The HOMERuN Collaborative – Linking research, implementation, and outcomes improvement

Andrew D Auerbach MD MPH
Professor of Medicine
UCSF Department of Medicine – Division of Hospital Medicine
Editor-in-Chief, Journal of Hospital Medicine
Disclosures

• Current funding:
  – Research funding from NHLBI, UC-System Center for Healthcare Quality Innovations, AHRQ

• Other financial relationships:
  – Funding from ABIM – Question writing and advisor to Hospital Medicine added certification
  – Funding from SHM – Editor in Chief of JHM, faculty to Academic Hospitalist Academy

• Conflicts of interest:
  – None
Overview

• Rationale for Hospital Medicine Reengineering Network (HOMERUN) and description of the network in 2014
• "Lessons learned" applicable to delirium research
• Recommendations for raising the profile of delirium in Hospital Medicine research
What is the rationale for HOMERuN?

– Need to do evaluation of healthsystem innovation in acute care settings
  • Infrastructure:
    – Not bench space
  • Research team needs:
    – HSR-like, but with sociologists and industrial engineers
  • Translational models:
    – Not GCRC, more explicitly front line engaged
Hospital Medicine Reengineering Network (HOMERuN)

• Leverage the role of hospitalists in the care of general medical patients in US hospitals
  – >60% of Medicare patients getting care from hospitalists
  – <1,000 in US in 1999, now >20,000 30,000
Why hospitalists?

• Hospitalists are a key ‘line item’ for hospitals
  – Hospitalists view systems reengineering as a key element of professional identity

• At UCSF-Mount Zion, 5 hospitalists assumed care previously provided by > 100 physicians
  – Easier to get front line engagement, implement research protocols
HOMERUN sites:
13 hospitals, 8 states
HOMERUN Core values

• Core values:
  – Support the rigorous evaluation of clinical practices at our sites and identify opportunities for improvement
  – Support rigorous empirical evaluation of health systems innovations
    • Study ‘QI’ using experimental and quasiexperimental designs
  – Create feedback between outcome evaluation, program evaluation, and implementation teams.
HOMERUN mission statement

To use measures that matter to patients and hospitalists to improve medical care in the hospital and community.
HOMERUN 2012-3 work

• Developing a care-coordination benchmarking project
  – Care coordination audit
    • What is the current state of care coordination work at our sites?
  – Readmission audit
    • How often are readmissions ‘preventable’?
    • Where could preventative measures been applied?
    • What are the opportunities for improvement?
<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient age [Mean, (SD)]</td>
<td>55.4 (18)</td>
</tr>
<tr>
<td>Readmitted through ED [n, (%)]</td>
<td>688 (91%)</td>
</tr>
<tr>
<td>Had caregiver at home [n, (%)]</td>
<td>124 (16%)</td>
</tr>
<tr>
<td>Cognitive impairments [n, (%)]</td>
<td>86 (11%)</td>
</tr>
<tr>
<td>Had at least one visit with PCP before readmit [n, (%)]</td>
<td>309 (41%)</td>
</tr>
</tbody>
</table>
In your opinion, was this readmission preventable?

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No evidence</td>
<td>215 (29.3%)</td>
</tr>
<tr>
<td>Slight evidence</td>
<td>197 (26.8%)</td>
</tr>
<tr>
<td>Less than 50-50, but close call</td>
<td>105 (14.3%)</td>
</tr>
<tr>
<td>More than 50-50, but close call</td>
<td>88 (12.0%)</td>
</tr>
<tr>
<td>Strong evidence</td>
<td>108 (14.7%)</td>
</tr>
<tr>
<td>Virtually certain</td>
<td>21 (2.9%)</td>
</tr>
</tbody>
</table>

~30% preventability - consistent with smaller studies
Where would interventions to prevent the readmission have been effective (n=215 preventable readmits)?

<table>
<thead>
<tr>
<th>Location</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In hospital during prior discharge</td>
<td>106 (50%)</td>
</tr>
<tr>
<td>Home</td>
<td>38 (18%)</td>
</tr>
<tr>
<td>Usual provider’s clinic</td>
<td>31 (15%)</td>
</tr>
<tr>
<td>ED/Other</td>
<td>39 (19%)</td>
</tr>
</tbody>
</table>
Most common targets for improvement

- Better self management plan (30% of preventable readmissions)
- Better or different home services (~15%)
- Not as common: Discharged too soon, medication errors or problems
Some lessons
Lesson: Can we thread the needle?

