Medical Practice in Mid-Nineteenth Century America

- Family practice: the eminent physician aimed to have a permanent personal relationship with an estate; made regular visits and treated the family, servants and guests
- Most physicians visited more modest households – farms, villages
- Care of the sick provided in the home, by the family
- Other sites of practice: hospitals, almshouses
- Training: apprenticeship, proprietary schools
What happened to the house call?

- Urbanization and shrinking household size
- Telephones and cars – easier for patients to get to the office
- Doctors wanted to be near hospitals (lab, diagnostics, inpatient rounds, colleagues)
- Insurance – incentivizes volume-based practice
- Change in professional culture – image, lifestyle expectations
- Early 20th century: office-based practice (house calls after hours)
- Emergency medicine (1970’s)
- Home health (1980’s)
- “Too busy!”

In the past one hundred years, our health care system has become exponentially larger, more specialized and more technological with far greater capacity to treat and manage disease. It has also become exponentially more complex, fragmented and depersonalized.
Patients who fall through the cracks

- Multimorbidity – challenge for patient of managing multiple doctors, medications, self-care tasks
- Disability – limited mobility, impaired communication, lack of transportation, inadequate caregiver support
- Poor access to care - health insurance, availability of PCP, travel distance
- Personal factors – competing demands, limited comprehension, high symptom burden, lack of motivation, drug / alcohol abuse
- Impact of change – new disease or symptoms, change in medicines, loss of caregiver or medical provider

Moses, Matheson et al JAMA 2013
Table 2. Summary of Chronic Disease Prevalence and Annual Costs by Age Group

<table>
<thead>
<tr>
<th>No. of Chronic Conditions</th>
<th>Age Group</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
<th>% Expenditures</th>
<th>% Mean Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>65-69</td>
<td>25.7</td>
<td>195</td>
<td>10.9</td>
<td>203</td>
<td>15.2</td>
<td>305</td>
<td>12.6</td>
<td>227</td>
<td>12.2</td>
<td>363</td>
<td>18.0</td>
<td>211</td>
<td>18.0</td>
<td>211</td>
<td>18.0</td>
</tr>
<tr>
<td>1</td>
<td>70-74</td>
<td>20.4</td>
<td>909</td>
<td>18.0</td>
<td>1073</td>
<td>16.0</td>
<td>1173</td>
<td>14.0</td>
<td>1271</td>
<td>15.0</td>
<td>1576</td>
<td>17.3</td>
<td>1576</td>
<td>17.3</td>
<td>1576</td>
<td>17.3</td>
</tr>
<tr>
<td>2</td>
<td>75-84</td>
<td>22.2</td>
<td>2925</td>
<td>25.5</td>
<td>2186</td>
<td>21.6</td>
<td>2548</td>
<td>20.8</td>
<td>2877</td>
<td>21.0</td>
<td>3394</td>
<td>21.8</td>
<td>3394</td>
<td>21.8</td>
<td>3394</td>
<td>21.8</td>
</tr>
<tr>
<td>3</td>
<td>85-94</td>
<td>16.0</td>
<td>4227</td>
<td>18.7</td>
<td>4227</td>
<td>19.9</td>
<td>4907</td>
<td>20.4</td>
<td>4907</td>
<td>20.4</td>
<td>5909</td>
<td>18.8</td>
<td>4091</td>
<td>21.8</td>
<td>3394</td>
<td>21.8</td>
</tr>
<tr>
<td>4</td>
<td>≥95</td>
<td>15.7</td>
<td>1109</td>
<td>21.9</td>
<td>13774</td>
<td>27.3</td>
<td>13657</td>
<td>31.7</td>
<td>13935</td>
<td>31.4</td>
<td>14702</td>
<td>24.1</td>
<td>15073</td>
<td>24.1</td>
<td>15073</td>
<td>24.1</td>
</tr>
<tr>
<td>Overall Age Group</td>
<td></td>
<td>18.0</td>
<td>3209</td>
<td>100.0</td>
<td>4348</td>
<td>100.0</td>
<td>4348</td>
<td>100.0</td>
<td>4348</td>
<td>100.0</td>
<td>6646</td>
<td>100.0</td>
<td>6646</td>
<td>100.0</td>
<td>6646</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean number of chronic conditions for age groups were as follows: 65-69 years, 1.6; 70-74 years, 2.25; 75-84 years, 2.52; 85-94 years, 2.71; ≥95 years, 2.71; and total group, 2.54.

Analysis of 1,217,103 Medicare beneficiaries > age 65

*Wolff and Starfield, Arch Int Med, 2002*

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**Figure**. Inpatient hospitalizations associated with avoidable events. ACIDC indicates ambulatory care sensitive conditions. MDC, major diagnostic category.

*Wolff and Starfield, Arch Int Med, 2002*
Figure. The overlap of chronic conditions and disability-related limitations in the U.S. pooled annual estimates of people aged 18-64 years, 2002-2004 MEPS.

