

Evidence report for total versus subtotal (supracervical) hysterectomy for benign gynecological conditions

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Scoping

Prepared by EBSCO Information Services

July 29, 2019

Prepared by EBSCO Health Innovations and EBM Development Department:

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Methods

Using an established, structured template that delineates key elements for scoping (i.e., the population, interventions, and key outcomes to consider), we collaboratively agreed with UKSH on the scope of the present evidence report. Scoping was completed on August 5, 2019.

Results – Criteria Selection

Population:

Inclusion criteria

Adult females planning to undergo hysterectomy due to benign conditions such as abnormal uterine bleeding determined to be benign in nature, uterine fibroids, endometriosis, or pelvic organ prolapse.

Exclusion criteria

Adult females with known or suspected malignant conditions.

Management Options:

Total hysterectomy

Complete removal of the uterus and cervix

Subtotal (supracervical; partial) hysterectomy

Removal of the uterus only (i.e., preservation of cervix)

Note: The main surgical technique used to complete the surgery (e.g., abdominal vs. laparoscopic surgery) will not be considered in this report. For purposes of reporting, all techniques of completing total or subtotal hysterectomy will be considered.

Outcomes:

FAQ 1: What does the treatment involve?

We will provide a description of the treatment or procedure, including the duration of the procedure and length of stay as applicable.

Descriptive responses are acceptable, and this does not involve systematic evidence searches, critical appraisal, or evidence synthesis.

FAQ 2: Will I have problems urinating?

The outcomes of interest are stress incontinence, urge incontinence, urinary urgency as a symptom, and incomplete bladder emptying.

We will obtain effect estimates from randomized, controlled trials or systematic reviews thereof. Estimates may be stratified by time since surgery.

FAQ 3: Will I have problems moving my bowels?

The outcomes of interest are fecal incontinence and constipation.

We will obtain effect estimates from randomized, controlled trials or systematic reviews thereof. Estimates may be stratified by time since surgery.

FAQ 4: Will it impact my sex life?

The outcomes of interest are sexual satisfaction and pain with sex (dyspareunia).

We will obtain effect estimates from randomized, controlled trials or systematic reviews thereof. Estimates may be stratified by time since surgery.

FAQ 5: Will I still have monthly bleeding?

The outcome of interest is cyclic/cyclical vaginal bleeding.

In the absence of sufficient data from randomized, controlled trials, we will consider data from cohort studies (ideally aggregated via systematic review). If observational data are also found to be lacking, we will provide descriptive responses that do not involve critical appraisal or evidence synthesis.

FAQ 6: Will the surgery impact my quality of life?

As seen in systematic reviews and meta-analyses of randomized trials,^{1,2} quality of life has been measured across different domains and different scales. Although most evidence suggests women experience an improvement in quality of life compared to their preoperative baseline,¹ the evidence also consistently shows no clear difference in quality of life for total vs. subtotal hysterectomy.^{1,2} Additionally, there is a high likelihood that an attempt to precisely quantify “quality of life” will result in heterogeneous results that have little qualitative meaning if combined across domains and conditions; therefore, we will describe quality of life results categorically via a descriptive summary limited to noting that most studies show an improvement from baseline with either treatment method, but there is no clear difference between treatment methods.

FAQ 7: What are the risks?

The outcomes of interest include urinary tract injury, pelvic organ prolapse, and wound infection. We will also report additional clinically relevant risks found during evidence review.

In the absence of sufficient data from randomized, controlled trials, we will consider data from cohort studies (ideally aggregated via systematic review). If observational data are also found to be lacking, we will provide descriptive responses that do not involve critical appraisal or evidence synthesis.

We will also include a statement noting that, because a subtotal hysterectomy leaves the cervix in place, there is a chance a woman receiving a subtotal hysterectomy may later develop cervical cancer, even though the surgery itself does not directly increase this risk.

FAQ 8: When will I recover?

The outcomes of interest include time to return to usual activities, including sex, work, and driving, as applicable.

Descriptive responses are acceptable, and this does not involve systematic evidence searches, critical appraisal, or evidence synthesis.

¹ Lethaby A, Mukhopadhyay A, Naik R. Total versus subtotal hysterectomy for benign gynaecological conditions. Cochrane Database Syst Rev. 2012 Apr 18;(4):CD004993. doi: 10.1002/14651858.CD004993.pub3.

² Aleixo GF, Fonseca MCM, Bortolini MAT, Brito LGO, Castro RA. Total Versus Subtotal Hysterectomy: Systematic Review and Meta-analysis of Intraoperative Outcomes and Postoperative Short-term Events. Clin Ther. 2019 Apr;41(4):768-789. doi: 10.1016/j.clinthera.2019.02.006. Epub 2019 Mar 23.

Evidence report for total versus subtotal (supracervical) hysterectomy for benign gynecological conditions

Evidence Synthesis

Prepared by EBSCO Information Services

August 8, 2019

Prepared by EBSCO Health Innovations and EBM Development Department:

Brian S. Alper, MD, MSPH, FAAFP, Vice President

Martin Mayer, DMSc, MS, PA-C, Clinical Evidence Synthesizer

Eric Manheimer, PhD, EBM Editor

Methods

Evidence synthesis process

Synthesis methods will be based on the most appropriate methods matching the available evidence. We will systematically consider synthesis methods with the following questions:

Is it useful and appropriate to present the synthesis of evidence results as a single result as the best representation of the body of evidence?

State “Yes” or “No”. Provide justification if “No”.

If “Yes”, leave the statement below that reads “If ‘Yes’, what method is the best approach?” and select the best method from those listed. Delete everything else. If another method not listed is deemed appropriate, provide justification.

If “No”, leave the statement below that reads “If ‘No’, what method is best to represent the evidence synthesis?” and select the best method from those listed. Delete everything else. If another method not listed is deemed appropriate, provide justification.

If “Yes”, what method is the best approach?

Pick one of the following and justify:

- (1) meta-analysis already done*
- (2) meta-analysis created from the evidence results*
- (3) median of sufficiently-valid results, stating cutoff for validity*
- (4) median of all results*

If “No”, what method is best to represent the evidence synthesis?

Pick one of the following and justify:

- (1) range of all results*
- (2) range of sufficiently valid results*
- (3) descriptive summary without quantitative representation (e.g., consistency in direction, but inconsistency in magnitude)*
- (4) statement of inconsistency too limiting for single synthesized conclusion*

Where evidence is very limited, or the FAQ is for descriptive summary, such that summary text was provided instead of Evidence Review Tables, the Descriptive Evidence Summary will be noted.

Results

FAQ 1: What does the treatment involve?

Total hysterectomy vs. subtotal hysterectomy

Pre-Synthesis Efforts: Not applicable

Descriptive Summary

A single descriptive summary is presented here, because other than the details regarding what is removed during the surgery, other details (like length of operation and duration of hospital stay) may not be importantly different between a subtotal and total hysterectomy.

When a woman has her uterus removed, she can either have a total hysterectomy (the uterus and cervix are removed) or a subtotal hysterectomy (the cervix is left in place). The cervix is the bottom part of the uterus. It connects the uterus to the vagina. It allows blood from the uterus to enter the vagina during menstruation, and it allows sperm to pass from the vagina to the uterus after intercourse. During childbirth, the cervix thins and the opening of the cervix widens to allow the baby to enter the vagina and be born. A partial hysterectomy is generally thought to cause less overall disruption of the normal tissue of the female reproductive system, but this does not necessarily mean it is the better option.

The surgery often lasts between 1 and 3 hours. Women may stay in the hospital for an average of 3 to 4 days (possibly as short as going home the same day of surgery or staying in the hospital as long as 6 days). The choice of having a total or subtotal hysterectomy may not have an important impact on the duration of the surgery or hospital stay.

The surgery itself can be carried out with an abdominal, vaginal, or laparoscopic approach, and in some cases the laparoscopic approach is robot-assisted. Although not all women can have the surgery laparoscopically, it is often the preferred approach due to it having smaller incisions and less disruption of the body's tissues. Laparoscopic surgery is usually done under general anesthesia. The vaginal approach uses an incision at the top of the vagina, and it can be done with general, local, or spinal anesthesia. Although not all women can have the surgery vaginally, it is often used in preference to an abdominal approach due to it being less invasive. The abdominal approach requires an incision on the lower abdomen. Abdominal hysterectomy is generally done with general anesthesia.

(ACOG 2018, Aleixo 2019A, Aleixo 2019B, Cleveland Clinic 2018, Healthwise 2018, Johns Hopkins nd, Lethaby 2012, Mayo Clinic 2019, NHS 2019, NIH 2018)

FAQ 2: Will I have problems urinating?

Total hysterectomy vs. subtotal hysterectomy

Pre-Synthesis Efforts:

Part 2 Search:

	Number of articles evaluated	Number of unique articles selected for evaluation
First-round (DynaMed Plus)	18	0
Second-round (Systematic review searches)	12	5 (Alexio 2019A, Alexio 2019B, Lethaby 2012, Longo 2019, Sloth 2017)
Third-round (Original study tracing)	Not applicable	
Fourth-round (Original article searches)	Not applicable	

Part 3 Critical Appraisal:

Certainty	Systematic reviews	Randomized trials	Other article types
High			
Moderate	Lethaby 2012*, Alexio 2019B		
Low	Lethaby 2012†		
Very low			
Unusable	Longo 2019‡		Sloth 2017§
Not applicable	Alexio 2019A¶		

* For outcomes stress urinary incontinence at ≤ 2 years, incomplete bladder emptying at ≤ 2 years, and urinary urgency at > 2 years

† For outcome urinary urgency at ≤ 2 years

‡ Systematic review without meta-analysis which was unusable for several reasons (as described in its Part 3 summary)

§ Evidence-based clinical practice guideline which included a Summary of findings table for the comparison of subtotal vs. total hysterectomy, which was reviewed and found to include no useful additional information on outcomes beyond what was included in our systematic review sources (as described in its Part 3 summary)

¶ Outcome not reported

Part 4 Results for FAQ2:**Subtotal hysterectomy vs. total hysterectomy on urinary-related outcomes after surgery (Lethaby 2012)**

Outcome and time point	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
stress urinary incontinence at $\leq$ 2 years	955 (5)	2.1% to 13.1%	2.1% to 9.8%	1.45 (95% CI 0.85 to 2.47)	Low (imprecision, inconsistency)
incomplete bladder emptying at $\leq$ 2 years	768 (4)	6.6% to 13.7%	1.6% to 20.7%	0.94 (95% CI 0.59 to 1.47)	Moderate (imprecision)
urinary urgency					
$\leq$ 2 years	254 (2)	8.2% to 12.7%	9.4% to 10.6%	1.05 (95% CI 0.47 to 2.37)	Low (imprecision, risk of bias [no trial had blinding])
> 2 years	174 (1)	63.6%	58.1%	1.26 (95% CI 0.68 to 2.32)	Moderate (imprecision)

Total hysterectomy vs. subtotal hysterectomy on urinary-related outcomes at > 5 years after surgery (Aleixo 2019B)

Urinary symptom	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Certainty
patient-reported urinary incontinence	384 (3)	20% to 57.9%	33.3% to 83.3%	83/194 (42.8%)	0.74 (95% CI 0.58 to 0.94)	Moderate (risk of bias)
stress incontinence	540 (4)	29.3% to 56.2%	22.2% to 61.9%	144/274 (52.6%)	0.84 (95% CI 0.71 to 0.99)	Moderate (imprecision)
urge incontinence	534 (4)	12.1% to 39.5%	14.3% to 40.7%	80/271 (29.5%)	1.01 (95% CI 0.78 to 1.30)	Moderate (imprecision)

incomplete bladder emptying	535 (4)	10% to 39.5%	4.1% to 31.0%	44/272 (16.2%)	1.21 (95% CI 0.76 to 1.95)	Moderate (imprecision)
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Aleixo 2019B noted patient-reported incontinence and stress incontinence favoring total hysterectomy over subtotal hysterectomy in the long-term ran counter to their initial hypothesis. They note this may be due to differences in how the procedures are performed (with suspension of the vaginal apex occurring in total hysterectomy but not in subtotal hysterectomy), and they further note one citation in the gynecologic literature that suspension of the cervical stump may diminish or eliminate the difference seen. However, some debate this suggestion, questioning whether the findings pertaining to urinary incontinence represent a “true difference [or] a matter of cultural, dietary or functional differences” (Aleixo 2019B).

