Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

Final Outcome Report for Eight Cities

Clinical Updates for Nurse Practitioners and Physician Assistants: 2015

Report Date: 01/7/2016
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Course Accreditation Designation Statement

The National Association for Continuing Education is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The National Association for Continuing Education is approved as a provider of nurse practitioner continuing education by the American Association of Nurse Practitioners. AANP Provider Number 121222. This program has been approved for 7.0 contact hours of continuing education (which includes pharmacology hours).

This program has been reviewed and is approved for a maximum of 7.00 hours of AAPA Category 1 CME credit by the Physician Assistant Review Panel. Physician assistants should claim only those hours actually spent participating in the CME activity. This program was planned in accordance with AAPA's CME Standards for Live Programs and for Commercial Support of Live Programs.

The National Association for Continuing Education designates this live activity for a maximum of 5.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The Association of Black Cardiologists, Inc. is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Association of Black Cardiologists, Inc. designates this educational activity for a maximum of 1.25 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.*

*This applies to the full day CME activity, Clinical Updates for Nurse Practitioners and Physician Assistants.
Commercial Support

The Clinical Updates for Nurse Practitioners and Physician Assistants: 2015 series of CME activities were supported through educational grants or donations from the following companies:

AstraZeneca
Baxalta
Boehringer Ingelheim Pharmaceuticals
Lilly USA, LLC
Novartis
Shire
Takeda Pharmaceuticals U.S.A., Inc.
Lundbeck

Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms was supported by an educational grant from Takeda.
# Cities and Dates

Clinical Updates for Nurse Practitioners and Physician Assistants: 2015 Conference Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>City</th>
<th>Date</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 26, 2015</td>
<td>Fairfax, Virginia</td>
<td>October 24, 2015</td>
<td>Phoenix, Arizona</td>
</tr>
<tr>
<td>October 03, 2015</td>
<td>Columbia, South Carolina</td>
<td>November 07, 2015</td>
<td>Dallas, Texas</td>
</tr>
<tr>
<td>October 10, 2015</td>
<td>Seattle, Washington</td>
<td>November 14, 2015</td>
<td>*Orlando, Florida</td>
</tr>
<tr>
<td>October 17, 2015</td>
<td>Pittsburgh, Pennsylvania</td>
<td>December 05, 2015</td>
<td>*Charlotte, North Carolina</td>
</tr>
</tbody>
</table>

* Live Activity and Simulcast
Transitions of Care in Diabetes: Initiation and Intensification of Therapies Beyond Monotherapy  
Robert S. Busch, MD, FACE or Samuel Grossman, PharmD, CDE or Mark Stolar, MD

Alpha-1 Deficiency and COPD:  
Uncovering the Needle in the Haystack to Improve Quality of Life  
Susan Collazo, RN, MSN, ARNP-BC

Gout: Bridging Knowledge Gaps in Diagnosis and Treatment  
Peng Thim Fan, MD or Louis Kuritzky, MD or Wendy L. Wright, MS, RN, APRN, FNP, FAANP, FAAN or  
M. Susan Burke, MD, FACP

Improving Patient Outcomes in Major Depression:  
Recognition and Treatment of Cognitive and Residual Symptoms  
C. Brendan Montano, MD or Angela Golden, DNP or Sloan Manning, MD or  
Alice R. Mao, MD or Gregg Mattingly, MD

Inflammatory Bowel Disease: Diagnosis, Treatment and Management  
Kimberly Carter, MS, PA-C or Gerald W. Dryden, MD, MSPH, MSc, AGAF, FASGE

Improving Outcomes for Heart Failure Patients Utilizing Evidenced Based Strategies  
Elizabeth Ofili, MD, MPH, FACC or Anekwe Onwuanyi, MD or Laurence O. Watkins, MD, MPH, FACC

Disease Prevention in Adults: A Case-Based Approach to Immunizations  
M. Susan Burke, MD, FACP
Levels of Evaluation

Consistent with the policies of the ACCME, NACE evaluates the effectiveness of all CME activities using a systematic process based on Moore’s model. This outcome study will reach Level 5.

