
**eTable.** Univariable and Multivariable Analysis for Risk Factors of Severe Morbidity (CCI Above Third Quartile)

**eFigure.** Allows Automatic Calculation of the E-PASS Scores and Predicted In-Hospital Mortality (Uploaded Separately)

This supplementary material has been provided by the authors to give readers additional information about their work.
## cTable. Univariable and Multivariable Analysis for Risk Factors of Severe Morbidity (CCI Above Third Quartile)

<table>
<thead>
<tr>
<th></th>
<th>Univariable Analysis</th>
<th>Multivariable Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>P Value</td>
</tr>
<tr>
<td>Male gender</td>
<td>1.46 (0.67-3.16)</td>
<td>.340</td>
</tr>
<tr>
<td>Preoperative biliary drainage</td>
<td>2.72 (0.59-12.47)</td>
<td>.198</td>
</tr>
<tr>
<td>Preoperative cholangitis</td>
<td>5.98 (2.71-13.20)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Preoperative bilirubin</td>
<td>1.01 (0.99-1.04)</td>
<td>.375</td>
</tr>
<tr>
<td>FLR volume (%)</td>
<td>7.41 (1.18-46.80)</td>
<td>.033</td>
</tr>
<tr>
<td>Vascular reconstruction</td>
<td>2.04 (0.91-4.58)</td>
<td>.083</td>
</tr>
<tr>
<td>CRS</td>
<td>11.00 (3.70-32.73)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

CCI, comprehensive complication index; OR, odds ratio; CI, confidence interval; FLR, future liver remnant; CRS, comprehensive risk score.
eFigure. Allows Automatic Calculation of the E-PASS Scores and Predicted In-Hospital Mortality

Supplemental file. Predicted mortality for PHC surgery according to E-PASS models

**STEP 1: Preoperative parameters**

Preoperative variables | Value
--- | ---
Age in years | 71
Severe heart disease* | 0
Severe pulmonary disease* | 0
Diabetes mellitus | 0
WHO performance score | 2
ASA classification | 2

**STEP 2a: Surgical parameters (if unknown, provide estimation or proceed to step 2b)**

Operative variables | Value
--- | ---
Blood loss in mL | 610
Patient weight in kg | 65
Operation time in hours | 8.0

**STEP 2b: Fixed surgical stress score (corresponding to resection type)**

Resection type | Value
--- | ---
bile duct resection only | 0.491
minor liver resection | 0.453
hemihepatectomy | 0.803
extended hemihepatectomy | 1.025

**STEP 3: Total E-PASS scores (when surgical parameters unknown, use mE-PASS score only)**

E-PASS model (CRS) | 0.690
mE-PASS model (CRSf) | 0.954

**STEP 4: Predicted mortality (%)**

E-PASS model | if $CRS < 0.159$, then risk = 0%
--- | ---
E-PASS model | if $CRS < 0.326$, then risk = 0%
mE-PASS model | if $CRSf < 0.326$, then risk = 0%
mE-PASS model | if $CRSf < 0.326$, then risk = 0%

*Severe heart disease: New York Heart Association class III-IV or severe arrhythmia requiring mechanical support
Severe pulmonary disease: vital capacity <60% and/or forced expiratory volume in 1 second <50%
**Extent of skin incision is fixed to 1 as all PHC patients undergo laparotomy (no thoracotomy or laparoscopic resection)

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