Session 4:
Centralized Interactive Phenomics Resource (CIPHER): Overview of the VA Phenomics Library and Plans for Expansion

January 10, 2022

Kelly Cho, PhD, MPH – Director, CIPHER | Jackie Honerlaw, RN, MPH – Deputy Director, CIPHER

VA Million Veteran Program (MVP) | Boston Cooperative Studies Program Epidemiology Center (CSPEC) | Brigham and Women’s Hospital, Harvard Medical School

VA Boston Healthcare System, Boston, MA
DATABASE & METHODS CYBERSEMINAR SERIES

Informational seminars to help VA researchers access and use VA databases.

Sessions cover...

- VA data sources & data access systems
- Application of VA data to research and quality improvement questions
- Limitations of secondary data use
- Resources to support VA data use
# UPCOMING DATABASE & METHODS SESSIONS

First Monday of the month  |  1:00pm-2:00pm ET

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tr>
<td>2/7/22</td>
<td>Overview of CMS &amp; USRDS data from VIReC</td>
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<td>3/7/22</td>
<td>Ascertaining Veterans’ Vital Status: Data Sources for Mortality Ascertainment and Cause of Death</td>
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<td>4/4/22</td>
<td>Assessing Race and Ethnicity in VA Data</td>
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<td>5/2/22</td>
<td>An Introduction to VA Pharmacy Data: Sources and Uses for Medication Information</td>
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</table>

Visit the VIReC Education page for more information & registration links:


Visit HSR&D's VIReC Cyberseminar Archive to watch previous sessions:

Where can I download a copy of the slides?

SAMPLE EMAIL

Host: HSR&D Cyberseminars (cyberseminar@va.gov)
Event number (access code): 199 009 5117
Event password: 3844
Registration ID: This event does not require an enrollment ID

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To receive a call back, provide your phone number when you join the event, or call the number below and enter the access code.
USA Toll Number: 14043971596
Toll-free dialing restrictions:
Access code: 199 009 5117

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Please click here for today's live captions
Session 4:

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VA Boston Healthcare System, Boston, MA
Poll #1:

What is your **role** in research and/or quality improvement projects?

- Investigator, PI, Co-I
- Statistician, methodologist, biostatistician
- Data manager, analyst, or programmer
- Project coordinator
- Other – please describe via the chat function
Poll #2:

How many years of experience working with VA data?

- None – I’m brand new to this!
- One year or less
- More than 1, less than 3 years
- At least 3, less than 7 years
- At least 7, less than 10 years
- 10 years or more
Session roadmap

- Phenotyping in the VA
- CIPHER Library Overview and Demonstration
- CIPHER Collaboration and Future Directions
Objectives

- Define phenotyping, describe phenotyping at the VA and motivation for the phenotype library
- Introduce CIPHER, describe CIPHER content and demonstrate how to use the library
- Inform audience about how CIPHER is evolving and how to collaborate
Poll #3: 

How would you rate your familiarity with phenotyping?

- 1 (What is “phenotyping”?)
- 2
- 3
- 4
- 5 (Expert)
Poll #4:

How familiar are you with CIPHER?

• 1 (No knowledge)
• 2
• 3
• 4
• 5 (Expert)
Session roadmap

- Phenotyping in the VA
- CIPHER Library Overview and Demonstration
- CIPHER Collaboration and Future Directions
What is a “Phenotype”?

- **A phenotype is**
  - the **observable physical or biochemical expression of a specific trait** in an organism, such as a disease, stature, or blood type, based on genetic information and environmental influences.” – NIH Collaboratory

- **An electronic health records (EHR) based phenotype** is a clinical condition or characteristic derived from EHRs and linked data sources, for example:
  - Age, Diabetes, Asthma medications, Cardiovascular outcomes, etc.

- **Key features of EHR-based phenotypes**
  - Simple mapping to complex algorithms
  - Single time point to longitudinal framework
  - Computable and reusable
  - Flexible and allows variations
How are phenotypes used?