Gulley, Rasch, Chan - Public Health Reports, 2011

Gulley, Rasch, Chan – Medical Care, 2011
Days without readmission by unmet ADL need
*DePalma, The Gerontologist, 2013*

![Graph showing days without readmission by unmet ADL need](image)

Figure 3. Kaplan-Meier curves representing hospital readmission risk for unmet need for existing and new activities of daily living (ADL) disabilities.

**Renewed interest in home visits**

- Better management of complex patients
- Target disabled persons, who may find it difficult to get to the doctor’s office
- Hospitals facing penalties for 30-day readmissions
- Health insurers interested in “hot-spotters”
- Accountable care organizations and interest in population health management – modify systems of care to meet the needs of specific patient subgroups
- Primary care providers finding office practice less rewarding
- Medicare pays for home visits
- Technology makes them easier
Tools of the Trade

Increase in Home Visits, 2000 – 2006
Peterson LE et al JABFM 2012 25(6)

Home visit codes billed to Medicare
Number of house calls (thousands)
Number of patients receiving house calls (thousands)
Veteran's Affairs Medical Centers
Home Based Primary Care Program
Cooper DF et al Home Healthcare Nurse May 2007

- Team: Medical Director, Program Director, Nurse Practitioners and/or Physician Assistants, RNs and LPNs, Social Worker, Dietician, Occupational or Physical Therapist, Pharmacist, Program Assistant
- Regular interdisciplinary team meetings
- Develop plan of care for each patient and revisit every 3 months
- NP or PA usually serves as primary care provider and makes regular home visits
- Physician attends all team meetings and oversees care
- Continue home-based primary care for as long as patient and providers feel there is benefit

Impact of a Home-Based Primary Care Program in an Urban Veterans Affairs Medical Center
Chang C et al J Am Med Dir Assoc. 2009 Feb;10(2)

<table>
<thead>
<tr>
<th>Utilization</th>
<th>Pre-HBPC</th>
<th>HBPC Primary Care</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of ED Visits</td>
<td>130</td>
<td>106</td>
<td>-18.5%</td>
</tr>
<tr>
<td>Total no. of hospitalizations</td>
<td>126</td>
<td>71</td>
<td>-43.7%*</td>
</tr>
<tr>
<td>Total no. of days in the hospital</td>
<td>1033</td>
<td>518</td>
<td>-49.9%*</td>
</tr>
</tbody>
</table>

ED, emergency department; HBPC, home-based primary care
* Six-month HBPC admission is associated with a significant decrease in number of hospital episodes (t value -3.41, P value .001) and total number of hospital days (t value -3.22, P value .001) by Paired Score Analysis using t test.
CMS Independence at Home Demonstration  
Affordable Care Act Section 3024  
http://innovation.cms.gov/initiatives/independence-at-home/

- Began August 2012
- Fourteen practices and 3 consortia
- Home-based primary care allows health care providers to spend more time with their patients, perform assessments in a patient's home environment, and assume greater accountability for all aspects of the patient's care.
- The Independence at Home Demonstration will build on these existing benefits by providing chronically ill patients with a complete range of primary care services in the home setting.
- The Independence at Home Demonstration also will test whether home-based care can reduce the need for hospitalization, improve patient and caregiver satisfaction, and lead to better health and lower costs to Medicare.

Organizational Characteristics of House Call Practices  
N = 35  
Landers SH et al Care Mgt J 2009 10(3)

<table>
<thead>
<tr>
<th>Organizational / Financial Model</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliated with hospital or health system</td>
<td>37</td>
</tr>
<tr>
<td>Affiliated with medical school or residency program</td>
<td>31</td>
</tr>
<tr>
<td>Current or past grant support</td>
<td>29</td>
</tr>
<tr>
<td>Owned by venture capitalists or private investors</td>
<td>9</td>
</tr>
</tbody>
</table>
### Clinician Motivation for House Calls

**N = 36**  
*Landers SH et al Care Mgt J 2009 10(3)*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Median Ranking on 10 point scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved patient care</td>
<td>9.0</td>
</tr>
<tr>
<td>Autonomy</td>
<td>8.5</td>
</tr>
<tr>
<td>A positive experience with a house call</td>
<td>8.0</td>
</tr>
<tr>
<td>Fewer patients</td>
<td>4.5</td>
</tr>
<tr>
<td>Interest in portable medical devices</td>
<td>3.5</td>
</tr>
<tr>
<td>Training received during residency</td>
<td>3.0</td>
</tr>
<tr>
<td>Specific mentor</td>
<td>2.5</td>
</tr>
<tr>
<td>Training received during medical school</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### Hypothesis

**OSU Healthy at Home**

Home visits will eliminate an important barrier to care for disabled, chronically ill patients. The result will be improved continuity, chronic disease management and patient self-care ability. This will have positive downstream consequences with regard to health status, health-related quality of life and health care service utilization.
OSU Healthy at Home Clinical Goals

