Impact of Staffing Increases and Mental Health Enhancements on Suicide Rates in the Veterans Health Administration

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Acknowledgements

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VHA Serious Mental Illness Treatment Resource and Evaluation Program
VA Strategy

• Prevention requires ready access to high quality mental health services within the health care system

• Supplemented by two additional components
  – Public education and awareness promoting engagement for those who need help, and
  – Availability of specific services addressing the needs of those at high risk.
Charting the Future of Suicide Prevention: A 2010 Progress Review of the National Strategy and Recommendations for the Decade Ahead

• Prepared by the Suicide Prevention Resource Center (SPRC) and Suicide Prevention Action Network USA (SPAN USA), a division of American Foundation for Suicide Prevention (AFSP)
  – August, 2010

• In the past few years the Department of Veterans Affairs has become one of the most vibrant forces in the U.S. suicide prevention movement, implementing multiple levels of innovative and state of the art interventions, backed up by a robust evaluation and research capacity.
  – Page 11
The important question is:
Does VA’s suicide prevention strategy work?

Findings reviewed here are based on the most recent available information on suicide rates in the Veterans Health Administration. The methods are based on analysis of the associations between changes in suicide rates and changes in mental health staffing across the VISNs from 2005 to 2009. There have been Substantial increases in staffing throughout the system since 2009, and the findings may not reflect the impact of current staffing patterns. However, they remain relevant as tests of the effectiveness of VHA’s strategy for suicide prevention.
Changes in Staffing as a Component of VA’s Overall MH Enhancements
## Increases in MH Staffing: 2005 to 2009

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2009</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total MH</strong></td>
<td>13567</td>
<td>18543</td>
<td>36.68%</td>
</tr>
<tr>
<td><strong>Inpatient</strong></td>
<td>5542</td>
<td>6371</td>
<td>14.96%</td>
</tr>
<tr>
<td><strong>Residential</strong></td>
<td>1477</td>
<td>2167</td>
<td>46.67%</td>
</tr>
<tr>
<td><strong>MHICM</strong></td>
<td>516</td>
<td>788</td>
<td>52.53%</td>
</tr>
<tr>
<td><strong>Outpatient</strong></td>
<td>6031</td>
<td>9218</td>
<td>52.84%</td>
</tr>
<tr>
<td><strong>Direct Outpatient</strong></td>
<td>5461</td>
<td>8245</td>
<td>51.00%</td>
</tr>
<tr>
<td><strong>Basic Direct Outpatient</strong></td>
<td>4765</td>
<td>7485</td>
<td>57.09%</td>
</tr>
</tbody>
</table>

Total MH staffing increased to 20,547 by the end of 2011 and outpatient MH staffing, to 10,861.
# Increases in VHA Patients: 2005 to 2009

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2009</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Patients</strong></td>
<td>5011787</td>
<td>5349578</td>
<td>6.74%</td>
</tr>
<tr>
<td><strong>Confirmed MH Patients</strong></td>
<td>887613</td>
<td>1136731</td>
<td>28.07%</td>
</tr>
</tbody>
</table>
# Increases in MH Staffing per MH 1000 MH Patients: 2005-2009

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2009</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total MH</td>
<td>15.2843</td>
<td>16.3124</td>
<td>6.73%</td>
</tr>
<tr>
<td>Inpatient</td>
<td>6.2432</td>
<td>5.6042</td>
<td>-10.23%</td>
</tr>
<tr>
<td>Residential</td>
<td>1.6644</td>
<td>1.9062</td>
<td>14.53%</td>
</tr>
<tr>
<td>MHICM</td>
<td>0.5818</td>
<td>0.6929</td>
<td>19.10%</td>
</tr>
<tr>
<td>Outpatient</td>
<td>6.7949</td>
<td>8.1091</td>
<td>19.34%</td>
</tr>
<tr>
<td>Direct Outpatient</td>
<td>6.1520</td>
<td>7.2537</td>
<td>17.91%</td>
</tr>
<tr>
<td>Basic Direct Outpatient</td>
<td>5.3678</td>
<td>6.5844</td>
<td>22.66%</td>
</tr>
</tbody>
</table>
Stability of Suicide Rates
Stability of Suicide Rates in VHA: 2005 to 2009

[Bar chart showing suicide rates for Men and Women from 2005 to 2009]
Complications in Interpretation
Complications:

Suicide Rates in the Rest of the Country are Increasing

From AFSP
Complications:

Suicide Rates in the Rest of the Country are Increasing

From AFSP
Complications:
Suicide Rates in the Veterans Health Administration have been decreasing since 2001-2002.

Suicide Rates for Veterans Using VA Health Care

Standardized Mortality Ratios
Variability across VISNs
Variability in Changes in Suicide Rates

Mean = 1.02
Std. Dev. = .234
N = 21
Variability in Changes in Staffing

Mean = 1.23
Std. Dev. = .161
N = 21

Outpatient MH Staffing per MH Patient (2009/2005)
Correlations between Changes in Staffing and Changes in Suicide Rates
Correlations between changes in suicide rates and changes in core mental health staffing by VISN

The observed correlation between increases in outpatient core mental health staffing and decreases in suicide rates, demonstrates that about 20% of the variability between VISNs in changes in suicide rates was related to changes in staffing.
Correlations between changes in suicide rates and changes in subcomponents of core mental health outpatient staffing by VISN

