The University of Washington (UW) State Innovation Model (SIM) Evaluation Progress Report

Award Year 3, Quarter 2 (for activities through July 31, 2017)

Submitted by Douglas A. Conrad, PhD, Professor of Health Services and
SIM Evaluation Principal Investigator, on behalf of the UW SIM Evaluation Team

August 15, 2017

Table of Contents

Appendices

I. University of Washington-Based State Innovation Model Executive Summary

During AY3, Q2 the UW SIM Evaluation Team has concentrated on revising analysis plans, data collection, data inquiries, and preliminary descriptive analyses related to the evaluation components for which UW is directly accountable. We are also working closely with the state agencies (HCA, in particular) to ensure that their evaluation and policy questions are addressed.

Notable achievements during Q2 are the following:

Overall SIM Evaluation. Completion of the revised **Overall SIM Evaluation Plan** by Davie Grembowski, which involved meetings between Dave, myself, Dan Lessler, and Laura Zaichkin to clarify the subset of priority measures from the original February 2016 that are ultimately feasible to include in analyses of the overall impact of SIM, as well as those that will be examined for trends but which are not feasible for impact analysis because of small numbers of observations, absence of an appropriate comparison group, or delays in availability of data.

The UW Team is collaborating with evaluation partners at the Center for Community Health Evaluation (CCHE) of Kaiser Permanente Washington, which is conducting the evaluation of the Accountable Communities of Health (ACHs), and the Research and Analysis (RDA) division of DSHS, which is performing the impact evaluation of Payment Redesign Model 1 (PM1).

The first round of 12 key informant interviews regarding the implementation of SIM also has been completed by Suzanne Wood and a team of graduate research assistants, coupled with a protocol for coding responses, identifying emergent themes, and relating those themes to the conceptual framework for our overall SIM evaluation.

Payment Redesign Model 1 (Integration of Medicaid Purchasing for Behavioral and Physical Health) Evaluation. Significant progress (four completed) of the first round of key informant interviews (KIIs) for **Payment Redesign Model 1 (PM1: Early Adopter Region - Integration of Medicaid Purchasing for Behavioral and Physical Health),** which represent baseline qualitative data for the first year of PM1. Suzanne Wood, working with a team of graduate student research assistants has developed a structure of coding the responses for those KIIs by individual question, as identifying and validating the themes emerging from the responses. Additional potential interviewees have been identified and are being approached by Dr. Wood. The UW Team is coordinating these qualitative analyses with the RDA Team, which is carrying out the quantitative impact evaluation of PM1.

Payment Redesign Model 2 (Encounter to Value) Evaluation. Comprehensive vetting with the HCA and RDA sub teams and data experts of the Analysis Plan and Data Questions for **Payment Redesign Model 2 (PM2: Encounter to Value)**. The UW Team received the original PM2 dataset for 2013-2015 from RDA in April 2017, and has completed descriptive analyses of the PM2 data regarding individual Medicaid recipients, eligibility, providers caring for those recipients, and utilization of health services. Our UW team prepared a set of questions related to the baseline data and has received initial answers to those questions from RDA, both in writing and during an August 2, 2017 meeting in Olympia. RDA will be providing a "refresh" including data for 2014 – 2016 by September 30, 2017. A second set of data questions will be discussed (and answered) during a planned meeting in late August 2017 of UW and RDA analysts and data experts in Olympia. Those questions and UW's initial impressions are embedded in the PM2 Analysis Plan embedded in the body of this AY3, Q2 Progress Report.

The first round of KIIs for PM2 is now underway, with Suzanne Wood and Doug Conrad sharing lead interview responsibility, working with a team of graduate student research assistants. Six interviews are now completed, with several more planned for completion by September 30, 2017.

Payment Redesign Model 3 (Accountable Care Program) Evaluation. As in the vetting process described immediately above, the UW Team has now vetted a set of data questions related to the dataset "refresh" recently received from programming by Milliman Consulting for **Payment Redesign Model 3 (PM3: Accountable Care Program)** with HCA colleagues on August 2, 2017. A second follow-up meeting with HCA data experts and Milliman actuarial and programming staff is being scheduled for late August 2017. Norma Coe is leading the evaluation of PM3, with Doug Conrad as co-lead and Elaine Albertson, graduate student research assistant, supporting the qualitative aspects of this evaluation component.

The first round of KIIs for PM3 are complete, with eight interviews conducted. Suzanne Wood, joined by a team of graduate student research assistants, is leading the process of coding, theme development, and papers for those interviews.

Payment Redesign Model 4 (Greater Washington Multi-Payer:" Data Aggregation Solution) Evaluation. The UW Team is performing only key informant interview analysis and content analysis of administrative data. This mutual decision by HCA operations staff for **PM4** (led by JD Fischer) was driven by the fact that implementation of PM4 did not occur until July 2017. Thus, given that claims and electronic health record data would not be available until mid-year 2018, and even then would include only baseline (pre-intervention) data, a controlled before-after impact evaluation of PM4 would be logically impossible.

Under the direction of Doug Conrad, assisted by graduate student research assistants, three KIIs have been completed, and three more are scheduled for August 18, 2017. So far, both participating provider organizations (Northwest Physicians Network and Summit Pacific Medical Center) and the data aggregation vendor (Clinigence) have been represented in the KIIs, with four more being scheduled for completion by September 30, 2017.

Practice Transformation Support Hub Evaluation. The Hub Evaluation Team has prepared a Rapid Cycle Process Improvement Report covering Award Year 3 - Quarter 2 (AY3 Q2). The team collected and analyzed quantitative and qualitative data from April through June 2017. During this period, Hub developments include exceeding the practice coaching recruitment goals set for the year; strengthening the relationship with ACHs and Tribes; hosting a webinar on community clinical-linkages; doing practice coaching and facilitation work funded by non-SIM funding streams; and launching Hub Resource Portal version 1.1.

To address evaluation questions about implementation from an external perspective, the UW team conducted four key informant interviews (KIIs) with individuals involved in selected ACHs. These KIIs focused on the relationship between the Hub and the ACHs, and revealed that in general, ACHs have positive views of the Hub, but feel it is too early to tell if the Hub is meeting its ACH-related objectives. ACHs perceive that the more integrated the Hub Coach/Connector is in the ACH, the more beneficial and productive that relationship is. ACHs particularly value data and information about clinical practices and community resources in their region - having the Hub provide this data avoids duplication of effort and reduces the information-sharing burden on practices. UW will continue conducting additional KIIs with

ACH stakeholders during the next quarter to better understand how the Hub is viewed by external partners, and how the Hub can best meet their needs.

The Hub subteam KIIs with ACH representatives, meetings with Hub leads, and document review identified several opportunities for strengthening Hub services, including developing communication materials that explain Hub services and distinguish them from other initiatives (primarily the WA DOH/WCAAP TCPI); communicating the "value proposition" of the Hub; continuing to align state practice transformation efforts with each other and with the Medicaid Transformation Demonstration; further developing Resource Portal capacity, including individualized accounts for practices; strengthening Hub engagement in ACHs where Coach/Connector activity has been less robust; and creating a Hub sustainability plan that leverages ACH priorities (such as the Medicaid Transformation Demonstration) and other practice transformation-related initiatives.

II. Introduction

The main body of this AY3, Q2 SIM Evaluation Progress Report examines progress on the core components of the UW SIM Evaluation:

(1) Revised Overall SIM Evaluation Plan
(2) Evaluation Progress for Payment Redesign Models:

- PM1
- PM2
- PM3
- PM4

(3) Practice Transformation Support Hub Evaluation Progress

Where applicable, each of the above sections incorporates brief "Rapid Cycle Improvement Reflections" for the benefit of SIM implementation stakeholders.

III. Revised Overall SIM Evaluation Plan

The **Overall SIM Evaluation** will answer the following three questions:

1) What is the effect of the Washington State Innovation Model on population health and health equity across population groups in Washington?
2) What is the effect of the SIM on quality of care in Washington State, particularly for those persons living with physical and behavioral health comorbidities?
3) What is the effect of the Washington State Innovation Model (SIM) on the annual growth of health care costs per capita in Washington State?

Accomplishments.

Update of Methods for the Overall SIM Evaluation

We completed the final version of the methods for the overall SIM evaluation. In AY3, Q2 we submitted the Preliminary version of the methods to document our progress. The Preliminary version was updated to address comments from the evaluation team. We also addressed comments about the overall evaluation that were expressed in a meeting with Health Care Authority staff on July 26, 2017.

Appendix A presents a detailed report, "Methods to Evaluate the Impact of the State Innovation Model (SIM) in Washington." We pose evaluation questions for each dimension of the RE-AIM evaluation framework (Reach, Effectiveness, Adoption, Implementation, and Maintenance) and present qualitative and quantitative methods (also called "mixed methods") to answer them. We plan to use the Methods to coordinate and manage the on-going work of the overall SIM evaluation.

Baseline Data Collection

About half of the Priority Measures for the overall SIM evaluation are annual rates for Washington's population, which are listed below. We accomplished our goal of collecting baseline data (2013-2015) for Washington for 11 of the 12 rates, except childhood immunizations. We are in the process of collecting the childhood immunization rates from the Department of Health. We also have discovered that some measures lack annual rates for each year of 2013, 2015 and 2015 baseline period. We are also collecting the rates for the United States population to use as a comparison group, if the national rates are available.

1. Mortality (various measures)
2. Childhood immunization status
3. Well-child visits
4. Child and adolescent access to primary care
5. 1st trimester care
6. Adult access to preventive/ambulatory care
7. Diabetes – Hemoglobin A1c poor control
8. Patient experience with primary care
9. State-purchased health care spending growth relative to state GDP
10. Medicaid spending per enrollee
11. Public employee and dependent per enrollee spending
12. How well providers use information to coordinate care

Key Informant Interviews

In Quarters 1 and 2 we completed 10 key informant interviews for the overall SIM evaluation. Interviews are audio-recorded and transcribed, and we have started content analysis, which will continue into the next quarter. The Appendix Methods describe the interview questions and the analysis plan.

IV. Payment Redesign Model 1 (PM1) Evaluation Progress

Accomplishments. Between June and August 2017, the Qualitative Team sent three rounds of email requests to potential a list of potential respondents developed by the Health Care Authority (HCA) in association with those identified by the Qualitative Team through secondary sources (**PM1** document searches, association attendance rosters, etc.). The process employed followed the plan approved by the Washington State and UW IRBs. Respondents were given the opportunity to opt out via email without being contacted by e-mail or telephone.

During this reporting period, the Lead Qualitative Investigator (LQI) scheduled 4 of 9 PM1 interviews (KIIs), three of which have been completed. One became a focus group interview at the request of the organization and resulted in a broadening of the respondent pool by 3 (total: 7 of 12 interviews). All interviews were conducted in person or by telephone using a digital recorder supplemented by computer-based notes. The investigator obtained consent both in writing and verbally, as per the IRB, preceding the start of each recorded conversation. When completed, audio files were sent to a professional transcription service using an encrypted messaging tool.

The Qualitative Team is currently reviewing completed PM1 transcripts for errors, correcting and de-identifying them. When completed, they will be and uploaded into Dedoose, a secure Web-based, qualitative analysis software program, and password protected. The analysis plan is to code interviews initially according to (a) interview questions, (b) prompts, and (c) probes. Excerpts by interview question will be exported and delivered via encrypted messaging to the Principal Investigator as de-identified, aggregated MS Word documents for initial review.

The subteam working on this evaluation component also produced an internal briefing paper, background information on the organizations being interviewed, and a literature review to inform and complement the KIIs. These materials comprise a key part of the qualitative process evaluation for PM1. The Research and Data Analysis (RDA) division of DSHS is solely responsible for the quantitative impact evaluation of PM1.

V. Payment Redesign Model 2 (PM2) Evaluation Progress

Accomplishments. The UW Team members working on the **PM2** evaluation component focused their efforts in the following domains:

- Scheduling and completing KIIs focusing on a subset of leaders of the Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs) participating in PM2, also termed "APM4" in the CMMI lexicon for value-based payment models.
- Developing a conceptual framework for the impact of all payment models (including, but not limited to PM2)
- Performing descriptive analyses and data validity and reliability checks on the 2013-2015 dataset received for PM2, which prompted several questions for follow up discussions between the UW Team and data experts at RDA and HCA -- including members of the Analytics, Interoperability, and Measurement (AIM) Team. The goal is to resolve the data-related questions and finalize the PM2 quantitative analysis plan and to complete the first round of KIIs for PM2 by the end of September 2017

Qualitative Analyses (KIIs). Between June and August 2017, the Qualitative Team sent two rounds of email requests to potential a list of potential respondents developed by the Health Care Authority (HCA). The process employed followed the plan approved by the Washington State and UW IRBs. Respondents were given the opportunity to opt out via email without being contacted by e-mail or telephone.

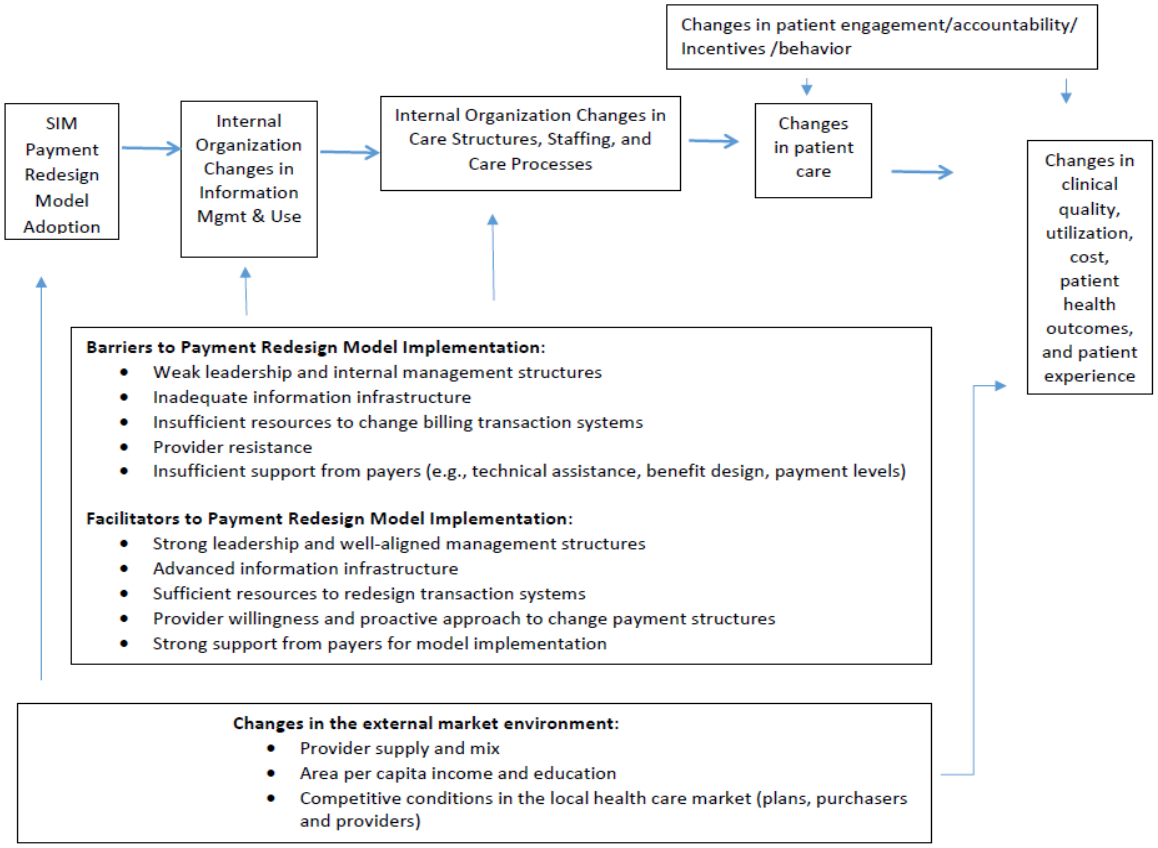
During this reporting period, the Qualitative Team scheduled 6 of 9 PM2 interviews, 5 of which have been completed. All interviews were conducted in person or by telephone using a digital recorder supplemented by computer-based notes. The investigators obtained consent both in writing and verbally, as per the IRB, preceding the start of each recorded conversation. When completed, audio files were sent to a professional transcription service using an encrypted messaging tool.

The Qualitative Team is currently reviewing completed PM2 transcripts for errors, correcting and de-identifying them. When completed, they will be and uploaded into Dedoose, a secure Web-based, qualitative analysis software program, and password protected. The analysis plan is to code interviews initially according to (a) interview questions, (b) prompts, and (c) probes. Excerpts by interview question will be exported and delivered via encrypted messaging to the Principal Investigator as de-identified, aggregated MS Word documents for initial review.

Conceptual Framework (developed for PM2, but potentially applicable to all Payment Redesign Models).

During this period, the Payment model subteam has crafted a conceptual framework that can be used to facilitate interpretation of the KIIs for PM2 and to inform the quantitative analysis plan for PM2, as well as the other payment redesign models. That framework is a variation of the overall conceptual model for Overall SIM Evaluation and is depicted on the next page.

Figure 2. Conceptual Model of Payment Model Changes' Effects on the Provider Organization and Patient Outcomes



This conceptual framework highlights the role of changes in the external market environment that influence whether or not a given payment redesign model is adopted and that also shape ultimate outcomes of payment redesign. The model suggests that payment redesign will lead to internal organization changes in the management and use of information technology, which in turn will drive changes in staffing and care structures and staffing. Those internal changes will motivate changes in patient care. Barriers and facilitators to implementation will modify the nature and extent of internal changes in the organization's information management and use, as well as changes in care structures, processes and staffing. Finally, the role of patient engagement, accountability, incentives, and actual behavior is crucial in determining actual changes in patient care and the ultimate outcomes of clinical quality, cost, utilization, health, and patient experience.