Evidence Synthesis Process for FAQ2:

Is it useful and appropriate to present the synthesis of evidence results as a single result as the best representation of the body of evidence?

Time point and outcome	Useful to give single synthesis results?	Suggested best approach
≤ 2 years		
stress urinary incontinence	No. The point estimate of the comparative analysis favors total hysterectomy, but the confidence interval is compatible with no difference or worsening with total hysterectomy; the point estimates in the contributing studies also vary considerably.	Range of all results
incomplete bladder emptying	No. The point estimate of the comparative analysis suggests possibly little difference between the two treatment options, and the confidence interval is compatible with either treatment being better than the other; the point estimates in the contributing studies also vary considerably.	Range of all results
urinary urgency	No. The point estimate of the comparative analysis suggests possibly little difference between the two treatment options, and the confidence interval is compatible with either treatment being better than the other.	Range of all results
> 2 years		
urinary urgency	No. Although only one study contributes to the estimate for this outcome, the point estimate favors total hysterectomy, but the confidence interval is compatible with either no difference between treatments or worsening with total hysterectomy.	Because only a single trial contributes to this outcome, we calculated the univariate estimate from each arm, and we present the lower value from the lower bounds and the higher value from the upper bounds of the 95% confidence intervals as the range of sufficiently-valid results: subtotal hysterectomy was 63.6% (95% CI 53.2% to 72.9%), and total hysterectomy was 58.1% (95% CI, 47.6% to 68.0%), yielding a range from about 48% to 73%.
≥ 7 years*		
patient-reported urinary incontinence (as	No. The effect estimate and a portion of the confidence interval for the risk ratio favor total hysterectomy, but the upper bound of the	Pooled event rate estimate for subtotal hysterectomy group (42.8%)

<i>a solitary outcome)</i>	confidence interval for the risk ratio suggests substantially smaller absolute differences than would be obtained if the point estimate or the lower bound of the confidence interval of the risk ratio represented the “truth”. Simply reporting a single estimate for the total hysterectomy group would fail to capture this nuance.	Range of sufficiently-valid results (lower and upper bounds of 95% CI for calculated absolute risk) for total hysterectomy group (24.8% and 40.2%)
stress incontinence (<i>as a solitary outcome)</i>	No. The effect estimate favors total hysterectomy, but the confidence interval is compatible with important differences and absence of important differences.	Pooled event rate estimate for subtotal hysterectomy group (52.6%) Range of sufficiently-valid results (lower and upper bounds of 95% CI for calculated absolute risk) for total hysterectomy group (37.3% and 52.0%)
urge incontinence (<i>as a solitary outcome)</i>	No. The point estimate of the comparative analysis suggests no meaningful difference between the two treatment options, but the confidence interval is compatible with either treatment being better than the other; the point estimates in the contributing studies also vary considerably.	Range of all results
global synthesis of the above three outcomes (patient-reported incontinence, stress incontinence, and urge incontinence)	Patient-reported incontinence and stress incontinence seem to favor total hysterectomy over subtotal hysterectomy. Patient-reported incontinence is more global and stress incontinence is more specific (i.e., stress incontinence is a type of incontinence). As such, it would be internally inconsistent to report an absolute risk for patient-reported incontinence that is smaller than the risk for stress incontinence, and this pattern exists in these data. In other words, a type of incontinence (stress incontinence) cannot occur more often than incontinence in general (patient-reported incontinence). Given patient-reported incontinence is the incontinence outcome of greatest interest at 7 or more years, this argues strongly against quantifying the outcome of stress incontinence at 7 or more years to avoid presenting results that are internally inconsistent. Similarly, if we are not quantifying stress incontinence at 7 or more years, it would seem inconsistent to quantify urge incontinence. Furthermore, although the absolute risks for urge incontinence are overall lower than the absolute risks for patient-reported incontinence, we would not want anyone to see the absolute risks for urge incontinence and subtract those from the absolute risks reported for patient-reported incontinence in an attempt to estimate the risk for stress incontinence, as this cannot be assumed to be a valid approach. Given the above considerations, we have reported quantified results for patient-reported incontinence at 7 or more years (using the method described in the row for patient-reported incontinence), and we provide only qualitative results for stress and urge incontinence at 7 or more years.	

incomplete bladder emptying	No. The point estimate of the comparative analysis favors subtotal hysterectomy, but the confidence interval is compatible with no difference or worsening with subtotal hysterectomy; the point estimates in the contributing studies also vary considerably.	Range of all results

** Although Aleixo 2019B's stated minimum duration of follow-up for inclusion was 5 years, the shortest duration of follow-up among the included studies was 7 years.*

Out of 100 women who receive subtotal or total hysterectomy:

- within 2 years of surgery:
 - about 2 to 13 (2% to 13%) may lose control of their bladder or leak urine when they cough, sneeze, laugh, lift something heavy, or do something else that puts stress on the stomach muscles or bladder (Low certainty)
 - about 2 to 21 (2% to 21%) may feel like they are unable to completely empty their bladder when they use the bathroom (Moderate certainty)
 - about 8 to 13 (8% to 13%) may have sudden and intense feelings of needing to urinate (Low certainty)
- at 2 or more years after surgery:
 - about 48 to 73 (48% to 73%) may have sudden and intense feelings of needing to urinate (Moderate certainty)
- at 7 or more years after surgery:
 - about 4 to 40 (4% to 40%) may feel like they are unable to completely empty their bladder when they use the bathroom (Moderate certainty)

Out of 100 women who receive subtotal hysterectomy:

- about 43 (43%) may report losing control of their bladder or leaking urine at 7 or more years after surgery (Moderate certainty)

Out of 100 women who receive total hysterectomy:

- about 25 to 40 (25% to 40%) may report losing control of their bladder or leaking urine at 7 or more years after surgery (Moderate certainty)

Most of the difference in women losing control of their bladder or leaking urine at 7 or more years after surgery may be when they cough, sneeze, laugh, lift something or do something that puts stress on the stomach muscles or bladder. There may be no difference in the risk of having a sudden and intense feeling of needing to urinate and not making it to the bathroom in time. (Moderate certainty)

FAQ 3: Will I have problems moving my bowels?

Total hysterectomy vs. subtotal hysterectomy

Pre-Synthesis Efforts:

Part 2 Search:

	Number of articles evaluated	Number of unique articles selected for evaluation
First-round (DynaMed Plus)	18	0
Second-round (Systematic review searches)	12	5 (Alexio 2019A, Alexio 2019B, Lethaby 2012, Longo 2019, Sloth 2017)
Third-round (Original study tracing)	Not applicable	
Fourth-round (Original article searches)	Not applicable	

Part 3 Critical Appraisal:

Certainty	Systematic reviews	Randomized trials	Other article types
High			
Moderate	Alexio 2019B*		
Low	Lethaby 2012†, Alexio 2019B‡		
Very low			
Unusable	Longo 2019§		Sloth 2017¶
Not applicable	Alexio 2019A**		

* For outcome constipation at > 5 years

† For outcomes constipation and incontinence at ≤ 2 years

‡ For outcome incontinence at > 5 years

§ Systematic review without meta-analysis which was unusable for several reasons (as described in its Part 3 summary)

¶ Evidence-based clinical practice guideline which included a Summary of findings table for the comparison of subtotal vs. total hysterectomy, which was reviewed and found to include no useful additional information on outcomes beyond what was included in our systematic review sources (as described in its Part 3 summary)

** Outcome not reported

Part 4 Results for FAQ3:**Subtotal hysterectomy vs. total hysterectomy on bowel-related outcomes at ≤ 2 years after surgery (Lethaby 2012)**

Outcome	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty
constipation	555 (2)	5.3% to 19.9%	12.3% to 17.9%	0.80 (95% CI 0.49 to 1.31)	Low (imprecision, inconsistency)
incontinence	166 (1)	1.2%	2.4%	0.52 (95% CI 0.05 to 5.83)	Low (imprecision [very serious concern])

Total hysterectomy vs. subtotal hysterectomy on bowel-related outcomes at ≥ 5 years after surgery (Aleixo 2019B)

Outcome	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Risk ratio (95% CI)	Certainty
constipation	489 (3)	3.4% to 14.1%	2.9% to 20.0%	0.64 (95% CI 0.38 to 1.07)	Moderate (imprecision)
incontinence	294 (2)	1.7% to 2.4%	1.2% to 1.4%	1.57 (95% CI 0.26 to 9.48)	Low (imprecision [very serious concern])

Evidence Synthesis Process for FAQ3:

Is it useful and appropriate to present the synthesis of evidence results as a single result as the best representation of the body of evidence?

Time point and outcome	Useful to give single synthesis results?	Suggested best approach
≤ 2 years		
constipation	No. The point estimate favors subtotal hysterectomy, but the confidence interval is compatible with no difference or worsening with subtotal hysterectomy; additionally, the point estimates in the contributing studies vary considerably.	Range of all results
incontinence	No. The confidence interval is too wide to be meaningful.	Because only a single trial contributes to this outcome, we calculated the point estimate and 95% confidence interval for the univariate estimate from each arm, and we present the lower value of the lower bounds and higher value of the upper bounds of the 95% confidence intervals for the treatment options as the range of sufficiently-valid results: subtotal hysterectomy was 1.2% (95% CI 0.2% to 6.7%), and total hysterectomy was 2.4% (95% CI, 0.6% to 8.2%), giving a range of about 0% to 8%
≥ 7 years*		
constipation	No. The point estimate of the comparative analysis favors total hysterectomy, but the confidence interval is compatible with no difference or slight worsening with total hysterectomy; additionally, the point estimates in the contributing studies vary considerably.	Range of all results
incontinence	No. The confidence interval is too wide to be meaningful.	Range of all results

* Although Aleixo 2019B's stated minimum duration of follow-up for inclusion was 5 years, the shortest duration of follow-up among the included studies was 7 years.

Out of 100 women who receive subtotal or total hysterectomy:

- **within 2 years of surgery:**
 - **about 5 to 20 (5% to 20%) may have constipation** (Low certainty)
 - **up to 8 (8%) may lose control of their bowels** (Low certainty)
- **at 7 or more years after surgery:**
 - **about 3 to 20 (3% to 20%) may have constipation** (Moderate certainty)
 - **about 1 to 2 (1% to 2%) may lose control of their bowels** (Low certainty)

FAQ 4: Will it impact my sex life?

