Underwriting the Elderly

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Agenda

- The importance of underwriting the elderly
- RGA’s initiative
- Benchmarking
  - Industry guidelines
  - RGA benchmarking
  - Client company sampling

- Older age underwriting and testing
  - Cognitive function
  - Physical function
  - Social function
  - Lab testing

- Financial Underwriting

- Case study
Underwriting Differences
Consistent Older-Age-Specific Guidelines
Sentinel Effect
Anti-Selection
RGA’s Initiative

- Questionnaire Development
- Questionnaire Consultation
- Presentations and Webinars
- Benchmarking
Benchmarking
Older Age Requirement Benchmarking

| Company            | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y |
| **Age/Amount Requirements** | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| **Preferred Criteria** | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| **Senior Questionnaire** | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| **Cognitive Testing** | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Orientation Questions | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 3 Object Identification | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 3 Word Delayed Recall | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 5 Word Delayed Recall | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 10 Word Delayed Recall | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Clock Drawing | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intersecting Pentagons | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Serial 3’s | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Serial 7’s | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| EMST/Life Plus Scoring | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Physical/Functional Testing | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Untimed Get up and Go | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Timed Get up and Go | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Chair Raise/Stand | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Peak Flow Testing | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lab Testing | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hgb/A1c | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| NT-ProBNP | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| hs-Crp | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| CEA | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| GFR | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| PSA | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Script Check | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Supplemental Medical Memos | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Crediting | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Scoring | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Manual Used | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

Manuals: G-Generali; GR-GenRe; L-Lincoln, SL-SunLife; SR-Swiss Re; TR-Transamerica Re
35 RGA Clients Performing Cognitive Testing

- Most commonly used tests:
  - Delayed Word Recall (25 companies)
  - Clock Drawing (19 companies)
  - Orientation Questions (17 companies)

- More than one cognitive test: 28 companies
28 RGA Clients Performing Physical Function Testing

- Most commonly used tests:
  - Timed Get Up and Go (TGUG) (23 companies)
  - Untimed GUG (6 companies)
  - Chair Rise/Stand (3 companies)
  - Peak Flow (3 companies)

- More than one physical test:
  5 companies
In the U.S. the most common age that companies begin to use older age underwriting is 71.
Globally

What Types of Older Age Underwriting are Typically Carried Out?

- **Canada**
  - Mexico
  - USA
- **South Africa**
- **Canada**
  - USA
- **Korea**
- **Mexico**
  - USA

[Legend: Asia, Europe & Middle East VC, Europe & Middle East SC, North America, UK, Australia, South Africa]
Underwriting and Testing
Cognitive Function
DSM-IV-TR Criteria for AD American Psychiatric Association

- The development of multiple cognitive deficits manifested by both memory impairment and at least one of the following cognitive disturbances:
  - Aphasia
  - Apraxia
  - Agnosia
  - Disturbances in executive functioning
  - Significant impairment in social or occupational functioning, along with significant decline from a previous level of functioning, gradual onset and continuing cognitive decline
Stages of Alzheimer’s Disease

- Stage 1: No impairment
- Stage 2: Very mild decline
- Stage 3: Mild decline
- Stage 4: Moderate decline (mild or early stage)
- Stage 5: Moderately severe decline (moderate or mid-stage)
- Stage 6: Severe decline (moderately severe or mid-stage)
- Stage 7: Very severe decline (severe or late stage)
Associated Conditions and Survival in People with Alzheimer’s Disease

- Gait Disturbance
- Wandering
- Falls

No
Yes

Larsen et al. ‘Survival after Initial Diagnosis of Alzheimer Disease’ 6 April 2004/Annals of Internal Medicine/Vol.140
Co-Morbid Conditions in People with Alzheimer’s Disease

![Bar chart showing co-morbid conditions in people with Alzheimer’s Disease. The conditions include Ischemic Heart Disease, Congestive Heart Failure, and Diabetes. The chart compares the presence (Yes) and absence (No) of these conditions.]
Cognitive Screening Tests

Desired attributes of cognitive screens include:

- Predictive of early dementia
- Inexpensive
- High face validity
- Reliable (sensitivity/specificity)
- Brief administration
- Easy to administer/score
- Socially acceptable
- Culturally sensitive
Alzheimer’s Myths and Facts

True or False?