PM2 Data Validity and Reliability Checks and Follow-up Questions. The PM2 data questions will be addressed in a late August 2017 follow-up meeting inOlympia between the UW subteam for PM2 and the RDA and HCA data experts. The mainquestions are in the following categories:

- Clarifying distinctions in the data between utilization events, claims (within a given event), and specific services within the event

- Allocating days of inpatient hospital and nursing home stays accurately to a given month
- Specifying the quality and outcome measures available for PM2 for the UW evaluation and the level of aggregation (e.g., individual or provider organization) in the dataset to be provided to UW
- Finalizing the method for assigning direct payment amounts to utilization events
- Finalizing the method for uniquely assigning Medicaid clients to a given FQHC or RHC within a particular month, and over time more broadly (e.g., for purposes of assigning individual clients to the intervention or "control" group)
- Finalizing decisions on whether and how to distinguish elements of behavioral health utilization -- substance use disorder (SUD), mental health (MH), or co-occurring MH and SUD -- from utilization for physical health-related reasons
- Identifying potential (or actual) gaps and inconsistencies in measuring health care utilization that arise because of gaps in the data provided by behavioral health organizations and differences in reporting between the Early Adopter region, the Mi-Adopter region, and the others.
- Determining the latest date of PM2 incurred health services utilization, payment, and quality/outcomes data that UW is expected to receive in time to complete the evaluation analysis for this payment redesign model

VI. Payment Redesign Model 3 (PM3) Evaluation Progress

Accomplishments. The sub team working on **PM3** has divided their time between qualitative and quantitative analyses.

Qualitative Analyses (KIIs). The first round of key informant interviews (KIIs) with PM3 stakeholders were completed in April 2017. Eight interviews were conducted. Informants are clinical and administrative leads from provider organizations participating in one or both of the PM3 ACNs. Follow-up interviews will be conducted in 2018.

The Lead Qualitative Investigator (LQI) conducted training sessions for Research Assistants (RAs) during this period, reviewing Dedoose software and initiate basic coding of de-identified files. When completed, the LQI then re-coded all files to (a) check for understanding and (b) ensure all codes had been applied appropriately.

All eight interviews associated with PM3 have been uploaded into Dedoose and coded according to (a) interview questions, (b) prompts, and (c) probes. The primary effort has resulted in 287 excerpts, 31 codes, and 376 code applications for PM3. A sample of excerpts by interview question (including probes/prompts) were exported and delivered via encrypted messaging to the Principle Investigator and Lead PM3 Investigator as de-identified, aggregated MS Word documents.

The team then completed a first round of open coding to gain familiarity with the contents of the interviews, and is currently completing a second round of more in-depth coding to enhance the depth of understanding according to context. The secondary effort has resulted in 768 excerpts, 482 codes, and 3125 code applications for PM3, and is ongoing.

Next steps include more focused analyses of PM3 interviews employing the interview question structure followed by coding interviews using an implementation framework developed for PM evaluations. The LQI will continue to monitor results and analyses to ensure the quality of process, outcomes, and analyses. Results will be presented in three ways: (1) thematically from open coding, (2) by interview question with themes embedded, and (3) as per the evaluation framework. We anticipate initial results will be available in the upcoming quarter. We are also looking to blend the qualitative and quantitative research output where appropriate to provide a true mixed-methods approach to the evaluation.

Quantitative Analyses. UW received the first administrative database from HCA on UMP-insured state employees on 4/26/2017. While we were warned that we were to expect some errors in the initial file, especially in the last 2 years of the data, we spent time (1) familiarizing ourselves with the data (2) looking for inconsistencies, errors or problems with the data (3) examining trends in the data (4) beginning the process of identifying potential control groups in the data. This work led to the generation of a list of issues with the data to be addressed that we presented to HCA. We received an updated refresh file on 7/24/2017. We continued the aforementioned process with the refreshed data and presented the updated list of issues to HCA on 8/2/2017. We look forward to working with HCA in the next quarter to get these data issues resolved.

We have created analysis files that allow us to follow insured individuals and households over time and to see how utilization changes (a) over time and (b) by health insurance plan. We are currently refining our criteria for being in the control group by the characteristics of pre-ACO utilization: to be a valid control we need to establish that the pre-ACO trends in utilization were similar between the treatment

and control groups. We are also awaiting further data refreshes to address whether individuals with third party liability (i.e., another insurance company) can be included in the analysis.

Information from the HCA website and the new refreshed data suggest that we do not need to fundamentally change our proposed analysis plan for analyzing the impact of PM3 on health care utilization. However, we will have to amend the analysis plan for analyzing the impact on costs, given that we are unlikely to receive actual cost (allowed payment) information. Work on how to price the services received given the aggregate nature of the data we have on utilization will proceed into the next quarter.

VII. Payment Redesign Model 4 (PM4) Evaluation Progress

Accomplishments. In meetings on April 24-25, 2017, the UW Team and the HCA team leading implementation of PM4 mutually agreed that the evaluation of PM4 would be solely qualitative, i.e., to consist of KIIs and content analyses of administrative data provided by HCA, the two participating provider organizations, and the vendor charged with implementing the data aggregation solution. This decision was driven by the reality that data aggregation has just begun (July 1, 2017), and the claims and electronic health record data for incurred services during the first year of implementation would likely not be available until late 2018 – too late for rigorous evaluation, given that SIM Evaluation funding ends on January 31. 2019.

Between June and August 2017, the UW PM4 Team sent two rounds of email requests to potential a list of potential respondents developed by the Health Care Authority (HCA). The process employed followed the plan approved by the Washington State and UW IRBs. Respondents were given the opportunity to opt out via email without being contacted by e-mail or telephone.

The UW Team has begun scheduling and conducting PM4 interviews. Three KIIs have been completed, with another six planned (three of which are scheduled for August 18, 2017. All interviews are to be conducted in person or by telephone using a digital recorder supplemented by computer-based notes. Investigators are to obtain consent both in writing and verbally, as per the IRB, preceding the start of each recorded conversation. When completed, audio files are to be sent to a professional transcription service using an encrypted messaging tool.

The UW Team will then review completed PM4 transcripts for errors, correcting and de-identifying them. When completed, they will be and uploaded into Dedoose, a secure Web-based, qualitative analysis software program, and password protected. The analysis plan is to code interviews initially according to (a) interview questions, (b) prompts, and (c) probes. Excerpts by interview question will be exported and delivered via encrypted messaging to the Principal Investigator as de-identified, aggregated MS Word documents for initial review.

Next steps include finalizing interviews and completing focused coding of PM4 interviews by question and open coding schema, followed by coding interviews using an implementation framework developed for PM evaluations. Results will be presented in three ways: (1) thematically from open coding, (2) by interview question with themes embedded, and (3) as per the evaluation framework. We anticipate initial results will be available in the upcoming quarter.

The HCA operations team for PM4 has indicated that the following emphases are of particular interest:

- Focus on contracts in 3 buckets: Medicaid, Commercial & Medicare.
- Track VBP adoption within the PEBB population.
- Examine data vendor aggregators monthly output to care coordinators – differences in content or structure of data reporting
- Assess the significance of urban vs rural changes in structure and practices of care transformation teams.
- Characterize what if anything, providers are doing with the output/data they received from the care teams

VIII. Practice Transformation Support Hub Evaluation Progress

Accomplishments. The UW SIM Evaluation Team collected and analyzed quantitative and qualitative data from Practice Transformation Support Hub activities (PTSH, or "the Hub").

Implementation.

- Coach/Connectors have been hired for all nine Accountable Communities of Health (ACHs).
- Recruitment for practice coaching exceeded the goals set for 2017.
- Coach/Connectors strengthened their relationships with ACHs and Tribes.
- A webinar on "Building Community Connections that Support Patients" aired on April 19th.
- Coach/Connectors started doing work with practices supported by non-SIM funding streams.
- Resource Portal launched version 1.1.

Interviews with ACHs. To address evaluation questions about implementation from an external perspective, the UW team conducted four key informant interviews (KIIs) with individuals involved in selected ACHs. These KIIs focused on the relationship between the Hub and the ACHs, and revealed the following themes in common:

- In general, ACHs have positive views of the Hub.
- ACHs understand the purpose and vision of the Hub.
- While many ACHs report having regular contact with their Hub Coach/Connector, they say it is too early to tell if the Hub is meeting its ACH-related objectives.
- ACHs perceive that the more integrated the Hub Coach/Connector is in the ACH, the more beneficial and productive that relationship is.
- ACHs particularly value data and information about clinical practices and community resources in their region; having the Hub provide this data avoids duplication of effort and reduces the information-sharing burden on practices.

The small number of key informants interviewed for this report makes it difficult to assess whether the stakeholder views that were expressed are representative of the ACH community. UW will conduct additional KIIs with ACH stakeholders during the next SIM evaluation period to better understand how the Hub is viewed by external partners, and how the Hub can best meet their needs.

Opportunities for Growth**.** KIIs with ACH representatives, meetings with Hub leads, and document review identified several opportunities for strengthening Hub services, many of which Hub staff are already working on, including:

- Developing and distributing communication materials that explain Hub services, distinguish them from other initiatives (primarily the WA DOH/WCAAP TCPI), and describe the "value proposition" of the Hub.
- Continuing to align state practice transformation efforts with each other and with the Medicaid Transformation Demonstration.
- Further developing Resource Portal capacity, including individualized accounts for practices.
- Strengthening Hub engagement in ACHs where Coach/Connector activity has been less robust.
- Creating a Hub sustainability plan that leverages ACH priorities (such as the Medicaid Transformation Demonstration) and other practice transformation-related initiatives.

Appendix A:

Revised Methods for the Overall Evaluation of the Washington State Innovation Model (SIM)

By David Grembowski and the University of Washington SIM Evaluation Team

July 28, 2017

University of Washington
School of Public Health
Department of Health Services
Box 357660
Seattle, Washington 98195-7660

I. OVERVIEW OF HEALTHIER WASHINGTON: ***Better Health, Better Care, Lower Costs***

(Imported text from SIM application to CMS/CMMI)

The Healthier Washington project builds the capacity to move health care purchasing from volume to value, improve the health of state residents, and deliver coordinated whole-person care. Through focused and collaborative engagement of the public and private sectors, the Healthier Washington project will achieve better health, better care and lower costs for at least 80% of state residents. Under this project, targeted investments are made in the following:

(1) Community empowerment and accountability. Washington will drive local innovation through accountable communities of health (ACHs). Regionally organized ACHs will align the activity and investments of diverse sectors—providers, public health, housing, education, social service providers, health plans, county and local government, philanthropy, consumers, businesses and tribes—to drive integrated delivery of health and social services and improve population health.

(2) Practice transformation support. A practice transformation support hub will support providers across the state to effectively coordinate care, increase capacity, and benefit from value-based reimbursement strategies.

(3) Payment redesign. In partnership with purchasers, providers and payers, Washington will leverage its purchasing power to be the first mover in shifting 80% of the health care market from traditional fee-for-service to integrated, value-based payment models. Significant infrastructure and national expertise will guide efforts to test, improve and bring to scale shared savings and total cost of care models, including full integration of physical and behavioral health in Medicaid.

(4) Analytics, interoperability and measurement. New analytical infrastructure for monitoring and reporting on health system performance will support broad deployment of common performance measures to guide health care purchasing. New information exchange capacity will be leveraged to support care delivery, clinical-community linkages, and improved health outcomes.

(5) Project management. Implementation will be coordinated through a public-private leadership council with a dedicated interagency team and legislative oversight. Accountable project management will ensure real-time evaluation and continuous improvement on all Healthier Washington initiatives. An independent actuary has estimated potential cost savings of the Healthier Washington project at $1.05 billion over four years.

In late 2013, extensive stakeholder and tribal involvement led to the completion of a five-year state health care innovation plan under a State Innovation Models Pre-testing grant. Shortly thereafter, a bipartisan Legislature passed two pieces of Governor requested legislation to fund early implementation of the plan, building on the state's successful rollout of the Affordable Care Act. This project leverages the commitment of 12 commercial and Medicaid payers, nearly every major health system, and targets the engagement of 80% of Washington's residents, approximately 5.6 million people. Washington is uniquely positioned to improve health delivery, transform payment systems, and advance population health through the Healthier Washington project.

II. WASHINGTON STATE INNOVATION MODEL AIMS & SPECIFIC GOALS

The Healthier Washington project builds the capacity to move health care purchasing from volume to value, improve the health of state residents, and deliver coordinated whole-person care. Through focused and collaborative engagement of the public and private sectors, the Healthier Washington project will achieve better health, better care and lower costs for at least 80% of state residents by accomplishing the following three aims and goals:

Aim 1: Build healthy communities and people through prevention and early mitigation of disease throughout the life course
Goal: By 2019, 90% of Washington residents and their communities will be healthier

Aim 2: Improve quality of care by integrating health care and social supports for individuals with physical and behavioral comorbidities
Goal: By 2019, all with physical and behavioral (mental health/substance abuse) comorbidities will receive high quality care

Aim 3: Pay for value, instead of volume, with the state leading by example as "first mover"
Interim Goal (quarterly/annually): 80% of state-financed and 50% of commercial health care are in value-based payment arrangements.
Ultimate Goal: By 2019, Washington's annual health care cost growth will be 2% less than the national health expenditure trend

Washington is uniquely positioned to improve health delivery, transform payment systems, and advance population health through the Healthier Washington project.

III. CONCEPTUAL MODEL

Figure 1 presents the conceptual model for Washington's statewide SIM intervention. The conceptual model is based on the description of the SIM intervention in the Healthier Washington application and additional information provided by the Healthier Washington operational teams. This description presents an overview of the pathways through which the SIM is expected to improve population health and reduce cost growth in Washington. The Healthier Washington application contains more detailed information about the intervention's components and outcomes.

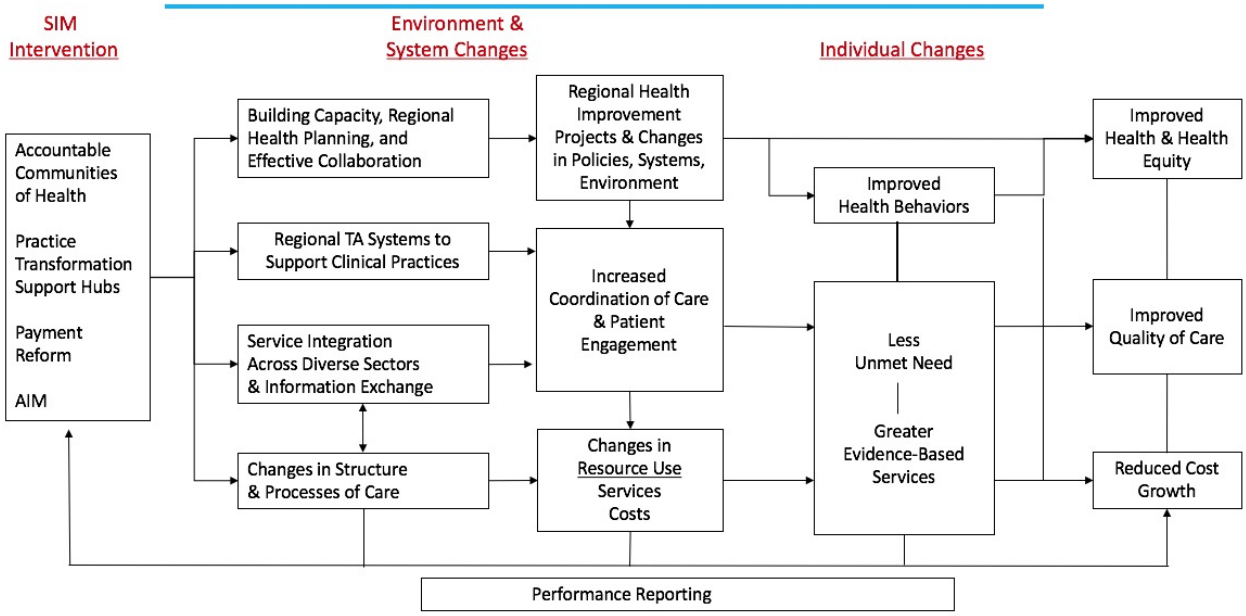
SIM Intervention. The SIM intervention in the left-most column of Figure 1 consists of four major intervention components: 1) Accountable Communities of Health (ACHs); 2) Practice Transformation Support Hub (Hub); 3) four Payment Redesign models, and 4) the Analytics, Interoperability, and Measurement (AIM) Team, which is an important "binding" mechanism to provide the information and data infrastructure that links the different intervention components and facilitates performance reporting.

The ACHs are expected to facilitate population health improvement through capacity building, regional health planning, and strengthened regional collaboration. Key operational targets for building operational capacity include governance, structure, ACH staffing, capabilities, financial plan, and a sustainability plan. The ACHs also will develop, maintain, strengthen and broaden regional health partnerships and state-level partnerships – the former to effectively support regional health planning, community health needs assessment, and regional health improvement plan development and the

latter to provide a regional perspective to state policy and practice decisions and to align the ACH role with Health Care Authority (HCA) guidelines.

Figure 1:

Conceptual Model of Washington's State Innovation Model (SIM)



The Practice Transformation Support Hub is designed to connect physical and behavioral health practices with tools (e.g., web portal), training, and hands-on technical assistance to support the integration of physical and behavioral health, move from volume-based to value-based care, and to improve population health by connecting providers to community resources. Planned Hub approaches include: a) a Regional Health Connector network, b) practice facilitation coaches, and c) a web clearinghouse of evidence based, culturally relevant tools and training. The Hub will focus its community-clinical linkage strategies on securing providers' active engagement with and use of those linkages, enhancing practice administrative and information systems, and connecting external stakeholders (e.g., community-based organizations, health systems, and public health) with practices.

The Hub will support physical/behavioral health integration through expert consultation, practice coaching and the aforementioned linkages. The move to value-based care will be facilitated by Hub supports for practice leadership and management, practice financial and administrative systems, and assisting provider organizations in implementation of new payment systems in collaboration with payers.

In addition, the Hub services (web-based clearinghouse, practice facilitation coaches, and Regional Health Connector network) can serve as supportive resources to facilitate other Healthier WA investment areas including the advanced implementation of shared-decision making, education of providers on care coordination and patient engagement, and implementation of community health workers.

Payment Redesign in the SIM incorporates four models:

- **Model 1 (Early Adopter of Medicaid Integration)** is deploying integrated medical/behavioral health managed care to facilitate patient-led changes within the processes and structures of managed care organizations at two levels: (1) identifying patients with behavioral health needs and actively engaging them in their own care management; (2) health system-led changes to build more effective referral and/or integrated care and to increase behavioral health capacity. Two parallel purchasing pathways will begin in 2016. Early adopting regions will have physical and behavioral health services purchased on a fully integrated basis. Other regions will begin this transition by having care delivered though separate but coordinated behavioral health and physical health managed care contracts.

