

## Pelvic floor dysfunction: prevention and non- surgical management

### [D] Prediction tools for pelvic floor dysfunction

*NICE guideline number tbc*

*This evidence review is not underpinning a practice recommendation but the topic was prioritised for research recommendation 5 in the NICE guideline*

*Evidence reviews*

*June 2021*

*Draft for consultation*

*These evidence reviews were developed by the National Guideline Alliance which is a part of the Royal College of Obstetricians and Gynaecologists*



## **Disclaimer**

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or service users. The recommendations in this guideline are not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Local commissioners and/or providers have a responsibility to enable the guideline to be applied when individual health professionals and their patients or service users wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with compliance with those duties.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the [Welsh Government](#), [Scottish Government](#), and [Northern Ireland Executive](#). All NICE guidance is subject to regular review and may be updated or withdrawn.

## **Copyright**

© NICE 2021. All rights reserved. Subject to [Notice of Rights](#).

ISBN:

# Contents

<b>Contents</b> .....	<b>4</b>
<b>Prediction tools for pelvic floor dysfunction</b> .....	<b>6</b>
Review question .....	6
Introduction .....	6
Summary of the protocol .....	6
Methods and process .....	7
Clinical evidence .....	7
Summary of studies included in the evidence review.....	7
Quality assessment of studies included in the evidence review.....	7
Economic evidence .....	7
Economic model.....	8
The committee’s discussion of the evidence.....	8
Recommendations supported by this evidence review .....	9
References.....	9
<b>Appendices</b> .....	<b>10</b>
Appendix A – Review protocol.....	10
Review protocol for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?.....	10
Appendix B – Literature search strategies .....	18
Literature search strategies for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?..	18
Appendix C – Clinical evidence study selection .....	26
Study selection for: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction? .....	26
Appendix D – Evidence tables.....	27
Evidence tables for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?.....	27
Appendix E – Forest plots.....	28
Forest plots for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction? .....	28
Appendix F – GRADE tables .....	29
GRADE tables for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?.....	29
Appendix G – Economic evidence study selection.....	30
Economic evidence study selection for review question: What is the accuracy of prediction tools for identifying women at high risk of pelvic floor dysfunction?.....	30
Appendix H – Economic evidence tables.....	31
Economic evidence tables for review question: What is the accuracy of prediction tools for identifying women at high risk of pelvic floor dysfunction?.....	31

Appendix I – Economic evidence profiles .....	32
Economic evidence profiles for review question: What is the accuracy of prediction tools for identifying women at high risk of pelvic floor dysfunction?.....	32
Appendix J – Economic analysis .....	33
Economic evidence analysis for review question: What is the accuracy of prediction tools for identifying women at high risk of pelvic floor dysfunction?.....	33
Appendix K – Excluded studies .....	34
Excluded studies for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction? .....	34
Appendix L – Research recommendations .....	38
Research recommendations for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?..	38

# 1 Prediction tools for pelvic floor 2 dysfunction

## 3 Review question

4 What is the effectiveness of prediction tools for identifying women at risk of pelvic floor  
5 dysfunction?

## 6 Introduction

7 Identification of women who are high risk of developing symptoms associated with pelvic  
8 floor dysfunction is needed, so that these women can be provided with advice regarding  
9 potential prevention strategies. The objective of this review is to determine the effectiveness  
10 of tools which are used to predict if women are likely to go onto develop symptoms (including  
11 urinary incontinence, pelvic organ prolapse, emptying disorders of the bladder, faecal  
12 incontinence, emptying disorders of the bowel, sexual dysfunction and chronic pelvic pain  
13 syndromes) associated with pelvic floor dysfunction. The aim of this review is to identify tools  
14 which are used and determine whether these are effective or not.

## 15 Summary of the protocol

16 See Table 1 for a summary of the Population, Intervention, Comparison and Outcome  
17 (PICO) characteristics of this review.

### 18 Table 1: Summary of the protocol (PICO table)

<b>Population</b>	<ul style="list-style-type: none"><li>• Women and young women (aged 12 years and older) without symptoms associated with PFD</li><li>• Women and young women (aged 12 years and older) with symptoms associated with PFD, if the tool is used retrospectively</li></ul>
<b>Intervention</b>	Any tool (either validated or non-validated) that is used to predict the development of symptoms associated with PFD
<b>Comparison</b>	<ul style="list-style-type: none"><li>• Any other tool</li><li>• No tool</li></ul>
<b>Outcomes</b>	<p><b>Critical</b></p> <ul style="list-style-type: none"><li>• Development of the following symptoms associated with PFD:<ul style="list-style-type: none"><li>○ urinary incontinence</li><li>○ emptying disorders of the bladder</li><li>○ faecal incontinence</li><li>○ emptying disorders of the bowel</li><li>○ pelvic organ prolapse</li><li>○ sexual dysfunction</li><li>○ chronic pelvic pain syndromes</li></ul></li></ul> <p><b>Important</b></p> <ul style="list-style-type: none"><li>• Prediction of the following symptoms associated with PFD:<ul style="list-style-type: none"><li>○ urinary incontinence</li><li>○ emptying disorders of the bladder</li><li>○ faecal incontinence</li></ul></li></ul>

- emptying disorders of the bowel
- pelvic organ prolapse
- sexual dysfunction
- chronic pelvic pain syndromes

1 *PFD: Pelvic floor dysfunction*

2 For further details see the review protocol in appendix A.

### 3 **Methods and process**

4 This evidence review was developed using the methods and process described in  
5 [Developing NICE guidelines: the manual](#). Methods specific to this review question are  
6 described in the review protocol in appendix A and the methods document (supplementary  
7 document 1).

8 Declarations of interest were recorded according to [NICE's conflicts of interest policy](#).

### 9 **Clinical evidence**

#### 10 **Included studies**

11 A systematic review of the literature was conducted but no studies were identified which  
12 were applicable to this review question.

13 See the literature search strategy in appendix B and study selection flow chart in appendix C.

#### 14 **Excluded studies**

15 Studies not included in this review are listed, and reasons for their exclusion are provided in  
16 appendix K.

#### 17 **Summary of studies included in the evidence review**

18 No studies were identified which were applicable to this review question (and so there are no  
19 evidence tables in Appendix D). No meta-analysis was undertaken for this review (and so  
20 there are no forest plots in Appendix E).

#### 21 **Quality assessment of studies included in the evidence review**

22 No studies were identified which were applicable to this review question and so there are no  
23 evidence profiles in appendix F.

### 24 **Economic evidence**

#### 25 **Included studies**

26 A single economic search was undertaken for all topics included in the scope of this  
27 guideline but no economic studies were identified which were applicable to this review  
28 question. See the literature search strategy in appendix B and economic study selection flow  
29 chart in appendix G.

1 **Excluded studies**

2 Studies not included in this review are listed, and reasons for their exclusion are provided in  
3 appendix K.

4 **Economic model**

5 No economic modelling was undertaken for this review because the review question did not  
6 address evidence between competing courses of action. However, a risk prediction tool was  
7 utilised in the model for preventative PFMT to determine in which women prevention would  
8 be cost-effective. Further details are provided in [evidence review F: pelvic floor muscle  
9 training to prevent pelvic floor dysfunction](#).

10 **Summary of the evidence Clinical evidence statements**

11 No evidence was identified which was applicable to this review question.

12 **Impact of the recommendations on practice**

13 None

14 **The committee's discussion of the evidence**

15 **Interpreting the evidence**

16 ***The outcomes that matter most***

17 The aim of this review question was to determine whether prediction tools can be used to  
18 identify women at risk of developing pelvic floor dysfunction; therefore, the committee agreed  
19 the critical outcome was development of symptoms associated with pelvic floor dysfunction.  
20 However, it was anticipated that included studies may not cover a sufficient timeframe to  
21 determine development of symptoms; therefore, prediction of symptoms was included as an  
22 important outcome.

