of our index cases over time (particularly the two individuals described in our report who were instrumental in our recognition of the local cluster and whose lives were devastated and shortened by this occupational lung disease) and our efforts to collate and interpret the available longitudinal surveillance data on workers have contributed more than a little to our understanding of FWL, as well as the importance of scholarship, communication, collaboration, and patient advocacy.

M. Diane Lougheed, MD
Scott E. Turcotte, MSc
Kingston, ON, Canada
Alex Chee, MD, FCCP
Calgary, AB, Canada
Ronald Walsh, MD
Belleville, ON, Canada
Gary M. Liss, MD
Toronto, ON, Canada
Alexander H. Boag, MD
Lutz Forkert, MD
Kingston, ON, Canada

Affiliations: From Queen’s University (Drs Lougheed, Chee, Grant, Boag, and Forkert and Mr Turcotte); Kingston General Hospital (Drs Lougheed, Chee, and Forkert and Mr Turcotte); Walsh & Associates Occupational Health Services, Ltd (Dr Walsh); Gage Occupational and Environmental Health Unit (Dr Liss), Dalla Lana School of Public Health, University of Toronto; and the University of Calgary (Dr Chee).

Financial/nonfinancial disclosures: The authors have reported to CHEST the following conflicts of interest: Dr Lougheed’s research has been funded by Queen’s University (William M. Spear Endowment/Start Memorial Fund), the Government of Ontario (Asthma Plan of Action), AllerGen Network for Centres of Excellence; the Ontario Lung Association/Ontario Thoracic Society; Canadian Institutes of Health Research, and the Canadian Cystic Fibrosis Foundation. Pharmaxis Ltd has provided dry powder mannitol (Aridol) for research funded by Queen’s University and the University of Calgary (Dr Chee).

SAMeTT_{R2} Does Not Predict Time in Therapeutic Range of the International Normalized Ratio in Patients Attending a High-Quality Anticoagulation Clinic

To the Editor:

We read with great interest the recent article in CHEST (November 2013) by Apostolakis et al., who presented the SAMeTT_{R2} (sex female, age < 60 y, medical history [more than 2 comorbidities], treatment [interacting drugs, eg, amiodarone for rhythm control], tobacco use [doubled], race [doubled]) score

Figure 1. A, Average TTR of international normalized ratio (lines represent 1 SD) as a function of SAMeTT_{R2} score (solid line, ≥ 2 [n = 77]; dashed line, 0-1 [n = 105]). B, Various patient characteristics. S indicates sex (solid line, female [n = 54], dashed line, male [n = 129]). A indicates age (solid line, < 60 years [n = 23]; dashed line, > 60 years [n = 159]). Me indicates having the following comorbidities: hypertension, diabetes, myocardial infarction, peripheral artery disease, congestive heart failure, previous stroke, pulmonary disease, or hepatic or renal disease (solid line, ≥ 2 [n = 92]; dashed line, ≤ 1 [n = 90]). T indicates amiodarone (solid line, use [n = 37]; dashed line, nonuse [n = 153]). T2 indicates smoking status (solid line, current smoker [n = 41]; dashed line, non-smoker [n = 141]). Alcohol indicates weekly alcohol consumption (solid line, > 75th percentile [n = 46]; dashed line, < 75th percentile [n = 136]). Stress indicates the perceived stress score (solid line, > 75th percentile [n = 35]; dashed line, < 75th percentile [n = 144]). *Statistically significant difference between groups. The horizontal line represents average TTR in the entire cohort (76%). SAMeTT_{R2} = sex female, age < 60 y, medical history (more than 2 comorbidities), treatment (interacting drugs, eg, amiodarone for rhythm control), tobacco use (doubled), race (doubled); TTR = time in therapeutic range.

REFERENCES


as a tool to predict poor international normalized ratio (INR) control in patients with atrial fibrillation treated with vitamin K antagonists (VKAs). The study used a large population from another study of rhythm management (AFFIRM [Atrial Fibrillation Follow-up Investigation of Rhythm Management]) and an external validation cohort, and the authors concluded that the easily applicable SAMeTT\textsuperscript{2} R\textsuperscript{2} score can aid decision-making regarding VKA or alternative anticoagulant treatment. The cohorts they used received medicore VKA treatment with a mean time in therapeutic range (TTR) of about 65%.

