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Building a Medicaid Rapid-Learning Network: *A Key Investment for Medicaid's Future*

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In spring 2008, experts from across the country gathered to identify requirements for Building a Medicaid Rapid-Learning Network that could support improved quality within the nation's safety net health system. A rich discussion, a tangible set of ideas, and this concept paper ensued. The authors would like to thank the leadership stakeholders who attended the meeting and the many individuals who engaged in background discussions on these issues. Special thanks in particular are due to the Robert Wood Johnson Foundation for its financial support of this meeting and the broader rapid-learning agenda.

The **Center for Health Care Strategies** (CHCS) is a nonprofit policy resource center dedicated to improving health care quality for low-income children and adults, people with chronic illnesses and disabilities, frail elders, and racially and ethnically diverse populations experiencing disparities in care. CHCS works with state and federal agencies, health plans, and providers to develop innovative programs that better serve Medicaid beneficiaries. Its program priorities are: advancing health care quality and cost effectiveness, reducing racial and ethnic disparities, and integrating care for people with complex and special needs.

The **Health Insurance Reform Project** (HIRP), a nonprofit, nonpartisan organization at the George Washington University, was founded in 1995 to foster improvements in health insurance and health care. HIRP is currently co-located with the National Health Policy Forum.

Contents

Executive Summary

The United States spends more per-capita on health care than any other country, but consistently ranks below other developed nations in accepted measures of health care performance. With more than 47 million uninsured and health care costs rising at rates much faster than general inflation, it is clear that we are not getting the most value for our health care dollars. This is true in all parts of the system — as a nation, we all get quality care roughly 50 percent of the time. But in Medicaid – which serves the nation's most high-need and high-cost populations — the need for effective, quality care is even greater.

While the scientific and health services research communities have produced evidence about what works in health care, studies generally: (a) leave many gaps in knowledge about what works best for individual patients and population subgroups; and (b) take years to complete and even longer to become the standard of practice in the industry. A rapid-learning health care system would continue to use traditionally produced evidence, but would also utilize large data sets to quickly develop, test and disseminate new evidence for appropriate care for much broader segments of the population. The intent would be to learn about comparative effectiveness of treatments, improve quality, reduce cost growth trends, and free up limited resources for other priorities including, but not limited, to expanding coverage to the uninsured. This report focuses on the following themes outlining options for Medicaid to play a lead national role in facilitating rapid learning.

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1. **Medicaid – The Opportunity for High-Need, High-Cost Populations:** Medicaid is the nation's largest health care program, serving a disproportionate share of the highest-need, highest-cost populations, thus presenting a substantial opportunity for system improvement. These high-opportunity populations (e.g., persons with multiple chronic conditions, dual-eligibles, people with disabilities, special needs children) generally have high-needs, high-costs and stand to benefit most from rapid learning that provides evidence of effectiveness and value where little evidence currently exists. What Medicaid learns as a national leader can benefit similar patients throughout the health system.

2. **Building on Best Practices and Innovations:** Innovative state Medicaid programs, health plans, and other U.S. health care stakeholders (e.g., Medicare, Veterans Affairs) are developing new systems of care for high-opportunity populations. With the emergence of both health information technology resources, including electronic medical records (EMRs) and improved Medicaid data systems, and more rigorous evaluations of quality improvement and care management interventions, Medicaid can become a leader in building the evidence base for effective treatment of these populations and develop new tools for program management.

3. **Advancing and Using Effectiveness Research:** The growing push for comparative effectiveness research (e.g., the Agency for Healthcare Research and Quality's (AHRQ) Effective Health Care Program), will provide vital information in assessing gaps in the evidence, defining the research agenda (including the identification of priority populations/conditions), and informing intervention and evaluation strategies for building the evidence base in Medicaid.

4. **Medicaid Rapid-Learning Network: A Key Investment for Medicaid's Future:** As a key element to a broader national strategy for Medicaid's future, an immediate investment should be made in a Medicaid Rapid-Learning Network (MRLN) involving 5-7 leading states, health plans and other stakeholders. This network would be a "learning laboratory" for developing new knowledge and best practices for Medicaid nationally. It would target high-opportunity populations and would build the evidence base through applied research (data-mining, mathematical modeling, observational analysis), demonstrations and rapid dissemination and adoption of best practices. A successful Medicaid Rapid-Learning Network would improve value in Medicaid (higher quality and reduced cost growth) and have spillover effects on the rest of the system through the adoption of best practices for high-opportunity populations in other public programs and commercial health care systems.

Introduction/Background

The Rapid Learning Project (RLP), based at George Washington University and funded by the Robert Wood Johnson Foundation's (RWJF) Pioneer Portfolio, is exploring national strategies to accelerate the pace at which the health care system learns about best uses of new biomedical technologies, products and treatments. As part of this exploration the RLP identified Medicaid as an opportunity to provide national leadership in developing the evidence base for effective health care for high-opportunity populations. The RLP engaged the Center for Health Care Strategies (CHCS), a nonprofit health policy resource center dedicated to improving the quality and cost effectiveness of health care services for low-income populations and people with chronic illnesses and disabilities, to convene a meeting of experts in the spring of 2008 entitled *Building a Medicaid Rapid-Learning Network*.

The goal of the meeting was to facilitate an in-depth discussion of the opportunities for developing a Medicaid Rapid-Learning Network (MRLN). The group addressed three major questions:

1. **What works for whom?** What is the current clinical evidence base (or the lack thereof) for appropriate treatment of Medicaid populations in the context of different systems of care delivery? What performance measures are available and applicable to Medicaid populations, and what types of rigorous program evaluations are necessary to build the evidence base?

2. **Who delivers quality, effective care to Medicaid beneficiaries?** A number of innovative states, health plans and health care systems are delivering high-quality, cost effective services. How do they determine priority populations and conditions for rapid learning? How can Medicaid programs learn from and adapt tools and techniques from other sectors (e.g., Veterans Affairs) to improve quality and effectiveness?

3. **How to drive changes?** What resources are necessary to facilitate Medicaid rapid learning e.g., health information technology (HIT), data infrastructure/warehouses, discretionary/seed funding for demonstrations and rigorous program evaluation, etc.?

This report is a result of that meeting.[1] It highlights the challenges and opportunities associated with designing and implementing an MRLN. Beginning with a brief depiction of the current Medicaid program, the report assesses emerging opportunities to support rapid learning in Medicaid, and concludes with an outline of the potential priorities of an MRLN and next steps.

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[1] See Appendix A for *Building a Medicaid Rapid Learning Network* meeting agenda and Appendix B for *Building a Medicaid Rapid Learning Network* participant list.

Defining the Problem

Medicaid represents the single largest opportunity to improve quality and effectiveness for populations with high costs and complex needs.

The federal/state Medicaid program provides coverage for more than 60 million Americans at a combined cost of approximately $360 billion a year.[2] A small subset of individuals account for a disproportionate share of Medicaid program costs, with less than 4 percent of beneficiaries accounting for nearly 50 percent of total expenditures.[3] Many of these high-cost beneficiaries have multiple chronic conditions, with one recent study finding that 83 percent of individuals in the top 1 percent of acute care spending had 3 or more chronic conditions, while a full 60 percent had 5 or more chronic conditions.[4] Medicaid represents the single largest opportunity to improve quality and effectiveness for these high-opportunity populations. The results could have spillover effects for similar patients in other public programs, especially Medicare, as well as in the commercial health care sector. There are, however, a number of significant barriers to rapid quality improvement for these populations. The challenges below represent knowledge gaps preventing delivery of quality, effective health care to Medicaid beneficiaries. Improvements in administrative claims data and performance measures, however, can open the door to research, demonstrations and rigorous evaluations that can help build the evidence base in Medicaid.