23 ***The quality of the evidence***

24 No clinical evidence was identified for this review.

25 ***Benefits and harms***

26 The committee acknowledged that no evidence was identified. Based on their expertise, the  
27 committee agreed that there are a number of different groups at risk of developing pelvic  
28 floor dysfunction such as pregnant women, post-menopausal women and high-impact  
29 athletes. The development and subsequent evaluation of a tool's effectiveness would be  
30 important in aiding the identification of at risk and targeted preventive management.  
31 Therefore, the committee decided that they had insufficient evidence to make a practice  
32 recommendation, but made a research recommendation to investigate this further.

33 ***Cost effectiveness and resource use***

34 No practice recommendations were made as no clinical evidence was identified for this  
35 review. However, the economic model on prevention of pelvic floor muscle training utilised  
36 the [UR CHOICE](#) online risk calculator to determine in which groups of pregnant women  
37 prevention would be cost-effective. Further details are provided in [evidence review F: pelvic  
38 floor muscle training to prevent pelvic floor dysfunction](#).



**1 Recommendations supported by this evidence review**

- 2 No practice recommendations were made from this evidence review but this topic was  
3 prioritised for a research recommendation on prediction tools in the NICE guideline (research  
4 recommendation number 5).

**5 References**

- 6 No clinical evidence was identified for this review.

7

# 1 Appendices

## 2 Appendix A – Review protocol

### 3 Review protocol for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?

5 Table 2: Review protocol

ID	Field	Content
0.	PROSPERO registration number	CRD42020170131
1.	Review title	Prediction tools for pelvic floor dysfunction
2.	Review question	<p>What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?</p> <p>The committee changed the question from “<i>What is the accuracy of prediction tools for identifying women at high risk of pelvic floor dysfunction?</i>” to “<i>What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?</i>” because there is no gold standard tool to use as a reference. The committee were not sure if any tools would be identified at all.</p>
3.	Objective	<p>The objective of this review is to determine the effectiveness of tools which are used to predict if women are likely to go onto develop symptoms (including urinary incontinence, pelvic organ prolapse, emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, sexual dysfunction and chronic pelvic pain syndromes) associated with pelvic floor dysfunction. The committee are aware that some tools are used for pregnant women, but these tools are not routinely used, and may be specific to each local unit. The aim of this review is to identify tools which are used and determine whether these are effective or not.</p>
4.	Searches	<p>The following databases will be searched:</p> <ul style="list-style-type: none"> <li>• Cochrane Database of Systematic Reviews (CDSR)</li> <li>• Cochrane Central Register of Controlled Trials (CENTRAL)</li> <li>• MEDLINE &amp; Medline in Process</li> <li>• Embase</li> </ul> <p>Searches will be restricted by:</p> <ul style="list-style-type: none"> <li>• Date: 1980 onwards (see section 10 for justification)</li> <li>• Human studies</li> </ul>

ID	Field	Content
		<ul style="list-style-type: none"> <li>English language studies only</li> </ul> <p>Other searches:                      Inclusion lists of potentially relevant systematic review</p> <p>The full search strategies for MEDLINE database will be published in the final review.                      For each search, the principal database search strategy is quality assured by a second information scientist using an adaptation of the PRESS 2015 Guideline Evidence-Based Checklist.</p>
5.	Condition or domain being studied	<p>The following symptoms will be addressed as long as they are associated with pelvic floor dysfunction: urinary incontinence, emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, pelvic organ prolapse, sexual dysfunction and chronic pelvic pain syndromes.</p> <p>Note. For the purpose of prediction tools we will focus on studies predicting ‘pelvic floor dysfunction’ rather than individual symptoms.</p>
6.	Population	<p>Inclusion</p> <ul style="list-style-type: none"> <li>Women and young women (aged 12 years and older) without symptoms associated with pelvic floor dysfunction</li> <li>Women and young women (aged 12 years and older) with symptoms associated with pelvic floor dysfunction if the tool is used retrospectively</li> </ul> <p>Exclusion</p> <ul style="list-style-type: none"> <li>Women and young women (aged 12 years and older) with symptoms associated with pelvic floor dysfunction (including urinary incontinence, pelvic organ prolapse, emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, sexual dysfunction and chronic pelvic pain syndromes).</li> <li>Men</li> <li>Babies and children (younger than 12 years)</li> </ul>
7.	Intervention	<p>Any tool (either validated or non-validated) that is used to predict the development of symptoms associated with pelvic floor dysfunction, for example, but not exclusively:</p> <ul style="list-style-type: none"> <li>UR choice</li> <li>Continence index</li> <li>Continence predictor index tool</li> </ul>
8.	Comparator	Any other tool

ID	Field	Content
		No tool
9.	Types of study to be included	<p>Systematic reviews of RCTs            RCTs            Cohort studies, including prospective and retrospective design            If no evidence is identified case control studies will be considered; however, all other study designs will be prioritised, as case-control studies risk over-estimating effect sizes.</p> <p>Note: For further details, see the algorithm in appendix H, <a href="#">Developing NICE guidelines: the manual</a>.</p>
10.	Other exclusion criteria	<p>Conference abstracts will be excluded because these do not typically provide sufficient information to fully assess risk of bias.</p> <p>Only articles published after 1980 will be included. This was agreed by the committee as this is the date that the condition “pelvic floor dysfunction” was recognised to include agreed terminology on symptoms.  <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2815805/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2815805/</a></p>
11.	Context	<p>Studies which are used in predicting women at risk of developing pelvic floor dysfunction will be prioritised for decision making in regards to recommendations.</p> <p>Recommendations will apply to all women (over the age of 12 years) in the community, and women within the health care setting (for example: community, primary, secondary care). Specific recommendations for groups listed in the Equality Considerations section of the scope may be also be made as appropriate.</p>
12.	Primary outcomes (critical outcomes)	<ul style="list-style-type: none"> <li>• Development of the following symptoms associated with pelvic floor dysfunction:               <ul style="list-style-type: none"> <li>○ urinary incontinence,</li> <li>○ emptying disorders of the bladder,</li> <li>○ faecal incontinence,</li> <li>○ emptying disorders of the bowel,</li> <li>○ pelvic organ prolapse,</li> <li>○ sexual dysfunction</li> <li>○ chronic pelvic pain syndromes</li> </ul> </li> </ul> <p>For the above outcomes, only validated tools will be included (for example: ICIQ-UI, ICIQ-VS, BFLUTS, UDI, ISI, POPSS, PISQ, POPQ, FISQ, FIQL, GIQLI, PAC-QM, PAC –SYM, PDI, BPI)</p>

