Innovative Approaches to Enhance the Implementation of Evidence-Based Therapies

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Director, VA Measurement Science Quality Enhancement Research Initiative

San Francisco VA Research & Development Seminar
October 5, 2020
Accelerating Implementation of Evidence-Based Therapies

- Overview of the VA Quality Enhancement Research Initiative
- Improving colonoscopy quality (Dr. Kaltenbach)
- Enhancing chronic pain management (Dr. Seal)
- Standardizing Measurement of Functional Status (Dr. Brown)
- Expanding participation in cardiac rehabilitation (Dr. Whooley)
The VA Quality Enhancement Research Initiative (QUERI) accelerates the uptake of evidence-based practices into routine care by aligning research and health system priorities across the Veterans Health Administration.

Medical Care Appropriation Funds are used to partner with researchers who rigorously evaluate VA implementation of evidence-based practices (EBPs).
VA Quality Enhancement Research Initiative Programs

National Network of QUERI Programs

https://www.queri.research.va.gov/programs/default.cfm
The Measurement Science QUERI addressed VHA modernization priorities by collaborating with operational partners to implement evidence-based practices that were united by the need to clearly define and continuously monitor standardized metrics to improve quality of care.

<table>
<thead>
<tr>
<th>Operational partners</th>
<th>Evidence-based practice</th>
<th>Modernization priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Gastroenterology</td>
<td>Improve measurement of colonoscopy quality</td>
<td>Reduce unwarranted variation</td>
</tr>
<tr>
<td>Office of Cardiology</td>
<td>Implement home-based cardiac rehabilitation</td>
<td>Mission Act: Improve access to care</td>
</tr>
<tr>
<td>Office of Patient-Centered Care</td>
<td>Expand integrated pain management</td>
<td>Engage Veterans in lifelong well-being</td>
</tr>
<tr>
<td>Office of Geriatrics and Extended Care</td>
<td>Standardize measurement of functional status</td>
<td>Commit to zero harm</td>
</tr>
</tbody>
</table>

**Principal Investigators:** Tonya Kaltenbach MD MS, Karen Seal MD MPH, Rebecca Brown MD MD MPH, and Mary Whooley MD
Using Innovative Approaches to Enhance the Implementation of Evidence-Based Therapies:

Improving Colonoscopy Quality for Colorectal Cancer Prevention

Tonya Kaltenbach, MD MS
Professor of Clinical Medicine, UCSF
Director of Advanced Endoscopy, VA San Francisco

October 5, 2020
Colon Cancer in VA

- Colorectal cancer (CRC) prevention is a top VA priority.
- CRC is commonly diagnosed in Veterans with a 35% 3-year mortality rate.
- In the VA, >200,000 colonoscopies are performed each year, 50-60% of which are for screening.
Low Provider Adenoma Detection Rate (ADR) is a Strong Predictor of Colorectal Cancer

- Each 1% increase in ADR associated with:
  - 3% decrease in interval colorectal cancer risk (HR, 0.97, 95% CI: 0.96 - 0.98)
  - 5% decrease in CRC death risk

- No threshold effect above which increases in ADR were without benefit

Endoscopist

- Fellows
- Position Change
- Bowel Prep
- Hycosamine
- Withdrawal Time
- Repeat Exam
- High Definition
- Drugs
- Volume
- Enhanced Imaging
- iScan
- EndoRings
- Narrow Band Imaging
- Third-Eye Retroscope
- Chromoendoscopy
- Water
- Blue Light
- FICE
- Full-Spectrum Endoscopy
- Wide Angle
- Retroflexion
- Endocuff
- Late Schedule
- Nurses
- Cap
- Time of Day
- Inspect Way In & Out
- Endoscopist
Improvement in Adenoma Detection Rate (ADR) for Individual Endoscopists Reduces Interval Cancer

- Incidence, 0.63 (0.45-0.88)
- Death, 0.50 (0.27-0.95)

Kaminski MF, Wieszczy P, Rupinski M et al. Gastroenterology 2017
CONSENSUS GUIDELINE

Colorectal Cancer Screening: Recommendations for Physicians and Patients From the U.S. Multi-Society Task Force on Colorectal Cancer

Douglas K. Rex, 1, 2, C. Richard Boland, 2 Jason A. Dominici, 3 Francis M. Giardino, 4 David A. Johnson, 1 Tanya Kaltenbach, 1 Theodore R. Levin, 1 David Lieberman, 1 and Douglas J. Robertson 1

1Indiana University School of Medicine, Indianapolis, Indiana; 2University of California San Diego, San Diego, California; VA Puget Sound Health Care System, University of Washington, Seattle, Washington; 3Yale University School of Medicine, New Haven, Connecticut; 4New England Medical Center, Boston, Massachusetts; 5VA San Francisco Medical Center, San Francisco, California; Kaiser Permanent Medical Center, Santa Clara, California; Oregon Health and Science University, Portland, Oregon; VA Medical Center, White River Junction, Vermont, and Global Society for Colorectal Endoscopy, Hannover, New Hampshire

This document updates the colorectal cancer (CRC) screening recommendations of the U.S. Multi-Society Task Force on Colorectal Cancer (MSTT) which represents the American College of Gastroenterology, the American Gastroenterological Association, and the American Society for Gastrointestinal Endoscopy. CRC screening tests are ranked in 3 tiers based on performance features, costs, and practical considerations. The tiers for tests are colorectal cancer every 10 years and fecal immunochemical test (FIT). Colorectal cancer and FIT are recommended as first-tier options when multiple options are presented as alternatives. A risk-stratified approach, which is also appropriate, with FIT screening in populations with an estimated low prevalence of advanced neoplasia and colorectal cancer screening in high-prevalence populations. The second-tier tests include CT colonography every 5 years, the FIT-fecal DNA test every 3 years, and fecal immunochemical every 5 to 10 years. These tests are appropriate screening tests, but each has disadvantages relative to the tier 2 tests. Because of limited evidence and current limitations to use, esophageal endoscopy every 5 years is a third-tier test. We suggest that the Septin9 serum assay (Synagevics, Seattle, Wash) may be used for bleeding screening, with a threshold set at age 55 years in average-risk persons, except in African Americans who are recommended to begin at age 50 years. CRC incidence is rising in persons under age 50, and thorough diagnostic evaluation of young persons with suspected colorectal bleeding is recommended. Bleeding screening should be considered for persons up to state with screening, who have prior negative screening (particularly colonoscopy), more than age 75 or those with end-stage liver disease. Persons without prior screening should be considered for screening up to age 55, depending on age and comorbidities. Persons with a family history of CRC or a documented advanced adenoma in a first-degree relative age 60 years or 2 first-degree relatives with these findings at any age are recommended to undergo screening by colonoscopy every 5 years, beginning 10 years before the age of diagnosis of the youngest affected relative or age 45, whichever is earlier. Persons with a single first-degree relative diagnosed at age 24 years with CRC, or an advanced adenoma can be offered average-risk screening options beginning at age 45 years.