Total hysterectomy vs. subtotal hysterectomy

Pre-Synthesis Efforts:

Part 2 Search:

	Number of articles evaluated	Number of unique articles selected for evaluation
First-round (DynaMed Plus)	18	0
Second-round (Systematic review searches)	12	5 (Alexio 2019A, Alexio 2019B, Lethaby 2012, Longo 2019, Sloth 2017)
Third-round (Original study tracing)	Not applicable	
Fourth-round (Original article searches)	Not applicable	

Part 3 Critical Appraisal:

Certainty	Systematic reviews	Randomized trials	Other article types
High	Aleixo 2019A*		
Moderate	Lethaby 2012†		
Low	Aleixo 2019A‡, Lethaby 2012§		
Very low			
Unusable	Longo 2019¶		Sloth 2017**
Not applicable	Alexio 2019B††		

* For outcome satisfaction with sex (≤ 1 year)

† For outcome pain during sex at > 2 years

‡ For outcome pain during sex (≤ 1 year)

§ For outcomes satisfaction with sex at ≤ 2 years and pain during sex at ≤ 2 years

¶ Systematic review without meta-analysis which was unusable for several reasons (as described in its Part 3 summary)

** Evidence-based clinical practice guideline which included a Summary of findings table for the comparison of subtotal vs. total hysterectomy, which was reviewed and found to include no useful additional information on outcomes beyond what was included in our systematic review sources (as described in its Part 3 summary)

†† Outcome not reported

Part 4 Results for FAQ4:**Subtotal hysterectomy vs. total hysterectomy on sexual function outcomes (Lethaby 2012)**

Outcome and time point (years after surgery)	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
satisfaction with sex at ≤ 2 years*	454 (2)	62.8% to 90.1%	67.9% to 80.2%	1.04 (95% CI 0.68 to 1.59)	Low (imprecision, inconsistency)
pain during sex					
≤ 2 years*	452 (2)	6.6% to 9.5%	6.4% to 14.3%	0.87 (95% CI 0.46 to 1.67)	Low (imprecision, inconsistency)
> 2 years	133 (1)	20.3%	31.3%	0.56 (95% CI 0.25 to 1.23)	Low (imprecision, inconsistency [high likelihood of failure to replicate results])

* The data for these outcomes are fully accounted for in the meta-analyses by Aleixo 2019A so the Lethaby 2012 estimates are not carried forward for overall synthesis.

Total hysterectomy vs. subtotal hysterectomy on sexual function outcomes at ≤ 1 year after surgery (Aleixo 2019A)

Outcome	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Risk ratio (95% CI)	Certainty (reasons for downgrade)
satisfaction with sex	504 (3)	40% to 80.2%	44% to 90.1%	0.96 (95% CI 0.83 to 1.12)	High
pain during sex	452 (2)	6.4% to 14.3%	6.6% to 9.5%	1.18 (95% CI 0.38 to 3.70)	Low (imprecision, inconsistency)

Evidence Synthesis Process for FAQ4:

Is it useful and appropriate to present the synthesis of evidence results as a single result as the best representation of the body of evidence?

Time point and outcome	Useful to give single synthesis results?	Suggested best approach
<i>≤ 1 year</i>		
satisfaction with sex	Yes for the comparative effect estimate, no for absolute rate estimates. The absolute rates are too varied for a single pooled rate to be meaningful.	Report that satisfaction with sex is varied with each person but is not clearly impacted by the choice of having a total or subtotal hysterectomy.
pain during sex	No. The point estimate slightly favors subtotal hysterectomy, but the confidence interval is compatible with either treatment being better than the other; additionally, the point estimates in the contributing studies vary considerably.	Range of all results
<i>> 2 years</i>		
pain during sex	No. The point estimate favors subtotal hysterectomy, but the confidence interval is compatible with no difference or worsening with subtotal hysterectomy.	Because only a single trial contributes to this outcome, we calculated the point estimate and 95% confidence interval for the univariate estimate from each arm, and we present the lower value of the lower bounds and higher value of the upper bounds of the 95% confidence intervals for the treatment options as the range of results: subtotal hysterectomy was 20.3% (95% CI 12.5% to 31.2%) and total hysterectomy was 31.3% (95% CI 21.2% to 43.4%), giving a range of about 13% to 43%.

Many women are satisfied with sex within 1 year of surgery. There is no difference based on whether total or subtotal hysterectomy was done. (High certainty)

Out of 100 women who receive subtotal or total hysterectomy:

- **about 6 to 14 (6% to 14%) may have pain during sex within 1 year of surgery (Low certainty)**
- **about 13 to 43 (13% to 43%) may have pain during sex at 2 years or more after surgery (Low certainty)**

FAQ 5: Will I still have monthly bleeding?

Total hysterectomy vs. subtotal hysterectomy

Pre-Synthesis Efforts:

Part 2 Search:

	Number of articles evaluated	Number of unique articles selected for evaluation
First-round (DynaMed Plus)	18	0
Second-round (Systematic review searches)	12	5 (Alexio 2019A, Alexio 2019B, Lethaby 2012, Longo 2019, Sloth 2017)
Third-round (Original study tracing)	Not applicable	
Fourth-round (Original article searches)	Not applicable	

Part 3 Critical Appraisal:

Certainty	Systematic reviews	Randomized trials	Other article types
High	Alexio 2019A, Lethaby 2012		
Moderate			
Low			
Very low			
Unusable	Longo 2019*		Sloth 2017†
Not applicable	Alexio 2019B‡		

* Systematic review without meta-analysis which was unusable for several reasons (as described in its Part 3 summary)

† Evidence-based clinical practice guideline which included a Summary of findings table for the comparison of subtotal vs. total hysterectomy, which was reviewed and found to include no useful additional information on outcomes beyond what was included in our systematic review sources (as described in its Part 3 summary)

‡ Outcome not reported

Part 4 Results for FAQ2:

Cyclic vaginal bleeding is bleeding that persists after hysterectomy. Although it is called “cyclic”, it can be irregular, occasional, and/or small amounts of bleeding (Aleixo 2019A). Although it can mimic menstruation (Aleixo 2019A), given women no longer have a uterus after a hysterectomy, it would be expected that bleeding would generally be less than what they experienced during normal menstrual periods. Given the tissue composition of the cervix and vagina, it would be expected that cyclic vaginal bleeding would be higher after subtotal hysterectomy than total hysterectomy.

Subtotal hysterectomy vs. total hysterectomy on cyclical vaginal bleeding at ≤ 2 years after surgery (Lethaby 2012)

	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Control group (total) event rate (%)	Odds ratio (95% CI)	Calculated rate in intervention group (subtotal) (%)	Certainty
cyclical vaginal bleeding	964 (5)	6.6% to 19.9%	0% to 3.1%	3/489 (0.6%)	15.97 (95% CI 6.14 to 41.56)	9.0% (95% CI 3.7% to 20.4%)	High

Total vs. subtotal hysterectomy on cyclical vaginal bleeding at ≤ 1 year after surgery (Aleixo 2019A)

	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Calculated rate in intervention group (total) (%)	Certainty
cyclical vaginal bleeding	955 (6)	0% to 9.7%	0% to 32.1%	67/472 (14.2%)	0.14 (95% CI 0.05 to 0.43)	2.0% (95% CI 0.7% to 6.1%)	High

Evidence Synthesis Process for FAQ5:

Is it useful and appropriate to present the synthesis of evidence results as a single result as the best representation of the body of evidence?

Time of assessment	Useful to give single synthesis results?	Suggested best approach
≤ 1 year, ≤ 2 years	No. Two systematic reviews provide High certainty estimates but it is not clear that either of these reviews is singularly better than the other.	Use the control event rate and calculated intervention event rate from the respective systematic reviews to provide a High certainty range of results

Out of 100 women having subtotal hysterectomy, about 9 to 14 (9% to 14%) will have continued vaginal bleeding within 1 to 2 years of surgery. (High certainty) This bleeding may occur monthly or may be irregular or occasional. Although this kind of bleeding can mimic menstrual bleeding, women can expect it will be less than what they had with their normal menstrual periods, because they no longer have a uterus.

Out of 100 women having total hysterectomy, about 1 to 2 (1% to 2%) will have continued vaginal bleeding within 1 to 2 years of surgery. (High certainty) This bleeding may occur monthly or may be irregular or occasional. Although this kind of bleeding can mimic menstrual bleeding, women can expect it will be less than what they had with their normal menstrual periods, because they no longer have a uterus.

FAQ 6: Will the surgery impact my quality of life?

Total hysterectomy vs. subtotal hysterectomy

Descriptive Summary

Pre-Synthesis Efforts: Not applicable

Most evidence suggests women experience an improvement in quality of life compared to their preoperative baseline (Lethaby 2012). The evidence also consistently shows no clear difference in quality of life for total vs. subtotal hysterectomy (Aleixo 2019A, Lethaby 2012).

Many women have a better quality of life after the surgery. There is a not a clear difference based on choosing a total hysterectomy or subtotal hysterectomy.

FAQ 7: What are the risks?

Total hysterectomy vs. subtotal hysterectomy

Pre-Synthesis Efforts:

Part 2 Search:

	Number of articles evaluated	Number of unique articles selected for evaluation
First-round (DynaMed Plus)	18	0
Second-round (Systematic review searches)	12	5 (Alexio 2019A, Alexio 2019B, Longo 2019, Sloth 2017, Lethaby 2012)
Third-round (Original study tracing)	Not applicable	
Fourth-round (Original article searches)	Not applicable	

Part 3 Critical Appraisal:

Certainty	Systematic reviews	Randomized trials	Other article types
High	Lethaby 2012*		
Moderate	Alexio 2019B†, Lethaby 2012‡		
Low	Alexio 2019A¶, Lethaby 2012¶		
Very low			
Unusable	Longo 2019††		Sloth 2017‡‡
Not applicable			

* For outcome urinary retention (at discharge)

† For outcomes pelvic organ prolapse (subjective and objective analyses) (at > 5 years)

‡ For outcomes wound infection at discharge and pelvic organ prolapse at ≤ 2 years and > 2 years after surgery

¶ For outcome urinary tract injury (at discharge). As described in Part 4, these two effect estimates are essentially the same, so only the results from Lethaby 2012 are reported here, and we rename the outcome “urinary tract injury” for simplicity. Parts 3 and 4 have more detail.

** For outcome surgical injury (at discharge)

†† Systematic review without meta-analysis which was unusable for several reasons (as described in its Part 3 summary)

‡‡ Evidence-based clinical practice guideline which included a Summary of findings table for the comparison of subtotal vs. total hysterectomy, which was reviewed and found to include no useful additional information on outcomes beyond what was included in our systematic review sources (as described in its Part 3 summary)

Part 4 Results for FAQ7:**Subtotal hysterectomy vs. total hysterectomy on complications (Lethaby 2012)**

Complication and time point	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
At pre-discharge					
urinary tract injury	549 (3)	0% to 0.74%	1.4% to 3.1%	0.28 (95% CI 0.06 to 1.36)	Low (imprecision, risk of bias [no trial had blinding])
wound infection	733 (3)	1.5% to 5.1%	2.1% to 5.7%	0.86 (95% CI 0.38 to 1.95)	Moderate (imprecision)
urinary retention	933 (5)	0% to 1.5%	1.4% to 4.3%	0.23 (95% CI 0.06 to 0.81)‡	High
Pelvic organ prolapse					
≤ 2 years after surgery	839 (4)	1.5% to 2.2%	0% to 2.4%	2.74 (95% CI 0.80 to 9.34)	Moderate (imprecision)

‡ Control group (total hysterectomy) event rate was 2.3% (11/475). Calculated estimate for the subtotal hysterectomy group (using the relative effect estimate and the control group event rate in the standard fashion) is 0.5% (95% CI, 0.1% to 1.9%).

