

Value & Systems Science Lab

Year in Review (2019-2020)

Dear Friends and Colleagues,

There's no way around it: this has been a challenging year on many fronts, complicating the ability to focus on topics that would otherwise be top of mind. Nonetheless, the turn toward a new academic year also creates a unique opportunity to reflect on the prior one. We've tried to do that in this year-in-review report.

For those interested in learning more about VSSL (pronounced "vessel"), we invite you to visit the lab webpage [here](#). In short, the Lab is designed to drive change that improve health by (a) combining expertise in health policy, payment and care delivery redesign, and decision sciences with leadership in value-based payment, care delivery, and population health; and (b) leveraging collaboration with other groups within and beyond the UW community.

We've organized the content below by our Lab focus areas: policy analysis; program evaluation; implementation strategy; and training & education. In each section, we provide a sampling of the work done in each area and refer those interested in learning more to our website.

We would like to thank the leadership and staff of the UW Medicine Center for Scholarship in Patient Care Quality and Safety, the Division of General Internal Medicine, and the Department of Medicine for their guidance and sponsorship. It's not hyperbole to say that whatever the Lab has accomplished this year was possible because of their support. As we noted last year, there's always more work to be done in the areas of value and systems science. We welcome anyone interested in learning more about the Lab and/or joining in its work to reach out.

The VSSL team



Covid-19

Members of the VSSL team has been at the vanguard of writing about important topics related to the ongoing Covid-19 pandemic.

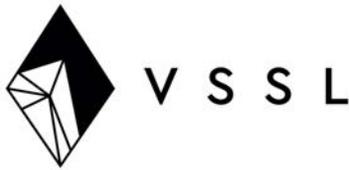
For instance, **Joshua Liao** published a series of articles in *Forbes* arguing that thought science and policy are key elements to recovery, it is the psychology behind our behaviors that will ultimately dictate how we will respond to Covid-19. As Dr. Liao writes in [the first article](#): “Recovery requires reliable data and strong public health data surveillance. But human behavior is rarely dictated purely by data. Ultimately it will be the psychology behind Americans’ behaviors that dictates how the country rebounds.”



He goes on to provide a description of mental heuristics – biases that help humans make decisions under pressure, but can sometimes lead them astray. Dr. Liao closes his first article this way: “It is no secret that humans can make poor decisions. But it is important to pay attention to the prevalent heuristics that cause us to do so – often in highly predictable ways. As states move to reopen, this recognition could mean the difference between a strategy that focuses on data (hoping that appropriate behavior follows), and one that anticipates and intervenes on faulty behavioral responses alongside data surveillance. What happens in the coming months and years may very well depend on which prevails.”

Dr. Liao’s [second article](#) for *Forbes* explores the role of framing as a particular mental heuristic. Staying with this theme, Dr. Liao was also the lead author on [an editorial](#) published in the *Philadelphia Inquirer* about how saving the economy involves changing the minds of the public.

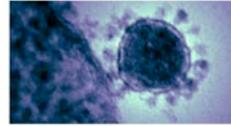
Along with Dr. Liao, **Leah Marcotte** [wrote a piece](#) for *JAMA Health Forum* arguing that despite widespread focus on testing capacity in the earliest phase of the pandemic, “missing from this intense focus on testing appears to be a discussion of test characteristics including sensitivity, specificity, and diagnostic yield.” The authors



argue that information “should be prioritized in research and made widely available by all groups performing and interpreting tests as quickly as possible”; that measures (e.g., serial testing, multiple tests from different sites) be used to address poor characteristics of available tests; and that policymakers prioritize balancing the benefits of diagnosing cases with maintaining clinician safety.

Dr. Liao also led or supervised the writing of several other Covid-related pieces, including ones about how beating the pandemic will involve [addressing primary care payment](#); how the pandemic has [caused racism to rear its head](#) alongside respiratory disease; and how the [math behind the pandemic](#) is critical to frame correctly.

