When and How to Screen for Common Geriatric Conditions Among Older Adults in Primary Care -

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Outline

- When to screen?
  - Tailoring to the patient
  - Tailoring to the system

- How to screen?
  - Screening with a purpose
  - Mapping screening to goals
  - Mapping screening to outcomes
Who, what, why, where?

What is screening

- Traditional view:
  - A search for asymptomatic disease whose outcome can be changed through early detection

- This definition is inadequate for our discussion of Geriatric Assessment of complex patients
  - Consider how this definition applies to functional assessment, depression/anxiety, completeness of immunizations, documented advance directives
Where? Settings for screening

- Outpatient visits
  - Annual Wellness Visits
- Hospitalizations
- Skilled Nursing – MDS
- Home Health – Oasis
- Virtual Assessment Tools

Why screen?

- Diagnosis
  - Asymptomatic Disease (e.g. Hypertension)
  - Undetected illness (e.g. Depression)
- Triaging (Sorting)
  - Risk Stratification
  - Resource Allocation
  - Billing (Risk Corridors)
- Baseline benchmarking
When to screen?

- General Principle:
  - Goldilocks
    - Too Well
    - Too Sick
    - Just Right

Principle #1

- Quantitate the patient’s prognosis

- Corollary: Use tools – your intuition won’t be enough
- Corollary: Good tools are built from statistical models based on function
- Note: The system that you work in likely calculates this already. E.g. CAN scores at VA, MDS at skilled nursing
### Life expectancy - US

<table>
<thead>
<tr>
<th>Year</th>
<th>At Birth</th>
<th>At Age 65</th>
<th>At Age 85</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>47.3</td>
<td>11.9</td>
<td></td>
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<tr>
<td>1960</td>
<td>69.7</td>
<td>14.4</td>
<td>4.6</td>
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<tr>
<td>2000</td>
<td>76.9</td>
<td>17.9</td>
<td>6.3</td>
</tr>
<tr>
<td>2014</td>
<td>78.8</td>
<td>19.3</td>
<td>6.5</td>
</tr>
</tbody>
</table>

### Life expectancy with aging and health status

![Graph showing life expectancy with aging and health status](image-url)
Prognostic calculators

www.eprognosis.ucsf.edu

The estimated effect of age on the expectation of disability for nondisabled men and women 5 years in the future [9]

Prospects for disability based on current function

Case study: Traditional screening

- 74 year old woman who last had colonoscopy in her 50’s
- Diabetes controlled with metformin alone
- Former smoker
- Independent in all ADLs/IADLs
- Walks 2 miles at least 4 times a week
- Should she get colon cancer screening
Your prognostics

- What do you think her life expectancy is?
- How many people like her would need to be screened to prevent a colon cancer death?
- Would you suggest that she have screening?

Ideal conditions for screening

- Progresses slowly
- Accurate test exists
- Screening test is low risk with minimal harms
- A safe, early intervention changes the course of the disease process
Life expectancy with aging and health status

Lifetime risk of dying of cancer by age

Table 1. Risk (Percentage) of Dying of Cancer in Remaining Lifetime for Men and Women at Selected Ages and Life Expectancy Quartiles

<table>
<thead>
<tr>
<th></th>
<th>Age 50 y</th>
<th>Age 70 y</th>
<th>Age 75 y</th>
<th>Age 80 y</th>
<th>Age 85 y</th>
<th>Age 90 y</th>
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<tbody>
<tr>
<td><strong>Cancer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast</td>
<td>4.4</td>
<td>3.1</td>
<td>2.0</td>
<td>2.2</td>
<td>2.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Colorectal</td>
<td>3.8</td>
<td>2.2</td>
<td>1.0</td>
<td>2.0</td>
<td>1.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Cervical</td>
<td>0.34</td>
<td>0.26</td>
<td>0.18</td>
<td>0.22</td>
<td>0.16</td>
<td>0.08</td>
</tr>
</tbody>
</table>

| **Cancer** |          |          |          |          |          |          |
| Breast   | 36       | 28.5     | 19.8     | 18       | 12.4     | 6.7      |
| Colorectal | 4.1     | 2.3      | 1.0      | 3.8      | 2.1      | 0.9      |

*Life expectancy quartiles correspond to upper, middle, and lower quartiles as presented in the Figure. Data are presented as percentages. Rates for 50-year-olds are included for comparison. Risks were calculated by multiplying life expectancy by age-specific cancer mortality rates from Surveillance, Epidemiology, and End Results (SEER) Cancer Statistics Review 1973-2016. Since cancer screening in the United States among elderly patients remains low, these cancer mortality risks approximate those expected for patients who have not received regular cancer screening. For example, to calculate the risk of dying of breast cancer for an 80-year-old woman with a life expectancy of 6.6 years, we multiplied the annual breast cancer mortality rate for women aged 80 to 84 years (15.1/100,000) by 5 = 0.75%. Next we multiplied the annual mortality rate for women older than age 89 years (201.5/100,000) by 0.75 = 0.22% and added these numbers to get the overall risk of 1.3%.
Number needed to screen by age and health