Total hysterectomy vs. subtotal hysterectomy on pelvic organ prolapse at > 5 years (Aleixo 2019B)*

Method of assessing for pelvic organ prolapse	No of patients (studies)	Intervention group (total) event rate (%)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Certainty
subjective analysis	227 (2)	11/116 (9.5%)	12/111 (10.8%)	0.88 (95% CI 0.41 to 1.89)	Moderate (imprecision)
objective analysis	355 (3)	61/167 (36.5%)	62/188 (33.0%)	1.14 (95% CI 0.90 to 1.45)	Moderate (imprecision)

* Univariate estimates from the studies contributing to these outcomes was not clearly reported. Although Aleixo 2019B's stated minimum duration of follow-up for inclusion was 5 years, the shortest duration of follow-up among the included studies was 7 years.

Descriptive summary regarding cervical cancer risk

Because a subtotal hysterectomy leaves the cervix in place, there is a chance a woman receiving a subtotal hysterectomy may develop cervical cancer at some point in the future, even though the surgery itself does not directly increase this risk.

*Evidence Synthesis Process for FAQ7:**Is it useful and appropriate to present the synthesis of evidence results as a single result as the best representation of the body of evidence?*

Outcome and time point	Useful to give single synthesis results?	Suggested best approach
<i>Pre-discharge/at discharge</i>		
urinary tract injury	No. The point estimate of the comparative analysis favors subtotal hysterectomy, but the confidence interval is compatible with no difference or worsening with subtotal hysterectomy. Presentation of a single quantified estimate would fail to capture the nuance of the data.	Range of all results
wound infection	No. The point estimate of the comparative analysis favors subtotal hysterectomy, but the confidence interval is compatible with no difference or worsening with subtotal hysterectomy. Presentation of a single quantified estimate would fail to capture the nuance of the data. The range of absolute risk across all the trials is 2% to 6%, and we note this includes trials of abdominal hysterectomy, including the trial with the highest rates (Gimbel 2003, which was restricted to total vs. subtotal abdominal hysterectomy). The rates of infection may be influenced by the type of surgical approach for the hysterectomy. Some evidence of this appears in a separate evidence report prepared for the surgical approach to hysterectomy for benign reasons (considering vaginal, total laparoscopic, and robot-assisted total laparoscopic surgery). In that report, surgical site infection was about 1% and did not show a clear difference between groups. However, this report excluded the abdominal approach, as this approach is only utilized if other approaches are not feasible.	Range of all results, including results from separate report on surgical technique used for hysterectomy. This gives a range of 1% to 6%, with the higher results being seen with abdominal hysterectomy.
urinary retention	Yes.	Meta-analysis already done
<i>< 2 years</i>		
pelvic organ prolapse	No. The point estimate of the comparative analysis favors total hysterectomy, but the confidence interval is compatible with no difference or worsening with total hysterectomy. This outcome is also limited by low event rates in general (total of 10 events: 8 among 414 in subtotal group and 2 events among 425 in total hysterectomy group).	Range of all results
<i>≥ 7 years*</i>		

pelvic organ prolapse	No. Two different methods of assessing pelvic organ prolapse (subjective and objective) are considered potentially meaningful but not ideal to combine as a singular result or select one method as the best single result.	Range of sufficiently-valid results. With no clear differences in either comparative analysis, we will use the intervention and control group event rates from the two different analyses as the range of results for both interventions, with the lowest value being used as the lower bound of the range and the highest value being used as the upper bound of the range. This gives a range of about 9.5% (9.48%) to 36.5% (36.53%)
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** Although Aleixo 2019B's stated minimum duration of follow-up for inclusion was 5 years, the shortest duration of follow-up among the included studies was 7 years.*

Out of 100 women who receive subtotal or total hysterectomy:

- immediately after surgery:
 - up to 3 (3%) may have injury of their urinary tract from the surgery (Low certainty)
 - about 1 to 6 (1% to 6%) may get an infection where the cuts were made to do the surgery (Moderate certainty)
 - this risk may be higher with abdominal hysterectomy, and the risk with other approaches may only be 1% (see evidence report on surgical approaches to hysterectomy)
- within 2 years of surgery:
 - up to 2 (2%) may have an organ in their pelvis move from its normal position and push into or come outside of the vagina (Moderate certainty)
- at 7 or more years after surgery:
 - about 9 to 37 (9% to 37%) may have an organ in their pelvis move from its normal position and push into or come outside of the vagina (Moderate certainty)

Out of 100 women who receive subtotal hysterectomy:

- immediately after surgery:
 - about 1 (1%) may have difficulty urinating, which may require temporary use of a catheter (High certainty)

Out of 100 women who receive total hysterectomy:

- immediately after surgery:
 - about 2 (2%) may have difficulty urinating, which may require temporary use of a catheter (High certainty)

Because a subtotal hysterectomy leaves the cervix in place, there is a chance a woman receiving a subtotal hysterectomy may develop cervical cancer at some point in the future, but the surgery itself does not directly increase this risk.

FAQ 8: When will I recover?

Total hysterectomy vs. subtotal hysterectomy

Descriptive Summary

Pre-Synthesis Efforts: Not applicable

Whether a woman has a total or subtotal hysterectomy may not make an important difference in recovery, so a single descriptive summary is presented here. However, the surgical approach used may be relevant, with abdominal surgery often having longer recovery times compared to either vaginal or laparoscopic hysterectomy.

After a subtotal or total hysterectomy, many women feel tired or get tired easily, and women will also have pain from the surgery. It is common for women to feel like their stomach is swollen or “puffy”. It often takes 3 to 6 weeks (possibly up to 8 weeks) to feel better. Most of the pain from the surgery is usually in the first 2 weeks, and it is common to need pain medication during this time. It is common to have some mild vaginal bleeding for 2 to 6 weeks after the surgery. Beyond this initial period, please see FAQ 5 (“Will I still have menstrual bleeding?”). Additionally, women should call or visit their health care team if they experience heavy bleeding, start passing blood clots, or have strong-smelling discharge.

Women can slowly increase their activity levels each day, but they should avoid strenuous activity such as sports, jogging or running, or lifting (which may include lifting things like grocery bags or children) until cleared to do so by the health care team. This may take 3 weeks or more.

Women may need to take 2 to 4 weeks off from work, though for some women, this may be up to 8 weeks. Women may be able to return to driving once they can comfortably wear a seatbelt and respond to sudden traffic changes, such as needing to emergently apply the brake. The health care team will give a more specific timeframe.

Women who are sexually active are generally advised to avoid intercourse for 6 to 12 weeks after surgery. Similarly, women are generally advised to avoid putting anything like a tampon in the vagina for 4 to 12 weeks. The health care team will give specific timeframes.

(See FAQ 1 for references)

Evidence report for total versus subtotal (supracervical) hysterectomy for benign gynecological conditions

Search and Selection

Prepared by EBSCO Information Services

August 7, 2019

Prepared by EBSCO Health Innovations and EBM Development Department:

Brian S. Alper, MD, MSPH, FAAFP, Vice President

Martin Mayer, DMSc, MS, PA-C, Clinical Evidence Synthesizer

Eric Manheimer, PhD, EBM Editor

Methods

First-round searching will consist of searching DynaMed Plus summaries pertinent to the topic. The search starts with DynaMed Plus because DynaMed Plus content is based on a thorough, systematic search and active literature surveillance system.

Systematic literature surveillance (SLS) has been a cornerstone of creating DynaMed content since its inception. Currently, the SLS team works closely with members of McMaster University's Department of Health Research Methods, Evidence, and Impact to define and refine optimal search strategies, utilizing search terms for methodology and for clinical concepts (especially diagnosis and treatment) for each journal. These filters for PubMed searches are derived from PubMed Clinical Queries, McMaster University Hedges system, and DynaMed search filters and were found to capture >95% of relevant valid articles for use in DynaMed.¹

¹Alper BS, Iorio A. Optimising search filters for active literature surveillance: a concordance study. Global Evidence Summit. Cape Town, South Africa; September 2017.

The SLS team, in collaboration with McMaster University, continually evaluates and improves these filters to keep abreast of the ever-changing medical literature landscape. PubMed searches are performed daily. Each article is assessed by an external screener for clinical relevance, then reviewed by internal staff for both clinical relevance and validity. Any disagreements are settled by the Deputy Editor of the SLS team.

In addition, the SLS team continually monitors the Journal source list against the list of journals catalogued in MEDLINE and existing DynaMed content to determine the set of journals that provide the highest yield for valid, clinically relevant content. As of November 2018, 507 Journals are systematically searched (see <http://dynamed.com/home/content/content-sources>). The journal selection threshold leads to routine adjustments to the number of journals selected.

Second-round searching will involve PubMed/MEDLINE® searches for intervention-specific systematic reviews or guidelines that involve a systematic review that are more recent than those identified in first-round searching.

Third-round searching will involve original study tracing from systematic reviews, guidelines or other relevant sources. This may be done to identify additional evidence sources if the results from the first two rounds of searching are insufficient.

Fourth-round searching will involve searches for original evidence reports. Such searching will be limited to areas considered insufficiently addressed by earlier searches, such as focused concepts published after search dates in systematic reviews.

Additional selective searching, such as tracing citations from articles found or seeking related articles, may be done for additional concepts discovered.

Additional evidence updates may also be added continuously from feedback from any source.

FAQ Summary

FAQ 1: What does the treatment involve?

FAQ 2: Will I have problems urinating?

FAQ 3: Will I have problems moving my bowels?

FAQ 4: Will it impact my sex life?

FAQ 5: Will I still have monthly bleeding?

FAQ 6: Will the surgery impact my quality of life?

FAQ 7: What are the risks?

FAQ 8: When will I recover?

Results

First-round searching – DynaMed Plus:

DynaMed Plus subsection	Relevant for FAQ(s)	Number of article citations	Number of unique references included
Hysterectomy topic, Surgical Approaches section, Total vs. subtotal (supracervical) hysterectomy subsection	FAQ2, FAQ3, FAQ4, FAQ5, FAQ6, FAQ7	2	0
Hysterectomy topic, Comparison of approaches section, Benign indications subsection	FAQ2, FAQ3, FAQ4, FAQ5, FAQ6, FAQ7	16	0

Second-round searching – searches for intervention-specific systematic reviews:

Database	Search string	Relevant for FAQ(s)	Number of search results	Number of references included
PubMed August 8, 2019	((total[tiab] OR complete[tiab]) AND (partial[tiab] OR subtotal[tiab] OR supracervical[tiab])) AND hysterectomy AND systematic[sb]	FAQ2, FAQ3, FAQ4, FAQ5, FAQ6, FAQ7	12	5 (Alexio 2019A, Alexio 2019B, Longo 2019, Sloth 2017, Lethaby 2012)

Third-round searching – study tracing from systematic reviews:

Source	Tracing	Relevant for FAQ(s)	Number of search results	Number of references included
Not applicable				

Fourth-round searching – searches for original evidence reports:

Database	Search string	Relevant for FAQ(s)	Number of search results	Number of references included
Not applicable				

Evidence report for total versus subtotal (supracervical) hysterectomy for benign gynecological conditions

Critical Appraisal of Evidence Reports

Prepared by EBSCO Information Services

August 7, 2019

Prepared by EBSCO Health Innovations and EBM Development Department:

Brian S. Alper, MD, MSPH, FAAFP, Vice President

Martin Mayer, DMSc, MS, PA-C, Clinical Evidence Synthesizer

Eric Manheimer, PhD, EBM Editor

Methods

For each study selected for critical appraisal, we assessed for criteria needed for Level 1 [likely reliable] evidence ratings in [DynaMed's Levels of Evidence criteria](#) in which evidence quality is labeled in 1 of 3 levels:

- **(level 1 [likely reliable] evidence)** for studies with clinical outcomes and minimal risk of bias;
- **(level 2 [mid-level] evidence)** for studies with clinical outcomes and significant methodological or statistical limitations; and
- **(level 3 [lacking direct] evidence)** for reports that do not include scientific analysis of clinical outcomes or for study types that do not include comparisons between groups.

