Managing Kids with Complex Illnesses

Peter A. Boling, MD
Professor of Medicine
Virginia Commonwealth University

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Speaker Conflicts of Interest statement

- Speaker has no financial conflicts of interest related to this presentation

- Speaker has been actively involved in design and implementation of the Independence at Home demonstration
1. Chris and others: defining complexity, targeting
   • I am a “complexivist”
2. Operations: Confirming action done follow-though on plans → outcomes
3. Several: social determinants, positive and negative variance
4. Beware “scope creep”, fix what you can
5. Put the patient and family first
1. Really complex cases need an intensive, accessible primary care team.

2. Patient-centeredness should drive the care model, which may involve mobile health care (house calls).
   - Phone calls: not strong enough

3. Technology (communication & remote monitoring) add to model

4. Lay caregivers are essential to success, social supports

5. Relationships matter – trust is at the heart of the matter

6. Financing of optimal coordinated care model requires payer partners for case management efforts and related personnel
   - FFS reimbursement is insufficient but much money can be saved for payer compared with risk-adjusted “usual care” group

Key Points
1. 10% of patients generate 70% of health care costs
2. Recurrent high cost system use is common over a span of time
   • “Regression” to and away from the mean
3. Complex kids vs. adults: similar yet different
   • Different diseases, needs of caregivers
   • Neurologic, Pulmonary, Cardiac, GI
4. Costs and payments are in “silo’s” & payment system is not aligned with a needs-based care system
5. Result: focus on places built for health care, bricks, mortar, overhead
6. Complex care kids need access, continuity, skilled care team
7. → Carve out to an **advanced** health home with mobile capability
Social Supports ... and... Health Care

- Friends + family, in-kind
- Paid personal care
- Transportation, food, shelter, safety
- Communication
- Insurance
- Financial resources

- Accessible
  - Mobile team care
- Coordinated
  - Providers, time, settings
- Comprehensive
- Aligned with goals and needs
1. Trained in VCUHS hospital and its clinics 1981-84
2. Making house calls since joining faculty in 1984
3. Home-limited ill persons pose quality/safety challenges
   • Timely access to medical care is difficult
     – PROVIDER AND CAREGIVER SCHEDULES, TRANSPORT
   • Medical care is not coordinated or continuous
   • Lapses occur in care plans made at medical centers
   • Care plans are not meshed with patients’ actual needs
   • Insufficient interaction between home health agency staff + physicians
   • Lay caregivers remain desperate for help
   • Needless reliance on ED, hospital, and nursing homes
Patient-centered care?

“Office follow-up with PCP, within 3-5 days”
Doing a job son?... use the right tool
- Eldon Boling, MD
“Usual care” strategies are ineffective or less effective with this population

- Nurse care coordinators
- Telemedicine by itself
- Basic PCMH model
- Enhanced hospital discharge planning
- Disease-specific care model – multi-morbid pts
- Patients need comprehensive care; they need health care providers that know them and that they can trust
What happens during home visits

- Discover + accurately evaluate patient’s most important problems
  - “The only true ‘med rec’ is done at the kitchen table”
  - - Kathy Gilmartin, VP for clinical operations, Interim Healthcare
- Understand needs and capabilities of patient and caregivers
  - Functional and cognitive status
  - Environmental safety
  - Social support
- Develop trust
School pick up
Groceries
Soccer practice
Dinner

The next open appointment is a week from when?
Partners are essential

- SOCIAL SERVICE AGENCIES
- HOME HEALTH AGENCIES
- PERSONAL CARE AGENCIES
- NURSING HOMES
- HOSPITALS AND SPECIALIST PHYSICIANS
- PHARMACIES
- Mobil x-ray and lab services
- DME PROVIDERS
- CORE HOUSE CALLS TEAM

VCU Health
Why a Cadillac, can’t we use a Hyundai?
Doesn’t fee-for-service cover this model?
How do you value the intervention? ROI?
Show me!
What data do you have to make the case?
Who pays for this expensive kind of care?
Who should get this service?
What about “regression to the mean?”
“Risk adjustment”, comparison group?
Evidence base for in-home medical care model (additional slides at the end of presentation)

1. First hand experience, pre-post data
2. Naylor Mary et al 1999 (adults). RCT transitional care, 50% cost reduction
4. Edes et al 2014 (adults, VA) 15% reduction in costs, risk-adjusted
   • Biggest impact is with sickest patients
5. De Jonge Eric et al 2014 (adults, non-VA) – 17% reduction, 31% (in the sickest), risk-adjusted
6. Independence at Home demonstration, preliminary results, Year 1
KIDS, CARE AT HOME!

