

Research & EHR Synergy

Cyberseminar Series



PROVEN

Coordinating Hub to Promote Research
Optimizing Veteran-centric EHR Networks





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HSR&D

Health Services Research
& Development Service

PROVEN Coordinating Hub to Accelerate Electronic Health Record Modernization Research

Steven Simon, MD, MPH (Los Angeles)

Michael Weiner, MD, MPH (Indianapolis)

Jessica Davila, PhD (Houston)

Elizabeth Yano, PhD (Los Angeles)

National VA HSR&D Cyberseminar

September 1, 2020

Session Objectives

- What is PROVEN?
- How does it fit into the Research & EHRM ecosystem?
- Initial pilot projects studying the EHRM
- What can PROVEN do for you?

PROVEN Coordinating Hub

ADMINISTRATIVE CORE



Steven Simon, MD, MPH
VA Greater Los Angeles



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PROVEN Aims & Functions

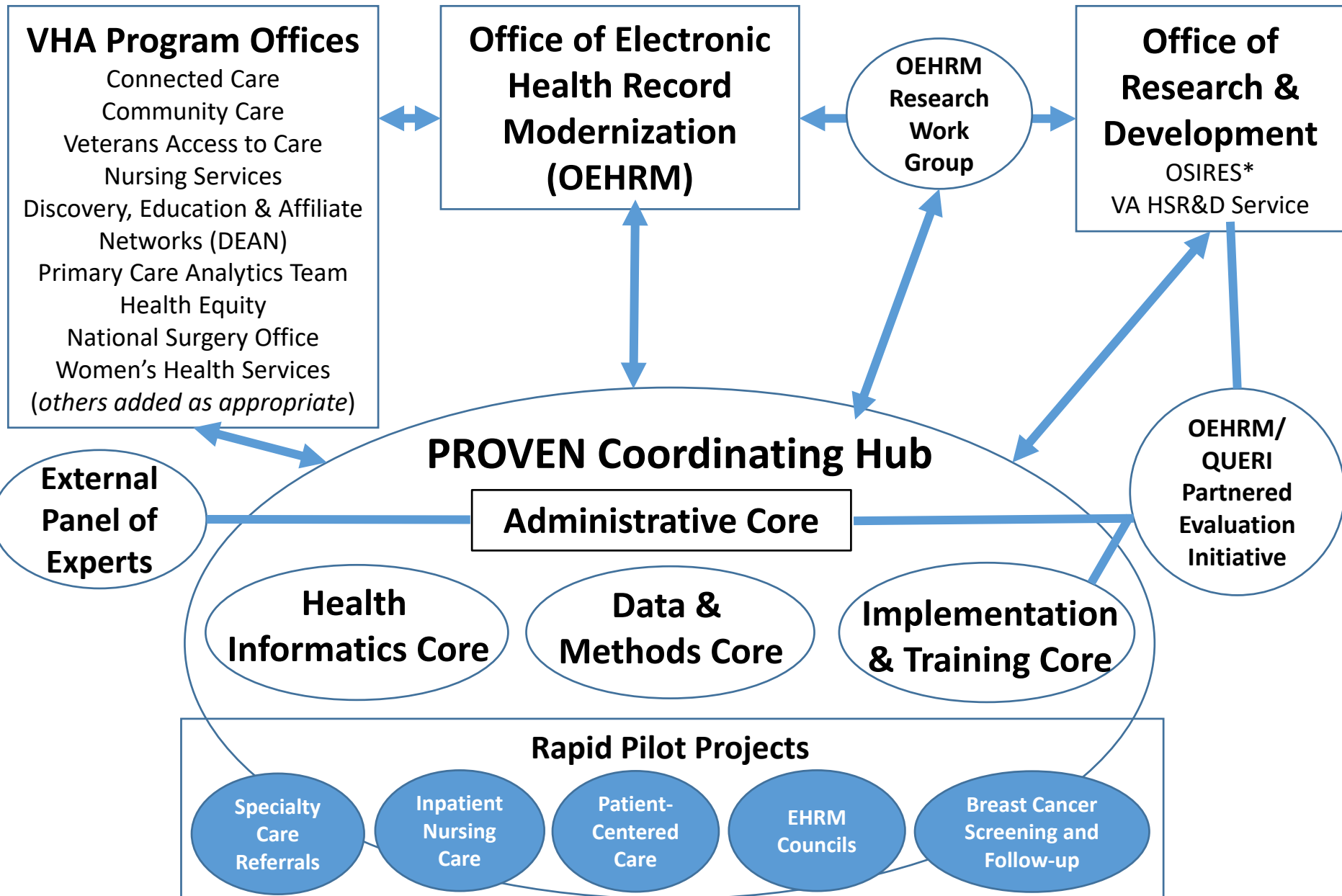
- 1. SUPPORT.** Support, promote, & enhance health services research and related to EHRM
- 2. PILOT.** Oversee conduct of five rapid pilot projects studying aspects of the EHR implementation
- 3. TRAIN and ADVISE.** Provide methodological training, methodological and informatics expertise, & support to investigators of EHRM
- 4. CONNECT and COORDINATE.** Serve as liaison between EHRM researchers and VA operational partners and implementation sites
- 5. DISSEMINATE.** Communicate EHRM research findings to OEHRM and other VA decision-makers, and the informatics research community
- 6. PRIORITIZE.** Curate and prioritize the EHRM research agenda