- Alzheimer’s and dementia are the same thing
- Red wine and grape juice can help reverse Alzheimer’s
- If one of your parents has Alzheimer’s, you’ll probably get it, too

https://www.webmd.com/alzheimers/rm-quiz-alzheimers-myths-facts
Alzheimer’s Myths and Facts

- Which of these raises your risk of Alzheimer’s?
  - Age
  - Aluminum cans
  - Flu shots

- When does Alzheimer’s start?
  - Within 1 year of memory loss
  - About 5 years before memory loss
  - 20+ years before memory loss

https://www.webmd.com/alzheimers/rm-quiz-alzheimers-myths-facts
Alzheimer’s Myths and Facts

- What are the odds you’ll get Alzheimer’s if you live to 85?
  - 50%
  - 75%
  - 99%-100%

- What protects the brain more?
  - Learning a new skill
  - Doing the morning crossword
  - A weekly computer brain game

https://www.webmd.com/alzheimers/rm-quiz-alzheimers-myths-facts
Cognitive Function Tests

- AD8
- Alzheimer’s Quick Test
- Clock Drawing Test
- Delayed Word Recall
- Serial 3’s/ Serial 7’s
- Intersecting Pentagons
- Enhanced Mental Skills Test
- Mini-mental State Examination
- Minnesota Cognitive Acuity Screen
- Short Portable Mental Status Questionnaire
Clock Drawing Test

- Best when used in combination with other cognitive tests
- Requires spatial perception, construction and other cognitive abilities
- Test has low sensitivity, particularly in the early stages of disease
- Very useful for screening of prevalent problems
Delayed Word Recall

- Detects short-term memory deficits and an effective indicator of cognitive impairment
- Requires the integrity of the entire memory system, including recognition, registration, retention and storage, and recall or retrieval
- Sensitive in detecting mild dementia
- 6 of out of 10 words is considered ‘Normal’
Intersecting Pentagons

- Requires spatial perception, construction, motor skills, and other cognitive abilities
- Also tests vision
Mini-mental State Exam (MMSE)

- Requires highly trained personnel
- Education bias – education levels can dramatically affect the sensitivity and specificity levels
- Scored out of 30; <24 indicates cognitive impairment
Mini-mental State Exam (MMSE)

- Not diagnostic of dementia
- Does not distinguish well among various confusional states
- Can assess cognitive function
- Useful for documenting subsequent decline with serial testing
Minnesota Cognitive Acuity Screen (MCAS)

- Used primarily in the LTC market
- Sensitivity: 97.5%  Specificity: 98.5%
- Scores range from -3.0 to 3.0
  <0 is “impaired” and >0 is “not impaired”
Minnesota Cognitive Acuity Screen (MCAS)

- Administration: Face-to-face or by telephone
- Advantages: comprehensive, standardized, performed by trained professionals, easier comparison of scores, reported to identify mild to moderate cognitive dysfunction
Cognitive Testing: Recap

- Dementia prevalence increases with age and is very high above age 80
- Dementia is a significant cause of excess mortality
- Survival is related to the severity of the disease at time of presentation
- While all of the current cognitive tests are reasonably good at detecting moderate and severe dementia, they are less reliable in evaluating the milder forms of dementia
Cognitive Testing: Limitations

- May miss many of the cases of mild disease
- Mortality will likely be less in the insurance population
- False positives
  - Potential for lost business?
- Legal issues
  - If a test is suspicious for mild dementia, can a contract be formed with the applicant?
  - It may not be possible to rescind on the basis of misrepresentation
Physical Function
Physical Fitness in the Elderly

- Components
  - Cardio-respiratory endurance
  - Muscle strength
  - Muscle endurance
  - Flexibility
  - Body composition (muscle mass/tone)
  - Agility/balance/body awareness
Daily Energy Expenditure and Mortality Among Older Adults

- Study of 302 community-dwelling participants aged 70-82, followed for six years:
  - Any level of physical activity in older adults can lower mortality risk
  - Higher levels of physical activity are associated with reductions in coronary heart disease, cancer incidence, falls and physical disability
  - Sleep duration affects energy expenditure – those who sleep less have a greater opportunity to expend more kilocalories through activity

JAMA. 2006 Jul;296(2):171-9; Mannini TM et al.
IADLs – Instrumental Activities of Daily Living

