

The Compelling Argument for Discontinuing Our Use of Screening Exercise Electrocardiography in Life Underwriting

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Context

What are the two biggest underwriting-related concerns of senior management in direct-writing life insurers?

#1 – Reducing new business acquisition costs.

#2 – Reducing application-to-issue cycle time.

Both of these issues are conspicuous high priority agenda items in most companies.

The matter of business acquisition costs is, if anything, accentuated by the current economic environment.

What other goals are compelling in this regard?

- Improve our image with consumers.
- Make it easier for customers to do business with us as a “financial services” industry.
- Facilitate – rather than obstruct – the flow of new business.
- Recruit and retain producers by offering accommodating requirements, while preserving and enhancing favorable mortality.

What strategies have 21st century life insurers embraced to facilitate these outcomes?

- Teleunderwriting – the core change in how we manage new business, and now the dominant mode of risk appraisal in North America and United Kingdom and rapidly being embraced worldwide.
- New business processing systems including so-called “underwriting engines.”
- Automated data search and retrieval in lieu of traditional routine inspection reports.
- Electronically obtained motor vehicle reports (MVRs) and pharmacy (Rx) profiles.
- Steep reductions in the use of MD examinations and chest x-rays.

What is the #1 remaining “eye sore” among routine screening medical requirements?

The exercise electrocardiogram, or, if you will, treadmill stress test (TST).

Are treadmill stress tests used extensively in the industry?

In the 2007 Life Underwriting Requirements Survey of over 125 U.S. direct-writing companies, we learned the following regarding the use of exercise ECGs as screening requirements:

- 62.9% of respondents continued using the TST at some age/face amount threshold.
- The substantial majority of companies still using TSTs did not mandate them for any amount of coverage under age 35, but most persisted in requiring them at ages 45 and 55.
- Most TST users required them at face amounts of \$5 million or higher, but a significant % continued to demand them for amounts as low as > \$1 million at ages 45 and over.
- 96% of TST-screening companies required them at age 65.
- 64% required them at age 75.
- 55% still required TSTs over age 75.
- 62% said they would continue to require TSTs even if reinsurers did not compel them to do so.

TST Screening: The Clinical Perspective**Is the treadmill stress test used too often in clinical medicine?**

“It is likely that it is considerably overutilized...and, in many cases, actually abused as a tool in the clinical armamentarium available to all practitioners of medicine.”

Basil M. RuDusky, MD, FACA
New England Cardiovascular Clinic
Wilkes-Barre, PA
Angiology
52(2001):729

Is it widely held that TSTs should not be used for screening in clinical medicine?

Yes...and it has been for 30 years!

“An expert panel of cardiologists stated that there were ‘no conditions for which there is general agreement that exercise testing is justified’ in asymptomatic persons.”

Harold J. Sox, MD, et al.
Stanford University School of Medicine
Annals of Internal Medicine
110(1989):456

“The exercise test historically has been considered a potentially useful modality for coronary disease screening... Nonetheless, the relatively poor accuracy of exercise electrocardiography for diagnosing hemodynamically significant coronary disease, even in symptomatic subjects, has led to recommendations against the use of exercising testing as a screening tool, as well documented by a recent report from the US Preventive Services Task Force.”

Michael Lauer, MD, Chair, et al.
Subcommittee of the American Heart
Association Council in Clinical Cardiology
Circulation
112(2005):771

“The existing data indicate that although disease may be identified, many more patients have false-positive tests. The consequences of such findings include...misuse of data to influence employment and insurance decisions.”

Raymond J. Gibbons, MD, et al.
Report of the American College of
Cardiology/American Heart Association
Task Force on Practice Guidelines
(Committee on Exercise Testing)
*Journal of the American
College of Cardiology*
30(1997):260

Note the years in which the three reports cited above were published!

Is this view also held by experts in primary care?

Yes.

“Use of the ETT [exercise treadmill test] to screen for CAD in

asymptomatic low-to-moderate risk individuals is not indicated.”

Jennifer L. Junnila, MD, MPH
and Guy P. Runkle, MD
Primary Care Clinical Office Practice
33(2006):683

Does the TST have value in screening healthy subjects?

No.

In a study of 4,334 adults, median age 51, there was no significant difference in mortality between those with positive vs. negative tests. The authors made the following statement in the wake of their findings:

“Exercise treadmill testing in such a low-risk population... was unlikely to be useful... Routine exercise treadmill testing in asymptomatic individuals has low clinical yield and it is not a cost-effective strategy.”

Louis Pilote, MD, MPH, PhD, et al.
The Cleveland Clinic
The American Journal of Cardiology
81(1998):219

The vast majority of insurance applicants screened with TSTs are asymptomatic low-to-moderate risk individuals.

Is the sensitivity and specificity of the TST adequate to justify screening of asymptomatic, low-to-moderate CV risk subjects?

“The ETT is known for its low sensitivity, specificity and accuracy.”

Melvin E. Clouse, MD
Harvard University Medical School
Circulation
113(2006):125[editorial]

“Most patients with subsequent cardiovascular death have a negative test result, because the sensitivity for detecting subsequent cardiovascular death is low.”

