Cognitive Aging and Physician Performance: Should We Be Concerned? What Action Is Most Appropriate?

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A Cautionary Tale

• Dr. W, a well-respected 74 year old endocrinologist*, was noted by family and colleagues to be making serious errors:
  – Poor diagnostic and treatment decisions
  – Informing patient of incorrect serious diagnosis
  – Mixing up patients
• PCP, contacted by Dr. W’s wife, engaged the medical society and board of registration.
• Medical License was suspended pending investigation.
• Swift action was considered for necessary for patient protection... despite severe personal and professional consequences for Dr. W.
• *How can such unfortunate scenarios be prevented?

*Details have been changed to protect identity
EXAMPLES OF WELLBEING COMMITTEE REFERRALS

- Pharmacy reports: The doctor prescribed a near lethal dose of medication
- Patient complains: He did not remember me
- Colleague says: She told a really inappropriate joke in a faculty meeting
- Resident/fellow or medical student complains:
  - I said it is an emergency, the patient needs to be evaluated – he was indifferent.
  - Everything sets him off now – he was more level headed a few years ago.
  - She repeatedly ask who was in her office – no one goes into her office.
- Leadership finds: The cases take twice as long now
- Parking attendant: He must have hit the gas petal, not the brake - he drove right through the parking gate!
- EHR support: She asks for help every day, she can’t remember her password

From Miotto K, MD, American Psychiatric Association 2021
Learning Objectives

• At the end of this talk you will be able to:

  ▪ discuss cognitive changes associated with normal aging and those associated with pathological aging.

  ▪ appreciate the current evidence regarding effects of cognitive aging on physician performance.

  ▪ describe the rationale underlying age-based assessment of physicians
Presentation Outline

• Normative Cognitive Aging
• Pathological Cognitive Aging
• Cognitive Aging and Physician Performance
• Model Programs for Evaluation
• Ethical Issues
• Recommendations
Normative Cognitive Aging
How Does Aging Affect Cognition?

• Aging: Often but not always accompanied with significant changes in cognition.¹

• Cognitive aging is highly individualized.²

• Some cognitive functions can improve with aging³,⁴
  – Resilience
  – Stress tolerance
  – Compassion
  – Wisdom

# Additional Cognitive Changes Typical of Normal Aging

<table>
<thead>
<tr>
<th>Function</th>
<th>Definition</th>
<th>Tasks</th>
<th>Findings with Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing Speed</td>
<td>Rapid encoding/use of complex information</td>
<td>Trailmaking Stroop Test Keeping track of information in a conversation</td>
<td>White matter microstructural changes visible with Diffusion Tensor Imaging</td>
</tr>
<tr>
<td>Working Memory</td>
<td>Holding bits of info in mind for use</td>
<td>Serial 7’s Tasks with multiple steps</td>
<td>fMRI: increased recruitment of prefrontal areas</td>
</tr>
<tr>
<td>Inhibitory Control</td>
<td>Suppressing attention to irrelevant information</td>
<td>CPT Staying on track despite distractor cues/distractions</td>
<td>Changes in left inf frontal gyrus</td>
</tr>
<tr>
<td>Sensory Perception</td>
<td>Age-associated visual and auditory changes</td>
<td>Acuity tests Intake of new information</td>
<td>End organ changes but also possible “common cause” effects on processing</td>
</tr>
<tr>
<td>Long-Term Memory</td>
<td>Requires automatic processing/encoding</td>
<td>Recall of past events and biographical data</td>
<td>Reduced activation in left inf prefrontal and other areas</td>
</tr>
</tbody>
</table>

Crystallized Intelligence Is More Stable than Fluid Intelligence
What Underlies Cognitive Changes?\textsuperscript{1}

- Cognitive changes reflect amyloid deposition, atrophy, white matter deterioration, dopamine receptor depletion
- Brain compensates by:
  - de-specializing regional activity
  - recruiting additional circuits at lower load, though underperforming at higher load
  - developing new “work-around” circuitry using neuroplasticity