ID	Field	Content
13.	Secondary outcomes (important outcomes)	<ul style="list-style-type: none"> <li>• Prediction of the following symptoms associated with pelvic floor dysfunction:               <ul style="list-style-type: none"> <li>○ urinary incontinence,</li> <li>○ emptying disorders of the bladder,</li> <li>○ faecal incontinence,</li> <li>○ emptying disorders of the bowel,</li> <li>○ pelvic organ prolapse,</li> <li>○ sexual dysfunction</li> <li>○ chronic pelvic pain syndromes</li> </ul> </li> </ul>
14.	Data extraction (selection and coding)	<p>All references identified by the searches and from other sources will be uploaded into STAR and de-duplicated. Titles and abstracts of the retrieved citations will be screened to identify studies that potentially meet the inclusion criteria outlined in the review protocol. Duplicate screening will not be undertaken for this question.</p> <p>Full versions of the selected studies will be obtained for assessment. Studies that fail to meet the inclusion criteria once the full version has been checked will be excluded at this stage. Each study excluded after checking the full version will be listed, along with the reason for its exclusion.</p> <p>A standardised form will be used to extract data from studies. One reviewer will extract relevant data into a standardised form, and this will be quality assessed by a senior reviewer. Information to be extracted from studies includes: study type, study dates, location of study, funding, inclusion and exclusion criteria, participant characteristics, and details of the tools included.</p>
15.	Risk of bias (quality) assessment	<p>Quality assessment of individual studies will be performed using the following checklists:</p> <ul style="list-style-type: none"> <li>• ROBIS tool for systematic reviews</li> <li>• ROBINS_I for non-randomised trials</li> <li>• Cochrane RoB tool v.2 for RCTs</li> </ul> <p>The quality assessment will be performed by one reviewer and this will be quality assessed by a senior reviewer.</p>
16.	Strategy for data synthesis	<p>Depending on the availability of the evidence, the findings will be summarised narratively or quantitatively. Where possible, pair wise meta-analyses will be conducted using Cochrane Review Manager software. A fixed effect meta-analysis will be conducted and data will be presented as risk ratios for dichotomous outcomes. Peto odds ratio will be used for outcomes with zero events Mean differences or standardised mean differences will be calculated for continuous outcomes.</p> <p>Heterogeneity</p>

ID	Field	Content
		<p>Heterogeneity in the effect estimates of the individual studies will be assessed using the I<sup>2</sup> statistic. I<sup>2</sup> values of greater than 50% and 80% will be considered as significant and very significant heterogeneity, respectively. In the presence of heterogeneity sub-group analysis will be conducted</p> <ul style="list-style-type: none"> <li>• According to risk of bias of individual studies</li> <li>• According to socioeconomic status of population included</li> <li>• By ethnicity of included populations</li> </ul> <p>Exact subgroup analysis may vary depending on differences identified within included studies. If heterogeneity cannot be explained through subgroup analysis then a random effects model will be used for meta-analysis. If heterogeneity remains above 80% reviewers will consider if meta-analysis is appropriate given the characteristics of included study populations.</p> <p>Minimally important differences</p> <p>Published MIDs will be used where available, alternatively the committee will be asked for appropriate pre-specified MIDs. In the absence of these, default MIDs will be used for risk ratios and continuous outcomes as follows:</p> <ul style="list-style-type: none"> <li>• For risk ratios: 0.8 and 1.25.</li> <li>• For continuous outcomes:             <ul style="list-style-type: none"> <li>○ For one study: the MID is calculated as +/-0.5 times the baseline SD of the control arm.</li> <li>○ For two studies: the MID is calculated as +/-0.5 times the mean of the SDs of the control arms at baseline. If baseline SD is not available, then SD at follow up will be used.</li> <li>○ For three or more studies (meta-analysed): the MID is calculated by ranking the studies in order of SD in the control arms. The MID is calculated as +/- 0.5 times median SD.</li> <li>○ For studies that have been pooled using SMD (meta-analysed): +0.5 and -0.5 in the SMD scale are used as MID boundaries.</li> </ul> </li> </ul> <p>Validity</p> <p>The confidence in the findings across all available evidence will be evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: <a href="http://www.gradeworkinggroup.org/">http://www.gradeworkinggroup.org/</a></p>
17.	Analysis of sub-groups	<p>If data is available, separate analysis will be conducted on:</p> <ul style="list-style-type: none"> <li>• Women who are pregnant or who have been pregnant</li> <li>• Women before and after gynaecological surgery</li> <li>• Age (Women aged 65 or older, younger women)</li> <li>• Women with physical disabilities</li> <li>• Women with cognitive impairment</li> </ul>

ID	Field	Content		
		<ul style="list-style-type: none"> <li>Women who are in perimenopause (pre- and post-)</li> </ul> <p>According to those who do not identify themselves as women, but who have female pelvic organs</p>		
18.	Type and method of review	<input checked="" type="checkbox"/>	Intervention	
		<input type="checkbox"/>	Diagnostic	
		<input type="checkbox"/>	Prognostic	
		<input type="checkbox"/>	Qualitative	
		<input type="checkbox"/>	Epidemiologic	
		<input type="checkbox"/>	Service Delivery	
		<input type="checkbox"/>	Other (please specify)	
19.	Language	English		
20.	Country	England		
21.	Anticipated or actual start date	TBC		
22.	Anticipated completion date	August 2021		
23.	Stage of review at time of this submission	Review stage	Started	Completed
		Preliminary searches	<input type="checkbox"/>	<input type="checkbox"/>
		Piloting of the study selection process	<input type="checkbox"/>	<input type="checkbox"/>
		Formal screening of search results against eligibility criteria	<input type="checkbox"/>	<input type="checkbox"/>
		Data extraction	<input type="checkbox"/>	<input type="checkbox"/>
		Risk of bias (quality) assessment	<input type="checkbox"/>	<input type="checkbox"/>
		Data analysis	<input type="checkbox"/>	<input type="checkbox"/>
24.	Named contact	5a. Named contact National Guideline Alliance		

ID	Field	Content
		5b Named contact e-mail PreventionofPOP@nice.org.uk 5e Organisational affiliation of the review National Institute for Health and Care Excellence (NICE) and the National Guideline Alliance
25.	Review team members	NGA technical team
26.	Funding sources/sponsor	This systematic review is being completed by the National Guideline Alliance, which is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists. NICE funds the National Guideline Alliance to develop guidelines for those working in the NHS, public health, and social care in England.
27.	Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.
28.	Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of <a href="#">Developing NICE guidelines: the manual</a> . Members of the guideline committee are available on the NICE website: <a href="https://www.nice.org.uk/guidance/indevelopment/gid-ng10123/">https://www.nice.org.uk/guidance/indevelopment/gid-ng10123/</a>
29.	Other registration details	Not applicable
30.	Reference/URL for published protocol	<a href="https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=170131">https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=170131</a>
31.	Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: notifying registered stakeholders of publication publicising the guideline through NICE's newsletter and alerts issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.
32.	Keywords	Prediction tools, pelvic floor dysfunction
33.	Details of existing review of same topic by same authors	Not applicable



ID	Field	Content
34.	Current review status	<input checked="" type="checkbox"/> Ongoing
		<input type="checkbox"/> Completed but not published
		<input type="checkbox"/> Completed and published
		<input type="checkbox"/> Completed, published and being updated
		<input type="checkbox"/> Discontinued
35..	Additional information	Not applicable
36.	Details of final publication	<a href="http://www.nice.org.uk">www.nice.org.uk</a>

1 BFLUTS: Bristol Female Lower Urinary Tract Symptoms Questionnaire; BPI: Brief pain inventory; CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane  
2 Central Register of Controlled Trials; DARE: Database of Abstracts of Reviews of Effects; ePAQ: Electronic personal health questionnaire; FIQL: Faecal incontinence quality of  
3 life scale; FISI: Faecal incontinence severity index; GIQLI: Gastrointestinal quality of life index; GRADE: Grading of Recommendations Assessment, Development and  
4 Evaluation; HTA: Health Technology Assessment; ICIQ-UI: International Consultation on Incontinence Questionnaire- Urinary incontinence; ICIQ-VA: International Consultation  
5 on Incontinence questionnaire – vaginal symptoms; ISI: Incontinence symptom index; KHQ: Kings health questionnaire; MID: minimally important difference; NGA: National  
6 Guideline Alliance; NHS: National health service; NICE: National Institute for Health and Care Excellence; PAC-QL: patient assessment of constipation - quality of life; PAC-  
7 SYM: Patient assessment of constipation symptoms; PDI: Pain disability index; PISQ: Pelvic organ prolapse/urinary incontinence sexual questionnaire; POPQ: Pelvic organ  
8 prolapse quantification system; POP-SS: Pelvic organ prolapse symptom score; RCT: randomised controlled trial; RoB: risk of bias; SD: standard deviation; UDI: Urinary  
9 distress index

## 1 Appendix B – Literature search strategies

### 2 Literature search strategies for review question: What is the effectiveness of 3 prediction tools for identifying women at risk of pelvic floor dysfunction?

