

OBSERVATIONS

**Quality of Diabetes Care in Italy: Information From a Large Population-Based Multiregional Observatory (ARNO Diabetes)**

**A** marked variability has been documented in the therapeutic approaches to diabetes by various countries, suggesting that the level of care currently delivered may not produce the expected health-related gains. We investigated quality of care indicators in a large, representative multiregional population-based cohort of people (the ARNO Observatory) living in four Italian regions (2 million inhabitants), assessing process indicators and hospital admissions as outcome indicators (1). Diabetic individuals were identified in 2010 through record linkage among prescriptions, hospital admissions, and local diabetes registries. The guidelines of the Italian scientific societies recommend that risk factors such as lipids and microalbuminuria should be tested at least once a year in all patients with type 2 diabetes, and HbA<sub>1c</sub> should be tested at least twice a year, even in people with stable glycemic control over time and more frequently in insulin-treated and -complicated people (2,3).

Of 126,163 diabetic individuals (prevalence of diabetes 5.8%, mean age 71 years), as many as 42% did not have their HbA<sub>1c</sub> measured for over a year. Even considering only insulin-treated people, this frequency remains disappointingly high (35%). The proportion of people having at least two annual tests for HbA<sub>1c</sub> was low (32.7%; 43.1% among insulin-treated patients). We can hypothesize that a subgroup of diabetic patients might rely on self-monitoring of blood glucose rather than on HbA<sub>1c</sub> measurement; however, its usefulness in noninsulin-treated diabetes is questionable and does not eliminate the need for measuring HbA<sub>1c</sub>. Another disappointing finding is the very low proportion of subjects in whom microalbuminuria was tested

(27%) in spite of its role as a strong predictor of cardiovascular diseases and dialysis. Annual testing for plasma total cholesterol (61.2%), creatinine (58.9%), eye examination (11.1%), electrocardiogram (25.1%), and arterial echo-Doppler (15.9%) were low. It is remarkable also that among diabetic individuals discharged for acute myocardial infarction (AMI), only 39% were treated with statins. Compared with nondiabetic individuals of similar age and sex, outcome indicators over the previous year showed increased odds ratios for amputations (12.28, 95% CI 8.39–18.27), laser photocoagulation (9.82, 8.16–11.84), hospital admissions for stroke (2.38, 2.26–2.50), acute heart failure (2.57, 2.44–2.70), and AMI (2.38, 2.26–2.50). These findings might be largely driven by inadequacy of care in the community in spite of universal coverage from the Italian National Health Service. Noteworthy, our data were recorded 2 years after the publication of the first edition of the Italian Standards of Care for Diabetes (2) and during the implementation of its second edition, which included a pocket version for general practitioners (GPs) (3).

The strength of this report is the population-based multiregional study design, which includes a great number of patients cared for by diabetes clinics and GPs. In this respect, we extend previous evidence limited to process indicators obtained in the setting of specialized clinics (4), pointing out widespread inadequacy of care provided by both diabetes clinics and GPs.

In conclusion, this population-based study shows that the implementation of diabetes care guidelines is far from being satisfactory in Italy, consistent with what has been observed in other Western countries. A greater adherence to guidelines by diabetes caregivers is needed to reduce the burden of diabetes complications.

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