Corrigendum to

Use of direct oral anticoagulants in the first year after market entry of edoxaban: A Danish nationwide drug utilization study (Pharmacoepidemiology and Drug Safety, (2018), 27, 2, (174-181), 10.1002/pds.4350)

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ERRATUM:
Use of direct oral anticoagulants in the first year after market entry of edoxaban: A Danish nationwide drug utilization study

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Erratum

We have uncovered an unfortunate error in the analyses underlying the paper entitled Use of direct oral anticoagulants in the first year after market entry of edoxaban: A Danish nationwide drug utilization study" published in *Pharmacoepidemiology and Drug Safety*.[1] The issue pertains to the specification of the study population in the initial data retrieval from the registries and have led to some users of edoxaban not being identified and included in the study. The results for the other direct oral anticoagulants (DOAC), dabigatran, rivaroxaban, and apixaban, were not affected, except for a slight increase in the proportion with an atrial fibrillation diagnosis (≈2%; see the corrected Table 1), owing to the accrual of diagnosis data used for this classification.

The main changes to the results are as follows. In the corrected results, we identified 948 new edoxaban users (Table 2) compared to 609 users in the original report. Consequently, the corrected monthly rate of new use of edoxaban among all Danish adults now increases to 3.1 per 100 000 person months in June 2017 (Figure 1, left panel). Although the general characteristics of edoxaban users have not changed (Table 2), and they are thus still comparable to users of other DOACs, the proportion of anticoagulant-naïve edoxaban users have increased from 4.8% in the original report to 38.8% in the corrected results. This change relates directly to the underlying error in data specification, with almost all of the newly identified users being anticoagulant-naïve. While the proportion of anticoagulant-naïve edoxaban users is still markedly lower compared to users of the other DOACs (38.8% vs. 56.5-68.6%), this weakens one of the principle conclusions of our original report, i.e. that edoxaban users were almost always switched to edoxaban from other anticoagulant therapy. With this noticeable exception, remaining results and conclusions, including that of the abstract, final paragraph of the discussion and 'key points', remain unaltered by the correction.

Corrected figure and tables are provided below. The Supplementary Tables only concerned the other DOACs and are thus not provided.

Figure 1

The monthly rate of new adult users of edoxaban (per 100 000 person-months) and, for comparison, dabigatran, rivaroxaban, and apixaban from June 2016 to June 2017.

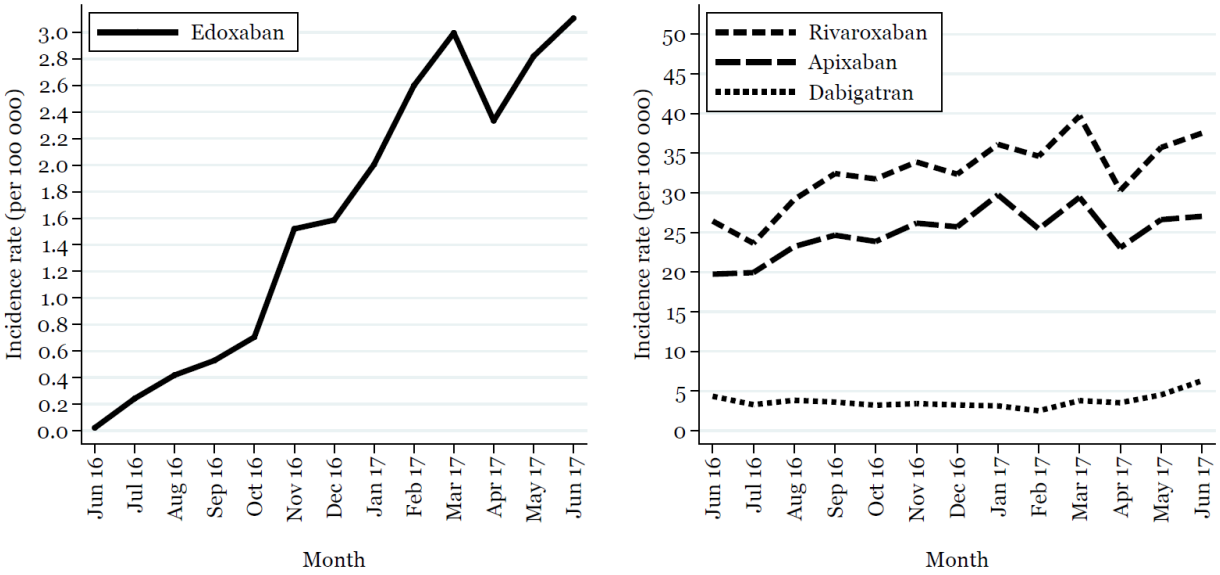

Table 1
Indication for use of direct oral antagonists initiated between June and December 2016, based on registry-based hospital discharge diagnoses.