4

5

#### Clinical Search

6

7

#### Database(s): Medline & Embase (Multifile) – OVID interface

8

Embase Classic+Embase 1947 to 2020 February 21; Ovid MEDLINE(R) and Epub Ahead

9

of Print, In-Process & Other Non-Indexed Citations and Daily 1946 to February 21, 2020

10

Date of last search: 24 February 2020

11

12

Multifile database codes: emczd = Embase Classic+Embase; ppez= MEDLINE(R) and Epub Ahead of  
 13 Print, In-Process & Other Non-Indexed Citations and Daily

#	Searches
1	Pelvic Floor/ or Pelvic Floor Disorders/ or exp *Urinary Incontinence/ or *Urinary Bladder, Overactive/ or exp *Pelvic Organ Prolapse/ or *Rectocele/ or *Fecal Incontinence/ or Urinary Retention/ or Fecal Impaction/ or Vaginismus/
2	1 use ppez
3	pelvis floor/ or pelvic floor disorder/ or exp *urine incontinence/ or *overactive bladder/ or *bladder instability/ or exp *pelvic organ prolapse/ or *rectocele/ or *feces incontinence/ or urine retention/ or defecation disorder/ or Feces Impaction/ or female sexual dysfunction/ or vaginism/
4	3 use emczd
5	(pelvi\$ adj (floor\$ or diaphragm\$) adj3 (dysfunction\$ or disorder\$ or fail\$ or impair\$ or incompeten\$ or insufficien\$ or dyssynerg\$ or symptom\$ or laxity or change\$ or care\$ or health\$ or wellbeing\$ or well-being\$ or prevent\$ or rehabilitat\$ or weak\$ or hypertonic\$ or overactiv\$ or over activ\$ or over-activ\$)).tw.
6	(pelvi\$ adj (dysfunction\$ or disorder\$ or fail\$ or impair\$ or incompeten\$ or insufficien\$ or dyssynerg\$ or symptom\$ or laxity or care\$ or health\$ or wellbeing\$ or well-being\$ or prevent\$ or rehabilitat\$ or weak\$ or hypertonic\$ or overactiv\$ or over activ\$ or over-activ\$)).tw.
7	((stress\$ or mix\$ or urg\$ or urin\$) adj5 incontinen\$).ti.
8	(bladder\$ adj5 (overactiv\$ or over activ\$ or over-activ\$ or instabilit\$ or hyper-reflex\$ or hyperreflex\$ or hyper reflex\$ or incontinen\$)).ti.
9	(detrusor\$ adj5 (overactiv\$ or over activ\$ or over-activ\$ or instabilit\$ or hyper-reflex\$ or hyperreflex\$ or hyper reflex\$)).ti.
10	((urgency adj2 frequency) or (frequency adj2 urgency)).ti.
11	((urin\$ or bladder\$) adj2 (urg\$ or frequen\$)).ti.
12	(SUI or OAB).ti.
13	(pelvic\$ adj3 organ\$ adj3 prolaps\$).ti.
14	(urinary adj3 bladder adj3 prolaps\$).ti.
15	((vagin\$ or urogenital\$ or genit\$ or uter\$ or viscer\$ or anterior\$ or posterior\$ or apical or pelvi\$ or vault\$ or urethr\$ or bladder\$ or cervi\$ or rectal or rectum) adj3 prolaps\$).ti.
16	(splanchnoptos\$ or visceroptos\$).ti.
17	(hernia\$ adj3 (pelvi\$ or vagin\$ or urogenital\$ or uter\$ or bladder\$ or urethr\$ or viscer\$)).ti.
18	(urethroc?ele\$ or enteroc?ele\$ or sigmoidoc?ele\$ or proctoc?ele\$ or rectoc?ele\$ or cystoc?ele\$ or rectoenteroc?ele\$ or cystourethroc?ele\$).ti.
19	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat\$ or defaecat\$) adj5 (incontinence or incontinent or urge\$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).ti.
20	(urin\$ adj3 (retention\$ or retain\$)).tw.
21	(voiding adj (disorder\$ or dysfunction\$ or problem\$)).tw.
22	(empty\$ adj disorder\$ adj3 (bowel\$ or bladder\$ or vesical\$ or stool\$)).tw.
23	((urogeni\$ or anorec\$ or ano-rec\$ or ano rec\$) adj3 dysfunction\$).tw.
24	((difficult\$ or delay\$ or irregular\$ or infrequen\$ or pain\$) adj3 (defecat\$ or defaecat\$ or stool\$ or faeces or feces or bowel movement\$)).tw.
25	(obstruct\$ adj3 (defecat\$ or defaecat\$)).tw.
26	((defecat\$ or defaecat\$ or evacuat\$) adj3 (disorder\$ or dysfunction\$)).tw.
27	outlet\$ dysfunction\$ constipa\$.tw.
28	(dys?ynerg\$ adj (defecat\$ or defaecat\$)).tw.
29	(pelvi\$ adj3 dyskines\$).tw.
30	pelvi\$ outlet\$ obstruct\$.tw.
31	anismus\$.tw.
32	puborectal\$ contract\$.tw.
33	((rectal or rectum) adj3 urge\$).tw.
34	(female adj sex\$ adj (dysfunct\$ or satisf\$ or problem\$ or symptom\$ or arous\$ or activit\$ or disorder\$)).tw.
35	(obstruct\$ adj3 intercourse).tw.
36	(vagin\$ adj3 laxity\$).tw.
37	(vagin\$ adj wind).tw.