Improving Medicaid's Data

Medicaid has a wealth of administrative claims data. These data can be a robust source of information on diagnostic conditions, service utilization and costs, but most state Medicaid data systems were largely designed for paying bills, rather than for effectiveness research and quality management. Gaps in the data make it difficult for researchers to produce patient registries and conduct studies to answer deeper research questions that could help further inform clinical practice, care management, and cost effectiveness. For example, primary diagnosis information is usually included in the claims data, but secondary diagnoses may be missing, a major limitation in light of the large numbers of beneficiaries with multiple chronic conditions. Similarly, claims data indicate the receipt of laboratory tests/diagnostic services, but rarely include the clinical values necessary to gain real insight on the health status of beneficiaries. Administrative claims data can also be limited by uneven encounter data in states with significant managed care penetration. Although many of the high-opportunity populations for Medicaid rapid learning remain in fee-for-service, as Medicaid programs look to enroll these populations in new systems of care, it will be essential to standardize the collection and reporting of encounter data. Other challenges that may hinder claims-based research include lack of integrated data sets due to carve-outs of certain services (e.g., prescription drugs, behavioral health, etc.).

A number of Medicaid programs, health plans and health care delivery systems have made commitments and investments in HIT to support better clinical data and rapid cycle quality improvement. Many states are taking advantage of Medicaid Transformation Grant funding to developed enhanced HIT systems (see appendix D). Leadership states like Arizona are using these grants to develop online health information exchanges and electronic health records in hopes of achieving enhanced care coordination

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[2] V. Smith. *Medicaid Financing and Quality: National and State Issues, Trends and Policy Directions*. Presentation to the Medicaid Purchasing Leadership Summit, March 28, 2008. Available at: **http://www.chcs.org/usr_doc/Session9_VSmith.pdf**.

[3] A. Somers, M. Cohen. *Medicaid's High Cost Enrollees: How Much Do They Drive Program Spending?* Kaiser Family Foundation, March 2006. Available at: **http://www.kff.org/medicaid/upload/7490.pdf**.

[4] R.G. Kronick, M. Bella, T.P. Gilmer, S.A. Somers. *The Faces of Medicaid II: Recognizing the Care Needs of People with Multiple Chronic Conditions*. Center for Health Care Strategies, Inc., October 2007. Available at: **http://www.chcs.org/usr_doc/Full_Report_Faces_II.PDF**.

for Medicaid beneficiaries with chronic diseases.[5] Other states like Washington are using integrated data sets (e.g., Medicaid claims, mental health and substance abuse, juvenile justice, housing, etc.) to inform quality improvement efforts. Similar tools for enhanced program administration and quality improvement are becoming available to states via the federal Medicaid Information Technology Architecture (MITA) program. Innovative health plans and delivery systems have already developed HIT infrastructures that could serve as models for Medicaid. The integration of electronic medical records (EMRs) with claims databases and disease registries at organizations like Geisinger, Kaiser Permanente, and Aetna/Schaller Anderson has facilitated rapid quality improvement through better population targeting and data-driven interventions.

Missing Link with Medicare

Nearly 7.5 million individuals are dually-eligible for both Medicaid and Medicare (duals).[6] They include many individuals with multiple chronic conditions and serious disabilities. These beneficiaries represent one of the largest subsets of high-need, high-cost beneficiaries in both programs. In Medicare, duals are only 16 percent of beneficiaries, but account for 25 percent of total expenditures.[7] The disproportionate spending is even more apparent in Medicaid, with only 14 percent of beneficiaries accounting for 40 percent of total spending.[8] Research on these beneficiaries is severely limited by the lack of an automatic link between Medicare and Medicaid data sets. Even when researchers are able to obtain and combine data from both programs, the data are often many years old and still suffer from the shortcomings discussed above. Now that CMS is developing integrated Medicare data files at the person level, it will be feasible in the future for Medicaid programs to create linked Medicaid-Medicare databases for the dual eligible populations.

Gaps in Quality Measures and Outcomes Research

Reducing the data barriers above would allow for substantial improvement in identifying high-opportunity beneficiaries and conducting applied research of what works for those populations. But, there are other barriers that also limit rapid expansion of the Medicaid evidence base. Advances in the development of outcomes measures and clinical practice guidelines have paved the way for enhanced quality and effectiveness in many parts of the health care system, but capitalizing on those advances is not easy for Medicaid programs. The existing research rarely includes Medicaid populations (e.g., children, particularly those with special needs; pregnant women; people with disabilities; older adults; those with multiple chronic conditions; and people with serious mental illness), making it difficult to effectively translate outcomes measures and clinical guidelines into practice for these populations. Thus, the development and validation of new quality measures, as well as clinical effectiveness studies and health information technology initiatives, need to be part of the agenda for Medicaid's future.

Overcoming data barriers in Medicaid could lead to rapid improvements and the creation of an evidence base for treating high-opportunity populations in publicly financed care and beyond.

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[5] See *AHCCS Health Information Exchange*. http://www.ahcccs.state.az.us/eHealth/

[6] *Dual Eligible Enrollment, 2003*. The Henry J. Kaiser Family Foundation, statehealthfacts.org. Available at: **http://www.statehealthfacts.org/comparetable.jsp?ind=303&cat=6**.

[7] *Health Care Spending and the Medicare Program, A Data Book, June 2008*. Medicare Payment Advisory Commission, June 2008. Available at: **http://www.medpac.gov/documents/Jun08DataBook_Entire_report.pdf**. (NOTE: Latest available Medicare data is from 2005 and does not include any effect of Part D drug costs shifting from Medicaid to Medicare).

[8] *Dual Eligibles as a Percent of Total Medicaid Enrollees, 2003*. The Henry J. Kaiser Family Foundation, statehealthfacts.org. Available at: **http://www.statehealthfacts.org/comparetable.jsp?ind=305&cat=6**; *Dual Eligibles Spending as a Percent of Total Medicaid, 2003*. The Henry J. Kaiser Family Foundation, statehealthfacts.org. Available at: **http://www.statehealthfacts.org/comparemaptable.jsp?ind=299&cat=6**. (NOTE: Latest available Medicaid data is from 2003 and does not include any effect of Part D drug costs shifting from Medicaid to Medicare).

While these challenges may seem daunting, they are the very reasons that Medicaid should be seen as a "land of opportunity." Overcoming these barriers in Medicaid could lead to rapid improvements and the creation of an evidence base for treating high-opportunity populations in publicly financed care and beyond. Fully capitalizing on this opportunity would require a broad national Medicaid improvement strategy that is beyond the scope of this report.[9] However, getting started with rapid learning as presented in the remainder of this report would be an important leadership step to drive knowledge and best practices for complex and costly Medicaid populations.