The specific concepts we critically assessed are fully mapped to cover all the criteria used in [GRADE](#). We summarized key concerns identified that reduce the certainty of evidence in categories used for GRADE methods (i.e., risks of bias, indirectness, imprecision, inconsistency, and other considerations if relevant). In the study-level summaries inconsistency assessment was applied to consistency of within-study results – this applies to consistency across related outcomes for both original studies and for systematic reviews, and also applies to consistency across studies when applied to systematic reviews.

FAQ Summary

FAQ 1: What does the treatment involve?

FAQ 2: Will I have problems urinating?

FAQ 3: Will I have problems moving my bowels?

FAQ 4: Will it impact my sex life?

FAQ 5: Will I still have monthly bleeding?

FAQ 6: Will the surgery impact my quality of life?

FAQ 7: What are the risks?

FAQ 8: When will I recover?

Results

Characteristics and Results of Critically Appraised Studies/Sources

Below is a template for study summaries. At each major level, the intended content is a high-level statement (e.g., “Systematic review and meta-analysis of randomized controlled trials” for the item “Study design”). If there is a need to indicate additional relevant information, do so with a sub-bullet under the parent item. For instance, if downgrading once for “Risk of bias”, one would comment “Serious concern” for the “Risk of bias” domain, and then using sub-bullets under the “Risk of bias” item, one would comment on the limitations that resulted in the serious concern. A template is included below, followed by an example summary.

ALEIXO 2019A

Aleixo GF, Fonseca MCM, Bortolini MAT, Brito LGO, Castro RA. Total Versus Subtotal Hysterectomy: Systematic Review and Meta-analysis of Intraoperative Outcomes and Postoperative Short-term Events. Clin Ther. 2019 Apr;41(4):768-789. [PubMed](#)

Relevant to FAQ4, FAQ5, FAQ7

- **Study design:** systematic review of randomized trials
- **Population:** women having hysterectomy for benign gynecological conditions
- **Intervention:** total hysterectomy
- **Comparison:** subtotal hysterectomy

- **Study inclusion criteria:** no additional

- **Number of studies:** 11
- **Number of participants:** 1,523
- **Duration of follow-up:** outcomes considered up to 1 year postoperative

- **Results and Certainty:**

Total vs. subtotal hysterectomy on sexual function outcomes and complications at short-term (≤ 1 year after surgery)

Outcome* and time point	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Certainty
sexual function outcomes						
satisfaction with sex	504 (3)	40% to 80.2%	44% to 90.1%	179/253 (70.8%)	0.96 (95% CI 0.83 to 1.12)	High
pain during sex	452 (2)	6.4% to 14.3%	6.6% to 9.5%	19/228 (8.3%)	1.18 (95% CI 0.38 to	Low (imprecision,

					3.70)	inconsistency)
complications						
urinary tract injury	599 (4)	1.4% to 3.1% in 3 trials (0% in 1 trial arm with only 25 patients)	0% to 0.74%	1/299 (0.3%)	3.33 (95% CI 0.68 to 16.34)	Low (imprecision, risk of bias**)
cyclical vaginal bleeding	955 (6)	0% to 9.7%	0% to 32.1%	67/472 (14.2%)	0.14 (95% CI 0.05 to 0.43)	High

* For all outcomes below, results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present for any, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the pooled results are reported.

** The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in the analysis for sexual function outcomes and cyclical vaginal bleeding but was not included in the analysis for this urinary tract injury outcome and therefore only this outcome is downgraded for risk of bias.

ALEIXO 2019B

Aleixo GF, Fonseca MCM, Bortolini MAT, Brito LGO, Castro RA. Pelvic floor symptoms 5 to 14 years after total versus subtotal hysterectomy for benign conditions: a systematic review and meta-analysis. Int Urogynecol J. 2019 Feb;30(2):181-191. [PubMed](#)

Relevant to FAQ2, FAQ3, FAQ7

- **Study design:** systematic review of randomized trials
- **Population:** women who had hysterectomy for benign conditions
- **Intervention:** total hysterectomy
- **Comparison:** subtotal hysterectomy
- **Study inclusion criteria:** evaluated pelvic floor symptoms at ≥ 5 years from surgery
- **Number of studies:** 4
 - all 4 involved abdominal surgery (no laparoscopic studies)
- **Number of participants:** 566
- **Duration of follow-up:** 7 to 14 years

- Results and Certainty:

Total hysterectomy vs. subtotal hysterectomy on urinary symptoms, bowel symptoms, and pelvic organ prolapse at > 5 years

Outcome	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Control group (subtotal) event rate (%)	Risk ratio	Certainty
urinary outcomes						
patient-reported urinary incontinence*	384 (3)	20% to 57.9%	33.3% to 83.3%	83/194 (42.8%)	0.74 (95% CI 0.58 to 0.94)	Moderate (risk of bias [†])
stress incontinence‡	540 (4)	29.3% to 56.2%	22.2% to 61.9%	144/274 (52.6%)	0.84 (95% CI 0.71 to 0.99)	Moderate (imprecision)
urge incontinence	534 (4)	12.1% to 39.5%	14.3% to 40.7%	80/271 (29.5%)	1.01 (95% CI 0.78 to 1.30)	Moderate (imprecision)
urinary frequency	315 (3)	27.7% to 68.4%	15.1% to 77.8%	75/160 (46.9%)	1.0 (95% CI 0.75 to 1.33)	Moderate (imprecision)
incomplete bladder emptying	535 (4)	10% to 39.5%	4.1% to 31.0%	44/272 (16.2%)	1.21 (95% CI 0.76 to 1.95)	Moderate (imprecision)
bowel outcomes						
fecal incontinence	294 (2)	1.7% to 2.4%	1.2% to 1.4%	2/151 (1.3%)	1.57 (95% CI 0.26 to 9.48)	Low (imprecision [very serious concern])
constipation	489 (3)	3.4% to 14.1%	2.9% to 20.0%	32/246 (13.0%)	0.64 (95% CI 0.38 to 1.07)	Moderate (imprecision)
pelvic organ prolapse outcomes						
subjective analysis	227 (2)	Univariate estimates from contributing studies is not clear Rate in total hysterectomy group: 11/116 (9.5%)§ Rate in subtotal hysterectomy group: 12/111 (10.8%)			0.88 (95% CI 0.41 to 1.89)	Moderate (imprecision)
objective analysis	355 (3)	Univariate estimates from contributing studies is not clear Rate in total hysterectomy group: 61/167 (36.5%) Rate in subtotal hysterectomy group: 62/188 (33.0%)			1.14 (95% CI 0.90 to 1.45)	Moderate (imprecision)

* This holistic urinary incontinence outcome was not reported in the 2012 Lethaby Cochrane review (which only reports stress incontinence, urinary urgency, and voiding dysfunction). It pools the following 3 trials (Fig 2A): Greer 2010, Persson 2013, and Andersen 2015. Andersen 2015 was published after the Cochrane review (all 3 associated trial reports [references 9-11] have a date of publication of 2015) which explains its non-inclusion. Persson 2013 was included in the Cochrane review, but only the 2010 Gynecological Surgery report on short-term results and not the 2013 BJOG long-term follow-up report, which is included in the Aleixo 2019B analysis. Greer 2010 was not included or mentioned in the Cochrane review. The full-text of Greer 2010 was consulted to confirm its authenticity and it was found to be a long-term (mean 9 years) follow-up report of the Learman 2003/TOSH trial (included in the Cochrane review). However, Learman 2003 included 135 patients from 4 centers but the Greer follow-up included only 37 patients from the largest center. Therefore, we considered it suboptimal to include the Greer 2010 data in this meta-analysis of randomized trials. We re-calculated a pooled estimate for this outcome in RevMan with exclusion of Greer 2010, and although the results were ultimately still consistent with the analysis that included Greer 2010, they were no longer significant (RR 0.75, 95% CI 0.52 to 1.08). Therefore, we consider it reasonable to include Greer 2010 in the analysis, as it did not bias the effect size to show more of an effect, but rather, simply increased the precision of the estimate.

† The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in the analysis for all other outcomes in this table except for this patient-reported urinary incontinence outcome and therefore only this outcome is downgraded for risk of bias.

‡ This outcome was not significant in the Cochrane review at > 2 years follow-up, which included only 1 trial with 178 patients (ie, Analysis 1.2, including only the Thakar 2002 trial). The 4 trials included in the analysis of the Aleixo 2019B SR are the following: Thakar 2002 (same number of events as in the Cochrane review), Greer 2010, Persson 2013, and Andersen 2015. As noted in the footnote above associated with the 'patient-reported urinary incontinence' outcome, Greer 2010 seemed suboptimal to include and we re-calculated a pooled estimate for this outcome in RevMan with exclusion of Greer 2010 and the pooled results were consistent with the analysis including Greer 2010 and still significant (RR 0.83, 95% CI 0.69 to 0.98).

§ Reported as "11/1116 (9.4%)", which appears to be a typographical error. We assume the correct value is 11/116, and we also note this yields 9.48%, so we present 9.5% instead of their reported 9.4%.

LETHABY 2012

Lethaby A, Mukhopadhyay A, Naik R. Total versus subtotal hysterectomy for benign gynaecological conditions. Cochrane Database Syst Rev. 2012 Apr 18;(4):CD004993 [PubMed](#)

Relevant to FAQ2, FAQ3, FAQ4, FAQ5, FAQ6, FAQ7, FAQ8

- **Study design:** systematic review of randomized trials
- **Population:** women having hysterectomy for benign gynecological conditions
- **Intervention:** subtotal hysterectomy
- **Comparison:** total hysterectomy

- **Study inclusion criteria:** studies included only if they assessed ≥ 1 of the review's primary outcomes (ie, urinary function, bowel function, sexual function)

- **Number of studies:** 9
- **Number of participants:** 1,553
- **Duration of follow-up:** 6 months to mean 9 years
 - "short term" follow-up defined as outcomes occurring ≤ 2 years after surgery
 - "long term" follow-up defined as outcomes occurring at > 2 years after surgery

- **Results and certainty:**

Subtotal hysterectomy vs. total hysterectomy on urinary, bowel, and sexual function outcomes at short-term (≤ 2 years after surgery) and long-term (> 2 years)