**Table 2. Number Needed to Screen (NNS) Over Remaining Lifetime to Prevent 1 Cancer-Specific Death for Women and Men at Selected Ages and Life expectancy Quantiles.**

<table>
<thead>
<tr>
<th>Life Expectancy of Women, y</th>
<th>RR (95% CI)</th>
<th>Age 50 y</th>
<th>Age 70 y</th>
<th>Age 75 y</th>
<th>Age 80 y</th>
<th>Age 85 y</th>
<th>Age 90 y</th>
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<tr>
<td>Screening test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammography</td>
<td>0.85</td>
<td>(0.77-0.94)</td>
<td>40</td>
<td>33</td>
<td>24.5</td>
<td>21.3</td>
<td>15.7</td>
</tr>
<tr>
<td>Liver cancer area</td>
<td>0.66</td>
<td>(0.53-0.83)</td>
<td>95</td>
<td>132</td>
<td>229</td>
<td>142</td>
<td>242</td>
</tr>
<tr>
<td>Prostate cancer area</td>
<td>0.92</td>
<td>(0.83-1.00)</td>
<td>533</td>
<td>728</td>
<td>11.40</td>
<td>934</td>
<td>1521</td>
</tr>
<tr>
<td>Rectal cancer area</td>
<td>0.18</td>
<td>(0.01-0.32)</td>
<td>145</td>
<td>269</td>
<td>57.7</td>
<td>178</td>
<td>340</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Life Expectancy of Men, y</th>
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<th>Age 50 y</th>
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<td>18</td>
<td>12.4</td>
</tr>
<tr>
<td>Liver cancer area</td>
<td>0.66</td>
<td>(0.53-0.83)</td>
<td>136</td>
<td>255</td>
<td>630</td>
<td>177</td>
<td>360</td>
</tr>
<tr>
<td>Prostate cancer area</td>
<td>0.92</td>
<td>(0.83-1.00)</td>
<td>286</td>
<td>506</td>
<td>1190</td>
<td>690</td>
<td>1770</td>
</tr>
<tr>
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*Life expectancy quantiles correspond to lower, middle, and upper quantiles as presented in the Figure. The NNS is based on the baseline risk of dying of a screen-detectable cancer (Table 1), the relative risk reduction (RRR) of the screening test, and the life expectancy over which the patient is expected to be screened. Patients with life expectancy of less than 2 years are unlikely to derive any survival benefit from cancer screening, which is deduced by ellipse. The numbers for 20-year-old patients are included for comparison. For example, we first estimated the risk of dying of breast cancer for an 80-year-old woman with a life expectancy of 8.6 years who has regular mammography screening during this period. We assumed a 5-year rise in mortality benefit starts. We multiplied the annual breast cancer mortality rates for women aged 80 years to 484 (1/0.000003) to twice, which equals 0.956%. Next we multiplied the annual rise for women older than age 85 years (0.92/0.000003) to 3.6 and reduced this number by 29% (the RRR of mammography), which equals 0.504%. Adding these numbers together gives an estimated risk of 1.3195%. Since the estimated risk of dying of breast cancer without screening is 1.5006% since 0.956% increase and equals 0.552. RRR estimate for breast cancer mortality from a meta-analysis of screening mammography in women aged 55 to 74 years.**

**www.eprognosis.ucsf.edu**

Prognostic calculators
Principle #2

- As people age, identifying new problems has less impact than treating chronic problems
- Corollary: Finding asymptomatic disease becomes less important than treating symptoms over time
- Note: Decisions become more preference sensitive as this occurs – this is the subject of other talks.

The effect of age on the distribution of health states in the future

The effect of selected disease-related mortality rates on the remaining life expectancy of women (left) and men (right) at the time of diagnosis

But I don’t have time!

- 2003 study of the time needed to implement all of the USPSTF recommendations in a typical primary care practice
  - 7.4 hours per working day

Principle #3

- Screening and assessment will have to be implemented by a team working in a system
- The likelihood of success at this task increases if electronic decision support is included in the system

History of geriatric assessment

Marjory Warren
England 1935

The medical profession as a whole was unenthusiastic about treating sick older people because they had multiple pathologies frequently associated with social problems that required extra time and patience, took longer to recover from illnesses, blocked beds and provided little opportunity for private practice. Patients’ illnesses were not properly classified or investigated. Treatment was often limited to nursing care. Medical notes were of poor quality. Many patients were confined to a bed for years on end with little prospect of recovery. Community care was hampered by lack of housing and limited local support services. Family support was inhibited by decreasing family size with younger relatives going out to work. Private care was expensive.