- **Cohort & case-control studies**
  - Defining exposure, outcome and covariates in analysis

- **Genetic research**
  - Genome wide association studies (GWAS)
  - Phenome wide association studies (PheWAS)

- **Pragmatic clinical trials**
  - Identify patients for recruitment
  - Prospective collection of adverse events and outcomes

- **Healthcare operations**
  - Program evaluation
  - Quality improvement initiatives

- **Clinical use**
  - Identify patients at risk for disease
  - Identify prevalence of disease in patient population
Examples of phenotyping in the VA

- Million Veteran Program (MVP)
  - GWAS and PheWAS using phenotypes based on EHR, MVP surveys and other linked data sources

- Cooperative Studies Program (CSP) Diuretic Comparison Project (CSP 597)
  - Point of care trial which leverages EHR to record heart attacks, strokes and other cardiovascular events

- Recovery Engagement and Coordination for Health–Veterans Enhanced Treatment (REACH VET)
  - VA program coordinators use a dashboard to facilitate care enhancements for veterans identified in top tier for suicide risk
Advances in Phenomics

- Phenotypes are the foundation of clinical research
- Major challenge is in accurately and efficiently assigning phenotypes
Motivation for CIPHER

To improve clinical care and expedite research, there is a need to:

- Support integration of existing phenomics efforts
- Generate and disseminate collective knowledgebase of phenotype definitions and metadata
- Enable reproducibility
- Facilitate collaboration
Session roadmap

- Phenotyping in the VA
  - CIPHER Library Overview and Demonstration
    - Overview & Phenotype Example
    - Data Visualization Tools
  - CIPHER Collaboration and Future Directions
Centralized Interactive Phenomics Resource (CIPHER)

**Mission:** To provide an encyclopedia of VHA EHR-based phenotyping through integration of phenomics work across the VA, to optimize and expedite VA data use for both research and clinical operations and to serve the VA community

**Objectives:**
- To provide a knowledgebase framework to collect, store/archive and share phenotype definitions/data mapping/other metadata used in VA projects and publications
- To expedite VA science by enabling phenotype reusability and scalability across VA projects
- To build a platform to encourage and enhance collaboration and communication across the VA research community

- Scalability
- Reusability
- Efficiency
- Communication
- Collaboration
CIPHER Team

- Sumitra Muralidhar, PhD - VACO Leadership
- Kelly Cho, PhD, MPH - Director
- Jackie Honerlaw, RN, MPH - Deputy Director
- Anne Ho, MPH - Chief, Data Operations
- Monika Maripuri, MBBS, MPH - Project Manager, Clinical Data Validation
- Jeff Gosian, BS - Systems Support Librarian
- Rahul Sangar, MPH - Data Services Specialist
- Michael Murray, MS - Computer Programmer
- Rafique Islam, MD, PhD - Biomedical QA Specialist
- Francesca Fontin, MPH - Project Coordinator
- Environment and Infrastructure Support - VINCI (Scott DuVall, PhD); MVP (Mike Gaziano, MD, PhD); ORNL-DOE (Jeremy Cohen, MS)
- CIPHER Partners and Contributors - Thank you!

CIPHER@va.gov
CIPHER Milestones

**MVP Phenomics Library**
- VINCI hosts MediaWiki
- Library becomes the home of MVP data documentation and shared community resources
- 8 MVP Projects

5/30/17

**VA Phenomics Library Kick-Off**
- VAPheLib project plan developed
- 1,000 phenotype goal set for library
- 35 MVP Projects

12/10/19

**CIPHER Rebranding**
- VAPheLib becomes CIPHER - Centralized Interactive Phenomics Resource
- Formal program funding starts FY20

12/2020

**1,000+ Phenotypes**
- CIPHER library hosting over 2,000+ phenotypes

9/15/21

2017
2018
2019
2020
2021
2022+

**Content Growth**
- MVP content growth and development
- Collect phenotypes and resources from VINCI/CSPEAR/VACS and other collaborators

**Library Becomes VA-Wide**
- Begin hosting COVID-19 Shared Data Resource (CSDR) metadata

4/6/20

**CIPHER Supplemental Award Funding**
- 12 projects to contribute and develop integrated pipeline for CIPHER content building

7/1/21

**Future State**
- 10K Phenotypes
- Visualization
- Knowledge dissemination
- Integrated Enterprise VA and beyond

Database & Methods Cyberseminar Series
Navigating CIPHER

- CIPHER is accessible on the VA intranet
- Use the sidebar to navigate through content

Searchable CIPHER

- All CIPHER text is searchable
- Search for key words, ICD codes, etc.

