**Table 1: Patient characteristics, crude and adjusted odds-ratios for 90-day mortality**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** |  | **N** | **%** |  | **Crude OR 90-day mortality (95% CI)** | |  | **Adjusted OR 90-day mortality (95% CI)** | |
| **Audit year** | 2010-2011 | 17,411 | 27.9 |  | 1 |  |  | 1 |  |
| 2009-2010 | 17,192 | 27.6 |  | 1.12 | (1.02 to 1.23) |  | 1.07 | (0.97 to 1.18) |
| 2008-2009 | 14,620 | 23.5 |  | 1.21 | (1.10 to 1.33) |  | 1.21 | (1.09 to 1.34) |
| 2007-2008 | 13,091 | 21.0 |  | 1.27 | (1.16 to 1.41) |  | 1.29 | (1.17 to 1.44) |
| Missing (%) | 0 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Sex** | Male | 35,128 | 56.4 |  | 1 |  |  | 1 |  |
| Female | 27,180 | 43.6 |  | 0.91 | (0.85 to 0.97) |  | 0.77 | (0.71 to 0.83) |
| Missing (%) | 6 (0.0) |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  | **Mean** | **SD** |  | **Crude OR 90-day mortality (95% CI)** | |  | **Mutually adjusted OR 90-day mortality (95% CI)** | |
| **Age in years** |  | 70 | 11 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Patients without metastases: Age\*** | 50 |  |  |  | 0.27 | (0.22 to 0.33) |  | 0.36 | (0.30 to 0.44) |
| 60 |  |  |  | 0.49 | (0.45 to 0.52) |  | 0.57 | (0.53 to 0.62) |
| 70 |  |  |  | 1 |  |  | 1 |  |
| 80 |  |  |  | 2.38 | (2.27 to 2.49) |  | 1.92 | (1.82 to 2.01) |
| 90 |  |  |  | 6.53 | (5.80 to 7.36) |  | 4.04 | (3.54 to 4.60) |
|  |  |  |  |  |  |  |  |  |  |
| **Patients with metastases: Age\*** | 50 |  |  |  | 0.52 | (0.43 to 0.64) |  | 0.66 | (0.54 to 0.81) |
| 60 |  |  |  | 0.67 | (0.62 to 0.72) |  | 0.76 | (0.71 to 0.82) |
| 70 |  |  |  | 1 |  |  | 1 |  |
| 80 |  |  |  | 1.77 | (1.69 to 1.85) |  | 1.48 | (1.41 to 1.56) |
| 90 |  |  |  | 3.69 | (3.27 to 4.15) |  | 2.49 | (2.19 to 2.84) |
|  |  |  |  |  |  |  |  |  |  |
|  |  | **N** | **%** |  |  |  |  |  |  |
| **ASA grade** | 1 | 7,846 | 15.3 |  | 1 |  |  | 1 |  |
| 2 | 27,450 | 53.4 |  | 2.40 | (1.96 to 2.95) |  | 1.58 | (1.28 to 1.94) |
| 3 | 14,231 | 27.7 |  | 6.70 | (5.47 to 8.22) |  | 2.71 | (2.19 to 3.36) |
| 4 or 5 | 1,879 | 3.7 |  | 25.4 | (20.4 to 31.5) |  | 7.43 | (5.86 to 9.43) |
| Missing (%) | 10,908 (17.5) | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **TNM T stage** | T1: Confined to the submucosa | 3,323 | 6.0 |  | 1 |  |  | 1 |  |
| T2: Into the muscularis propria | 8,486 | 15.4 |  | 1.34 | (1.04 to 1.75) |  | 1.10 | (0.85 to 1.44) |
| T3: Beyond the muscularis propria | 29,315 | 53.2 |  | 2.23 | (1.77 to 2.81) |  | 1.37 | (1.08 to 1.73) |
| T4: The tumour has breached the peritoneal surface or invaded adjacent organs | 13,939 | 25.3 |  | 5.14 | (4.08 to 6.47) |  | 2.03 | (1.59 to 2.60) |
| Missing (%) | 7,251 (11.6) | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **TNM N stage** | N0: No nodes involved | 32,019 | 57.6 |  | 1 |  |  | 1 |  |
| N1: 1-3 nodes involved | 14,429 | 25.9 |  | 1.32 | (1.22 to 1.44) |  | 1.06 | (0.97 to 1.16) |
| N2: 4+ nodes involved | 9,188 | 16.5 |  | 1.98 | (1.82 to 2.16) |  | 1.34 | (1.21 to 1.49) |
| Missing (%) | 6,678 (10.7) | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **TNM M stage** | M0: No metastases | 50,424 | 87.4 |  | 1 |  |  | 1 |  |
| M1: Metastases | 7,276 | 12.6 |  | 3.11 | (2.79 to 3.48) |  | 1.92 | (1.69 to 2.17) |
| Missing (%) | 4,614 (7.4) | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Mode of admission** | Elective | 42,716 | 82.9 |  | 1 |  |  | 1 |  |
| Emergency | 8,833 | 17.1 |  | 4.03 | (3.75 to 4.33) |  | 2.20 | (2.02 to 2.39) |
| Missing (%) | 10,765 (17.3) | |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Cancer site** | Caecum/ascending colon | 16,896 | 27.1 |  | 1 |  |  | 1 |  |
| Hepatic flexure | 2,604 | 4.2 |  | 1.02 | (0.87 to 1.20) |  | 1.12 | (0.95 to 1.33) |
| Transverse colon | 3,762 | 6.0 |  | 1.37 | (1.21 to 1.55) |  | 1.34 | (1.17 to 1.54) |
| Splenic flexure/descending colon | 3,818 | 6.1 |  | 1.16 | (1.02 to 1.33) |  | 1.30 | (1.13 to 1.50) |
| Sigmoid colon | 14,549 | 23.3 |  | 0.70 | (0.64 to 0.77) |  | 0.94 | (0.85 to 1.04) |
| Rectosigmoid | 5,037 | 8.1 |  | 0.65 | (0.56 to 0.75) |  | 1.03 | (0.88 to 1.20) |
| Rectal | 15,648 | 25.1 |  | 0.57 | (0.51 to 0.62) |  | 1.34 | (1.20 to 1.50) |
| Missing (%) | 0 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| **Comorbidities** | 0 | 34,252 | 64.9 |  | 1 |  |  | 1 |  |
| 1 | 13,872 | 26.3 |  | 1.88 | (1.73 to 2.05) |  | 1.36 | (1.24 to 1.49) |
| 2+ | 4,672 | 8.8 |  | 3.18 | (2.87 to 3.52) |  | 1.72 | (1.53 to 1.92) |
|  | Missing (%) | 9,518 (15.3) | |  |  |  |  |  |  |