Insights | COVID-19



Incorporating Test Characteristics Into SARS-CoV-2 Testing Policy—Sense and Sensitivity

Leah M. Marcotte, MD^{1,2}, Joshua M. Liao, MD, MSc^{1,2,3}

Author Affiliations | Article Information

Amid the ongoing coronavirus disease 2019 (COVID-19) pandemic, the issue of diagnostic testing has been front and center.¹ **Testing capacity has been woefully insufficient** for clinical testing of high-risk individuals, much less for epidemiologic evaluation of prevalence, community spread, and the consequences of public health interventions, such as **social and phys-**



ARTICLE

To Re-Open Health Care, Leaders Should Address Patient Fear

Joshua M. Liao, MD, MSc, Peter J. Pronovost, MD, PhD, Armol S. Navathe, MD, PhD
Vol. No. | July 9, 2020
DOI: 10.1056/CAT.20.0276

As leaders begin to reopen the doors of health care, they must address patients' fears surrounding Covid-19 to ensure that fear doesn't prevent them from seeking needed services. Health care organizations can draw upon several behavioral principles. These include methods for *framing* information about Covid- and non-Covid-related health risks to patients, using *social comparisons* to motivate patients' decisions by showing them information about how others are re-engaging in care, and leveraging *defaults* to make re-engagement as frictionless as possible via means such as automatically scheduled visits for low risk individuals.

Dr. Liao was the lead author on an article published in the *New England Journal of Medicine Catalyst*, in which he argued that “as leaders begin to reopen the doors of health care, they must address patients' fears surrounding Covid-19 to ensure that fear doesn't prevent them from seeking needed services”. Dr. Liao proposed that health care organizations could use several behavioral principles – framing, social comparisons, and defaults – to achieve that goal.

Finally, with input from **Ashok Reddy**, Dr. Liao led a collaboration with the Washington Health Care Authority to evaluate early work done in the Washington Medicaid program to scale up telehealth to meet patient health needs in response to Covid-19. The report – “Paying for and Delivering Telehealth in the Covid Era: Early Groundwork in WA Medicaid” – also outlines future directions for analysis that can support the creation of a payment and care delivery policy agenda for the Medicaid program.

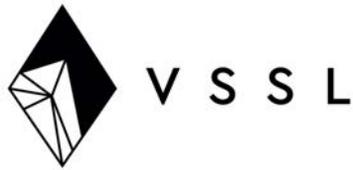


Paying for and Delivering Telehealth in the Covid Era: Early Groundwork in WA Medicaid

June 2020

Prepared by:
The Value & Systems Science Lab
University of Washington School of Medicine
1959 NE Pacific Street
Seattle, WA 98195

In Collaboration with:
Washington State Health Care Authority
626 8th Ave SE
Olympia, WA 98501



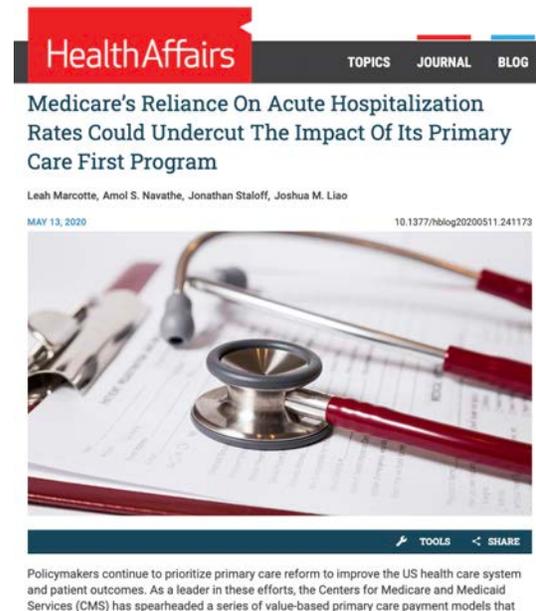
V S S L

Policy Analysis

Over the last year, VSSL members have engaged in rigorous analysis of payment and care delivery policies.