[Search results page]

Browsing the Phenotype Catalogue

Phenotype Catalogue

For a detailed explanation of each field on a typical phenotype wiki page, visit the Phenotype Field Explanation

Contents [show]

Status [edit]
- Working Definition: Phenotypes that are completed, but not validated
- Validated Phenotype: Completed and validated phenotypes

Published Phenotypes [edit]
Navigate here for a listing of Published Phenotypes

COVID-19 Phenotypes [edit]
Navigate here for a listing of all COVID-19 Phenotypes

Data Classifications [edit]
- Combat Related
- Demographics
- Diseases
- Health Access and Metrics
- Health Services and Programs
- Laboratory
- Lifestyle/Environmental Factors
- Medications
- Procedures
- Vitals

Disease Domains [edit]
- Cardiovascular
- Congenital Anomalies
- Dermatology
- Endocrine/Metabolic
- ENT & Ophthalmology
- Gastrointestinal
- Genitourinary
- Geriatric
- Hematology
- Infectious Disease
- Injuries & Poisonings
- Mental & Behavioral Health
- Musculoskeletal
- Oncology & Neoplasms
- Neurology
- Obstetrics & Gynecology
- Respiratory
- Symptoms
- Women's Health

Contributors and Partners [edit]
- COVID19:Shared Data Resources (COVID-19)
- Million Veteran Program (MVP)
- VA Cooperative Studies Program (CSP)
- VA Cooperative Studies Program Epidemiology Analytics Resource (CSPEAR)
- VA Informatics and Computing Infrastructure (VINCI)
- Veterans Aging Cohort Study (VACS)

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Phenotype_Catalogue
# Browsing the Phenotype Catalogue

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- Lifestyle/Environmental Factors
- Medications
- Procedures
- Vitals

## Category: Diseases
The following 200 pages are in this category, out of 2,009 total.

### A
- Abdominal aortic aneurysm (MAP)
- Abdominal hernia (MAP)
- Abdominal pain (MAP)
- Abnormal arterial blood gases (MAP)
- Abnormal chest sounds (MAP)

## Category: Lifestyle/Environmental Factors
The following 14 pages are in this category, out of 14 total.

### A
- AUDIT-C, mean age-adjusted score (MVP)
- AUDIT-C, trajectory (VACS)
- Audit-C (VINCI)

### C
- Charlson Index
- Combat Exposure (MVP)
- Community Socioeconomic Status Index (Sandhu)

[https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Phenotype_Catalogue](https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Phenotype_Catalogue)
Browsing the Phenotype Catalogue

Disease Domains [edit]
- Cardiovascular
- Congenital Anomalies
- Dermatology
- Endocrine/Metabolic
- ENT & Ophthalmology
- Gastrointestinal
- Genitourinary
- Genitinal
- Hematology
- Infectious Disease
- Injuries & Poisonings
- Mental & Behavioral Health
- Musculoskeletal
- Oncology & Neoplasms
- Neurology
- Obstetrics & Gynecology
- Respiratory
- Symptoms
- Women's Health

Contributors and Partners [edit]
- COVID-19 Shared Data Resources (COVID-19)
- Million Veteran Program (MVP)
- VA Cooperative Studies Program (CSP)
- VA Cooperative Studies Program Epidemiology Analytics Resource (CSPEAR)
- VA Informatics and Computing Infrastructure (VINCI)
- Veterans Aging Cohort Study (VACS)

Category: Cardiovascular

The following 200 pages are in this category, out of 242 total.

Category: VACS Phenotypes

The following 21 pages are in this category, out of 21 total.