Normative Vs. Pathological Cognitive Aging
Age-Associated Cognitive Changes: A Spectrum, Normative to Pathological

Asymptomatic

Normal Cognitive Aging (may be earliest preclinical)

Subjective Cognitive Impairment

Mild Neurocog. Disorder

Maj. Neurocog. Disorder

Progressive impairment in cognitive functioning
Mild Neurocognitive Disorder

- Significant but less severe level of cognitive deficit
- A need for compensatory behaviors that limit functional consequences of the cognitive decline
  - Greater effort or accommodation may be needed to maintain day to day function
  - Interference with daily activities may not be noticeable
- Higher-level cognition is likely affected

Major Neurocognitive Disorder

A. ...significant cognitive decline from a previous level of performance in one or more cognitive domains...
   1. Concern of the individual, informant, or clinician
   2. Substantial impairment in cognitive performance, preferably documented...

B. The cognitive deficits interfere with independence of everyday activities (i.e., iADLs)

C. ...not delirium

D. ...not another mental disorder

Cognitive Aging, Cognitive Impairment, and Physician Performance
Age-Associated Cognitive/Physical Effects Are Modified by Other Performance Factors

Durning SJ: JOURNAL OF CONTINUING EDUCATION IN THE HEALTH PROFESSIONS—30(3), 2010
The Aging of Our Physician Workforce Brings This Issue Forward
An Even Greater Proportion of Male Physicians Are Late Career Practitioners

Actively Licensed Physicians in the United States and the District of Columbia by Gender and Age, 2016

Source: 2016 FSMB Census of Licensed Physicians.
Physicians Age Cognitively, Though Later Than General Public

- In 1002 physicians compared to 581 non-physician control participants, ages 25-92, MicroCog assessment showed similar cognitive profiles up to age 50.²
  - Significant decline in both groups noted after age 60.
  - Physicians decline slower than controls until age 75
- Expertise/Cognitive Reserve may be protective
- ...the number of cognitively impaired older physicians is not known.¹
- The number with neurocognitive disorders is not known.

Intact Neuropsychological Domains Underlie Specific Areas of Practice

ATTENTION:
- Sustain auditory/visual information intake
- Determine what is critical
- Attend simultaneously to multiple tasks

LEARNING AND MEMORY:
- Recall information efficiently
- Integrate new information

EXECUTIVE FUNCTION
- Planning and decision making abilities
- Recognize Unexpected situations, correct errors, change course of plans
Cognitive Aging Modifies Approach to Actual Medical Practice

• Greater reliance on **pattern based cognitive processing** (familiarity) and decrease in fluid intelligence may result in inaccurate diagnosis of unfamiliar conditions.

• Decreased working memory, **speed**, and inhibition of irrelevant information (such as order of presentation) may interfere with complex processing and decision-making.

• Declining **hearing and visual acuity** may further contribute to cognitive difficulties.

1. Eva KW. Acad Med 2002;77:S1-S6
* Note: Cognitive aging is addressed separately here, but is one component of aging, which also includes sensory and motor changes.
Objective Findings: Skill Deficits Are Associated with Age and Time Since Graduation

- Knowledge base, after age 60\(^1\)
- Performance on oral examination\(^2\)
- Multiple choice question performance\(^3\)
- History taking\(^3\)
- Physical examination\(^3\)
- Communication skills\(^3\)
- Record keeping\(^3\)
- Problem solving\(^3\)
- Higher mortality with some complex surgical procedures\(^4\)

Years in Practice (or Age) and Quality of Care

Choudhry reviewed 62 studies related quality of medical care as a function of years in practice or age

- Studies correlated years in practice/age to decreased:
  - knowledge
  - adherence to standards of care for diagnosis
  - screening or prevention
  - adherence to standards of care for therapy
  - clinical outcomes

Years in Practice (or Age) and Quality of Care

52% of the reviewed studies showed negative correlation between knowledge and experience (and age)