Collaborative networks
- Examples: VT Oxford, IMPAACT, NSQIP
- Data collection and membership expectations
- Benchmarking
- Focused projects agreed upon by group
- Generic infrastructure for broad goals, focused research

Research network
- Traditional NIH (e.g. ARDSnet, BRAIN-ICU)
- Multiple projects supported by individual grants
- Narrow(ish) projects with defined data requests
- PI-initiated ideas, local PI
- R&D for new measures, focus areas

Statistical rigor, data expertise
Lesson: Can we thread the needle?

• Can we link ‘research’ and ‘QI’ in a way that aligns all stakeholders’ needs?
  – NIH – Can knowledge be advanced in a generalizable way?
  – Payors/health systems – Can costs be constrained?
  – Physicians – Can you help me take care of my patients?

• Patients
  – Will I be able to walk? Care for myself?
  – Can you make my care cheaper, better, faster?
Lesson: Can we thread the needle?

• Why is linking QI and research important?
  – Practical reason:
    • Most of Hospital Medicine research is QI or implementation-focused
  – Strategic reasons
    • Alignment of goals will speed adoption of new practices
    • Increase likelihood of sustainability of new practices (and the network)
Lesson: Hospitalists don’t have a disease (to study)

• Broad based specialty caring for wide range of clinical problems, no home NIH institute
  – PCORI funding concordant with our mission of ‘measures that matter to patients’
Lesson: Hospitalists don’t have a disease (to study)

• For HOMERuN
  – Research:
    • Pushing forward with developing grants targeting specific diseases (e.g. COPD, CAP) and transitions (PCORI) using shared data collection approach
    • Collaborations with NIH Foundation, COPD networks
  – Quality collaborative:
    • Simultaneously seeking to develop our collaborative structures and benchmarking tools
Lesson: Infrastructure (is hard to build and maintain)

• What is the ROI?
  – How can we build infrastructure that leads to both operational improvements and good research?

• For HOMERUN
  – Need for information no one else is collecting
  – Opportunities to gain broader view of practices through benchmarking
  – Use cases critical

“Someday, all this will be infrastructure.”
Lesson: IRB’s, DUA’s and sharing

• IRB’s inconsistent on how to deal with QI and research
  – HOMERUN: Using UCSF IRB as a stepping off place
  – Now have DUA’s in place at all sites
Lesson: Doesn’t someone do this already?

• HOMERUN may seem similar to other benchmarking organizations
  – For most benchmarking organizations, patient level (or patient reported) outcomes uncommon
  – Limited front-line provider engagement
  – Often support collaboration, but no specific interest or expertise in research
Raising the profile of delirium in Hospital Medicine
Raising the profile of delirium in Hospital Medicine

• Hospitalists see it as an important problem
  – Care for post-ICU patients
  – Comanagement models
  – ACE(like) units
Raising the profile of delirium in Hospital Medicine

• Collaboration
  – Connect Delirium (and Perioperative, and Geriatric) researchers to the (growing) community of HM researchers.
Raising the profile of delirium in Hospital Medicine

• Develop and validate innovations
  – Healthsystem innovations
  – Sensors, monitors and apps
Raising the profile of delirium in Hospital Medicine

• Work together to define the business case for delirium detection and prevention models in the current healthcare environment
  – HELLP, ACE unit models’ business cases are strong

  – But – how to implement and sustain them in the era of ACO’s and shared risk models is less clear.
Conclusions

• Hospitalists
  – Not geriatricians, but doing the majority of inpatient care for elders in the US
  – Key frontline partners in hospital (and increasingly in postacute) settings
Conclusions

• HOMERuN
  – Example of a network concept that (we hope) will speed the final translational step
Conclusions

• Many opportunities for engagement with hospitalists exist
  – Research and collaboration on a number of fronts welcome
HOMERuN collaborators

- UCSF – Moffitt Long Hospital
  - Andrew Auerbach MD MPH
  - Neil Sehgal MPH PhD
- Baystate/Tufts:
  - Peter Lindenauer MD MSc
- University of Pennsylvania
  - Josh Metlay MD PhD
- UCSF – SFGH
  - Jeffrey Critchfield MD
- Sutter Health System
  - Jeffrey Newman MD MPH, Vernon Giang MD
- University of Washington
  - Grant Fletcher MD, Annelise Schleyer MD
- University of Michigan
  - Scott Flanders MD, Sanjay Saint MD MPH
- Christiana Hospital System
  - Edmondo Robinson MD
- Beth Israel Deaconness
  - Shani Herzig MD MPH
- Brigham and Women’s Hospital
  - Jeffrey Schnipper MD MPH, Anuj Dalal MD MPH
- Vanderbilt University
  - Sunil Kripalani MD MSc, Eduard Vasilevskis MD MCE
- Northwestern University
  - Mark Williams MD
- University of Chicago
  - David Meltzer MD PhD
  - Gregory Ruhnke MD