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Phenotype_Catalogue
Standard Fields for Phenotype Pages

- This page provides definitions of all standard fields used in our phenotype pages

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Phenotype_Field_Explanation
Phenotype Page Example: Frailty Index

Geriatrics Phenotyping Core:

- Established at VA Boston in 2016
- Goal: To advance the study of frailty, resilience and function for VA research and clinical practice in an effort to optimize care for older Veterans

Contacts
Co-Director: Jane A. Driver, MD, MPH
Jane.Driver@va.gov
Co-Director: Ariela R. Orkaby, MD, MPH
Ariela.Orkaby@va.gov

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Geriatrics_Phenotyping_Core

Frailty Index (GPC)

Phenotype: Veterans Affairs Frailty Index, VA-Fi-10
Status: Validated Phenotype

Algorithm Overview
Classification: Health Access and Metrics
Related Disease Domain: Geriatric
Algorithm Description: Updating the Veterans Affairs Frailty Index (VA-Fi) to ICD-10 coding to enable contemporary measurement of frailty. The VA-Fi is an electronic frailty index developed to measure frailty using administrative claims and electronic health records data.
Population: National cohort of Veterans aged 65 years and older
Data Algorithm Created: March 2021
Author: Geriatrics Phenotyping Core
Contact: aorlaby@bidh.harvard.edu

Acknowledgment & Publication
Publication:

ICD-10 Update of VA-Fi

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Frailty_Index_(GPC)
Frailty Index (GPC)

**Phenotype:** Veterans Affairs Frailty Index, VA-FI-10

**Status:** Validated Phenotype

## Contents [hide]
1. Algorithm Overview
2. Acknowledgment & Publication
3. Algorithm Components
4. Validation
5. Source of Phenotype Data

### Algorithm Overview

**Classification:** Health Access and Metrics

**Related Disease Domain:** Geriatric

**Algorithm Description:** Updating the Veterans Affairs Frailty Index (VA-FI) to ICD 10 coding to enable contemporary measurement of frailty. The VA-FI is an electronic frailty index developed to measure frailty using administrative claims and electronic health records data.

**Population:** National cohort of Veterans aged 65 years and older

**Date Algorithm Created:** March 2021

**Author:** Geriatrics Phenotyping Core

**Contact:** aorkaby@bwh.harvard.edu
Acknowledgment & Publication

Publication:

Original ICD-9 based VA-FI


ICD-10 Update of VA-FI


Acknowledgment: Grant funding was provided by CSR&D CDA-2 IK2-CX001800 and MERIT award 5I01BX003340-02
Acknowledgment & Publication

What are the citation requirements for using phenotypes in CIPHER? [edit]

Please use the citations listed within the phenotype page, if one does not exist or if you have any questions about the citation, please reach out to the contact listed on the phenotype page.

How do I acknowledge the CIPHER library? [edit]

Please acknowledge your use of the CIPHER library in your publications and presentations by adding the following line:

“This work was supported using resources from the Department of Veterans Affairs (VA) Centralized Interactive Phenomics Resource (CIPHER).”

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/Frequently_Asked_Questions
Algorithm Components

**ICD-10 Mapping Steps**

1. An initial translation was obtained by applying mappings from the 2018 CMS GEMs and the CMS Chronic Conditions Warehouse (CCW) (14) to map ICD-9 codes for each health deficit in VA-FI-9 to ICD-10 codes.

2. The initial translation was validated by manual review of whether candidate ICD-10 codes were correctly classified to each health deficit.

3. The full ICD-10 hierarchy and list of active CPT codes in the VA Corporate Data Warehouse (CDW) were then manually reviewed to check whether additional ICD, CPT, or HCPCS codes should be included in the VA-FI-10.

**VA-FI yields the following 5 categories of frailty (VA-FI = sum of the above health deficits / 31):**

- non frail (VA-FI ≤ 0.1),
- prefrail (>0.1–0.2),
- mildly frail (>0.2–0.3),
- moderately frail (>0.3–0.4),
- severely frail (>0.4)
Algorithm Components

Programming code and ICD mappings are available on GitHub - [Link]

Calculating the VA-FI requires the following steps:

- Step 1: Defining an index date and lookback period (typically 3 years) relative to which the VA-FI will be calculated.
- Step 2: Pulling diagnosis and procedure codes needed from the data source (within the VA, this is typically the VA Corporate Data Warehouse and possibly VA's CMS data).
- Step 3: Actually calculating the VA-FI based on the above.