- **Model 2 (Encounter-based to Value–based)** will introduce a value-based alternative payment methodology in Medicaid for FQHCs and rural health centers (RHCs) and pursue new flexibility in delivery and financial incentives for participating CAHs. The model will test how increased financial flexibility can support promising models that expand care delivery options such as email, telemedicine, group visits and expanded care teams.[1]

- **Model 3 (Accountable Care Program and Multi-Purchaser)** involves two organizations -- the University of Washington Accountable Care Network and the Puget Sound High Value Network LLC led by Virginia Mason Health System. These accountable care programs (ACPs) will offer a new accountable delivery and payment model. Their aims are to provide superior patient service and experience and access to high-quality and timely service at a lower cost. Each ACP will deliver integrated physical, mental health, and substance abuse services, and assume financial and clinical accountability for a defined population of PEBB members. ACPs will be reimbursed based on their ability to deliver quality care and keep PEBB members healthy, not on whether they performed a specific test or service. Starting in 2017, HCA will work with other private and public employers to replicate the payment model, to further accelerate market transformation.[2]

- **Model 4 Test Award** will test whether increased provider access to linked patient claims data and clinical data from multiple payers leads to increased adoption of value-based payment arrangements. The Health Care Authority has contracted with two lead provider organizations, Northwest Physicians Network, an urban-based independent practice association headquartered in Tacoma, and Summit Pacific Medical Center, a rural-based critical access hospital (CAH) in Elma that also operates three rural primary care clinics and an urgent care clinic. Each of the two organizations will accelerate the building of infrastructure based on common measures, care transformation, evidence-based principles, and Bree Collaborative recommendations. The aggregation of clinical data from electronic medical records and payer-based claims data form the integrated data platform will support individual and population reports. Model 4 assumptions are that if increase provider access to patient claims and clinical data from multiple payer leads to increased adoption of value-based payment, those new payment arrangements, in turn, will lead to better health outcomes, better quality of care, and lower costs.

[1] from SharePoint site (Payment Redesign)

[2] From Paying for Value (accessed September 20, 2015) : http://www.hca.wa.gov/hw/Pages/paying_for_value.aspx

Analytics, Interoperability, and Measurement (AIM) and Performance Reporting is building the data infrastructure for the operational and evaluation functions of Healthier Washington and the State Innovation Model. Various data streams from HCA, the Department of Social and Health Services (DSHS), Department of Health (DOH), the Washington Health Alliance, the All Payer Claims Database (APCD), OneHealthPort (for the Health Information Exchange and Clinical Data Repository – the latter termed "Link4Health), and the Washington Health Benefits Exchange (Qualified Health Plan payer data under the Washington HealthPlanFinder) have been identified for potential inclusion in the AIM data infrastructure. An important activity of the AIM Team and its partners will be to ensure interoperability across the contributing data sources, as well as an integrated data platform for performance reporting that can support both operations and the state-based evaluation.

Environment and System Changes. The above four components, working individually and in combination, are expected to change the service delivery systems and the physical and social environments in Washington. Collectively, all four intervention components are expected to integrate health care and social services across diverse sectors of the delivery system, including housing, education, public health and others, and to change the structure and processes of service delivery throughout the system. In particular, the Hub will increase service integration by increasing team-based care and expanding community health workers. The Healthier Washington Health Information Exchange will support integration activities by sharing patient information across providers, which may also increase the identification of unmet health and social needs of patients.

Individual Changes. The system changes are expected to increase the coordination of care for individual patients across the medical care, social service and other sectors, and to increase patient engagement in health care by expanding shared decision-making. These service activities have three broad purposes: 1) integrate physical and behavioral health services, particularly among Medicaid recipients; 2) align (or integrate) services for substance abuse and mental health, particularly among Medicaid recipients; and 3) improve the prevention and management of chronic conditions through addressing the social determinants of health. The payment reforms are expected to create financial incentives that align with and support these system changes, at least in sub-populations of Washington State. For instance, two of the four payment models address health care for Medicaid and other low-income groups, which is expected to incent the integration of physical and behavioral health in the Medicaid Program. Better care coordination is expected to reduce individuals' utilization and costs of health care.

Better care coordination of services across diverse sectors of the delivery system is expected to reduce unmet need and to improve efficiency[3]. In the conceptual model, changes in health behavior, decreases in unmet needs, and evidence-based preventive and therapeutic services are mechanisms for improving individual health.

[3] In the U.S. health care system, patients with chronic conditions, disabilities and social problems (such as substance abuse) often receive fragmented, uncoordinated, and inefficient services that focus on siloed conditions rather than adopting a patient-centered approach addressing the diverse medical and social needs of the whole person, which can reduce quality of care and increase costs. Evidence exists in the literature that coordinated care can reduce these problems and, therefore, unmet needs. Although the information in this footnote does not appear in the WA State SIM application, these relationships are evident in the literature.

Statewide Changes. As the SIM intervention reaches scale on a statewide level, the individual changes are expected to improve health and health equity in the population of Washington State.[4] The improvements in health, along with changes in the service delivery system, are expected to reduce the growth of health care costs on a statewide level. Performance reporting transmits information throughout the change process, which may contribute to service refinements and better outcomes and lower costs at the individual and population levels. The WA SIM also might have unintended consequences, which are important to document and which will lead to changes in the SIM intervention components.

Causal Mechanisms. The Figure 1 conceptual model suggests that SIM effects on population health, cost, and quality may operate through three mechanisms: 1) building regional capacity, regional health planning and effective collaboration to empower environmental and system change and to address social determinants of health; 2) changes in health behaviors; and 3) changes in health care and social services (better coordination and patient engagement, less unmet need and better quality). Of these three mechanisms, the public health literature generally concludes that physical and social environments have the greatest effects on health. In particular, changing environments has the potential to reach thousands if not millions of people in Washington State. Improving healthy behaviors also may benefit population health but generally not as much as improving physical and social environments. Medical care is generally regarded as the least effective of the three approaches in improving population health.

However, Bunker (2001) has argued that, at least in the short-run, medical care might be just as effective (if not more effective) than the other two mechanisms in improving population health. He writes:

> *If national policy is to be directed to improvement of the health of the population as a whole and reducing inequalities in health, such policy must take into account the potential and the limitations of each. Increased investment in medical care would make the greatest and most predictable contribution to the reduction of death and to the relief or amelioration of suffering and disability. The gains from investments in medical care would be seen almost at once, the benefits of health promotion only as rapidly as the public responds with a healthier lifestyle.*

Bunker (2001) also implies that investing to change physical and social environments would be a long-term strategy of uncertain success. In sum, Bunker's arguments suggest that, at least in the short-term, SIM changes in medical and social services might benefit population health, particularly if SIM reaches those groups with unmet medical and social needs.

Health Equity. The WHO Commission on Social Determinants of Health, Graham (2004a), Krieger (2008) and others present conceptual models of the determinants of health disparities, but none explicitly include public health systems. The models indicate generally that health disparities result mainly from disparities in social and physical environments (Graham, 2004a, 2004b; Evans & Stoddart, 1990). Because the SIM Accountable Communities of Health are expected to improve physical and social environments, the SIM-ACHs may close health inequalities across social groups, depending on the reach of SIM across social groups on a population level. Evidence indicates that population-based

[4] Note that the focus of the WA SIM application is on improving population health, which is a formal goal on Page 2. While improving health equity is not a formal goal, it is mentioned in the SIM application. The phrase "health equity" is used rather than "health disparities" to emphasize the affirmative goal of SIM.

interventions that influence everyone, such as water fluoridation and highway safety, have the potential to reduce health disparities (Mechanic, 2002). However, many public health interventions do not reach everyone. Preventive and other effective interventions that depend on voluntary participation may actually *increase* disparities because people with more resources and less need are more likely to take advantage of them (White, Adams & Haywood 2009; Link & Phelan, 2005).

Potential Moderators. The conceptual model also suggests that some factors may moderate SIM effects on population health and health equity. For instance:

- The SIM intervention focuses on the Medicaid and PEBB populations, which implies that individual-level and population-level changes may be greater in those populations than for other Washingtonians. This pattern suggests that type of health insurance may moderate SIM effects on population health and health inequalities.
- The SIM interventions focus mainly on adults under age 65, and SIM may have few consequences for adults over age 64, unless SIM has extensive externalities in the Medicare population in Washington State (some Medicare enrollees also have Medicaid coverage). This potential pattern suggests age may moderate SIM effects on population health and health inequalities.
- The SIM application indicates that Washington State will be the 1st Mover, particularly in payment reform. For instance, Washington's goal is to drive 80% of state-financed health care and 50% of commercial payers to value based payment by 2019. However, achieving SIM goals on a statewide level may depend on Washington State having payer-followers which are also moving in the same direction.
- A goal of the SIM application is to reduce Washington's annual health care cost growth to be 2% less than the national health expenditure trend. If Washington achieves this goal, was the goal achieved by spending less on health care and more on social services as part of service integration, possibly increasing overall total costs?
- The legal sales of recreational and medical marijuana and retail sales of alcohol could act as countervailing forces increasing substance abuse and mental health problems.

External Environment. The health, quality of care, and cost growth in Washington may be influenced by SIM as well as many other external policies, programs and secular trends. A partial list of external forces includes the Medicaid transformation demonstration, Washington Legislature funding the collaborative care model for behavioral health problems in 2017, legalization of marijuana,[5] provider payment reforms in the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), potential repeal of the Affordable Care Act and Medicaid expansion, the Medicare and Medicaid Health Home Program to coordinate care for people with one or more chronic conditions,[6] and other initiatives in Washington sponsored by the Center for Medicare & Medicaid Innovation (CMMI).

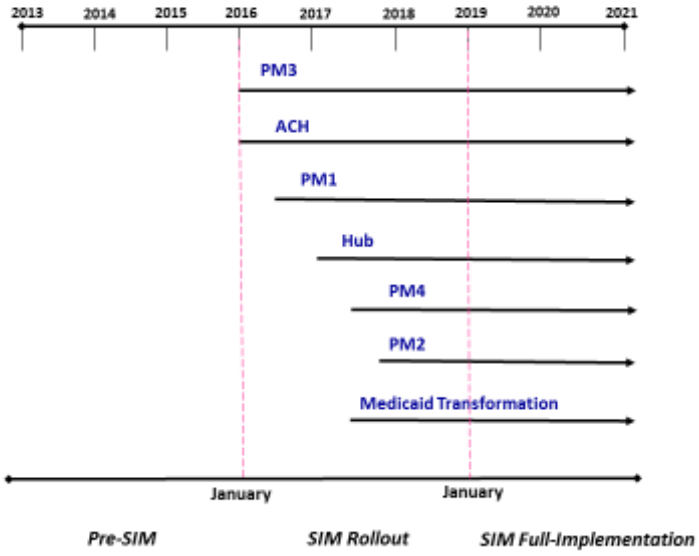
[5] Legalization of marijuana may increase smoking behavior, which is a SIM outcome measure.

[6] The Health Home Program has a "whole-person" philosophy to coordinate primary care, behavioral health, and long-term services and supports to treat the whole person. The Washington Health Homes Programs is available in all counties, except King and Snohomish. Starting in 2017 the Program is available in all counties.

SIM Implementation. The SIM test award began in February 2015, and YR1 was devoted to developing the ACH operational and governance infrastructure, developing SIM interventions and planning for implementation, and developing the State's SIM evaluation plan. SIM Rollout began in YR2 starting February 2016. The SIM components are starting at different points in time in YR2, YR3 and YR4.

Figure 2 shows the approximate times when each SIM component started or will be implemented in 2016-2018. The timeline also includes the Medicaid Transformation Demonstration, which has goals that overlap with SIM but focuses on Medicaid beneficiaries.

Figure 2. Timeline of the Washington State Innovation Model (SIM) Rollout



ACH = Accountable Communities of Health
Hub = Practice Transformation Support Hub
PM1 = Payment Model 1; Medicaid Fully Integrated Managed Care (behavioral & physical health)
PM2 = Payment Model 2; value-based Medicaid payment in Federally Qualified Health Centers, Rural Health Centers, and Critical Access Hospitals
PM3 = Payment Model 3; Uniform Medical Plan Plus Accountable Care Networks
PM4 = Model 4 Test Award; Data Aggregation Solution

IV. SIM EVALUATION FRAMEWORK & EVALUATION QUESTIONS

RE-AIM Framework. We apply the RE-AIM evaluation framework to examine SIM's performance and impacts on population health, quality of care, and cost growth for all Washingtonians (Glasgow et al 1999; Gaglio et al 2013). We chose the framework to improve our interpretation of impact results. In general, the SIM impact evaluation may have one or more of the following three basic results: the program worked as intended and improved health or quality of care or reduced cost growth, the program did not have one or more of the three beneficial effects, or the program had unintended beneficial or harmful consequences.

The SIM impact evaluation, by itself, assumes that the program reached its target populations, was adopted by health care organizations, and was implemented as intended, which may or may not be the case. If an impact evaluation indicates that a health program does not work, it may be because the program was never adopted or implemented, was implemented but never reached the target population and expected levels of implementation, or was implemented in a different manner than intended. We apply the RE-AIM framework to study these alternative explanations of SIM effects.

Short-Term versus Long-Term SIM Effects. We assume that SIM effects will take some time to happen. SIM may have short-term effects on health, quality of care, and cost growth in Washington by February 2019 when the SIM ends, or SIM effects may occur after 2019, if SIM effects actually exist. Because we must complete our evaluation report by January 2019, our evaluation is limited to examining short-term SIM effects.

Evaluation Questions. The next sections define the RE-AIM framework's five dimensions and present the evaluation questions in each dimension, based on definitions in Glasgow et al 1999) and Gaglio et al (2013).

IV.a Reach

Reach is the number, percentage and representativeness of the target population(s) that participate in SIM. The following questions are posed about SIM's reach into Washington's population:

- What number and percentage of Washingtonians have participated in programs implemented by the Accountable Communities of Health?

- What number and percentage of Medicaid recipients in Washington have participated in the ACHs, Practice Transformation Support Hub and the Payment Models?

- What number and percentage of Washington residents with commercial health insurance have participated in SIM?

Only a modest percentage of Washington's 7 million residents likely will be exposed to SIM interventions by summer of 2018 when we must complete data collection. Because Reach likely will be small, the Reach findings may be a potential reason for modest short-term SIM effects.

IV.b Effectiveness

Effectiveness is the impact of the program on health, quality of care, and cost growth, including positive and negative consequences of a program, as well as unintended outcomes. The following questions are proposed for estimating SIM impacts:

- What is the effect of the Washington State Innovation Model on population health and health equity in Washington State?

- What is the effect of the SIM on quality of care in Washington State, particularly for those persons living with physical and behavioral health comorbidities?

- What is the effect of the Washington State Innovation Model (SIM) on the annual growth of health care costs per capita in Washington State?

The SIM impact evaluation will rely on secondary data sources, and some outcome measures may not have adequate data to estimate SIM effects. In this case, the above SIM impact questions will be replaced with descriptive analyses comparing health, quality of care, and cost growth before versus after SIM.

IV.c Adoption

Adoption is the number, percentage and representativeness of the settings and intervention agents that are willing to initiate the program. The following questions are posed about SIM adoption:

- What number and percentage of Washington's health care organizations are participating in SIM?

- What number and percentage of Washington's primary care providers are participating in SIM?

Only a modest percentage of Washington's health care organizations and primary care providers are likely to adopt SIM by the end of 2018, which may dilute SIM's statewide impacts on individual-level health and quality of care and cost growth for all Washingtonians.

IV.d Implementation

Implementation is the extent that intervention agents deliver the program as intended and fidelity to the elements of the program's protocol. The following questions are posed about SIM implementation:

- Do the four SIM components have signed contracts to implement their respective interventions? Have the contract organizations started implementation? Are organizations implementing the contracts as planned?
- Overall, are the contract organizations implementing the four SIM components as planned? Are the contract organizations working together or in silos to achieve SIM goals?

- What are the perceptions of key informants about SIM's implementation and performance in the entire state?
    - Is the federal, state or local context influencing SIM implementation?
    - What are the major facilitators and barriers to SIM implementation?
    - Is SIM working? What are expected benefits of SIM? How effective will SIM be in improving health and quality of care and reducing cost growth in Washington?

IV.e Maintenance

Maintenance is the extent program is sustained over time and becomes part of the organization's routine practices. Because institutionalization of a program takes time, Glasgow et al (1999) recommend that maintenance collect data for 2 years or longer. Because SIM is still being rolled out, a comprehensive evaluation of SIM maintenance is deferred until a long-term evaluation of SIM is carried out.

Maintenance will be addressed in two ways. First, qualitative interviews will pose the following question to key informants:

- What plans do key informants have for sustaining SIM efforts after funding ends in January 2019?

Second, the State of Washington is reporting plans for sustaining SIM after funding ends to CMS. We will note briefly the State's long-term plan for sustaining SIM.

V. METHODS FOR SIM EVALUATION

This section presents the methods for answering the evaluation questions (above) in each section of the RE-AIM framework.

Mixed and Multiple-Methods Approach. The RE-AIM evaluation questions will be answered through a mixed - multiple methods approach, which will collect and analyze qualitative and quantitative information for interpreting and explaining findings of the impact evaluation (Creswell et al. 2011a,b; Small 2011; Greene 2007). The mixed methods approach will employ an embedded study design, where qualitative interviews of key informants are embedded into the SIM impact evaluation. Multiple quantitative methods using data from many sources will be applied in the evaluation.

V.a RE-AIM: Adoption and Reach Methods

The number and percentage of health care organizations, primary care providers, and Washingtonians participating in SIM in the entire state will be determined through SIM records at Washington government offices and its SIM contractors.

Our goal is to estimate adoption and reach in each SIM component, followed by rolling up those counts and percentages to the state level. However, achieving this goal is contingent on the availability of accurate data for each SIM component. In addition, computing state-level counts may not be feasible if the data sources do not indicate organizations, providers and Washingtonians participating in multiple SIM components.