Colorectal cancer (CRC) screening is the process of detecting early-stage CRCs and precursor lesions in asymptomatic people with no prior history of cancer or previous lesions. The U.S. Multi-Society Task Force of Colorectal Cancer (MSTT) is a panel of expert gastroenterologists representing the American College of Gastroenterology, the American Gastroenterological Association, and the American Society for Gastrointestinal Endoscopy. The MSTT, along with its long-standing systematic reviews of CRC screening in average-risk persons (persons without a high-risk family history of colorectal cancer), has begun at age 50 years, with general guidelines supporting screening reviewed in previous publications. This publication updates the screening recommendations of the MSTT for screening in average-risk persons. Screening differs from surveillance. Surveillance refers to the interval use of colonoscopy in patients with previously identified colorectal cancer or pre-polypoid lesions and internal colonoscopy in patients performing to detect dysplasia in patients with inflammatory bowel disease affecting the colon. Surveillance recommendations from the MSTT on surveillance after cancer and removal of previous lesions are available in other documents. Screening is also distinct from management of symptoms or follow-up care for an identified lesion or cancer.

Recommendations

1. We recommend colonoscopy every 10 years or annual FIT as first-tier options for screening the average-risk persons for colorectal neoplasia (strong recommendation; moderate-quality evidence).

2. We recommend that physicians performing screening colonoscopy measure quality, including the adenoma detection rate (strong recommendation, high-quality evidence).

3. We recommend that physicians performing FIT monitor quality (strong recommendation, low-quality evidence). The recommended quality measurements for FIT programs are detailed in a prior publication.86

4. We recommend CT colonography every 5 years or FIT-fecal DNA every 3 years (strong recommendation, low-quality evidence) or flexible sigmoidoscopy every 5 to 10 years (strong recommendation, high-quality evidence) in patients who refuse colonoscopy and FIT.

5. We suggest that capsule colonoscopy (if available) is an appropriate screening test when patients decline colonoscopy, FIT, FIT-fecal DNA, CT colonography, and flexible sigmoidoscopy (weak recommendation, low-quality evidence).

6. We suggest against Septin9 for CRC screening (weak recommendation, low-quality evidence).
COLORECTAL CANCER SCREENING

1. REASON FOR ISSUE: This Veterans Health Administration (VHA) Directive provides policy on various modalities for providing colorectal cancer (CRC) screening for VA medical facilities.

2. SUMMARY OF MAJOR CHANGES: This Directive is being revised to update the responsibilities of the medical facility Director to include ensuring the quality of colonoscopy as well as monitoring requirements. It also updates recommended screening tests, which are now based upon the screening guidelines coordinated by the VHA National Center for Health Promotion and Disease Prevention (NCP). Guidance has been clarified to increase flexibility in recommending screening options. Other changes include the addition of colonoscopy quality monitoring and recommendations for optimizing bowel preparation.

3. RELATED ISSUES: None.

4. RESPONSIBLE OFFICE: Specialty Care Services (10P4E) is responsible for the contents of this Directive. Questions may be directed to National Program Director for Gastroenterology at 202-461-7160.


6. RECERTIFICATION: This VHA Directive is scheduled for recertification on or before the last working day of December 2019.

Carolyn M. Clancy, M.D.
Interim Under Secretary for Health

DISTRIBUTION: Emailed to the VHA Publications Distribution List on 12/31/2014.

Directive states that:

1. The Chief of Staff at each medical facility must assess the quality of screening colonoscopy using three specific metrics (bowel prep quality, cecal intubation rate, & ADR)

2. A minimum of 30 records per provider must be assessed annually.
Adenoma Detection Rate (ADR)

$$ADR = \frac{\# \text{ colonoscopies with adenoma}}{\# \text{ screening colonoscopies}}$$

*If incomplete due to inadequate prep, patient discomfort, etc, or indication is surveillance or diagnostic, then procedure is not included in the calculation.

**Reference standard of adenoma diagnosis is histopathology

Data Elements Needed
1) Was a colonoscopy performed and for what indication?
2) Was a polyp removed?
3) What is histology? (Access to Pathology)
4) Ability to follow / track in more than one time point
A Nationwide Survey and Needs Assessment of Colonoscopy Quality Assurance Programs in the VA

Andrew J. Gawron, MD, PhD; Philip Lawrence, PharmD; Morgan M. Miller, PhD; Jason A. Dominitz, MD; Samir Gupta, MD; Mary Wholey, MD; and Toraya Kaltenbach, MD

Variability exists in quality documentation, measurement, and reporting practices of colonoscopy screening in VA facilities, and most do not have formal performance improvement plans.

Colorectal cancer (CRC) is an important concern for the VA, and colonoscopy is the primary screening, surveillance, and diagnostic modality used. The observed reductions in CRC incidence and mortality over the past decade largely have been attributed to the widespread use of CRC screening options. 1,2 Colonoscopy quality is critical to CRC prevention in veterans. However, endoscopy skills to detect and remove colorectal polyps using colonoscopy vary in practice.3

Quality benchmarks, linked to patient outcomes, have been established by specialty societies and proposed by the Centers for Medicare and Medicaid Services as reportable quality metrics. 4 Colonoscopy quality metrics have been shown to be associated with patient outcomes, such as the risk of developing CRC after colonoscopy. The adenoma detection rate (ADR), defined as the proportion of average-risk screening colonoscopies in which 1 or more adenomas are detected, has the strongest association to interval or “missed” CRC after screening colonoscopy and has been linked to a risk for fatal CRC despite colonoscopy.5

In a landmark study of 31,872 examinations performed by 136 gastroenterologists, the ADR ranged from 7.9% to 52.5%.6 Among patients with ADRs in the highest quintile compared with patients in the lowest, the adjusted hazard ratios (HRs) for any interval cancer was 0.52 (95% confidence interval [CI], 0.39-0.69) and for fatal interval cancer was 0.38 (95% CI, 0.22-0.63). Another pooled analysis from 9 surveillance studies that followed more than 800 participants with adenoma(s) after a baseline colonoscopy showed 52% of incident cancers as probable missed lesions, 16% as possibly related to incomplete resection of an earlier, noninvasive lesion, and only 24% as probable new lesions. These interval cancers highlight the current imperfections of colonoscopy and the focus on measurement and reporting of quality indicators for colonoscopy.7

According to VHA Directive 1015, in December 2019, colonoscopy quality should be monitored as part of an ongoing quality assurance program. 8 A recent report from the VA Office of the Inspector General (OIG) highlighted colonoscopy-quality deficiencies. 9 The OIG report strongly recommended that the Acting Under Secretary for Health require standardized documentation of quality indicators based on professional society guidelines and published literature. 10 However, no currently standardized and readily available VHA resource measures, reports, and ensures colonoscopy quality. The authors hypothesized that colonoscopy quality assurance programs vary widely across VHA sites. The objective of this survey was to assess the measurement and reporting practices for colonoscopy quality and identify both strengths and areas for improvement to facilitate implementation of quality assurance programs across the VA health care system.