	Edoxaban (n=948)	**Dabigatran** (n=2,211)	**Rivaroxaban** (n=19,226)	**Apixaban** (n=14,736)
Atrial fibrillation	591 (62.3%)	1,273 (57.6%)	8,141 (42.3%)	8,163 (55.4%)
Venous thromboembolism	29 (3.1%)	72 (3.3%)	3,851 (20.0%)	1,172 (8.0%)
Knee or hip surgery *	-	18 (0.8%)	552 (2.9%)	71 (0.5%)
Not classified	328 (34.6%)	848 (38.4%)	6,682 (34.8%)	5,330 (36.2%)

* Edoxaban is not approved for use in relation to knee and hip surgery in Europe.

Table 2

Baseline characteristics of direct oral antagonist (DOAC) users between June and December 2016

	Edoxaban (n=948)	**Dabigatran** (n=2,211)	**Rivaroxaban** (n=19,226)	**Apixaban** (n=14,736)
Age, median (IQR)	75 (69-82)	72 (64-79)	72 (63-80)	76 (69-84)
Male sex	538 (56.8%)	1,306 (59.1%)	10,606 (55.2%)	7,756 (52.6%)
Previous AC experience *				
Current	468 (49.4%)	704 (31.8%)	3,668 (19.1%)	3,704 (25.1%)
Switch from warfarin	272 (28.7%)	427 (19.3%)	2,874 (14.9%)	2,298 (15.6%)
Switch from dabigatran	73 (7.7%)	-	473 (2.5%)	614 (4.2%)
Switch from rivaroxaban	70 (7.4%)	158 (7.1%)	-	777 (5.3%)
Switch from apixaban	53 (5.6%)	114 (5.2%)	305 (1.6%)	-
Recent	79 (8.3%)	145 (6.6%)	834 (4.3%)	838 (5.7%)
Distant	33 (3.5%)	113 (5.1%)	1,541 (8.0%)	1,139 (7.7%)
Never-use	368 (38.8%)	1,249 (56.5%)	13,183 (68.6%)	9,055 (61.4%)
Dose **				
High	680 (71.7%)	1,298 (58.7%)	11,280 (58.7%)	9,445 (64.1%)
Low	267 (28.2%)	844 (38.2%)	6,278 (32.7%)	5,291 (35.9%)
Very low	(n<5)	69 (3.1%)	1,593 (8.3%)	-
Charlson comorbidity score				
Median (IQR)	1 (0-2)	1 (0-2)	1 (0-2)	1 (0-2)
0	372 (39.2%)	1,026 (46.4%)	8,551 (44.5%)	4,864 (33.0%)
1	232 (24.5%)	528 (23.9%)	4,611 (24.0%)	3,752 (25.5%)
2+	344 (36.3%)	657 (29.7%)	6,064 (31.5%)	6,120 (41.5%)
Co-morbidity				
Cancer	94 (9.9%)	249 (11.3%)	2,104 (10.9%)	1,672 (11.3%)
Chronic renal failure	50 (5.3%)	41 (1.9%)	575 (3.0%)	806 (5.5%)
Diabetes	97 (10.2%)	203 (9.2%)	1,902 (9.9%)	1,883 (12.8%)
Hypertension	700 (73.8%)	1,451 (65.6%)	12,044 (62.6%)	10,658 (72.3%)
Myocardial infarction	68 (7.2%)	174 (7.9%)	1,370 (7.1%)	1,256 (8.5%)
Peripheral arterial disease	24 (2.5%)	46 (2.1%)	444 (2.3%)	474 (3.2%)
Previous bleeding	123 (13.0%)	257 (11.6%)	1,961 (10.2%)	2,094 (14.2%)
Previous GI bleeding	38 (4.0%)	101 (4.6%)	734 (3.8%)	823 (5.6%)
Ischaemic stroke / TIA	99 (10.4%)	243 (11.0%)	1,724 (9.0%)	2,188 (14.8%)
Co-medication				
Proton pump inhibitors	239 (25.2%)	522 (23.6%)	4,879 (25.4%)	4,232 (28.7%)
Low-dose aspirin	183 (19.3%)	396 (17.9%)	3,541 (18.4%)	3,341 (22.7%)
P2Y12-antagonists	81 (8.5%)	161 (7.3%)	1,635 (8.5%)	1,691 (11.5%)
Non-aspirin NSAID	94 (9.9%)	279 (12.6%)	2,735 (14.2%)	1,427 (9.7%)

NOTES: AC = oral anticoagulant; IQR = interquartile range; GI = gastrointestinal; TIA = transient ischaemic attack; NSAID = non-steroidal anti-inflammatory drug; P2Y12-antagonists = clopidogrel, ticagrelor and prasugrel.

* Defined as the time from inclusion (index prescription) to the recent prescription for any oral anticoagulant (VKA or DOAC): current (<120 days), recent (120 days to 2 years), distant (>2 years) and never-use.

** Dose is based on the prescribed capsule- or tablet strength, classified as high (60mg edoxaban; 150mg dabigatran; 20mg rivaroxaban; 5mg apixaban), low (30mg edoxaban; 110mg dabigatran; 10-15mg rivaroxaban; 2.5mg apixaban) or very low (15mg edoxaban; 75mg dabigatran; 2.5mg rivaroxaban).

