

Electronic supplementary material

ESM Table 1 Baseline characteristics of patients who received human insulin or glargine, categorised according to daily dose received

| Variable | Treatment | Dose (IU) | | | | | | |
|---|-----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | ≤10 | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 | >60 |
| No. of patients | G | 3,073 (12.9) | 7,762 (32.5) | 6,775 (28.4) | 3,019 (12.7) | 1,412 (5.9) | 668 (2.8) | 1,146 (4.8) |
| (% of total population) | HI | 10,592 (11.1) | 11,846 (12.4) | 14,590 (15.2) | 14,735 (15.4) | 14,664 (15.3) | 8,300 (8.7) | 21,077 (22.0) |
| Age [years], mean (SD) | G | 70.0 (13.0) | 70.7 (11.5) | 69.3 (11.3) | 68.3 (10.9) | 67.4 (11.2) | 67.4 (11.8) | 68.9 (11.6) |
| | HI | 68.2 (16.7) | 71.0 (14.2) | 71.7 (12.8) | 71.1 (12.1) | 69.9 (12.1) | 68.9 (11.8) | 67.1 (12.1) |
| Sex (male/female) | G | 42.8/57.2 | 42.8/57.2 | 44.5/55.5 | 45.7/54.3 | 45.3/54.7 | 49.6/50.4 | 46.9/53.1 |
| | HI | 34.8/65.2 | 38.7/61.3 | 39.2/60.8 | 40.8/59.2 | 42.1/57.9 | 42.9/57.1 | 46.1/53.9 |
| Hospital stays during the 3 years before baseline, 0/1-2/>2 | G | 42.8/37.4/19.8 | 47.8/35.2/17.0 | 49.1/36.0/14.9 | 53.1/33.0/13.9 | 51.2/34.4/14.4 | 47.5/35.5/17.0 | 44.0/38.3/17.7 |
| | HI | 39.1/37.9/23.0 | 34.6/39.9/25.5 | 33.2/41.2/25.6 | 33.2/43.1/23.7 | 35.0/42.5/22.5 | 36.4/41.7/21.9 | 36.5/41.6/21.9 |
| Duration of hospital stays during the 3 years before baseline [days], mean (SD) | G | 17.0 (28.8) | 13.9 (24.5) | 13.1 (25.1) | 12.5 (25.7) | 11.8 (22.7) | 14.2 (26.1) | 15.0 (25.3) |
| | HI | 22.0 (37.4) | 24.7 (37.5) | 24.8 (37.3) | 23.2 (34.4) | 21.7 (32.2) | 21.4 (33.6) | 21.0 (36.1) |
| Concomitant medication | | | | | | | | |
| Oral glucose-lowering agents | G | 80.0 | 92.8 | 94.5 | 95.0 | 95.0 | 97.0 | 92.1 |
| | HI | 42.0 | 71.4 | 78.6 | 81.8 | 83.9 | 85.8 | 86.0 |
| Biguanides (metformin) | G | 48.9 | 61.5 | 66.8 | 70.6 | 72.0 | 74.6 | 69.8 |
| | HI | 22.6 | 40.5 | 45.4 | 49.4 | 53.3 | 58.0 | 61.7 |
| Sulfonylureas | G | 67.5 | 80.1 | 82.6 | 83.4 | 82.2 | 83.4 | 80.1 |
| | HI | 33.3 | 59.5 | 66.9 | 71.4 | 73.5 | 76.0 | 75.7 |
| α-Glucosidase inhibitors | G | 14.5 | 17.1 | 19.2 | 18.5 | 16.8 | 19.9 | 13.3 |
| | HI | 5.8 | 10.7 | 12.9 | 14.2 | 14.7 | 15.8 | 15.1 |
| Glitazones | G | 6.2 | 7.2 | 9.1 | 10.5 | 11.0 | 13.3 | 9.2 |
| | HI | 1.6 | 3.4 | 4.0 | 4.7 | 5.3 | 6.1 | 7.1 |
| Others | G | 1.0 | 1.2 | 0.9 | 0.7 | 0.8 | 1.2 | 0.4 |
| | HI | 0.7 | 0.8 | 1.1 | 0.7 | 0.8 | 0.6 | 0.7 |