• 63% showed decreased adherence to standards for diagnosis, screening, or prevention

• 74% showed partially or consistently negative association between physician age and adherence to standards for therapy

• 4 of 7 studies looking at patient outcomes noted a negative effect of years in practice or physician age upon outcomes (3 studies showed no effect)

Additional Risk Factors Are Linked With Physician Performance

- Solo practice
- Lack of ABMS Board Certification
- Practicing outside the scope of training
- High clinical volume
- Fatigue, stress, burnout
- Personal health issues
- Organizational, systems problems

Cognitive Aging, Even Without Neurocognitive Disorder, Matters

• In the demanding practice of medicine, even mild neurocognitive disorder can greatly undermine physician performance.

• Physicians are not immune to the development of mild or major neurocognitive disorder.

• How many physicians have mild or major neurocognitive disorders?
Public Is Concerned

• “The lay public thinks you’re already taking care of the problem, so I think it would come as a surprise to a lot of them that this is something that hasn’t been addressed” – Patient advocate

• Stakeholders felt healthcare institutions should lead implementation of LCP oversight, rather than state or certifying boards, yet expressed concerns about conflicts of interest and resistance by physicians. ¹

• “If patient safety were truly our top priority, what would we change? We would almost certainly not design systems for LCP oversight as they currently function” – Patient advocate quoted from conference on this topic

Current Approach: Wait Until There Is Referral “For Cause”

• Lower processing speed, processing accuracy, and cognitive proficiency (MicroCog) were found in 148 physicians referred to the California Medical Board (CMB).

• About 1/3 of physicians referred to the PREP (Physician Review and Enhancement Program) in Ontario had moderate to severe cognitive impairment.

• 54% of physicians referred to the Impaired Registrants Program, New South Wales Medical Board, Australia for infractions such as inappropriate prescribing or alcohol-related motor vehicle charges met criteria for cognitive impairment.

Typical Neuropsychological Findings for MDs with Cognitive Difficulties (New South Wales)

54% found to have some cognitive impairment

- Preserved ability to cope with routine medical problems in well-known patients by drawing on existing knowledge base
- Long-term memory/verbal skills often well-preserved
- Difficulty dealing with complex or unusual problems
- Auditory memory/learning worse than expected
- Decreased ability to commit novel information to memory
- Slowing of information processing, visual scanning, motor slowing
- Problems in planning, abstraction, cognitive flexibility
- Tendency to be rigid and concrete in thinking

Current Approach: Self-Monitoring

- A review of 17 studies (physicians, PA’s, NP’s) in UK, Canada, US, Australia and New Zealand assessed self-prediction of performance on upcoming or past competency based assessment or learning needs and showed:
  - “In a majority of relevant studies, physicians do not appear to accurately self-assess”
  - “Perhaps of greatest concern are the findings that those who perform the least well by external assessment also self-assess less well”
  - This was not a study assessing effects of age but rather general self-assessment skills.

Davis et al, JAMA, Sept 6, 2006
The Eye Cannot See
What the Mind Does Not Know

- Cognitively impaired individuals lack awareness of deficits or defer action to avoid potentially undesirable consequences.\(^1\)
- In a group of 359 surgeons followed for 6 years, comparison of self-report to computerized assessment (sustained attention, reaction time, visual learning, and memory) found *no relationship between subjective cognitive self-assessment and objective cognitive measures*.\(^2\)
- Once deficits have progressed, opportunity for preventive intervention is lost.
- Peers agree that reporting an impaired colleague is important, but they resist doing so.