- Level 1: Participation
- Level 2: Satisfaction
- Level 3: Declarative and Procedural Knowledge
- Level 4: Competence
- Level 5: Performance
- Level 6: Patient Health
- Level 7: Community Health

Level 1: Participation

- 1293 attendees in all 8 cities.
- 67% NPs; 14% PAs; 10% Physicians; 6% RNs; 3% Other
- 50% in community-based practice
- 69% Primary Care; 4% Cardiology 1% Gastroenterology; 24% Other or did not respond
- 93% provide direct patient care

Did we reach the right audience? Yes!
Level 2: Satisfaction

• 99% rated the activity as very good to excellent
• 99% indicated the activity improved their knowledge
• 97% stated that they learned new strategies for patient care
• 94% said they would implement new strategies that they learned in their practice
• 100% said the program was fair-balanced and unbiased

Sample Size: N = approximately 1293

Were our learners satisfied? Yes! Data was collected in eight cities for the Clinical Updates for Nurse Practitioners and Physician Assistants program.
Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

Patients seen each week in a clinical setting regarding Major Depression:

Sample Size: N = approximately 1293

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>8%</td>
</tr>
<tr>
<td>1-5</td>
<td>23%</td>
</tr>
<tr>
<td>6-10</td>
<td>21%</td>
</tr>
<tr>
<td>11-15</td>
<td>15%</td>
</tr>
<tr>
<td>16-20</td>
<td>12%</td>
</tr>
<tr>
<td>21-25</td>
<td>7%</td>
</tr>
<tr>
<td>&gt; 25</td>
<td>14%</td>
</tr>
</tbody>
</table>
Did Learners Say They Achieved Learning Objective?

Upon completion of this activity, I can now - Recognize the overlap of emotional, physical and cognitive challenges in patients with major depressive disorder (MDD); explore the impact of residual symptoms and cognitive dysfunction upon optimal patient outcomes; develop strategies in the primary care setting on how to minimize long term side effect burden in an effort to increase adherence to MDD treatment; and discuss newly approved treatment options for MDD while exploring their role in residual cognitive symptoms, selective side effect profile and remission of depressive symptoms:

Sample Size: N = approximately 1293

Yes! 99% believed they did. Data was collected from eight cities for the Clinical Updates for Nurse Practitioners and Physician Assistants program.
Goal
To determine the effect this CME activity had on learners with respect to competence to apply critical knowledge, confidence in treating patients with diseases or conditions discussed, and change in practice behavior.

Dependent Variables

1. **Level 3-5: Knowledge, Competence, and Performance**
   Case-based vignettes and pre- and post-test knowledge questions were asked with each session in the CME activity. Identical questions were also asked to a sample of attendees 4 weeks after the program to assess retention of knowledge. Responses can demonstrate learning and competence in applying critical knowledge. The use of case vignettes for this purpose has considerable predictive value. Vignettes, or written case simulations, have been widely used as indicators of actual practice behavior. ¹

2. **Practitioner Confidence**
   Confidence with the information relates directly to the likeliness of actively using knowledge. Practitioner confidence in his/her ability to diagnose and treat a disease or condition can affect practice behavior patterns.

3. **Level 5: Self-Reported Change in Practice Behavior**
   Four weeks after CME activity, practitioners are asked if they changed practice behavior.

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4. Readiness to Change Behavior (Prochaska and DeClemente Model)

CME activities can motivate providers to move through different stages of change which can ultimately lead them to take action and modify their practice behavior in accordance with the objectives of the education. Movement through these stages of change is an important dependent variable to consider in evaluating the impact of CME. Participants were asked to evaluate their stage of change with respect to specific topics being presented.

- **Pre-contemplation stage**: I do not manage (XXX illness), nor do I plan to this year.
- **Contemplation stage**: I did not manage (XXX illness) before this course, but as a result of attending this course I'm thinking of managing it now.
- **Pre-contemplation/confirmation stage**: I do manage patients with (XXX illness) and this course confirmed that I do not need to change my treatment methods.
- **Preparation for action stage**: I do manage patients with (XXX illness) and this course helped me change my treatment methods.