For instance, **Ashok Reddy** and **Joshua Liao** have used their care delivery and payment expertise to serve on the Washington Health Care Authority's Primary Care Payment workgroup tasked with evaluating strategies for reforming primary care payment. Dr. Liao has also advised Medicaid programs in other states on other delivery and payment policies.

As another example, **Leah Marcotte** and Joshua Liao have analyzed payment arrangements such as Accountable Care Organizations (ACOs) to identify how strategies may differ by several ACO features; Drs. Marcotte and Liao have also analyzed payment models such as Medicare's fee-for-service Primary Care First program, and how [over reliance on an acute hospitalization metric](#) may undercut the program's effectiveness. Dr. Liao has also applied his experience in policy analysis to other aspects of ACOs and other payment programs such as bundled payments.



Dr. Liao and Dr. Reddy have also used their policy analysis expertise to create a report in collaboration with the Health Care Authority about telehealth services in the era of Covid-19. The report is titled: "Paying for and Delivering Telehealth in the Covid Era: Early Groundwork for Policy in WA Medicaid."

VSSL team members are building on these experiences and engaging with stakeholders on additional policy analysis questions in the new year.

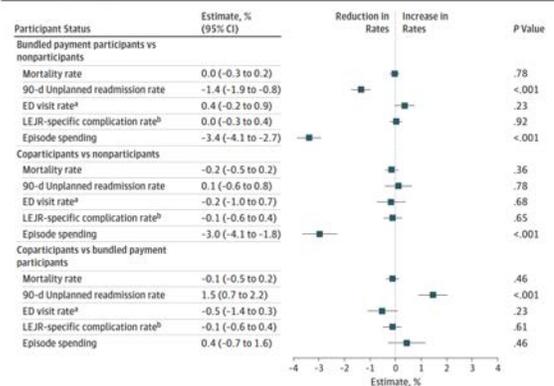


Program Evaluation

Rigorous evaluation of small- and large-scale programs is a core focus on VSSL. In turn, Lab members have led or participated in a series of evaluations of payment and care delivery programs.

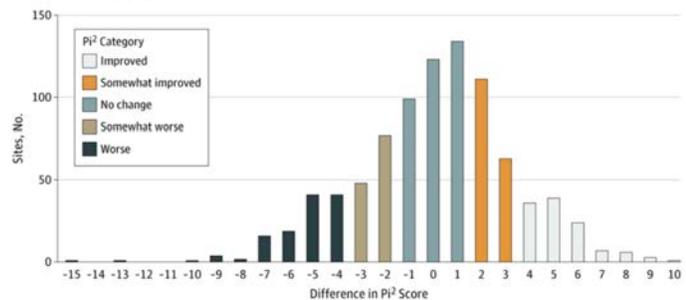
Joshua Liao continued to expand his work evaluating value-based payment models, leading several analyses of bundled payments and ACOs. For more information on Dr. Liao's work in this area, visit his page on the VSSL site [here](#). As an example, Dr. Liao led the first evaluation about payment model “co-participation”, situations in which organizations simultaneously participate in multiple value-based payment models. The results of this analysis were [published in JAMA Network Open](#) and showed that “hospitals coparticipating in accountable care organizations and joint replacement bundled payments may adopt different care redesign strategies from hospitals in bundled payments alone without differences in episode spending.”

Figure 1. Adjusted Changes in Primary Clinical Outcomes and Episode Spending Associated With Participation Status, 2012-2016

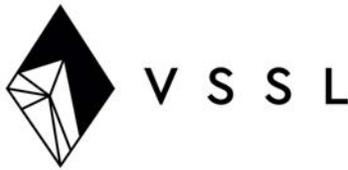


Ashok Reddy led a large-scale evaluation of the patient-centered medical home. The study [published in JAMA Network Open](#), captured changes in the medical home implementation over 4 years and found no consistent association with high-cost utilization (ED visits and hospitalizations).