- IADLs are the more advanced activities of physical and social function
- Include such activities as shopping, paying bills, doing laundry, and meal preparation
IADLs – Instrumental Activities of Daily Living

- With increasing age there is an increased risk of functional limitation or impairment and mortality
- Can indicate functional status
- Evaluates both functional and cognitive abilities
- Measures orientation and procedural memory skills that may be affected early in dementia
Self-reported Activity

- Questionnaire-based
- Subject to recall bias (and possibly anti-selection)
- Typically overestimates actual amounts of physical activity
- Does not provide accurate estimates of absolute amounts of activity/day
Physical Function Tests

- Self-Reported Activity – ADLs/IADLs
- Timed Get Up and Go Test
- Six-Minute Walk Test
- Berg Balance Scale
- Comfortable/Fast Gait Speeds
- Chair Rise
- Peak Flow Testing
- Treadmill Exercise Testing

Refer to RGA’s presentation on “The Value of Functional Testing” on RGA’s Underwriting Connection for more detail.
Timed Get Up and Go (TGUG)

- Measures the time it takes a person to stand up from an armchair, walk a distance of 10 feet, turn, walk back to the chair, and sit down

- Generally, test times of <12 seconds are favorable, which represents the 90th percentile for the well elderly

- Additional information on balance may be subjectively obtained

- For identifying people who fall, TGUG has sensitivity and specificity of 87%
Chair Rise

- Measures strength in legs
  - Sitting in a firm, straight-backed chair, fold arms across chest and sit so that feet are on the floor; then stand up keeping arms folded across chest; stand up straight as quickly as possible (5 or 10) times without stopping in between and without using arms to push off

- Provides observations regarding sitting balance, transfers (supine-to-sitting, sit-to-chair, sit-to-stand), and pivoting

- Provides information regarding strength, safety, and level of independence
Peak Flow Testing

- Studies show it is strongly related to measures of functional ability and physical activity, self-assessment of health, and simple measures of cognitive function.

- Studies have shown that PEF rates are correlated with five-year survival rates.

- Testing is limited: It is difficult to perform and results are strongly dependent upon user performance, so may not accurately reflect physical ability.
Treadmill Exercise Testing

- 514 community participants >65 years of age, followed for six years

- Each 1-metabolic equivalent (MET) increase in exercise capacity was associated with an 18% reduction in cardiac events among the elderly

- Exercise capacity of <5 METs should be cause for concern

- Level of physical activity was inversely associated with coronary disease and all-cause mortality

- The risk for coronary disease associated with inactivity has been estimated to be of the same magnitude as that associated with hypertension, hypercholesterolemia and smoking

## Comparison of Tests – Measuring Physical Function

<table>
<thead>
<tr>
<th>Test</th>
<th>Intensity</th>
<th>Duration</th>
<th>Frequency</th>
<th>Strength</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor walking</td>
<td>+++</td>
<td>+</td>
<td>n/a</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>TGUG</td>
<td>++</td>
<td>n/a</td>
<td>n/a</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>6MW</td>
<td>+++</td>
<td>+</td>
<td>n/a</td>
<td>+</td>
<td>++</td>
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<tr>
<td>BBS</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>++</td>
<td>+++</td>
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<tr>
<td>CGS-FGS</td>
<td>+++</td>
<td>n/a</td>
<td>n/a</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>TM</td>
<td>++++</td>
<td>+++</td>
<td>n/a</td>
<td>++</td>
<td>+++</td>
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</table>
## Comparison of Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Cost</th>
<th>Reliability</th>
<th>Time</th>
<th>Convenience</th>
<th>Safety</th>
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<tbody>
<tr>
<td>Self-reported activity</td>
<td>Low</td>
<td>+</td>
<td>+++</td>
<td>++++</td>
<td>++++</td>
</tr>
<tr>
<td>Corridor walking</td>
<td>Moderate</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>+++</td>
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<tr>
<td>TGUG</td>
<td>Moderate</td>
<td>+++</td>
<td>++++</td>
<td>++++</td>
<td>+++</td>
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<tr>
<td>6MW</td>
<td>Moderate</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>+++</td>
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<tr>
<td>BBS</td>
<td>Moderate</td>
<td>+++</td>
<td>++</td>
<td>++</td>
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<tr>
<td>CGS-FGS</td>
<td>Moderate</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td>TM</td>
<td>High</td>
<td>++++</td>
<td>+</td>
<td>+</td>
<td>++</td>
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</tbody>
</table>
Recap: Physical Function and Mortality

