

## Appendix 1 Search strategies

### Appendix 1 Search strategies:

((Neoplasia OR Neoplasias OR Neoplasm OR Neoplasms OR Tumors OR Tumor OR Cancer OR Cancers OR Malignancy OR Malignancies) AND (Biliary Tract OR Biliary Tree OR Biliary System OR Bile Duct OR Bile Ducts)) OR (Bile Duct Neoplasms OR Bile Duct Neoplasm OR Bile Duct Cancer OR Bile Duct Cancers OR Biliary Tract Neoplasm OR Biliary Tract Neoplasm OR Biliary Tract Cancer OR Biliary Tract Cancers)) AND ((Prostheses and Implants) OR Prosthetic OR Implants OR Implant OR Prostheses OR Prosthesis OR Endoprosthesis OR Endoprostheses OR Stent OR Stents).

## Appendix 2 The quality of evidence was evaluated by GRADE criteria

| Certainty assessment                |              |               |              |             |                  |                               | Summary of findings   |                    |                          |                              |                                    |
|-------------------------------------|--------------|---------------|--------------|-------------|------------------|-------------------------------|-----------------------|--------------------|--------------------------|------------------------------|------------------------------------|
| Participants (studies)<br>Follow up | Risk of bias | Inconsistency | Indirectness | Imprecision | Publication bias | Overall certainty of evidence | Study event rates (%) |                    | Relative effect (95% CI) | Anticipated absolute effects |                                    |
|                                     |              |               |              |             |                  |                               | With Metal Stent      | With Plastic Stent |                          | Risk with Metal Stent        | Risk difference with Plastic Stent |

### COMPLICATIONS

|                  |                     |                      |             |             |      |                  |                   |                   |                                  |               |   |
|------------------|---------------------|----------------------|-------------|-------------|------|------------------|-------------------|-------------------|----------------------------------|---------------|---|
| 930<br>(10 RCTs) | very serious<br>a,b | serious <sup>c</sup> | not serious | not serious | none | ⊕○○○<br>VERY LOW | 65/432<br>(15.0%) | 65/498<br>(13.1%) | <b>RR 0.80</b><br>(0.58 to 1.10) | 150 per 1.000 | <b>30 fewer per 1.000</b><br>(from 63 fewer to 15 more) |
|------------------|---------------------|----------------------|-------------|-------------|------|------------------|-------------------|-------------------|----------------------------------|---------------|---|

### STENT DYSFUNCTION

|                   |                       |                      |             |             |      |                  |                    |                    |                                  |               |   |
|-------------------|-----------------------|----------------------|-------------|-------------|------|------------------|--------------------|--------------------|----------------------------------|---------------|---|
| 1007<br>(11 RCTs) | very serious<br>a,b,d | serious <sup>c</sup> | not serious | not serious | none | ⊕○○○<br>VERY LOW | 220/465<br>(47.3%) | 123/542<br>(22.7%) | <b>RR 0.50</b><br>(0.42 to 0.60) | 473 per 1.000 | <b>237 fewer per 1.000</b><br>(from 274 fewer to 189 fewer) |
|-------------------|-----------------------|----------------------|-------------|-------------|------|------------------|--------------------|--------------------|----------------------------------|---------------|---|

Certainty assessment

Summary of findings

**SURVIVAL**

|                 |                |                      |             |             |      |             |     |     |   |                         |   |
|-----------------|----------------|----------------------|-------------|-------------|------|-------------|-----|-----|---|-------------------------|---|
| 610<br>(6 RCTs) | serious<br>a,d | serious <sup>c</sup> | not serious | not serious | none | ⊕⊕○○<br>LOW | 272 | 338 | - | The mean SURVIVAL was 0 | MD 10.33<br><b>lower</b><br>(18.18<br>lower to<br>2.47 lower) |
|-----------------|----------------|----------------------|-------------|-------------|------|-------------|-----|-----|---|-------------------------|---|

**DRAINAGE SUCCESS**

|                 |              |             |             |             |      |                  |                    |                    |                                     |               |  |
|-----------------|--------------|-------------|-------------|-------------|------|------------------|--------------------|--------------------|-------------------------------------|---------------|--|
| 692<br>(8 RCTs) | serious<br>a | not serious | not serious | not serious | none | ⊕⊕⊕○<br>MODERATE | 288/313<br>(92.0%) | 346/379<br>(91.3%) | <b>RR 1.02</b><br>(0.98 to<br>1.07) | 920 per 1.000 | <b>18 more<br/>per 1.000</b><br>(from 18<br>fewer to 64<br>more) |
|-----------------|--------------|-------------|-------------|-------------|------|------------------|--------------------|--------------------|-------------------------------------|---------------|--|

