Indiana University Dissemination of the Aging Brain Care Program!

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IU Team

• Mentors & peers
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  - Greg Sachs
  - Mary Austrom
  - Siu Hui
  - Daniel Clark
  - Su Gao
  - Lisa Harris
  - Patrick Monahan
  - Wanzhu Tu
  - Anthony Perkins

• Mentees:
  - Noll Campbell
  - Babar Khan
  - Nicole Fowler
  - Michael LaMantia
  - Richard Holden
  - Daniel Bateman
  - Sophia Wong
  - Ashley Overlay
  - Nadia Adams
  - Cathy Alder
  - Ben Zarzour
• Potential Conflict of Interest in the past 12 months

- Hold equity in a preferred population health management (PPHM), LLC. PPHM is the distributing network for the IU ABC program.

- Member of the Beacon Advisory Board for Astra-Zneca.

• Source of Funding:

- For Brain Care Discovery:
  - K23AG026770; R01AG029884; R01AG040220; R01AG034205; P30AG024967; R01HS019818; and R01HS10884.

- For Brain Care Delivery:
  - R24MH080827; 1C1CMS331000-01-00; 1L1CMS331444-01-00; and Eskenazi Health Foundation.
Objectives

- Describe the structure, the tools, the staffing models, and effectiveness of the IU Aging Brain Care model.

Indiana University Reaction

- Developed the Aging Brain Care Model (ABC beta) (2000-2001).
- Evaluated the model in RCT* (2001-2006).
- Translated the model into a local clinical program (ABC 1.0) (2007).
- Served 1,000 patients in Indianapolis (2012).
- Developed a scalable version (ABC 2.0) (2012).
- Served 5,000 patients in Indiana (2015).
- Active distribution of the ABC 2.0 (2015)
- Developing an advanced scalable version (ABC 3.0) (2016)

*RCT: Randomized Controlled Trial
The Aging Brain Care Model (ABC beta)

**Caregiver Focus:**
- Problem-solving skills
- Counseling
- Respite care
- Support group

**Primary Care Clinician (Hospitalists):**
- Detect and treat delirium
- Detect and treat BP DS
- Enhance cholinergic system by
  - Prescribe ChEIs
  - Discontinue Anticholinergic

**Expert Team:**
- Geriatrician
- Social Psychologist
- Geropsychiatrist

**Clinical Liaison**

**General Environmental Modification:**
- Medication adherence support
- Home safety assessment

BPDS: Behavioral and psychological symptoms
ChEIs: Cholinesterase inhibitors

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Work Force for ABC Model from 1.0 to 3.0

Today ABC 2.0: M-F 8-5 p.m. about $100 p.m.p.m., focusing on dementia/depression
Future ABC 3.0: 24/7 about $50 p.m.p.m., almost all brain conditions

MD
RN & SW
CCA
Patients and informal caregivers

p.m.p.m. = per member per month; MD = medical doctor; RN = registered nurse; SW = social worker; CCA = care coordinator assistant;
eMR ABC = electronic medical record aging brain care (a specialized software application for the model)
IT Support of ABC Model from 1.0 to 3.0

**ABC 3.0**

- Informal Caregiver + AVATAR

**ABC 2.0**

- Care Coordinator Assistants + eMR-ABC

**ABC 1.0**

- RN/SW + eMR-ABC

- MD eMR-ABC

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**Standardized Minimum ABC 2.0 Care**

1. Check Hospital & ER Alerts every day

2. Coordinate with Inpatient services
   a) Alert hospital team of presence of cognitive or mood problems
   b) Medications conciliation
   c) Connect with family caregiver
   d) Request Geriatric consult (If available)
   e) Coordinate post discharge transition

3. Post discharge care
   a) Home visit within 72 hours of discharge
   b) Medication reconciliation
   c) Coordinate Home Care visit
   d) Coordinate post hospital orders
   e) Deliver Delirium protocol and handout

4. Ongoing Aging Brain Care
   a) Manage Depression
      i. Problem Solving Therapy
      ii. Pharmacotherapy
      iii. Cognitive behavioral Therapy
   b) Manage Cognitive Impairment
      i. Cholinesterase inhibitors (if needed)
      ii. D/C medications with adverse cognitive effects (Anticholinergics, Histamine 2 antagonists, Benzodiazepines)
      iii. Caregiver problem solving coaching
      iv. Medication adherence support

Callahan et al., Aging & Mental Health 2011; Boustani et al., Aging & Mental Health 2011; LaMantia et al., JAGS 2015
The Current Tools of ABC 2.0