ACH Adoption and Reach. The goal is to estimate the number and percentage of health care organizations, primary care providers and Washingtonians participating in each ACH. We will consult with the Center for Community Health and Evaluation (CCHE) to identify data sources for the ACHs. The counts in each ACH will be summed to compute a total count and percentage for Washington as a whole. If at least one ACH is targeting Medicaid recipients, a similar count and percentage will be conducted for the Medicaid population.

Practice Transformation Hub Adoption and Reach. The following Hub measurements of adoption and reach will be monitored:

- Number and percentage of health care organizations that receive training or technical assistance from Qualis, the Hub contractor
- Number and percentage of health care organizations that receive services from the Connector
- Number of Hub portal contacts, attendance of Hub trainings, and Hub webinar and conference attendance (if a denominator is unknown, such as the identities and counts of portal visitors, percentages will not be computed)

We will assume that all patients in a health care organization are exposed to the Qualis intervention. Qualis and the Hub evaluation sub-team will be the source of information about the numbers of health care organizations that receive Qualis services.

Payment Models Adoption and Reach. Healthier Washington (SIM) is testing four payment reform models to move 80 percent of State-financed health care and 50 percent of the commercial market from

volume to value by 2019. To track progress in reaching these targets, the process evaluation of SIM payment models will monitor their statewide implementation using the CMS Reporting Metrics. We will attempt to measure statewide implementation by summing participation in each model, assuming that participation is mutually exclusive across models.

Table 1 presents three statewide metrics for monitoring the participation of individuals, providers and health care organizations in SIM payment models (see text in red font at the top of the table). The other rows of the table present the metrics for each payment model, which are pooled to derive the three state-level measures. The metrics will be collected from quarterly reports that the HCA submits to CMS/CMMI. The reports cover the pre-implementation year (2015) and two years of SIM implementation (2016-2017), and potentially Q1 and Q2 of 2018 if data are available.

Table 1. Measures for Monitoring Individual and Provider Participation in Each Payment Model

Payment Model (PM)	Definition	Numerator	Denominator
Individuals Participating in SIM (All Models) in Washington	Annual percentage of state residents receiving care through any SIM value-based purchasing and alternative payment models	Total number of individuals receiving care through any value-based purchasing and alternative payment models	Total state population of Washington
Providers Participating in SIM (All Models) in Washington	The annual percentage of primary care providers participating in any SIM value-based purchasing and alternative payment models	Total number of primary care providers participating in any SIM value-based purchasing and alternative payment models.	Total number of primary care providers in Washington
Provider Organizations Participating in SIM (All Models) in Washington	The annual percentage of primary care organizations participating in any SIM value-based purchasing and alternative payment models	Total number of primary care organizations participating in any value-based purchasing and alternative payment models.	Total number of primary care providers organizations in Washington
Early Adopter of Medicaid Integration (PM1)	The percentage of Medicaid beneficiaries in PM1	Number of Medicaid beneficiaries in PM1	Total number of Medicaid beneficiaries in Washington
Early Adopter of Medicaid Integration (PM1)	The percentage of providers participating in PM1	Number of providers in PM1	Total number of providers in Washington
Early Adopter of Medicaid Integration (PM1)	The percentage of provider organizations participating in PM1	Number of provider organizations participating in PM1	Total number of provider organizations in Washington
Encounter-based to Value-based Payment Model 2 (PM2)	The percentage of Medicaid beneficiaries in PM2	Number of Medicaid beneficiaries in PM2	Total number of Medicaid beneficiaries in Washington
Encounter-based to Value-based Payment Model 2 (PM2)	The percentage of providers participating in PM2	Number of providers in PM2	Total number of providers in Washington

Encounter-based to Value-based Payment Model 2 (PM2)	The percentage of provider organizations participating in PM2	Number of provider organizations participating in PM2	Total number of provider organizations in Washington
Accountable Care Program (PM3)	The percentage of UMP beneficiaries in PM3	Number of UMP beneficiaries in PM3	Total number of Medicaid beneficiaries in Washington
Accountable Care Program (PM3)	The percentage of providers participating in PM3	Number of providers in PM3	Total number of providers in Washington
Accountable Care Program (PM3)	The percentage of provider organizations participating in PM3	Number of provider organizations participating in PM3	Total number of provider organizations in Washington
Washington Multi-Payer (PM4)	The percentage of beneficiaries in PM4	Number of beneficiaries in PM4	Total number of Medicaid beneficiaries in Washington
Washington Multi-Payer (PM4)	The percentage of providers participating in PM4	Number of providers in PM4	Total number of providers in Washington
Washington Multi-Payer (PM4)	The percentage of provider organizations participating in PM4	Number of provider organizations participating in PM4	Total number of provider organizations in Washington

Table 2 presents measures for monitoring the annual progress toward achieving the 80% target for State-financed health care and the 50% target for commercial payers. For State-financed health care, separate counts and percentages will be computed for the Medicaid and UMP populations. The measures will be collected for the 2015 baseline year and the 2016-2017 SIM years, and potentially Q1 and Q2 of 2018 if data are available.

Table 2. Measures for Monitoring Annual Statewide Progress toward Value-Based Payments for State-sponsored and Commercial Payers

Category 1 Payments: Fee-for-service with no link of payment to quality in Washington Beneficiary count Percentage of payments to providers
Category 2 Payments: Fee-for-services payment linked to quality in Washington Beneficiary count Percentage of payments to providers
Category 3 Payments: Alternative Payment Models in Washington Beneficiary count Percentage of payments to providers
Category 4 Payments: Population-based Payment in Washington Beneficiary count Percentage of payments to providers

Data Analysis. Descriptive statistics and time series graphs will be produced to monitor the progress in SIM adoption among health care organizations and providers, and to track the reach of SIM into Washington's population and subgroups, such as Medicaid and other state-sponsored health plans.

Further work will examine the feasibility of combining counts across SIM components to derive statewide counts and percentages.

V.b RE-AIM: Effectiveness Methods

VI.b.1 Study Designs

Study designs for estimating SIM effects on health, quality of care, and cost/cost growth will be chosen based on the following factors: 1) whether a comparison group exists; 2) whether longitudinal data exist in the pre- and post-SIM years; 3) the unit of analysis (the individual or the state); 4) and the number of observations at each point in time and over time (power).

No Comparison Group Available. If data for a comparison group(s) do not exist, the following study designs without a comparison group may be considered:

1) single (one group) interrupted time series,
2) pretest-posttest design with multiple pretests, and
3) pretest-posttest design,

in that order, based on their relative advantages in ruling out (but not eliminating) threats to internal validity. There are two disadvantages of the three designs. First, if a SIM effect is statistically significant, it may be impossible to attribute whether the result is due to SIM or secular trends without a comparison group. Second, if the results indicate that SIM has no effects, the three designs cannot distinguish whether outcomes are worse in the comparison group(s); this pattern may be interpreted as a beneficial effect. Given the disadvantages with the three study designs, in most cases we will replace the SIM impact evaluation with descriptive analyses of trends in Washington in pre- and post-SIM years, depending on data availability, to determine whether the outcome is changing in the expected direction over time.

Comparison Group Available. A pretest-posttest nonequivalent comparison group design with multiple pretests will be chosen for SIM outcome measures that have a comparison group, baseline data only for a small number of points in time, and adequate power (Shadish et al 2002; Winship and Morgan 1999). Alternatively, a pretest-posttest nonequivalent comparison group design will be chosen if baseline data exist only for a single point in time. The designs address most threats to internal validity, except selection, which may or may not be reduced, depending on the similarity of Washington and comparison states. The advantage of the former study design is data for assessing the degree of selection and whether the Washington and the comparison states have parallel trends in baseline years. The latter design's disadvantage is the lack of longitudinal baseline data to rule out whether any observed SIM effect reflects a history trend in prior baseline years.

Figure 3 documents the protocol for choosing the comparison group(s). Figure 3 notes that a subset of the 50 states applied for the SIM Round 2 Test Award. Of those applicants, CMS/CMMI assigned awards with a non-randomized protocol. On the left side, Washington is one of eleven states with SIM Round 2

Awards. The right side has unexposed states that did not receive a SIM Round 1 or 2 Award. Of those states, twenty states (including Washington, D.C.) are Medicaid expansion states, similar to Washington (with AR, AZ, IN, MT, and NH expanding through prior Medicaid waivers). Of those states, Arizona and California are selected as comparison states similar to Washington in the Research Triangle Institute's federal evaluation plan. Of those states, Arizona was granted an amendment to its Medicaid waiver, establishing the Targeted Investment Program to support behavioral and health integration. Thus, given that California has neither a SIM award nor a Medicaid waiver to integrate behavioral and physical health, California and Arizona are separate comparison groups for potentially teasing out the independent effects of SIM from Washington's Medicaid Transformation Demonstrations.

Figure 3. Study Design for the SIM Impact Evaluation

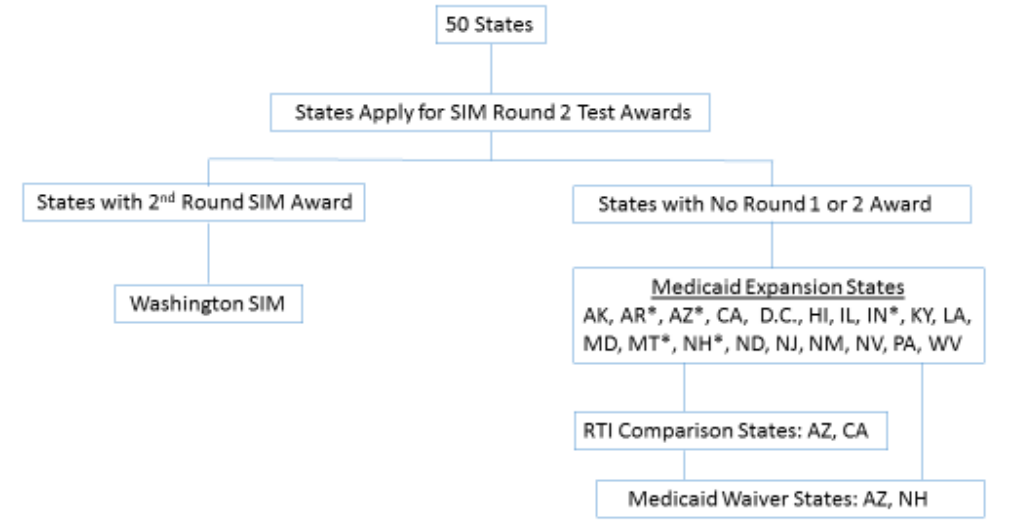


Figure 3 also lists NH as a potential comparison state. Like Arizona, NH has no SIM Award, is a Medicaid expansion state through a prior Medicaid waiver, and has a recent Medicaid waiver to integrate physical and behavioral health care.

CA, AZ and NH may not have data for some SIM outcome measures. In that case, the United States will be selected as the comparison group, if U.S. data are available. Ideally, our goal is to collect U.S. data excluding Washington, but some measures may exist only for the entire U.S. However, Shadish and Cook (2009) note that selection threats to internal validity may be greater in a comparison group drawn from a national random sample versus a tightly matched comparison group.

V.b.2 Measures

The SIM impact evaluation's measures of health, health care quality, and cost are presented in this section. In general, the measures are for the entire population of Washington. The measures are chosen based on the SIM conceptual model and driver diagram, which lists the priority outcome measures for the SIM impact evaluation. The priority measures were selected from Washington's Common Measures Set. The SIM components may or may not target the priority outcome measures.

Our goal is to limit the SIM impact evaluation to a relatively small number of outcome measures because as the number of measures increases, so does the likelihood that a statistically significant effect is due to chance rather than SIM.

Health. Table 3 presents 13 measures of health and health behavior for Washington through 2017; the measures exist for Washington and comparison states. Most of the measures are collected from the Behavioral Risk Factor Surveillance System (BRFSS), a national, phone-interview survey of individual-level data that has sufficient sample sizes to produce state-level estimates of health status, health behaviors and other concepts. BRFSS data and findings are representative of people with landline or cell phones, and it is unclear whether all Medicaid beneficiaries have a landline or cell phone.

Age-adjusted mortality rates for all-causes, suicide, and substance use also will be collected mainly from the CDC Wonder data base. The integration of physical and behavioral health care in SIM may potentially affect the cause-specific mortality rates. Further work is required to measure mortality for causes amendable to health care.

We will identify potential approaches for measuring inequalities in health across social groups in the future.

Quality of Care. Table 4 presents 9 measures of quality of care. Most of the measures are rates for Washington or large medical groups in the state. For NCQA and some other measures, data exist only through June 30, 2017. The availability of the measures for comparison states is unclear. In general, Washington has limited data for measuring quality of care.

Cost. Table 5 presents four measures of health care costs (expenditures) and cost growth. Three of the four measures are rates for Washingtonians covered by health insurance fully or partially funded by state government. Preliminary searches indicate that the three cost rates do not exist for comparison states and the U.S. On-going assessments will examine the feasibility of collecting Medicare (fee-for-service) expenditures for representative samples of residents in Washington and control states.

The fourth cost measure will be annual expenditures for medical care from the Medical Expenditure Panel Survey (MEPS), a public data source available from the Agency for Healthcare Research and Policy (AHRQ) with annual national samples of over 30,000 individuals. Annual MEPS data files for 2013 – 2017 will be collected from the AHRQ website. Medical costs will be adjusted for annual inflation using the consumer price index with 2017 as the index year.

In 2013 MEPS had 912 respondents in Washington and 6,427 respondents in California; similar sample sizes are anticipated in future years. The sample of 912 respondents is slightly smaller than the minimum sample size of about 1,068 respondents for a $\pm$ 3% confidence interval in Washington's population of 7.2 million residents (See **Table 6**). In calculating state-level estimates from MEPS national samples, AHRQ recommends that an estimate have a sample size of at least 100 individuals and a relative standard error of less than 30% (that is, the standard error is no more than 30 percent of the estimate; communication with AHRQ). We will examine whether the recommendation is met in SIM analyses.

Intermediate Outcomes. The ultimate outcomes of SIM are health, quality of care, and cost. From January 2016 to December 2017, SIM may not be implemented for a sufficient amount of time to influence the ultimate outcomes. However, in the short run, SIM may influence the intermediate outcomes in the Figure 1 conceptual model. If SIM is associated with the intermediate outcomes in 2016-2017, SIM might influence the ultimate outcomes in future years.

Intermediate outcomes will be measured at the environment/system level and the person-level in the SIM conceptual model:

- Number and percentage of ACHs that have implemented a health improvement project or a change in policy, systems, or the physical or social environment
- **Table 7** measures of intermediate outcomes for Washington residents: care coordination, emergency room visits, unmet need for health care, and health care satisfaction

Covariate Measures. The independent variables in regression models with individual-level data will depend on theory and data availability. For analysis of health outcomes, independent variables will be chosen based on Grossman's (1972) model of the demand for health. For analysis of quality, utilization and costs, independent variables will be chosen based on Andersen's (2008) behavioral model.

The BRFSS has the following measures which may be used as covariates in regression models: age, gender, race/ethnicity, marital status, number of children under age 18 in a household, education (highest grade completed), employment status, military service, health insurance, annual household income, home ownership, use of Internet in the past 30 days, and body mass index (BMI).

Table 3. Health and Health Behavior Measures for the SIM Impact Evaluation

Measure Name	Brief Measure Description	Measure Steward	Data Source	Population	Unit of Analysis	Driver Diagram
Adult Mental Health Status	Percentage of adults ages 18 and older who answer "14 or more days" in response to the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good."	CDC	BRFSS	WA State	Individual	Yes
Adult Mental Health Not Good	Percentage of adults whose self-reported mental health was not good for one or more of past 30 days	CDC	BRFSS	WA State	Individual	No (RTI)
Adult Physical Health Not Good	Percentage of adults whose self-reported physical health was not good for one or more of past 30 days	CDC	BRFSS	WA State	Individual	No (RTI)
Adult Impairment Due to Poor Health	Percentage of adults who reported that poor physical or mental health impaired usual activities for one or more of the past 30 days	CDC	BRFSS	WA State	Individual	No (RTI)
Adult Self-Rated Health	Percentage of adults whose self-reported general health status was fair or poor	CDC	BRFSS	WA State	Individual	No (RTI)

Measure Name	Brief Measure Description	Measure Steward	Data Source	Population	Unit of Analysis	Driver Diagram
Mortality a. All-cause (age-adjusted) b. Mortality amenable to health care (age-adj) c. Injury-related (age-adj) Suicide Substance abuse Alcohol Substance use Opioid overdose	Standard computation of age-adjusted mortality rates from death certificates	CDC/DOH	DOH/CDC	WA State	Rates	No
Adult Tobacco Use (Health Behavior)	The percentage of adults 18 years and older who answer "every day" or "some days" in response to the survey question, "Do you now smoke cigarettes every day, some days, or not at all?"	CDC	BRFSS	WA State	Individual	Yes

Table 4. Quality of Care Measures for the SIM Impact Evaluation

Measure Name	Brief Measure Description	Measure Steward*	Data Source	Population	Unit of Analysis	Driver Diagram
Childhood Immunization Status	The percentage of children 2 years of age who had all vaccinations as defined by the measure (DTap, IPV, MMR, HiB, HepB, VZV, PCV, HepA, RV and flu) by their second birthday.	NCQA	DOH and CDC	WA State	Rate	Yes
30-day Psychiatric Inpatient Readmissions	For members 18 years of age and older, the number of acute inpatient psychiatric stays that were followed by an acute readmission for a psychiatric diagnosis within 30 days.	DSHS	HCA/DSHS	Medicaid statewide	Rate	Yes
Mental Health Service Penetration (Broad Definition)	The percentage of members with a mental health service need who received mental health services in the measurement year. Separate reporting for age groups: 6-17 years and 18-64 years. First time reported in 2016 with 2015 data.	DSHS	HCA/DSHS	Medicaid statewide	Rate	Yes
Well Child Visits in the Third, Fourth, Fifth and Sixth Years of Life	The percentage of members 3-6 years of age who had one or more well-child visits with a PCP during the measurement year. One rate reported.	NCQA	NCQA/WHA	WA State**	Rate	Yes
Child and Adolescent Access to Primary Care Providers (4 rates reported)	The percentage of members 12 months - 19 years of age who had a visit with a PCP during the measurement year. Four separate	NCQA	NCQA/WHA	WA State**	Rate	Yes

Measure Name	Brief Measure Description	Measure Steward*	Data Source	Population	Unit of Analysis	Driver Diagram
	rates are reported by age grouping.					
Adults' Access to Preventive/Ambulatory Health Services (three rates reported)	The percentage of members 20 years of age and older who had an ambulatory or preventive care visit during the measurement year. Three separate rates are reported by age grouping.	NCQA	NCQA/WHA	WA State**	Rate	Yes
Comprehensive Diabetes Care – Hemoglobin A1c (HbA1c) Poor Control (>9.0%)	The percentage of patients 18-75 years of age with diabetes (type 1 and type 2) whose most recent HbA1c level during the measurement year was greater than 9.0% (poor control) or was missing a result, or if an HbA1c test was not done during the measurement year (calendar year measure).	NCQA	NCQA/WHA	WA State**	Rate	Yes
Patient Experience with Primary Care: How Well Providers Communicate with Patients	This is one composite measure from the Clinician Group-CAHPS patient experience survey and includes a composite of responses to four survey questions, indicating the percentage of respondents who said "always" on a 4-point scale of: always, usually, sometimes and never (WHA survey in 4th quarter of 2015 in 14 counties; fewer counties in 2013 and 2014).	AHRQ	AHRQ/WHA rates	WA State**	Rate	Yes

Measure Name	Brief Measure Description	Measure Steward*	Data Source	Population	Unit of Analysis	Driver Diagram
1st Trimester Care***	Percentage of women receiving 1st trimester prenatal care	CDC	DOH	WA State	Rate	Yes

* Dropped quality of care measures: Patient experience at hospital discharge; personal care provider; chronic care management; potentially avoidable use of emergency room (measure changes over time); and 30-day all-cause readmissions (measure changes over time).