#	Searches
38	vaginismus\$.tw.
39	(vagin\$ adj penetrat\$ adj disorder\$.tw.
40	or/2, 4-39
41	predict.ti.
42	(validat* or rule*).ti,ab.
43	(predict* and (outcome* or risk* or model*)).ti,ab.
44	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.
45	(decision*.ti,ab. and Logistic models/) use ppez
46	(decision*.ti,ab. and Statistical model/) use emczd
47	(decision* and (model* or clinical*)).ti,ab.
48	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)).ti,ab.
49	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable).ti,ab.
50	ROC curve/ use ppez
51	Receiver operating characteristic/ use emczd
52	or/41-51
53	(pelvi\$ adj (floor\$ or diaphragm\$) adj3 (dysfunction\$ or disorder\$ or fail\$ or impair\$ or incompeten\$ or insufficien\$ or dyssynerg\$ or symptom\$ or laxity or change\$ or care\$ or health\$ or wellbeing\$ or well-being\$ or prevent\$ or rehabilitat\$ or weak\$ or hypertonic\$ or overactiv\$ or over activ\$ or over-activ\$)).ti.
54	(pelvi\$ adj (dysfunction\$ or disorder\$ or fail\$ or impair\$ or incompeten\$ or insufficien\$ or dyssynerg\$ or symptom\$ or laxity or care\$ or health\$ or wellbeing\$ or well-being\$ or prevent\$ or rehabilitat\$ or weak\$ or hypertonic\$ or overactiv\$ or over activ\$ or over-activ\$)).ti.
55	53 or 54
56	52 and 55
57	*Risk/ or Risk Factors/ or Risk Assessment/
58	57 use ppez
59	*risk/ or risk factor/ or risk assessment/
60	59 use emczd
61	(risk adj2 algorithm\$.mp.
62	(risk adj (factor\$ or assessment\$ or estimate\$ or calculator\$ or predict\$)).mp.
63	(high\$ risk or increase\$ risk or low\$ risk or decrease\$ risk).mp.
64	or/58,60-63
65	Prognosis/ or "Predictive Value of Tests"/ or Logistic Models/ or Linear Models/ or Models, Statistical/ or Models, Theoretical/ or Algorithms/ or Nomograms/ or Decision Support Techniques/ or Mass Screening/
66	65 use ppez
67	prognosis/ or prediction/ or predictive value/ or statistical model/ or theoretical model/ or algorithm/ or nomogram/ or decision support system/ or mass screening/ or screening/ or screening test/
68	67 use emczd
69	((predict\$ or prognost\$) adj3 (model\$ or tool\$ or rule\$)).mp.
70	(scoring adj system\$.mp.
71	(nomogram\$ or algorithm\$.tw.
72	(screening adj (model\$ or tool\$ or instrument\$ or protocol\$)).tw.
73	or/66,68-72
74	40 and 64 and 73
75	56 or 74
76	limit 75 to english language
77	limit 76 to yr="1980 -Current" [General Exclusions filter applied]

1  
2  
3  
4  
5

**Database(s): Cochrane Library – Wiley interface**  
**Cochrane Database of Systematic Reviews**, Issue 2 of 12, February 2020; **Cochrane Central Register of Controlled Trials**, Issue 2 of 12, February 2020  
 Date of last search: 24 February 2020

#	Searches
#1	MeSH descriptor: [Pelvic Floor] this term only
#2	MeSH descriptor: [Pelvic Floor Disorders] this term only
#3	((pelvi* NEXT (floor* or diaphragm*) NEAR/3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*)):ti,ab,kw
#4	((pelvi* NEXT (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*)):ti,ab,kw
#5	MeSH descriptor: [Urinary Incontinence] explode all trees
#6	MeSH descriptor: [Urinary Bladder, Overactive] this term only
#7	((stress* or mix* or urg* or urin*) NEAR/5 incontinen*)):ti
#8	((bladder* NEAR/5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*)):ti
#9	((detrusor* NEAR/5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*)):ti
#10	((urgency NEAR/2 frequency) or (frequency NEAR/2 urgency)):ti

#	Searches
#11	(((urin* or bladder*) NEAR/2 (urg* or frequen*)))):ti
#12	(((SUI or OAB))):ti
#13	MeSH descriptor: [Pelvic Organ Prolapse] explode all trees
#14	MeSH descriptor: [Rectocele] this term only
#15	(((pelvic* NEAR/3 organ* NEAR/3 prolaps*)))):ti
#16	(((urinary NEAR/3 bladder NEAR/3 prolaps*)))):ti
#17	(((vagin* or urogenital* or genit* or uter* or viscer* or anterior* or posterior* or apical or pelvi* or vault* or urethr* or bladder* or cervi* or rectal or rectum NEAR/3 prolaps*)))):ti
#18	(((splachnoptos* or visceroptos*)))):ti
#19	(((hernia* NEAR/3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*)))):ti
#20	(((urethro?ele* or enteroc?ele* or sigmoidoc?ele* or proctoc?ele* or rectoc?ele* or cystoc?ele* or rectoenteroc?ele* or cystourethro?ele*)))):ti
#21	MeSH descriptor: [Fecal Incontinence] this term only
#22	(((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat* or defaecat*) NEAR/5 (incontinence or incontinent or urge* or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction))):ti
#23	MeSH descriptor: [Urinary Retention] this term only
#24	(((urin* NEAR/3 (retention* or retain*)))):ti,ab,kw
#25	(((voiding NEXT (disorder* or dysfunction* or problem*)))):ti,ab,kw
#26	(((empty* NEXT disorder* NEAR/3 (bowel* or bladder* or vesical* or stool*)))):ti,ab,kw
#27	(((urogeni* or anorec* or ano-rec* or ano rec*) NEAR/3 dysfunction*)))):ti,ab,kw
#28	MeSH descriptor: [Fecal Impaction] this term only
#29	(((difficult* or delay* or irregular* or infrequen* or pain*) NEAR/3 (defecat* or defaecat* or stool* or faecal or fecal or faeces or feces or fecally or faecally or bowel movement*)))):ti,ab,kw
#30	(((obstruct* NEAR/3 (defecat* or defaecat*)))):ti,ab,kw
#31	(((defecat* or defaecat* or evacuat*) NEAR/3 (disorder* or dysfunction*)))):ti,ab,kw
#32	((outlet* dysfunction* constipa*)):ti,ab,kw
#33	(((dys?ynerg* NEXT (defecat* or defaecat*)))):ti,ab,kw
#34	(((pelvi* NEAR/3 dyskines*)))):ti,ab,kw
#35	((pelvi* outlet* obstruct*)):ti,ab,kw
#36	((anismus*)):ti,ab,kw
#37	((puborectal* contract*)):ti,ab,kw
#38	(((rectal or rectum) NEAR/3 urge*)):ti,ab,kw
#39	(((female NEXT sex* NEXT (dysfunc* or satisf* or problem* or symptom* or arous* or activit* or disorder*)))):ti,ab,kw
#40	(((obstruct* NEAR/3 intercourse))):ti,ab,kw
#41	(((vagin* NEAR/3 laxity*)):ti,ab,kw
#42	(((vagin* NEXT wind))):ti,ab,kw
#43	MeSH descriptor: [Vaginismus] this term only
#44	((vaginismus*)):ti,ab,kw
#45	(((vagin* NEXT penetrat* NEXT disorder*)))):ti,ab,kw
#46	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45
#47	MeSH descriptor: [Risk] this term only
#48	MeSH descriptor: [Risk Factors] this term only
#49	MeSH descriptor: [Risk Assessment] this term only
#50	((risk NEAR/2 algorithm*)):ti,ab,kw
#51	((risk NEXT (factor* or assessment* or estimate* or calculator* or predict*)))):ti,ab,kw
#52	((high* risk or increase* risk or low* risk or decrease* risk)):ti,ab,kw
#53	#47 OR #48 OR #49 OR #50 OR #51 OR #52
#54	MeSH descriptor: [Prognosis] this term only
#55	MeSH descriptor: [Predictive Value of Tests] this term only
#56	MeSH descriptor: [Logistic Models] this term only
#57	MeSH descriptor: [Linear Models] this term only
#58	MeSH descriptor: [Models, Statistical] this term only
#59	MeSH descriptor: [Models, Theoretical] this term only
#60	MeSH descriptor: [Algorithms] this term only
#61	MeSH descriptor: [Nomograms] this term only
#62	MeSH descriptor: [Decision Support Techniques] this term only
#63	MeSH descriptor: [Mass Screening] this term only
#64	(((predict* or prognost*) NEAR/3 (model* or tool* or rule*)))):ti,ab,kw
#65	((scoring NEXT system*)):ti,ab,kw
#66	((nomogram* or algorithm*)):ti,ab,kw
#67	((screening NEXT (model* or tool* or instrument* or protocol*)))):ti,ab,kw
#68	#54 OR #55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #64 OR #65 OR #66 OR #67
#69	#46 AND #53 AND #68
#70	(((pelvi* NEXT (floor* or diaphragm*) NEAR/3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity* or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*)))):ti

