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Letter to the Editor regarding the article 'Temporal trends in the accuracy of hospital diagnostic coding for identifying acute stroke: A population-based study' by Li L, Binney LE, Luengo-Fernandez R, Silver LW, Rothwell PM; on behalf of the Oxford Vascular Study. *European Stroke Journal* 2019 Oct 14. DOI: 10.1177/ 2396987319881017

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With great interest, we have read the important study published by colleagues from the Oxford Vascular Study in the *European Stroke Journal* about the accuracy of hospital diagnostic coding for identifying patients with acute stroke in Oxfordshire, UK.¹ The authors showed that hospital diagnostic coding has improved in recent years, but there has still been a low sensitivity of 77.3% to identify hospitalised stroke cases in 2014–2017. However, using more stroke-specific codes (ICD 10 codes I60–I61, I63–I64) including only cases of first admittance for stroke resulted in a positive predictive value of >90%. We fully agree with the authors that population-based studies have the highest sensitivity to correctly identify strokes of different origin, to discriminate between stroke and stroke mimics, and to best identify important confounders for outcome like stroke severity at admission, pre-morbid functional status and comorbidities.² However, country-wide surveys using high-quality administrative coding data are an adequate and accurate method to investigate temporal trends in acute stroke incidence, changing patterns in the availability of established acute stroke treatment such as recanalisation therapies and stroke unit treatment.^{3,4} In contrast to the UK, the far majority of patients with suspected acute stroke in Germany is admitted to hospitals and not to outpatient clinics. Treatment procedures like stroke unit treatment, intravenous thrombolysis or mechanical thrombectomy are completely captured in administrative coding data

and allow to assess for temporal, regional, age and gender differences with adequate statistical power by inclusion of more than 200,000 ischemic stroke patients in each year.^{4,5} Including patients with the ICD 10 code I64 ('stroke, not specified as haemorrhage or infarction') is not helpful in our opinion. Firstly, this unspecific code should be only rarely used. From 2013 to 2017, the number of patients coded with a main diagnosis I64 decreased from 6575 (2.6%) to 3167 (1.2%) in stroke patients hospitalised in Germany. Brain imaging in these patients was not obtained in at least 8% to 17.3% per year in this time period, while all patients with ICD 10 codes I60, I61, I63 and I64 received at least one brain imaging modality. We therefore excluded these patients from our recent analyses.^{4,5} Furthermore, Li et al. state that 'in many countries hospital diagnostic coding...is often done by non

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clinical clerical staff and largely depends on their interpreting medical notes and applying appropriate codes'.¹ An advantage (or disadvantage) of the German coding system is that it is based on mandatory regulations and closely supervised by independent medical doctors of the so-called medical service of the medical insurances due to reimbursement. As a consequence, coding in German stroke patients is most often done or controlled by experienced doctors. It is therefore important to compare administrative coding data with data from large-scaled stroke registries to assess for both coding accuracy and complete case ascertainment.

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