Supplementary Online Content

Vora P, Pietila A, Peltonen M, Brobert G, Salomaa V. Thirty-year incidence and mortality trends in upper and lower gastrointestinal bleeding in Finland. *JAMA Netw Open*. 2020;3(10):e2020172. doi:10.1001/jamanetworkopen.2020.20172

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This supplementary material has been provided by the authors to give readers additional information about their work.
**eTable 1. List of ICD 9 and ICD 10 Codes for Gastrointestinal Bleedings**

| ICD-10 Codes | Description | Type       |
|--------------|-------------|------------|
| I850         | Esophageal varices                           | UGIB       |
| K226         | Gastro-esophageal laceration syndrome (Mallory–Weiss syndrome) | UGIB       |
| K250         | Acute gastric ulcer with hemorrhage (peptic ulcer disease (pud), peptic ulcer or stomach ulcer) | UGIB       |
| K252         | Acute gastric ulcer with both hemorrhage and perforation (pud) | UGIB       |
| K254         | Chronic or unspecified gastric ulcer with hemorrhage (pud) | UGIB       |
| K256         | Chronic or unspecified gastric ulcer with both hemorrhage and perforation (pud) | UGIB       |
| K260         | Acute duodenal ulcer with hemorrhage (pud) | UGIB       |
| K262         | Acute duodenal ulcer with both hemorrhage and perforation (pud) | UGIB       |
| K264         | Chronic or unspecified duodenal ulcer with hemorrhage (pud) | UGIB       |
| K266         | Chronic or unspecified duodenal ulcer with both hemorrhage and perforation (pud) | UGIB       |
| K270         | Acute peptic ulcer, site unspecified, with hemorrhage (pud) | UGIB       |
| K272         | Acute peptic ulcer, site unspecified, with both hemorrhage and perforation (pud) | UGIB       |
| K274         | Chronic or unspecified peptic ulcer, site unspecified, with hemorrhage (pud) | UGIB       |
| K276         | Chronic or unspecified peptic ulcer, site unspecified, with both hemorrhage and perforation (pud) | UGIB       |
| K290         | Acute bleeding gastric ulcer                  | UGIB       |
| K661         | Hemoperitoneum                                | UGIB       |
| K920         | Hematemesis                                  | UGIB       |
| K22.8        | Other specified diseases of esophagus (Includes: Bleeding in the esophagus UNS), more precisely defined esophageal bleeding | UGIB       |
| K280         | Acute gastrojejunal ulcer with hemorrhage     | LGIB       |
| K282         | Acute gastrojejunal ulcer with both hemorrhage and perforation | LGIB       |
| K284         | Chronic or unspecified gastrojejunal ulcer with hemorrhage | LGIB       |
| K286         | Chronic or unspecified gastrojejunal ulcer with both hemorrhage and perforation | LGIB       |
| K5280 #      | Antibiotic-associated [hemorrhagic] colitis   | LGIB       |
| K625         | Hemorrhage of anus and rectum                | LGIB       |
| K921         | Melena                                       | LGIB       |
| K922         | Gastrointestinal hemorrhage, unspecified (Stomach bleeding UNS / Intestinal bleeding UNS) | Unspecified |

| ICD-9 Codes | Description | Type |
|-------------|-------------|------|
| 4560A       | Esophageal varices with bleeding             | UGIB |
| 5307A       | Mallory–Weiss syndrome                       | UGIB |
| 531*B       | Ulcer with bleeding                          | UGIB |
| 532*B       | Ulcer with bleeding                          | UGIB |
| 5780A       | Hematemesis                                  | UGIB |
| 5781A       | Melena                                       | LGIB |
| 5621C       | Diverticulitis coli with hemorrhage          | LGIB |
| 5781B       | Hemorrhage ex ano                            | Unspecified |

UGIB – Upper Gastrointestinal Bleeding; LGIB – Lower Gastrointestinal Bleeding; GIB - Gastrointestinal Bleeding; pud – Peptic Ulcer Disease