\*Estimated in a model including age, age^2, distant metastases, and the interaction of age and age^2 with distant metastases

**Model for 90-day mortality**

**Model for no metastases:** log(odds) = -4.898 + 0.0604\*(age-70) + 0.000470\*(age-70)^2 -0.262\*(female sex) + 0.456\*(ASA 2) + 0.998\*(ASA 3) + 2.006\*(ASA 4 or 5) +0.099\*(TNM T2) + 0.311\*(TNM T3) + 0.710\*(TNM T4) + 0.062\*(TNM N1) + 0.294\*(TNM N2) 0.789\*(emergency admission) + 0.117\*(hepatic flexure) + 0.294\*(transverse colon) + 0.265\*(splenic flexure/descending colon) -0.061\*(sigmoid colon) +0.026\*(rectosigmoid) + 0.294\*(rectal) + 0.304\*(1 comorbidity) + 0.541\*(2+ comorbidities)

**Model for metastses:** log(odds) = -4.898 + 0.652 + 0.0329\*(age-70) + 0.000620\*(age-70)^2 -0.262\*(female sex) + 0.456\*(ASA 2) + 0.998\*(ASA 3) + 2.006\*(ASA 4 or 5) +0.099\*(TNM T2) + 0.311\*(TNM T3) + 0.710\*(TNM T4) + 0.062\*(TNM N1) + 0.294\*(TNM N2) 0.789\*(emergency admission) + 0.117\*(hepatic flexure) + 0.294\*(transverse colon) + 0.265\*(splenic flexure/descending colon) -0.061\*(sigmoid colon) +0.026\*(rectosigmoid) + 0.294\*(rectal) + 0.304\*(1 comorbidity) + 0.541\*(2+ comorbidities)

**Model for 30-day mortality**

|  |
| --- |
| **Model for no metastases:** log(odds) = -5.641 + 0.0669\*(age-70) + 0.000220\*(age-70)^2 |
| -0.250\*(female sex) + 0.704\*(ASA 2) + 1.248\*(ASA 3) + 2.296\*(ASA 4 or 5) |
| +0.076\*(TNM T2) + 0.341\*(TNM T3) + 0.702\*(TNM T4) + 0.030\*(TNM N1) + 0.026\*(TNM N2) |
| 0.833\*(emergency admission) + 0.122\*(hepatic flexure) + 0.387\*(transverse colon) + 0.338\*(splenic flexure/descending colon) |
| + 0.059\*(sigmoid colon) +0.133\*(rectosigmoid) + 0.378\*(rectal) + 0.317\*(1 comorbidity) + 0.568\*(2+ comorbidities) |
| **Model for metastases:** log(odds) = -5.641 + 0.423 + 0.0452\*(age-70) + 0.000660\*(age-70)^2 |
| -0.250\*(female sex) + 0.704\*(ASA 2) + 1.248\*(ASA 3) + 2.296\*(ASA 4 or 5) |
| +0.076\*(TNM T2) + 0.341\*(TNM T3) + 0.702\*(TNM T4) + 0.030\*(TNM N1) + 0.026\*(TNM N2) |
| 0.833\*(emergency admission) + 0.122\*(hepatic flexure) + 0.387\*(transverse colon) + 0.338\*(splenic flexure/descending colon) |
| + 0.059\*(sigmoid colon) +0.133\*(rectosigmoid) + 0.378\*(rectal) + 0.317\*(1 comorbidity) + 0.568\*(2+ comorbidities) |