Learning Objectives

1. Recognize the overlap of emotional, physical and cognitive challenges in patients with major depressive disorder (MDD)

2. Explore the impact of residual symptoms and cognitive dysfunction upon optimal patient outcomes

3. Develop strategies in the primary care setting on how to minimize long term side effect burden in an effort to increase adherence to MDD treatment

4. Discuss newly approved treatment options for MDD while exploring their role in residual cognitive symptoms, selective side effect profile and remission of depressive symptoms
## Key Findings

### Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Competence</td>
<td>Learners demonstrated improvement from pre to post-testing in their answers to five out of six of the case-based questions regarding treating patients with Major Depression Disorder.</td>
</tr>
<tr>
<td>Confidence</td>
<td>Whereas the majority of learners rated themselves as moderately having confidence in their understanding of regarding treating patients for Major Depression Disorder before the education, most of the learners showed slight gains in confidence after the program.</td>
</tr>
<tr>
<td>Intent to Perform</td>
<td>As a result of this program, 15% of learners who did not treat patients Major Depression Disorder before are considering doing so, while 59% who do, indicated that they will change their treatment methods.</td>
</tr>
<tr>
<td>Change of Practice Behavior</td>
<td>91% of learners who responded to our four week survey indicated that they had changed their practice behavior to implement the learning objectives of this program within four weeks after they attended the activity.</td>
</tr>
</tbody>
</table>

N=34
As you evaluate Mary, you must realize that the 3 most common symptoms in individuals with MDD are? (Learning Objective 1)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Pre %</th>
<th>Post %</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep, mood and energy</td>
<td>38%</td>
<td>11%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sleep, mood and suicidal thoughts</td>
<td>5%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Mood, appetite and concentration</td>
<td>5%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Mood, sleep and concentration</td>
<td>80%</td>
<td>52%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Green highlight indicates significant difference between pre and post testing.
In treating Mary’s depression, the most common residual symptoms will include? (Learning Objective 2)

Green highlight indicates significant difference between pre and post testing.
Case Vignette Knowledge and Competence Assessment Questions
(Presented before and after lecture. Boxed answer is correct.)

You consider offering Mary an SSRI for which of the following reasons?
(Learning Objective 3)

- They have high remission rates
- They help depression and anxiety
- They have low sexual side effect rates
- They improve functional outcomes

Pre N= 450  Post N= 457

Red highlight indicates no significant difference between pre and post testing.
Which antidepressant has shown improvement in cognitive functioning?
(Learning Objective 4)

![Graph showing the percentage improvement in cognitive functioning for different antidepressants before and after lecture.]

- **Vilazodone**: Pre 6%, Post 35%
- **Duloxetine**: Pre 7%, Post 27%
- **Vortioxetine**: Pre 7%, Post 50%
- **Escitalopram**: Pre 59%, Post 8%

**P Value: <0.001 - Significant**

Green highlight indicates a significant difference between pre and post testing.
Mary would like to be sexually active and is concerned about medications that might impact her libido. To minimize sexual side effects, you want to avoid which serotonin receptor? (Learning Objective 3, 4)
Case Vignette Knowledge and Competence Assessment Questions
(Presented before and after lecture. Boxed answer is correct.)

Which antidepressant minimizes 5HT-2 stimulation? (Learning Objective 4)

P Value: <0.001 - Significant

[Bar chart showing the percentage of correct answers before (Pre) and after (Post) the lecture for different antidepressants. The green highlight indicates a significant difference between pre and post testing.]

Citalopram: Pre 1%, Post 22%
Vilazodone and Vortioxetine: Pre 12%, Post 61%
Desvenlafaxine: Pre 17%, Post 13%
Vortioxetine: Pre 22%, Post 4%
Vilazodone: Pre 26%, Post 22%

Pre N= 425     Post N= 417

The green highlight indicates a significant difference between pre and post testing.
Which of the statements below describes your approach to diagnosing and treating patients with Major Depression Disorder?