SPECIAL ARTICLE

A RANDOMIZED CLINICAL TRIAL OF EARLY HOSPITAL DISCHARGE AND HOME FOLLOW-UP OF VERY-LOW-BIRTH-WEIGHT INFANTS

DOROTHY BROOTEN, Ph.D., SAVITRI KUMAR, M.D., LINDA P. BROWN, Ph.D., PRISCILLA BUTTS, M.S.N., STEVEN A. FINKLER, Ph.D., SUSAN BAKEWELL-SACHS, M.S.N., ANN GIBBONS, M.S.N., AND MARIA DELIVORIA-PAPADOPOULOS, M.D.

Abstract To determine the safety, efficacy, and cost savings of early hospital discharge of very-low-birth-weight infants (<1500 g), we randomly assigned infants to one of two groups. Infants in the control group (n = 40) were discharged according to routine nursery criteria, which included a weight of about 2200 g. Those in the early-discharge group (n = 39) were discharged before they reached this weight if they met a standard set of conditions. For families of infants in the early-discharge group, instruction, counseling, home visits, and daily on-call availability of a hospital-based nurse specialist for 18 months were provided.

Infants in the early-discharge group were discharged a mean of 11 days earlier, weighed 200 g less, and were two weeks younger at discharge than control infants. The mean hospital charge for the early-discharge group was 27 percent less than that for the control group ($47,520 vs. $64,940; P < 0.01), and the mean physician's charge was 22 percent less ($5,923 vs. $7,649; P < 0.01). The mean cost of the home follow-up care in the early-discharge group was $576, yielding a net saving of $18,560 for each infant. The two groups did not differ in the numbers of rehospitalizations and acute care visits, or in measures of physical and mental growth.

We conclude that early discharge of very-low-birth-weight infants, with follow-up care in the home by a nurse specialist, is safe and cost effective. (N Engl J Med 1988; 318:934-9.)

MORE than 230,000 low-birth-weight infants are born annually in the United States, and more than 36,000 of these infants weigh less than 1500 g. In addition, the proportion of live births made up by failure to thrive, child abuse, and parental feelings of inadequacy. Hospital care for these infants is one of the most expensive of all types of hospitalization. Despite initial hospital expenditures average...
We need a newer, better, more accountable....
Independence at Home design features

- Medicare beneficiaries, voluntary participation
- Retain their insurance, agree to have their data analyzed
- Targeted: eligibility criteria are required
  - Hospitalization within past 12 months
  - Use of Medicare post-acute care (HHA, SNF, IRF)
  - Two or more serious health problems
  - 2 or more ADL deficits
- Care model: house calls team led by NP or Physician
- Use of EHR, 24/7 availability, mobile technology
- 200 or more patients managed per IAH site,
- QUALITY MEASURES – protect beneficiaries
- Guaranteed minimum savings, then shared savings
- Team model paid for by savings
- Ineffective programs dropped
IAH Legislative timeline

- May 2009 House 2560, Markey, bipartisan support
- May 2009 Senate 1131, Wyden, bipartisan support, Senate Finance
- Became law March 2010, IAH demo created
- Demo initiated June 2012
- 16 individual sites and 3 consortia
Total savings of over $25 million on 8400 high cost beneficiaries, over $3,000 per beneficiary

> ACOs saved $414 per beneficiary in their first year

12 of 17 programs (70%) showed savings

> CMS awards incentive payments of $11.7 M

All programs improved on 3 out of 6 quality measures

> Four programs (7 sites) met all 6 quality measures

Popular with lay press

NOTE: IAH DEMO EVALUATION BY CMS CONTRACTORS IS IN PROGRESS
Evidence base from IAH for in-home care model