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[9] *Medicaid: A Future Leader in High Quality Effective Health Care*. This Open Letter signed by the following individuals calls upon the nation's leaders and health policy decision makers to recognize the foundation that Medicaid can provide for high-quality health care: Melanie Bella; Janet Corrigan; Karen Davis; Lynn Etheredge; Kenneth W. Kizer; Judith Moore; Margaret O'Kane; Lee Partridge; Gregory Pawlson; William Roper; Vernon Smith; Stephen Somers; Paul Wallace.

Opportunities to Inform and Support Medicaid Rapid Learning

Advances in health services research and health information technology make it possible to answer the seminal rapid-learning question:

> *Is a given treatment, quality improvement intervention, system of care, drug or device "A" better than a given alternative "B" for a specific subset of individuals "C" with characteristics "X,Y,Z."*

Answering questions about what works, for whom and in what setting will require appropriate data and a research agenda focused on addressing current gaps in the evidence base. A number of emerging efforts (e.g., comparative effectiveness, practice variation in Medicaid, effective care for comorbidities, performance measure development, evidence based clinical protocols, etc.) can inform Medicaid efforts to eliminate these gaps and help guide rapid learning. There is also much to be learned from existing evidence base dissemination programs, health information technology projects, and quality improvement initiatives (both in Medicaid and other public health care programs).

Building on Existing and Emerging Research

The development of the Chronic Care Model by Ed Wagner at the MacColl Institute[10] has driven significant new research on the quality and effectiveness of care for persons with chronic conditions. In 2003, Congress recognized the value of such research with the inclusion of Section 1013 in the Medicare Modernization Act (MMA), charging the Agency for Health Care Research and Quality (AHRQ) with the task of conducting and supporting research to meet the needs of the Medicare, Medicaid, and SCHIP programs for an evidence base.[11] One specific requirement in MMA Section 1013 was for the development of research, demonstration and evaluation priorities, with specific mention of chronic conditions "which impose high direct or indirect costs on patients or society" as a possible target for prioritization.[12] AHRQ responded to this requirement by developing an initial list of Medicare-focused priorities in 2006, which it then updated in 2008 to include Medicaid and SCHIP priorities. This list of 14 clinical conditions will "guide research, synthesis and translation and dissemination priorities" in the agency's Effective Health Care Program (see appendix C).

This emerging work, often discussed in the broader context of comparative effectiveness research, can help inform priorities for Medicaid rapid learning. It can provide insight on data sets and registries necessary to conduct research in Medicaid, while also providing access to emerging comparative effectiveness work elsewhere that may directly benefit Medicaid populations. For example, there are significant data available in existing commercial data sets for the children and pregnant women that make up a large subset of the Medicaid population. Analysis of these data could support rapid learning for these populations in Medicaid. At the same time, an MRLN could act as a source of research, demonstrations and evaluations on more complex populations.

Researchers at the University of California at San Diego (UCSD) already completed one important study on the prevalence of chronic conditions among Medicaid beneficiaries in the aged, blind, and disabled eligibility category.[13] Their research identified patterns or clusters of these conditions and the costs associated with multiple chronic conditions among these populations. This research, along with

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[10] E.H. Wagner, et. al. *Improving chronic illness care: translating evidence into action*. Health Affairs, 2001;20:64-78.
[11] P.L. 108-173
[12] Id.
[13] Kronick, et. al., op cit.

emerging work by the same authors on the variation in Medicaid service delivery, could inform Medicaid rapid learning by providing a clear picture of the highest-opportunity subsets of beneficiaries for whom rapid quality improvement is most likely to improve efficiency and effectiveness of care.

Identifying priority conditions and target populations is only the first step in the rapid-learning process. Full development of the evidence base requires an understanding of what works for those populations, and how to translate that knowledge into practice. Emerging research at Johns Hopkins University (JHU) (funded by the Center for Health Care Strategies) seeks to answer important questions about the concordance and discordance of treatment regimens for persons with multiple chronic conditions. In earlier related research, Cynthia Boyd and colleagues found that following accepted clinical practice guidelines for a hypothetical patient with five chronic conditions could result in serious adverse interactions, including death.[14] Building on the AHRQ priority conditions, the UCSD and JHU research along with related studies would allow an MRLN to better define the research agenda, target quality improvement demonstrations, and evaluate those efforts to quickly build the Medicaid evidence base – using much larger numbers of patients.

A number of research networks and quality improvement interventions focused on high-opportunity populations have already been developed in the public and private sectors.[15] These programs could provide important lessons for Medicaid rapid learning in terms of further defining the research agenda, developing effective demonstrations, and designing rigorous evaluations that will help generate the evidence base and inform future interventions. For example, the National Cancer Institute supports an HMO Cancer Research Network (CRN) that includes 14 HMOs with research databases for 11 million patients.[16] The AHRQ Primary Care Practice Based Research Network (PBRN) brings clinicians together to answer community-based health questions and translate research findings into practice.[17] These networks and others like them could provide valuable information not only on the clinical best practices for high-opportunity populations, but also on the types of interventions and evaluations that will help develop the evidence base for these populations.

Another program, the Medicare Coordinated Care Demonstration, targeted interventions for Medicare beneficiaries with chronic diseases. Though the results of the program were mixed,[18] some potentially promising practices/interventions led Congress to earmark funds to begin the development of a Medicare Chronic Care Practice Research Network (MCCPRN).[19] The new Medicare network will continue to research positive results from the demonstration and assemble the pieces for rapid learning in Medicare very similar to the vision for a new Medicaid Rapid-Learning Network.[20] This continuing research may open the door for collaboration across the programs to address some of the previously discussed barriers to improving care for dual eligibles. Along with providing important research about individuals with chronic conditions, the CRN, PBRN, and MCCPRN could provide valuable insight into the design and priorities of a rapid-learning network.

In the private sector Kaiser Permanente is now developing a biobank that will link genetic, environmental and electronic health record information. Kaiser plans to have 200,000 linked patient

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[14] C.M. Boyd, et. al. *Caring for Older Patients with Multiple Comorbid Diseases*. Journal of the American Medical Association, *294:716–724, 2005*.

[15] See Appendix C for *Quality Improvement Initiatives to Inform and Support Medicaid Rapid-Learning*.

[16] For more information visit **http://crn.cancer.gov**

[17] For more information visit http://www.ahrq.gov/research/pbrn/pbrninit.htm

[18] R. Brown, et. al. *Third Report to Congress on the Evaluation of the Medicare Coordinated Care Demonstration*. Mathematica Policy Research, Inc., January 2008.

[19] *Joint Explanatory Statement to accompany H.R. 2764, Division G (Labor/HHS/Education)*. Congressional Record, H16293, December 17, 2007.