Figure 2. Distribution of Clinics by Change in Patient Aligned Care Team Implementation Progress Index (PI²) Score From 2012 to 2015

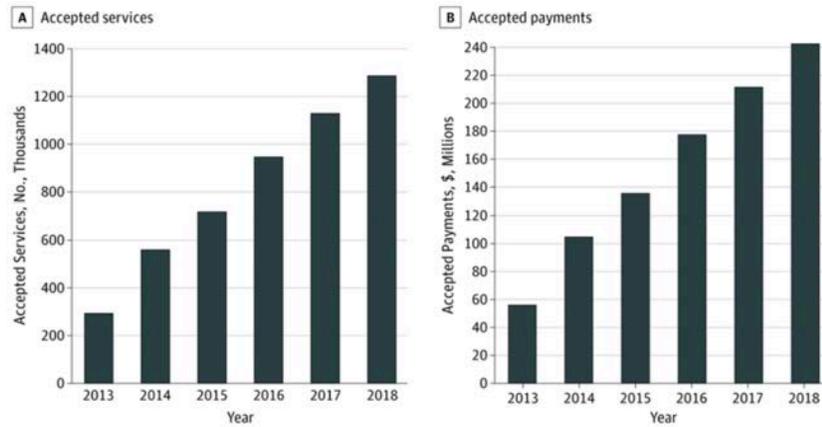


In another study led by **Leah Marcotte**, VSSL members studied the use of Transitional Care Management (TCM) codes meant to encourage clinicians and practices to coordinate care for patients after hospital discharge. In a study [published in JAMA](#)



[Network Open](#), Dr. Marcotte and colleagues – including Dr. Reddy, Dr. Liao, and several VSSL trainees – demonstrated increase in TCM use over time. As the authors noted: “ Together with the potential scope of TCM—with 5.8 million of 33.7 million Medicare beneficiaries experiencing TCM-covered hospitalizations annually⁴—these results reflect Medicare’s focus on TCM amid efforts to increase reimbursement for care coordination services.⁵” Dr. Marcotte and colleagues concluded that their findings “highlight the need for more research evaluating TCM amid value-based payment and delivery reform.”

Figure. Trends in Transitional Care Management Use and Payment From 2013 to 2018



Linnaea Schuttner, Ashok Reddy, and Joshua Liao led an analysis of statistical reliability for quality measures used within a large academic medical center participating in value-based payment models. In a study [published in the American Journal of Medical Quality](#), They found that clinic-level performance measurement may be more appropriate than individual clinician-level measurement, particularly in low-volume contexts.

Article AMERICAN COLLEGE OF
Medical Quality

Quality in the Context of Value: Reliability of Quality Metrics in an Academic Health System Shifting Toward Value-Based Payments

Linnaea Schuttner, MD, MS^{1,2}, Ashok Reddy, MD, MSc^{1,2}, Andrew A. White, MD¹, Edwin S. Wong, PhD^{1,2}, and Joshua M. Liao, MD, MSc^{1,2}

Abstract
Quality metrics are fundamental to value-based payment reforms. Because metrics are key components used to drive performance, health care organizations participating in payment reforms should consider metric reliability—a measure of true performance versus statistical “noise.” This cross-sectional study examined reliability, variation from patient and clinician characteristics, and volume thresholds for 9 ambulatory quality metrics in a health system engaged in value-based payment reforms. Hierarchical mixed models were used to analyze data from 276 316 patients attributed to 4373 clinicians in 31 primary care clinics from 2015 to 2017. Reliability was lower for all metrics at the clinician level (range 6%–64%) than at the clinic level (84%–99%), with little variation related to patient or clinician characteristics. Few clinicians, but the majority of clinics, contributed sufficient volumes of patient encounters to meet a 70% reliability threshold. These findings suggest that clinic-level performance measurement may be more appropriate than individual clinician-level measurement, particularly in low-volume contexts.