Table 3

Baseline characteristics of new users of edoxaban between June and December 2016, stratified by indication for use

	Overall (n=948)	**Atrial fibrillation** (n=591)	**Venous thromboembolism** (n=29)	**Not classified** (n=328)
Age, median (IQR)	75 (69-82)	75 (69-81)	72 (68-80)	75 (70-83)
Male sex	538 (56.8%)	332 (56.2%)	14 (48.3%)	192 (58.5%)
Previous AC experience *				
Current	468 (49.4%)	318 (53.8%)	16 (55.2%)	134 (40.9%)
Switch from warfarin	272 (28.7%)	182 (30.8%)	7 (24.1%)	83 (25.3%)
Switch from dabigatran	73 (7.7%)	51 (8.6%)	(n<5)	21 (6.4%)
Switch from rivaroxaban	70 (7.4%)	42 (7.1%)	8 (27.6%)	20 (6.1%)
Switch from apixaban	53 (5.6%)	43 (7.3%)	-	10 (3.0%)
Recent	79 (8.3%)	55 (9.3%)	-	24 (7.3%)
Distant	33 (3.5%)	24 (4.1%)	(n<5)	8 (2.4%)
Never-use	368 (38.8%)	194 (32.8%)	12 (41.4%)	162 (49.4%)
Dose **				
60 mg	680 (71.7%)	430 (72.8%)	21 (72.4%)	229 (69.8%)
30 mg	267 (28.2%)	161 (27.2%)	8 (27.6%)	98 (29.9%)
15 mg	(n<5)	-	-	(n<5)
Charlson comorbidity score				
Median (IQR)	1 (0-2)	1 (0-2)	1 (0-1)	1 (0-2)
0	372 (39.2%)	234 (39.6%)	14 (48.3%)	124 (37.8%)
1	232 (24.5%)	140 (23.7%)	8 (27.6%)	84 (25.6%)
2+	344 (36.3%)	217 (36.7%)	7 (24.1%)	120 (36.6%)
Co-morbidity				
Cancer	94 (9.9%)	56 (9.5%)	(n<5)	34 (10.4%)
Chronic renal failure	50 (5.3%)	32 (5.4%)	(n<5)	16 (4.9%)
Diabetes	97 (10.2%)	65 (11.0%)	-	32 (9.8%)
Hypertension	700 (73.8%)	437 (73.9%)	15 (51.7%)	248 (75.6%)
Myocardial infarction	68 (7.2%)	44 (7.4%)	-	24 (7.3%)
Peripheral arterial disease	24 (2.5%)	16 (2.7%)	-	8 (2.4%)
Previous bleeding	123 (13.0%)	79 (13.4%)	(n<5)	42 (12.8%)
Previous GI bleeding	38 (4.0%)	20 (3.4%)	-	18 (5.5%)
Ischaemic stroke / TIA	99 (10.4%)	59 (10.0%)	(n<5)	39 (11.9%)
Co-medication				
Proton pump inhibitors	239 (25.2%)	143 (24.2%)	8 (27.6%)	88 (26.8%)
Low-dose aspirin	183 (19.3%)	104 (17.6%)	5 (17.2%)	74 (22.6%)
P2Y12-antagonists	81 (8.5%)	50 (8.5%)	-	31 (9.5%)
Non-aspirin NSAID	94 (9.9%)	58 (9.8%)	(n<5)	32 (9.8%)

NOTES: AC = oral anticoagulant; IQR = interquartile range; GI = gastrointestinal; TIA = transient ischaemic attack; NSAID = non-steroidal anti-inflammatory drug; P2Y12-antagonists = clopidogrel, ticagrelor and prasugrel.

* Defined as the time from inclusion (index prescription) to the recent prescription for any oral anticoagulant (VKA or DOAC): current (<120 days), recent (120 days to 2 years), distant (>2 years) and never-use.

** Dose is based on the prescribed tablet strength.

Table 4

CHA_2DS_2-VASc and HAS-BLED scores among users of edoxaban, dabigatran, rivaroxaban, and apixaban, restricted to those with atrial fibrillation.

	Edoxaban (n=591)	**Dabigatran** (n=1,273)	**Rivaroxaban** (n=8,141)	**Apixaban** (n=8,163)
CHA_2DS_2-VASc				
Median (IQR)	3 (2-4)	3 (2-4)	3 (2-4)	3 (2-4)
0-1	54 (9.1%)	271 (21.3%)	1,218 (15.0%)	944 (11.6%)
2	131 (22.2%)	293 (23.0%)	1,690 (20.8%)	1,339 (16.4%)
3+	406 (68.7%)	709 (55.7%)	5,233 (64.3%)	5,880 (72.0%)
HAS-BLED				
Median (IQR)	3 (2-3)	2 (2-3)	3 (2-3)	3 (2-3)
0-1	63 (10.7%)	210 (16.5%)	1,148 (14.1%)	878 (10.8%)
2	178 (30.1%)	434 (34.1%)	2,513 (30.9%)	2,304 (28.2%)
3+	350 (59.2%)	629 (49.4%)	4,480 (55.0%)	4,981 (61.0%)