Denham, MJ. Journal of Medical Biography 2001. 19: 105-110

Against this backdrop, a new opportunity

- Isleworth Infirmary took over Warkworth House, an adjacent workhouse to create West Middlesex County Hospital
- By policy, a workhouse was a regional public institution for the impoverished
- In practice, it was mostly used to provide custodial care for the “chronic sick”
Triaging the workhouse

- 874 residents
  - 16 maternity patients
  - 144 psychiatric patients
  - 200 patients who fit the intent of workhouse
- Between June 1935 and March 1936 she evaluated and triaged 514 patients

Criteria for evaluation

- Chronic, but mobile (“up and goers”)
- Chronic, Continent but bedridden
- Chronic, incontinent
- Senile but quietly restless
- Senile demented who require segregation
Building a team

- Nurses
- Occupational therapy
- Physiotherapists
- Almoners (Social Workers)

Building a unit

- Placed similar patients together
- Larger doors installed with bigger windows
- Brighter paint
- Unpolished floors
- Space for activities and recreation
- Non-institutional clothing and shoes
- Heated bathrooms
Guiding goals

- To prevent disease whenever possible
- To reduce medical disability to a minimum
- To obtain and maintain maximum independence
- To teach the patient to adjust himself intellectually to his residual disability

Warren, MW. Geriatrics. The Medical Annual pp. (108-112)

Outcomes

- Approximately one-third of patients discharged to home
- One quarter long-term patients
- 40% died within a few years
Acceptance from colleagues

- “the physicians even in her own hospital saw little value in what she was doing. It was not technical or scientific in their terms, nor did they see the importance of providing high quality care for the common but serious illnesses of this largely neglected group.”

St. John, PD and Hogan DB. Gerontologist. doi:10.1093/geront/gnt053

Acceptance from administrators

- Reduced beds on her “unit” to a steady state of 180-200
- Vacated 3 wards
  - One became a TB ward
  - One became a dermatology ward
  - One accommodated a second X-ray unit
Role in the NHS

• After WWII the National Health Service was established
• The care of older adults was a policy concern due to cost
• Marjory Warren was consulted and instrumental to the development of specialized geriatrics units within NHS

How to screen older adults

• A caveat from Up-to-Date® “No criteria have been validated to readily identify patients who are likely to benefit from CGA.”
• This will vary by setting: Home evaluation, hospital, transition, outpatient, nursing home
A working example

- Medicare Independence at Home Demonstration
  - Home Based Primary Care - model
  - Eligibility
    - 2 or more chronic conditions
    - Two or more functional dependencies
    - Non-elective hospital admission in the last year
    - Acute or Sub-acute rehab in the last year

Principle #4

- Focus on Function
Focus on function

- Activities of Daily Living (Katz Scale)
- Independent Activities of Daily Living (Lawton Scale)
- Advanced Activities of Daily Living
  - Emerging
  - Patient Centered

Observing function

- Timed “Up and Go” test
- Gait speed
  - www.youtube.com/watch?v=MRDV6ndIoME
Screening continuum

Asymptomatic
Healthier
Younger

Traditional
Screening

Case
Finding

Symptomatic
More Frail
Older

Function-based
Geriatric
Assessment

Other assessment tools: stay tuned

- Falls/Imbalance/Gait*
- Cognition/Mood*
- Polypharmacy*
- Psychosocial*
- Goals of Care/Advance Directives*
- Nutrition/weight change*
- Urinary continence
- Sexual function
- Vision/hearing*
- Dentition*
- Living situation*
- Spirituality*
Evidence base: Inpatient

- GEM Units
- ACE Units
- Cochrane Evidence Review
  - “Comprehensive geriatric assessment increases a patient’s likelihood of being alive and in their own home at up to 12 months.”
- Transition care only: Mixed Evidence

Evidence: Home care

- Strong evidence for reduced mortality and improved function.
  - Not as strong for reducing institutionalization
- Significant momentum gathering around the Medicare Independence at Home model
  - Home Based Primary Care already entrenched within the VA
Evidence: Outpatient

- Heterogeneous set of interventions
  - Mix of successful outcomes and unsuccessful outcomes
  - Meta-analyses are older, but do not show combined benefit

- Consultative models are most effective when Geriatric services initiate therapies and track adherence

- Newer models have been developed
  - E.g. GRACE – Specialty care support for primary care

Where do you practice: Channeling Marjory Warren

- Are patients receiving adequate assessment?
- Are patients being treated in an environment that can maximize their independence?
- Does your team include the necessary skill sets?
- Are you tracking outcomes?
- Do you understand how these outcomes affect the flow of patients in your system?
- Can you envision how your model of care affects national policies?
Take home principles

- Quantitate prognosis
- As people age, identifying new problems has less impact than treating chronic problems
- Screening and assessment will have to be implemented by a team working in a system
- Focus on function
- Advocate for the care of older adults

Questions, comments, discussion