** Rate calculated for participating medical groups in Washington

*** Measure in Driver Diagram replaced by birth certificate information for WA state and comparison states, if available

Table 5. Cost Measures for the SIM Impact Evaluation

Measure Name	Brief Measure Description	Measure Steward*	Data Source	Population	Unit of Analysis	Driver Diagram
Annual State-Purchased Health Care Spending Growth Relative to State GDP*	This result reflects health care spending in relation to the overall Washington State Gross Domestic Product (GDP).	HCA	HCA/OFM	WA residents with state-purchased insurance	Rate	Yes
Medicaid Spending Per Enrollee	Total Medicaid spending in the calendar year divided by the total number of Medicaid beneficiaries in the calendar year.	HCA	HCA/DSHS	Medicaid statewide	Rate	Yes
Public Employee and Dependent per Enrollee Spending*	Total State health care spending for public employees and dependents divided by the total number of beneficiaries in the calendar year.	HCA	HCA	Public employees statewide	Rate	No
Total Annual Medical Care Expenditures	Total annual self-reported expenditures for medical care	AHRQ	Medical Expenditure Panel Survey	WA residents	Individual	No

* Measure may not be available for comparison states.

Table 6. Minimum Sample Sizes for ± 3% Confidence Interval Based on Population Size

Number of respondents needed for a given level of accuracy depends mostly on sample size and only a little on population size except for very small populations.

Sample Size Needed for ± 3% Accuracy from.	Population of this size
92	100
341	500
517	1,000
880	5,000
965	10,000
1,057	100,000
1,066	1,000,000
1,068	100,000,000

Table 7. Intermediate Outcome Measures Collected from Washington Residents for the SIM Impact Evaluation

Measure Name	Brief Measure Description	Measure Steward*	Data Source	Population	Unit of Analysis	Driver Diagram
How Well Providers Use Information to Coordinate Patient Care	The number of "Always" answers given to the three CG-CAHPS survey questions included in this composite measure: 1) How often did this provider seem to know important information about your medical history? 2) How often did you and someone from this provider's office talk about all the prescription medicines you were taking? 3) How often did someone from this provider's office follow up to give you test results?	AHRQ	WHA	Mail survey to a random sample of ~181,000 commercial & Medicaid adults (25 and older) in 14 counties. Rates are case-mix adjusted for age, education, gender, and health status. Results must reach at least 0.7 reliability for public reporting.	Rate	No

Measure Name	Brief Measure Description	Measure Steward*	Data Source	Population	Unit of Analysis	Driver Diagram
Unmet Health Care Need Due to Cost	Adults were asked "Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?"	CDC	BRFSS	WA State	Individual	No
Unmet Health Care Need for Reasons Other than Cost	The percentage of adults 18 years and older who answer "yes" (codes 1-6) to whether respondent delayed getting needed medical care in past 12 months for reasons other than costs.	CDC	BRFSS	WA State	Individual	No
Satisfaction with Health Care	Adults who responded being "very" or "somewhat" satisfied with the health care they received.	CDC	BRFSS	WA State	Individual	No
Emergency room visits*	Whether individual visited emergency room in year; number of emergency room visits in year. Available in NHIS interview and MEPS**	AHRQ	NHIS/MEPS	WA State	Individual	No

* Potentially avoidable use of the emergency room is in the Driver Diagram, is available from the Washington Health Alliance, but not measured because the definition of the measure changes over time.

** The preference is to use MEPS for measuring both total costs and emergency room visits. However, if NHIS sample size is larger than the MEPS sample size, NHIS will be explored to measure emergency room visits.

V.b.3 Data Collection

Timeline for Collecting Data for Washington. Data for evaluation measures will be collected in 2017 through the summer of 2018. Because our final evaluation report is due January 2019, data collection must be completed no later than the summer of 2018, allowing five months to complete analyses and the final report.

Because data collection stops in summer 2018, the impact evaluation of SIM's short-term impacts is limited to data for YR1 and YR2 of SIM Rollout (2016-2017; see Figure 2). Some measures cover both years; for example, mortality rates include all deaths in each year. Other measures, however, are collected with different timeframes. For example, the timeframe NCQA rates is July-to-June, and thus, the 2016 and 2017 NCQA rates run from July 2015 to June 2017. Also, 2017 data in national surveys are collected during 2017 and not after 2017 ends.

Collection of Data for Comparison States. Data exist for Washington and comparison states for measures in national surveys with individual-level responses. We expect the 2017 public data for national surveys will be available by summer 2018.

Data exist for Washington for state-level rates. In 2017 we will determine whether the rates also exist for comparison states. If a rate is not available for comparison states, the U.S. rate will be collected for analyses, if the U.S. rate exists and is available to the public at no cost. Washington will be excluded from the U.S. rate if possible. For instance, mortality rates are available for the U.S. excluding Washington.

V.b.4 Data Analysis

Washington and Comparison States and Selection Threats to Internal Validity. Using BRFSS data for baseline year 2015, bivariate statistical tests reveal that most personal characteristics are significantly different between Washington and the three comparison states (Arizona, California and New Hampshire), although the magnitude of the differences between the state averages and percentages are small. This finding indicates potential selection threats to internal validity may exist in the impact evaluation.

Descriptive Analysis of Outcomes. Descriptive statistics and time series graphs will be produced to compare the health, quality of care and costs/cost growth before versus after SIM. Our goal is to produce descriptive statistics and graphs for all measures in Tables 3, 4, 5, and 7. The descriptive statistics and graphs will include the control states, contingent on data availability. If data are available to examine health inequalities, we will compute similar statistics and graphs for social groups in Washington state.

About half of the measures in Tables 3, 4, 5 and 7 are annual rates for Washington's population. Some of the rate measures exist for less than 5 years. When the sample size of annual rates is small, data analysis will be limited to visual examination of trends before versus during SIM.

Impact Analysis of Outcomes with Individual-Level Data and Control Groups. This section is limited to measures from the BRFSS and MEPS national surveys with individual-level data and representative samples for Washington and comparison states.

For each national survey, we will compute descriptive statistics of patient and insurance plan characteristics in the first year of the baseline time series for Washington residents and individuals in the comparison states. Time series graphs will display trends in outcomes by group.

The main goal of the analysis is to estimate SIM effects on population health, quality of care, and expenditures. Calendar time will be divided into two periods: 1) Pre-SIM baseline years; and 2) SIM Rollout years (2016 and 2017). Generalized linear models will be used to estimate SIM effects on outcomes over time. Calendar time will be included in the models as a piece-wise linear term, parameterized to allow for a change in the level and slope at both the beginning of the Rollout period. The general form of the regression model is:

$$Y_{it} = \beta_1 + \beta_2 Post_t + \beta_3 Treat_i + \beta_4 (Post_t * Treat_i) + \beta_5 Time_t + \beta_6 X_{it} + c_i + \varepsilon_{it} \quad (1)$$

where:

Y_{it}	= outcome for individual *i* at time *t*
Post	= indicator for the post-treatment time period
Treat	= indicator that individual resides in Washington or a comparison state
Time	= a continuous variable indicating time in years at time *t* from the start of the baseline period
X_{it}	= vector of individual-level control variables
e_{it}	= error terms
C_i	= individual-level fixed effects

The coefficient of interest is β_4, which measures the effect of SIM in Washington. Because the Medicaid transformation begins in SIM rollout in 2017, any SIM effect may be due partially to the Medicaid transformation. We will attempt to adjust statistically for the Medicaid transformation by recoding *Treat* to create 2 binary (0,1) variables: 1) Lives in Washington; and 2) Lives in Arizona or New Hampshire, which also are implementing similar Medicaid waiver demonstrations (California has no Medicaid transformation waiver and is the omitted category). This recoding assumes that the results of the prior selection analysis warrants inclusion of New Hampshire residents in the regression model.

We will fit models using a log link with Poisson error distribution for count outcomes (e.g., number of emergency room visits) to estimate utilization rate ratios. We will use a log link and gamma errors for continuous cost outcomes (e.g., total expenditures) to estimate expenditure ratios. A separate model will be fit for each outcome measure, using repeated measures generalized estimating equation (GEE) models with an independence working correlation structure and robust standard errors to account for correlated observations by person.

Based on the study design, we will summarize model estimates of changes in outcomes by reporting the following: 1) the annual rate of change (slope) during the Pre-SIM baseline period; 2) the annual rate of change during SIM rollout; and 3) estimated change in the level of the outcome between the Pre-SIM and SIM rollout period.

Impact Analysis of Outcomes with Individual-Level Data and No Control Group. A single (one group) interrupted time series study design will be used to estimate SIM impacts when, for a given measure, individual-level, longitudinal data exist only for Washington. The main threats to internal validity are history (SIM effects may be due to other forces in the environment) and selection (the individuals in the

time series change over time, which account for impacts rather than SIM), and thus, the study design yields estimates of temporal rather than causal effects.

This study design will be used for the two outcome measures constructed from monthly or quarterly Medicaid data for Washington. Equation 1 will be modified to estimate pre-post SIM effects with longitudinal, cross-sectional Medicaid data. The general form of the regression model is:

$$Y_{it} = \beta_1 + \beta_2 Post_t + \beta_3 Time_t + \beta_4 X_{it} + c_i + \varepsilon_{it} \qquad (1)$$

where:

Y_{it} = outcome for individual *i* at time *t*
Post = indicator for the post-treatment time period
Time = a continuous variable indicating time in months or quarters at time *t* from the start of the baseline period
X_{it} = vector of individual-level control variables
e_{it} = error terms
C_i = individual-level fixed effects

The coefficient of interest is β_2, which measures the pre-post difference in a given SIM outcome, controlling for time trends and for individual characteristics that are recorded in Medicaid data. Selection threats to internal validity may be reduced by limiting the analysis to Medicaid enrollees who are enrolled continuously in the pre- and post-SIM periods, although this approach reduces sample size.

Sample Sizes and Power. Table 8 presents sample sizes in the BRFSS baseline surveys for Washington, California, Arizona and New Hampshire. Sample sizes in the MEPS survey are to be determined.

Table 8. BRFSS Sample Sizes in Washington and Control States (Arizona, California, New Hampshire) in Baseline Years (2013-2015): Unweighted Observations

State	Sample Sizes, 2013-2015 (range)
Washington	10,092 – 16,116
Arizona	4,252 – 14,867
California	8,832 – 12,601
New Hampshire	6,192 – 7,022

Further work will be completed to examine power in the national surveys. For annual rates, power is likely a problem due to the small number of annual observations.

Summary of Study Designs and Outcome Measures. Table 9 lists the study designs and the outcome measures that will be analyzed with each study design. Outcome measures that are state-level rates in the top row are analyzed with descriptive statistics and graphs but not with impact regression models due to limited data availability, inadequate sample sizes, and problems with causal inference in ecologic study designs (Morgenstern 2008).

Table 9. Summary of SIM Impact Study Designs and Outcome Measures

Study Design	Outcome Measures
Descriptive	Mortality Childhood immunization status Well-child visits Child and adolescent access to primary care 1st trimester care Adult access to preventive/ambulatory care Diabetes – Hemoglobin A1c poor control Patient experience with primary care State-purchased health care spending growth relative to state GDP Medicaid spending per enrollee Public employee and dependent per enrollee spending How well providers use information to coordinate care
Single interrupted time series	30-day psychiatric inpatient readmissions (Medicaid) Mental health service penetration (Medicaid)
Pretest-posttest nonequivalent comparison group design with multiple pretests	Adult self-rated health (BRFSS) Adult mental health status (BRFSS) Adult mental health status not good (BRFSS) Adult physical health not good (BRFSS) Adult impairment due to poor health (BRFSS) Adult tobacco use (BRFSS) Unmet health care need due to cost (BRFSS) Unmet health care need for non-cost reasons (BRFSS) Satisfaction with health care (BRFSS) Total annual medical expenditures (MEPS) Emergency room visits (MEPS or NHIS)

Mixed Methods Analysis. To aid the interpretation and understanding of the impact analyses, the above regression results will be compared with the results for the other components of the RE-AIM Framework for consistency. In particular, using an embedded mixed methods study design (Creswell et al, 2011a,b), we will compare the above estimates of SIM's overall impacts with the results from the overall SIM key informant interviews in 2018 for consistency, focusing on respondents' perceptions of whether SIM is effective in improving population health and quality of care and reducing cost growth in Washington. The results from the overall SIM key informant interviews also will provide context for interpreting the significance and direction of regression coefficients.

V.c RE-AIM: Implementation Methods

Returning to the RE-AIM framework and drawing from our prior semi-structured qualitative interviews of key informants in prior payment reform studies (Conrad et al, 2014, 2016), about 10 SIM leaders will be invited to participate in a 60-minute, semi-structured qualitative interview, conducted in person or by telephone. SIM leaders are chosen for the overall SIM evaluation because they are more likely to have comprehensive knowledge of SIM and its implementation. Interviews will be conducted in 2017 and 2018 with the goal of interviewing the same person each year, assuming no turnover in each leader's position.

To be eligible, key informants must be individuals who have a leadership role in SIM and/or Washington health care, and the professional position and SIM role of each key informant is known to the public. Pre-approval and contact information for potential informants will be obtained from the Health Care Authority. SIM leaders must not be employees of the State of Washington. We will perform criterion sampling of leaders until a quota of 10 interviews are completed across diverse leadership positions.

Consenting respondents will be asked the following questions:

1. Overall, what are the top three goals or priorities for your medical group/organization in the next year?

2. Please describe what you know or understand about Healthier Washington and/or the State Innovation Model (SIM).

3. How do you think federal, state or local contexts influence the implementation of the State Innovation Model (SIM), if at all?

4. In your view, what are the expected benefits of the State Innovation Model (SIM)?

5. How effective do you think the State Innovation Model (SIM) is/will be in improving population health and the quality of health care and reducing health care costs in WA State?

6. What objectives does your organization expect to achieve though State Innovation Model (SIM) reform?

7. Please describe your organization's approaches for attaining those objectives through your activities with the State Innovation Model (SIM) and other initiatives?

8. How do you think those approaches or the State Innovation Model (SIM) process changes will lead to those objectives (in Question 6)? That is, what is the "chain---of---events" that will lead to the expected or desired objective(s)?

9. What are the major facilitators that are helping you, or will help you, achieve your organization's objectives under the State Innovation Model (SIM)?

10. What are the major barriers or challenges to your organization's attainment of its objectives under the State Innovation Model (SIM) reform?

11. At this point, what lessons have you and your organization learned from your participation in State Innovation Model (SIM) reform?

12. What are your plans for sustaining State Innovation Model (SIM) efforts into the future, especially after SIM funding ends in January 2019?

Interviews will be audio recorded and transcribed verbatim to enable analyses using Dedoose qualitative software application.

Qualitative Analysis Plan. After each key informant interview is completed and transcribed verbatim, the transcripts will undergo thematic analysis (Bradley et al 2007). For each question in the interview, open coding by the investigators will be performed to identify unique emergent concepts, which we will cluster to form concept classes or "emergent themes." Each of these themes will be assigned a unique code definition and explicit rules for application to transcript text segments (i.e., segment inclusion and exclusion criteria). The emergent theme codes will be applied independently to each of the transcripts by two investigators, who will meet repeatedly to compare results, discuss discrepancies, and refine code definitions and application rules.

The coding protocols will be performed for each round of interviews in 2017 and 2018. Answers to each question in each year will be compared to identify themes that appear in both years or that appear in only one of the years. In addition, unintended consequences of SIM that are detected in either year will be highlighted in results. Last, we will compare the 2017-2018 interview results with the impact evaluation results for consistency.

V.d RE-AIM: Maintenance Methods

Drawing from the qualitative interviews conducted for the Implementation Methods, we also will conduct similar analyses to identify the plans that key informants have (if any) for sustaining SIM efforts after funding ends in January 2019. We also will summarize the State of Washington's plans for sustaining SIM that are submitted to CMS.

VI. Comparative Analysis

The final step of the SIM evaluation is to compare these results with the findings from the evaluations of each SIM component. The goal is to identify findings that consistent or inconsistent, which may improve the accuracy and interpretation of the findings and inform the final conclusions of our evaluation of SIM's short-term consequences.

Table 10 presents an "intervention table" that *symbolically* portrays the complete results from all components of our evaluation. The columns are the SIM intervention components, and the rows are the implementation findings and impact outcomes of those components, recognizing that AIM may permeate all of them. Each cell contains the implementation or impact evaluation results for a given SIM component. For example, in the implementation findings row, the cells might indicate whether the components were implemented as intended, and the impact row represents the impacts of each component.