#	Searches
#71	((pelvi* NEXT (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*)))):ti
#72	#70 OR #71
#73	(predict):ti
#74	((validat* or rule*)):ti,ab,kw
#75	((predict* and (outcome* or risk* or model*)):ti,ab,kw
#76	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)):ti,ab,kw
#77	(decision*):ti,ab,kw
#78	#56 AND #77
#79	((decision* and (model* or clinical*)):ti,ab,kw
#80	((prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)):ti,ab,kw
#81	((stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable)):ti,ab,kw
#82	MeSH descriptor: [ROC Curve] this term only
#83	#73 OR #74 OR #75 OR #76 OR #78 OR #79 OR #80 OR #81 OR #82
#84	#72 AND #83
#85	#69 OR #84

1  
2  
3  
4

**Database(s): Database of Abstracts of Reviews of Effects (DARE); HTA Database – CRD interface**

Date of last search: 24 February 2020

#	Searches
1	MeSH DESCRIPTOR Pelvic Floor IN DARE,HTA
2	MeSH DESCRIPTOR Pelvic Floor Disorders IN DARE,HTA
3	((pelvi* NEXT (floor* or diaphragm*) NEAR3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*))) IN DARE, HTA
4	((pelvi* NEXT (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*))) IN DARE, HTA
5	MeSH DESCRIPTOR Urinary Incontinence EXPLODE ALL TREES IN DARE,HTA
6	MeSH DESCRIPTOR Urinary Bladder, Overactive IN DARE,HTA
7	((stress* or mix* or urg* or urin*) NEAR5 incontinen*) IN DARE, HTA
8	((bladder* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*))) IN DARE, HTA
9	((detrusor* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*))) IN DARE, HTA
10	((urgency NEAR2 frequency) or (frequency NEAR2 urgency)) IN DARE, HTA
11	((urin* or bladder*) NEAR2 (urg* or frequen*)) IN DARE, HTA
12	((SUI or OAB)) IN DARE, HTA
13	MeSH DESCRIPTOR Pelvic Organ Prolapse EXPLODE ALL TREES IN DARE,HTA
14	MeSH DESCRIPTOR Rectocele IN DARE,HTA
15	((pelvic* NEAR3 organ* NEAR3 prolaps*)) IN DARE, HTA
16	((urinary NEAR3 bladder NEAR3 prolaps*)) IN DARE, HTA
17	((vagin* or urogenital* or genit* or uter* or viscer* or anterior* or posterior* or apical or pelvi* or vault* or urethr* or bladder* or cervi* or rectal or rectum) NEAR3 prolaps*)) IN DARE, HTA
18	((splanchnoptos* or visceroptos*)) IN DARE, HTA
19	((hernia* NEAR3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*))) IN DARE, HTA
20	((urethro?ele* or enteroc?ele* or sigmoidoc?ele* or proctoc?ele* or rectoc?ele* or cystoc?ele* or rectoenteroc?ele* or cystourethro?ele*)) IN DARE, HTA
21	MeSH DESCRIPTOR Fecal Incontinence IN DARE,HTA
22	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat* or defaecat*) NEAR5 (incontinence or incontinent or urge* or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)) IN DARE, HTA
23	MeSH DESCRIPTOR Urinary Retention IN DARE,HTA
24	((urin* NEAR3 (retention* or retain*)) IN DARE, HTA
25	((voiding NEXT (disorder* or dysfunction* or problem*)) IN DARE, HTA
26	((empty* NEXT disorder* NEAR3 (bowel* or bladder* or vesical* or stool*)) IN DARE, HTA
27	((urogeni* or anorec* or ano-rec* or ano rec*) NEAR3 dysfunction*) IN DARE, HTA
28	MeSH DESCRIPTOR Fecal Impaction IN DARE,HTA
29	((difficult* or delay* or irregular* or infrequen* or pain*) NEAR3 (defecat* or defaecat* or stool* or faecal or fecal or faeces or feces or fecally or faecally or bowel movement*)) IN DARE, HTA
30	((obstruct* NEAR3 (defecat* or defaecat*)) IN DARE, HTA
31	((defecat* or defaecat* or evacuat*) NEAR3 (disorder* or dysfunction*)) IN DARE, HTA
32	((outlet* NEXT dysfunction* NEXT constipa*)) IN DARE, HTA
33	((dys?ynerg* NEXT (defecat* or defaecat*)) IN DARE, HTA
34	((pelvi* NEAR3 dyskines*)) IN DARE, HTA
35	((pelvi* NEXT outlet* NEXT obstruct*)) IN DARE, HTA

#	Searches
36	((anismus*)) IN DARE, HTA
37	((puborectal* NEXT contract*)) IN DARE, HTA
38	((rectal or rectum) NEAR3 urge*) IN DARE, HTA
39	((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*))) IN DARE, HTA
40	((obstruct* NEAR3 intercourse)) IN DARE, HTA
41	((vagin* NEAR3 laxity*)) IN DARE, HTA
42	((vagin* NEXT wind)) IN DARE, HTA
43	MeSH DESCRIPTOR Vaginismus IN DARE,HTA
44	((vaginismus*)) IN DARE, HTA
45	((vagin* NEXT penetrat* NEXT disorder*)) IN DARE, HTA
46	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45
47	MeSH DESCRIPTOR Risk IN DARE,HTA
48	MeSH DESCRIPTOR Risk Factors IN DARE,HTA
49	MeSH DESCRIPTOR Risk Assessment IN DARE,HTA
50	((risk NEAR2 predict*)) IN DARE, HTA
51	((risk NEXT (factor* or assessment* or estimate* or calculator* or predict*))) IN DARE, HTA
52	((high* risk or increase* risk or low* risk or decrease* risk)) IN DARE, HTA
53	#47 OR #48 OR #49 OR #50 OR #51 OR #52
54	MeSH DESCRIPTOR Prognosis IN DARE,HTA
55	MeSH DESCRIPTOR Predictive Value of Tests IN DARE,HTA
56	MeSH DESCRIPTOR Logistic Models IN DARE,HTA
57	MeSH DESCRIPTOR Linear Models IN DARE,HTA
58	MeSH DESCRIPTOR Models, Statistical IN DARE,HTA
59	MeSH DESCRIPTOR Models, Theoretical IN DARE,HTA
60	MeSH DESCRIPTOR Algorithms IN DARE,HTA
61	MeSH DESCRIPTOR Nomograms IN DARE,HTA
62	MeSH DESCRIPTOR Decision Support techniques IN DARE,HTA
63	MeSH DESCRIPTOR Mass screening IN DARE,HTA
64	((predict* or prognost*) NEAR3 (model* or tool* or rule*)) IN DARE, HTA
65	((scoring NEXT system*)) IN DARE, HTA
66	((nomogram* or algorithm*)) IN DARE, HTA
67	((screening NEXT (model* or tool* or instrument* or protocol*))) IN DARE, HTA
68	#54 OR #55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #64 OR #65 OR #66 OR #67
69	#46 AND #53 AND #68

1  
2  
3  
4  
5  
6  
7

## Economic Search

One global search was conducted for economic evidence across the guideline.