[20] C. Schraeder. *Medicare Chronic Care Practice Research Network (MCCPRN), Evidence based chronic care initiatives focused on high cost fee for service Medicare beneficiaries*. Presentation to the Practice Change Fellows, May 2008. Available at: **http://www.practicechangefellows.org/documents/Schraeder_Chicago_2008.pdf**.

records in 2009, with a target of 500,000 patient records.[21] The biobank will include an over-sampling of minority and lower-income populations, ensuring that it will contain substantial data on high opportunity Medicaid populations. As the biobank is developed, it will be a valuable national resource, particularly for potential studies of high-opportunity populations and conditions prevalent among Medicaid enrollees. Kaiser has also supported work at the Center for Health Care Strategies on the *Medicaid Value Program: Health Supports for Consumers with Chronic Conditions,* bringing rigorous evaluation to groundbreaking models of care for beneficiaries with multiple chronic conditions.[22]

Building on Existing Measures

Recent advances in health information technology have made it possible to collect and analyze clinical data not just on the processes of care, but also on the outcomes of care. The ability to measure these outcomes has informed research studies that have led to the development of evidence-based quality measures and clinical guidelines that are widely disseminated through AHRQ (see appendix E). But, the lack of measures for individuals with multiple chronic conditions remains a significant hurdle to helping high-opportunity Medicaid populations. Fortunately, existing outcomes measures when combined with improved data-collection, data-aggregation, and data-mining techniques could provide a foundation for rapid learning.

The National Committee for Quality Assurance (NCQA) has led the way in developing performance measures for health plans with its Healthcare Effectiveness Data and Information Set (HEDIS®). Most states require their plans to collect and submit some or all of the HEDIS measures for their Medicaid managed care plans,[23] and there are currently 62 measures in the dataset that are applicable to Medicaid populations.[24] Many of Medicaid's highest-cost, highest-need populations remain in fee-for-service; adapting HEDIS measures for high-opportunity Medicaid populations in this setting and/or collecting the full range of measures for these populations would accelerate knowledge about current performance and could help further target subsets of the population for interventions. State claims data systems already collect much of the information needed to assess performance based on HEDIS measures, but to take full advantage of the measures, states must have fully integrated claims databases that include laboratory, behavioral health, and prescription drug claims. The emerging Medicaid Information Technology Architecture will offer a foundation for all state Medicaid programs to build quality measurement and management systems that can report on the HEDIS measures and provide the foundation for a national quality measurement and management program for Medicaid.[25] Building the necessary databases and using these measures could require a significant technological investment, but would provide valuable performance data for further research, demonstrations, and evidence base development to help realize the benefits of an MRLN.

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[21] *Robert Wood Johnson Foundation Awards $8.6-Million Grant to Kaiser Permanente to Develop Largest, Most Diverse U.S. Biobank*. The Robert Wood Jonson Foundation, December 17, 2008. **Available at: http://www.rwjf.org/pioneer/product.jsp?id=36848.**

[22] D. Espisito, E. Fries Taylor, K. Andrews and M. Gold. *Evaluation of the Medicaid Value Program: Health Supports for Consumers with Chronic Conditions*, Final Report. Mathematica Policy Research Inc., August 14, 2007.

[23] N. Kaye. *Medicaid Managed Care Looking Forward Looking Back*. National Academy for State Health Policy, June 2005. Available at: **http://www.nashp.org/Files/mmc64_guide_final_2005.pdf**.

[24] *HEDIS 2009 Summary Table of Measures, Product Lines and Changes*. National Committee on Quality Assurance, 2009. Available at: **http://www.ncqa.org/Portals/0/HEDISQM/HEDIS2009/2009_Measures.pdf**.

[25] See *Medicaid Information Technology Architecture - Overview*. Centers for Medicare and Medicaid Services. Available at: **http://www.cms.hhs.gov/MedicaidInfoTechArch/01_Overview.asp#TopOfPage**.

Building on Predictive and Mathematical Modeling

One important aspect in the use of data for Medicaid quality improvement is the identification of high-opportunity populations through predictive modeling. These models use sophisticated algorithms to analyze prior claims and identify beneficiaries at risk for high future utilization/expenditures. States like Oklahoma are already using predictive modeling to target quality improvement interventions for these populations.[26] The expanded use of predictive modeling and the adaptation of commercial predictive modeling tools for Medicaid populations could further rapid learning through improved identification of high-opportunity beneficiaries for research and interventions.

The next generation beyond predictive modeling is the use of mathematical modeling to forecast intervention outcomes on identified high-opportunity populations. The Archimedes Model is a mathematical simulation of human physiology, diseases, behaviors, interventions, and healthcare systems.[27] The model holds substantial promise for furthering rapid learning in Medicaid. This promise is enhanced by an RWJF-funded effort to make the model available to the public in a user-friendly format called ARCHeS, and also by work to add mental health conditions to the model making it even more relevant to the Medicaid population. ARCHeS and other mathematical modeling can support Medicaid rapid learning through initial testing of proposed interventions for specific population subsets, informing intervention design and population targeting for future Medicaid pilots.

Perhaps one of the most significant opportunities for improving quality for high-need, high-cost Medicaid populations is the reduction of unnecessary inpatient hospitalizations and emergency room visits. The AHRQ Prevention Quality Indicators (PQIs) can be used with hospital discharge data to identify ambulatory care sensitive conditions (i.e., preventable hospitalizations).[28] While the PQI measures are not specific to high-opportunity Medicaid populations, they can be used to identify gaps in outpatient care that could inform the MRLN research agenda and intervention design. As with HEDIS data, the PQIs can be used on the back end of a demonstration as one way to evaluate the quality improvement achieved for high-opportunity Medicaid populations. Those demonstration results can then be considered in the development of reliable predictive models to better target high risk populations in broader quality improvement initiatives. Similarly, among the high-use Medicaid populations, there are some patients with more than 100 emergency room visits per year; this indicates a failure of health care delivery systems to meet their needs and prevent recurrent medical emergencies. Since inpatient hospital admissions and emergency room visits are readily-available data, both PQIs and appropriate emergency room utilization measures may be useful indicators for substantial progress.

> Perhaps one of the most significant opportunities for improving quality for high-need, high-cost Medicaid populations is the reduction of unnecessary inpatient hospitalizations and emergency room visits.

There are many other programs and initiatives that have the potential to inform and support rapid learning in Medicaid (see appendices D and E). Expanding research, growth in the use of health information technology, use of evidence in clinical decisions, and the use of performance measures will

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[26] See M. Bella, C. Shearer, K. LLanos and S.A. Somers, *Purchasing Strategies to Improve Care Management for Complex Populations: A National Scan of State Purchasers*. Center for Health Care Strategies, Inc., March 2008.

[27] For more information visit http://archimedesmodel.com/archimedesmodel.html

[28] *Prevention Quality Indicators Overview*. AHRQ Quality Indicators. July 2004. Available at: http://www.qualityindicators.ahrq.gov/pqi_overview.htm

all be important components in an MRLN. Seizing on the opportunities above will help guide the research, interventions, and evaluations that will help answer the seminal rapid-learning questions about what works, for whom, and in what setting. The remainder of this report will focus on the remaining and most important question: How can an MRLN answer these questions and drive system change?

Potential Priorities of a Medicaid Rapid-Learning Network

Before Medicaid programs can fully capitalize on the many opportunities that MRLN research, demonstrations, and evaluations can potentially uncover, significant federal, state and health plan commitments and investments are necessary While the structure and specific priorities of any future MRLN would be defined by the stakeholders and experts that advise and participate in the network, the potential priorities highlighted below may help guide future efforts.

