reflection / lessons learned: Recognizing the need for interdisciplinary team building in health education, R@UCSF bridges each of the professional schools in a service-learning curriculum that recovers and redistributes medical equipment. Student participation is high, reflecting the desire of students to work in teams to engage in systems-based practice to help address real-world problems. Student enthusiasm, administrative support, storage space, and socially responsible donation are essential for success. The R@UCSF model can be implemented at other medical centers with the ability and responsibly to recover unused medical supplies and reduce waste and inequity worldwide.
Creation and evaluation of a multi-disciplinary hospital follow-up clinic in an academic general internal medicine clinic

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Statement of Problem or Question (one sentence): Most initiatives to reduce hospital readmission focus on discharge and care management and do not optimize the outpatient settings that receive patients.

Objectives of Program/Intervention (no more than three objectives): 1) To create a standardized approach to primary care follow-up after hospitalization using a clinical pharmacist, care manager, and physician
2) To improve access to primary care for the recently discharged patient
3) To reduce 30-day readmissions for the Internal Medicine population

Description of Program/Intervention, including organizational context (e.g. inpatient vs. outpatient, practice or community characteristics): The UNC Internal Medicine Clinic is an academic general internal medicine practice with 13,958 patients. Approximately 200 of these patients are discharged monthly from UNC Hospitals, and 15-20% are readmitted within 30 days. Prior to our innovation, primary care follow-up was determined by inpatient teams, access was often obtained in our embedded urgent care, and content of the follow-up visit was not standardized. We developed a quality improvement team including leadership from inpatient and outpatient settings. The team set the aim to reduce UNC readmissions by 20% in our practice population. Using best practices identified by the Care Transitions Program® and the IHI STAAR Guide, we designed a standardized visit process for a clinical pharmacist practitioner and physician team. We first created a hospital discharge database with real-time display of daily discharges stratified by readmission risk (low, medium, or high). A care manager tested several methods of outreach to schedule and guide patients to a hospital follow-up appointment. Using the Model for Improvement, we tested the visits with selected patients and refined the approach. To fill the demand of moderate and high risk patients, we increased access with 108 hospital follow-up appointments monthly.

Measures of success (discuss qualitative and/or quantitative metrics which will be used to evaluate program/intervention): Run charts and control charts are used to monitor the new processes. Before expanding capacity to accommodate all moderate and high risk patients, we conducted a retrospective cohort study to compare 30 and 90-day readmission rates for patients seen in the special hospital follow-up clinic versus usual care (using risk-matched controls). Other intermediate outcomes include time to follow up, access to urgent care services for other conditions, no-show rates, and visit duration.

Findings to Date (it is not sufficient to state “findings will be discussed”): The first 48 patients seen in the hospital follow-up clinic who met inclusion criteria were compared to a risk-matched control group. Age, length of stay, and comorbidities were similar between the two groups. Patients seen in hospital follow up clinic were seen sooner than those in the usual care group (median time to internal medicine clinic follow-up 7 vs 14 days, p=0.0005). There was a trend toward fewer 30-day readmissions in the hospital follow-up group 6/48 (12.5%) vs usual care 12/48 (25.0%), p=0.117. There was a statistically significant difference in 90-day readmissions between the two groups; hospital follow-up clinic 10/48 (20.8%) and usual care 21/48 (43.8%), p=0.016.

Key Lessons for Dissemination (what can others take away for implementation to their practice or community?): As the healthcare system works to reduce 30-day readmissions, primary care clinics can be successful in improving access and standardizing content of visits. Within 6 months, we implemented a multidisciplinary program utilizing a clinical pharmacist, social worker, and physician. This method is showing promise in reducing 30 and 90-day readmissions.
Type B Insulin Resistance Syndrome: A Rare Type of Diabetes Mellitus

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learning objective 1: Recognize the clinical and diagnostic features of Type B Insulin Resistance.

learning objective 2: Manage Type B Insulin resistance with immunosuppressive therapy.

Case: The patient is a 27-year-old Asian male, with recent diagnoses or SLE and a mixed connective tissue disorder, who presented to his primary care physician complaining of a two month history of polydipsia, polyuria, a 20-pound weight loss, and darkening of the skin on his posterior neck, back, and axilla. There was no family history of diabetes. He was diagnosed with type II diabetes mellitus and treated with maximum doses of metformin, pioglitazone and glipizide with no improvement of his HgbA1c. Eight months after his diagnosis, he was seen by an endocrinologist who noted the severe acanthosis nigricans and started the patient on insulin, again with no improvement in his glycemic control. Laboratory studies revealed HgbA1c of 9.7%, fasting glucose >300mg/dl, WBC 2.6K/ml, insulin level of 187 uIU/mL (normal <17), and insulin antibody level of 4 U/ml (normal < 0.5). Anti-GAD and anti-IA2 antibodies were negative. The patient’s serum was sent to the University of Cambridge and confirmed to have a strongly positive antibody against the insulin receptor, and he was subsequently diagnosed with type B insulin resistance. Over the next nine months, the patient was treated with rituximab, cyclophosphamide, and pulse dose steroids per a National Institutes of Health (NIH) protocol. Repeat laboratory studies showed HgbA1c 6.8%, fasting glucose of 64mg/dl, and resolution of his leukopenia. Six months after the end of immunosuppressive therapy, he was no longer taking any medications, his HgA1c was 5.4%, his insulin level had normalized to 4 uIU/mL, he had regained all his weight, and his acanthosis nigricans had nearly resolved.

Discussion: In contrast to the usual mechanism of type II diabetes mellitus, which results from a complex interaction among many genes and environmental factors, type B insulin resistance syndrome results from autoantibodies formed against the insulin receptor. Although its exact prevalence is unknown, its diagnosis remains rare. Our patient presented with typical features of this syndrome: extreme insulin resistance (insulin level >200uU/ml), hyperglycemia refractory to massive doses of insulin (average dose 5100units/day), dramatic weight loss (average 43 ± 26 pounds), severe hyperandrogenism, and unusually widespread acanthosis nigricans. The disorder commonly occurs in the background of a rheumatologic illness or other autoimmune disorders. The presence of autoantibodies is confirmed by immunoprecipitation of recombinant human insulin receptors. Recognition of this syndrome remains important, as it affects both treatment and prognosis. Treatment of the syndrome is aimed not only at correcting the metabolic derangements but also controlling the production of autoantibodies. The National Institutes of Health published a treatment protocol in 2010, consisting of rituximab, cyclophosphamide, and steroids; azathioprine or cyclosporine can be utilized for maintenance once the patient is in remission. The mortality rate in this syndrome is high, but it appears to be largely determined by the severity of the other underlying systemic diseases. Our patient responded well to the immunosuppressive regimen, with recovery to euglycemia without any anti-diabetic medications and resolution of severe insulin resistance and its metabolic consequences.