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Organizational Chart (Aug 2020)



*OSIRES = ORD Strategic Initiative for Research & EHR Synergy

PROVEN OR RWG

PROVEN Hub

Helps Research make scientific contributions to EHRM.

1. SUPPORT, PILOT, and PRIORITIZE EHRM research
2. TRAIN and ADVISE in methods & informatics relating to EHRM
3. CONNECT and COORDINATE. Serve as liaison
4. DISSEMINATE EHRM research findings

OEHRM Research Work Group

Helps Research continue to do work using the EHR and its data.

1. IMPACT. Impact and mitigation for transitioning sites
2. INTEGRATE. Research-EHR integration, such as for clinical trials
3. SUSTAIN. Foster sustainability of research data
 - Understanding incoming data
 - Advising about using new data alongside legacy data
4. ACCESS. Advocate for access to EHR data for research use



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RAPID PILOT PROJECTS



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Impacts of Cerner Millennium on communication across specialty care referrals

PI: Kristina Cordasco, MD, MPH

Los Angeles, Center for Healthcare Innovation, Implementation and Policy (CSHIIP)

Objective: Provide rapid feedback to guide stakeholder decision-making, including the Ambulatory Care Council, implementation sites, and VA sites in subsequent Millennium transition waves.

Methods: Mixed Methods (quantitative, interviews, direct observation/document review)

Aim 1	Aim 2	Aim 3
Assess Millennium's referral request process for adherence with recommended best practices	Compare frequency/types of referral process delays or failures during transition/implementation to pre-implementation	Explore primary and specialty care providers' insights/ perceptions of specialty care referral request process

Understanding the Impact of EHR Transition on VA Inpatient Nursing

PI: Sarah Krein, PhD, RN

Ann Arbor, Center for Clinical Management Research (CCMR)

Objective: Explore how EHR transition effects the delivery of VA inpatient nursing care at one site, providing pilot data for a larger study and practical insights to mitigate potential safety hazards and promote safe, high-quality care for hospitalized Veterans.

Methods: Primarily qualitative, including direct observation, shadowing and focus groups.

Aim 1

Develop preliminary insights for assessing impact of EHR transition on inpatient nursing care

Aim 2

Explore development of EHR-related workarounds or process adaptations by inpatient nurses

Aim 3

Adapt and test feasibility of previously developed time and motion workflow assessment tool

Impact of Electronic Health Record Modernization on Patient-Centered Care and Health Portals

PI: David Mohr, PhD

Boston, Center for Healthcare Organization & Implementation Research (CHOIR)

Research questions:

- How does VA's transition to a new EHR influence patient care and health portal experiences? (e.g., improved, worse, similar)
- Do patient characteristics (e.g., use, conditions, demographics) interact with EHR system to explain PCC and health portal experiences?
- Do provider characteristics (e.g., service type) interact with EHR system to explain PCC?

Aim 1

Examine routinely collected outpatient survey data, match to characteristics to examine change over time (e.g., interrupted time series)

Aim 2

Conduct data analyses with targeted survey questions (pre- and post cohorts) to more precisely assess experiences

Formative Evaluation of EHRM Councils

Co-PIs: Julian Brunner, PhD, MPH and Jeremy Shelton, MD, MSHS
Los Angeles, Center for Healthcare Innovation, Implementation and Policy (CSHIIP)

Background: VA configuration of Cerner guided by 18 councils and >100 workgroups

Objective: Characterize EHRM Council structure, processes, lessons learned with eye to informing improved Council effectiveness, efficiency and sustainability

Methods: Analysis of documents (meeting materials, administrative records) from OEHRM. Semi-structured interviews (n=20-30) with council chairs and participants)