1. **Independence at Home** CMS June 2015 (adults)
   - 20% overall cost reduction in the mid-Atlantic consortium (n=430)
     - Reduced use of hospitals and nursing homes
     - $1.8 million in shared savings, approximately $3.5 million saved
     - Targeted: hospital stay, post-acute care, ADL deficits, chronic illness
     - Risk-adjustment is important and technical
     - Year 1 preliminary results
### Mid-Atlantic Providers

#### First Demonstration Year

<table>
<thead>
<tr>
<th>Description</th>
<th>Treatment Group Mean</th>
<th>Comparison Group Mean</th>
<th>Difference from Matched Group Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare expenditures per month</td>
<td>$4,060</td>
<td>$5,076</td>
<td>-$1,016*** ($301)</td>
</tr>
<tr>
<td>Inpatient expenditures per month</td>
<td>$1,824</td>
<td>$2,348</td>
<td>-$524** ($217)</td>
</tr>
<tr>
<td>Home health service expenditures per month</td>
<td>$601</td>
<td>$507</td>
<td>$94*** ($35)</td>
</tr>
<tr>
<td>Outpatient expenditures per month</td>
<td>$260</td>
<td>$370</td>
<td>-$111* ($60)</td>
</tr>
<tr>
<td>SNF expenditures per month</td>
<td>$593</td>
<td>$1,074</td>
<td>-$481*** ($86)</td>
</tr>
<tr>
<td>Physician expenditures per month</td>
<td>$480</td>
<td>$609</td>
<td>-$129*** ($43)</td>
</tr>
<tr>
<td>Hospice expenditures per month</td>
<td>$152</td>
<td>$79</td>
<td>$73* ($39)</td>
</tr>
<tr>
<td>DME expenditures per month</td>
<td>$152</td>
<td>$90</td>
<td>$61*** ($18)</td>
</tr>
</tbody>
</table>
Calculating Savings Achieved: Comparison Group Cost Challenge

Matched controls option, using illness burden cognition functional status health care use trajectory

Predictive model
Same basic adjustment issues, variables HCC model, V-21, + population-specific frailty adjuster

- High cost variance
- Outlier protection needed for smaller programs
IAH Demo Implementation

Disparate sites
- large
- small
- corporate
- academic
- health system affiliated
- varied geography

Formation of learning collaborative led by AAHCM, grant-funded helped true-up the model, support the sites: monthly phone calls, annual meeting

Model standardization, lessons learned
Demo Year 1 Success Announced June 18, 2015

PRESS RESPONSE
300+ local media publications
On June 18 and 19, 2015

Example

Medicare Project: House Calls for Frail Seniors Cut Costs, Kansas City Star
http://www.kansascity.com/living/health-
“I’m hoping you guys are not vertiginous or anything,” calls out Peter Boling, 60, as his taupe Passat carves the winding, wooded road to his afternoon house call.

Boling, an affable geriatrician who looks like George Bluth but drives like Jeff Gordon, has been visiting elderly patients in their homes since 1984. In those early years, as a newly-minted faculty member at Virginia Commonwealth University, he staffed a clinic in the morning and made house calls in the afternoon. Home visits, by then, already had become passé. In the 1930s, doctors saw patients at home about 40 percent of the time. In the 1980s, nearly all visits took place at the physician’s office or at a hospital. Less than 1 percent were house calls. Modern medicine was centralizing, trapping primary care physicians in their own webs of equipment and auxiliary staff.
Doctors prescribe old-fashioned house calls when treating the old and frail
IAH Extension Legislative timeline

APRIL 21, 2015
IAH two-year extension (S 971) passes on Senate floor

MAY 31, 2015
Original IAH demonstration expires

JUNE 2, 2015
Ways and Means committee passes 2-year extension, by unanimous vote

JUNE 24, 2015
Energy and Commerce committee waives jurisdiction for IAH extension

JULY 15, 2015
IAH two-year extension H2196 (Burgess) passes on House floor

JULY 31, 2015
President signs two–year extension of IAH demonstration
Roskam Praises Enactment of Bill to Extend At-Home Medicare Program

Aug 4, 2015 | Press Release

WASHINGTON, DC—Today, Congressman Peter Roskam (IL-06), a member of the Ways and Means Subcommittee on Health, released the following statement after President Obama signed into law legislation he co-authored with Congressman Michael Burgess (R-TX). The Medicare Independence at Home Medical Practice Demonstration Improvement Act of 2015 (H.R. 2196/S. 971) extends the Independence at Home (IAH) Medical Practice Demonstration Program for two years, preventing a lapse in care for beneficiaries and the loss of savings generated for the Medicare program.