The accuracy and interpretation of the results from the SIM evaluation will be derived, in part, by comparing the SIM evaluation results in the far right column with the findings in the other 12 cells of the table. Consistent findings reinforce and increase our confidence in the conclusions of the overall SIM evaluation. Inconsistent findings may suggest alternative conclusions that may be studied further and thereby avoid erroneous conclusions.

Table 10. SIM Intervention Table

	ACHs (9 sites)	HUB: targeting 130 practices	PM1: Medicaid's FIMC - SW WA Pilot	PM2: FQHC/RHC/CAH Pilots	PM3: UMP Plus ACNs	PM4: Data aggregation solution	Overall SIM
Implementation Evaluation Findings	Results	Results	Results	Results	Results	Results	Results
Short-term Impact Findings	Results	Results	Results	Results	Results	Results	Results

The Table 10 comparative analysis also may reveal insights and conclusions about the following aspects of the SIM Project:

- *Test of the SIM conceptual model.* The Figure 1 conceptual model is a complex hypothesis that the SIM Project will improve population health and quality of care and control cost growth through a "chain of causation." The Table 10 findings may confirm or reject the assumptions about how and why SIM is expected to produce these outcomes. By doing so, Table 10 findings may increase our understanding of the conditions that affect success and improve the transferability of learning from SIM to other contexts, which aids the accumulation of knowledge about why complex projects do and do not work as intended (Turner et al 2016). SIM's chain of causation in Figure 1 is summarized as follows:

  Initially, SIM is expected to cause changes in the health care system and environment by building regional capacity, regional health planning and effective collaboration to

empower environmental and system change and to address social determinants of health and re-organize the delivery of health and social services to meet the needs of the whole person. These macro-level changes are expected to lead to changes in health care and social services (better coordination and patient engagement, better quality of care). Third, these changes, in turn, are expected to lead to individual changes in health behaviors and in the utilization of health and social services and less unmet need. As the SIM intervention reaches scale on a statewide level, the individual changes are expected to improve health and health equity in the population of Washington State. The improvements in health, along with changes in the service delivery system, are expected to reduce the growth of health care costs on a statewide level. Performance reporting transmits information throughout the change process, which may contribute to service refinements and better outcomes and lower costs at the individual and population levels.

- *Contribution of SIM intervention components*. If the SIM Project has expected benefits on population health, quality of care or cost growth, what is the relative contribution of the ACH, Hub, and payment models to those benefits? The pattern of results in Table 10 may provide clues to answer this question. These findings may have important policy implications by suggesting where to target future investments to improve health or quality of care or control cost growth.

- *Analysis of unintended consequences*. The Table 10 comparative analysis may reveal unintended beneficial and harmful consequences of the SIM Project, which may lead to future improvements in the design and implementation of SIM interventions.

REFERENCES

Abadie, A, Diamond A, Hainmueller J. Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program. *Journal of the American Statistical Association.* 2010. 105(490): 493-505.

Andersen RM. National health surveys and the behavioral model of health services use. Medical Care 2008;46(7):647-653.

Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. Health Services Research 2007;42(4):1758-72.

Bunker JP. The role of medical care in contributing to health improvements within societies. Int J Epidemiol 2001; 30:1260-63.

Creswell JW, Plano Clark VL. *Designing and Conducting Mixed Methods Research* (2nd edition). Thousand Oaks, CA: Sage Publications; 2011a.

Creswell JW, Klassen AC, Plano Clark VL, Smith KC for the Office of Behavioral and Social Sciences Research. *Best Practices for Mixed Methods Research in the Health Sciences*. Bethesda, MD: National Institutes of Health (http://obssr.od.nih.gov/mixed_methods_research); 2011b.

Diehr P, Martin DC, Koepsell T, Cheadle A, Psaty B, Wagner EH. Optimal survey design for community intervention evaluations: cohort or cross-sectional? Journal of Clinical Epidemiology 1995; 48(12):1461-1472.

Dymek C, Johnson M Jr, McGinnis P, Buckley D, Fagnan L, Mardon R, Hassell S, Carpenter D. Clinical-Community Relationships Measures Atlas. (Prepared under Contract No. HHSA 290- 2010-00021. Westat prime contractor)

Evans RG, Stoddart GL. Producing health, consuming health care. *Social Science & Medicine* 1990; 31(12):1347-63.

Fifield J, Forrest DD, Martin-Peele M, Burleson J a., Goyzueta J, Fujimoto M, et al. A Randomized, Controlled Trial of Implementing the Patient-Centered Medical Home Model in Solo and Small Practices. J Gen Intern Med [Internet]. 2013; 28(6):770–7.

Friedberg MW, Steel Fisher GK, Karp M, Schneider EC. Physician groups' use of data from patient experience surveys. J Gen Intern Med 2010; 26(5):498-504.

Gaglio B, Shoup JA, Glasgow RE. The RE-AIM framework: a systematic review of use over time. American Journal of Public Health 2013; 103(6):e38-e46.

Gail MH, Mark SD, Carroll RJ Green SB, Pee D. On design considerations and randomization-based inference for community intervention trials. Statistics in Medicine 1996; 15:1069-1092.

Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health* 1999; 89(9):1322-1327.

Graham H. Social determinants and their unequal distribution: clarifying policy understandings. *Milbank Q* 2004a; 82(1):101-24.

Graham H. Tackling health inequalities in England: remedying health disadvantages, narrowing gaps or reducing health gradients? *Journal of Social Policy* 2004b;33(1):115-31.

Greene JC. *Mixed Methods in Social Inquiry*. San Francisco: Jossey-Bass; 2007.

Grossman M. The Demand for Health: A Theoretical and Empirical Investigation. NY: Columbia University Press, 1972.

Heath B, Romero PW, Reynolds K. A standard framework for levels of integrated healthcare. SAMHSA 2013 ;(April):13.

Korsen N, Narayana V, Mercincavage L. Atlas of Integrated Behavioral Health Care Quality Measures| The Academy [Internet]. Agency for Healthcare Research and Quality. 2013.

Krieger, N. Ladders, pyramids and champagne: the iconography of health inequities. *J Epidemiol Community Health* 2008; 62:1098-1104.

Link BG, Phelan JC. Fundamental sources of health inequalities. In Mechanic D, Rogut LB, Colby DC, Knickman JR. (eds*), Policy Challenges in Modern Health Care*. New Brunswick, NJ: Rutgers University Press; 2005:71-84.

Mechanic, D. Disadvantage, inequality, and social policy. Major initiatives intended to improve population health may also increase health disparities. *Health Aff (Millwood)* 2002; 21(2):48-59.

Morgenstern H. Ecologic studies. In Rothman KJ, Greenland S, Lash TL (eds). Modern Epidemiology. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins, 2008:511-531.

Shadish WR, Cook TD, Campbell DT. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton Mifflin; 2002.

Shadish WR, Cook TD. The renaissance of field experimentation in evaluating interventions. *Annual Review of Psychology* 2009; 60:607-29.

Small ML. How to conduct a mixed methods study: recent trends in a rapidly growing literature. *Annual Review of Sociology* 2011; 37:57-86.

Sommers BD, Long SK, Baicker K. Changes in mortality after Massachusetts health care reform: a quasi-experimental study. *Annals of Internal Medicine* 2014; 160:585-593.

Turner S, Goulding L, Denis JL, McDonald R, Fulop NJ. Major system change: a management and organisational research perspective. In Raine R, Fitzpatrick R, Barratt H, Bevan G, Black N, Boaden R, et al. Challenges, solutions and future directions in the evaluation of service innovations in health care and public health. Health Serv Deliv Res 2016; 4(16):85-104.

White M, Adams J, Heywood, P. How and why do interventions that increase health overall widen inequalities within populations? In Babones, SJ (ed), *Social Inequality and Public Health*. Bristol, UK: The Policy Press; 2009:65-81.

Winship C, Morgan SL. The estimation of causal effects from observational data. *Annual Review of Sociology* 1999; 25:659-706.

Appendix B

Report to the Washington State Health Care Authority:

Washington State Innovation Model (SIM) Evaluation

Practice Transformation Support Hub Evaluation

Rapid Cycle Process Improvement Report

Award Year 3 Quarter 2

Submitted by the University of Washington SIM Evaluation Team:

Tao Sheng Kwan-Gett, MD, MPH, Senior Lecturer of Health Services, Co-PI SIM Evaluation

Douglas A. Conrad, PhD, Professor of Health Services, PI SIM Evaluation

Hub Evaluation Sub-Team:

Elaine Albertson, MPHc

Lydia Andris, MPA

Janet Baseman, MPH, PhD

Riley Brazil, MDc MPHc

Tao Sheng Kwan-Gett, MD MPH

Megan Rogers, MS

August 15, 2017

Contents

I. Overview and Highlights

Implementation: This Practice Transformation Support Hub Rapid Cycle Process Improvement Report covers Award Year 3 - Quarter 2 (AY3 Q2), using data from April through June 2017. The UW SIM Evaluation Team collected and analyzed quantitative and qualitative data from Practice Transformation Support Hub (PTSH, or "the Hub") implementation. Hub developments during this period include:

- Coach/Connectors have been hired for all nine Accountable Communities of Health (ACHs).
- Recruitment for practice coaching exceeded the goals set for 2017.
- Coach/Connectors strengthened their relationships with ACHs and Tribes.
- A webinar on "Building Community Connections that Support Patients" aired on April 19th.
- Coach/Connectors started doing work with practices supported by non-SIM funding streams.
- Resource Portal launched version 1.1.

Interviews with ACHs: To address evaluation questions about implementation from an external perspective, the UW team conducted four key informant interviews (KIIs) with individuals involved in selected ACHs. These KIIs focused on the relationship between the Hub and the ACHs, and revealed the following themes in common:

- In general, ACHs have positive views of the Hub.
- ACHs understand the purpose and vision of the Hub.
- While many ACHs report having regular contact with their Hub Coach/Connector, they say it is too early to tell if the Hub is meeting its ACH-related objectives.
- ACHs perceive that the more integrated the Hub Coach/Connector is in the ACH, the more beneficial and productive that relationship is.
- ACHs particularly value data and information about clinical practices and community resources in their region; having the Hub provide this data avoids duplication of effort and reduces the information-sharing burden on practices.

The small number of key informants interviewed for this report makes it difficult to assess whether the stakeholder views that were expressed are representative of the ACH community. UW will conduct additional KIIs with ACH stakeholders during the next SIM evaluation period to better understand how the Hub is viewed by external partners, and how the Hub can best meet their needs.

Opportunities for Growth: KIIs with ACH representatives, meetings with Hub leads, and document review identified several opportunities for strengthening Hub services, many of which Hub staff are already working on, including:

- Developing and distributing communication materials that explain Hub services, distinguish them from other initiatives (primarily the WA DOH/WCAAP TCPI), and describe the "value proposition" of the Hub.
- Continuing to align state practice transformation efforts with each other and with the Medicaid Transformation Demonstration.
- Further developing Resource Portal capacity, including individualized accounts for practices.
- Strengthening Hub engagement in ACHs where Coach/Connector activity has been less robust.
- Creating a Hub sustainability plan that leverages ACH priorities (such as the Medicaid Transformation Demonstration) and other practice transformation-related initiatives.

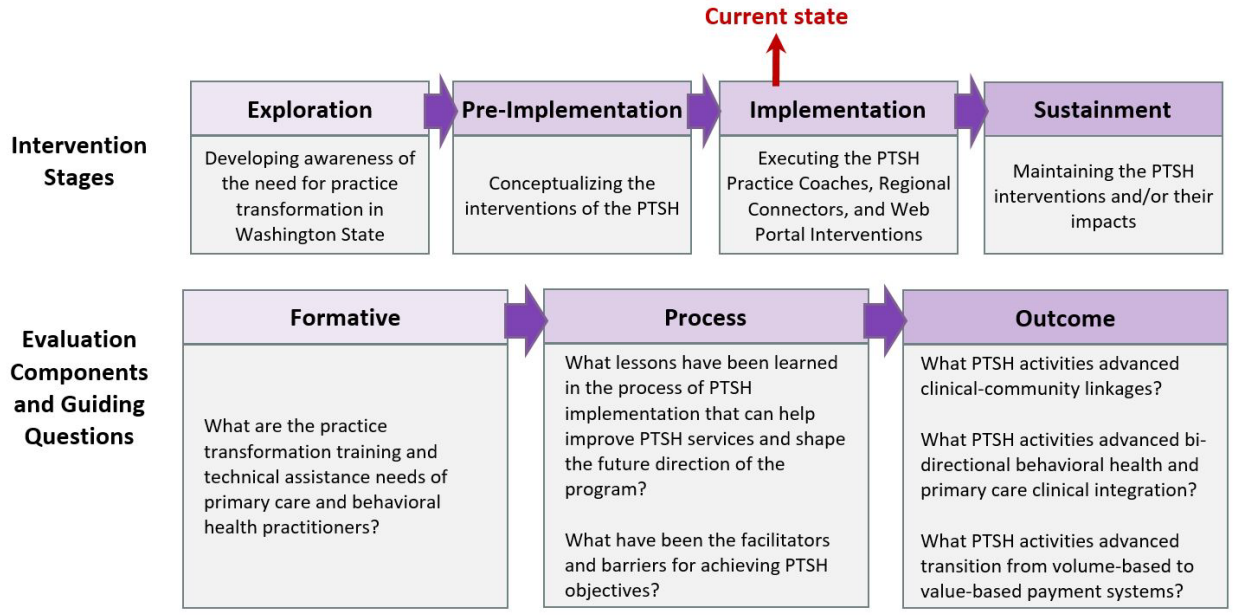
II. Background

(Most of the information in this section was provided in the AY3 Q1 Rapid Cycle Process Improvement Report. We include it here to provide a refresher to readers of our previous reports, and to provide context for new readers.)

This Rapid Cycle Process Improvement Report for April through June of 2017 (AY3 Q2) aims to facilitate continuous learning to advance Practice Transformation Support Hub (PTSH, or "the Hub") services. The primary objectives of the Hub are to support practices in their adoption of behavioral and physical health integration, clinical-community linkages, and value-based payment models.

The Hub evaluation is conducted by the Hub Evaluation Sub-Team of the University of Washington (UW) State Innovation Model (SIM) Evaluation Team. To inform the evaluation, UW developed conceptual models of both the Hub and the larger SIM of which the Hub is a part. The Hub evaluation consists of three components: 1) Formative, 2) Process, and 3) Outcome. These align sequentially to four Hub intervention stages: 1) Exploration, 2) Pre-Implementation, 3) Implementation, and 4) Sustainment. The guiding questions for each evaluation component and a description of each stage are illustrated in Figure 1 below.

Figure 1. Intervention stages and evaluation components guiding the PTSH evaluation.



This report addresses the Implementation phase of the Hub intervention, drawing from quantitative and qualitative data gathered in the first half of 2017.

Quantitative data consists of Hub Coaching and Connector activity records from the TruServe database, coaching enrollment counts from Qualis Monthly Highlights Reports, Resource Portal website usage data from Google Analytics, and results of a feedback survey for the webinar delivered in April 2017. The qualitative data included document review, one-on-one phone meetings with Hub leads, and key informant interviews (KIIs).

III. Hub Implementation

A. Summary of Implementation

An overview timeline of Hub implementation is in Appendix D. The table below summarizes the current state of Hub implementation, using information from Hub and SIM documents, meetings, and informal conversations with Hub leadership.

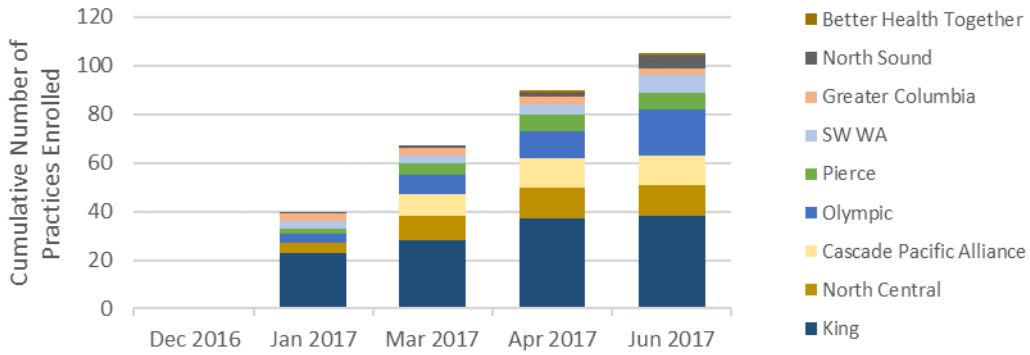
Table 1. Summary of PTSH Implementation.

PTSH Component	Status of Implementation	Data Collection
Practice Coaching, Facilitation, and Training (PCFT) Program	• Hiring of Coach/Connectors for all nine ACHs is complete. • Practice recruiting exceeded goals for year. As of 6/12/2017, there were 105 practices enrolled for coaching. Of these, 51 (49%) were behavioral health, 43 (41%) were primary care, 9 (9%) were both primary care and behavioral health, and 2 (2%) were substance use disorder. (Note: many of the behavioral health organizations also provide substance use disorder services).	• Qualis TruServe Database used by Coach/Connectors to log activities. Includes detail on date, time, and nature of activity, and a report function. Full access has been granted to UW Hub Evaluation Team. • Qualis monthly report summarizing the number of practices enrolled and number of contacts. • Qualis administering Patient-Centered Medical Home Assessment (PCMH-A) and Maine Health Access Foundation (MeHAF) assessment to practices, including some that are not-enrolled in practice coaching. • Qualis Coaches are promoting UW Hub Evaluation Team's brief Washington Practice Transformation Assessment (WAPTA).
Regional Health Connector Network	• Developing relationships with ACHs, Tribes, and other practice initiatives in the state. • Connector activities are becoming more clearly defined • Webinar held on 4/19/2017.	• Qualis TruServe database used to log activities. • Qualis online participant feedback surveys.
Resource Portal	• Launched Version 1.0 on 2/8/2017, • Launched Version 1.1 on 6/15/2017. • Launch of Version 2.0 anticipated in October. Will include a MyPortal feature that enables practices to create their own customized portal.	• Portal team's Google Analytics dashboard of key usage indicators. • Key Informant Interviews conducted by a student on behalf of the Portal in June 2017. • Portal team's user testing results.

