	Total	True	False	PPV (%)	NPV (%)	Error rate (%)	Sensitivity (%)	Specificity (%)
Secondary hospital								
Diagnostic codes <sup>a</sup> (≥ 2 hospital visit)	100	83	17	83.0 (74.2–89.7)				
Diagnostic codes <sup>b</sup> (≥ 3 hospital visit)	90	77	13	85.6 (76.6–92.1)	40.0 (12.2–73.8)	19.0 (11.8–28.1)	92.8 (84.9–97.3)	23.5 (6.8–49.9)
Tertiary hospital								
Diagnostic codes <sup>a</sup> (≥ 2 hospital visit)	100	71	29	71.0 (71.0–71.0)				
Diagnostic codes <sup>b</sup> (≥ 3 hospital visit)	93	68	25	73.1 (62.9–81.8)	57.1 (18.4–90.1)	28.0 (19.5–37.9)	95.8 (88.1–99.1)	13.8 (3.9–31.7)
Total								
Diagnostic codes <sup>a</sup> (≥ 2 hospital visit)	200	154	46	77.0 (77.0–77.0)				
Diagnostic codes <sup>b</sup> (≥ 3 hospital visit)	183	145	38	79.2 (72.6–84.9)	47.1 (23.0–72.2)	23.5 (17.8–30.0)	94.2 (89.2–97.3)	17.4 (7.8–31.4)

## Supplementary Table 3. Validation of diagnostic codes according to hospital visits for diabetic retinopathy

Values are presented as number (95% confidence interval).

PPV, positive predictive value; NPV, negative predictive value.

<sup>a</sup>Visited the hospital more than once with all diagnostic codes (hospital admission + outpatient clinic); <sup>b</sup>Visited the hospital more than twice with all diagnostic codes (hospital admission + outpatient clinic).