"This successful effort to extend a critical demonstration program that offers patients at-home primary
S.971 - Medicare Independence at Home Medical Practice Demonstration Improvement Act of 2015

114th Congress (2015-2016) | Get alerts

Sponsor: Sen. Wyden, Ron [D-OR] (Introduced 04/16/2015)
Committees: Senate - Finance | House - Ways and Means; Energy and Commerce
Committee Reports: H. Rep. 114-172
Latest Action: 07/30/2015 Became Public Law No: 114-39. (TXT | PDF) (All Actions)

Tracker: Introduced → Passed Senate → Passed House → To President → Became Law
Questions for me?
Supplementary slides follow
<table>
<thead>
<tr>
<th>Measure</th>
<th>Tied to payment</th>
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<tbody>
<tr>
<td>IP admissions for ACS conditions per 100 pt. months</td>
<td>YES</td>
</tr>
<tr>
<td>Readmissions within 30 days per 100 IP discharges</td>
<td></td>
</tr>
<tr>
<td>ED visits for ACS conditions per 100 pt. months</td>
<td></td>
</tr>
<tr>
<td>Contact beneficiaries within 48 hours of hospital admission, hospital discharge and/or ED visit</td>
<td></td>
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<tr>
<td>Medication reconciliation in the home after each such event</td>
<td></td>
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<tr>
<td>Patient preferences documented annually</td>
<td></td>
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<tr>
<td>MEASURE</td>
<td>TIED TO PAYMENT</td>
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<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------------</td>
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<tr>
<td>Screenings/assessments for certain conditions (depression)</td>
<td>NO</td>
</tr>
<tr>
<td>Symptom management, palliation</td>
<td></td>
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<tr>
<td>Medication management</td>
<td></td>
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<tr>
<td>Caregiver stress</td>
<td></td>
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<tr>
<td>Voluntary disenrollment rate (satisfaction)</td>
<td></td>
</tr>
<tr>
<td>Referrals (to specialists)</td>
<td></td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td></td>
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</tbody>
</table>
The issue of regression to the mean and recurrent health problems

1. See below for a study from the CBO in 2005 regarding high cost Medicare beneficiaries in the index year 2001 and the subsequent use of services month-to-month by those who lived for 5 years, annotations are mine
Concentration of Total Annual Medicare Expenditures Among Beneficiaries, 2001

(Percent)

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.
“What about Regression”?

Figure 4.
Distribution of High-Cost Months Over the 1997-2001 Period

(Percentage of beneficiaries in the top 25 percent)

Median: high cost in 22 out of 60 months

Source: CBO May 2005 report
Examples from literature

1. Below are graphics from recent publications highlighting key findings
HBPC model works! Direct Supporting Evidence

Veterans Administration:
130 centers nationally, pre-post, and risk-adjusted predictive models:
15% total cost reduction,
> annual program cost is ~$12,000 per patient

Medstar Washington Hospital Center program:
matched case-control: 17% reduction in total cost, 31% reduction in most complex subset.
> annual program cost ~$4,000/ patient ($ 350 PMPM)
VA HBPC financial results, risk-adjusted model

Impact increases with case mix complexity and cost

Note: accurate risk adjustment is essential

Home-based Primary Care works outside the VA!

Case-control study of HBPC from Medstar Washington Hospital Center

N= 722
3 for 1 matched controls from 2004 - 2008

WHC Case-Matched Study (2004-8): 15% Savings in HBPC group
31% Savings in IAH-eligible group (not actual IAH demo patients or data)

Case-control study of HBPC from Medstar Washington Hospital Center
N= 722
3 for 1 matched controls from care during 2004 - 2008

“IAH” eligibility based on demo criteria, as demo had not become Law when these patients were seen

Analysis not by CMS

Pts (n=722) and Controls (n=2161) 2004-2008

Courtesy Dan Gilden (JEN Associates), and Bruce Kinosian