B. Practice Coaching, Facilitation, and Training (PCFT) Activities

Recruitment of practices into Practice Coaching, Facilitation, and Training (PCFT) grew steadily in AY3 Q2, and is already reaching two-thirds of the recruitment goal that Qualis set for this year. Figure 2 shows the cumulative enrollment of practices into PCFT by month, color coded by ACH. Although the King County ACH has the largest number of practices enrolled, Figure 3 illustrates that the North Central ACH and the Olympic ACH have the largest proportion of small-to-medium size primary care and behavioral health practices enrolled. This data corroborates Hub documentation that suggests that practices in the Southwest Washington, North Central, and Olympic ACH regions have been particularly active. The Hub has also engaged Tribal clinics as well.

Figure 2. Cumulative number of practices enrolled into PCFT.

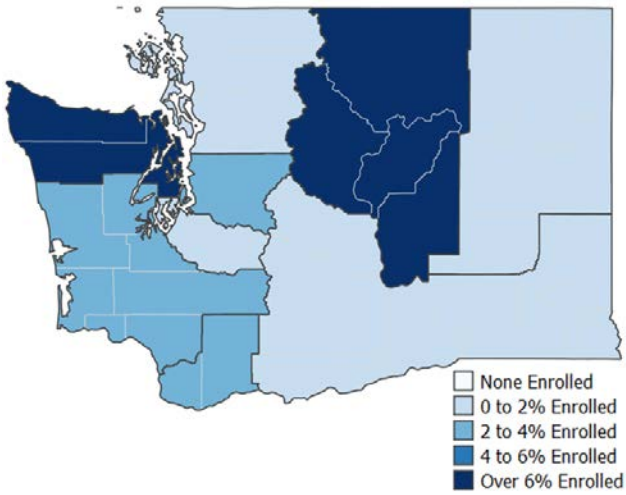


Note: Cumulative number of practices enrolled in Practice Coaching, Facilitation, and Training (PCFT) reported by Qualis Health in December 2016, and January, March, April, and June 2017. Color coded by ACH. Target for cumulative number of enrolled practices by 2019 is 150. Source: Qualis Monthly Highlights Reports.

Figure 3. Number and percent of practices enrolled into PCFT by ACH.

Accountable Community of Health (ACH)	Cumulative # Enrolled in June 2017	Total # of Practices in Region	Percent Enrolled
Better Health Together	1	388	0.3%
Cascade Pacific	12	413	2.9%
Greater Columbia	3	413	0.7%
King	38	1184	3.2%
North Central	13	163	8.0%

North Sound	5	542	0.9%
Olympic	19	213	8.9%
Pierce	7	386	1.8%
SW WA	7	215	3.3%



Note: Map of estimated percent of total practices enrolled in Practice Coaching, Facilitation, and Training (PCFT), and table of number and estimated percent of practices enrolled, by ACH, on 6/12/2017. Source for Estimated Total Number of Practices: Qualis and UW PTSH Evaluation Team list of target PTSH practices, updated by Qualis 5/17/2017. Source for Cumulative Number Enrolled: Qualis Monthly Highlights Report, May 2017.

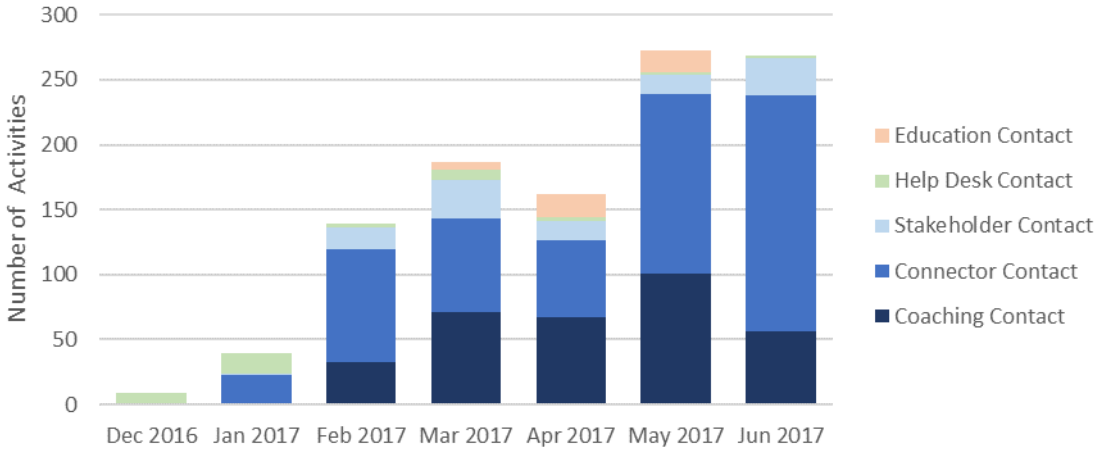
C. Regional Health Connector Activities

In addition to practice recruitment, Hub activities grew steadily each month of Q1, and leveled off in Q2 around 270 activities per month in May and June. Q2 saw a large increase in Connector Contacts.

Figure 4 shows that the most frequently logged activities were Connector Contacts, followed by Coaching Contacts and Stakeholder Contacts.

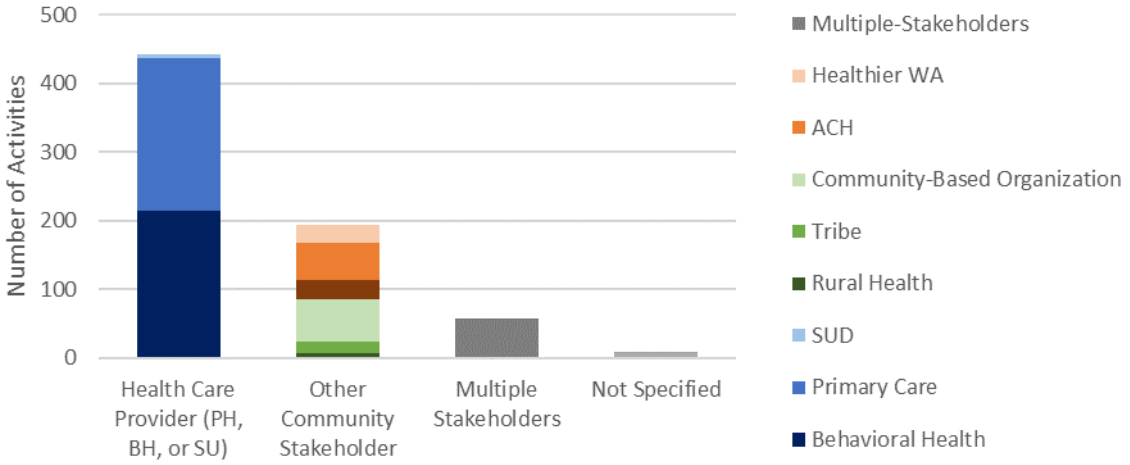
Health care providers were the most common type of organization contacted by Connectors, and these provider contacts were evenly split between physical health and behavioral health practices (Figure 5).

Figure 4. Count of Coaching and Connector activities by month.



Note: The number of activities recorded by Qualis staff each month from 12/2/2016 through 6/30/2017 color coded by type of contact. Counts represent unique activities logged for each month and are not cumulative. Source: TruServe database, exported 7/13/2017. Education contacts represent statewide webinars or the AIMS learning series. Stakeholder contacts are those made by Hub team members other than Coach/Connectors.

Figure 5. Count of unique Coaching and Connector activities by organization type in Quarter 2.



Note: The number of activities recorded by Qualis staff 4/1/2017 through 6/30/2017. Color coded by organization type. Source: TruServe database, exported 7/13/2017.

On April 19, 2017 Qualis held a webinar titled *Making Community Connections to Support Patients*. There were 78 attendees, and 22 responded to the participation feedback form (28% response rate). Approximately 48% of respondents reported that they work primarily in non-provider stakeholder or community social service organizations, and 86% reported they work in primary care, mental health, or substance use practice (totals exceed 100% due to question format). Respondents represented a wide geographic range, with at least one feedback respondent from eight of the nine ACHs (North Central ACH was not represented).

Participants gave positive feedback and reported that they found the webinar useful. Survey respondents rated the presenter's knowledge of the topic as 4.5 out of 5. However, only 64% of respondents reported that they are now more confident in their organization's ability to identify and track social or economic needs or barriers of patients. These data suggest that organizations still face barriers to implementing community-clinical linkages. The impact of the webinar may not be seen immediately; a common pattern documented in implementation research is a time lag between acquiring new knowledge and acting on it. When asked what would be helpful for future webinars or resources, respondents requested information on family and patient engagement, specific lists of resources beyond the DOH site, and having a copy of the slides and notes sent out for reference.

D. Resource Portal

Key Resource Portal metrics are summarized in Table 2. During the first few days after its launch on 2/8/17, the Resource Portal had over 300 sessions per week. Since then, the weekly number of sessions hovered around 200 for the remainder of Quarter 1, but rose with a peak above 300 sessions per week at the time of the webinar in Quarter 2. (Figure 6).

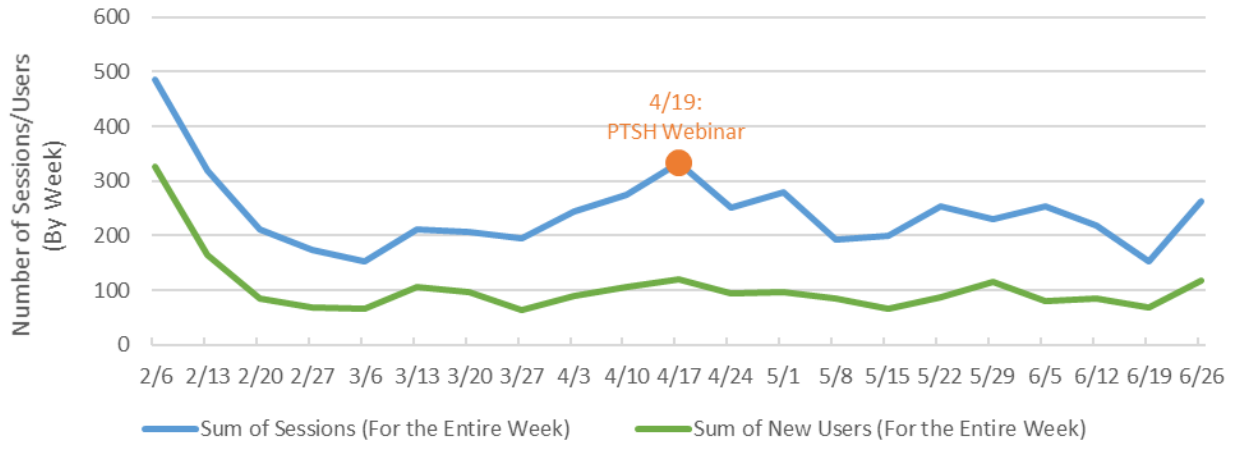
Users' IP addresses indicate that most are from King County (Figure 7). The average Resource Portal session lasted approximately 6.5 minutes, during which an average of 6-7 pages were visited (Table 2). Returning users accounted for 57.2% of sessions. The most frequently viewed pages were the home page and the resource page (Table 3), with physical-behavioral health integration resources being the most popular (Figure 8). Table 4 lists the 15 most used resources.

Table 2. Overview of key Portal website metrics, February through June 2017.

Metric	Since Launch (Feb-June)	Q1 Only (Feb-Mar)	Definition
Number of Sessions	5,102	1,943	"A session is the period of time a user is actively engaged with your website, app, etc. All usage data (Screen Views, Events, Ecommerce, etc.) is associated with a session."
Number of Users	2,257	1,030	"Users who have initiated at least one session during the date range." (i.e., number of unique visitors, see Note below)
Pageviews	34,715	13,344	"Pageviews is the total number of pages viewed. Repeated views of a single page are counted."
Pages per Session	6.80	6.87	Pages/Session (Average Page Depth) is the average number of pages viewed during a session. Repeated views of a single page are counted.
Average Session Duration	6 minutes, 32 seconds	6 minutes, 21 seconds	"The average length of a Session."
Bounce Rate	35.1%	36.7%	"The percentage of single-page sessions in which there was no interaction with the page. A bounced session has a duration of 0 seconds."
% New Sessions	42.8%	49.8%	"An estimate of the percentage of first time visits."

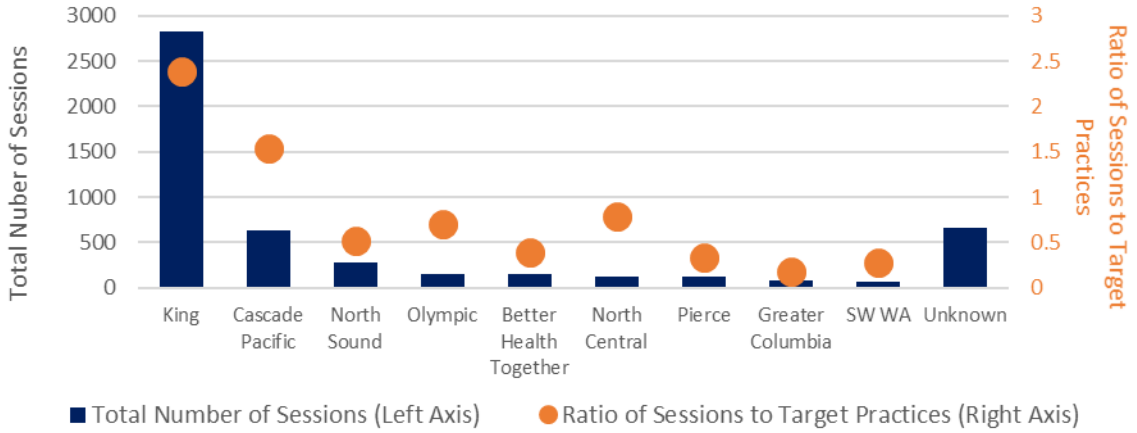
Note: Data from 2/8/2017 through 6/30/2017. Definitions quoted from Google Analytics tooltips. Number of Users can be interpreted as number of unique visitors (Source: Promise Media; Community Sales & Marketing News). Source of key metrics: Portal Google Analytics, accessed 7/21/2017.

Figure 6. Number of Portal sessions and new users by week, February through June 2017.



Note: Data from 2/8/2017-6/30/2017. Number of sessions and new users aggregated by week from 2/8/2017-6/30/2017. A session is a cluster of activity by a given user, and includes repeat users (Source: Google Analytics Help). Number of Users can be interpreted as number of unique visitors (Source: Promise Media; Community Sales & Marketing News). Source of sessions and user data: Portal Google Analytics, accessed 7/21/2017.

Figure 7. Number of Portal sessions and ratio of sessions to number of target practices, February through June 2017, by ACH.



Note: Data from 2/8/2017-6/30/2017. A session is a cluster of activity by a given user, and includes repeat users (Source: Google Analytics Help). Ratio of sessions to target practices is calculated as the number of sessions divided by the number of target practices, based on the Qualis and UW PTSH Evaluation Team list of target PTSH practices, updated by Qualis 5/17/2017. Google Analytics maps IP addresses to the city level. "Unknown" includes cities across the U.S. (e.g., Cincinnati) and the world (e.g., Kuala Lumpur). Counts may not represent authentic users, or may inaccurately represent locations of authentic users due to IP mapping. Source of sessions data: Portal Google Analytics, accessed 7/21/2017.

Table 3. Pageviews of homepage and primary homepage links, February through June 2017.

Page	Pageviews	Unique Pageviews
Homepage	5,391	3,440
Resources	2,584	1,404
Who We Are	1,028	670
What We Do	816	570
News	486	325
Population Health	606	478
Learn About Practice Transformation	612	443

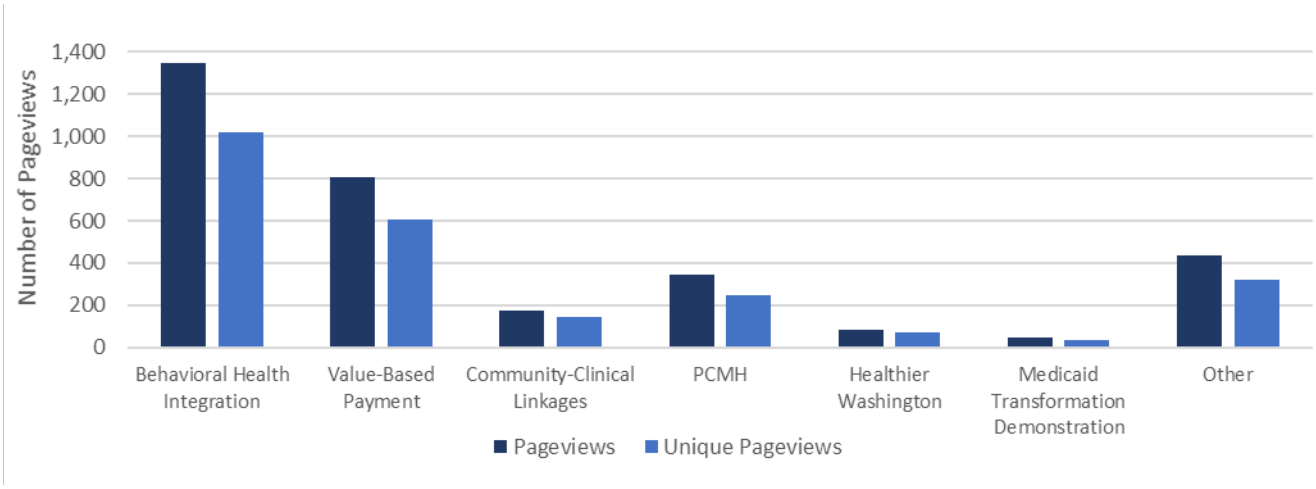
Note: Data from 2/8/2017-6/30/2017. Total Pageviews refers to any view of the resource page, and Unique Pageviews aggregates pageviews from the same user during the same session (Source: Google Analytics Help). Source: Portal Google Analytics, accessed 7/21/2017.

Table 4. Top 15 most visited Portal resources, February through June 2017.