In other work, Dr. Schuttner is evaluating the rates of, and predictors for, low value or inappropriate cancer screenings among Veterans, nationwide; and evaluating how primary care physicians determine approaches for addressing multiple care needs during encounters among complex patients.



Implementation Strategy

Strategic approaches are needed to effectively implement programs that improve the quality, cost-efficiency, and value of care. Our team members have advanced knowledge in these areas by articulating frameworks and principles that help stakeholders understand how to strategically implement solutions that improve quality or address spending.

For instance, **Leah Marcotte** and **Joshua Liao** published a framework for understanding [care management interventions](#) in the American Journal of Managed Care, arguing that a framework categorizing programs as either utilization management, disease management, and/or health. Care navigation can help providers and payers invest in, implement, and reap benefits from care management initiatives.

COMMENTARY

What We Talk About When We Talk About Care Management

Leah M. Marcotte, MD; and Joshua M. Liao, MD, MSc

Emphasis on care management has become ubiquitous in the era of value-based payment. At the vanguard of the movement, policy makers such as Medicare have emphasized care management via a variety of initiatives, ranging from payment models that encourage longitudinal care management to billing codes that reimburse clinicians for coordinating the care of patients who have chronic conditions.^{1,2} Hospitals and physician groups increasingly view care management as a key area for investment and as a strategy for succeeding in a value-based environment,³ and there have been isolated reports of success within value-based payment models.⁴

However, despite widespread enthusiasm, complex care management and coordination activities are not associated with differences in quality, utilization, or cost outcomes in prominent value-based payment models such as the Medicare Shared Savings Program (MSSP).⁵ One potential driver is the variability in how care management

TAKEAWAY POINTS

- ▶ As a broadly defined care delivery strategy, care management can improve outcomes but has yielded variable results, particularly within value-based payment models.
- ▶ One contributing factor is that care management encompasses different types of activities, functions, and goals.
- ▶ A framework categorizing care management as disease management, utilization management, and/or health care navigation interventions can help providers and payers invest in, implement, and reap benefits from care management programs.

patients who were previously nonadherent to guideline-concordant care begin receiving more of it).

Consequently, organizations that build disease management-heavy programs expecting them to drive performance in total costs of care

In other work, Drs. Marcotte and Liao worked with **Ashok Reddy** to articulate the potential limitations in pairing hot spotting methods with intensive primary care interventions. In a paper published in the Journal of General Internal Medicine, The

VSSL team used insight from Geoffrey Rose's preventive medicine strategy to highlight how the narrow scope of these initiatives (targeted interventions for small groups of high-cost patients) may inherently prevent providers from achieving overall cost reductions across entire patient populations; and that providers should also consider broader interventions that impact patients across cost levels, including average- or low-cost patients.

Addressing Avoidable Healthcare Costs: Time to Cool Off on Hotspotting in Primary Care?

Leah M. Marcotte, MD¹, Ashok Reddy, MD, MSc^{1,2}, and Joshua Liao, MD, MSc^{1,3}



¹Department of Medicine, University of Washington School of Medicine, Seattle, WA, USA; ²VA Puget Sound Healthcare System, Seattle, WA, USA; ³Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, PA, USA.

One increasingly popular strategy for addressing avoidable healthcare costs is to couple "hotspotting" with interventions that deliver expanded, more intensive primary care services to high-cost patient populations. While there is rationale for such intensive primary care programs, early results have been lackluster. Geoffrey Rose's preventive medicine strategy provides insight about a potential explanation: that the narrow scope of these initiatives on small groups of high-cost patients may inherently prevent them from achieving overall cost reductions across entire patient populations. While additional work and results from innovative non-healthcare-based interventions are needed, healthcare organizations may benefit from instead investing in broader interventions that impact patients across cost levels, including average- or low-cost patients.

KEY WORDS: hotspotting; primary care; health economics; preventive medicine.

