Interventions to Increase Patient Portal Use in Vulnerable Populations: A Systematic Review

S61: Patients as Partners in Healthcare

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Purposes of Patient Portals

- Patient-provider communication
- Monitor patient safety concerns
- Manage medications remotely
- Collect patient-reported outcomes
- Medical record verification
- Communicate costs
- Develop shared care plans
- Educate or instruct patients
- Increase patient satisfaction
Portal Availability (■) and Use (■) in the U.S.

<table>
<thead>
<tr>
<th>Year</th>
<th>Availability (%)</th>
<th>Use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>70%</td>
<td>17%</td>
</tr>
<tr>
<td>2017</td>
<td>95%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Accessible Healthcare

- Online Refills
- Messaging
- Telemedicine
- Education
- Medical Records
- Symptom Monitoring
Disparities in Portal Use

- Age
- Race & Ethnicity
- Socioeconomic status, income
- Level of education
- Internet & computer access
- Functional or health literacy
- Computer skills
- Severity of illness
- Disability status

Barriers to the use of personal health records by patients: a structured review

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Disparities in Enrollment and Use of an Electronic Patient Portal

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Socioeconomic Disparities in Adoption of Personal Health Records Over Time

Jessica S. Ancker, PhD, MPH, Baria Hafeez, MS, and Rainu Kaushal, MD, MPH

Department of Healthcare Policy and Research, Weill Cornell Medical College (USA, BH, RK), New York, NY

Disparities in registration and use of an online patient portal among older adults: findings from the LitCog cohort

Samuel G Smith1,2, Rachel D’Cruz1, William Allien1, Laura M Curtis1, Michael D Wolf3, Mitta Sarghavi Gool1

Factors Affecting Usage of a Personal Health Record (PHR) to Manage Health

Jessica Tahs and Sara J Casaja
University of Miami Miller School of Medicine

Joseph Shueft
University of Miami

Daniel G. Morrow
University of Illinois at Urbana-Champaign

Technology Access, Technical Assistance, and Disparities in Inpatient Portal Use

Lisa V. Grossman1 Ruth M. Masterson Creber1 Jessica S. Ancker2 Beatriz Ryan3 Fernanda Polubriaginof2 Min Qian4 Irma Alarcon1 Susan Restaino1 Suzanne Bakken1 George Hripeak1 David K. Vawdrey1,3

Disparities in the Digital Divide in Adoption and Use of a Personal Health Record

Cyrus K. Yamin, BS; Srinivas Emani, PhD; Deborah H. Williams, MHA; Stuart R. Lipsitz, ScD; Andrew S. Karsen, MD, MPH; Jonathan S. Wald, MD, MPH; David W. Bates, MD, MSc

Social disparities in internet patient portal use in diabetes: evidence that the digital divide extends beyond access

Ummimala Sarkar,1,2 Andrew J Karter,3,4 Jennifer Y Liu,2 Nancy E Adler,5 Robert Nguyen,6 Andrea Lopez,7,8 Dean Schilling1,9

Review

Patient Portals and Patient Engagement: A State of the Science Review

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Health Care Reform
Intervention-Generated Inequity

Smoking Rate by Education Level in the U.S.

- **High school**
- **College or higher**
The Question

What interventions could help ensure that portals benefit vulnerable patients?
Abstract

Background

More than 100 studies document disparities in patient portal use among vulnerable populations. Developing and testing strategies to reduce disparities in use is essential to ensure portals benefit all populations.
Methods
Eligibility Criteria [PICOS]

**Populations**
Vulnerable populations [PROGRESS-Plus]

**Interventions**
Any intervention [no limitations]

**Outcomes**
1. Portal use, 2. predictors of portal use, 3. disparities in portal use

**Comparisons**
Any comparison [pre-post, concurrent control, etc.]

**Study Designs**
Any design [no limitations]
Study Selection

Database Search
- MEDLINE
- EMBASE
- CINAHL
- Cochrane Reviews

Supplemental Search
- References
- Personal libraries
- Journal table-of-contents
- Author correspondence

1st Screening
Title & abstract

2nd Screening
Full text articles

Included
In the review
Data Extraction

- Objective
- Design
- Intervention
- Results
- Comparison
- Measures
- Sample size
- Participant characteristics
- Eligibility Criteria
- Setting

Risk of Bias [AHRQ Methods Guide]

Intensity of Intervention [Cochrane Guide]
SEIPS Model

Individual

Task

Environment

Tool or Technology

Organization

Processes & Outcomes
Results
Included Studies

719 studies
Title & abstract

91 studies
Full text

18 studies
Included

15 of 18 [83%] studied impact on portal use

7 of 18 [39%] studied impact on predictors of portal use

1 of 18 [6%] studied impact on disparities in portal use
Study Characteristics (n=18)

**Designs**
- 5 RCTs
- 5 Time series
- 5 Pre-post
- 3 Other

**Measures**
- Login days
- Clicks
- Total logins
- Features viewed
- Activation rates
- And more!

**Risk of Bias**
- Low: 4
- Medium: 9
- High: 3
- Unclear: 2

**Intensity of Intervention**
- Low: 5
- Medium: 7
- High: 5
- Unclear: 1
Intervention Types

1 [6%] Task
- e.g., doctors assigning tasks

5 [28%] Tool or Tech
- e.g., updating the portal itself

13 [72%] Individual
- e.g., training or help registering

2 [11%] Environment
- e.g., free access to computers

4 [22%] Organization
- e.g., policy or workflow changes
Key Findings: Training

How does training and assistance impact portal use in vulnerable populations?

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th># of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit</td>
<td>6</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
</tr>
<tr>
<td>Mixed</td>
<td>1</td>
</tr>
<tr>
<td>Harm</td>
<td>0</td>
</tr>
</tbody>
</table>
Key Findings: Disparities

How does a universal access policy impact disparities in portal use?

Universal Access = Everyone is offered portal enrollment

The policy greatly reduced disparities in portal use.
Conclusions
Let us move beyond identifying disparities in portal use to start addressing them.
Intervention Types

Most interventions were individual-level.

Future interventions should be multi-level.

Individual = Weak Actions
one person at a time

Task, Tool, Environment, Organization = Strong Actions
many people at a time
More Takeaways

Future studies should measure impact on disparities directly.

Standardized measures of portal use could improve comparability.
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