Goal Setting

The rapid transformation of the Department of Veterans Affairs (VA) health system into a high-quality, technology driven and evidence based delivery system could be seen as a model for Medicaid. The fact that the VA serves complex populations — that are similar to Medicaid populations — and was able to accomplish its transformation within the constraints of a publicly funded program could help guide the goal-setting process for an MRLN. Similar transformation within Medicaid cannot be expected unless there are federal and state commitments for Medicaid to become a national quality leader and ample investments in health information technology. To ensure success, a Medicaid Rapid Learning Network must develop and follow a clear set of ambitious goals. Sample goals might include achieving the following by a date certain:

1. Medicaid will be the best in the nation in care of "X,Y,Z" populations or conditions.
2. Medicaid will obtain "X,Y,Z" clinical outcomes through the use of evidence based care of high-opportunity populations.
3. Medicaid will require providers to meet minimum performance standards "X,Y,Z" and will create incentive structures to reward the achievement of those standards.

Defining the Research Agenda

A key component of rapid learning is the initial research necessary to answer the important questions about what works for whom and in what settings. Through careful analysis of comprehensive Medicaid and other available data, an MRLN could develop informed hypotheses that can then be tested in demonstrations, For example, observational and longitudinal analysis of Medicaid claims and integrated data sets in 5-7 states with sufficient data for large samples could provide significant information on population subsets and efficient and effective treatments for those populations. It would be extremely difficult, however, to define this research agenda without first setting some parameters from which more targeted questions could be developed. Experts could quickly coalesce around focusing on some of the high-opportunity Medicaid populations (e.g., children, particularly those with special needs, pregnant women, people with disabilities, elderly, those with multiple chronic conditions, and people with mental illness). The MRLN research agenda could then focus on effective clinical treatment of the priority conditions and populations (yet to be determined) most likely to generate positive short-term and long-term impacts on quality of care, quality of life, and program costs. A draft matrix including some likely priority populations and conditions that could guide the research agenda is presented in Appendix F.

Setting the research agenda should take into account the availability of data on priority populations and conditions, but may also inform the development of new data capacity as described further below. Network participants would be responsible for collecting the data and would likely collaborate in some of the research. The MRLN could start with a set of research partners capable of quickly analyzing the data and generating useable reports to further the rapid-learning process. The MRLN would, as its name suggests, facilitate connections between researchers and Medicaid stakeholders on collaborations to answer research questions as quickly as possible and to inform the translation of findings into practice.

Developing Data Capacity

The research described above requires significant data capacity. Building on the well-developed Medicaid and integrated data systems of selected network participants, an MRLN could work with stakeholders to further develop the infrastructure and technical expertise necessary to collect and connect comprehensive claims, encounter, and clinical outcomes data. Medicaid Transformation Grants for HIT development and CMS' MITA program provide resources (funding and technical assistance) to help potential MRLN leadership states develop many of the basic data elements and functionalities necessary for advancing the research agenda. Investments in MITA systems benefit from an automatic 90% federal match for adoption and 75% for operations. There will, however, be a need for additional funding to support the wide-scale development of the data infrastructure necessary for ongoing rapid-learning. Medicaid Transformation grants have provided $150 million of assistance to date and can help to fill in these gaps, along with foundation and other U.S. Department of Health and Human Services funds.

Improved data infrastructure and analytic capacity in MRLN-selected Medicaid programs are vital to rapid learning. Health information exchange (HIE) is one of the promising recent developments in HIT, and the development of regional HIE networks that include Medicaid is one possible model for collecting the data necessary for rapid learning. An MRLN could call on the experience of HIEs like the Indiana Health Information Exchange[29] and other Regional Health Information Organizations (RHIOs) to inform the development of databases and data exchange capabilities necessary to answer rapid-learning research questions and evaluate demonstrations. Many of today's successful learning networks, such as the HMO Research Network, involve collaborative research drawing on independent databases that use common electronic health record (EHR) systems. Central data repository models (e.g., the National Health Service model) could also be used in an MRLN, giving multiple providers web-based access to a comprehensive Medicaid database, reducing the need for widespread interoperable HIT adoption by Medicaid providers. One possible initial goal of an MRLN could be the encouragement of providers, through financial or other incentives, to use a central EHR server and data repository to coordinate care for high-opportunity populations.

Building the data infrastructure is only half the battle. The integration of Medicaid data—from EHRs, administrative claims, and other sources—is necessary to provide truly comprehensive data sources for Medicaid rapid learning. However, EHRs are not considered to be a universal answer to Medicaid's data problems, especially considering that many Medicaid beneficiaries receive care in small practices or public safety-net providers unlikely to adopt the expensive technology in the foreseeable future. The central Medicaid data repositories, and HIE described above could aggregate data from existing sources including, administrative fee-for-service and managed care encounter claims, EHRs (e.g., health plans, New York City's program for high-volume providers, Missouri HealthNet, etc.), disease registries, and Medicaid quality improvement programs (e.g., disease management). The challenge for an MRLN is how to integrate existing claims-based data with rich non-administrative data (e.g., clinical lab values, behavioral health status, socioeconomic risks, etc.) to create comprehensive datasets to answer the priority research questions in real time.

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[29] See http://www.ihie.com/about_us.htm

An appropriately ambitious step for an MRLN would be the creation and use of distributed data networks that could make it possible to use comprehensive databases from the leading-edge Medicaid states and health plans, RHIOs, and VA and enable large-scale data mining. These networks could eliminate barriers to rapid learning by facilitating collaborative research and analysis on large data sets. Researchers would thus be able to conduct descriptive and observational studies including data from multiple states and with significant numbers to analyze subsets of beneficiaries that could be targets for rapid-learning interventions. Health care systems including the VA, Kaiser Permanente, and Geisinger already have large integrated databases with significant data-mining capabilities that have led to improved quality of care in their own systems. An MRLN could build on data-mining best practices from these systems and apply those techniques to the aggregated data available in distributed data networks to maximize rapid-learning research capabilities.

Building the Evidence Base and Facilitating Rapid Learning

Translating the goals, research agenda, and data capacity of the nation's Medicaid program into evidence-based care delivery is the ultimate challenge for an MRLN. A potential starting point could be an outline of a continuous feedback cycle to support real-time ongoing refinement in each step of the cycle:

- Using Medicaid data to answer questions defined in the research agenda.
- Developing hypotheses from the research and conducting demonstrations to test those hypotheses.
- Evaluating demonstrations and informing the next cycle of research and demonstrations.

The initial step in this cycle is to use the newly developed data capacity of an MRLN to answer questions from the research agenda using descriptive and longitudinal studies of Medicaid claims and clinical data. The goal of these analyses would be to better understand high-opportunity Medicaid populations and target those most likely to benefit from quality improvement initiatives. This research may also be used to inform intervention design as analyses uncover information about treatments that are more or less likely to have a positive impact on targeted subsets of the population. Building on AHRQ's Effective Health Care Program priority conditions for comparative effectiveness research, an MRLN could begin by targeting high-opportunity Medicaid populations including beneficiaries with multiple chronic conditions, individuals with mental illness and co-occurring chronic conditions, people with severe and persistent mental illness, and dual-eligibles.

> A Rapid Learning Network could begin by targeting high-opportunity Medicaid populations including beneficiaries with multiple chronic conditions, individuals with mental illness and co-occurring chronic conditions, people with severe and persistent mental illness, and dual-eligibles.