Aim 1

Characterize councils' structure and processes: Describe council structure, governance, activities and relationships with VA

Aim 2

Identify lessons and helpful practices from councils' initial activities: Identify opportunities to sustain and improve councils' effectiveness and efficiency

Barriers to External Mammogram Care Coordination and Exploration of Clinical Informatics Solutions

Co-PIs: Kristine Lynch, PhD Salt Lake City (VINCI) and
Kristen Gray, PhD Puget Sound (Center of Innovation for Veteran-Centered and Value-Drive Care)

Objective: To lay groundwork for future informatics solutions to care coordination within CPRS, with an eye towards features of the Cerner EHR

Research problem:

- VA supports homegrown tools for ensuring mammogram follow-up and rescreening (i.e., coordination)
- VA facilities rely on community providers for mammograms, complicating coordination
- Gaps in coordination can affect quality of care, patient outcomes, and potentially increase healthcare expenditures

Aim 1

Identify key variables tracked for external mammogram coordination and describe common barriers and facilitators to coordination across VA facilities.

Aim 2

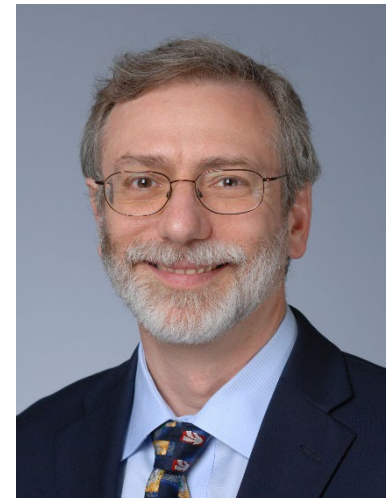
Quantify the availability and describe the structure, format, and location of key external care coordination variables within the EHR.

Aim 3

Describe barriers and facilitators to external care coordination among staff at non-VA healthcare systems that use Cerner EHRs.

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HEALTH INFORMATICS CORE



Mike Weiner, MD, MPH
Indianapolis VA



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Examples of Important EHRM Research Topics and Outcomes

Research topics

- Scheduling
- Conduct of research
- Safety and quality of care
- Data quality, backward compatibility
- Telehealth
- Attitudes and experiences
- Human factors
- Portals and Veterans
- Health information exchange
- Training
- Information foraging
- Efficiency & value
- Visualization, alerts, decision-making
- Innovation & translating findings into useful practices & tools
- Informatics workforce
- EHR governance
- Learning Health System

Outcomes

- Support for patient-centered care
- Access to analyzable data
- Access to care
- Access to clinically usable data
- Coordination and communication
- Dissemination and adoption
- Clinical outcomes
- Follow-up of diagnostic testing
- Implementation process
- Medical errors & adverse events
- Patient engagement
- Referrals & consultations
- Safe prescribing of medications
- Satisfaction; turnover of clinicians
- Specific quality measures
- System interoperability & incorporation of community data
- Usability, efficiency, productivity, time



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Health Informatics Core

*Guidance, feedback, & facilitation
relating to informatics research*

Scientists

Brian Dixon

Jennifer Garvin

David Haggstrom

Michael Matheny

April Savoy

Mike Weiner

Staff

Himalaya Patel

Jason Larson

Anita Wright

Consultant: Hardeep Singh



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Health Informatics Core

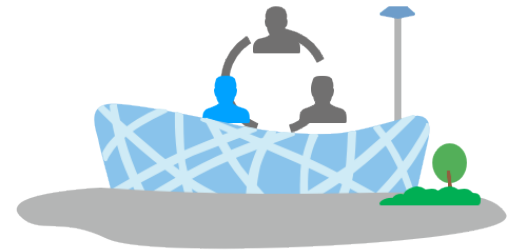
*Guidance, feedback, & facilitation
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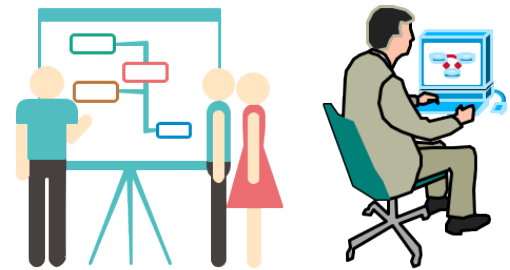
VA Stakeholders



Customer Service



Nest



Human Factors



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Health Informatics Core

Examples of knowledge & expertise

- Informatics-related study design
- Measurement of informatics-oriented outcomes
- Identification of informatics-relevant variables or factors
- Evidence base about EHR modernization
- User interface, usability, workflow, cognitive task analysis, learnability, and usefulness



