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Value and Cost-Effectiveness of CHW Programs: Implications for Home Care Workers

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Value and Cost-effectiveness of CHW Programs: Implications for Home Care Workers

Glen Mays, PhD, MPH
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Symposium for Integrated Home Care Aide Innovation | Seattle, Washington | 20 October 2014
Key Questions

- Where are the opportunities for CHWs to add value in health and social service delivery?
- What do we know about the economic value of CHW programs?
- Implications for home care aides in Washington state
Failures in population health

Proportional Contribution to Premature Death

- Genetic predisposition: 30%
- Behavioral patterns: 40%
- Social circumstances: 15%
- Environmental exposure: 5%
- Health care: 10%

### Costly failures in population health

#### Exhibit 1

**Estimates of Waste in US Health Care Spending in 2011, by Category**

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost to Medicare and Medicaid&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total cost to US health care&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Midpoint</td>
</tr>
<tr>
<td>Failures of care delivery</td>
<td>$26</td>
<td>$36</td>
</tr>
<tr>
<td>Failures of care coordination</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Overtreatment</td>
<td>67</td>
<td>77</td>
</tr>
<tr>
<td>Administrative complexity</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>Pricing failures</td>
<td>36</td>
<td>56</td>
</tr>
<tr>
<td><strong>Subtotal (excluding fraud and abuse)</strong></td>
<td><strong>166</strong></td>
<td><strong>235</strong></td>
</tr>
<tr>
<td><strong>Percentage of total health care spending</strong></td>
<td><strong>6%</strong></td>
<td><strong>9%</strong></td>
</tr>
</tbody>
</table>

Drivers of population health failures

>75% of US health spending is attributable to conditions that are largely preventable

- Cardiovascular disease
- Diabetes
- Lung diseases
- Cancer
- Injuries
- Vaccine-preventable diseases and sexually transmitted infections

<5% of US health spending is allocated to prevention and public health

CDC 2008 and CMS 2011
Missed opportunities in prevention

Evidence-based public health strategies reach less than two-thirds of U.S. populations at risk:

- Smoking cessation
- Influenza vaccination
- Hypertension control
- Nutrition & physical activity programs
- HIV prevention
- Family planning
- Substance abuse prevention
- Interpersonal violence prevention
- Maternal and infant home visiting for high-risk populations
Medical Care
• Fragmentation
• Duplication
• Variability in practice
• Limited accessibility
• Episodic and reactive care
• Insensitivity to consumer values & preferences
• Limited targeting of resources to community needs

Social Supports

Public Health
• Fragmentation
• Variability in practice
• Resource constrained
• Limited reach
• Insufficient scale
• Limited public visibility & understanding
• Limited evidence base
• Slow to innovate & adapt

Waste and inefficiency
Inequitable outcomes
Limited population health impact
The connection between social needs and medical outcomes

Unmet social needs have large effects on medical resource use and health outcomes.

Most primary care physicians lack confidence in their capacity to address unmet social needs.

Linking people to needed health and social support services is a core public health function that can add health and economic value.
**Where Can CHWs Add Value**

- **Targeting**: identifying individuals with unmet health and social needs
  - Reaching hard to reach (urban & rural settings)
  - Mitigating “woodwork” effects

- **Tailoring**: matching services and supports to consumer needs, preferences, values
  - Education & self-management support
  - Direct service provision
  - Referral
  - Care coordination & navigation
<table>
<thead>
<tr>
<th>INTERVENTION PROCESS</th>
<th>VBH</th>
<th>SCO</th>
<th>CCP</th>
<th>Mercy</th>
<th>GRACE</th>
<th>CMP</th>
<th>EDPP</th>
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</thead>
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<tr>
<td>Baseline health assessment</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Social assessment</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Individualized care plan</td>
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<td>●</td>
<td>●</td>
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<td>Interdisciplinary care team</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<td>●</td>
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<tr>
<td>Specialized intervention protocols</td>
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<td>●</td>
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<td>Specialized training for service providers</td>
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<td>●</td>
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<td>Ongoing monitoring</td>
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<tr>
<td>Coaching in self-management</td>
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<td>●</td>
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<tr>
<td>Link to or communication with primary care</td>
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<td></td>
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<td>●</td>
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<td>●</td>
<td>●</td>
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<td>Link to or communication with primary care physician or practice</td>
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<td></td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<td>Use of electronic health records</td>
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<td>●</td>
<td>●</td>
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<td>●</td>
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</table>

