Project Proposal: Depression Screening and Awareness in Primary Care

By: Joseph Miles, PharmD

A review of the societal impact of depression and a case for introducing a simple computer aided screening tool for depression in primary care.

Some numbers on depression:

World Health Organization:

- Depression = leading cause of disability worldwide
- Suicide = ~ 800,000 total deaths annually and the second leading cause of death in people 15-29 years-old
- Depression is untreated in half of affected people
- “Promote public awareness,” “tackle stigma,” and “empower service users.”
- 2 of 3 people with depression present to primary care

http://www.who.int/mediacentre/factsheets/fs369/en/
More numbers for depression

- Cost: $23-billion in lost work days (Witters et al, 2013)
- Cost: $43-billion in medical cost (Maurer, 2012)
- Cost: $83-billion in total cost (Halfin, 2007)

Managing depression may become part of Medicare’s Star Ratings system (Larrick, 2015)

Studies for depression screening

- Palacios and associates, 2016:
  - depression + cardiovascular disease = premature death
- Halfin, 2007:
  - Depression = 4.5 times more likely to suffer a heart attack
- Pibernik-Okanovic and associates, 2015:
  - Diabetic patients, once depression was identified, improved both depression symptoms and diabetic condition with minimal clinician interaction.

Depression ➔ dysfunction ➔ worsen life situation ➔ increased depression
Why do we need to increase our awareness of depression?

- Managing depression is a major goal of Healthy People 2020
- United States Preventive Services Task Force (USPSTF) requests every person over 17 years-old to be screened for depression.
- Awareness and Screening = identifying unmanaged and treatable cases of depression
- Depression is a poor prognosticator for anyone dealing with chronic illness (heart disease, diabetes, etc)

The hypothesis:

Initiating a computer-aided screening examination in primary care will help identify previously undiagnosed cases of depression.

- Utilizing a simple yet effective computer program will assist accurate depression diagnosis.
  - Computer program will decrease work load on primary care
- The goal, show a statistically significant increase in depression diagnosis compared to a usual-care control group
More on the screening program

- Use Patient Health Questionnaire (PHQ),
  - freely distributed by Pfizer.
  - Low to no cost of implementation
- Written in Python language
  - improve scalability and implementation (web based option)
- Working prototype:

Patient Health Questionnaire

- PHQ-2, two questions from PHQ that has shown 97.6% sensitivity for screening for “major depression” (Kroenke, Spitzer & Williams, 2003)

PHQ-2 will be initial gateway
PHQ, part 2

- PHQ-9, nine questions from PHQ that has shown 88% specificity for screening for “major depression” (Kroenke, Spitzer & Williams, 2001)

Reading PHQ-9

For each question:
- Not at all = 0
- Several days = 1
- More than half of the days = 2
- Nearly every day = 3

Nine questions, so score can range from 0 to 27

<table>
<thead>
<tr>
<th>PHQ-9 Score</th>
<th>Severity of Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 4</td>
<td>Minimal</td>
</tr>
<tr>
<td>5 to 9</td>
<td>Mild</td>
</tr>
<tr>
<td>10 to 14</td>
<td>Moderate</td>
</tr>
<tr>
<td>15 to 19</td>
<td>Moderately Severe</td>
</tr>
<tr>
<td>20 to 27</td>
<td>Severe</td>
</tr>
</tbody>
</table>
Medicare Star Ratings, again!

There are many screening tests for depression, but the proposed method for depression screening by Medicare is PHQ-9.

- In order to stay on the good side of Medicare-Medicaid, a provider needs to prove patient improvement within 6-months of diagnosis using PHQ-9 as the measure.

The steps of the proposed study:

- Create fully functioning screening program
  - Consent, exclusions (pregnancy, below 18 years-old, previous depression diagnosis)
- Build system to collect patient information
  - Include age, gender, race, marital status, etc
  - Comorbid conditions: heart disease, diabetes, etc
The steps of the proposed study:

- Enroll primary care physicians (PCPs) to participate in study.
  - Ideally, 4 locations and at least 150 patients per location
- Educate the staff at the PCP’s office
- Establish randomizing rules for patients
  - ‘A’ days: immediate screening using PHQ
  - ‘B’ days: “intend to screen” control

The steps of the proposed study:

- Using a cut-off score of ‘5’ on PHQ-9 will alert the PCP to screen further for depression and confirm or refute new diagnosis.

Joseph Miles,

Your total score is 5.

This value indicates the possibility for a mild case of depression.

Your results will be forwarded to Dr. EBunny.
The steps of the proposed study:

- At 3-months, follow-up and reassess group A patients
  - Have group B take the PHQ-9 screening test
- Final assessment at 6-month follow-up
  - Request qualitative data from participants
    - Include both patients and primary care staff
  - One important number: patient retention

Of note:

- Treatment is not the focus of this study
  - Suggest usual best practices for care
  - As part of education, various eHealth options could be discussed as a potential tool at the PCP discretion.

Possible limitations:

- 97.6% sensitive means 24 out of 1000 patients are missed
  - This study design relies on the clinician for final diagnosis
  - It is not my intent to replace humans with computers!
- Thombs and Ziegelstein (2014) submit that there is not enough data to suggest depression screening for all adult patients in primary care
  - Essentially, why a study like this needs to be done

More limitations:

- Type II error:
  - Because the study will cause PCPs to be hyper-aware of depression symptoms, there will be a likelihood for clinicians to find many new-depression diagnoses in group ‘B’
    - Hopefully, since group ‘B’ is an “intend to screen” control, the doctors will more naturally give a “usual care” effort for depression diagnosis in group ‘B’ during the initial assessment
In Conclusion:

- We are striving to prove that universal screening for depression in primary care can be implemented as a value-added service with only minor interruptions to standard care.

- Reminder from W.H.O.: “Promote public awareness,” “tackle stigma,” and “empower service users.”

Your total score is 0.

This value indicates a very low chance of depression

Your results will be forwarded to Dr. PRabbit.

References (Page 1 of 3)

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