The next step in the cycle is to use the research to develop hypotheses for intervening with subsets of high-opportunity Medicaid beneficiaries and use demonstrations to test these assumptions. These quality improvement initiatives could draw on experience from existing programs or could test new treatment models generated from the research. Initially these demonstrations could take place in states participating in the MRLN, but eventually it may be possible to facilitate such testing though the use of simulations and mathematical models rather than demonstrations. The development of models like

Archimedes[30] makes it possible to analyze the effects of proposed interventions before implementation, potentially providing the opportunity to run thousands of simulations to identify the most effective interventions for different subsets of high-opportunity populations. This capability could speed the rapid-learning process and inform future quality improvement efforts by allowing states to target high-opportunity subsets of beneficiaries with interventions most likely to enhance quality and reduce cost growth.

Completing the cycle would require rigorous evaluation of outcomes and costs and subsequent ongoing refinements of the research and demonstrations. The use of targeted randomized controlled trials (RCTs) may be appropriate for some interventions, but the time and cost required to conduct RCTs could severely limit flexibility in intervention design and slow the pace of rapid learning. An MRLN could also use other experimental and non-experimental study designs to rapidly evaluate demonstration results. As these results become available an MRLN could refine population subsets and tailored interventions in new demonstrations. This rapid continuous feedback cycle could further clarify the existing evidence base and generate new evidence for effective treatment of high-need, high-cost Medicaid populations.

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[30] See *What is the Archimedes Model*. Archimedes, Inc. Available at: **http://archimedesmodel.com/archimedesmodel.html**.

Next Steps

This report represents the first step in a multi-phase exploration of using a rapid-learning approach to improve quality in Medicaid. The issues discussed herein lay the groundwork for further development of an MRLN, providing important insight on the challenges, opportunities, and possible network priorities for Medicaid rapid learning. The MRLN should initially focus on conditions and Medicaid populations that are most likely to benefit from rapid adoption of evidence based practices. As the MRLN defines these populations it should take into account the benefits of both increased quality and possible reduction in costs that may flow from rapid learning. The MRLN might be best served by identifying a small cadre (5-7) of innovative statewide (or regional) Medicaid programs and health plans to potentially participate, provide data to inform research and development, conduct the demonstrations, and contribute to the evidence base through evaluation of those interventions.

In moving toward this goal the authors propose a second meeting with a smaller group of experts chosen from among stakeholders likely to be included in an MRLN (e.g. researchers, health plans, states, etc.). Participants would be charged with using the information gained at the first meeting and presented in this report to design an MRLN structure that can effectively undertake the priorities of goal setting, defining the research agenda, developing data capacity and building the evidence base. As part of this structure, participants would consider the roles for MRLN participants and identify specific states, researchers, health plans and other stakeholders best suited to carry out those roles. The second meeting would also be used to consider and narrow the list of priority conditions that would eventually be used by the MRLN to guide the research, demonstrations and evidence base development. The end result of this meeting would be a roadmap for an MRLN which, with the support of philanthropic and public funding, could be convened through a national leadership organization and quickly begin to engage in Medicaid rapid learning.

Appendix A: *Building a Medicaid Rapid-Learning Network: Agenda*

Wednesday, April 23, 2008
Hilton Embassy Row | 2015 Massachusetts Ave. NW | Washington, DC 20036
Sponsored by the Rapid Learning Project through a grant from the Robert Wood Johnson Foundation

Meeting Objectives:
Medicaid is the nation's largest health care program, serving a disproportionate share of the highest-need, highest-cost populations, presenting a substantial opportunity for system improvement. This meeting will bring together a small group of experts to brainstorm on the development of a Medicaid Rapid-Learning Network as a key step in making Medicaid a national leader in the delivery of high-quality, efficient health care services. A new Medicaid Rapid-Learning Network could include a core of Medicaid programs and health plans that would be national learning laboratories and innovators, with first-rate EHR, claims-based data systems and research databases, for the rest of the Medicaid program.

Time	Activity
7:45 – 8:30	**Registration/Breakfast**
8:30 – 9:15	**Welcome, Overview and Introductions:** Lynn Etheredge, Consultant, Rapid Learning Project, George Washington University Steve Somers, President & CEO, Center for Health Care Strategies
9:15 – 10:45	<u>**Session 1: Medicaid and Evidence Based Health Care**</u> *This session will consider how to make the Medicaid program a national leader in the use of evidence based health care. Participants will be asked to consider and answer the following questions: Where is Medicaid today? With a major commitment to making Medicaid a national flagship program for delivery of high quality, effective health care where could Medicaid be in five years? What will be needed to accomplish these goals?* **Facilitator:** Lynn Etheredge **Keynote Speakers: Building the Evidence Base for Medicaid Populations** ▪ Carolyn Clancy, MD, Director, Agency for Healthcare Research and Quality ▪ Mark McClellan, MD, PhD, MPA Director, Engleberg Center for Health Care Reform **Overview:** Judy Moore, Senior Fellow, National Health Policy Forum **Discussants:** ▪ **Understanding Medicaid's High Needs Patients:** Coleen Kivlahan, MD, MSPH, Senior Medical Director for Innovation, Schaller Anderson/Aetna, Inc. ▪ **Evaluating Drug Therapies:** Mark Gibson, Deputy Director, Center for Evidence Based Policy, Oregon Health & Science University ▪ **Assessing Technologies:** Vivian Coates, MBA, Vice President, Information Services and Technology Assessment, ECRI ▪ **Outcomes and Quality Metrics:** Greg Pawlson, MD, MPH, Executive Vice President, National Committee for Quality Assurance ▪ **Building and Using Predictive Models:** David Kendrick, MD, Medical Director, Archimedes, Inc. **Summary:** Michael McGinnis, MD, Senior Scholar, Institute of Medicine

Time	Activity
10:45 – 11:00	**Break**
11:00 – 12:15	**Session 2: National Learning Laboratories (Part 1) – Leadership States** *This session will focus on how leadership states can lead and collaborate to make Medicaid a national flagship program for high quality, effective health care. How can EHRs and claims databases, capabilities for research and development, prototype/model development and testing be used? What specific goals could be set and what would it take to accomplish them? What support will be needed from the federal government and others? Who should be part of a Medicaid rapid-learning network?* **Facilitator:** Melanie Bella, MBA, Senior Vice President, Center for Health Care Strategies **Discussants: State Medicaid Leaders and CMS Perspectives:** ▪ David Mancuso, PhD, Assistant Research Supervisor, Washington State Department of Social & Health Services ▪ Roger Snow, MD, Deputy Medical Director, Massachusetts Executive Office of Health and Human Services ▪ Patricia MacTaggart, Lead Research Scientist, The George Washington University Department of Health Policy ▪ Charlene Frizzera, Chief Operating Officer, Centers for Medicare and Medicaid Services
12:15 – 1:00	**Lunch**
1:00 – 2:15	**Session 3: National Learning Laboratories (Part 2) – Health Plans, Providers and VA** *This continuation from session 2 will focus on how other leaders in high quality, effective health care can help lead and collaborate to make Medicaid a national flagship program. How can EHRs and claims databases, capabilities for research and development, prototype/model development and testing be used? What specific goals could be set and what would it take to accomplish them? What support will be needed from the federal government and others? Who should be part of a Medicaid rapid-learning network?* **Facilitator:** Steve Somers **Discussants: Health Plans, RHIOs & VA Perspectives** ▪ Paul Wallace, MD, Medical Director, The Permanente Federation ▪ Ronald Paulus, MD, Chief Technology Officer, Geisinger Health System ▪ Todd Lee, PharmD, PhD, Acting Deputy Director, Center for Management of Complex Chronic Care, Department of Veterans Affairs
2:15 – 2:20	**Break**
2:20 – 3:20	**Session 4: Design and Implementation of a Medicaid Rapid-Learning Network** *This session will ask participants to build on earlier discussions to design and define the roles of a Medicaid Rapid-Learning Network. All participants will engage in a roundtable discussion of the following questions:* *1. What are the pieces needed to build a rapid-learning network and how should those pieces work together?* *2. What are the activities and priorities of a rapid-learning network?* *3. What resources will a rapid-learning network require?* **Facilitators:** Judy Moore and Melanie Bella
3:20 – 3:30	**Wrap-Up, Final-Comments, Next Steps:** Lynn Etheredge and Steve Somers