Gibbons
Op. Cit.

What is the “fly in the ointment” of using TST screening on asymptomatic and low-to-moderate risk individuals?

The pretest probability of disease is low, even over age 60, in the absence of chest pain or equivalent suspicious symptoms. [Gibbons]

The Framingham study showed that only those with “the highest CHD risk” should be considered for such testing. [Balady]

Why is TST screening obsolete?

“Myocardial infarcts often appear to be caused by ‘insignificant’ lesions by coronary angiography”... and these insignificant lesions, because they do not obstruct blood flow in the arteries, do not cause the TST to be positive, resulting in disconcerting numbers of false-negative tests in high risk cases.

Vincent E. Friedewald, MD et al.
Chief of Cardiology
University of California-San
Francisco Medical School
The American Journal of Cardiology
102(2008):1644

Are there significant risks associated with treadmill stress testing that insurers using them, especially at older ages, need to consider?

Absolutely!

“Both myocardial infarction and death...can be expected to occur at a rate up to 1 per 250 tests. Good clinical judgment should therefore be used in deciding which patients should undergo exercise testing.”

Gibbons
Op. Cit.

“...the annual rate of exercise-related cardiovascular events among high-risk events may be substantial, with 0.2% of hypercholesterolemic man having an exercise-related event annually...the annual incidence of exercise-related AMI [acute myocardial infarction] could range from 1 AMI per 593 to 1 per 3852 healthy middle-aged men.”

Paul D. Thompson, MD, FAHA, Co-Chair
Scientific Statement from the
American Heart Association
Circulation
115(2007):2358

The medical literature is replete with case citations of MIs and cardiac deaths in persons subjected to TST screening, even with normal treadmill findings and where these tests are done under the direct supervision of cardiologists. [Baroffio, Boubrit, Brown, Capezzuto, Gómez-Jauma, Jenkins, Kurata, Lintgen, RuDusky, etc.]

Our system of ordering and undertaking TSTs does not allow for credible judgment to be brought to bear as to whether or not a given applicant is a suitable risk. Indeed, one can only marvel at the fact that, in the age of compliance and growing concerns for equivalent vulnerabilities, the majority of insurers continue to wilfully endure these risks.

What have we learned from these clinical studies and findings of experts?

The TST has been judged to be inappropriate for screening of asymptomatic individuals by experts in cardiology for 30 years.

The TST has insufficient sensitivity, specificity and accuracy to justify screening in persons with low-to-moderate risk of coronary disease.

The TST does not pinpoint the individuals with vulnerable disease at highest mortality risk, rather, it is positive for the most part in persons with fixed, stable coronary disease whom we now regularly insure on a highly favorable basis.

The TST imposes upon insurers the very real risk of heart damage, and death, in applicants as a direct result of routine screening. Indeed, we were told by a prominent chief medical officer that there have been multiple such occurrences in one country where TST screening is (or at least once was) done for insurance purposes. [Bond, personal communication, 2007]

In the face of all of these blatant contraindications, most U.S. insurers continue to require screening exercise electrocardiograms, in many cases over age 75.

Industry-Specific Issues with TST Screening

What are the additional “common sense” arguments against TST screening by life insurers?

Cost

According to one major industry provider, the standard fee for insurance treadmill stress testing was \$713.95 as of February 2007. [Sears, personal communication]

Slowness

It is widely appreciated that the turnaround time with TSTs is longer than it is, on average, for obtaining medical records from physicians. This would make the TST, along with the chest x-ray, one of the two slowest requirements we currently use.

Client Unfriendliness

It goes without saying that nothing we do for underwriting purposes can compare with the inconvenience to our customers that occurs with treadmill stress testing.

Subjectivity

Unlike most of our contemporary screening tools (resting ECGs and chest x-rays being the other exceptions), TST analysis is highly subjective. Thus, it is commonplace for insurance medical directors to disagree with applicants' attending physicians over how putative TST findings should be seen from a risk perspective. As a result, they get into counterproductive dialogue with these physicians.

Processing Time

Because virtually all TSTs are analyzed solely by medical directors, the processing time is longer for this requirement – again, except for the odious chest x-ray – than any other screening asset in our armamentarium.

Do other screening options exist that would – at the very least – replace the ostensible protective value of exercise electrocardiograms...without all of these many disadvantages?

Absolutely!

In recent years compelling evidence has shown that two inexpensive tests – which can be readily completed in conjunction with the inevitable blood profiles required on all cases where treadmill testing is now required – provide outstanding value in screening for cardiovascular risk in older-age applicants:

NT-proBNP – probably the finest CV disease screening test in the history of life insurance, based on a comprehensive review of the world literature.

Hemoglobin A1-c (HbA1-c, glycosylated hemoglobin) – a test used by underwriters in known diabetics, and individuals deemed at increased risk for diabetes, HbA1-c has now been convincingly shown to have significant protective value as a screening asset.

In addition, there are a number of other blood tests which should be considered for use in conjunction with NT-proBNP and HbA1-c as adjunctive screening tests, perhaps in a special profile to be used at older ages and for larger face amounts:

Cystatin C – a kidney disease marker which has been shown, in a brand new research paper just published at our website, to have substantial additive value when used as a screening test in conjunction with NT-proBNP. All three insurance labs are equipped to perform this test, as are most major clinical labs.