### Table 3: Performance Improvement and Quality Assurance Programs (N = 96)

<table>
<thead>
<tr>
<th>Questions</th>
<th>Facilities, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you previously been informed of VHA Directive 1015 (Colonoscopy Quality Assurance)?</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>9 (9.4)</td>
</tr>
<tr>
<td>Yes</td>
<td>82 (85.4)</td>
</tr>
<tr>
<td>Not answered</td>
<td>7 (7.3)</td>
</tr>
<tr>
<td>Does your gastroenterology section/laboratory have a formal performance improvement plan for endoscopists who do not meet the standards of colonoscopy quality?</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>51 (53.1)</td>
</tr>
<tr>
<td>Yes</td>
<td>22 (22.9)</td>
</tr>
<tr>
<td>I don’t know</td>
<td>18 (18.8)</td>
</tr>
<tr>
<td>Would you be interested in using a centralized, automatic reporting system to measure colonoscopy quality at your site?</td>
<td></td>
</tr>
<tr>
<td>Yes, for aggregate level data</td>
<td>66 (68.8)</td>
</tr>
<tr>
<td>Yes, for provider level data</td>
<td>61 (63.5)</td>
</tr>
<tr>
<td>No</td>
<td>12 (12.5)</td>
</tr>
</tbody>
</table>
Challenges to Reporting Colonoscopy Quality Metrics

No reliable, efficient way of tracking procedure & pathology results to measure colonoscopy quality for the national Veteran population.

- No standardized documentation of colonoscopy reporting, including note titles.
- Most colonoscopies documented using a text note in Vista/CPRS
- No uniformity of endoscopic report-generating applications (i.e. Endopro, Provation, etc) to facilitate tracking and quality measurement.
- None of the current endoscopy reporting programs link to pathology (to determine ADR)
Aim 1: To generate a standardized assessment of colonoscopy quality metrics (ADR, cecal intubation rate & bowel preparation quality) that can be applied to national VHA data.

Aim 2: To test the validity of these metrics (as compared with chart review) at VHA facilities.

Aim 3: To develop a colonoscopy quality report card that is useful to front-line providers and facilities.
PROTOCOL

A Framework for Leveraging “Big Data” to Advance Epidemiology and Improve Quality: Design of the VA Colonoscopy Collaborative

Samir Gupta¹, Lin Liu², Olga V. Patterson³, Ashley Earles¹, Ranier Bustamante¹, Andrew J. Gawron¹, William K. Thompson², William Scuba³, Daniel Denhalter¹, M. Elena Martinez³, Karen Messer³, Deborah A. Fisher³, Sameer D. Saini⁷, Scott L. DuVal³, Wendy W. Chapman³, Mary A. Whoolev³ and Tonva Kaltenbach⁸

Figure 4: Workflow for NLP Algorithm Development and Validation.
Multiple publications have demonstrated utility of NLP for extracting colonoscopy quality metrics.

Few if any operational products have been built, scaled, or implemented for quality reporting.
Natural Language Processing Algorithm showed Excellent Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Precision (PPV)</th>
<th>Recall (Sensitivity)</th>
<th>F Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenoma Detection Rate (ADR)</td>
<td>94.9%</td>
<td>98.9%</td>
<td>96.9%</td>
</tr>
<tr>
<td>Screening Indication</td>
<td>95.7%</td>
<td>90.5%</td>
<td>93.1%</td>
</tr>
<tr>
<td>Cecal Intubation Rate</td>
<td>99.4%</td>
<td>92.0%</td>
<td>95.6%</td>
</tr>
<tr>
<td>Bowel Preparation Adequacy</td>
<td>94.1%</td>
<td>93.0%</td>
<td>93.6%</td>
</tr>
</tbody>
</table>
Substantial Variability in Colonoscopy Quality Across Sites

40.0% (range 12.5%- 62.1%

AMR = Adenoma Mention Rate
Cumulative risk for incident CRC after normal colonoscopy

- Q1: < 19%
- Q2: 20 - 32%
- Q3: 33 - 39%
- Q4: 40 - 46%
- Q5: >= 47%

Cumulative risk for fatal CRC after normal colonoscopy

Measurement Science QUERI (2015-2020)
Colonoscopy Quality Metrics

Aim 1: To generate a standardized assessment of colonoscopy quality metrics (ADR, cecal intubation rate & bowel preparation quality) that can be applied to national VHA data.

Aim 2: To test the validity of these metrics (as compared with chart review) at VHA facilities.

Aim 3: To develop a colonoscopy quality report card that is useful to front-line providers and facilities.
Data can change behavior.

Behavior can change outcomes.
VA Endoscopy Quality Improvement Program (VA-EQuIP)

Operational program with HSR&D funding (6/2020– 5/2023)

1) Quality Dashboard to measure and report provider colonoscopy quality compared to local and national benchmarks.

2) Learning Collaborative: Virtual learning sessions for providers across the country, enabling quality evaluation and peer mentoring / learning for quality improvement.

- Projected roll out: Jan 2021 (was delayed due to COVID)
- Implementation: ~60 VA sites in a stepped wedge RCT, with over 600 providers
- Eligible sites include all VA sites with colonoscopy procedure or pathology notes in our operational database.

