

# eMAC Update: Measuring and Supporting Compliance



## INTRODUCTION

**Adherence Defined** *The extent to which a person's behavior (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice.*<sup>1</sup>

eHealth Initiative's Electronic Medication Adherence Collaborative (eMAC) continues to convene multiple stakeholders to identify effective innovation and best practices that improve patient outcomes and save money, through medication adherence. During and in-person meeting on December 12, 2017, eMAC focused on the potential to create an adherence "vital sign," which providers might use to track patient compliance with treatment plans. This summary contains metrics providers and researchers are currently using to assess patient adherence and other highlights from the meeting. All presentations are located online in the [eHealth Resource Center](#).

## TOOLS USED TO MEASURE ADHERENCE

Kristin A. Riekert, PhD, Co-Director, of The Johns Hopkins Adherence Research Center (JHARC) informed the group that FICO (historically known for tracking financial credit scores) has developed risk scores for medication adherence with the Centers for Disease Control (CDC). She stated that non-adherence "risk" scores are often proposed for clinical use. Although behaviors can be measured, being "at risk" for non-compliance should not be treated as a medical diagnosis requiring treatment. According to Dr. Riekert, there are several tools currently used to measure adherence, from a behavior change perspective, and each has advantages and disadvantages.

Measure	Advantages	Disadvantages
<b>clinical judgement</b> ( <i>provider perspectives</i> )	Fast, inexpensive, easy, standard components	Physician factors such as bias and stereotyping, patient factors such as social desirability, equating health outcomes with adherence
<b>self-reports</b> ( <i>clinical interviews, questionnaires, etc.</i> )	Inexpensive, easy, suitable for clinical care, allows for identification of barriers, highly specific	Social desirability, memory limits, interviewer skills
<b>medication measurement</b> ( <i>pill counters, canister weighing, etc.</i> )	Objective index of maximum use, provides some dose response data, inexpensive within research setting	Does not measure use patterns, vulnerable to medication dumping, requires two counts for an estimate
<b>pharmacy refill data</b> ( <i>information pharmacies are currently tracking</i> )	Objective index of maximum use, provides some dose response data, suitable for clinical care and many research studies, included in EMRs, good for e epidemiological data	May not capture primary non-adherence, requires "closed" dispensing system, cannot confirm medicine is taken, does not measure patterns use, not sensitive to recent or transient changes in medication use
<b>electronic monitors</b> ( <i>devices such as blood glucose meters, Medminder blister packs, etc.</i> )	Detailed information on patterns of use, excellent source of information for assessing dose-response relationship, identifies medication dumping, may enhance adherence	Cannot confirm ingestion, vulnerable to technical problems, can be expensive, potentially reactive, not currently available for all medicines, may interfere with established routines, may require training patients and monitoring data quality
<b>biochemical measures</b> ( <i>assays of drug levels in blood, saliva, urine</i> )	Confirms ingestion, good validity & reliability	Generally, only confirms use for prior 24-48 hours, does not measure pattern of use, not available for most medicines, multiple factors affect results

<sup>1</sup> Hayes-Bautista, D. (1976). Modifying the treatment: Patient compliance, patient control and medical care. *Social Science and Medicine*, 10, 233–238.

When it comes to medication adherence, Dr. Riekert went on to state that reminders alone are not enough, apps lack the necessary functionality to support adherence, patterns are important, and people like proof that medications work. Additionally, she stated that **few physicians actively request objective adherence data or look at this information when it is placed in the EHR.**

Some physicians are turned off by the punitive implications of adherence. For instance, the denial of organ transplants or coverage of CPAP machines if a patient is considered non-adherent. Dr. Riekert concluded that medication adherence interventions need to be *S.M.A.R.T* (Specific, Measurable, Achievable, Relevant, Timely) and that *Just in Time Adaptive Interventions*, which use machine learning, should be delivered when need is demonstrated, as opposed to when adherence is already good or when bad habits are already established and reinforced.



### ATTITUDES AND BELIEFS IMPACT MEDICATION SAFETY & ADHERENCE

Marie T. Brown, MD, FACP, Associate Professor of Rush Medical College and Rush University Medical Center, and Senior Physician Advisor, Physician Satisfaction and Practice Sustainability Group, of the American Medical Association (AMA) led the discussion on beliefs that impact adherence. Dr. Brown began the conversation with a year 2005 fact from the World Health Association, stating **“Increasing adherence may have a far greater impact on the health of the population than any improvement in specific medical treatments.”**



Dr. Brown stated that in the 1940's, it was legal to jail patients who were non-compliant with tuberculosis medication and in some states, including California, it is still legal to jail non-compliant patients. Emphasizing that adherence is driven by patients' beliefs, she stated that a **'non-adherent personality' does not exist and there is no consistent relationship between demographic characteristics and adherence.** Dr. Brown discussed the numerous reasons for non-adherence, including social desirability bias (for example, a side effect of ACE inhibitors is hair loss), fear of punishment, or admonishment, and fear of embarrassment.

