pand from 6.4% of patients receiving IMV in 2001 to 13.8% in 2011 at an annual growth rate of 11.4% per year (Figure). By 2020, we estimate that there will be 671,986 (SD, 19,922) hospitalizations of patients 65 years or older requiring IMV, of which 19.0% will have a diagnosis of dementia.

Discussion | The use of IMV by populations 65 years or older is expected to double between 2001 and 2020, and growth in hospitalizations for patients receiving IMV with an ICD-9-CM diagnosis of dementia is outpacing, by a factor of 4, those for patients receiving IMV without this diagnosis. These projected IMV numbers are consistent with published data.5,6

The use of ICD-9-CM codes to identify patients with dementia may be limited by poor sensitivity and lack of information about disease severity. Although better recognition of dementia among hospital providers may have contributed to some of the increase that we observed, the results of this study still have important implications for critical care resource planning. Given projected demand for IMV in the next 10 years, physicians and hospital administrators, already working in a strained system, face a potential crisis unless the critical care system is expanded or changes are made to temper current trends.

Efforts should therefore be made to promote earlier discussions about goals of care in elderly patients with end-stage terminal illnesses. This is most important for the subpopulations of patients (eg, frail elders older than 85 years, patients with end-stage dementia) who are least likely to benefit from IMV and at highest risk for worsening cognitive impairment and death.

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Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Pekow.

Obtained funding: Lagu.

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Study supervision: Lagu, Pekow.

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Left Anterior Fascicular Block and the Risk of Cardiovascular Outcomes

Left anterior fascicular block (LAFB) is considered a failure or delay of conduction in the left anterior fascicle.1 Despite the fact that little is known about the long-term prognosis associated with LAFB, it has generally been thought of as a benign electrocardiographic (ECG) finding.2 This view was recently challenged in an article by Mandyam et al,3 which reported an association between LAFB and an increased risk of atrial fibrillation (AF), heart failure (HF), and all-cause and cardiovascular death in individuals free of overt cardiovascular disease. However, the findings by Mandyam et al were limited by the fact that only 39 individuals with LAFB were eligible for inclusion. Using a large contemporary primary care population, we aimed to validate the findings of Mandyam et al by replicating their analyses in our population.

Methods | The study population consisted of all patients who underwent ECG recording at the Copenhagen General Practitioners’ Laboratory at the request of their general practitioners from 2001 to 2011.4 All ECGs were recorded and analyzed digitally. We defined LAFB as a QRS axis between −45° and −90° and QRS duration of less than 120 milliseconds in the absence of ventricular hypertrophy, inferior myocardial infarction, and ventricular preexcitation on the baseline ECG in accordance with the definition established by Mandyam et al.5 Data on drug use, comorbidity, and outcomes were collected from administrative Danish registries.6 We excluded individuals younger than 25 years and individuals with a history of AF, hypertension, myocardial infarction, valvular heart disease, congeni-
Table 1. Baseline Characteristics of the Study Populationa

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Patients</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without LAFB (n = 223 971)</td>
<td>With LAFB (n = 3572)</td>
<td></td>
</tr>
<tr>
<td>Age, median (IQR), y</td>
<td>51 (41-63)</td>
<td>65 (55-76)</td>
<td></td>
</tr>
<tr>
<td>Female sex</td>
<td>121 078 (54)</td>
<td>1534 (43)</td>
<td></td>
</tr>
<tr>
<td>Charlson comorbidity index scoreb</td>
<td>0</td>
<td>194 357 (87)</td>
<td>2808 (79)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>18 058 (8)</td>
<td>430 (12)</td>
</tr>
<tr>
<td></td>
<td>≥2</td>
<td>11 556 (5)</td>
<td>334 (9)</td>
</tr>
</tbody>
</table>

Selected Charlson comorbidity index variables

- Liver disease
  - Mild: 1702 (0.8) 31 (0.9)
  - Severe: 90 (0.0) 3 (0.1)
- Renal disease: 323 (0.1) 8 (0.2)
- Rheumatic disease: 1261 (0.6) 65 (1.8)
- Dementia: 2452 (1.1) 64 (1.8)
- ECG variables, mean (IQR)
  - PR interval, ms: 154 (142-170) 162 (148-178)
  - QRS duration, ms: 92 (86-100) 100 (92-106)c
  - Heart rate, /min: 69 (64-81) 72 (64-81)

Table 2. Association Between LAFB and the Risk of Atrial Fibrillation, Heart Failure, and All-Cause and Cardiovascular Death

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hazard Ratio (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial fibrillation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>1.90 (1.64-2.20)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Adjusted for age and sex</td>
<td>0.93 (0.80-1.07)</td>
<td>.31</td>
</tr>
<tr>
<td>Multivariable adjusteda</td>
<td>0.89 (0.77-1.03)</td>
<td>.11</td>
</tr>
<tr>
<td>Heart failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>2.77 (2.37-3.24)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Adjusted for age and sex</td>
<td>1.16 (0.99-1.36)</td>
<td>.07</td>
</tr>
<tr>
<td>Multivariable adjusteda</td>
<td>0.95 (0.81-1.11)</td>
<td>.50</td>
</tr>
<tr>
<td>All-cause death</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>2.78 (2.58-3.00)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Adjusted for age and sex</td>
<td>1.14 (1.06-1.23)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Multivariable adjusteda</td>
<td>1.13 (1.05-1.22)</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>Cardiovascular death</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unadjusted</td>
<td>2.71 (2.29-3.19)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Adjusted for age and sex</td>
<td>0.98 (0.83-1.16)</td>
<td>.82</td>
</tr>
<tr>
<td>Multivariable adjusteda</td>
<td>0.93 (0.78-1.10)</td>
<td>.37</td>
</tr>
</tbody>
</table>

Abbreviations: ECG, electrocardiography; IQR, interquartile range; LAFB, left anterior fascicular block.

a Adjusted for age, sex, QRS duration, PR interval, heart rate, and Charlson comorbidity index score (see explanation in Table 1).