Underreporting of Cognitively Impaired Physicians Presents A Barrier To Detection

• Underreporting by colleagues
  – 2009 national survey (responses = 1,891) showed that up to 64% of physicians agreed with the statement that “physician dyscompetence should be reported to regulatory authority”.¹
  – Among participants who actually had knowledge of impaired colleagues in their workplace, only 67% decided to report.
  – Most common reasons for failing to report:
    • “belief that someone else was taking care of the problem”
    • “belief that nothing would happen as a result of the report”

Alternative Monitoring Approaches
Monitoring in New Zealand: Everyone

- Regular Practice Review\textsuperscript{1,2} program has two components:
  - Professional Development Review
    - 360 degree feedback
    - Clinical note review
    - Planned CME
    - Research activities
    - Goal setting
  - Service Review: A meeting with reviewers every 3 years

Monitoring in Canada: Older Physicians Receive Special Attention

- Each provincial College of Physicians and Surgeons regulates the process of quality assurance

- MEPP (Monitoring & Enhancement of Physician Performance)
  - Developed in 1993 by the Federation of Medical Regulatory Authorities of Canada
  - Level 1: competency screening of entire physician population
  - Level 2: targets “at risk” groups (e.g. older physicians)
  - Level 3: assessment of physicians who have attracted specific concern and require in depth clinical evaluation

Canadian MD Cognitive Assessment

• In practice: Alberta & Quebec
  – Level 1 refinement has been used effectively
  – All physicians are reviewed by patients and colleagues using satisfaction questionnaires and peer feedback

• Other provinces also use random audit, peer review, and mandatory evaluation in physicians over 70

• Critics of system have proposed additional practice improvement exercise & formal examination

• In Quebec, physicians over 70 had higher rate of cancelation of licensure, higher rate of insufficient Continuing Professional Development, less favorable outcomes with remediation.  

Many MD’s Support Need for Age-Based Physician Screening

Total Participant Responses to Question: “Do you believe that there is a need for age-based physician screening?”

- Yes: 62%
- No: 20%
- Maybe: 18%

One US Approach: Evaluation Centers, e.g. Lifeguard in Harrisburg, PA

- Supported by the Pennsylvania Medical Society
- Comprehensive evaluation using PLAS practice-based exams (created by NBME and FSMB) along with:
  - Neurocognitive examinations
  - Independent medical examinations
  - Functional capacity examinations
  - Standardized patients
  - Simulations to test procedural and specialty skills
  - Participant-specific preceptor experiences
  - Knowledge assessment of clinical documentation samples
  - Peer Review
  - Documentation evaluation
The First Wave Of U.S. Mandatory Testing Programs Has Begun

• Many are modeled on recommendations from California Public Protection and Physician Health, Inc.¹

• Evaluation typically contain 3 components:
  – Medical history and physical examination
  – Performance review
  – Cognitive examination

• Examples of variation:
  – Children’s Hospital & Medical Center, Omaha, NE
  – Cooper University Health Care, Camden, NJ
  – Legacy Health, Portland, OR
  – Yale University Medical System

Protocol for Aging Surgeon Program
Sinai Hospital, Baltimore, MD

1) Pre-Visit Screen
Client completes history form / sends Medical records (includes last H&P; last 5 years of discharge summaries, images (MRI, CT of brain and spine) and reports

2) Day 1
8:00 a.m. Welcome, Introduction to Program
8:30 a.m. General physical examination; hearing screen
9:30 a.m. Neurology examination
10:30 a.m. Physical/Occupational Evaluation A
12:00 p.m. Lunch/Rest
1:00 p.m. Neuropsychology Evaluation A

3) Day 2
8:00 a.m. Neuropsychology Evaluation B
12:00 p.m. Lunch/Rest (download Lunch Menu)
1:00 p.m. Physical/Occupational Medicine Evaluation B
2:30 p.m. Ophthalmology Examination
4:00 p.m. Exit Interview

A one-time all-inclusive fee, paid in advance, will cover the two-day comprehensive evaluation and report. This fee is presently being calculated. You may contact us for the amount of this fee.

http://www.agingsurgeonprogram.com/AgingSurgeon/WhyistheProgramImportant.aspx
Opposition to Assessment