Unintentional obstacles to adherence include forgetting, shift work, cost, confusion, work restrictions, while intentional obstacles include mistrust, fear of side effects, mental illness, lack of belief in medication benefits, fear of dependency, fear of dangerous medication, lack of desire, no apparent benefit, altruism. Dr. Brown also discussed the many clinical issues caused by lack of adherence, the Morisky 4-Item Self Report Measure of Medication Taking Behavior, Adherence Estimators, the AMA's eight steps to improve adherence, and the importance of competence and caring for physicians when building trust with patients. She recommended doctors redesign their practice and reignite their passion with the AMA's Steps Forward program, <https://www.stepsforward.org/>.

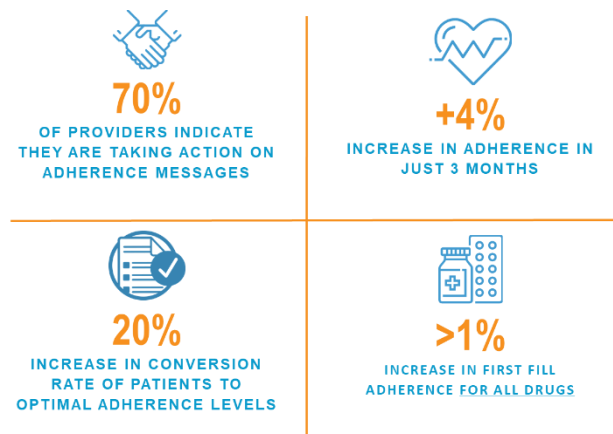
Finally, Dr. Brown suggested six ideas she thought eHealth Initiative should explore through the work of the collaborative:

1. An annual renewal for medications used to treat chronic conditions
2. Prescription transfers to new pharmacies at the patients' request
3. Consolidate refill dates to ensure all meds are filled on same date
4. A simple notification system that sends alerts about discontinuation of drug or dose changes
5. Policies about the change and shape of generic drugs, as this decreases adherence (For example, the UK improved asthma control by mandating the same color for all controller inhalers and a different color for all rescue inhalers, regardless of brand.)
6. Systems for continuity of chronic medication prescriptions from year to year

## SUPPORTING TREATMENT COMPLIANCE & COLLABORATING APPROACHES AT POINT OF CARE

Stephen Ranjan, Global Human Health Executive Director, Global Customer Solutions & Innovation Customer Solutions, Merck & Co., Inc. discussed the Alexa Diabetes Challenge, <http://www.alexadiabeteschallenge.com/>. This competition explored using voice-enabled solutions and the ecosystem of supporting cloud technologies, provided by Amazon Web Services, to improve the experience of newly diagnosed patients with type 2 diabetes. The winner of the contest was Sugarpod, a comprehensive diabetes care plan solution that provides tailored tasks based on patient preferences. It delivers patient experiences via SMS, email, web, a mobile application, and one day will be able to deliver experiences via voice interfaces.

The challenges patients face in getting the right prescription, were outlined by Scott Motejunas, Products Strategy and Innovation at Surescripts. Inaccurate information; manual prior authorizations; and high out of pocket prescription costs were among the culprits. Motejunas noted that oftentimes patients are not intentionally deceitful and earnestly believe they are adhering. Surescripts has been working with industry stakeholders to impact decision-making at the point of care and their pilot program garnered the results in the image to the right.



In her presentation on Technology-Based Interventions to Promote Adherence, Delesha Miller Carpenter, PhD, MSPH, Assistant Professor, Division of Pharmaceutical Outcomes and Policy, University of North Carolina Eshelman School of Pharmacy, discussed inroads made in her pilot called, *Asthma Project: Tailored Inhaler Technique Intervention Program*. The program featured instructional video of youth demonstrating correct inhaler usage and enrolled 359 youth with asthma and 40 providers. Dr. Carpenter found that youth in the intervention group were significantly more likely to ask one or more questions about medications, triggers, and environmental control than youth in usual care. Additionally, providers were significantly more likely to educate youth in the intervention group about rescue medications, triggers, and environmental control.

Walgreens has made its own medication adherence tools and have set a goal to make sure patients get regular prescription refills. According to Michelle Davidson, Senior Manager, Pharmacy Technical Standards, Development & Policy at Walgreens, the *type* of communications that patients receive matters. Walgreens implemented a 90-day refill program, refill reminders, and other tools. Some of the challenges they once faced no longer exist. Now that Medicare synchronization is written into Part D, there is no longer an insurance barrier. They have linked therapies and aim to be more predictive than reactive. For instance, if the proportion of days covered (PDC) is under 80% then pharmacist will consult with patients. Additionally, Walgreens is working on getting longer prescription times for certain medications. For example, they will attempt to get a yearlong prescription for patients who have a 30-day medication with 12 refills, making the refill procedure unnecessary.