Discussion | In a large primary care population free of major cardiovascular disease, we found the association between LAFB and the risk of AF, HF, and cardiovascular death to be entirely confounded by age and sex. The association with all-cause mortality remained statistically significant, but the effect seems to be of only minor clinical relevance. Moreover, the fact that the point estimates of the hazard ratios for all-cause and cardiovascular death are similar indicates that LAFB is not a useful marker of future cardiovascular morbidity and mortality.

Our results are in contrast to the recent findings by Mandyam et al, indicating that LAFB is a clinically relevant marker of various cardiovascular outcomes. The conflicting results could be explained by the fact that our cohort represents an everyday clinical setting of primary care patients in whom an ECG would be considered and used as a clinical tool, whereas the cohort observed by Mandyam et al represents a more random sample of the general population.

Differences in population demographics could be another explanation for the conflicting results. In particular, the cohort observed by Mandyam et al was significantly older than ours. However, when restricting our analysis to elderly individuals (data not shown), we came to an identical conclusion, indicating that the current ECG definition of LAFB is not always a clinically important marker of cardiovascular morbidity and mortality beyond what can be explained by age and sex.

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Anders G. Holst, MD, PhD; for the Copenhagen ECG Study
In this case-series, we present our experience of daily intestinal lavage with polyethylene glycol (PEG) for prevention of HUS in an at-risk group of patients with EHEC.

**Methods** | Between May 13 and June 6, 2011, 33 patients with bloody diarrhea and proven EHEC O104:H4 infection diagnosed via stool cultures were considered to be at risk for HUS development and were subsequently admitted to the First Department of Medicine of the University Medical Center Hamburg-Eppendorf, Hamburg Germany. Institutional review board approval was obtained from the Ethics Committee of the Hamburg Chamber of Physicians, and we conducted a retrospective study.

The first 12 patients (control group [patient 1-12]) were treated symptomatically with intravenous fluids. Because of the positive response to treatment with PEG solution in patient 13, all 20 patients subsequently admitted (treatment group [patient 13-33]) received PEG solution for intestinal lavage daily during the hospital course in addition to symptomatic therapy. Hemolytic uremic syndrome was diagnosed in patients fulfilling all of the following criteria: platelet count lower than 100 × 10³/µL (to convert to ×10⁹/L, multiply by 1), evidence of hemolytic anemia with hemoglobin level lower than 13 g/dL (to convert to g/L, multiply by 10) for male patients or lower than 12 g/dL for female patients, and acute renal insufficiency, defined as a 1.5-fold increase of serum creatinine level within 48 hours. The t test was used to compare interval variables after ensuring that they met the assumptions of normality, and the Fisher exact test was used for comparing proportions.

**Results** | No significant difference was found between the control group and the treatment group regarding laboratory findings on admission (Table). Hemolytic uremic syndrome developed in 8 of 12 patients (66%) in the control group vs 4 of 21 patients (19%) in the treatment group (P = .01).

**Discussion** | The 2011 German O104:H4 outbreak was characterized by a high rate of patients developing HUS.³ To identify patients at risk of HUS development, we established risk criteria, reflecting the clinical symptoms and laboratory abnormalities of severe EHEC infection and indicating admission for further treatment. The admission procedure is shown in the Figure.

Treatment of EHEC-associated bloody diarrhea is usually symptomatic and consists of adequate volume substitution.⁴ Following admission, all 33 patients received standard therapy, consisting of 2 to 3 L of intravenous fluids (crystalloids [isotonic saline and Ringer solution]) daily. Because the use of antibiotics is associated with an increased risk of developing HUS,³ none of the 33 patients received antibiotic therapy.

Patient 13, who developed symptoms of a paralytic ileus with simultaneously increasing leukocyte and declining platelet counts, reflecting the progressed infection, successfully responded to repetitive intestinal lavage with PEG solution as an attempt to treat the ileus. Her clinical status improved gradually after the first lavage, and thrombocytes and leuko-

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**Prevention of Hemolytic Uremic Syndrome With Daily Bowel Lavage in Patients With Shiga Toxin-Producing Enterohemorrhagic Escherichia coli O104:H4 Infection**

Infection with Shiga toxin-producing enterohemorrhagic Escherichia coli (EHEC) can cause hemolytic colitis and hemolytic uremic syndrome (HUS).² An epidemic outbreak of EHEC O104:H4 started in May 2011 in northern Germany, affecting 3842 patients and causing 855 cases of HUS.² There is little evidence in the literature that HUS can be effectively prevented.