| Variable | Treatment | Dose (IU) | | | | | | |
|-----------------------|-----------|-----------|-------|-------|-------|-------|-------|------|
| | | ≤10 | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 | >60 |
| ACE inhibitors | G | 64.3 | 66.8 | 66.2 | 66.3 | 67.8 | 66.2 | 70.1 |
| | HI | 53.7 | 62.6 | 65.5 | 65.9 | 66.8 | 65.9 | 69.1 |
| Anaesthetics | G | 1.1 | 1.1 | 1.3 | 1.4 | 0.9 | 0.9 | 1.0 |
| | HI | 1.3 | 1.3 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 |
| Analgesics | G | 48.3 | 44.7 | 43.9 | 43.5 | 42.9 | 49.6 | 47.7 |
| | HI | 47.9 | 47.4 | 46.2 | 45.1 | 44.8 | 42.9 | 46.1 |
| Antiallergics | G | 9.2 | 8.0 | 7.4 | 7.3 | 8.1 | 10.0 | 8.4 |
| | HI | 9.9 | 8.9 | 8.1 | 7.6 | 7.7 | 7.7 | 8.0 |
| Antiarrhythmic agents | G | 1.6 | 1.9 | 1.8 | 1.5 | 1.5 | 1.2 | 1.9 |
| | HI | 1.8 | 2.1 | 2.0 | 2.1 | 2.0 | 1.9 | 2.3 |
| Antibiotics | G | 54.4 | 51.2 | 52.9 | 52.4 | 57.1 | 56.9 | 59.6 |
| | HI | 52.0 | 52.7 | 50.2 | 50.2 | 50.6 | 48.2 | 52.6 |
| Antidotes | G | 0.10 | 0.05 | 0.06 | 0.03 | 0.00 | 0.15 | 0.09 |
| | HI | 0.15 | 0.08 | 0.08 | 0.14 | 0.10 | 0.05 | 0.11 |
| Antiepileptics | G | 5.3 | 4.8 | 5.1 | 4.6 | 6.0 | 7.0 | 6.6 |
| | HI | 5.3 | 5.7 | 5.5 | 5.1 | 5.1 | 4.8 | 5.6 |
| Antihypertensives | G | 8.9 | 10.2 | 10.1 | 9.9 | 9.6 | 8.4 | 11.8 |
| | HI | 8.5 | 9.8 | 9.8 | 10.2 | 10.3 | 9.3 | 11.0 |
| Antirheumatic agents | G | 65.0 | 62.5 | 64.2 | 65.0 | 64.7 | 65.0 | 69.0 |
| | HI | 59.5 | 59.5 | 57.8 | 57.3 | 58.4 | 57.6 | 60.3 |
| Antitussives | G | 40.8 | 37.4 | 37.2 | 38.8 | 37.9 | 42.1 | 41.2 |
| | HI | 39.3 | 35.5 | 34.4 | 34.1 | 34.2 | 34.1 | 35.9 |
| Beta blockers | G | 43.2 | 43.3 | 45.0 | 45.7 | 46.0 | 44.8 | 47.1 |
| | HI | 36.2 | 41.6 | 42.3 | 43.6 | 46.4 | 45.1 | 49.7 |
| Bronchodilators | G | 18.1 | 15.5 | 16.7 | 17.7 | 19.6 | 19.6 | 20.2 |
| | HI | 18.3 | 18.2 | 17.2 | 17.6 | 18.0 | 17.3 | 19.2 |
| Calcium antagonists | G | 33.7 | 33.5 | 35.0 | 33.4 | 31.2 | 32.2 | 33.0 |
| | HI | 30.2 | 33.1 | 35.3 | 35.9 | 35.5 | 34.6 | 35.3 |