<table>
<thead>
<tr>
<th>Outpatient Direct Subcomponents</th>
<th>Pearson R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>-.433</td>
</tr>
<tr>
<td>SUD</td>
<td>.029</td>
</tr>
<tr>
<td>PTSD</td>
<td>.057</td>
</tr>
<tr>
<td>Rehab/ Recovery</td>
<td>-.287</td>
</tr>
<tr>
<td>Day (exclusive of vocational)</td>
<td>-.096</td>
</tr>
</tbody>
</table>
Correlations between changes in suicide rates and changes in core mental health outpatient staffing by discipline and by VISN

<table>
<thead>
<tr>
<th>Core Staff Category</th>
<th>Total</th>
<th>Outpatient</th>
<th>Direct Outpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing (RN, LPN, NA)</td>
<td>-0.032</td>
<td>-0.267</td>
<td>-0.338</td>
</tr>
<tr>
<td>MD Extenders (NP, CNS, PA, PharmD)</td>
<td>-0.202</td>
<td>-0.286</td>
<td>-0.251</td>
</tr>
<tr>
<td>Physicians (Full and part time)</td>
<td>-0.131</td>
<td>-0.279</td>
<td>-0.255</td>
</tr>
<tr>
<td>Psychologists (includes assistants)</td>
<td>0.164</td>
<td>0.059</td>
<td>0.016</td>
</tr>
<tr>
<td>Social Workers (Includes assistants)</td>
<td>-0.222</td>
<td>-0.282</td>
<td>-0.310</td>
</tr>
<tr>
<td>Other Therapists (PT, OT, Other)</td>
<td>-0.260</td>
<td>-0.320</td>
<td>-0.339</td>
</tr>
</tbody>
</table>
Relationship between changes in outpatient staffing and changes in suicide rates by VISN
Correlations between changes in suicide rates and changes in core mental health staffing per unique by VISN

<table>
<thead>
<tr>
<th>Staff Component</th>
<th>Proportional Increase in Staff/Uniques</th>
<th>Proportional Increase in Staff/MH Uniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH Total</td>
<td>-.221</td>
<td>-.313</td>
</tr>
<tr>
<td>Outpatient MH</td>
<td>-.480</td>
<td>-.510</td>
</tr>
<tr>
<td>Direct Outpatient MH</td>
<td>-.481</td>
<td>-.514</td>
</tr>
<tr>
<td>Basic Direct Outpatient MH</td>
<td>-.483</td>
<td>-.522</td>
</tr>
</tbody>
</table>

The observed correlations between increases in outpatient core mental health staffing and decreases in suicide rates, demonstrates that up to 27% of the variability between VISNs in changes in suicide rates is related to changes in staffing.
Relationship between changes in outpatient staffing and changes in suicide rates by VISN
Differences between VISNs above and below the median in staffing changes
VISNs with Higher versus Lower Increases in Staffing

Based on inspection of the graph, an analysis compared changes in suicide rates for the 10 facilities above and below the median.

For Outpatient staffing
- Rates decreased in facilities above the mean by 13%
- Rates increased in facilities below the mean by 15%
- $F(1,18)=10.36; p=.005$

For Direct Outpatient staffing
- Rates decreased in facilities above the mean by 8%
- Rates increased in facilities below the mean by 11%
- $F(1,18)=3.26; p=.088$

For Basic Direct Outpatient staffing
- Rates decreased in facilities above the mean by 8%
- Rates increased in facilities below the mean by 11%
- $F(1,18)=3.52; p=.077$. 
VISNs with Higher versus Lower Increases in Staffing/Total Uniques

- Based on inspection of the graph, an analysis compared changes in suicide rates for the 10 facilities above and below the median.
- For TOTAL UNIQUES
  - For Outpatient staffing
    - Rates decreased in facilities above the mean by 10%
    - Rates increased in facilities below the mean by 13%
    - $F(1,18)=5.66; \ p=.029$
  - For Direct Outpatient staffing
    - Rates decreased in facilities above the mean by 10%
    - Rates increased in facilities below the mean by 16%
    - $F(1,18)=8.13; \ p=.011$
  - For Basic Direct Outpatient staffing
    - Rates decreased in facilities above the mean by 11%
    - Rates increased in facilities below the mean by 16%
    - $F(1,18)=8.80; \ p=.008$. 

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VISNs with Higher versus Lower Increases in Staffing/MH Uniques

• Based on inspection of the graph, an analysis compared changes in suicide rates for the 10 facilities above and below the median

• For MH UNIQUES
  – For Outpatient staffing
    • Rates decreased in facilities above the mean by 7%
    • Rates increased in facilities below the mean by 14%
    • $F(1,18)=5.170; \ p=.035$
  – For Direct Outpatient staffing
    • Rates decreased in facilities above the mean by 7%
    • Rates increased in facilities below the mean by 17%
    • $F(1,18)=5.170; \ p=.035$
  – For Basic Direct Outpatient staffing
    • Rates decreased in facilities above the mean by 11%
    • Rates increased in facilities below the mean by 11%
    • $F(1,18)=6.69; \ p=.019$. 
Lessons Learned
Conclusions

• VA’s strategy for mental health enhancement and suicide prevention are effective in those networks where they are best implemented.

• VA’s experience is consistent with the hypothesis that an investment in mental health services together with specific programs for suicide prevention can save lives.

• The findings reported here may no longer be relevant to understanding the relationships between operations and outcomes for the mental health and suicide prevention programs. This emphasizes the importance of real-time surveillance.