Co-PIs: Tonya Kaltenbach & Andrew Gawron
Summary

**Data**
- CDW & TIU databases

**Infrastructure**
- Database
- NLP for metrics
- Report Card

**Pre-Implementation**
- Stakeholder Input
- Pilot Testing
- Needs Assessment

**2015-2020**

**2020-2025**

**Implementation**
- randomized trial of quality performance feedback & coaching

**Evaluation**
- Change in Quality Performance
- Behavior Change

**Reduce Colorectal Cancer in Veterans**

2015-2020

2020-2025
# Core Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonya Kaltenbach MD MAS</td>
<td>Principal Investigator</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Andrew Gawron MD PhD</td>
<td>Co-Investigator, NLP Tool</td>
<td>Salt Lake</td>
</tr>
<tr>
<td>Charles Kahi MD</td>
<td>Co-Investigator, Quality Report</td>
<td>Indianapolis</td>
</tr>
<tr>
<td>Susan Zickmund PhD</td>
<td>Qualitative</td>
<td>Salt Lake</td>
</tr>
<tr>
<td>Garrett Cole</td>
<td>NLP Expertise</td>
<td>Salt Lake</td>
</tr>
<tr>
<td>Bill Scuba</td>
<td>Project Manager, Software Architect</td>
<td>San Diego</td>
</tr>
<tr>
<td>Will Thompson PhD</td>
<td>NLP Expertise</td>
<td>Chicago</td>
</tr>
<tr>
<td>Guy Divita PhD</td>
<td>NLP Expertise</td>
<td>DC</td>
</tr>
<tr>
<td>Nilo Rosario</td>
<td>Implementation Liaison</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Tiffany Nguyen</td>
<td>Clinical Research Coordinator</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Carmel Malvar</td>
<td>Clinical Research Coordinator</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Tina Zhou &amp; Travis Bailey</td>
<td>Program Managers - VA-EQuIP</td>
<td>SF / SL</td>
</tr>
<tr>
<td>Katherine Williams</td>
<td>Program Manager</td>
<td>San Francisco</td>
</tr>
<tr>
<td>Mary Whooley MD MAS</td>
<td>PI, Measurement Science QUERI</td>
<td>San Francisco</td>
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# Key Partners

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samir Gupta MD MAS</td>
<td>Epidemiology, VA Merit</td>
<td>San Diego</td>
</tr>
<tr>
<td>Olga Patterson PhD</td>
<td>VINCI, NLP Expertise</td>
<td>Salt Lake</td>
</tr>
<tr>
<td>Scott Duvall PhD</td>
<td>VINCI, Director</td>
<td>Salt Lake</td>
</tr>
<tr>
<td>Makoto Jones MD</td>
<td>Ideas Center</td>
<td>Salt Lake</td>
</tr>
</tbody>
</table>
Improving Chronic Pain Care and Opioid Safety in VA Primary Care

Implementation and Evaluation of the Integrated Pain Team Clinic

Measurement Science QUERI, SFVAHCS
Karen Seal, MD, MPH; Natalie Purcell, PhD; Carolyn Gibson, PhD; Francesca Nicosia, PhD; Tessa Rife, Pharm D.; Jenny Tighe, MSPH; Yongmei Li, PhD

SFVAHCS Research Seminar
October 5, 2020
The Gap: From Congressional Act to Implementation in VA

Public Law 114–198
114th Congress

An Act

To authorize the Attorney General and Secretary of Health and Human Services to award grants to address the prescription opioid abuse and heroin use crisis, and for other purposes.

July 22, 2016
[S. 524]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the “Comprehensive Addiction and Recovery Act of 2016”.

New Approach Needed

- Biopsychosocial model for pain management and opioid safety
- Multi-modal care
  - Behavioral health
  - Non-opioid medication management
  - Non-pharmacological and CIH modalities
PERSPECTIVE

Managing Chronic Pain in Primary Care: It Really Does Take a Village

Karen Seal, MD, MPH\textsuperscript{1,2}, William Becker, MD\textsuperscript{3,4}, Jennifer Tighe, MSPH\textsuperscript{1}, Yongmei Li, PhD\textsuperscript{1}, and Tessa Rife, PharmD, CACP, CGP\textsuperscript{1}

\textsuperscript{1}San Francisco VA Healthcare System, San Francisco, CA, USA; \textsuperscript{2}University of California, San Francisco, San Francisco, CA, USA; \textsuperscript{3}VA Connecticut Healthcare System, West Haven, CT, USA; \textsuperscript{4}Yale University School of Medicine, New Haven, CT, USA.

J Gen Intern Med 32(8):931–4
DOI: 10.1007/s11606-017-4047-5
SFVAHCS Integrated Pain Team (IPT)

Pain Pharmacist
Pain Psychologist
Medical provider
Veteran
VA PCP
Opioid Reduction and Risk Mitigation in VA Primary Care: Outcomes from the Integrated Pain Team Initiative

Karen H. Seal, MD, MPH\textsuperscript{1,2}, Tessa Rife, PharmD, BCGP\textsuperscript{1,2}, Yongmei Li, PhD\textsuperscript{1}, Carolyn Gibson, PhD\textsuperscript{1,2}, and Jennifer Tighe, MSPH\textsuperscript{1}

\textsuperscript{1}San Francisco Veterans Affairs Health Care System, University of California, San Francisco, San Francisco, CA, USA; \textsuperscript{2}Departments of Medicine and Psychiatry, University of California, San Francisco, San Francisco, CA, USA.

**BACKGROUND:** National guidelines advise decreasing opioids for chronic pain, but there is no guidance on implementation.

**OBJECTIVE:** To evaluate the effectiveness of an Integrated Pain Team (IPT) clinic in decreasing opioid dose and mitigating opioid risk.

**DESIGN:** This study prospectively compared two matched cohorts receiving chronic pain care through IPT (N = 147) versus usual primary care (UPC, N = 147) over 6 months.

**KEY WORDS:** pain; opioids; veterans; interdisciplinary; primary care.

J Gen Intern Med 35(4):1238–44
DOI: 10.1007/s11606-019-05572-9
© Society of General Internal Medicine (This is a U.S. government work and not under copyright protection in the U.S.; foreign copyright protection may apply) 2019
Methods: Study 1

- New IPT patients and a matched cohort in Usual Primary Care (UPC) were assembled using a national clinical decision support tool (VA STORM dashboard).

- All patients had chronic pain & were prescribed opioids; matched on age, sex, MH dx and daily opioid dose.

- 294 veteran patients were included:
  - 147 patients in IPT were matched to 147 patients in UPC.
  - Both groups were followed prospectively and assessed at 3 & 6 months.
  - Mean age was 62; 90% male; predominantly white.
Adjusted Linear Regression

- By 3 mos, mean reduction in MEDD in IPT was 34 mg greater than UPC (p=0.002)
- By 6 months, mean reduction in MEDD in IPT was 38 mg greater than UPC (p=0.003)

Seal et al. *Journal Gen Intern Med*, 2019
Opioid Safety Outcomes

At 3- and 6-months, opioid safety metrics significantly improved in veterans in IPT vs. UPC:

- UDS monitoring
- Naloxone kit distribution and education

Decreases in IPT in co-prescription of opioids/benzos vs. increases in co-prescription in UPC.