- Provide ongoing primary care for disabled patients with multiple chronic conditions
- Provide full spectrum of service (medical, social, mental health)
- Reduce emergency room use and hospital readmission
- Improve health-related quality of life

CPT Codes For House Calls

<table>
<thead>
<tr>
<th>New Patient</th>
<th>Established Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>99341</td>
<td>99347</td>
</tr>
<tr>
<td>99342</td>
<td>99348</td>
</tr>
<tr>
<td>99343</td>
<td>99349</td>
</tr>
<tr>
<td>99344</td>
<td>99350</td>
</tr>
<tr>
<td>99345</td>
<td></td>
</tr>
</tbody>
</table>
Home visits in an era of accountable care organizations

Healthy At Home

Established 2012

Angela Hoff, DNP, NP-C
Family Nurse Practitioner
OSU Healthy at Home
The Ohio State University Wexner Medical Center
The History of Healthy at Home

- OSU Healthy at Home is a home-based primary care program based in the Division of General Internal Medicine at the Ohio State University Wexner Medical Center.
- December, 2012: program began

Healthy at Home Grows!

- A nurse practitioner and RN joined the team in 2013
- A medical assistant was added a few months later
- In the last 6 months we have added an LPN, Social Worker, and a second NP
Interdisciplinary Team

- In addition to our interdisciplinary staff, we have the following students:
  - Advanced Practice Nursing Students
  - Medical Students
  - Social Work Interns
  - Residents

Statistics About HAH

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients enrolled</td>
<td>182</td>
</tr>
<tr>
<td>(April 2014)</td>
<td></td>
</tr>
<tr>
<td>Race distribution</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>52%</td>
</tr>
<tr>
<td>African American</td>
<td>40%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
</tr>
<tr>
<td>Mean age</td>
<td>62.5</td>
</tr>
<tr>
<td>More than 6 chronic conditions</td>
<td>76%</td>
</tr>
<tr>
<td>Taking more than 9 medicines</td>
<td>80%</td>
</tr>
</tbody>
</table>
### Statistics Continued

**Number of diagnoses per patient**

**Healthy at Home**

<table>
<thead>
<tr>
<th>Number of Diagnoses</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or 1 diagnosis</td>
<td>0</td>
</tr>
<tr>
<td>2 Diagnoses</td>
<td>5</td>
</tr>
<tr>
<td>3 diagnoses</td>
<td>3</td>
</tr>
<tr>
<td>4 diagnoses</td>
<td>9</td>
</tr>
<tr>
<td>5 diagnoses</td>
<td>17</td>
</tr>
<tr>
<td>6+ diagnoses</td>
<td>112</td>
</tr>
</tbody>
</table>

### Statistics Continued

**Number of medications per patient**

**Healthy at Home**

<table>
<thead>
<tr>
<th>Medications</th>
<th>Patients (n)</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>4</td>
<td>2.8</td>
</tr>
<tr>
<td>5-10</td>
<td>24</td>
<td>16.9</td>
</tr>
<tr>
<td>10 or more</td>
<td>114</td>
<td>80.3</td>
</tr>
</tbody>
</table>
**Case Study #1**
**The Transition Patient**

- TM is a 54 year old male referred to HAH for a short period of time s/p hospital admission
- He is a type 2 diabetic
- He is found to be illiterate
- After several visits and a great deal of education, he was transitioned back to his PCP

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**Case Study #2**
**The Chronically Ill Patient**

- CM is a 36 year old AAF with a diagnosis of spastic quadriplegia secondary to a MVA.
- She also has asthma, an indwelling Foley catheter, colostomy, and g-tube.
- Due to her disabilities she is seen in the home.
Case Study #3
Another Chronically Ill Patient

• SA is a 68 year old white female with a diagnosis of diffuse interstitial rheumatoid lung disease, cirrhosis, HTN, and many other co-morbidities
• Video of SA

Case Study #4
The Geriatric Patient

• J.H. is a 103 year old female with mild dementia, HTN, & hypothyroidism
• She lives in an independent living facility and receives home health aid services twice weekly.
• Due to her frail status and inability to ambulate, she is seen in the home
Barriers

• Safety
  • Guns
  • Drugs
  • Alcohol
  • Criminals
  • Neighborhood crime

Barriers Continued

• Low income patients
• No heat
• No air conditioning
• Bed bugs
• Inability to afford medications
• No shows for appointments
• Large geographic areas
Barriers Continued

- Internet issues
- Traffic
- Supplies
- Labs
- Mother Nature
Improving Efficiency
Breaking Down Barriers

• Reminder letters
• Reminder phone calls
• Making geographic territories
• Map Quest
• Working with home health agencies
• Adding a social worker
• Developing relationships with other departments
Benefits of Home Based Primary Care

- Relationships
  - With patients
  - With family members
- Decreased ED visits
- Decreased re-admissions

Results of Our Work!

Healthcare Utilization Pre/Post House Call Intervention (n=39)

- OSU ER Visits
- Hospital Admissions