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DATA & METHODS CORE



Jessica Davila, PhD
Houston VA



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PROVEN Data and Methods Core

Technical Consultations

- Provide consultations in EHRM-related qualitative and quantitative research methods
- Areas of expertise: study design, big data, health economics, survey development, qualitative methods
- Facilitate methods collaborations for EHRM-related proposals
- Point to EHRM data information that can be used for grant applications



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PROVEN Data and Methods Core

Resources for Researchers

- Links to commonly requested information on VIREC and VINCI websites
- Maintain searchable project registry with methods and data-specific information
- Library of information regarding EHRM research methodology

PROVEN Data and Methods Core

Consults and referrals

- PROVEN partnership with VIREC and VINCI
- Coordinate consults and referrals to VIREC for EHRM data issues
- Collaborate with VIREC on researcher guidance around EHRM data
- PROVEN is not responsible for:
 - Data provisioning (VINCI)
 - Data access requests (DART)
 - Data mapping (OEHRM with RWG review)



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PROVEN Data and Methods Core *Training*

- One-to-one sessions with investigators
- Small group sessions
- *Research & EHR Synergy* cyberseminar series (in partnership with VIREC and OSIRES*)
- Training on topics related to EHRM research methodologies, based on needs of the field



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PROVEN Data and Methods Core

Veteran Engagement

- Recognized impact of Cerner transition on care provided to Veterans
- PROVEN Veteran Engagement Group:
 - Understand priorities of Veterans related to Cerner transition
 - Input on EHRM-related grants involving Veterans
 - Veterans voice in priority setting
- Process for requesting PROVEN Veterans Engagement Group review – details to come



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Ways to get involved in the PROVEN Data and Methods Core

- Apply to participate in the PROVEN Data and Methods Workgroup
- Submit e-mail of interest and CV to Michael Strayhorn at Michael.Strayhorn@va.gov
- Workgroup members:
 - Hayden Bosworth
 - Debra Choi
 - Gemmae Fix
 - Denise Hynes
 - Jennifer Kramer
 - Sarah Krein
 - Matt Maciejewski
 - John Piette
 - Shubhada Sansgiriy
 - Maria Souden
 - Brent Taylor



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IMPLEMENTATION & TRAINING CORE



Becky Yano, PhD, MSPH
VA Greater Los Angeles



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PROVEN Implementation & Training

- **VA's EHRM (Cerner Millennium) largest EHR implementation ever pursued (globally)**
 - Only EHRM implementation done during a pandemic
- **Opportunities for studying and enhancing implementation extraordinary**
 - Requires better understanding of Cerner and OEHRM implementation plans



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PROVEN Implementation & Training

- **Support OEHRM/QUERI Partnered Evaluation Initiative**
 - *Planning phase*: Partner engagement, assess feasibility, early site engagement, interviews
 - *Next phase*: Formative evaluation of initial implementation efforts in first wave VA sites
 - Results used in multilevel stakeholder panel process to optimize EHRM integration and implementation
 - Pilot test tailored multicomponent strategy to improve EHRM outcomes in next wave sites



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Seppo Rinne, MD, PhD & George Sayre, PhD (MPHs)

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Technical consults:

- Implementation strategies
- Implementation evaluation
- Economic evaluation of implementation (HERC)