Seal et al. *Journal Gen Intern Med*, 2019
INTEGRATIVE MEDICINE SECTION

An Integrated Pain Team Model: Impact on Pain-Related Outcomes and Opioid Misuse in Patients with Chronic Pain

Carolyn J. Gibson, PhD, MPH, *,† Joseph Grasso, PhD, * Yongmei Li, PhD, * Natalie Purcell, PhD, MPA, *,‡ Jennifer Tighe, MPH, * Kara Zamora, MA, * Francesca Nicosia, PhD, *,§ and Karen H. Seal, MD, MPH*, †
Methods: Study 2

- Prospective cohort of 99 new IPT patients
- Data collected at baseline and after 3rd visit or discharge (whichever came first)
- Survey included standardized, validated patient report measures:
  - Current Opioid Misuse Measure (COMM)
  - Brief Pain Inventory (BPI)
  - Pain Catastrophizing Scale (PCS)
- Paired t-tests and Wilcoxon signed-ranks test used to evaluate differences

Gibson et al., *Pain Med* 2020
Change in Pain and Opioid Outcomes in Veterans enrolled in IPT

Gibson et al., *Pain Med* 2020
Change in Use of Non-pharmacological Treatments in Veterans enrolled in IPT

Gibson et al., Pain Med 2020

All p< 0.05
Original Research Article

The Integrated Pain Team: A Mixed-Methods Evaluation of the Impact of an Embedded Interdisciplinary Pain Care Intervention on Primary Care Team Satisfaction, Confidence, and Perceptions of Care Effectiveness

Natalie Purcell, PhD, MPA,*† Kara Zamora, MA,* Jenny Tighe, MSPH,* Yongmei Li, PhD,* Mathew Douraghi, MA,* and Karen Seal, MD, MPH*†

*San Francisco Veterans Affairs Health Care System, interviews of 61 primary care providers, other primary care team members, and organizational stakeholders; and 2) a supplementary quantitative survey of 65 providers, comparing those who had referred patients to IPT with those who had not.
Provider Experiences with IPT: Study 3

**Objective:** Evaluate IPT’s impact on primary care team satisfaction, stress and burnout, and PCP’s self-confidence in managing their patients’ pain.

**Mixed Methods:**

1) Qualitative semi-structured interviews of PCPs, primary care team members, and other stakeholders (n=61)

2) Quantitative survey of PCPs, comparing those who had referred patients to IPT with those who had not (n=65)

Purcell et al., *Pain Med* 2018
Provider Experiences with IPT: Results

- IPT reduced PCPs’ struggles with patients over opioids; allowed providers time for patients’ other health concerns.

- IPT improved patient education re: pain and opioids and provided patients and PCPs practical pain care plans.

- BUT, PCPs who had referred patients to IPT did not have more self-efficacy than other providers regarding their own pain care skills.

Conclusions: Integrating IPT into primary care can provide needed support to primary care, but more provider education and skill-building re: non-opioid pain management is needed.

Purcell et al., Pain Med 2018
Patient Experiences With Integrated Pain Care: A Qualitative Evaluation of One VA’s Biopsychosocial Approach to Chronic Pain Treatment and Opioid Safety

Natalie Purcell, PhD, MPA, Kara Zamora, MA, Carolyn Gibson, PhD, Jennifer Tighe, MSPH, Jamie Chang, PhD, Joseph Grasso, PhD, and Karen H Seal, MD, MPH
Patient Experiences with IPT: Study 4

Objective: To conduct an in-depth examination of patients’ experiences with IPT.

Method: Qualitative semi-structured interviews with veterans who received care from IPT (n=41).

Interview Topics:
- IPT’s impact on pain, functioning, and QOL.
- Overall experience with IPT, what worked/didn’t work
- Recommendations to improve IPT care.

Purcell et al., Global Adv Health Med, 2019
Patient Experiences with IPT: Results

Patients most likely to be satisfied with IPT care and report positive changes in pain were those who:

– Discussed and agreed to IPT referral prior to their first IPT visit.
– Had a basic understanding of IPT’s structure/function before starting IPT care.
– Had experienced adverse outcomes with opioids; were interested in tapering or ready to make a change.
– Interested in nonpharmacological pain management.

Purcell et al., *Global Adv Health Med*, 2019
How to make QI Results Actionable

• QI team provided feedback about study results with IPT members.

• Action plans created:
  – e.g., consult modified to indicate that PCP had discussed IPT referral with patients in advance.
  – e.g., IPT discharge note included clear blueprint for PCP to continue IPT’s pain management plan.
Tailored to Fit

How an Implementation Framework Can Support Pragmatic Pain Care Trial Adaptation for Diverse Veterans Affairs Clinical Settings

Natalie Purcell, PhD, MPA,*† William C. Becker, MD,‡§ Kara A. Zamora, MA,*† Sarah L. McGrath, MA,* Hildi J. Hagedorn, PhD,‖‖‖ Eva R. Fabian, MPH,* Nicole McCamish, MA,* and Karen H. Seal, MD, MPH*†

(Med Care 2020;58: S80–S87)
Acknowledgements

- HSR&D QUERI
- Veterans living with chronic pain who participated
- Participating PCPs and PACT staff
- IPT providers themselves:
  - Caitlin Garvey, NP; Christina Tat, Pharm D; Erin Watson, PhD; Payal Mapara, PhD; Beth Son, Pharm D; Andrea Lynn, RN; Cecelia Bess, PhD; Hector Cereceres, LVN.
Improving Measurement of Functional Status in VA Primary Care Clinics

Rebecca Brown MD, MPH
Attending Physician, Crescenz VA Medical Center
Assistant Professor of Medicine, Penn Geriatrics
Overview

• Introduction
• Current approaches to measuring function at VA
• Improving measurement
  • QUERI project
• Next steps
What is functional status?

• **Ability to perform daily activities**
  • Basic activities of daily living
  • Instrumental activities of daily living
Why is function important?

- Difficulty/need for help with daily activities common
- Function strongly predicts adverse outcomes
- Outcome older adults care about most

Walter LC, JAMA 2001; Fried T, JAGS 2011
Clinic: the status of functional status

- Understanding function key to provide optimal care
- Yet seldom assessed

VA: leader in addressing gap

- 2009: Started collecting functional status data
  - Patient triage: clinical reminder mechanism
- Potential to inform care & research
- Unclear how accurate

Data = black box
Validation study...poor accuracy

- Compared accuracy of VA data to reference standard
  - Low Se, high Sp
- Why? Challenges with using reminder
  - Cumbersome
  - Only detecting most obviously impaired

How to better identify/manage impairment?