Outcome* and time point (years after surgery)	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Control group (total) event rate (%)	Odds ratio	Certainty
URINARY OUTCOMES						
stress urinary incontinence						
≤ 2 years	955 (5)	2.1% to 13.1%	2.1% to 9.8%	25/477 (5.2%)	1.45 (95% CI 0.85 to 2.47)	Low (imprecision, inconsistency [†])
> 2 years	178 (1)	59.6%	56.2%	50/89 (56.2%)	1.15 (95% CI 0.63 to 2.08)	Moderate (imprecision)
incomplete bladder emptying						
≤ 2 years	768 (4)	6.6% to 13.7%	1.6% to 20.7%	45/391 (11.5%)	0.94 (95% CI 0.59 to 1.47)	Moderate (imprecision)
> 2 years	173 (1)	31.0%	39.5%	34/86 (39.5%)	0.69 (95% CI 0.37 to 1.29)	Moderate (imprecision)
urinary urgency						
≤ 2 years	254 (2)	8.2% to 12.7%	9.4% to 10.6%	13/130 (10.0%)	1.05 (95% CI 0.47 to 2.37)	Low (imprecision, risk of bias ^{**})
> 2 years	174 (1)	63.6%	58.1%	50/86 (58.1%)	1.26 (95% CI 0.68 to 2.32)	Moderate (imprecision)
BOWEL OUTCOMES						
Constipation						
≤ 2 years	555 (2)	5.3% to 19.9%	12.3% to 17.9%	43/286 (15.0%)	0.80 (95% CI 0.49 to 1.31)	Low (imprecision, inconsistency [†])
> 2 years	165 (1)	20.0%	14.1%	12/85 (14.1%)	1.52 (95% CI 0.67 to 3.45)	Low (imprecision, inconsistency [†])
Incontinence						
≤ 2 years	166 (1)	1.2%	2.4%	2/85 (2.4%)	0.52 (95% CI 0.05 to 5.83)	Low (imprecision [very serious concern])
> 2 years	166 (1)	1.2%	2.4%	2/85 (2.4%)	0.52 (95% CI 0.05 to 5.83)	Low (imprecision [very serious concern])

SEXUAL FUNCTION OUTCOMES						
satisfaction with sex						
≤ 2 years	454	62.8% to 90.1%	67.9% to 80.2%	164/226 (72.6%)	1.04 (95% CI 0.68 to 1.59)	Low (imprecision, inconsistency)
> 2 years††	131	3.0%	3.1%	2/64 (3.1%)	0.95 (95% CI 0.13 to 6.98)	Low (imprecision [very serious concern])
pain during sex						
≤ 2 years	452	6.6% to 9.5%	6.4% to 14.3%	21/224 (9.4%)	0.87 (95% CI 0.46 to 1.67)	Low (imprecision, inconsistency†)
> 2 years	133	20.3%	31.3%	20/64 (31.3%)	0.56 (95% CI 0.25 to 1.23)	Low (imprecision, inconsistency†)

* For all outcomes below, results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present for any, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the pooled results are reported below.

† For stress urinary incontinence at ≤ 2 years, despite absence of statistical heterogeneity, three trials suggest no effect with odds ratios 0.90 (95% CI 0.12 to 6.55), 0.98 (95% CI 0.42 to 2.28) and 1.05 (95% CI 0.29 to 3.82) while two trials suggest important differences with odds ratios 2.85 (95% CI 0.74 to 10.99) and 3.07 (95% CI 0.77 to 12.16). The inconsistency with respect to whether an effect exists leads to uncertainty that is greater than that suggested by imprecision alone. For constipation, the single trial reporting an estimate at > 2 years (Thakar 2002, with odds ratio 1.52 [95% CI 0.67 to 3.45]) is inconsistent with the estimate for that trial at ≤ 2 years (odds ratio 0.40 [95% CI 0.16 to 0.98]). The inconsistency might be explained by high loss to follow-up at > 2 years but the inconsistency in direction of effect leads to uncertainty in the effect estimates. For pain during sex, the odds ratios at ≤ 2 years were inconsistent (1.53 [95% CI 0.63 to 3.70] in Gimbel 2003 and 0.42 [95% CI 0.15 to 1.19] in Thakar 2002). At > 2 years, with only 1 trial reported, and the known inconsistency from the earlier timeframe, there is too high a likelihood of failure of replication of results to consider a presumption of certainty for consistency.

** The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in all other urinary, bowel, and sexual function outcomes except for this one and therefore only this outcome is downgraded for risk of bias.

†† We have concern over the validity of each group's estimate for this satisfaction with sex outcome (reported in Analysis 1.12 as 2/67 in subtotal hysterectomy group and 2/64 in total hysterectomy group) and we were unable to reconcile this with the data reported in the full-text of the relevant trial publication (Thakar 2002, with latest follow-up report noted in Lethaby 2012 being Thakar 2008) and we have therefore not progressed this outcome to Parts 4 or 5.

Subtotal hysterectomy vs. total hysterectomy on complications

Complication and time point	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Control group (total) event rate (%)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
AT PRE-DISCHARGE						
surgical injury	549 (3)	0% to 0.74%	1.4% to 3.1%	6/275 (2.2%)	0.28 (95% CI 0.06 to 1.36)	Low (imprecision, risk of bias*)
wound infection	733 (3)	1.5% to 5.1%	2.1% to 5.7%	13/370 (3.5%)	0.86 (95% CI 0.38 to 1.95)	Moderate (imprecision)
urinary retention	933 (5)	0% to 1.5%	1.4% to 4.3%	11/475 (2.3%)	0.23 (95% CI 0.06 to 0.81)	High
PELVIC ORGAN PROLAPSE						
≤ 2 years after surgery	839 (4)	1.5% to 2.2%	0% to 2.4%	2/425 (0.5%)	2.74 (95% CI 0.80 to 9.34)	Moderate (imprecision)
> 2 years	127 (1)	55.4%	59.7%	37/62 (59.7%)	0.84 (95% CI 0.41 to 1.70)	Low (imprecision, risk of bias†)
ONGOING CYCLICAL VAGINAL BLEEDING AT ≤ 2 YEARS AFTER SURGERY	964 (5)	6.6% to 19.9%	0% to 3.1%	3/489 (0.6%)	15.97 (95% CI 6.14 to 41.56)	High

* The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in all other complication outcomes in this table except for this one and therefore only this outcome is downgraded for risk of bias.

† For pelvic organ prolapse, Thakar 2002 reported on 279 women at ≤ 2 years after surgery and only 127 women at > 2 years after surgery.

- Additional considerations**

- The Cochrane analysis on stress urinary incontinence at > 2 years (Analysis 1.2) includes only Thakar 2002 trial data and reports the same data for Thakar 2002 as is included in Aleixo 2019 meta-analysis on this outcome at > 5 years Fig 2b, but the 2019 meta-analysis also includes additional trials. Therefore, we did not consider this Cochrane analysis of stress urinary incontinence at > 2 years for Part 4.
- The Cochrane analysis on incomplete bladder emptying at > 2 years (Analysis 1.4) includes only Thakar 2002 trial data and reports the same data for this trial as is included in Aleixo 2019 meta-analysis on this outcome at > 5 years Fig 2e, but the 2019 meta-analysis also includes additional trials. Therefore, we did not consider this Cochrane analysis of incomplete bladder emptying at > 2 years for Part 4.
- The Cochrane review also reported an analysis of both constipation and incontinence at > 2 years, which included only 1 trial (Thakar 2002 trial). The analysis for these outcomes at ≥ 7

years in the Aleixo 2019B review included the Thakar 2002 trial (with identical data for both outcomes as in the Cochrane) as well as 2 new trials for constipation (Persson 2013; Andersen 2015) and 1 new trial for incontinence (Persson 2013). Because of the additional trials and longer follow-up, we have only reported the ≥ 7 -year pooled estimates from the more current and comprehensive set of trials in Aleixo 2019B.

- The Cochrane analysis on surgical injury at discharge appears to be the same as the “urinary tract injury” outcome reported in the Aleixo 2019A systematic review. The Cochrane “surgical injury” outcome includes 3 trials (Learman 2003, Gimbel 2003, and Morelli 2007), all of which are also included in Aleixo 2019A “urinary tract injury” outcome, and all 3 trials had identical event rates in both analyses. Aleixo 2019A also included a fourth trial (Ghanbari 2007 trial [n=50]), which was “awaiting assessment” in the Cochrane review (due to it “awaiting translation”) and which appeared to be eligible based on its brief summary in the Cochrane “Characteristics of studies awaiting assessment” table. The pooled risk estimate from the Cochrane review meta-analysis is similar to the pooled estimate from the Aleixo 2019A review meta-analysis (ie, 1.3% compared to 1.2%) so use of one vs. the other would not affect our final bolded conclusion. We only carried the estimate from Aleixo 2019A review meta-analysis through to Part 4.
- The outcome of pelvic organ prolapse at > 2 years after surgery in Lethaby 2012 consisted of data from one trial (Thakar 2002), and Thakar 2002 is included in Aleixo 2019B (along with data from other trials). Therefore, we do not consider the outcome of pelvic organ prolapse at > 2 years after surgery in Lethaby 2012 beyond Part 3.

LONGO 2019

Longo PS, Borbily LV, Glina FPA. Urinary incontinence following subtotal and total hysterectomy: a systematic review. Einstein (Sao Paulo). 2019 May 2;17(2):eRW4320. [PubMed](#)

Relevant to No FAQ

- **Study design:** systematic review of randomized trials
- **Population:** women having hysterectomy for benign gynecological conditions
- **Intervention:** subtotal hysterectomy
- **Comparison:** total hysterectomy
- **Study inclusion criteria:** only included studies that reported urinary function outcome
- **Number of studies:** 9
 - 9 trials listed in Table 2 and noted in Results; 11 trials noted in abstract and PRISMA flow diagram
- **Number of participants:** 1,819
- **Duration of follow-up:** up to 14 years
- **This review was unusable for extracting outcome data for following reasons:**
 - meta-analysis not performed
 - only studies reporting urinary tract outcomes were included
 - key studies included in other reviews were not included (eg, 6 of the 9 studies included in Lethaby 2012 Cochrane were not included: Asnafi 2010; Ellstrom 2010; Flory 2006; Gorlero 2008; Morelli 2007; Persson 2010)

- nonstandard method for assessing risk of bias (SIGN checklist)

SLOTH 2017

Sloth SB, Schroll JB, Settnes A, Gimbel H, Rudnicki M, Topsoe MF, Joergensen A, Nortvig H, Moeller C. Systematic review of the limited evidence for different surgical techniques at benign hysterectomy: A clinical guideline initiated by the Danish Health Authority. Eur J Obstet Gynecol Reprod Biol. 2017 Sep;216:169-177. [PubMed](#)

Relevant to no FAQ

- **Study design:** systematic review of randomized trials
 - national clinical guideline based on systematic review on methods and surgical techniques initiated by Danish Health Authority
 - systematic review on subtotal vs. total hysterectomy (our only comparison of interest) included the Cochrane review and 1 follow-up study evaluating pelvic floor dysfunction at median 11.3 years (Persson 2013)
- **Population:** women with benign gynecological conditions
- **Intervention:** subtotal hysterectomy
- **Comparison:** total hysterectomy
- **Study inclusion criteria:** no additional
- **Number of studies:** 7
 - data from 7 trials included in meta-analyses for comparison of interest
- **Number of participants:** varied by outcome
- **Duration of follow-up:** up to 11 years
 - for pelvic prolapse outcome

Review included a Summary of Findings table for comparison of subtotal vs. total hysterectomy. The outcomes in this table were checked against the outcomes in the 2012 Lethaby Cochrane review. The following outcomes included the same number of trials and same number of patients and showed very similar risk ratios (and 95% CIs) as in the Cochrane, except where indicated:

- stress urinary incontinence ≤ 2 years after surgery
- satisfaction with sex ≤ 2 years after surgery
 - both analyses reported including 2 trials with 454 patients and had similar point estimates, but CI narrower in Sloth 2017 than in Lethaby 2012 Cochrane; this is due to Sloth 2017 reporting the relative risk and Lethaby 2012 reporting the odds ratio
 - Sloth 2017: RR 1.01 (95% CI 0.91 to 1.13)
 - Lethaby 2012 Cochrane: OR 1.04 (95% CI 0.68 to 1.59)
- pain during sex < 2 years after surgery
- pelvic prolapse (POP) $\geq$ stage 2, 7-11 years post-surgery
 - comparisons against other systematic reviews
 - reporting of this outcome did not match up with its reporting in Lethaby 2012 Cochrane, which reported this outcome at ≤ 2 years after surgery in analysis of 4 trials with 839 patients and > 2 years after surgery in 1 trial with 127 patients; however, the apparent discrepancy may be due to Persson 2013 reporting a long-term pelvic organ prolapse outcome that Sloth 2017 may have used for

their meta-analysis. In any case, both the Sloth 2017 and the Cochrane analyses were consistent in showing no significant difference between groups at long-term follow-up with downgrade for imprecision.