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**eTable 2.** Baseline Characteristics of the Study Participants by Type of Gastrointestinal Bleeding During Follow-up

| Characteristic                        | No GIB (n = 37 973) | GIB All (n = 1081) | Upper (n = 494) | Lower (n = 645) | Unspecified (n = 135) |
|---------------------------------------|----------------------|--------------------|-----------------|-----------------|-----------------------|
| **Age, y**                            |                      |                    |                 |                 |                       |
| Mean (SD)                             | 47.2 (13.2)          | 53.4 (11.9)        | 52.8 (12.1)     | 54.0 (11.7)     | 54.9 (11.0)           |
| Median (IQR)                          | 47.0 (21.9)          | 55.4 (16.2)        | 55.4 (16.8)     | 55.8 (15.7)     | 56.7 (14.4)           |
| **Men**                               |                      |                    |                 |                 |                       |
| Age, y                                |                      |                    |                 |                 |                       |
| Mean (SD)                             | 47.2 (13.2)          | 53.4 (11.9)        | 52.8 (12.1)     | 54.0 (11.7)     | 54.9 (11.0)           |
| Median (IQR)                          | 47.0 (21.9)          | 55.4 (16.2)        | 55.4 (16.8)     | 55.8 (15.7)     | 56.7 (14.4)           |
| **Enrollment in FINRISK survey**      |                      |                    |                 |                 |                       |
| Q1 1987                               | 5635 (14.8)          | 282 (26.1)         | 134 (27.1)      | 168 (26.0)      | 33 (24.4)             |
| Q1 1992                               | 5193 (13.7)          | 229 (21.2)         | 108 (21.9)      | 141 (21.9)      | 20 (14.8)             |
| Q1 1997                               | 7867 (20.2)          | 296 (27.4)         | 142 (28.7)      | 170 (26.4)      | 44 (32.6)             |
| Q1 2002                               | 8088 (21.3)          | 175 (16.2)         | 67 (13.6)       | 108 (16.7)      | 26 (19.3)             |
| Q1 2007                               | 5850 (15.4)          | 73 (6.8)           | 29 (5.9)        | 45 (7.0)        | 8 (5.9)               |
| Q1 2012                               | 5520 (14.5)          | 26 (2.4)           | 14 (2.8)        | 13 (2.0)        | 4 (3.0)               |
| **Marital status**                    |                      |                    |                 |                 |                       |
| Married, cohabiting, or registered    | 27 891 (73.4)        | 791 (73.2)         | 350 (70.9)      | 469 (72.7)      | 105 (77.8)            |
| partnership                           |                      |                    |                 |                 |                       |
| Single, divorced, or widowed          | 9987 (26.3)          | 284 (26.3)         | 141 (28.5)      | 172 (26.7)      | 29 (21.5)             |
| **Unknown**                           | 95 (0.3)             | 6 (0.6)            | 3 (0.6)         | 4 (0.6)         | 1 (0.7)               |
| **Educational tertiles**              |                      |                    |                 |                 |                       |
| Low (1)                               | 11 642 (30.7)        | 340 (31.5)         | 156 (31.6)      | 202 (31.3)      | 40 (29.6)             |
| Moderate (2)                          | 12 267 (32.3)        | 339 (31.4)         | 163 (33.0)      | 199 (30.9)      | 44 (32.6)             |
| High (3)                              | 13 274 (35.0)        | 363 (33.6)         | 158 (32.0)      | 221 (34.3)      | 47 (34.8)             |
| **Unknown**                           | 790 (2.1)            | 39 (3.6)           | 17 (3.4)        | 23 (3.6)        | 4 (3.0)               |
| **Current occupation**                |                      |                    |                 |                 |                       |
| Nonmanual (office/studying)           | 18 410 (48.5)        | 326 (30.2)         | 142 (28.7)      | 194 (30.1)      | 41 (30.4)             |
| Manual (factory/construction)         | 5203 (13.7)          | 154 (14.2)         | 76 (15.4)       | 87 (13.5)       | 15 (11.1)             |
| Farming/forestry                      | 2180 (5.7)           | 62 (5.7)           | 25 (5.1)        | 38 (5.9)        | 10 (7.4)              |
| Family/housewife                      | 1297 (3.4)           | 14 (1.3)           | 6 (1.2)         | 9 (1.4)         | 2 (1.5)               |
| Pensioner                             | 8138 (21.4)          | 418 (38.7)         | 191 (38.7)      | 259 (40.2)      | 54 (40.0)             |
| Unemployed                            | 2229 (5.9)           | 88 (8.1)           | 44 (8.9)        | 50 (7.8)        | 9 (6.7)               |
| **Unknown**                           | 516 (1.4)            | 19 (1.8)           | 10 (2.0)        | 8 (1.2)         | 4 (3.0)               |
| **Geographical area**                 |                      |                    |                 |                 |                       |
| West Finland                          | 14 496 (38.2)        | 432 (40.0)         | 194 (39.3)      | 254 (39.4)      | 61 (45.2)             |

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| East Finland | 23 477 (61.8) | 649 (60.0) | 300 (60.7) | 391 (60.6) | 74 (54.8) |

Abbreviations: GIB, gastrointestinal bleeding; IQR, interquartile range.