*Current Hub partners

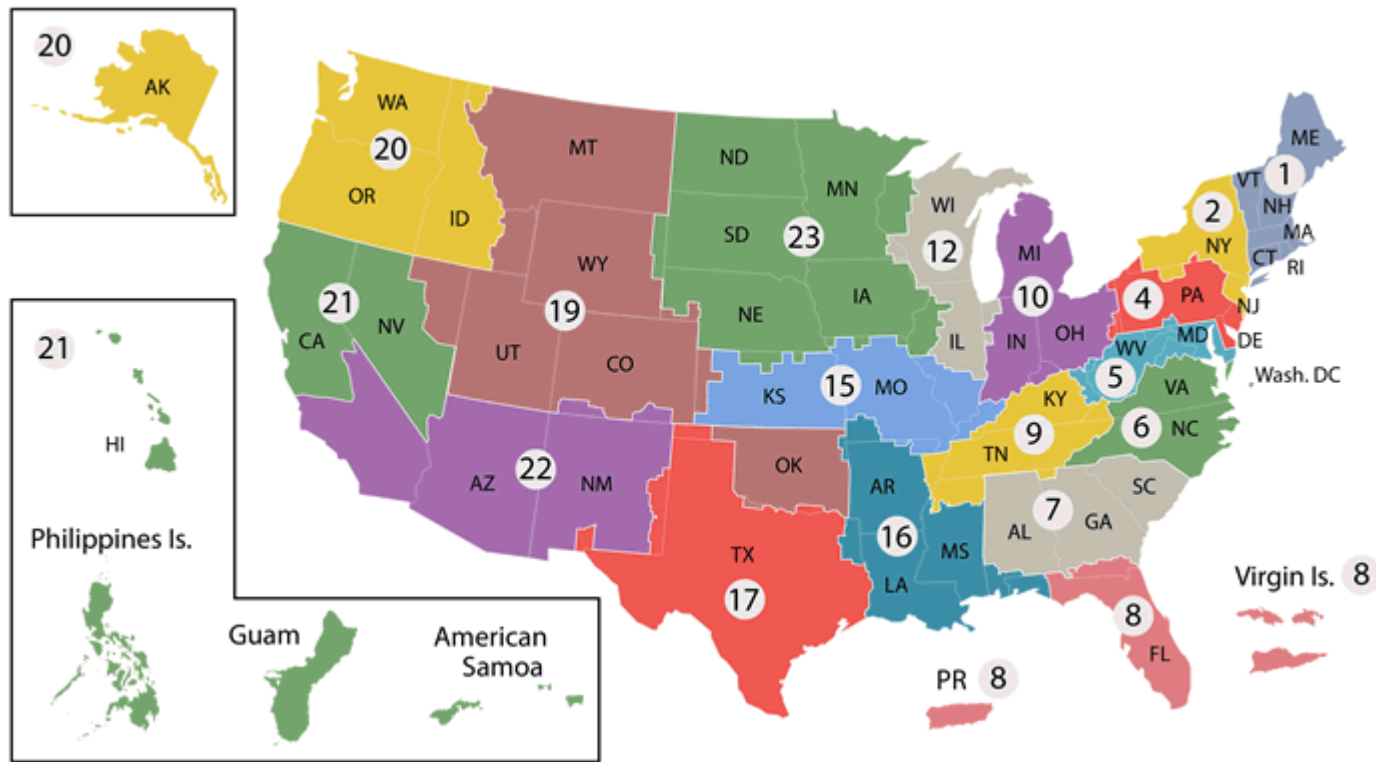


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PROVEN Implementation & Training

- Coordinate linkages to partners and sites in partnership with other PROVEN Cores



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PROVEN Implementation & Training

- Library of area and organizational data
- Explore rapid data collection strategies



PROVEN Implementation & Training

- **Support dissemination with other Cores:**
 - *Research & EHR Synergy* cyberseminar series
 - implementation focused sessions
 - Digestible summaries of research findings for partners in and outside VA
 - VA-authored journal supplement focused on EHRM research
 - Accelerate EHRM-related implementation research/evaluation to help VA optimize Cerner implementation



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PROVEN Implementation & Training

Core Members

- JoAnn Kirchner
- Laura Damschroder
- Alison Hamilton
- Kyler Godwin
- Julian Brunner
- Isomi Miake-Lye
- Kristina Cordasco
- Jeremy Shelton



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What can the PROVEN Hub do for you?

- Technical consults with array of EHRM experts
- Training/technical support on developing EHRM-related research methods/proposals
- Help with identifying OEHRM and other partners and recruiting/engaging VA facilities
- Facilitate EHRM research collaboratives
- Support dissemination and knowledge transfer
- Contact us at PROVENHub@va.gov



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Electronic Health Record Modernization

Resources for Researchers

“EHRM & Research” page on the Research Resource Guide SharePoint

<https://dvagov.sharepoint.com/sites/VHAPugResearch/RRG/Pages/EHRM-Research.aspx>

“EHRM and Implications for Data Users” page on the VIREC website

<https://vaww.virec.research.va.gov/EHRM/Overview-and-Implications.htm>

“Data Management and Migration Knowledgebase” on the Data Migration, Management, and Syndication SharePoint

<https://vaww.cdw.va.gov/sites/EHRMDataIntegration/DIRAKnowledgeShare/Pages/DIRAKnowledgeShareHome.aspx>

Syndicated Data Bits - Weekly Webinars

[Session Archive](#)

Office of Electronic Health Record Modernization (OEHRM) Intranet site

<https://vaww.ehrm.va.gov/>



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Questions?

Contact us at:

PROVENHub@va.gov

<https://www.hsrd.research.va.gov/centers/proven.cfm>



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