- Aleixo 2019B systematic review (published after this guideline) also showed consistent findings of no significant differences in this outcome at ≥ 5 years in both subjective and objective analysis of pelvic organ prolapse.
 - although there were differences in pooled estimates for this outcome measured at long-term follow-up compared to other reviews, there was consistency among the reviews in showing no significant differences between groups and consistency in having a downgrade for imprecision
- cyclic vaginal bleeding ≤ 2 years after surgery

Evidence report for total versus subtotal (supracervical) hysterectomy for benign gynecological conditions

Evidence Review

Prepared by EBSCO Information Services

August 7, 2019

Prepared by EBSCO Health Innovations and EBM Development Department:

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Eric Manheimer, PhD, EBM Editor

Methods

For each FAQ, the key concepts (results and factors affecting certainty of the results) from the included studies that are most relevant to evidence synthesis will be summarized in Evidence Review Tables. Where evidence is very limited, or the FAQ is for descriptive summary, summary text will be provided.

Results

FAQ 1: What does the treatment involve?

Total hysterectomy vs. subtotal hysterectomy

Descriptive Summary

A single descriptive summary is presented here, because other than the details regarding what is removed during the surgery, other details (like length of operation and duration of hospital stay) may not be importantly different between a subtotal and total hysterectomy.

When a woman has her uterus removed, she can either have a total hysterectomy (the uterus and cervix are removed) or a subtotal hysterectomy (the cervix is left in place). The cervix is the bottom part of the uterus. It connects the uterus to the vagina. It allows blood from the uterus to enter the vagina during menstruation, and it allows sperm to pass from the vagina to the uterus after intercourse. During childbirth, the cervix thins and the opening of the cervix widens to allow the baby to enter the vagina and be born. A partial hysterectomy is generally thought to cause less overall disruption of the normal tissue of the female reproductive system, but this does not necessarily mean it is the better option.

The surgery often lasts between 1 and 3 hours, and the choice of having a total or subtotal hysterectomy may not have an important impact on the duration of the surgery. Women may stay in the hospital for an average of 3 to 4 days (possibly as short as going home the same day of surgery or staying in the hospital as long as 6 days), but again, the choice of having a total or subtotal hysterectomy may not have an important impact on the duration of the stay.

The surgery itself can be carried out with an abdominal, vaginal, or laparoscopic approach, and in some cases the laparoscopic approach is robot-assisted. Although not all women can have the surgery laparoscopically, it is often the preferred approach when possible due to it having smaller incisions (one small incision in the abdomen for the laparoscope and then additional small incisions in the abdomen and/or vagina for the instruments) and less disruption of the body's tissues compared to other approaches. Because it is less invasive, laparoscopic surgery is sometimes referred to as "keyhole surgery". It is usually done under general anesthesia. The vaginal approach uses an incision at the top of the vagina, and it can be done with general, local, or spinal anesthesia. Although not all women can have the surgery vaginally, it is often used in preference to an abdominal approach when possible due to it being less invasive. The abdominal approach requires an incision on the lower abdomen, and it will either be made horizontally just above the pubic symphysis (the cut will run horizontally along what is often colloquially referred to as the "bikini line") or vertically from the umbilicus ("navel", "belly button") to the pubic symphysis. Abdominal hysterectomy is generally done with general anesthesia.

(ACOG 2018, Aleixo 2019A, Aleixo 2019B, Cleveland Clinic 2018, Healthwise 2018, Johns Hopkins nd, Lethaby 2012, Mayo Clinic 2019, NHS 2019, NIH 2018)

FAQ 2: Will I have problems urinating?

Total hysterectomy vs. subtotal hysterectomy

Evidence Review Table

Our scoping document specified four separate urinary-related outcomes of interest: stress incontinence, incomplete bladder emptying, urinary urgency as a symptom, and urge incontinence. Relevant data for stress incontinence and incomplete bladder emptying were both reported at ≤ 2 years in the Cochrane review (Lethaby 2012) and at > 5 years in the systematic review of long-term outcomes (Aleixo 2019B). Urinary urgency was reported in only the Cochrane review (at ≤ 2 years and > 2 years); urge incontinence was reported in only the Aleixo 2019B review (at > 5 years).

Because the Cochrane review reported these outcomes as odds ratios comparing subtotal vs. total and the Aleixo 2019B review reported the outcomes as risk ratios comparing total vs. subtotal, we have reported them in separate tables below.

Subtotal hysterectomy vs. total hysterectomy on urinary outcomes after surgery (Lethaby 2012)

Outcome* and time point	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
stress urinary incontinence at ≤ 2 years	955 (5)	2.1% to 13.1%	2.1% to 9.8%	1.45 (95% CI 0.85 to 2.47)	Low (imprecision, inconsistency†)
incomplete bladder emptying at ≤ 2 years	768 (4)	6.6% to 13.7%	1.6% to 20.7%	0.94 (95% CI 0.59 to 1.47)	Moderate (imprecision)
urinary urgency					
≤ 2 years	254 (2)	8.2% to 12.7%	9.4% to 10.6%	1.05 (95% CI 0.47 to 2.37)	Low (imprecision, risk of bias‡)
> 2 years	174 (1)	63.6%	58.1%	1.26 (95% CI 0.68 to 2.32)	Moderate (imprecision)

* For all outcomes included in this table, results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present for any, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the overall pooled results are reported.

† Despite absence of statistical heterogeneity, three trials suggest no effect with odds ratios 0.90 (95% CI 0.12 to 6.55), 0.98 (95% CI 0.42 to 2.28) and 1.05 (95% CI 0.29 to 3.82) while two trials suggest important differences with odds ratios 2.85 (95% CI 0.74 to 10.99) and 3.07 (95% CI 0.77 to 12.16). The inconsistency with respect to whether an effect exists leads to uncertainty that is greater than that suggested by imprecision alone.

‡ The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in all other urinary-related outcomes except for this one and therefore only this outcome is downgraded for risk of bias.

Total hysterectomy vs. subtotal hysterectomy on urinary symptoms at > 5 years after surgery (Aleixo 2019B)

Urinary symptom	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Certainty
patient-reported urinary incontinence	384 (3)	20% to 57.9%	33.3% to 83.3%	83/194 (42.8%)	0.74 (95% CI 0.58 to 0.94)	Moderate (risk of bias)
stress incontinence	540 (4)	29.3% to 56.2%	22.2% to 61.9%	144/274 (52.6%)	0.84 (95% CI 0.71 to 0.99)	Moderate (imprecision)
urge incontinence	534 (4)	12.1% to 39.5%	14.3% to 40.7%	80/271 (29.5%)	1.01 (95% CI 0.78 to 1.30)	Moderate (imprecision)
incomplete bladder emptying	535 (4)	10% to 39.5%	4.1% to 31.0%	44/272 (16.2%)	1.21 (95% CI 0.76 to 1.95)	Moderate (imprecision)

Aleixo 2019B noted patient-reported incontinence and stress incontinence favoring total hysterectomy over subtotal hysterectomy in the long-term ran counter to their initial hypothesis. They note this may be due to differences in how the procedures are performed (with suspension of the vaginal apex occurring in total hysterectomy but not in subtotal hysterectomy), and they further note one citation in the gynecologic literature that suspension of the cervical stump may diminish or eliminate the difference seen. However, some debate this suggestion, questioning whether the findings pertaining to urinary incontinence represent a “true difference [or] a matter of cultural, dietary or functional differences” (Aleixo 2019B).

FAQ 3: Will I have problems moving my bowels?

Total hysterectomy vs. subtotal hysterectomy

Evidence Review Table

Our scoping document specified constipation and incontinence as our two bowel-related outcomes of interest. Each of these outcomes was reported at ≤ 2 years and > 2 years in the Cochrane review (Lethaby 2012) and at > 5 years in the systematic review of long-term outcomes (Aleixo 2019B).

Because the Cochrane review reported these outcomes as odds ratios comparing subtotal vs. total and the Aleixo 2019B review reported them as risk ratios comparing total vs. subtotal, we have reported them in separate tables below.

Subtotal hysterectomy vs. total hysterectomy on bowel outcomes at ≤ 2 years after surgery (Lethaby 2012)

Outcome* and time point (years after surgery)	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty
constipation	555 (2)	5.3% to 19.9%	12.3% to 17.9%	0.80 (95% CI 0.49 to 1.31)	Low (imprecision, inconsistency)
incontinence	166 (1)	1.2%	2.4%	0.52 (95% CI 0.05 to 5.83)	Low (imprecision [very serious concern])

* For all outcomes included in this table, results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present for any, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the pooled results are reported.

Total hysterectomy vs. subtotal hysterectomy bowel symptoms at > 5 years after surgery (Aleixo 2019B)

Outcome	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Risk ratio (95% CI)	Certainty
fecal incontinence	294 (2)	1.7% to 2.4%	1.2% to 1.4%	1.57 (95% CI 0.26 to 9.48)	Low (imprecision [very serious concern])
constipation	489 (3)	3.4% to 14.1%	2.9% to 20.0%	0.64 (95% CI 0.38 to 1.07)	Moderate (imprecision)

FAQ 4: Will it impact my sex life?

Total hysterectomy vs. subtotal hysterectomy

Evidence Review Table

Our scoping document specified satisfaction with sex and pain during sex as our two sexual function-related outcomes of interest. Each was reported at ≤ 2 years and > 2 years in the Cochrane review (Lethaby 2012) and at ≤ 1 year in the systematic review of peri-operative and short-term outcomes (Aleixo 2019A).

Because the Cochrane review reported these outcomes as odds ratios comparing subtotal vs. total and the Aleixo 2019A review reported them as risk ratios comparing total vs. subtotal, we have reported them in separate tables below.

Subtotal hysterectomy vs. total hysterectomy on sexual function outcomes (Lethaby 2012)

Outcome* and time point (years after surgery)	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
satisfaction with sex					
≤ 2 years	454 (2)	62.8% to 90.1%	67.9% to 80.2%	1.04 (95% CI 0.68 to 1.59)	Low (imprecision, inconsistency)
pain during sex					
≤ 2 years	452 (2)	6.6% to 9.5%	6.4% to 14.3%	0.87 (95% CI 0.46 to 1.67)	Low (imprecision, inconsistency)
> 2 years	133 (1)	20.3%	31.3%	0.56 (95% CI 0.25 to 1.23)	Low (imprecision, inconsistency**)

* For outcomes included in this table, results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present for any, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the overall results are reported in this table.

** For pain during sex, the estimates at ≤ 2 years were inconsistent (OR 1.53 [95% CI 0.63 to 3.70] in Gimbel 2003 and OR 0.42 [95% CI 0.15 to 1.19] in Thakar 2002). At > 2 years, with only 1 trial reported and the known inconsistency from the earlier timeframe, there is too high a likelihood of failure of replication of results to consider a presumption of certainty for consistency.