This repo provides code to execute Step 3. Step 1 is inherently project specific and must be done by you. For Step 2, there are two options:

- Step 2, Option 1: You may pull diagnosis and procedure codes in a superset of the lookback period using your favorite method, e.g., writing a query in SQL Server Management Studio and downloading the results to a CSV file.
- Step 2, Option 2: For VA employees or VCOs, we have written a very efficient push-button code to do steps 2 and 3 together, which is available at [GitHub link]. We can also email you this code at your va.gov email address. This is the recommended option for internal VA users.

In addition, if you'd like to reimplement Step 3 yourself for some reason, CSV versions of the code sets are available in icd_code_vafi_mapping.csv and procedure_code_vafi_mapping.csv.

- Note: Exercise caution if you edit these files in Excel. Opening the file and saving in Excel will likely corrupt ICD codes beginning or ending in 0s (e.g., 035.40 will be incorrectly written as 35.4).

For further information or assistance with this code, please reach out to the authors, which for senior authors Ariela Orkaby and Nathanael Fillmore are both Firstname.Lastname@va.gov

```python
# The following should be edited as appropriate - see documentation of the make_vafi and pull_icd_and_procedure_codes
functions.
conn <- odbcConnect("whacwrb02") # or whacwrb02, as appropriate for the study
database <- "ORD_Patient_2019XXXX"
patient_tb <- read.csv("/vafi_patient_tb.csv") # table with one row per patient and two columns, PatientID and IndexDate
lookback_days <- 3*365
tmp_dir <- "vafi_tmp_dir"
vafi_code_path <- "." # Location of directory where icd_prd_vafi.txt is stored

vafi_boolean <- pull_icd_and_procedure_codes(conn, database, patient_tb, lookback_days, tmp_dir, vafi_code_path)
vafi <- make_vafi(patient_tb, vafi_boolean, vafi_code_path)
write.csv(vafi, file = "vafi.csv", row.names = FALSE)
```
Validation

- Validation may include the following approaches:
  - Chart review by a clinician
  - Comparison against questionnaire completed by veteran
  - Comparison against biomarker
  - Replication of known associations including genetic associations
  - Other methods as described by the author

**Validation**

**Algorithm Validation:** Performed

**Description of Validation:** Evaluated the association of frailty with survival

**Algorithm Performance Measures:** The VA-FI-10 deficits showed stability before and after the transition to ICD-10 in 2015 and maintained strong associations with mortality. Patients classified as frail (VA-FI > 0.2) consistently had a hazard of death more than 2 times higher than non-frail patients (VA-FI ≤ 0.1).
### Source of Phenotype Data

<table>
<thead>
<tr>
<th>Data Sources Used</th>
<th>Role of Phenotype in Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDW (Corporate Data Warehouse); CMS (Medicare &amp; Medicaid)</td>
<td>Primary outcome/ exposure</td>
</tr>
</tbody>
</table>
FY21 Milestone – 1,000 Phenotype Goal Met

- 2,609 curated phenotypes in the library
- 2,359 “working” phenotypes which are in use by research projects
- 250 phenotypes validated against a known standard
CIPHER Moving Forward

- 10K Phenotypes
- Visualization
- Knowledge dissemination
- Integrated Enterprise VA and beyond
Session roadmap

• Phenotyping in the VA
  • CIPHER Library Overview and Demonstration
    • Overview & Phenotype Example
    • Data Visualization Tools
  • CIPHER Collaboration and Future Directions
FY21 Milestone – Data Visualization Tools

New section of CIPHER introduced in October 2021

- ICD Hierarchy Tool
- KESER Network

https://vhacwdwhweb100.vha.med.va.gov/phenotype/index.php/Data_Visualization_Tools
What are Phecodes?