**REINTERVENTIONS (DICHOTOMOUS VARIABLES)**

|                 |                      |                      |             |             |      |                     |                    |                   |                                  |               |   |
|-----------------|----------------------|----------------------|-------------|-------------|------|---------------------|--------------------|-------------------|----------------------------------|---------------|---|
| 443<br>(4 RCTs) | very<br>serious<br>a | serious <sup>c</sup> | not serious | not serious | none | ⊕○○○<br>VERY<br>LOW | 121/226<br>(53.5%) | 41/217<br>(18.9%) | <b>RR 0.36</b><br>(0.27 to 0.48) | 535 per 1.000 | <b>343 fewer<br/>per 1.000</b><br>(from 391<br>fewer to<br>278 fewer) |
|-----------------|----------------------|----------------------|-------------|-------------|------|---------------------|--------------------|-------------------|----------------------------------|---------------|---|

**REINTERVENTIONS (CONTINUOUS VARIABLES)**

| Certainty assessment |                     |             |             |             |      |             | Summary of findings |    |   |                                |   |
|----------------------|---------------------|-------------|-------------|-------------|------|-------------|---------------------|----|---|--------------------------------|---|
| 176<br>(3 RCTs)      | very serious<br>a,b | not serious | not serious | not serious | none | ⊕⊕○○<br>LOW | 88                  | 88 | - | The mean REINTERVENTIONS was 0 | MD <b>0.67 lower</b><br>(0.85 lower to 0.5 lower) |

#### TIME FOR STENT DISFUNCTION

|                 |                     |                           |             |             |      |                  |     |     |   |   |   |
|-----------------|---------------------|---------------------------|-------------|-------------|------|------------------|-----|-----|---|---|---|
| 710<br>(7 RCTs) | very serious<br>a,d | very serious <sup>e</sup> | not serious | not serious | none | ⊕○○○<br>VERY LOW | 323 | 387 | - | The mean TIME FOR STENT DISFUNCTION was 0 | MD <b>144.97 higher</b><br>(138.99 higher to 150.95 higher) |
|-----------------|---------------------|---------------------------|-------------|-------------|------|------------------|-----|-----|---|---|---|

<sup>a</sup> Inappropriate randomization; <sup>b</sup> Intention to treat analysis; <sup>c</sup> Heterogeneity > 50%; <sup>d</sup> Lost to follow up > 20%; <sup>e</sup> Heterogeneity > 75%.  
CI: Confidence interval; RR: Risk ratio; MD: Mean difference.

**Supplementary Table 1 Etiological profiles for the cause of biliary obstruction (not related)**

| Author            | Year of publication | N° of patients | Cholangiocarcinoma | Pancreatic tumor | Papillae tumor | Gallbladder cancer | Metastatic lymphnode | Other  |
|-------------------|---------------------|----------------|--------------------|------------------|----------------|--------------------|----------------------|--|
| Davis et al.      | 1992                | 105            | -                  | 43/50            | 6/6            | -                  | -                    | -  |
| Knyrim et al.     | 1993                | 62             | 1/1                | 21/22            | 2/1            | -                  | -                    | 7/7 lymphoma   |
| Prat et al.       | 1998                | 105            | 5/16               | 25/40            | 0/3            | -                  | 4/7                  | -  |
| Kaassis et al.    | 2003                | 118            | 10/8               | 45/43            | -              | -                  | 8/7                  | 1/1 neuroendocrine tumor   |
| Katsinelos et al. | 2006                | 47             | 4/4                | 12/13            | 2/3            | -                  | 5/4                  |  |
| Soderlund et al.  | 2006                | 100            | 5/4                | 40/38            | 1/1            | -                  | -                    | 2/5 metastatic disease and 0/1 neuroendocrine tumor              |
| Isayama et al.    | 2011                | 120            | -                  | 55/58            | -              | -                  | -                    | -  |
| Moses et al.      | 2013                | 85             | 0/2                | 29/29            | 1/3            | 1/1                | -                    | 4/3 metastatic disease, 1/3 ampullary tumor e 40/39 biliary duct |
| Schmidt et al.    | 2015                | 37             | -                  | 12/12            | 3/0            | -                  | -                    | 3/1 extra-hepatic, 9/8 metastatic disease and 0/3 other          |
| Walter et al.     | 2015                | 219            | -                  | 181              | -              | -                  | -                    | 38   |

|                      |      |     |     |       |   |   |   |                                       |
|----------------------|------|-----|-----|-------|---|---|---|---------------------------------------|
| <b>Walter et al.</b> | 2017 | 219 | -   | 83/32 | - | - | - | 17/8 other e 60/23 metastatic disease |
| <b>Bernon et al.</b> | 2018 | 40  | 3/2 | 18/17 | - | - | - | -                                     |