J Gen Intern Med
DOI: 10.1007/s11996-019-09285-4
© Society of General Internal Medicine 2019

example, in a randomized control trial of the Intensive Management program (ImPACT) within the Veterans Health Administration (VHA), intensive primary care did not reduce costs or utilization compared with standard primary care.¹ Moreover, a recent systematic review summarized the impact of intensive primary care interventions for high-risk patients. Despite variation in the structure and design, which ranged from primary care replacement (e.g., home-based) to augmentation (e.g., adding an interdisciplinary team to support primary care), intensive programs as a group have not been clearly associated with improvements in clinical outcomes such as mortality or utilization outcomes such as emergency department or hospital use.²

These lackluster results are likely driven by several factors. It can be difficult to intervene on high-cost patients over time given significant turnover. In fact, many individuals identified as high cost in a given year do not achieve the same designation even just one year later. Additionally, intensive primary care programs are also generally focused on amplifying and augmenting traditional primary care services (e.g., chronic disease management) rather than finding novel ways to directly address social determinants of health outcomes and spend-



Training & Education

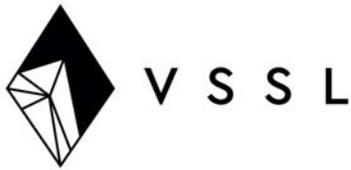
The Lab continued to enroll participants in year 2 of the VSSL Policy and Care Delivery Immersive (PCDI). The immersive was created out of the belief that education is a core element of the lab mission and purpose, and to ensure that learners are able to engage in health systems delivery work through dedicated mentorship and project work.

The PCDI experience is designed for learners who are interested in value and systems science as concepts and would benefit from more exposure and clarification about how to integrate these interests into their careers. In particular, given the many ways to engage in these areas, learners are able to select between several specific tracks that are designed to make the PCDI as salient to their career interests as possible. Two tracks tested in Year 2 were:

Policy. The Policy Track emphasizes public policymaking processes as well as landmark policies within the areas of value and systems science in order to provide participants with understanding about the “upstream” legislation and rules that ultimately determine organizational care delivery approaches.

Operations. The Operations Track emphasizes operational strategies for achieving value-based care and performance under value-based payment models. As such, this track focuses on the implementation of approaches with demonstrated potential to bring about such changes at provider organizations or payers.

Beyond the PCDI, The Lab has also been fortunate to engage learners through more longitudinally as VSSL Fellows. Each has demonstrated a commitment to, and focus on, a longitudinal body of work on in area of interest. **Kate Morgan, MD, MPP** (Resident in Internal Medicine at UW) has focused her work on define quality in value-based payment models, and improving patients’ access to healthcare services. **Jonathan Staloff, MD, MSc** (Resident in Family Medicine at UW) has focused his work on payment reform, in the primary care and ambulatory space, and how it can support population health. **Catherine Hwang, MD, MSPH** (Resident in Internal Medicine at Virginia Mason Medical Center) has focused her work on understanding how services



strategies at the interface of payment and care delivery policy can optimize the quality of value of care.

2019 was also an important year for educational efforts led by VSSL team members. In particular, **Anders Chen** developed and led the successful introduction of a health systems curriculum for the UW Internal Medicine Residency Program. The seminar series utilizes a mixed didactic and small group format to teach concepts to final year residents, including historical and international perspectives on health care systems; payment models and incentive structures; regulation and oversight; and the policy making process. The health systems pathway continues to expand, welcoming 9 new residents (the largest cohort to date) for the 2019-2020 year: Paul Bourdillon, Matt Cataldo, Brian Connor, Derek Eppright, Anisha Ganguly, Anna Morenz, Andrew Pattock, Caleb Schlauderaff, and Andrew Wilmington.

Dr. Chen also led a seminar series focused on primary care delivery systems, delivered jointly to final year primary care internal medicine and family medicine residents at UW, with topics including primary care specific payment and delivery models; primary care spend; primary care Graduate Medical Education policy; and state-level advocacy, focusing on telehealth payment parity and increased Medicaid reimbursement for primary care. For 2020, the health systems seminars continue to expand, with additional focus on structural inequities within payment models and delivery systems.