- VA QUERI grant: implementation science framework
- Aim 1
  - Identify barriers and facilitators to measuring functional status and using data to improve care
- Aims 2/3
  - Develop, implement, evaluate pilot intervention to improve measurement and use of data
Methods

• **Aim 1: barriers/facilitators**
  - Qualitative interviews with key stakeholders
  - Consolidated Framework for Implementation Research (CFIR)

• **Aim 2: develop & implement pilot intervention**
  - Map findings to intervention elements
  - Expert Recommendations for Implementing Change

• **Aim 3: evaluate pilot**
  - Evaluate impact of intervention on implementation outcomes and preliminary effectiveness outcomes
Methods: Aim 1 – sampling

• Providers and operations: 6 medical centers
  • Varying approaches to measurement
• Patients and caregivers: 1 medical center
  • Local to allow in-person interviews
Aim 1 participants

- 33 patients and caregivers
- 24 primary care providers (MD/DO, NP)
- 23 front-line staff (RN, LVN, MA)
- 10 social workers
- 19 informatics/performance measurement experts
- 12 health systems leaders
Results: 3 aspects of measurement

SCREENING & ASSESSMENT → DOCUMENTATION → USE OF DATA TO IMPROVE CARE, OUTCOMES

Nicosia FN et al, *JAGS*, 2018
Results: Aim 1 (barriers/facilitators)

SCREENING & ASSESSMENT

Ex: Time pressures

DOCUMENTATION

Ex: Templates (availability, usability)

USE OF DATA TO IMPROVE CARE, OUTCOMES

Ex: Data accessibility; connection between measurement and outcomes
Results: Aim 2 (develop/implement)

Screening & Assessment:
- Annual screening and assessment with validated, usable instrument; screen out
- Ex: Time pressures

Documentation:
- Standardized but flexible templates for electronic documentation
- Ex: Templates (availability, usability)

Use of Data to Improve Care, Outcomes:
- Functional status dashboard; suggested referrals within medical record; education
- Ex: Data accessibility; connection between measurement and outcomes
Clinical reminder: 2 parts

- Goal: address barrier of time pressures and reminder burden for front-line staff
  - Part 1: Initial brief screener
  - Part 2: Full reminder for those who screen in
Clinical reminder: initial screener

• Wording from American Community Survey
• ADLs/IADLs which are most commonly impaired
  • Do you have any difficulty shopping for groceries or preparing a meal?
    • YES → full IADL screener
    • NO → proceed to ADL brief screener
  • Do you have any difficulty with bathing or dressing?
    • YES → full ADL screener
    • NO → done
Full reminder: difficulty & need for help

Patient interviews:
- Difficulty
- Need for help

Reviewed 30+ instruments

- 2 validated & ask re: difficulty and need for help: HRS, PEP
Old vs. new reminder

Old reminder
• Cumbersome, lengthy
• Manually add score
• Data into “black box”

New reminder
• Initial brief screener
• Automatically add score
• Clear wording re: difficulty and need for help
• Provider alert for positive screen
Aim 2: Pilot intervention

• Annual screening for Vets 75+
• Improved clinical reminder
• Provider note template
• Interdisciplinary training
• Adaptable workflows
• Dashboard
Aim 3: Evaluation

- Implementation outcomes
  - Acceptability
  - Adoption
  - Fidelity
  - Adaptability
- Process outcomes
  - Screening rates
  - Referral rates
- Preliminary effectiveness outcomes
  - Health care utilization
  - Function
Conclusion

• Current approaches to measuring functional status have challenges
  • Cumbersome
  • Inaccurate
• Incorporating stakeholder perspectives is a promising approach to develop acceptable and effective methods for measuring function
Study team

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Co-investigator

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Research Coordinator

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Research Coordinator

Anael Rizzo, BA
Research Coordinator
Accelerating Implementation of Evidence-Based Therapies

• Overview of the VA Quality Enhancement Research Initiative

• Improving colonoscopy quality (Dr. Kaltenbach)

• Enhancing chronic pain management (Dr. Seal)

• Standardizing Measurement of Functional Status (Dr. Brown)

• Expanding participation in cardiac rehabilitation (Dr. Whooley)
What is CARDIAC REHABILITATION?

1. **Regular Exercise**
   From supervised activities, to a daily walk in the park, the idea is to get moving.

2. **Adopt a Heart Healthy Diet**
   This includes meals that are low in salt and rich in whole grains, fruits, vegetables, low-fat meats and fish.

3. **Reduce Stress**
   Learn to control your daily stress through relaxation techniques, recreation, music and other various methods.

4. **Medical Therapy**
   Follow your doctor’s instructions carefully and take your medications as directed.

5. **Stop Smoking**
   Most cardiac rehab programs offer methods to help you kick this harmful habit.

For more information, visit [CardioSmart.org/CardiacRehab](http://CardioSmart.org/CardiacRehab)
Performance Measures from American Medical Association Physician Consortium for Performance Improvement

A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures and the American Medical Association–Physician Consortium for Performance Improvement

Developed in Collaboration With the American Academy of Family Physicians, American Association of Cardiovascular and Pulmonary Rehabilitation, American Association of Clinical Endocrinologists, American College of Emergency Physicians, American College of Radiology, American Nurses Association, American Society of Health-System Pharmacists, Society of Hospital Medicine, and Society of Thoracic Surgeons

Patients Should be Referred to Cardiac Rehabilitation After:

- Acute myocardial infarction
- Coronary artery bypass grafting
- Percutaneous coronary intervention
- Cardiac valve surgery
- Heart transplantation

Class I Recommendation
Level of Evidence A

Geographic Variation in Cardiac Rehabilitation Participation in Medicare and Veterans Affairs Populations

Opportunity for Improvement

Editorial, see p 1909

BACKGROUND: Cardiac rehabilitation is strongly recommended after myocardial infarction, percutaneous coronary intervention, or coronary artery bypass surgery, but it is historically underused. We sought to evaluate variation in cardiac rehabilitation participation across the United States.

METHODS: From administrative data from the Veterans Affairs (VA) healthcare system and a 5% Medicare sample, we used International Classification of Diseases, 9th Revision codes to identify patients hospitalized for myocardial infarction, percutaneous coronary intervention, or coronary artery bypass surgery from 2007 to 2011. After excluding patients who died in ≤30 days of hospitalization, we calculated the percentage of patients who participated in ≥1 outpatient visits for cardiac rehabilitation during the 12 months after hospitalization. We estimated adjusted and standardized rates of participation in cardiac rehabilitation by state using hierarchical logistic regression models.