Total vs. subtotal hysterectomy on sexual function outcomes at ≤ 1 year after surgery (Aleixo 2019A)

Outcome*	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Risk ratio (95% CI)	Certainty (reasons for downgrade)
satisfaction with sex	504 (3)	40% to 80.2%	44% to 90.1%	0.96 (95% CI 0.83 to 1.12)	High
pain during sex	452 (2)	6.4% to 14.3%	6.6% to 9.5%	1.18 (95% CI 0.38 to 3.70)	Low (imprecision, inconsistency)

* For both outcomes, results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the pooled results are reported.

FAQ 5: Will I still have monthly bleeding?

Total hysterectomy vs. subtotal hysterectomy

Evidence Review Table

Cyclic vaginal bleeding is bleeding that persists after hysterectomy. Although it is called “cyclic”, it can be irregular, occasional, and/or small amounts of bleeding (Aleixo 2019A). Although it can mimic menstruation (Aleixo 2019A), given women no longer have a uterus after a hysterectomy, it would be expected that bleeding would generally be less than what they experienced during normal menstrual periods. Given the tissue composition of the cervix and vagina, it would be expected that cyclic vaginal bleeding would be higher after subtotal hysterectomy than total hysterectomy. Cyclic vaginal bleeding was reported at ≤ 2 years in the Cochrane review (Lethaby 2012) and at ≤ 1 year in the systematic review of peri-operative and short-term outcomes (Aleixo 2019A). Although these reviews both reported this outcome, the Cochrane review reported it as an odds ratio comparing subtotal vs. total and the Aleixo 2019A review reported it as a risk ratio comparing total vs. subtotal. Combining this outcome from these reviews in a single table may not improve clarity so we have reported it in separate tables below.

Subtotal hysterectomy vs. total hysterectomy on cyclical vaginal bleeding at ≤ 2 years after surgery (Lethaby 2012)

	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Control group (total) event rate (%)	Odds ratio (95% CI)	Calculated rate in intervention group (subtotal) (%)	Certainty
cyclical vaginal bleeding	964 (5)	6.6% to 19.9%	0% to 3.1%	3/489 (0.6%)	15.97 (95% CI 6.14 to 41.56)	9.0% (95% CI 3.7% to 20.4%)	High

Total vs. subtotal hysterectomy on cyclical vaginal bleeding at ≤ 1 year after surgery (Aleixo 2019A)

	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Calculated rate in intervention group (total) (%)	Certainty
cyclical vaginal bleeding	955 (6)	0% to 9.7%	0% to 32.1%	67/472 (14.2%)	0.14 (95% CI 0.05 to 0.43)	2.0% (95% CI 0.7% to 6.1%)	High

Although these two systematic reviews provide High certainty effect estimates the included trials are overlapping but different, so it is not clear that either systematic review is the “better” overall estimate.

- Lethaby 2012 included one trial (Gorlero 2008) which was an included trial in Alexio 2019A, but which was not included in its analysis for cyclical vaginal bleeding. The results of Gorlero 2008 are consistent with the pooled results of Lethaby 2012.
- Alexio 2019A included 2 apparently-eligible trials not included in Lethaby 2012 (Asgari 2009, Berner 2015):

- Asgari 2009 is listed as “awaiting translation” in Lethaby 2012; it had no events for this outcome.
- Berner 2015 is an eligible RCT and favored total hysterectomy. Its publication date precluded inclusion in Lethaby 2012. It had a risk ratio of 0.3 (95% CI 0.09 to 1.00) for this outcome.

FAQ 6: Will the surgery impact my quality of life?

Total hysterectomy vs. subtotal hysterectomy

Descriptive Summary

As seen in systematic reviews and meta-analyses of randomized trials (Aleixo 2019A, Lethaby 2012), quality of life has been measured across different domains and different scales. Additionally, there is a high likelihood that an attempt to precisely quantify “quality of life” will result in heterogeneous results that have little qualitative meaning if combined across domains and conditions; therefore, as noted in our scoping document, we have adopted a descriptive summary approach for this FAQ.

Most evidence suggests women experience an improvement in quality of life compared to their preoperative baseline (Lethaby 2012). The evidence also consistently shows no clear difference in quality of life for total vs. subtotal hysterectomy (Aleixo 2019A, Lethaby 2012).

FAQ 7: What are the risks?

Total hysterectomy vs. subtotal hysterectomy

Evidence Review Table

We considered four separate risks of interest: wound infection, urinary retention, urinary tract injury, and pelvic organ prolapse. Wound infection and urinary retention (both at discharge) was reported only in the Cochrane review (Lethaby 2012), and these estimates included trials using an abdominal approach to the hysterectomy. For risks associated with vaginal, total laparoscopic, and robot-assisted total laparoscopic hysterectomy, please see the report on surgical approaches to hysterectomy for benign reasons, where the surgical site infection rate was approximately 1% and did not show a clear difference between groups. We consider it reasonable to incorporate these findings in this report. Urinary tract injury was reported in both the Cochrane review and in the systematic review reporting peri-operative and short-term post-operative outcomes (Aleixo 2019A). Pelvic organ prolapse was reported in the Cochrane review at ≤ 2 years and at > 2 years (not reported whether method of assessment was objective or subjective) and in the systematic review reporting outcomes at > 5 years, separately for objective and subjective assessments (Aleixo 2019B).

Because the Cochrane review reported these outcomes as odds ratios comparing subtotal vs. total and the Aleixo 2019A and Aleixo 2019B reviews reported the outcomes as risk ratios comparing total vs. subtotal, combining the outcomes from these reviews in a single table may not improve clarity so we have reported relevant risks from each review in separate tables below.

Subtotal hysterectomy vs. total hysterectomy on complications (Lethaby 2012)

Complication and time point	No of patients (studies)	Rates with subtotal (range)	Rates with total (range)	Odds ratio (95% CI)	Certainty (reasons for downgrade)
At pre-discharge					
surgical injury*	549 (3)	0% to 0.74%	1.4% to 3.1%	0.28 (95% CI 0.06 to 1.36)	Low (imprecision, risk of bias†)
wound infection	733 (3)	1.5% to 5.1%	2.1% to 5.7%	0.86 (95% CI 0.38 to 1.95)	Moderate (imprecision)
urinary retention	933 (5)	0% to 1.5%	1.4% to 4.3%	0.23 (95% CI 0.06 to 0.81)‡	High
Pelvic organ prolapse					
≤ 2 years after surgery	839 (4)	1.5% to 2.2%	0% to 2.4%	2.74 (95% CI 0.80 to 9.34)	Moderate (imprecision)

* This outcome (24.1) is labeled in Cochrane as “surgical injury” but it appears to be the same as the “urinary tract injury” outcome reported in the Aleixo 2019A systematic review. The Cochrane “surgical injury” outcome includes 3 trials (Learman 2003, Gimbel 2003, and Morelli 2007), all of which are also included in Aleixo 2019A “urinary tract injury” outcome, and all 3 trials had identical event rates in both analyses. This is relabeled “urinary tract injury” in Part 5.

† The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in all other complication outcomes in this table except for this one and therefore only this outcome is downgraded for risk of bias.

‡ Control group (total hysterectomy) event rate was 2.3% (11/475). Calculated estimate for the subtotal hysterectomy group (using the relative effect estimate and the control group event rate in the standard fashion) is 0.5% (95% CI, 0.1% to 1.9%).

Total vs. subtotal hysterectomy on urinary tract injury at ≤ 1 year after surgery (Aleixo 2019A)

Outcome* and time point	No of patients (studies)	Rates with total (range)	Rates with subtotal (range)	Risk ratio (95% CI)	Certainty
urinary tract injury†	599 (4)	1.4% to 3.1% in 3 trials (0% in 1 trial arm with only 25 patients)	0% to 0.74%	3.33 (95% CI 0.68 to 16.34)	Low (imprecision, risk of bias‡)

* Results were reported sub-grouped by abdominal and laparoscopic surgery. However, no important subgroup effect was present for any, and consideration of surgical technique is beyond the scope of this Evidence Report, so only the pooled results are reported.

† Aleixo 2019A assessed both intraoperative and postoperative short-term (≤ 1 year after surgery) events and the time point of assessment of each of the reported outcomes was not reported. We assumed “urinary tract injury” in Aleixo 2019A was assessed at pre-discharge both because it would be expected to be assessed at this time point and also because this outcome is comparable to the “surgical injury” outcome reported in Cochrane which was explicitly labeled as being assessed at “pre-discharge” (the 3 trials included in both outcomes included identical numerators and denominators). Aleixo 2019A included one additional trial that was awaiting assessment in Lethaby 2012, but this was a trial with 50 total participants, no events in either arm, and no contribution to the meta-analytic result comparing total vs. subtotal hysterectomy. We therefore use the Lethaby 2012 results for Part 5.

‡ The Thakar 2002 trial was the only trial that was blinded; it also had no other risks of bias. Thakar 2002 was included in the analysis for sexual function outcomes and cyclical vaginal bleeding but was not included in the analysis for this urinary tract injury outcome and therefore only this outcome is downgraded for risk of bias.

Total hysterectomy vs. subtotal hysterectomy on pelvic organ prolapse at > 5 years (Aleixo 2019B)*

Method of assessing for pelvic organ prolapse	No of patients (studies)	Intervention group (total) event rate (%)	Control group (subtotal) event rate (%)	Risk ratio (95% CI)	Certainty
subjective analysis	227 (2)	11/116 (9.5%)	12/111 (10.8%)	0.88 (95% CI 0.41 to 1.89)	Moderate (imprecision)
objective analysis	355 (3)	61/167 (36.5%)	62/188 (33.0%)	1.14 (95% CI 0.90 to 1.45)	Moderate (imprecision)

* Univariate estimates from the studies contributing to these outcomes was not clearly reported.

Descriptive Summary

Because a subtotal hysterectomy leaves the cervix in place, there is a chance a woman receiving a subtotal hysterectomy may develop cervical cancer at some point in the future, even though the surgery itself does not directly increase this risk.

FAQ 8: When will I recover?

Total hysterectomy vs. subtotal hysterectomy

Descriptive Summary

Whether a woman has a total or subtotal hysterectomy may not make an important difference in recovery, so a single descriptive summary is presented here. However, the surgical approach used may be relevant, with abdominal surgery often having longer recovery times compared to either vaginal or laparoscopic hysterectomy.

After a subtotal or total hysterectomy, many women feel tired or get tired easily, and women will also have pain from the surgery. It is common for women to feel like their stomach is swollen or “puffy”. It often takes 3 to 6 weeks (possibly up to 8 weeks) to feel better. Most of the pain from the surgery is usually in the first 2 weeks, and it is common to need pain medication during this time. It is common to have some mild vaginal bleeding for 2 to 6 weeks after the surgery. Beyond this initial period, please see FAQ 5 (“Will I still have monthly bleeding?”). Additionally, women should call or visit their health care team if they experience heavy bleeding, start passing blood clots, or have strong-smelling discharge.

Women can slowly increase their activity levels each day, but they should avoid strenuous activity such as sports, jogging or running, or lifting (which may include lifting things like grocery bags or children) until cleared to do so by the health care team. This may take 3 weeks or more.

Women may need to take 2 to 4 weeks off from work, though for some women, this may be up to 8 weeks. Women may be able to return to driving once they can comfortably wear a seatbelt and respond to sudden traffic changes, such as needing to emergently apply the brake. The health care team will give a more specific timeframe.

Women who are sexually active are generally advised to avoid intercourse for 6 to 12 weeks after surgery. Similarly, women are generally advised to avoid putting anything like a tampon in the vagina for 4 to 12 weeks. The health care team will give specific timeframes.

(See FAQ 1 for references)

Evidence report for total versus subtotal (supracervical) hysterectomy for benign gynecological conditions

Reference list

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