From our recent study, we determined whether the SAMeTT\textsuperscript{2} R\textsuperscript{2} score can predict INR control in a high-quality setting.\textsuperscript{2,3} We applied the SAMeTT\textsuperscript{2} R\textsuperscript{2} score to patients with atrial fibrillation (n = 182) in whom the average TTR was 76% in 1 year of follow-up according to a baseline interview covering behavioral, clinical, and sociodemographic variables. The average age was 70.2 years, and 54 patients were women. The population only included whites, resulting in a maximal SAMeTT\textsuperscript{2} R\textsuperscript{2} score of 6 points. A total of 77 patients had a SAMeTT\textsuperscript{2} R\textsuperscript{2} score of $\geq$ 2. The TTRs of these patients were the same as those with a SAMeTT\textsuperscript{2} R\textsuperscript{2} score of 0 to 1 (76%) (Fig 1A). A linear regression model of the variables included in the SAMeTT\textsuperscript{2} R\textsuperscript{2} score had a very low prediction of TTR (Table 1) in our study population, with only young age and amiodarone use reaching statistical significance. By including these and two other variables (alcohol consumption and perceived stress) shown to be related to TTR,\textsuperscript{4} the adjusted $R^2$ value could be more than doubled. Only amiodarone users had significantly reduced TTR when using dichotomized variables (Fig 1B).

We fully agree with Apostolakis et al\textsuperscript{1} that the services of the clinic providing anticoagulant treatment are strongly related to TTR.\textsuperscript{4} The optimal, evidence-based treatment often is provided by specialized anticoagulation clinics.\textsuperscript{5} Here, we show that in such a high-quality setting, the SAMeTT\textsuperscript{2} R\textsuperscript{2} score was not predictive of TTR. The results from our work are limited by a small cohort from a single Danish center, and future multicenter studies of high-quality anticoagulation clinics are needed to identify better patient-related predictors of poor INR control. The SAMeTT\textsuperscript{2} R\textsuperscript{2} can be considered a first step and may be modified or expanded with additional variables, such as alcohol consumption or perceived stress, to become a universal tool for allocating patients to the proper anticoagulation treatment.

## Table 1—Linear Regression Models With TTR of INR as Dependent Variable

<table>
<thead>
<tr>
<th>Model</th>
<th>Adjusted $R^2$, %</th>
<th>Variable</th>
<th>Standardized Coefficient</th>
<th>$P$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: based on SAMeTT\textsuperscript{2} R\textsuperscript{2}</td>
<td>4</td>
<td>Female sex</td>
<td>0.079</td>
<td>.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Age (continuous)</td>
<td>0.18</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two or more comorbidities</td>
<td>−0.049</td>
<td>.51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment (amiodarone)</td>
<td>−0.16</td>
<td>.035</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment (β-blocker)</td>
<td>−0.021</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current smoker</td>
<td>−0.005</td>
<td>.95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Age (continuous)</td>
<td>0.18</td>
<td>.012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alcohol (continuous)</td>
<td>−0.16</td>
<td>0.301</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amiodarone</td>
<td>−0.18</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived stress (continuous)</td>
<td>−0.19</td>
<td>.010</td>
</tr>
</tbody>
</table>

Model 1 is based on the variables identified in Apostolakis et al\textsuperscript{1} whereas model 2 is based on the strongest predicting variables from our single-center Danish study.\textsuperscript{2,3} INR = international normalized ratio; SAMeTT\textsuperscript{2} R\textsuperscript{2} = sex female, age < 60 y, medical history (more than 2 comorbidities), treatment (interacting drugs, eg, amiodarone for rhythm control), tobacco use (doubled), race (doubled); TTR = time in therapeutic range.

## References


## Response

To the Editor:

The letter by Dr Skov and colleagues is a small external validation of the SAMeTT\textsuperscript{2} R\textsuperscript{2} (sex female, age < 60 y, medical history [more than 2 comorbidities], treatment [interacting drugs, 

---

Jane Skov, PhD  
Else-Marie Bladbjerg, PhD  
Mustafa Vakur Bor, MD, PhD  
Jørgen Gram, MD, Dr Med Sci  
Esbjerg, Denmark