Shier et al. *Health Affairs* 2013
<table>
<thead>
<tr>
<th>SERVICE</th>
<th>VBH</th>
<th>SCO</th>
<th>CCP</th>
<th>Mercy</th>
<th>GRACE</th>
<th>CMP</th>
<th>EDPP</th>
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</thead>
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<td>Case management</td>
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<td>Medication management</td>
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<td>•</td>
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<td>Mental health services</td>
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<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Referral to or arrangement for social or supportive services</td>
<td>•</td>
<td>•</td>
<td>•</td>
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<td></td>
<td>•</td>
<td></td>
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<tr>
<td>Referral to or arrangement for medical services</td>
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<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Caregiver support</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Shier et al. *Health Affairs* 2013
Some Promising Examples
Arkansas Community Connector Program

- Use community health workers & public health infrastructure to identify people with unmet social support needs
- Connect people to home and community-based services & supports
- Link to hospitals and nursing homes for transition planning
- Use Medicaid and SIM financing, savings reinvestment
- ROI $2.92

Source: Felix, Mays et al. *Health Affairs* 2011

[www.visionproject.org](http://www.visionproject.org)
Economic impact of Arkansas CCP

By Holly C. Felix, Glen P. Mays, M. Kathryn Stewart, Naomi Cottoms, and Mary Olson

The Care Span

Medicaid Savings Resulted When Community Health Workers Matched Those With Needs To Home And Community Care

Graph showing Medicaid spending per recipient over time with different labels for comparison groups and CCP participants.
<table>
<thead>
<tr>
<th>Per Recipient Medicaid Use/Spending</th>
<th>CCP Participants</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Any inpatient utilization</td>
<td>8.6%</td>
<td>9.7%</td>
</tr>
<tr>
<td>Annual inpatient spending</td>
<td>use</td>
<td>$23,186</td>
</tr>
<tr>
<td>Any outpatient medical utilization</td>
<td>78.6%</td>
<td>77.6%</td>
</tr>
<tr>
<td>Annual outpatient spending</td>
<td>use</td>
<td>$12,442</td>
</tr>
</tbody>
</table>
| Any nursing home utilization                  | 1.1%             | 2.8%             **
| Annual nursing home spending | use        | $25,882          | $74,854          | $86,045          | $109,776 **      |
| Any HCBS utilization                          | 55.1%            | 39.8%            **
| Annual HCBS spending | use        | $6,107           | $12,042          | $4,037           | $8,078 **        |

**p<0.05
Cost Neutrality Estimates in Arkansas CCP

Three Year Aggregate Estimates

- Combined Medicaid spending reductions: $3.515 M
- Program operational expenses: $0.896 M
- Net savings: $2.629 M
- ROI: $2.92
Some Promising Models
Kentucky’s Homeplace Program

Ratio of CHWs to Populations at Risk

[Map of Kentucky showing ratio of CHWs to populations at risk with color coding for different ratios]

Childress MT. 2013. http://uknowledge.uky.edu/cber_researchreports/1/
Some Promising Models
Kentucky’s Homeplace Program and COACH4DM

Results: Delivery of Diabetes Self Management

Dearinger et al. 2013; Kegley et al. 2013
Some Promising Examples

Hennepin Health ACO

- Partnership of county health department, community hospital, and FQHC
- Accepts full risk payment for all medical care, public health, and social service needs for Medicaid enrollees
- Fully integrated electronic health information exchange
- Heavy investment in care coordinators and community health workers
- Savings from avoided medical care reinvested in prevention initiatives
  - Nutrition/food environment
  - Physical activity
Complex Resource Use Patterns Are Common in CHW Programs

- **Lower** inpatient care and readmissions
- **Lower** emergency care
- **Lower** skilled nursing/institutional LTC
- **Higher or stable** outpatient care
- **Higher** use of home and community-based services/supports
- **Higher** use of social services

Felix and Mays 2011; Dearinger et al 2013; Kegley et al. 2013; Shier et al. 2013
Comprehensive models use CHWs as part of larger care teams

- **Established teams**: use same core members for a defined geographic area
  - Vermont Blueprint
  - Geriatric Resources for Assessment and Care of Elders (GRACE)
  - Hennepin Health ACO

- **Ad hoc teams**: tailor teams to individual consumer based on needed services/supports
  - Arkansas CCP
  - Kentucky Homeplace
Special implications & considerations for home care workers as CHWs

- Efficiencies in worker training
- Efficiencies in providing direct services & linkage/referral roles together
- Skills in identifying unmet needs (targeting function)
- Direct service provision may require more intensive staffing and lower client to staff ratios
- Positive spillover benefits on caregivers
- Positive effects on CHW employment and career development
- Advantages in working as part of interdisciplinary teams
- Advantages in embedding in defined health care/public health delivery systems