Circulation. 2018;137:1899–1908. DOI: 10.1161/CIRCULATIONAHA.117.029471

Alexis L. Beatty, MD, MAS
Michael Truong, MS
David W. Schopfer, MD, MAS
Hui Shen, MS
Justin M. Bachmann, MD, MPH
Mary A. Whooley, MD
Only 10% of Eligible Veterans Participated in Cardiac Rehabilitation (FY2007-FY2011), Schopfer et al, JAMA Int Med 2014
Factors Associated With Utilization of Cardiac Rehabilitation Among Patients With Ischemic Heart Disease in the Veterans Health Administration

→ Geographic distance the largest barrier!

David W. Schopfer, MD, MAS; Susan Priano, RN, MSN; Kelly Allsup, BS; Christian D. Helrich, PhD; P. Michael Ho, MD, PhD; John S. Rumsfeld, MD, PhD; Daniel E. Forman, MD; Mary A. Whooley, MD
The Design and Implementation of a Home-Based Cardiac Rehabilitation Program

Gregory Rohrbach, DNP; David W. Schopfer, MD; Nirupama Krishnamurthi, MBBS, MPH; Mark Pabst, MPH; Michael Bettencourt; Jo Loomis, DNP; Mary A. Whooley, MD

A home-based cardiac rehabilitation program improves access and enrollment by using an evidence-based alternative model of care.

http://www.sanfrancisco.va.gov/services/HealthyHeart_.asp
Healthy Heart Program

Take control of your life.
Begin your journey to a healthier heart!

Introduction

Cardiovascular disease affects more than 1 in 3 American adults and is the leading cause of death in the United States. The Healthy Heart Program is a free, 12-week, home-based, customized exercise and lifestyle program that is intended to help Veterans achieve and maintain optimal cardiovascular health.

http://www.sanfrancisco.va.gov/services/HealthyHeart_.asp
Effects of Home-Based Cardiac Rehabilitation on Time to Enrollment and Functional Status in Patients With Ischemic Heart Disease

David W. Schopfer MD, MAS; Mary A. Whooley, MD; Kelly Allsup, BS; Mark Pabst, MPH; Hui Shen, MS; Gary Tarasovsky, BS; Claire S. Duverney MD; Daniel E. Forman MD

BACKGROUND: Cardiac rehabilitation is an established performance measure for adults with ischemic heart disease, but patient participation is remarkably low. Home-based cardiac rehabilitation (HBCR) may be more practical and feasible, but evidence regarding its efficacy is limited. We sought to compare the effects of HBCR versus facility-based cardiac rehabilitation (FBCR) on functional status in patients with ischemic heart disease.

METHODS AND RESULTS: This was a pragmatic trial of 237 selected patients with a recent ischemic heart disease event, who enrolled in HBCR or FBCR between August 2015 and September 2017. The primary outcome was 3-month change in distance completed on a 6-minute walk test. Secondary outcomes included rehospitalization as well as patient-reported physical activity, quality of life, and self-efficacy. Characteristics of the 116 patients enrolled in FBCR and 121 enrolled in HBCR were similar, except the mean time from index event to enrollment was shorter for HBCR (25 versus 77 days; P<0.001). As compared with patients undergoing FBCR, those in HBCR achieved greater 3-month gains in 6-minute walk test distance (+95 versus +41 m; P<0.001). After adjusting for demographics, comorbid conditions, and indication, the mean change in 6-minute walk test distance remained significantly greater for patients enrolled in HBCR (+101 versus +40 m; P<0.001). HBCR participants reported greater improvements in quality of life and physical activity but less improvement in exercise self-efficacy. There were no deaths or cardiovascular hospitalizations.

CONCLUSIONS: Patients enrolled in HBCR achieved greater 3-month functional gains than those enrolled in FBCR. Our data suggest that HBCR may safely derive equivalent benefits in exercise capacity and overall program efficacy in selected patients.
Congress established the Veterans Health Administration (VHA) Office of Rural Health (ORH) in 2006 (38 USC § 7308) to conduct, coordinate, promote and disseminate research on issues that affect the nearly five million Veterans who reside in rural communities. The mandate also requires ORH to develop, refine and promulgate policies, best practices, lessons learned, and innovative and successful programs.

ORH fulfills its mission by supporting targeted research, developing innovative programs and identifying new care models. Working through its five Veterans Rural Health Resource Centers as well as partners from academia, state and local governments, private industry and non-profit organizations, ORH strives to break down the barriers separating rural Veterans from quality care.

https://www.ruralhealth.va.gov/index.asp
Cardiac rehabilitation participation

- Off-site facility-based CR only
- On-site or off-site facility-based CR
- Off-site, on-site or home-based CR

Availability of home-based CR → quadrupled participation

Schopfer et al, JAMA-Int Med, 2018
Predictors of Patient Participation and Completion of Home-Based Cardiac Rehabilitation in the Veterans Health Administration for Patients With Coronary Heart Disease

Nirupama Krishnamurthi, MBBS, MPH\textsuperscript{a,b}, David W. Schopfer, MD, MAS\textsuperscript{a,b}, Tara Ahi, BS\textsuperscript{a}, Michael Bettencourt, MBA\textsuperscript{b}, Kimberly Piros, RN\textsuperscript{b}, Rebecca Ringer, RD\textsuperscript{b}, Hui Shen, MS\textsuperscript{b}, Janice P. Kehler, PT, MSC, MA\textsuperscript{d}, and Mary A. Whooley, MD\textsuperscript{a,b,c,\*}

Traditional, facility-based cardiac rehabilitation (CR) is vastly underutilized in the United States. The Veterans Health Administration (VA) has developed new home-based cardiac rehabilitation (HBCR) programs to address this issue. However, the characteristics of patients who choose HBCR are unknown. We sought to determine predictors of participation and completion of HBCR at the San Francisco VA (SFVA). We evaluated patients hospitalized for ischemic heart disease between 2013 and 2016 at SFVA. Logistic regression models were used to identify predictors of participation and completion of HBCR. In 724 patients with ischemic heart disease who were eligible for CR between 2013 and 2016, 314 (43\%) enrolled in HBCR. Older age was associated with lower odds of participation in HBCR (odds ratio [OR] 0.84; \( p < 0.01 \)). Additionally, patients with coronary artery bypass grafting (CABG) were twice as likely as those with percutaneous coronary intervention to participate in HBCR (OR 2.03; 95\% confidence interval 1.40, 2.97). In HBCR participants, 48\% (150/314) completed \( \geq 9 \) sessions. Patients with CABG were twice as likely as those with percutaneous coronary intervention to complete the HBCR program (OR 2.02; 95\% confidence interval 1.18, 3.44). There were no differences in participation or completion rates by gender, race, ethnicity, or rurality. Our study showed that the SFVAMC HCBR program achieved a 43\% participation rate, well above the VA average of 13\%. There were no disparities by gender, race, or rurality in terms of participation and adherence. CABG as the indication for CR was the most significant predictor of participation and completion of HBCR. \( \copyright \) 2018 Elsevier Inc. All rights reserved. (Am J Cardiol 2019;123:19–24)
Patient Perspectives on Declining to Participate in Home-Based Cardiac Rehabilitation