- Ability to exercise is an important marker for mortality in the elderly
- Exercise capacity is a potentially modifiable risk factor in the elderly
- Measures of exercise include intensity (such as speed), frequency, duration, strength and balance
- Each test of exercise capacity measures some, but not necessarily all, of these components
Recap: Physical Function and Mortality

- All of the tests have value, but the value has to be measured against the cost and convenience of the specific test.
- In the elderly, consideration should be given to screening for physical function (in addition to screening for cognition and socialization).
- Cost may be partially offset by eliminating screening procedures whose value diminishes with age (e.g., lipid screening).
Social Engagement
Advanced Activities of Daily Living

- Physical and social activities that tend to be voluntary
- Indicate an individual is functioning above the minimum level required to maintain independence in the community
- Participation in these activities suggests a robust individual who is likely independent in both ADL and IADL tasks
Social Engagement

- The *degree* to which a person is involved in the community
- Can include interactions with caretakers, family members, friends, or larger community organizations, such as clubs

- **Solitary engagement**
  - Examples include: watching television, listening to the radio or music, reading newspapers or books

- **Group activities**
  - Examples include: talking with family or friends, sitting in a café, playing cards, attending movies

- **Reciprocal activities**
  - Borrowing, lending, or repeated visits with neighbors
# Measures of Social Engagement

<table>
<thead>
<tr>
<th>Measures</th>
<th>No.</th>
<th>%</th>
<th>% Mortality</th>
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<tbody>
<tr>
<td><strong>Reciprocal Neighborly Relationships</strong></td>
<td></td>
<td></td>
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<tr>
<td>No</td>
<td>719</td>
<td>53.7</td>
<td>67.0</td>
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<tr>
<td>1</td>
<td>195</td>
<td>14.6</td>
<td>55.9</td>
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<tr>
<td>2</td>
<td>70</td>
<td>5.2</td>
<td>54.3</td>
</tr>
<tr>
<td>3</td>
<td>356</td>
<td>26.6</td>
<td>51.7</td>
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<tr>
<td><strong>Leisure Activity (Solitary)</strong></td>
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<tr>
<td>Never/Very Rarely</td>
<td>140</td>
<td>10.4</td>
<td>73.6</td>
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<tr>
<td>Frequently</td>
<td>395</td>
<td>29.5</td>
<td>61.5</td>
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<tr>
<td>Very Frequently</td>
<td>805</td>
<td>60.1</td>
<td>58.0</td>
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<tr>
<td><strong>Leisure Activity (Group)</strong></td>
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<td></td>
</tr>
<tr>
<td>Never/Very Rarely</td>
<td>792</td>
<td>59.1</td>
<td>67.0</td>
</tr>
<tr>
<td>Frequently</td>
<td>290</td>
<td>21.6</td>
<td>52.8</td>
</tr>
<tr>
<td>Very Frequently</td>
<td>258</td>
<td>19.3</td>
<td>50.0</td>
</tr>
</tbody>
</table>
Social Networks, Institutionalization, and Mortality Among Elderly People in the United States

- Research suggests:
  - Informal support networks help keep elderly people out of institutions
  - Elderly people living alone have a greater risk of institutionalization
  - Being widowed significantly increases the likelihood of being placed in a nursing home
  - Socially isolated or less socially integrated people are more likely to commit suicide

Social Engagement

- Not all studies conclude that social engagement is a primary independent marker for mortality
- The type of social engagement may be important, with reciprocal engagement with non-family members being the most beneficial
- While the value of measuring social engagement is not universally accepted, it is easy to estimate (self-assessment is adequate)
Lab Testing
Cholesterol

- In the older ages, a low cholesterol (<167-170 mg/dl) is associated with an increased mortality risk.
Cholesterol

From “Relationship Between Plasma Lipids and All-Cause Mortality in Non-demented Elderly”

- 2,277 non-demented people from northern Manhattan, aged 65-98, were studied

- Lowest cholesterol level quartile persons were twice as likely to die compared to the highest cholesterol level quartile persons