| Variable | Treatment | Dose (IU) | | | | | | |
|--|-----------|-----------|-------|-------|-------|-------|-------|------|
| | | ≤10 | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 | >60 |
| Corticosteroids | G | 14.4 | 11.8 | 10.5 | 11.5 | 13.4 | 14.1 | 15.9 |
| | HI | 16.2 | 15.2 | 13.9 | 13.9 | 13.4 | 13.1 | 14.0 |
| Dermatologicals | G | 48.7 | 46.1 | 44.9 | 44.1 | 46.3 | 47.2 | 47.0 |
| | HI | 47.3 | 46.8 | 45.0 | 42.7 | 43.4 | 42.0 | 44.7 |
| Diuretics | G | 47.0 | 46.1 | 45.1 | 45.8 | 45.5 | 45.7 | 47.9 |
| | HI | 45.0 | 51.4 | 52.5 | 51.8 | 52.0 | 50.8 | 52.7 |
| Antigout agents | G | 17.1 | 16.2 | 17.9 | 17.8 | 17.5 | 19.5 | 20.6 |
| | HI | 15.1 | 17.0 | 17.0 | 16.4 | 17.6 | 17.1 | 19.5 |
| Gynaecologicals | G | 5.9 | 5.5 | 5.3 | 5.5 | 6.1 | 7.2 | 5.8 |
| | HI | 10.2 | 6.5 | 5.6 | 5.5 | 6.2 | 6.0 | 6.6 |
| Haematologicals | G | 50.3 | 48.1 | 47.3 | 47.3 | 46.5 | 44.6 | 51.5 |
| | HI | 49.7 | 53.5 | 54.0 | 52.5 | 52.2 | 50.2 | 51.9 |
| Immune-modifying agents | G | 2.0 | 1.4 | 1.1 | 1.1 | 1.5 | 0.6 | 1.8 |
| | HI | 2.4 | 1.9 | 1.8 | 1.8 | 1.8 | 1.6 | 1.8 |
| Cardiac agents | G | 27.6 | 25.1 | 25.7 | 24.4 | 22.8 | 24.1 | 24.0 |
| | HI | 26.1 | 28.6 | 28.8 | 29.1 | 28.6 | 28.9 | 29.7 |
| Agents for coronary heart disease | G | 28.6 | 26.9 | 26.6 | 25.8 | 24.1 | 25.3 | 26.7 |
| | HI | 25.4 | 29.3 | 30.7 | 30.0 | 30.0 | 27.9 | 28.0 |
| Agents for liver disease | G | 2.2 | 2.1 | 2.3 | 2.4 | 2.6 | 3.4 | 2.5 |
| | HI | 2.5 | 2.4 | 2.3 | 2.6 | 2.4 | 2.3 | 2.6 |
| Lipid-lowering agents | G | 29.7 | 30.9 | 31.4 | 32.6 | 32.7 | 33.4 | 36.7 |
| | HI | 20.3 | 25.8 | 26.9 | 28.1 | 29.7 | 30.6 | 33.7 |
| Gastrointestinal agents | G | 51.9 | 47.5 | 47.5 | 45.3 | 49.2 | 50.2 | 51.1 |
| | HI | 54.1 | 52.6 | 51.7 | 49.6 | 50.3 | 47.8 | 51.1 |
| Agents for diseases of the parathyroid gland | G | 2.7 | 2.1 | 1.8 | 1.9 | 1.6 | 2.5 | 1.8 |
| | HI | 3.0 | 2.5 | 2.4 | 2.0 | 2.1 | 1.7 | 1.8 |
| Parasympathomimetics | G | 0.5 | 0.2 | 0.2 | 0.4 | 0.6 | 0.2 | 0.5 |
| | HI | 0.4 | 0.4 | 0.3 | 0.3 | 0.2 | 0.40 | 0.3 |

| Variable | Treatment | Dose (IU) | | | | | | |
|---|-----------|-----------|-------|-------|-------|-------|-------|------|
| | | ≤10 | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 | >60 |
| Anti-Parkinson agents | G | 4.7 | 3.5 | 3.6 | 3.9 | 4.1 | 4.2 | 6.0 |
| | HI | 5.4 | 4.9 | 4.9 | 4.5 | 4.0 | 3.5 | 3.8 |
| Psychopharmacologicals | G | 37.7 | 33.2 | 32.8 | 33.8 | 34.6 | 35.5 | 35.4 |
| | HI | 40.5 | 39.4 | 37.5 | 36.2 | 35.0 | 33.7 | 34.4 |
| Agents for diseases of the thyroid gland | G | 15.8 | 15.0 | 16.1 | 15.7 | 15.7 | 14.7 | 16.6 |
| | HI | 16.8 | 15.9 | 15.1 | 14.7 | 14.5 | 15.0 | 14.5 |
| Sex hormones | G | 10.5 | 10.1 | 10.4 | 10.0 | 9.6 | 9.6 | 8.8 |
| | HI | 12.8 | 9.9 | 9.1 | 8.6 | 9.2 | 9.3 | 9.8 |
| Urologicals | G | 15.9 | 14.3 | 14.5 | 13.9 | 14.3 | 14.2 | 15.0 |
| | HI | 13.3 | 13.5 | 13.6 | 13.6 | 14.0 | 12.8 | 13.3 |
| Vitamins | G | 13.3 | 12.9 | 12.5 | 12.2 | 13.2 | 11.2 | 9.8 |
| | HI | 11.7 | 12.8 | 12.8 | 13.1 | 12.1 | 12.3 | 12.4 |
| Cytostatic agents (prescribed for non-malignant diseases) | G | 1.6 | 1.4 | 1.7 | 1.4 | 1.5 | 1.8 | 1.6 |
| | HI | 1.6 | 1.6 | 1.6 | 1.7 | 1.4 | 1.8 | 1.8 |

Numbers are percentages (if not specified otherwise)

^a*F* test for continuous variables, χ^2 test for proportions

G, glargine; HI, human insulin