The American Health Information Management Association (AHIMA) developed a [tip sheet](#) for opioid addiction documentation. Essentially, the document states that high-quality documentation should be clear, consistent, complete, reliable, precise, legible, and timely. The tip sheet provides examples of poor, missing, and high-quality statements when it comes to specificity around opioid documentation. Lauren Riplinger, JD, Senior Director, Federal Relations of AHIMA presented on this topic and noted that some diseases, such as cystic fibrosis, are lifelong, therefore prescription should be as well.

## SHARING INFORMATION ACROSS THE CARE CONTINUUM

Lindsey Ferris, MPH, CPH, PMP, Program Director of HIE Projects at the Chesapeake Regional Information System (CRISP) discussed information sharing across the care continuum. CRISP is a regional health information exchange (HIE) serving Maryland and the District of Columbia. CRISP partnered with the state of Maryland and the District to get Prescription Drug Monitoring Program (PDMP) data. Now, controlled substance data is reported within 3 days. CRISP began with hospital-based data and were able to collect and compile discharge notes into a portal. They are trying to get the data into clinical workflows. Some of their challenges include the changing definition of ‘high risk’ and the fact that PDMP is rooted in a narrow definition of treatment.



During this conversation participants stated that technology, policy, and empowerment, including education and resources, were needed for change (and within advocacy) of medication adherence. The group acknowledged their aptitude to write laws and provide the necessary data. **Some participants felt strongly that groups representing patients were critical to the conversation and these groups should join the next meeting.** For example, the Partnership for Sustaining Daily Care, has a patient voice division with adherence written into the strategic plan. Also, of importance were metrics within the provider’s purview and medication management tools for providers, including how to appropriately discuss adherence with patients.

To illustrate a point on the difficulties of tackling adherence and “non-adherence as the norm,” one participant noted the high number of overweight physicians and the number of nurses who smoke. Another noteworthy point came from a participant who stated that one change in eating habits can be more important than any medication. **Ultimately, the group decided that a specific vital sign would need more thought and planning before actualizing implementation across the care continuum.**

## NEXT STEPS

There is no magic pill or “one size fits all” solution to addressing the challenges facing patients and providers. It was clear from the discussion and expert opinions that a multi-pronged approach to tracking and tackling treatment compliance is needed. As a participant stated, **“Medication adherence is a process, not one thing.”** eMAC members started to decipher **key efforts on which a multi-stakeholder group could focus their attention, while avoiding unintended consequences.** For instance:

- MACRA QPP are medication adherence measures that physicians control, but pharmacists can assist.
- Measuring outcomes, as opposed to adherence, as a cost savings effort.
- Provisions to protect patients for some of the punitive measures associated with non-adherence because non-adherence is not an inherently bad character trait.
- Tackling low-hanging fruit as a multi-stakeholder group, such as resolving some basic prescription regulations and policies that impact medication safety and adherence.

eMAC participants agreed to meet in 2018 to continue working on these issues.



## EMAC MEETING PARTICIPANTS – DECEMBER 2017

<p><b>Casey Albertson</b> President</p>	<p><b>Tim Arnold</b> Senior Strategist Advocate Cerner Collaborative</p>	<p><b>Marie Brown</b> Senior Physician Advisor, Physician Satisfaction and Practice Sustainability Group, AMA and Associate Professor</p>
<p><b>Delesha Miller Carpenter</b> Assistant Professor, Division of Pharmaceutical Outcomes and Policy University of North Carolina</p>	<p><b>Jennifer Covich Bordenick</b> Chief Executive Officer</p>	<p><b>Michele Davidson</b> Senior Manager, Pharmacy Technical Standards, Development &amp; Policy, Government Relations</p>
<p><b>Jane Dunigan-Smith</b> Advisor, Corporate Strategic Planning</p>	<p><b>Cathy DuRei</b> Senior Vice President, Innovations</p>	<p><b>Lindsey Ferris</b> Program Director, HIE Projects</p>
<p><b>Chén Kenyon</b> PolicyLab faculty &amp; Hospitalist, CHOP Instructor of Pediatrics, UPenn</p>	<p><b>Julie Lawrence</b> Program Officer</p>	<p><b>Bri Morris</b> Director of Strategic Interests</p>
<p><b>Scott Motejunas</b> Project Strategy and Innovation</p>	<p><b>Sunit Ponskhe</b> Vice President, Product Innovation</p>	<p><b>Rick Ratliff</b> President and Chief Commercial Officer</p>
<p><b>Kristin Riekert</b> Director, Johns Hopkins Adherence Research Center</p>	<p><b>Lauren Riplinger</b> Senior Director, Federal Regulations</p>	<p><b>Sloane Salzburg</b> President at Horizon Government Affairs and Executive Director Prescription for a Healthy America</p>
<p><b>Hindy Shaman</b> Analyst Relations (Health Industries)</p>	<p><b>Michael J. Stirratt</b> Program Officer, Division of AIDS Research</p>	<p><b>Colby Tiner</b> Policy Advisor, Center for Health Technology and Innovation</p>