<table>
<thead>
<tr>
<th>Pre-Contemplation Stage</th>
<th>Contemplation Stage</th>
<th>Preparation for Action Stage</th>
<th>Pre-Contemplation/Confirmation Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18%</td>
<td>15%</td>
<td>59%</td>
<td>7%</td>
</tr>
</tbody>
</table>

- I do not participate in the diagnosis and treatment of MDD, nor do I plan to this year.
- I did not participate in the diagnosis and treatment of MDD before this course, but as a result of attending this course I’m thinking of doing this now.
- I do participate in the diagnosis and treatment of MDD and I now plan to change my treatment methods based on completing this course.
- I do participate in the diagnosis and treatment of MDD and this course confirmed that I don’t need to change my methods.
As you evaluate Mary, you must realize that the 3 most common symptoms in individuals with MDD are? (Learning Objective 1)

Green highlight indicates significant difference between pre and post testing.

Pre N= 448  Post N= 479  4 Weeks Post N=34

- Sleep, mood and energy
- Sleep, mood and suicidal thoughts
- Mood, appetite and concentration
- Mood, sleep and concentration
In treating Mary’s depression, the most common residual symptoms will include? (Learning Objective 2)

- Sleep difficulties
- Suicidal thoughts
- Cognitive difficulties
- Sleep difficulties and suicidal thoughts

Green highlight indicates significant difference between pre and post testing.
You consider offering Mary an SSRI for which of the following reasons? (Learning Objective 3)

- They have high remission rates
- They help depression and anxiety
- They have low sexual side effect rates
- They improve functional outcomes

Red highlight indicates no significant difference between pre and post testing.
Four Week Case Study Questions

Key Findings

Boxed answer is correct

Which antidepressant has shown improvement in cognitive functioning? (Learning Objective 4)

<table>
<thead>
<tr>
<th>Antidepressant</th>
<th>Pre %</th>
<th>Post %</th>
<th>Four Week %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vilazodone</td>
<td>35%</td>
<td>37%</td>
<td>59%</td>
</tr>
<tr>
<td>Duloxetine</td>
<td>27%</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>Vortioxetine</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Escitalopram</td>
<td>37%</td>
<td>26%</td>
<td>59%</td>
</tr>
</tbody>
</table>

Green highlight indicates significant difference between pre and post testing.
Mary would like to be sexually active and is concerned about medications that might impact her libido. To minimize sexual side effects, you want to avoid which serotonin receptor? (Learning Objective 3,4)

![Diagram showing pre and post percentages for serotonin receptors 5HT-1, 5HT-2, 5HT-3, and 5HT-7. The 5HT-2 receptor has significantly changed between pre and post testing, indicated by a green highlight.]

Pre N= 452  Post N= 455  4 Weeks Post N=34  Green highlight indicates significant difference between pre and post testing.
Which antidepressant minimizes 5HT-2 stimulation? (Learning Objective 4)

Key Findings
Boxed answer is correct

Green highlight indicates significant difference between pre and post testing.

- **Citalopram**: Pre 1%, Post 9%, Post 22%
- **Vilazodone and Vortioxetine**: Pre 12%, Post 61%, Post 71%
- **Desvenlafaxine**: Pre 17%, Post 13%, Post 11%
- **Vortioxetine**: Pre 22%, Post 4%, Post 3%
- **Vilazodone**: Pre 26%, Post 22%, Post 3%

Pre N= 448  Post N= 479  4 Weeks Post N=34  Green highlight indicates significant difference between pre and post testing.
Changes in Confidence from Pre to Post-Testing
Improving Patient Outcomes in Major Depression:
Recognition and Treatment of Cognitive and Residual Symptoms

On a scale of 1 to 5, please rate how confident you would be in treating a patient for Major Depression Disorder?

<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>Pre %</th>
<th>Post %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all confident</td>
<td>14%</td>
<td>2%</td>
</tr>
<tr>
<td>Slightly confident</td>
<td>32%</td>
<td>22%</td>
</tr>
<tr>
<td>Moderately confident</td>
<td>34%</td>
<td>43%</td>
</tr>
<tr>
<td>Pretty much confident</td>
<td>15%</td>
<td>25%</td>
</tr>
<tr>
<td>Very confident</td>
<td>5%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Pre N= 447   Post N= 446
Improve Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