- Their conclusion was low cholesterol level in the non-demented elderly is a robust predictor of mortality and may be a surrogate of frailty or sub-clinical disease
Albumin

- There are no diseases or problems associated with elevated albumin; however, albumin can be elevated if there is dehydration

- A low albumin is a concern, and is associated with an increased mortality risk

- Specific causes of low albumin include:
  - Poor diet with decreased protein intake
  - Protein-losing enteropathies – colitis and sprue
  - Liver diseases – cirrhosis
  - Renal diseases – glomerulonephritis or nephrotic syndrome
  - Pregnancy
  - Inflammatory condition – acute or chronic; includes infections, autoimmune diseases, and various tumors
Creatinine

- In the older ages, incrementally increasing levels of creatinine (from 1.0 mg/dl) are associated with an increased mortality risk
Creatinine

From “Risk Factors for 5-Year Mortality in Older Adults,” a study of 5,201 adults aged 65 or older
Anemia

- Defined:
  - Males: anemia Hgb <13 gm/dl (WHO criteria)
  - Females: anemia Hgb <12 gm/dl (WHO criteria)
  - Anemia prevalence is 13% in persons over age 70
Anemia

- The causes of anemia include:
  - Poor nutrition
  - Chronic inflammation
  - Myelodysplastic syndrome
  - Iron, folate and B12 deficiencies, renal insufficiency
  - Medications and alcohol
  - Bone marrow hypoplasia (bone marrow aging)
Anemia

- A recent review of anemia in the elderly from the Mayo Clinic stated:
  - Anemia in the elderly, over age 65, has been associated with increased frailty, diminished cognitive function, increased risk of developing dementia, lower bone and skeletal muscle density, increased risk of recurrent falls, and an increased rate of major depression
- Anemia is also associated with an increased all-cause mortality
- Mortality is highest in the lowest and highest Hgb quintiles
NT-proBNP

- Its main site of production is the myocardium
- Causes of increased release of proBNP from cardiac muscle cell granules: cardiac muscle stretch, acute cardiac ischemia, right ventricular overload, pulmonary embolism, renal insufficiency, increasing age
- It is elevated in patients with asymptomatic decreased left ventricular ejection fraction or diastolic dysfunction
- Studies have shown that both elevated NT-proBNP and BNP are accurate for diagnosing heart failure in dyspneic patients
NT-proBNP

- Elevated NT-proBNP levels are associated with an increased risk of CAD, CAD events, heart failure, strokes and all-cause mortality
- NT-proBNP <100 pg/ml is the most favorable group
- NT-proBNP >500 pg/ml is the most unfavorable group
Future Treatment

- Detection of geriatric syndromes in underwriting is difficult
  - Dementia, Frailty, Falls all associated with substantial mortality risk but no good way to identify
    - New biomarkers for AD and immunity may help recognize high risk individuals
    - Falls linked to gait and weakness
      - Research ongoing to determine new ways to detect problems in mobility

- Inactivity and smoking are important modifiable risk factors in diseases of the elderly

- Function is one of the most important markers for mortality in this cohort
  - Cognitive and physical function should be evaluated with objective measures
  - New imaging techniques and biomarkers may help to detect disease before there are symptoms
Future Treatments

- Anticholinergic medication associated with the development of cognitive impairment, delirium, and death
  - Scoring tool helps clinicians determine proper combination of medications

- Precision medicine will individualize health care
  - Elderly will receive better care because
    - Less drug interactions and side effects – more targeted therapy
    - Lifestyle, nutrition, exercise will be major factors for precision medicine prescriptions

- Hovering is a sophisticated method of watching or monitoring behavior based on medication compliance, lab data
  - Better compliance translates to better outcomes
Financial Underwriting

- Affordability
- Adult children as owner of the policy
- Does the client fully understand the need for their existing and applied for coverage?
- Ultimate goal should be estate preservation not wealth creation

- Red Flags
  - Excessive amounts of Life Insurance coverage
  - Unusual owner or beneficiary, lack of insurable interest
  - Recent immigration with little to no verifiable US assets
  - Premium exceeding 20-25% of income
  - Premium Financing
  - Material misrepresentation of any type
Case Studies
Age 87, Female

- Having some memory deficit, cannot recall names she would like to recall
- Trying to explain something to the doctor, wasn't sure what it was
- Difficulty with memory, asks the same questions repeatedly, lives by herself, still driving, had a friend with her
- Frustrated with memory
- Mini-mental exam scored 20 out of 30
- Osteoarthritis of knees; doctor noted she should not drive unless to a very familiar place
Age 85, Male

- Per Senior questionnaire:
  - Did well on all but the word recall
  - He has a son that lives next door who drives him places when needed
  - Son also helps with finances
Age 85, Male (cont.)