Resource	Type	Pageviews	Unique Views
Practice Transformation Directory	Other	151	126
MACRA Timeline	Value-Based Payment	109	77
Defining Behavioral Health and Primary Care Integration	Behavioral Health Integration	89	80
Bi-Directional Health Integration: Improving Care for All Patients	Behavioral Health Integration	88	65
Collaborative Care Implementation Guide	Behavioral Health Integration	85	75
Improve Your Revenue Cycle and Back-Office Management	Value-Based Payment	83	61
Behavioral Health Integration Models for Serious Mental Illness	Behavioral Health Integration	75	57
A Guide to Integrating Behavioral Health in a Primary Care Setting	Behavioral Health Integration	71	55
Workflow Task Summary Worksheet	Other	70	57
A Standard Framework for Integrated Health Care	Behavioral Health Integration	48	45
Top 10 Things You Need to Do for MACRA	Value-Based Payment	47	41
Healthier Washington Resources	Other	45	41
Core Competencies for Behavioral Health Providers in Primary Care	Behavioral Health Integration	42	33
Lessons from 23 High-Functioning Primary Care Practices	Other	42	32

Note. Data from 2/8/2017-6/30/2017. Source: Portal Google Analytics, accessed 7/21/2017.

Figure 8. Number of pageviews of Portal resources, coded by resource category.



Note: Data from 2/8/2017-6/30/2017. Total Pageviews refers to any view of the page, and Unique Pageviews aggregates views from the same user during the same session (Source: Google Analytics Help). Resources categorized by the focus of the content included in the resource. Source of pageview data: Portal Google Analytics, accessed 7/21/2017.

IV. Key Issues to Consider in PTSH Implementation

The following qualitative findings are based on key informant interviews (KIIs), supplemented by content review of Healthier Washington documents and meeting notes. Four KIIs were conducted via telephone with representatives of ACHs in July 2017, using an interview instrument designed specifically for this report (Appendix C). The interview questions focused on the relationship between ACHs and the Hub. Interviews were securely recorded and transcribed, and coded for themes using Dedoose© software. Interview findings were triangulated with the content of Hub documents and meeting notes in order to identify the themes below. Semi-structured KIIs with Hub leads provided additional context. Appendix B contains a cumulative list of facilitators, barriers, and opportunities identified by stakeholders in interviews, meetings, and documents since AY3 Q1.

A. Relationships between the Hub and Accountable Communities of Health

Overall the ACH representatives interviewed expressed a positive attitude toward the Hub. Their general attitude was that Hub staff are doing a good job and delivering quality services in the ACH regions. However, these data should be viewed in light of potential variation across ACHs, and the limited number of interviews conducted in AY3 Q2. As one informant stated, "I think the Hub is working well here and I think Qualis has a pretty good reputation among our providers. I've heard from other ACHs that have had a less positive experience either with Qualis and previous incarnations and projects or with their coach. But that has not been our experience at all." Additional interviews and data collection in AY3 Q3 will further explore potential variations in attitudes toward the Hub.

Informants from the ACHs had mixed success in accurately describing the objectives of the Hub, suggesting an opportunity for outreach and education. For example, one informant focused on the Hub's role as a data provider, stating that "From my understanding, the Practice Transformation Hub is to help providers to begin collecting data so that they can change." Another informant focused on the role of the Portal and behavioral health integration, describing the Hub as "something that the University of Washington has put together to help people all over the state on how to transform their practices and how to be able to integrate the mental health part with the medical part of primary care." Over the course of the interviews, ACH informants mentioned a number of functions that they perceive the Hub performs, including: data support, helping practices transition to value-based payment, assessing practice capacity, inventorying community resources, providing trainings and webinars, and connecting practices with clinical resources.

Informants particularly emphasized their interest in the Hub providing data and assessment-related services to help them identify strengths and needs in their regions. One informant noted that developing a more streamlined and centralized way for the Hub to provide data to ACHs could be

beneficial, suggesting “getting everything into a centralized database so that everybody can see it…We need some sort of a systematic way of tracking. And aligning the hub with the ACH in the [Medicaid Transformation] Demonstration tracking just makes a lot of sense.” In addition, informants highlighted benefits of having Hub Coach/Connector staff in their region who already had well-established relationships with the provider community in their area, and who integrated themselves into the ACH by attending meetings and staying closely involved in ACH activities.

B. Role of the Hub in Medicaid Transformation Demonstration

The document review and key informant interviews indicated that the Medicaid Transformation Demonstration (MTD) poses both challenges and opportunities for the Hub. The Hub is connected to the MTD primarily through its relationship with the Accountable Communities of Health, which are currently preparing project plans for submission. Hub staff have reported a perception that enrollment of practices in coaching has slowed as providers await the detailed plans of the MTD projects. An additional challenge is timing; specifically, that SIM funding for the Hub is scheduled to end close to or before robust implementation of the MTD projects. At the same time, the MTD may be central to the sustainment of Hub services, as it is anticipated that ACHs will require technical assistance as they begin implementation of their projects.

Informants from ACHs expressed mixed interest in partnering with the Hub during the planning phase of the MTD. One informant suggested that the Hub might assist ACHs in the pre-implementation planning phase by sharing information about what the Hub has learned from providers. However, another noted that it is difficult for their ACH to work with the Hub during set up and planning because the ACH participants “just are so busy.”

While informants emphasized that it is still too early to identify specific ways in which the Hub might support the ACHs in the implementation of MTD projects, they were generally optimistic about potential partnerships during that stage of the initiative. One informant stated that “The Hub is absolutely key. They're part of a team – unit for transformation. They're in charge of the integration. I really see that as that’s their scope.” This suggests it may be possible for the Hub to leverage support from interested ACHs when developing a sustainability plan, particularly around care integration.

C. Evolution of the Hub over Time

Since the early implementation of the Hub at the end of 2016, the core functions of the Hub Coach, Connector, and Portal services have remained relatively stable. Connector activities have become more clearly defined as standard operating procedures have been developed, although the systems-wide focus of the Connector role has required a culture shift away from a focus on individual practices. One Hub leader reported that they had expected it would take about four months to start up the PTSH components. Now as the Hub moves out of its "startup" phase, Hub leadership have expressed optimism that the initiative is moving in the right direction.

The eventual outcomes and impact of Hub activities will likely depend on the integration of Hub services with the ACHs and the MTD. Hub leadership have identified the MTD as a key opportunity for sustainability of Hub programs after conclusion of the SIM grant in January 2019. It may also be possible for the Hub to deliver services required by related projects with other funding streams. For example, the Hub may explore partnering with initiatives that address electronic health record systems, behavioral health integration, or Tribal technical assistance. UW will continue collecting data on the ACHs' perspectives on how the Hub might relate to future MTD work and other post-SIM initiatives.

Appendices

Appendix B1. Data Sources

The following reports, documents, meetings, key informant interviews, and one-on one conversations informed this Rapid Cycle Improvement Report:

Reports

1. Qualis Health. (April 20, 2017). ***Practice Transformation Support Hub Highlights April 2017***. Retrieved from email from Selena Bolotin, May 23, 2017.

2. Qualis Health. (June 12, 2017). ***Practice Transformation Support Hub Highlights May 2017***. Retrieved from email from Tao Kwan-Gett, June 19, 2017.

3. Washington State Health Care Authority. (January 2017). ***Washington State Innovation Models (SIM) Project Operational Plan Update***. Retrieved from email from Doug Conrad, April 21, 2017.

4. Washington State Health Care Authority. (May 1, 2017). ***CMMI STC Status - AY3 Quarter 1***. Retrieved from email to HCA DL HW Core Team, May 4, 2017.

5. Washington State Health Care Authority. (May 2, 2017). ***Washington State Innovation Model Project: Round 2 Model Test Awardee End of Year Report, Period February 1, 2016 to January 31, 2017***. Retrieved from email to HCA DL HW Core Team, May 4, 2017.

6. Washington State Health Care Authority. (June 21, 2017). ***Healthier Washington Monthly Report***. Retrieved from Healthier Washington SharePoint.

7. Washington State Health Care Authority. (June 28, 2017). ***Healthier Washington Weekly Report, June 21st 2017 - June 27th 2017***. Retrieved from Healthier Washington SharePoint.

Key Informant Interviews

8. Four interviews with representatives from ACHs who have been involved in formal and informal leadership roles in ACH activities in their region.

Meetings and One-on-One Conversations with Hub Leads

9. PTSH Evaluation Team. (April 26, 2017). ***Notes from Meeting with Mary Beth Brown***. Retrieved from PTSH Evaluation Team SharePoint, July 1, 2017.

10. PTSH Evaluation Team. (April 26, 2017). ***Notes from Meeting with Connectors and DOH***. Retrieved from PTSH Evaluation Team SharePoint, July 1, 2017.

11. PTSH Evaluation Team. (April 27, 2017). ***Notes from Meeting with Selena Bolotin***. Retrieved from PTSH Evaluation Team SharePoint, July 1, 2017.

12. PTSH Evaluation Team. (May 1, 2017). ***Notes from Meeting with Ian Bennett***. Retrieved from PTSH Evaluation Team SharePoint, July 1, 2017.

13. PTSH Evaluation Team. (July 18, 2017). ***Notes from Meeting with Mary Beth Brown***. Retrieved from PTSH Evaluation Team SharePoint, July 20, 2017.

Appendix B2. Summary of Potential Barriers, Facilitators, and Opportunities

This section summarizes factors influencing success (facilitators), factors challenging success (barriers), and opportunities suggested by stakeholders in meetings, one on one conversations with Hub leads, and key informant interviews. This "living" list attempts to summarize the accumulated perspectives of stakeholders at all levels. Facilitators, barriers, and opportunities are grouped in four categories: A) Communication, B) Partnerships and Role in Reform, C) Operations and Staffing, and D) Program Delivery. **Barriers, facilitators, and opportunities newly identified during AY3 Q2 are indicated in bold.**

Facilitators Identified by Stakeholders

A. Communication

- **Outreach about Hub services at conferences and meetings.**
- Active efforts to clearly define and communicate the role of the Hub relative to other initiatives, e.g., practice transformation consortium and alignment plan.
- DOH's role as a connector of marketing efforts and communication between the Portal, the Coach/Connectors, and other statewide activities.
- Cross-organizational Communications Team.

B. Partnerships and Role in Reform

- **Partnering with consultants and groups such as the UW AIMS Center to deliver targeted trainings for specific settings, e.g., rural health, Tribal health systems.**
- Briefings from external contacts who have experience supporting practice transformation in other states.
- CMMI's support in aligning practice transformation initiatives.
- Coach/Connectors building relationships with ACHs by attending meetings, learning community needs and resources, and providing useful information.
- Tapping into ACHs for information and connections.
- Portal team's active engagement with the working group, and incorporation of stakeholder feedback.

C. Operations and Staffing

- Contacts and networks of Hub leadership.
- Increased specificity in the most recent round of renegotiated contracts between DOH and Qualis.
- Team-building and internal staff development to develop a high-functioning team.

D. Program Delivery

- **Development of a "peer exemplar network" of model practices as case studies.**
- Relatively easy-to-use design of the Portal website, compared to other government sites.
- Portal team responsiveness to change requests
- Development of well-vetted, curated Portal materials of good breadth and depth.
- Coaches and Connectors developing a catalog of local resources in each region.

Barriers Identified by Stakeholders

A. Communications

- Weaknesses in plan for outreach to providers. Some providers **and ACHs** feel the vision of the Hub has not been clearly communicated.
- Lack of perceived value in practice transformation by some providers **and ACHs**, who feel overwhelmed with other obligations and unclear why they should engage with the Hub.

B. Partnerships and Role in Reform

- Lack of clarity about the relationship between the Hub and other initiatives including **the ACHs**, the Medicaid Transformation Demonstration, the Manatt contract, the Fully Integrated Managed Care (FIMC) project, MCOs, other practice transformation initiatives, and the "211" resource line.
- Lack of knowledge about the potential impact of Medicaid Transformation Demonstration on practices, **which reportedly may have discouraged some practices from enrolling in Hub coaching at this time.**
- Weak relationships in some regions between some ACHs and the practice community**, as well as some ACHs and the Hub.**
- Sense by some ACHs of being overwhelmed, which makes it difficult to connect and collaborate with the Hub.

C. Operations and Staffing

- Lack of clarity on the role of the Connectors, and lack of understanding of Connectors as systems-focused staff who do more than just recruitment.
- Perception that staff are often asked to provide support outside of their skillset, particularly for the Connector role.
- Concerns that the approach of some Coach/Connectors may not be effective in a rural setting, where establishing personal relationships can be key.
- Concerns that one Coach/Connecter per region may not provide enough capacity to create change.
- Difficulties coordinating a large and diverse team.
- Inadequate behavioral health workforce across the state.
- Lack of clarity of how Hub services will be sustained after conclusion of SIM grant.

D. Program Delivery

- **Geographic variation in the robustness of Hub service delivery across ACHs.**
- Some ACHs not seeing the full value of the Portal **or the Coach/Connector services**.
- Perception that Portal team could reach out more to other initiatives regarding external content for the website.
- Some stakeholders report a mismatch between providers' needs, such as hands-on assistance with IT or funds for practice transformation, compared to the services offered by the Hub.

- Emphasizing the Patient-Centered Medical Home model may not be enough to achieve practice transformation, particularly around Value-Based Payment.
- TruServe is not well suited for tracking Connector work, such as practices targeted, or trainings completed.

Opportunities Suggested by Stakeholders

A. Communications

- Create brochures or other communications deliverables that explain Hub services and the context of practice transformation for providers.
- Reinvigorate the communications workgroup for the Hub.
- Communicate that technical assistance is still available to non-practice stakeholders, as well as to practices not interested in receiving coaching services.

B. Partnerships and Role in Reform

- **Develop written agreements such as MOUs or contracts with ACHs to clarify and facilitate partnerships.**
- Request briefings from Medicaid Transformation Demonstration leaders.
- Leverage Medicaid Transformation Demonstration to support Hub goals, such as behavioral health integration, and conversely leverage the Hub to advance Medicaid Transformation Demonstration.
- Increase high-level coordination of all transformation efforts in our state.
- Establish relationships with medical leaders in each region.
- Work with ACHs to foster downstream education about practice transformation.

C. Operations and Staffing

- Allow practices to use Hub resources to hire their own consultants to create strategic transformation plans.
- Emphasize telemedicine in areas with behavioral health shortages.
- Create a central repository of the ACH strategic plans and progress reports.
- Create a sustainability plan **that leverages opportunities to partner with the Medicaid Transformation Demonstration or related projects.**
- Find a way to ensure Hub services continue to have value to practices or other end-users in the long-term.
- Train coaches to align with practices' existing priorities and to communicate a value proposition to the provider.
- Expand the Portal working group to maintain active members.

D. Program Delivery

- **Develop more consistent and streamlined approaches to sharing data with ACHs.**
- Create a Portal tool that directs providers to the right form of practice transformation support, depending on their needs.
- Integrate catalogs of local resources into the Portal.
- Host other practice transformation initiatives' content on the Portal site when possible.
- Create specific case studies using a problem-solution model.
- Implement a change request system to improve TruServe.

- Tier the Resource Portal materials into levels of utility and importance.

Appendix B3. Practice Transformation Support Hub Key Informant Interview Instrument

University of Washington School of Public Health
Practice Transformation Support Hub
Key Informant Interview Instrument

June 13, 2017

Key Informant Name:		**Date**	
Interviewer(s)		**Phone Number**	

Areas of Inquiry:

1. Marketing and communications?
2. Fulfilling objectives?
3. What should it be doing that it isn't?

Opening Script –

Welcome/Introduction:

Thank you for your time today. As you know, this interview is part of the Healthier Washington Initiative to evaluate the Practice Transformation Support Hub. As you may know, the "Hub" is one of the key investment areas of Healthier Washington, Washington State's State Innovation Model (SIM) grant, and managed by the Washington State Department of Health.

Our discussion today will be about your experience and perspective on Hub services, including how is the Hub communicating its role, ow it is fulfilling its objectives, and what practice transformation activities your ACH needs. If you are not familiar with the Hub, we would be interested in your ideas about what services or activities would help your ACH work with practices in your ACH.

We would like to record today's discussion for transcription purposes only. Your name will not be attributed to your comments. Do we have your permission to record our conversation for these purposes? Have you reviewed the consent form attached to your email? Do we have our consent to continue with this interview?

We expect this conversation will take about 30 minutes. Do you have any questions before we begin?

Q#	QUESTION	RESPONSE
We are going to start our conversation with a few questions about your current role and then discuss your experience and perspective with Hub services.		
1.	First, could you please tell us what is your role in the ACH and how long you have been with the ACH?	
2.	Please describe what you know or understand about the Practice Transformation Support Hub.	
3.	How well has the Hub communicated a clear vision of its goals? *Probe: What have been areas of confusion or lack of clarity?* *What would you change?* *Probe if not familiar with Hub: What are the best ways for the Hub to communicate its goals to your ACH?*	
Internal note: The objectives of the Hub include: • help to ensure that practices are linked with appropriate transformation and community-based resources ? • inform Accountable Communities of Health about what community resources providers are asking for through the Hub help desk and let the community know where gaps in services exist.		
4.	One of the objectives of the Hub is to help to ensure that practices are linked with appropriate transformation and community-based resources. How well has the Hub fulfilled this objective in your ACH? *Probe: What you would change? Why do you feel that way? What are some examples..?* *Probe if not familiar with Hub: What could the Hub do to help practices in your ACH link with transformation and community based resources?*	
5.	The second objective of the Hub is to inform Accountable Communities of Health about what community resources providers say they need.	

	How well has the Hub fulfilled this objective in your ACH? *Probe: What you would change? Why do you feel that way? What are some examples?* *Probe if not familiar with Hub: What could the Hub do to help your ACH learn about community resources providers say they need?*	
The last set of questions I will ask is in regard to the Hub objectives of communication clinical linkages and behavioral and physical health care integration.		
6.	With respect to community clinical linkages, what suggestions would you have for the Hub to be more useful for your ACH?	
7.	With respect to care integration, what suggestions would you have for the Hub to be more useful for your ACH?	
8.	What suggestions do you have for the Hub to be useful to your ACH during the current Medicaid Transformation Demonstration planning phase? Follow up: What suggestions do you have for the implementation phase?	
Closing Questions So I have one final questions for you:		
9.	Do you have any additional thoughts or idea ideas about what services or activities would help your ACH work with practices in your region?	

This has been a very thoughtful conversation. Thank you for your time to discuss this important topic!

Appendix B4. Timeline of PTSH Events

Figure 2. Timeline of PTSH Events to Date