- Mapping of ICD codes used to define clinically relevant phenotypes
- Defined by J. Denny and colleagues
- Developed for use in PheWAS (phenome-wide association studies), to create a system for classifying a large number of phenotypes
- 1,866 total phecodes in the current mapping

Wu J. J Med Informatics 2019

PheWAS of lipoprotein(a) genetic variant, rs10455872
What are Phecodes?

- Hierarchical groupings of ICD codes
  - “Parent” and “child” phenotypes
  - Mappings for ICD-9 and ICD-10 codes

- Use cases
  - PheWAS
  - Defining EHR-based phenotypes

https://phewascatalog.org/phecodes
ICD Hierarchy Tool

- MVP Data Core product
- Facilitates review of Phecodes
- Enables clear viewing of parent and child codes
- Combines ICD-9 and -10 mappings

https://vhacdwshweb100.vha.med.va.gov/phenotype/index.php/ICD_Hierarchy_Tool_(MVP_Data_Core)
ICD Hierarchy Tool

- Zoomed in view on major depressive disorder shows ICD-9 and -10 code mapping

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/ICD_Hierarchy_Tool_(MVP_Data_Core)
ICD Hierarchy Tool

- List, tree or sunburst plot views available

https://vhacdw1hweb100.vha.med.va.gov/phenotype/index.php/ICD_Hierarchy_Tool_(MVP_Data_Core)
Using visual networks to depict data relationships

- Nodes
- Edges
  - Connections or relationships between nodes
KESER Network

- Knowledge extraction via sparse embedding regression (Hong et al)
- Interactive visual network showing relationships between EHR data elements
- Created from structured data at VA and Mass General Brigham by MVP Data Core

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/KESER_Network_(MVP_Data_Core)
**KESER Network**

- Allows users to infer relatedness between the following:
  - Diagnoses
  - Procedures
  - Lab tests
  - Medications

- Use cases:
  - Replace manual selection of features for phenotype development
  - Identification of institution specific coding patterns
KESER Network

PheCode: 303.1

- Description: dissociative disorder
- Group: mental disorders
- Patient prevalence: 0.0015
- Ave count per patient: 7.78

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/KESER_Network_(MVP_Data_Core)
Session roadmap

- Phenotyping in the VA
- CIPHER Library Overview and Demonstration
- CIPHER Collaboration and Future Directions
How are Partners using CIPHER?

- Storing phenotypes
- Highlighting work products
- Storing metadata for a database
- Requesting collaboration
- Resources for a domain
- Streamlining content between other resources

[Links to resources and tools]

- Geriatrics Phenotyping Core
- Frailty Index (GPC)
- Multimorbidity Patterns (GPC)
- Data Visualization Tools
How are Partners using CIPHER?

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[Links to web pages for further information]
How are Partners using CIPHER?

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**Access:Metrics Compendium, VARC Metrics Workgroup**

**Project Description**

Research has demonstrated the importance of access to care and metrics have been created by both VA and non-VA investigators to assess access according to the dimensions, determinants, and characteristics identified by the Fortney (2011) model. However, little work has been devoted to categorizing existing and proposed measures of access using the Fortney model as a guideline. The VARC Metrics workgroup is part of the Veteran Access Research Consortium (VARC): https://www.va.gov/ACCESSRESEARCH/workgroups.aspx. The VARC Metrics workgroup aims to create a compendium of VA and non-VA measures of access, including evidence to support their validity, data sources, definitions, and practical considerations for investigators and program offices. The goal is to make available resources that foster an interactive and collaborative team of healthcare access researchers to support access-related research and innovation. Through the following aims, the Metrics workgroup will address VA researchers’ needs for better access to and guidance on use of VA data sources to measure access.

**Aims**

1. Identify access metrics identified in the Fortney model.
2. Define, orient, and identify public system expectations in primary care.
3. Identify existing reimbursement and access outcomes.

**How to contribute:**

The VARC Metrics Workgroup are asking your assistance in crowdsourcing a compendium of access metrics both within VA and non-VA systems of care. This project is one of the products from the Veterans Access Research Consortium (VARC) to be available to researchers and administrators to more quickly identify what access metrics are available, whether they have been validated, and where they can be found in various data sources.