Hemoglobin – given the well-demonstrated association between mild anemia (low hemoglobin) and circulatory disease, occult cancer and all-cause mortality, insurers should investigate its potential as a screening asset.

CRP (formerly hs-CRP) – this test was evaluated some years ago by several carriers (unpublished studies) and its use discouraged for reasons not entirely clear to this underwriter. The recent literature shows a strong association between CRP elevations and the risk of CV disease. It argues for further consideration of CRP in underwriting screening.

Because of the far lower cost of screening with such a profile, we could test 15 or more applicants for the same out-of-pocket cost for a single exercise electrocardiogram!

Why does use of exercise electrocardiography continue to compromise our efforts to make underwriting faster and more cost-effective?

Lassitude on the part of many direct insurers, who fail to consider this issue (apparently, in many cases, preferring instead to nibble at “low-hanging fruit” where expense containment is concerned).

Sustained pressure from some reinsurers, who conveniently look away from the TST's many drawbacks – in part because they are not directly affected by these adversities – while at the same time refusing to examine ever-increasing evidence for viable alternatives, as cited above.

The insidious actions of individuals who either harbor a misperceived “vested interest” in retaining TSTs, or have not taken the time to objectively consider all of the evidence here. Instead, they opt for arguing that because clinicians do not screen with these new assets (yet), such screening should not be undertaken by insurers. This, of course, flies directly in the face of the fact that clinical medicine does not screen with other mainstays of insurance screening – for example, cotinine – and furthermore that we do not have to justify to anyone outside our industry any well-reasoned decision to use any (at least, non-genetic material based) test!

What needs to be done?

Eliminate treadmill stress test screening in life insurance underwriting.

Replace whatever any genuine protective value we get from TSTs with that conferred by one or more above-mentioned blood test options.

Retain the use of *elective* TSTs only in circumstances, on jumbo cases, where no other viable option exists and at no time beyond a *prudent* maximum applicant age.

By making these overdue changes, we will take an important step toward bringing 21st century underwriting screening practices in line with key business priorities of direct-writing life insurers.

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About the Author



Hank George, FALU, CLU, FLMI, is CEO of Hank George, Inc, a firm devoted to providing high quality underwriting education and productivity resources for life and health insurers worldwide.

Hank is an honors graduate of the University of Wisconsin-Milwaukee. He began his insurance career in 1970 and his underwriting career in 1973 with Northwestern Mutual, attaining the officer position of Director of Medical Underwriting in 1975 and thereafter functioning as a member of the company's medical staff. After working with Manufacturers Life in Toronto and Lincoln National Re in Indiana, Hank joined *then*-Home Office Reference Laboratory (HORL) in 1987 and attained the position of Senior Vice President. Hank left ExamOne (the successor to HORL) in 2003 to launch his current business.

Hank was founder and first editor (1985-2003) of *On The Risk*, an underwriting professional magazine. He is the founder what is now the LOMA International Underwriting Congress and served as chair of the first four congresses. Hank founded and chairs the LOMA Health Underwriting Study Groups and also founded and manages, for the benefit of the industry, four life underwriting study groups comprising over 70 companies.

Hank is an essayist in *Best's Review* and *The National Underwriter*. He publishes a subscription-based bimonthly newsletter, *JournalScan*, and a free monthly e-newsletter known as *Hot Notes*, for the benefit of underwriters and other insurance professionals worldwide. Total circulation of these newsletters is in excess of 1,700.

Hank is coauthor of *Getting It Issued*, the only book ever written for insurance agents and brokers about underwriting. Now in its second edition, it has sold over 27,000 copies. Hank is also co-author of the only book ever written on teleunderwriting. In addition, he has published over 250 articles and papers in the worldwide insurance literature. Hank is presently writing a new book for producers (agents, brokers, intermediaries) about underwriting. It will be available in early 2009.

Hank has addressed nearly all major underwriting associations in the world. In addition, he has been a 2-time main platform speaker at both the Million Dollar Round Table and the Top of the Table. He is a 3-time main platform speaker at the World Critical Illness Conference and has addressed over 200 other organizations worldwide. Hank is a frequent speaker at agent/broker conferences hosted by insurers.

Hank has organized over 40 seminars for the Society of Actuaries. He created the Academy of Life Underwriting seminar program. Hank served as President of the Home Office Life Underwriters Association and was a member of the Executive Committee of the Institute of Home Office Underwriters. He was instrumental in founding underwriting associations in Toronto, Tampa, Boston and Hartford/Springfield.

Hank resides in his hometown of Milwaukee, Wisconsin. His hobbies include reading, seeing films, and political blogging. Hank is what is known as a "cheesehead" (rabid fan of the Green Bay Packers football team), as well as a devout fan of the UWM Panthers, Wisconsin Badgers, Marquette Golden Eagles, Milwaukee Bucks, Milwaukee Brewers and Toronto Maple Leafs. He may be reached at hankgeorge@aol.com.