A MIXED-METHODS STUDY

David W. Schopfer, MD, MAS; Francesca M. Nicosia, PhD; Linda Ottoboni, PhD, RN; Mary A. Whooley, MD

Purpose: A minority of eligible patients participate in cardiac rehabilitation (CR) programs. Availability of home-based CR programs improves participation in CR, yet many continue to decline to enroll. We sought to explore among patients the rationale for declining to participate in CR even when a home-based CR program is available.

Methods: We conducted a mixed-methods evaluation of reasons for declining to participate in CR. Between August 2015 and August 2017, a total of 630 patients were referred for CR evaluation during index hospitalization (San Francisco VA Medical Center). Three hundred three patients (48%) declined to participate in CR. Of these, 171 completed a 14-item survey and 10 patients also provided qualitative data through semistructured phone interviews.

Results: The most common reason, identified by 61% of patients on the survey, was “I already know what to do for my heart.” Interviews helped clarify reasons for nonparticipation and identified system barriers and personal barriers. These interviews further highlighted that declining to participate in CR was often due to competing life priorities, no memory of the initial CR consultation, and inadequate understanding of CR despite referral.

Methodological innovation and new delivery of CHI programs have been shown to increase CR participation in traditional facility-based programs. Distance and travel issues are known barriers to participation among veterans. In response to these barriers, the Veterans Health Administration (VA) has been implementing home-based CR programs. Home-based CR is increasingly becoming recognized as an alternative delivery method of CR for some individuals who may not otherwise participate in traditional CR.

Recent investigation into CR programs in VA has shown that the availability of a home-based CR program has improved participation in CR. Yet, participation in CR remains well below the recommended goal of 70%. Reasons patients gave for declining to participate in CR when a home-based CR program is available have not been previously investigated. Identification of barriers to participation is critical to improving patient engagement in CR program from recruitment to enrollment to participation. We conducted a mixed-methods study to identify barriers related to decision by patients to decline to participate in CR despite the availability of a home-based CR program.

METHODS
Home-Based Cardiac Rehabilitation
A Scientific Statement From the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology

ABSTRACT: Cardiac rehabilitation (CR) is an evidence-based intervention that uses patient education, health behavior modification, and exercise training to improve secondary prevention outcomes in patients with cardiovascular disease. CR programs reduce morbidity and mortality rates in adults with ischemic heart disease, heart failure, or cardiac surgery but are significantly underused, with only a minority of eligible patients participating in CR in the United States. New delivery strategies are urgently needed to improve participation. One potential strategy is home-based CR (HBCR). In contrast to center-based CR services, which are provided in a medically supervised facility, HBCR relies on remote coaching with indirect exercise supervision and is provided mostly or entirely outside of the traditional center-based setting. Although HBCR has been successfully deployed in the United Kingdom, Canada, and other countries, most US healthcare organizations have little to no experience with such programs. The purpose of this scientific statement is to identify the core components, efficacy, strengths, limitations, evidence gaps, and research necessary to guide the future delivery of HBCR in the United States. Previous randomized trials have generated low- to moderate-strength evidence that HBCR and center-based CR can achieve similar improvements in 3- to 12-month clinical outcomes. Although HBCR appears to hold promise in expanding the use of CR to eligible patients, additional research and demonstration projects are needed to clarify, strengthen, and extend the HBCR evidence base for key subgroups.

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DEPARTMENT OF VETERANS AFFAIRS

Memorandum
VA National Director of Cardiology

Date: July 2, 2019
From: Richard Schofield MD, FACC, FAHA
Subject: Home-Based Cardiac Rehabilitation (HBCR)
To: VA Facility Directors

The VA National Office of Cardiology, in partnership with the VA Office of Rural Health, the VA Quality Enhancement Research Initiative, the VA Office of Connected Care, and the Million Hearts Cardiac Rehabilitation (CR) Collaborative, endorses providing Home-Based CR (HBCR) to clinically appropriate Veterans who (within the prior 12 months) have experienced:

- Acute Myocardial Infarction
- Percutaneous Coronary Intervention
- Coronary Artery Bypass Surgery
- Heart Failure (with preserved or reduced ejection fraction)
- Cardiac Valve Surgery
- Peripheral Artery Disease — or —
- Cardiac Transplantation
The Measurement Science QUERI addressed VHA modernization priorities by collaborating with operational partners to implement evidence-based practices that were united by the need to clearly define and continuously monitor standardized metrics to improve quality of care.

<table>
<thead>
<tr>
<th>Operational partners</th>
<th>Evidence-based practice</th>
<th>Modernization priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Gastroenterology</td>
<td>Improve measurement of colonoscopy quality</td>
<td>Reduce unwarranted variation</td>
</tr>
<tr>
<td>Office of Cardiology</td>
<td>Implement home-based cardiac rehabilitation</td>
<td>Mission Act: Improve access to care</td>
</tr>
<tr>
<td>Office of Patient-Centered Care</td>
<td>Expand integrated pain management</td>
<td>Engage Veterans in lifelong well-being</td>
</tr>
<tr>
<td>Office of Geriatrics and Extended Care</td>
<td>Standardize measurement of functional status</td>
<td>Commit to zero harm</td>
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</tbody>
</table>

Principal Investigators: Tonya Kaltenbach MD MS, Karen Seal MD MPH, Rebecca Brown MD MPH, and Mary Whooley MD
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- Walter Holleran, PharmD
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National Operational Partners
- Office of Cardiology
- Office of Gastroenterology
- Office of Geriatrics & Extended Care
- Office of Mental Health
- Office of Patient-Centered Care
- Office of Primary Care
- Office of Research & Development

QUERI Program centers comprise a national network of clinicians and experts in health services research that are implementing EBPs and developing quality improvement strategies to scale up and spread best practices across various VA healthcare settings.

https://www.queri.research.va.gov/about/default.cfm