1. Review the existing metrics listed within the Access Metrics Compendium heading to ensure the metric you have in mind isn’t already completed. Alternatively, we also encourage submissions to edit any currently displayed metrics and submissions of metrics that are designated on the Access Metrics Compendium as “desired”.
2. The following form must be completed with your metric’s information: Metric Entry Form.
3. Send the completed form and any supporting documentation to Ariana Shahnavi (ariana.shahnavi@va.gov) for review and formatting for display on the VARC Metrics Workgroup’s web page.

**Access:**

How are Partners using CIPHER?

- Storing phenotypes
- Highlighting work products
- Storing metadata for a database
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VA Cooperative Studies Program (CSP)

https://vhacdwdwhweb100.vha.med.va.gov/phenotype/index.php/VA_Cooperative_Studies_Program_(CSP)
Future Directions

Tool Development

Partnership building

Content building and expansion
How you can work with CIPHER

- Contribute phenotypes
- Partner with CIPHER
- Provide feedback

https://vhacdwwhweb100.vha.med.va.gov/phenotype/index.php/How_to_contribute
THANK YOU!

Questions?
CONTACT INFORMATION

Kelly Cho
Kelly.Cho@va.gov

Jackie Honerlaw
Jacqueline.Honerlaw@va.gov

CIPHER Team
CIPHER@va.gov
Next session:
Monday, February 7th, 2022 at 1 pm Eastern

Overview of CMS & USRDS data from VIReC
Database & Methods
BONUS SLIDES
## Resources for VA Data Users

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
<th>Intranet Status</th>
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</thead>
<tbody>
<tr>
<td>VA Information Resource Center (VIReC)</td>
<td><a href="https://vaww.virec.research.va.gov/Index.htm">https://vaww.virec.research.va.gov/Index.htm</a></td>
<td>VA Intranet</td>
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<td>VIReC Cyberseminars</td>
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</tr>
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<td><a href="https://vaww.vhadataportal.med.va.gov/Home.aspx">https://vaww.vhadataportal.med.va.gov/Home.aspx</a></td>
<td>VA Intranet</td>
</tr>
<tr>
<td>VA Informatics and Computing Infrastructure (VINCI)</td>
<td><a href="https://vaww.vinci.med.va.gov/vincicentral/">https://vaww.vinci.med.va.gov/vincicentral/</a></td>
<td>VA Intranet</td>
</tr>
<tr>
<td>Health Economics Resource Center (HERC)</td>
<td><a href="https://vaww.herc.research.va.gov">https://vaww.herc.research.va.gov</a></td>
<td>VA Intranet</td>
</tr>
<tr>
<td>Corporate Data Warehouse (CDW)</td>
<td><a href="https://vaww.cdw.va.gov/Pages/CDWHome.aspx">https://vaww.cdw.va.gov/Pages/CDWHome.aspx</a></td>
<td>VA Intranet</td>
</tr>
</tbody>
</table>
A list of resources for VA data users related to Electronic Health Record Modernization:

1. “EHRM & Research” page on the Research Resource Guide SharePoint
2. “EHRM and Implications for Data Users” page on the VIReC website
3. Data Management and Migration Knowledgebase” on the Data Migration, Management, and Syndication SharePoint
   - https://vaww.cdw.va.gov/sites/EHRMDataIntegration/DIRAKnowledgeShare/Pages/DIRAKnowledgeShareHome.aspx
4. Syndicated Data Bits - Weekly Webinars
   - https://tinyurl.com/y3wgxz5u
5. Office of Electronic Health Record Modernization (OEHRM) Intranet site
   - https://vaww.ehrm.va.gov/
Questions about Using VA Data?

HSRData Listserv
- Community knowledge sharing
- ~1,400 VA data users
- Researchers, operations, data stewards, managers
- Subscribe by visiting https://vaww.virec.research.va.gov/Support/HSRData-L.htm (VA Intranet)

VIReC HelpDesk
- Individualized support
  virec@va.gov