• Physicians over 74.5 applying for privileges or over 75 renewing privileges were asked to undergo physical and cognitive screening and peer assessment of clinical performance.
• Met with passionate opposition
• Frank Stockdale, then a 79 year old surgeon, led the opposition, resulting in a review of policy.
• 2015 resolution: Faculty Senate advises that “age discrimination in competency testing end, and that patients be safeguarded by a process that is the same for all faculty age-groups."
Objections to Testing

• Is testing practical and valid?¹⁻⁴
  – Validity, Cost, Convenience, Privacy, Stress

• Is it age discrimination?⁵
  – Justification: Congress deems age-based tests permissible when age is a “bona fide occupational qualification” of position and overriding interest in public safety exists, or when age is an acceptable risk proxy and testing of all individuals seeking privileging is impractical/costly.⁵

A Feared Alternate Solution: Mandated Retirement Age

• Air Traffic Controllers retire at 56 (some at 61)
• FBI Special Agents retire at 57
• National Park Rangers retire at 57
• Commercial pilots must retire in US at 65

https://www.eeoc.gov/laws/statutes/adea.cfm
Recommendations
An Ideal Monitoring Policy Must Include:

– Evidence that:
  • Testing is fair and valid
  • Testing improves patient safety
– Protection of the rights of both patients and physicians
– Recognition of patients’ right to competent care
– Avoidance of undue cost or stress for physicians
– Support for physicians found too impaired to practice
Recommendations from California Public Protection and Physician Health, Inc.

• Applies to all medical staff of specified age / based only on age
• Contains 3 components:
  – Medical history and physical examination
  – Performance review (peer assessments etc.)
  – Cognitive examination
• Establish frequency, payment, what information is protected, consequences of noncompliance
• Wellbeing Committee
  – Receives report
  – Can authorize additional evaluation
  – Reports findings to Credentials Committee
• Outcomes – can include no action, monitoring process, reasonable accommodations, change in clinical privileges

Recommendations (1)

1. If you see something, say something
   – Patients
   – Staff
   – Peers

2. Use available assessment resources
   – Objective, privacy-respecting
   – Hospital administration must assist in cost

3. Advocate national uniform approach
   – California model – 3 components
   – Who will take charge? Physicians vs Government vs Private
   – Canadian model?
   – Who will pay?
Recommendations (2)

4. Remediate when possible
   - Focus on specific areas of dyscompetence
   - Practice modifications/accommodations may be possible
     • Reduced workload
     • Increased time per patient
     • Increased environmental supports such as simplified documentation forms / user-friendly EMR
     • Narrowing/limiting scope of practice
     • Joining a group practice
     • Periodic monitoring of functioning
   - Remediation program, follow up monitoring
5. Retire when necessary

– Significant non-remediable competence deficits should trigger discussion of voluntary retirement

– Advance planning should include:
  • practice management
  • transitioning of responsibilities
  • advice regarding financial issues
  • involvement of family system when appropriate
  • adjustment of life goals

– Individualized barriers to retirement must be taken into account.
An Ounce of Prevention?

- How can physicians be better prepared for retirement?
  - Start in medical school, addressing:
    - Development of relationships/family
    - Outside interests
    - Financial preparation
    - Explore role of “professional identity” (high relationship between “self-worth” and professional identity, SA correlation with “work centrality”\(^1\) and the need for continued “relevance”\(^2\))
  - Continue in medical career with:
    - Institutional support for personal development
    - Support groups for near-retirement staff
    - Development of post-retirement roles/activities?

Conclusions

- Senior physicians are a valued resource in the health care system
- Normative age-associated cognitive changes can affect competence
- Physicians, like others, can develop neurocognitive disorders
- Public interest requires that we explore this concern and develop a plan to assure quality/safety.
- Comprehensive approach to assessing physician age-related cognitive decline’s effects must address factors including:
  - Protection of patient safety
  - Protection of physician rights
  - Practical barriers to design and implementation
  - Assistance for physicians requiring remediation/retirement
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Cognitively Impaired Physicians: How Do We Detect Them? How Do We Assist Them?

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