**Database(s): NHS Economic Evaluation Database (NHS EED); HTA Database – CRD interface**

Date of last search: 3 February 2021

#	Searches
1	MeSH DESCRIPTOR Pelvic Floor IN NHSEED,HTA
2	MeSH DESCRIPTOR Pelvic Floor Disorders IN NHSEED,HTA
3	MeSH DESCRIPTOR Urinary Bladder, Overactive IN NHSEED,HTA
4	((pelvi* NEXT (floor* or diaphragm*) NEAR3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*))) IN NHSEED, HTA
5	MeSH DESCRIPTOR Urinary Incontinence EXPLODE ALL TREES IN NHSEED,HTA
6	MeSH DESCRIPTOR Urinary Bladder, Overactive IN NHSEED,HTA
7	((stress* or mix* or urg* or urin*) NEAR5 incontinen*)) IN NHSEED, HTA
8	((bladder* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*)) IN NHSEED, HTA
9	((detrusor* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*)) IN NHSEED, HTA
10	((urgency NEAR2 frequency) or (frequency NEAR2 urgency)) IN NHSEED, HTA
11	((urin* or bladder*) NEAR2 (urg* or frequen*)) IN NHSEED, HTA
12	((SUI or OAB)) IN NHSEED, HTA
13	MeSH DESCRIPTOR Pelvic Organ Prolapse EXPLODE ALL TREES IN NHSEED,HTA
14	MeSH DESCRIPTOR Rectocele IN NHSEED,HTA
15	((pelvic* NEAR3 organ* NEAR3 prolaps*)) IN NHSEED, HTA
16	((urinary NEAR3 bladder NEAR3 prolaps*)) IN NHSEED, HTA
17	((vagin* or urogenital* or genit* or uter* or viscer* or anterior* or posterior* or apical or pelvi* or vault* or urethr* or bladder* or cervi* or rectal or rectum) NEAR3 prolaps*)) IN NHSEED, HTA

#	Searches
18	(((splanchnoptos* or visceroptos*)) IN NHSEED, HTA
19	(((hernia* NEAR3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*))) IN NHSEED, HTA
20	(((urethro?ele* or enteroc?ele* or sigmoidoc?ele* or proctoc?ele* or rectoc?ele* or cystoc?ele* or rectoenteroc?ele* or cystourethro?ele*)) IN NHSEED, HTA
21	MeSH DESCRIPTOR Fecal Incontinence IN NHSEED,HTA
22	(((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat* or defaecat*) NEAR5 (incontinence or incontinent or urge* or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction))) IN NHSEED, HTA
23	MeSH DESCRIPTOR Urinary Retention IN NHSEED,HTA
24	(((urin* NEAR3 (retention* or retain*))) IN NHSEED, HTA
25	(((voiding NEXT (disorder* or dysfunction* or problem*))) IN NHSEED, HTA
26	(((empty* NEXT disorder* NEAR3 (bowel* or bladder* or vesical* or stool*))) IN NHSEED, HTA
27	(((urogeni* or anorec* or ano-rec* or ano rec*) NEAR3 dysfunction*)) IN NHSEED, HTA
28	MeSH DESCRIPTOR Fecal Impaction IN NHSEED,HTA
29	(((difficult* or delay* or irregular* or infrequen* or pain*) NEAR3 (defecat* or defaecat* or stool* or faecal or fecal or faeces or feces or fecally or faecally or bowel movement*)) IN NHSEED, HTA
30	(((obstruct* NEAR3 (defecat* or defaecat*))) IN NHSEED, HTA
31	(((defecat* or defaecat* or evacuat*) NEAR3 (disorder* or dysfunction*)) IN NHSEED, HTA
32	(((outlet* NEXT dysfunction* NEXT constipa*)) IN NHSEED, HTA
33	(((dys?ynerg* NEXT (defecat* or defaecat*))) IN NHSEED, HTA
34	(((pelvi* NEAR3 dyskines*)) IN NHSEED, HTA
35	(((pelvi* NEXT outlet* NEXT obstruct*)) IN NHSEED, HTA
36	(((anismus*)) IN NHSEED, HTA
37	(((puborectal* NEXT contract*)) IN NHSEED, HTA
38	(((rectal or rectum) NEAR3 urge*)) IN NHSEED, HTA
39	(((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*))) IN NHSEED, HTA
40	(((obstruct* NEAR3 intercourse))) IN NHSEED, HTA
41	(((vagin* NEAR3 laxity*)) IN NHSEED, HTA
42	(((vagin* NEXT wind))) IN NHSEED, HTA
43	MeSH DESCRIPTOR Vaginismus IN NHSEED,HTA
44	(((vaginismus*)) IN NHSEED, HTA
45	(((vagin* NEXT penetrat* NEXT disorder*)) IN NHSEED, HTA
46	(#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45) IN NHSEED, HTA

1  
2  
3  
4  
5  
6  
7  
8

**Database(s): Medline & Embase (Multifile) – OVID interface**  
**Embase Classic+Embase** 1947 to 2021 February 01; **Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily** 1946 to February 01, 2021  
 Date of last search: 3 February 2021

*Multifile database codes: emczd = Embase Classic+Embase; ppez= MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily*

#	Searches
1	Pelvic Floor/ use ppez
2	Pelvic Floor Disorders/ use ppez
3	pelvis floor/ use emczd
4	pelvic floor disorder/ use emczd
5	(pelvi\$ adj (floor\$ or diaphragm\$) adj3 (dysfunction\$ or disorder\$ or fail\$ or impair\$ or incompeten\$ or insufficien\$ or dyssynerg\$ or symptom\$ or laxity or change\$ or care\$ or health\$ or wellbeing\$ or well-being\$ or prevent\$ or rehabilitat\$ or weak\$ or hypertonic\$ or overactiv\$ or over activ\$ or over-activ\$).tw.
6	(pelvi\$ adj (dysfunction\$ or disorder\$ or fail\$ or impair\$ or incompeten\$ or insufficien\$ or dyssynerg\$ or symptom\$ or laxity or care\$ or health\$ or wellbeing\$ or well-being\$ or prevent\$ or rehabilitat\$ or weak\$ or hypertonic\$ or overactiv\$ or over activ\$ or over-activ\$).tw.
7	or/1-6
8	exp *Urinary Incontinence/ use ppez
9	*Urinary Bladder, Overactive/ use ppez
10	exp *urine incontinence/ use emczd
11	*overactive bladder/ use emczd
12	*bladder instability/ use emczd
13	((stress\$ or mix\$ or urg\$ or urin\$) adj5 incontinen\$).ti.
14	(bladder\$ adj5 (overactiv\$ or over activ\$ or over-activ\$ or instabilit\$ or hyper-reflex\$ or hyperreflex\$ or hyper reflex\$ or incontinen\$)).ti.
15	(detrusor\$ adj5 (overactiv\$ or over activ\$ or over-activ\$ or instabilit\$ or hyper-reflex\$ or hyperreflex\$ or hyper reflex\$)).ti.
16	((urgency adj2 frequency) or (frequency adj2 urgency)).ti.
17	((urin\$ or bladder\$) adj2 (urg\$ or frequen\$)).ti.