- Per APS:
  - Possible memory problems
  - Doctor feels he is OK and can still allow him to drive
  - Has stopped driving since prior visit
  - Son concerned about some memory loss – insured is considering going into an ICF facility
  - Mini-mental status exam done and he scored 27 out of 30; doctor feels he has mild memory loss but that it is probably normal for his age, no signs of a serious dementia
Age 83, Female

- Medical history:
  - Has had a balance problem
  - Does own finances
  - Lives alone in an apartment
  - Widow
  - College graduate
  - No memory problem
  - Has hearing aid
Age 83, Female (cont.)

- Mini-mental exam – scored 28 out of 30; recalled two out of three words; had real trouble with the clock drawing; possible underlying dementia due to her education level

- Doctor suspects something is going on but will follow up with her

- Mild cognitive dysfunction and history of depression; one week per month has depressed mood; on Paxil, will start Zoloft; mild cognitive impairment, has not gotten worse, in fact has improved
Age 82, Female

- Medical history on exam: hypertension, diabetes, anxiety, elevated cholesterol

- Senior Exam:
  - 7 out of 10 words recalled
  - Doesn't drive
  - Doesn't travel except to visit family
  - Forgets to take medication

- APS indicates TIA 2008, fell in shower 2013, impaired gait, bumps into things (no mention of issues with gait on senior exam)
Age 84, Female

- Purpose of insurance: gifts for grandchildren
- Beneficiary is daughter and son-in-law
- Citizen of China, EAD visa expired 2014 and has reapplied. Awaiting updated status
- Business property and commercial real estate is in China and plans to liquidate and transfer assets to US. Lives with Daughter.
- GUG 18 seconds using a cane
- Medical history: osteoporosis, osteoarthritis, vertigo 2016
Age 82, Female

- Widow with $700,000 unearned income and $15M Net worth, owner is trust, single premium of $1,300,000 for death benefit of $2,000,000, owner/bene/payor is a residuary trust (she is not one of the named beneficiaries in the trust), trustee is a CPA in FL and she resides in WI

- Never bought insurance before

- Pacemaker 1999 due to tachybrady syndrome and 3rd degree heart block

- DWR 8/10
Age 81, Female

- Face amount $115,000
- Owner and bene is charity
- Over past 17 years has donated $19,785 to the charity
- Agent is the proposed insured’s son
- GUG 30 seconds, clock hour slightly off
- Severe osteoporosis, no falls
Publications and presentations

- Older Age Underwriting
  - Underwriting the Elderly – Part III: Laboratory Testing - April 2008
  - Webcast Recording (Windows Media file) Slides (PDF file)
  - Underwriting the Elderly – Part II: Laboratory Testing - February 2008
  - Webcast Recording (Windows Media file) Slides (PDF file)
  - Underwriting the Elderly – Part I: Laboratory Testing, September 2007 PDF
  - Physical Activity, Physical Fitness, and Mortality, July 2007
  - Social Engagement, Cognitive Function, and Physical Function, April 2007
  - The Value of Functional Assessment, October 2006
  - Cognitive Testing Options, July 2006
  - Old Age Underwriting: A Continuing Challenge, 2004

- Older Age Mortality
  - Old Age Underwriting & Mortality, June 25, 2008
  - Old Age Mortality Insights – Part II: RGA's View Going Forward, August 23 , 2007
RGA Central

- Older Age Reference Information
  - Fall Injury Data
  - Functional Limitations
  - Health Characteristics

- *ReFlections* is the RGA newsletter that focuses on hot topics in underwriting
  - “Alzheimer’s: An Update on an Old Disease” by Dr. Lisa Duckett, January 2017
  - “The Value of Screening for Cognitive Function in the Elderly” by Dr. J. Carl Holowaty, Spring 2007
Questions?