Appendix B: *Building a Medicaid Rapid-Learning Network Participant List*

Wednesday, April 23, 2008 | Washington, DC

Nancy Barrand, MPA
Special Adviser for Program Development
The Robert Wood Johnson Foundation

Karen Bell, MD
Director
Office of Health IT Adoption
Office of National Coordinator for Health Information Technology

Carolyn Clancy, MD
Director
Agency for Healthcare Research and Quality

Vivian Coates, MBA
Vice President
ECRI Institute

Charlene Frizzera
Chief Operating Officer
Centers for Medicare and Medicaid Services

Mark Gibson
Deputy Director
Center for Evidence-Based Policy
Oregon Health & Science University

David Kendrick, MD, MPH
Medical Director
Archimedes, Inc.

Coleen Kivlahan, MD, MSPH
Senior Medical Director for Innovation
Schaller Anderson, Inc./Aetna

James Knickman, PhD
President and CEO
New York State Health Foundation

Richard Kronick, PhD
Professor
University of California, San Diego

Todd Lee, PharmD, PhD
Acting Deputy Director
Center for Management of Complex Chronic Care – Department of Veterans Affairs

Patricia MacTaggart
Lead Research Scientist
Department of Health Policy
George Washington University

David Mancuso, PhD
Senior Research Manager
WA State Department of Social and Health Services

Mark McClellan, MD, PhD
Director
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J. Michael McGinnis, MD, MPP
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Aaron McKethan, PhD
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Jean Moody-Williams, RN, MPP
Director, Quality, Evaluation and Health Outcomes
Centers for Medicare & Medicaid Services

Ronald Paulus, MD, MBA
Chief Technology and Innovation Officer
Geisinger Health System

Gregory Pawlson, MD, MPH
Executive Vice President
National Committee for Quality Assurance

Jean Slutsky, PA, MSPH
Director, Center for Outcomes and Evidence
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Medical Director
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GWU Staff

Lynn M. Etheredge
Consultant
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Judith Moore
Senior Fellow
National Health Policy Forum

CHCS Staff

Melanie Bella, MBA
Senior Vice President

Chad Shearer, JD, MHA
Program Officer

Stephen Somers, PhD
President

Appendix C: *AHRQ Effective Health Care Program Priority Conditions*[31]

Priority Conditions

Section 1013 of the Medicare Modernization Act directs the Secretary of the Department of Health and Human Services, acting through the Director of the Agency for Healthcare Research and Quality, to establish a list of priorities and conduct research, demonstrations, technology assessments, evaluations or other activities, including the provision of technical assistance, scientific expertise, or methodological assistance to support the Medicare, Medicaid, and State Children's Health Insurance Program (SCHIP) programs.

Specifically, the criteria for prioritizing the topics are suggested by the terms of Section 1013(a)(2)(C): Health care items or services that:

1. Impose high costs on Medicare, Medicaid, or SCHIP programs;
2. May be over or underutilized, and
3. Those which may significantly improve the prevention, treatment, or cure of diseases and conditions which impose high direct or indirect costs on patients or society.

Pursuant to the legislative mandate and the impending implementation of the Medicare prescription drugs benefit, the Secretary in 2005 chose an initial set of 10 priority conditions focusing primarily on the needs of Medicare program.

Through discussion with and extensive input from stakeholders, the Secretary in 2008 expanded the list of priority conditions to include conditions relevant not only to the Medicare program, but also Medicaid and SCHIP programs. This updated list of clinical conditions will guide research, synthesis and translation and dissemination priorities for AHRQ's Effective Health Care Program:

- Arthritis and nontraumatic joint disorders (Muscle, bone, and joint conditions)
- Cancer (Cancer)
- Cardiovascular disease, including stroke and hypertension (Heart and blood vessel conditions)
- Dementia, including Alzheimer's Disease (Brain and nerve conditions)
- Depression and other mental health disorders (Mental health)
- Developmental delays, attention-deficit hyperactivity disorder and autism (Developmental delays, ADHD, autism)
- Diabetes Mellitus (Diabetes)
- Functional limitations and disability (Functional limitations and physical disabilities)
- Infectious diseases including HIV/AIDS (Infectious diseases and HIV/AIDS)
- Obesity (Obesity)
- Peptic ulcer disease and dyspepsia (Digestive system conditions)
- Pregnancy including pre-term birth (Pregnancy and childbirth)
- Pulmonary disease/Asthma (Breathing conditions)
- Substance abuse (Alcohol and drug abuse

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[31] *Reprinted from:* ***http://effectivehealthcare.ahrq.gov/aboutUs.cfm***

Appendix D: *Quality Improvement Initiatives to Inform and Support Medicaid Rapid Learning*

A number of states, plans, and health care systems are already engaged in moving the evidence base into practice and targeting interventions for the populations likely to be included in the early stages of Medicaid rapid learning. There are significant opportunities for an MRLN to learn from, replicate and build on these quality improvement initiatives. Likely initiatives that could inform and support an MRLN include:

1. **Multi-Stakeholder Collaboratives:** Successful quality improvement programs often include a strong link between payers, providers, and beneficiaries. The following examples of these types of multi-stakeholder collaborative could help inform rapid-learning research and demonstration design. The Medicare Coordinated Care Demonstration (MCCD) included 15 care-coordination interventions in fee-for-service Medicare. Results are not generally applicable to Medicaid populations, but the intervention designs, synthesis of findings from those interventions, and estimates of effectiveness could inform Medicaid rapid learning.[32] For more than 15 years CHCS has worked with states, plans, and other Medicaid stakeholders to improve the quality of care for Medicaid beneficiaries. A significant focus of CHCS' current work is on improving quality and value for on high-need, high-cost ABD/SSI Medicaid beneficiaries. In its *Rethinking Care Program* CHCS will work with up to eight states and their associated stakeholders to develop and rigorously evaluate quality improvement interventions for these high-opportunity populations. CHCS has also conducted multi-stakeholder work with states on pay for performance and the business case for quality that could inform rapid-learning.