Describe/list any other educational activities that you attended in the last month concerning the treatment of Major Depression Disorder?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>74%</td>
</tr>
<tr>
<td>Live Conferences</td>
<td>14%</td>
</tr>
<tr>
<td>Enduring webcasts or monographs</td>
<td>0%</td>
</tr>
<tr>
<td>Journal activities</td>
<td>11%</td>
</tr>
</tbody>
</table>
What specific skills or practice behaviors have you implemented for patients with Depression since this CME activity?
(Comments received from attendees at 4 week follow up)

- I learned of other antidepressant medications I can use in practice
- More frequent screening and initiation of treatment for depression
- Listen to patients more attentively. Treat early
- Branched out to other treatment options besides SSRIs
- Review with patient aspects of sleep, energy, and concentration
- Using screening tools, collaborating with psychotherapists
- Assessing side effects more carefully
- Advising patients to return within 2 weeks for follow up
Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

What specific barriers have you encountered that may have prevented you from successfully implementing strategies for patients with Depression since this CME activity?
(Comments received from attendees at 4 week follow up)

• Time allocation per patient
• Costs of medication
• Patients not wanting to take the medication
• Insurance costs
• Some patients are reluctant to accept they are depressed
• Fear of switching medications
• Access to therapy, medications
• Costs of newer medication
• Insurance approval for newer medications
Discussion and Implications

Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

The need for continued education Major Depression was demonstrated based on literature reviews and surveys completed prior to the conference series. Attendee knowledge was assessed at 3 points for this program: prior to the lecture, immediately following the lecture and again at 4 weeks after the conference. Data collected from 1293 clinicians over 8 meetings indicates statistically significant improvement in knowledge in 5 of the 6 areas tested. Specifically, as a result of this lecture, participants: understand that disturbances in mood, sleep and concentration are the most common symptoms of MDD; appreciate that sleep and cognitive difficulties are the most common residual symptoms, are aware that vortioxetine has shown improvement in cognitive function; recognize strategies to minimize side effects like avoiding 5HT-2 receptors which causes sexual dysfunction; and know that vilazodone and vortioxetine minimize 5HT-2 stimulation. Participants were unclear that SSRI’s have not been shown to improve functional outcomes but are mainly prescribed because they help with depression and anxiety.

Data obtained from participants 4 weeks after the program demonstrated some decline or even slight improvement in learning from the post-test scores in all areas, but continued improvement from pre-test scores. These results suggest that all of the learning objectives for this activity have been effectively addressed with attendees. At 4 weeks, 91% of responders indicated that they already had changed their practice behaviors in the management of patients with Major Depression.

Persistent gaps in knowledge were evident with additional education needed in the following areas: most common presenting and residual symptoms of depression; strategies to reduce/minimize side effects; the relationship between depression, cognition and treatment options; avoiding the 5HT-2 receptor to minimize sexual dysfunction; and understanding what receptors are targeted by specific antidepressants to maximize benefit while minimizing side effects.
Discussion and Implications
Improving Patient Outcomes in Major Depression: Recognition and Treatment of Cognitive and Residual Symptoms

Moderate to very confident levels in the treatment of a patient with Major Depression rose from 54 to 75%. In addition, 15% of learners that were not involved with the management of patients with Major Depression are now thinking of it and 59% are planning on changing what they do as a result of this course which suggests a robust impact on behavior. 94% of participants are likely to utilize information learned from this presentation in their practice. 69% of attendees report seeing 6 or more patients with Major Depression on a weekly basis and 92% are seeing at least 1 patient weekly, suggesting a significant number of patients will be impacted by this program.

Attendees indicated multiple new, specific, practice behaviors they implemented as a result of this program that included: greater awareness of newer treatment options, spending more time on screening and beginning treatment, greater assessment for side effects and closer follow up with patients. 74% of attendees had not participated in other CME activities 1 month after this program indicating their behavior changes were likely due to this program.

Barriers to care surrounded time to discuss these issues with patients, medication costs, formulary issues, patient compliance and reluctance to accept a diagnosis of depression.

The notable changes in post test scores, and intent to change practice patterns regarding the care of patients with Major Depression, signifies a clear gap in knowledge and an unmet need among primary care clinicians. It continues to be an important area for future educational programs.