*a A participant can have more than 1 type of GIB.

b Educational tertiles were calculated according to years of education and were specific to the birth cohorts.

c West Finland includes Turku and Loimaa as well as Helsinki and Vantaa. East Finland includes North Karelia, North Savo, Oulu, and Lapland.
eFigure. Absolute Difference Between the Number of Upper and Lower Gastrointestinal Bleeding Events for Five-Year Period Each
### eTable 3. Mortality Rates and 28-Day Case-Fatality Due to Gastrointestinal Bleedings Between 1987 and 2016

| Cause-specific mortality rates per 1000 person-years | Upper Gastrointestinal Bleedings | Lower Gastrointestinal Bleedings | Unspecified Gastrointestinal Bleedings |
|-----------------------------------------------------|----------------------------------|----------------------------------|---------------------------------------|
|                                                     | Fatal UGIB | Person years | Mortality rate in UGIB (95% CI) | Fatal LGIB | Person years | Mortality rate in LGIB (95% CI) | Fatal uns. GIB | Person years | Mortality rate in unspecified GIB (95% CI) |
| **Men**                                            |           |              |                                 |           |              |                                   |               |              |                                             |
| Overall crude rate                                  | 30        | 292043.2     | 0.10 (0.07 – 0.15)              | 2         | 292043.2     | 0.007 (0.001–0.02)               | 15            | 292043.2     | 0.05 (0.03 – 0.08)                          |
| Age std. rate                                       | 0.11      | (0.07 – 0.16)|                                 | 0.006     | (0.001–0.02) |                                   | 0.06          | (0.03 – 0.11) |                                             |
| **Women**                                          |           |              |                                 |           |              |                                   |               |              |                                             |
| Overall crude rate                                  | 8         | 335472.6     | 0.02 (0.01 – 0.05)              | 2         | 335472.6     | 0.006 (0.001–0.02)               | 0             | 335472.6     | –                                             |
| Age std. rate                                       | 0.03      | (0.01 – 0.06)|                                 | 0.014     | (0.000–0.06) |                                   | –             | –           | –                                             |
| **Total - Crude rate**                              | 38        | 627515.8     | 0.06 (0.04 – 0.08)              | 4         | 627515.8     | 0.006 (0.002–0.02)               | 15            | 627515.8     | 0.024 (0.01 – 0.04)                         |
| Total – age std.                                    | 0.07      | (0.04 – 0.09)|                                 | 0.01      | (0.001–0.03) |                                   | 0.03          | (0.02 – 0.05) |                                             |

| Case Fatality within 28 Days                        | Upper Gastrointestinal Bleedings | Lower Gastrointestinal Bleedings | Unspecified Gastrointestinal Bleedings |
|-----------------------------------------------------|----------------------------------|----------------------------------|---------------------------------------|
|                                                     | Fatal UGIB | Total UGIB | Case-Fatality of UGIB (95% CI) | Fatal LGIBs | Total LGIB | Case-Fatality of LGIB (95% CI) | Fatal uns. GIB | Total uns. GIB | Case-Fatality of unspecified GIB (95% CI) |
| **Men**                                            |           |            |                                 |           |            |                                   |               |              |                                             |
| Overall crude rate                                  | 27        | 321        | 8.4% (5.8 – 11.9)               | 1         | 371        | 0.3% (0.05 – 1.5)                | 12            | 83           | 14.5 (8.5 – 23.6)                          |
| Age std. rate                                       | 8.8%      | (5.6 – 13.1)|                                 | 0.3%      | (0.004–1.6) |                                   |               |              | 16.2% (6.7 – 31.0)                         |
| **Women**                                          |           |            |                                 |           |            |                                   |               |              |                                             |
| Overall crude rate                                  | 7         | 173        | 4.0% (2.0 – 8.1)                | 2         | 274        | 0.7% (0.2 – 2.6)                 | 0             | 52           | –                                             |
| Age std. rate                                       | 3.5%      | (1.2 – 7.5) |                                 | 0.6%      | (0.05 – 2.1)|                                   | –             | –           | –                                             |
| **Total - Crude rate**                              | 34        | 494        | 6.9% (5.0 – 9.5)                | 3         | 645        | 0.5% (0.2 – 1.4)                 | 12            | 135          | 8.9% (5.6 – 14.9)                          |
| Total – age std.                                    | 7.0%      | (4.7 – 10.1)|                                 | 0.4%      | (0.1 – 1.3) |                                   |               |              | 8.8% (3.9 – 16.2)                          |

UGIB – Upper Gastrointestinal Bleedings; LGIB – Lower Gastrointestinal Bleedings; GIB – Gastrointestinal Bleedings; uns. – unspecified; Std. – Standardized

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