2. **Putting Research into Practice:** Though the development of a robust health information technology infrastructure and providing dedicated resources to research and practice improvement the VA has become a leader in delivery of quality, evidence based care. Insight from the VA Health Services Research and Development Service and the Quality Enhancement Research Initiative to implement research findings into clinical practice may help guide the MRLN in defining the research agenda and translating the Medicaid research into practice.[33] The Medicaid Medical Directors Learning Network could support an MRLN in achieving this translation through implementing evidence-base research in the states and using the results to improve practice.

3. **Provider and Plan Based Quality Improvement:** Numerous health plans and delivery systems have implemented quality improvement initiatives for high-opportunity populations that can inform and support Medicaid rapid learning. Evidence-based quality improvements in plan-based integrated delivery systems like Kaiser Permanente driven by strong data collection and analysis provide opportunities for learning similar to those in the VA. Efforts by Medicaid plans like Aetna/Schaller-Anderson and other commercial health plans to enhance quality through care management and process improvement can inform population targeting and intervention design, as well as provide insight on financial incentives to support quality improvement.

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[32] See *Evaluating the Medicare Coordinated Care Demonstration*, Mathematica Policy Research, Inc. Available at: **http://www.mathematica-mpr.com/health/bestprac.asp**.

[33] See *About HSR&D*. United States Department of Veterans Affairs, Office of Research and Development, Health Services Research & Development Service (HSR&D). Available at: **http://www.hsrd.research.va.gov/about/**; *QUERI Program Description*. United States Department of Veterans Affairs, Office of Research and Development, Health Services Research & Development Service (HSR&D). Available at: **http://www.hsrd.research.va.gov/queri/program.cfm**.

4. **Innovative Medicaid Quality Improvement Initiatives:** A number of states are already focusing quality improvement efforts on high-opportunity Medicaid beneficiaries (e.g., Washington, New York, Arizona, Oklahoma). Learning from these efforts can help guide the Medicaid rapid-learning agenda and can provide important sources of data and help identify appropriate state partners for initial inclusion in an MRLN.

Appendix E: *Evidence Base and HIT Initiatives to Inform and Support Medicaid Rapid Learning*

A successful MRLN will require: 1) new technology to facilitate research: 2) an understanding of the existing evidence base and how that evidence may apply to high-opportunity Medicaid populations: 3) the ability to transform new and existing evidence into practice; and 4) the ability to measure quality outcomes from interventions. A number of national research and resource development projects could help inform and support an MRLN in meeting these challenges, including:

1. **Medicaid Health Information Technology:** In 2006 Congress created the Medicaid Transformation Grant program as part of the Deficit Reduction Act.[34] Through a competitive solicitation process states have received $150 million in grants under the program, much of which has been devoted to the development of health information technology infrastructure. The NASMD Multi-State Collaborative for Medicaid Transformation and NGA State Alliance for e-Health are supporting states' Medicaid Transformation grant efforts by providing resources and forums for state collaboration on HIT adoption and health information exchange (HIE). These efforts will provide improved systems from which an MRLN may help build distributed data networks for research and develop targeted quality improvement efforts for high-opportunity Medicaid populations.
2. **Evidence Base Development and Dissemination:** There are over 2,000 evidence-based clinical practice guidelines for all types of conditions and treatments in the National Guideline Clearinghouse (NGC).[35] The NGC is a comprehensive source of information to answer the question what works and for whom, but guidelines for multiple chronic conditions are still in their infancy. A quick glance at the guideline clearinghouse taking into account the prevalence of particular conditions in high-opportunity Medicaid populations can identify gaps in the evidence and help define the research agenda for Medicaid rapid learning. As an MRLN develops rigorously evaluated demonstrations that will create a new evidence-base for high-opportunity Medicaid populations, the network could consider submitting these guidelines to the NGC thereby informing practice in other public programs and commercial systems.

   A number of other programs are developing evidence bases that can inform rapid learning. The Centers for Education & Research on Therapeutics administered by AHRQ can provide important information on the optimal use of drugs, devices, and biological products, and an MRLN could use that information to define research questions and design interventions for high-opportunity Medicaid populations. The Medicaid Evidence-based Decisions project at Oregon Health and Science University is already working with 11 states to apply the best available evidence to Medicaid program decisions (e.g., coverage determinations). States involved in this project may be targets for the initial MRLN because of their willingness and ability to translate evidence into Medicaid practice.
3. **Measuring and Achieving Quality:** There are many quality measures beyond the HEDIS measures discussed in the full text of this report. The National Quality Measures Clearinghouse houses 1,524 evidence-based quality measures, many of which are related to the clinical best-practices included in the National Guidelines Clearinghouse. These measures could inform rapid-learning intervention design and help support rigorous evaluation of those interventions.

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[34] P.L. 109-171, Section 6081. February 8, 2006.

[35] **http://www.guideline.gov/browse/guideline_index.aspx**.

The National Priorities Partnership has proposed a set of national quality priorities and goals for system-wide implementation.[36] These quality goals can inform rapid learning objectives, and are a prime example of how an MRLN may capitalize on the collective efforts of diverse stakeholders around defined quality improvement priorities.

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[36] National Priorities Partnership. *National Priorities and Goals: Aligning Our Efforts to Transform America's Healthcare*. Washington, DC: National Quality Forum; 2008.

Appendix F: *Medicaid Matrix for Quality, Evidence-Based Care*

This matrix is intended to stimulate discussion regarding the priority conditions and populations that could be initial targets for a national Medicaid evidence base. The high-opportunity populations included are only examples of possible target areas for Medicaid rapid learning. Some of the cells of this matrix could be filled in for those diseases where significant evidence already exists (diabetes example below), others and perhaps most of the cells would currently be blank, suggesting substantial opportunity areas for evidence base development. A Medicaid Rapid-Learning Network could be charged with using Medicaid data to help complete the steps toward evidence-based care where current research is lacking.

The steps toward evidence based care in the matrix may be considered as a series of questions that must be answered in progression:

1. Is there an outcomes measure that indicates whether a patient has benefited from treatment?
2. Are there evidence-based clinical practice protocols that providers can use to improve outcomes for the identified measures?
3. Are there standards of performance for those measures that providers can strive to reach (e.g., specific clinical scores)?

High-Opportunity Medicaid Populations and Health Conditions	**Understanding the Population**		**Steps Toward Evidence Based Care**		
	# of beneficiaries in population	$ spent on those beneficiaries	Outcomes Measures	Evidence Based Protocols	Standards of Performance Assessment
Physical Health Comorbidities (examples)					
Asthma					
Chronic Pain					
COPD					
Diabetes	1.9 Million	$31.5 billion	HbA_{1c}, LDL Cholesterol , Blood Pressure	AHRQ Analysis of Diabetes Care Strategies	IHI - HbA_{1c} < 7, LDL < 130, BP < 130/80
Heart Disease					
Hypertension					
Mental Illness and/or Substance Abuse + Chronic Condition					
Serious and Persistent Mental Illness					
Dual Eligibles					

Over time the matrix could be expanded to include more rows for other clinical conditions, or rows that analyze interventions (e.g., care management, care coordination, etc.) in addition to specific conditions and populations. The columns of the matrix could be expanded to include information on factors such as accuracy of diagnosis, genetic predisposition, and available comparative effectiveness data on different treatment modalities. At some point it may be possible to assign grades (A-F) to the quality of the measures, protocols, and performance standards in the matrix.