- Mobile office
- HABC Monitor for both self and Caregiver report
- eMR-ABC population management software
- Mobile HABC App for Informal Caregiver
- ABC Replication Manual
- ABC Caregiver Booklet
- Anticholinergic Cognitive Burden Scale

LaMartia et al. JAGS 2015; Frame et al eGEMS 2013; Monahan et al, JCIA 2010; Monahan et al JCIA 2012; Boustani et al, JCIA 2009

The ABC beta version Efficacy

- NNT = 3.7
- 7 NPI point improvement
- Each 1 point decline in NPI = $250-$400 in health care expenses
- Potential saving 1750-$2800 per patient
- Improvement in family stress

NNT: Number Need to Treat; NPI: Neuropsychiatric Inventory; CG: Caregiver

Calahan, Boustani et al, JAMA 2006
## ABC 1.0 Performance

### The Acute Care Service Utility Domain

<table>
<thead>
<tr>
<th></th>
<th>ABC</th>
<th>PCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>% patients with at least one ER visit</td>
<td>28%</td>
<td>49%</td>
</tr>
<tr>
<td>Total number of ER visits</td>
<td>124</td>
<td>1143</td>
</tr>
<tr>
<td>% patients with at least one hospitalization</td>
<td>13%</td>
<td>26%</td>
</tr>
<tr>
<td>Total number of hospitalizations</td>
<td>45</td>
<td>438</td>
</tr>
<tr>
<td>Mean/Median length of hospital stay</td>
<td>5 / 4</td>
<td>7 / 4</td>
</tr>
</tbody>
</table>

ABC; Aging Brain Care patients; PCC; primary care center patients

Boustani et al., Aging & Mental Health 2011

## ABC 1.0 Performance

### The Quality of Care Indicator Domain

<table>
<thead>
<tr>
<th></th>
<th>ABC</th>
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</thead>
<tbody>
<tr>
<td>% seen at ER again within one week</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td>% re-hospitalized within 30 days of discharge</td>
<td>11%</td>
<td>20%</td>
</tr>
<tr>
<td>% with at least one order of definite anticholinergics</td>
<td>19%</td>
<td>40%</td>
</tr>
<tr>
<td>% with at least one order of neuroleptics</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>% with at least one order of anti-dementia drugs</td>
<td>55%</td>
<td>13%</td>
</tr>
<tr>
<td>% with at least one order of antidepressant drugs</td>
<td>66%</td>
<td>48%</td>
</tr>
<tr>
<td>% with at least one order of definite anticholinergics and anti-dementia drugs</td>
<td>18%</td>
<td>32%</td>
</tr>
<tr>
<td>% with at least one LDL order</td>
<td>82%</td>
<td>72%</td>
</tr>
<tr>
<td>% of patients with LDL &lt; 130</td>
<td>45%</td>
<td>23%</td>
</tr>
<tr>
<td>% with at least one HbA1c order</td>
<td>78%</td>
<td>62%</td>
</tr>
<tr>
<td>% of patients with HbA1c &lt; 8</td>
<td>78%</td>
<td>51%</td>
</tr>
<tr>
<td>% with last systolic BP &lt; 160</td>
<td>27%</td>
<td>24%</td>
</tr>
</tbody>
</table>

ABC; Aging Brain Care patients; PCC; primary care center patients

Boustani et al., Aging & Mental Health 2011
ABC 1.0 Annual Cost Savings Per Patient

<table>
<thead>
<tr>
<th>Total Cost Savings Per Patient</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>$2,885</td>
<td>$3,474</td>
<td>$4,227</td>
</tr>
</tbody>
</table>

ABC 2.0 Performance

Health Outcomes

<table>
<thead>
<tr>
<th>Health Outcome</th>
<th></th>
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<tbody>
<tr>
<td>Full Dementia Care Giver Responders at 12 months</td>
<td>66%</td>
</tr>
<tr>
<td>Full Major Depression Patients Responders at 12 months</td>
<td>51%</td>
</tr>
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LaMartina et al., JAGS 2015
ABC Distribution
Preferred Population Health Management, LLC

- On-boarding of scalable and existing workforce within the AAAs. (multiple Mini Interview)
- Training and ongoing management and support of the scalable workforce (combined experiential adult learning based coaching)
- Ongoing Zoom-in & Zoom-out monitoring of the performance of the entire population to allow both complex case management and comprehensive resource allocation for the entire population at Risk (Population Health Logistic software)
- Evidence-based clinical pathway to manage the complex cognitive, functional, behavioral and psychological needs of both the client (member suffering from the disease) and their family caregiver.