#	Searches
18	(SUI or OAB).ti.
19	or/8-18
20	exp *Pelvic Organ Prolapse/ use ppez
21	exp *pelvic organ prolapse/ use emczd
22	*Rectocele/ use ppez
23	*rectocele/ use emczd
24	(pelvic\$ adj3 organ\$ adj3 prolaps\$).ti.
25	(urinary adj3 bladder adj3 prolaps\$).ti.
26	((vagin\$ or urogenital\$ or genit\$ or uter\$ or viscer\$ or anterior\$ or posterior\$ or apical or pelvi\$ or vault\$ or urethr\$ or bladder\$ or cervi\$ or rectal or rectum) adj3 prolaps\$).ti.
27	(splachnoptos\$ or visceroptos\$).ti.
28	(hernia\$ adj3 (pelvi\$ or vagin\$ or urogenital\$ or uter\$ or bladder\$ or urethr\$ or viscer\$)).ti.
29	(urethro?ele\$ or enteroc?ele\$ or sigmoidoc?ele\$ or proctoc?ele\$ or rectoc?ele\$ or cystoc?ele\$ or rectoenteroc?ele\$ or cystourethro?ele\$).ti.
30	or/20-29
31	*Fecal Incontinence/ use ppez
32	*feces incontinence/ use emczd
33	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat\$ or defaecat\$) adj5 (incontinence or incontinent or urge\$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).ti.
34	or/31-33
35	Urinary Retention/ use ppez
36	urine retention/ use emczd
37	(urin\$ adj3 (retention\$ or retain\$)).tw.
38	(voiding adj (disorder\$ or dysfunction\$ or problem\$)).tw.
39	(empty\$ adj disorder\$ adj3 (bowel\$ or bladder\$ or vesical\$ or stool\$)).tw.
40	((urogeni\$ or anorec\$ or ano-rec\$ or ano rec\$) adj3 dysfunction\$).tw.
41	defecation disorder/ use emczd
42	Fecal Impaction/ use ppez
43	Feces Impaction/ use emczd
44	((difficult\$ or delay\$ or irregular\$ or infrequen\$ or pain\$) adj3 (defecat\$ or defaecat\$ or stool\$ or faeces or feces or bowel movement\$)).tw.
45	(obstruct\$ adj3 (defecat\$ or defaecat\$)).tw.
46	((defecat\$ or defaecat\$ or evacuat\$) adj3 (disorder\$ or dysfunction\$)).tw.
47	outlet\$ dysfunction\$ constipa\$.tw.
48	(dys?ynerg\$ adj (defecat\$ or defaecat\$)).tw.
49	(pelvi\$ adj3 dyskines\$).tw.
50	pelvi\$ outlet\$ obstruct\$.tw.
51	anismus\$.tw.
52	puborectal\$ contract\$.tw.
53	((rectal or rectum) adj3 urge\$).tw.
54	or/35-53
55	female sexual dysfunction/ use emczd
56	(female adj sex\$ adj (dysfunct\$ or satisf\$ or problem\$ or symptom\$ or arous\$ or activit\$ or disorder\$)).tw.
57	(obstruct\$ adj3 intercourse).tw.
58	(vagin\$ adj3 laxity\$).tw.
59	(vagin\$ adj wind).tw.
60	Vaginismus/ use ppez
61	vaginism/ use emczd
62	vaginismus\$.tw.
63	(vagin\$ adj penetrat\$ adj disorder\$).tw.
64	or/55-63
65	7 or 19 or 30 or 34 or 54 or 64
66	Economics/ use ppez
67	Value of life/ use ppez
68	exp "Costs and Cost Analysis"/ use ppez
69	exp Economics, Hospital/ use ppez
70	exp Economics, Medical/ use ppez
71	Economics, Nursing/ use ppez
72	Economics, Pharmaceutical/ use ppez
73	exp "Fees and Charges"/ use ppez
74	exp Budgets/ use ppez
75	health economics/ use emczd
76	exp economic evaluation/ use emczd
77	exp health care cost/ use emczd
78	exp fee/ use emczd
79	budget/ use emczd
80	funding/ use emczd
81	budget*.ti,ab.
82	cost*.ti.
83	(economic* or pharmaco?economic*).ti.



#	Searches
84	(price* or pricing*).ti,ab.
85	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
86	(financ* or fee or fees).ti,ab.
87	(value adj2 (money or monetary)).ti,ab.
88	or/66-87
89	65 and 88
90	limit 89 to english language

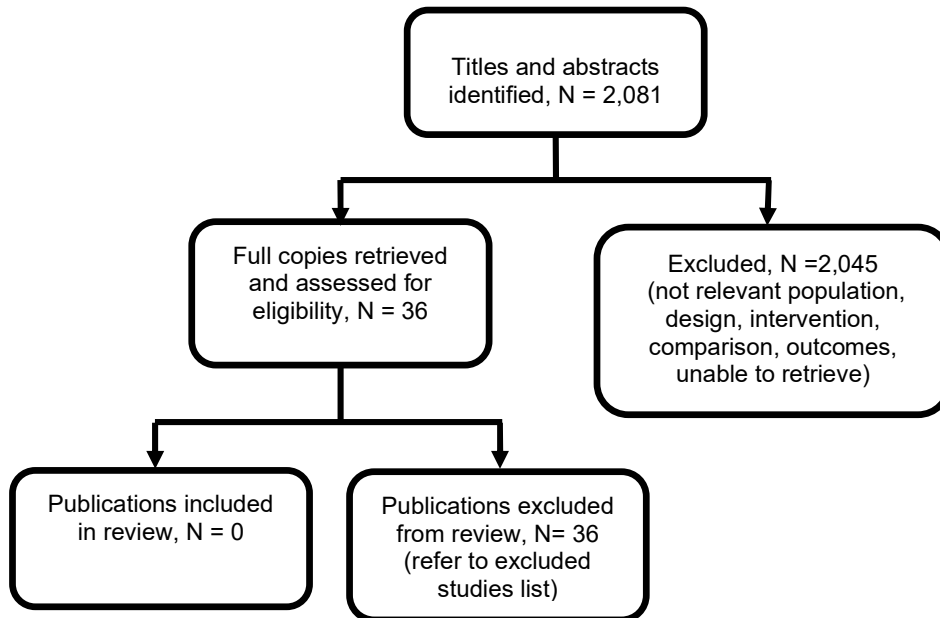
1  
2  
3

## 1 Appendix C – Clinical evidence study selection

### 2 Study selection for: What is the effectiveness of prediction tools for identifying 3 women at risk of pelvic floor dysfunction?

#### 4 Figure 1: Study selection flow chart

5



6

7

## 1 **Appendix D – Evidence tables**

2 **Evidence tables for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor**  
3 **dysfunction?**

4 No evidence was identified which was applicable to this review question.

5

## 6 **Appendix E – Forest plots**

### 7 **Forest plots for review question: What is the effectiveness of prediction tools for** 8 **identifying women at risk of pelvic floor dysfunction?**

9 No meta-analysis was conducted for this review question and so there are no forest plots.

10

## 1 **Appendix F – GRADE tables**

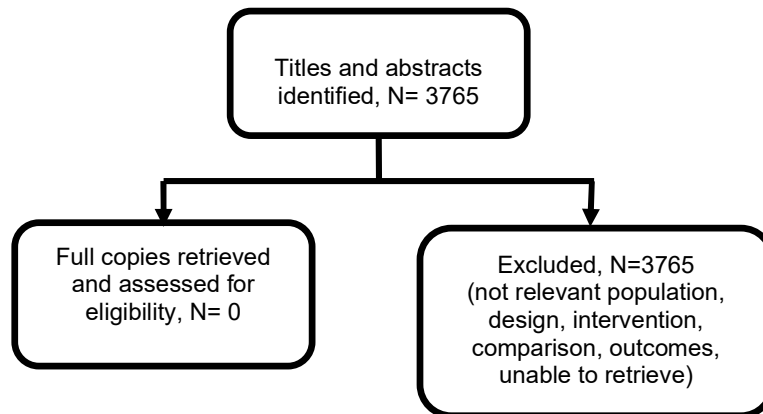
- 2 **GRADE tables for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor**
- 3 **dysfunction?**
- 4 No evidence was identified for this review question so there are no GRADE tables.

## 1 Appendix G – Economic evidence study selection

### 2 Economic evidence study selection for review question: What is the accuracy of 3 prediction tools for identifying women at high risk of pelvic floor dysfunction?

4 No economic evidence was identified which was applicable to this review question.

Figure 2: Study selection flow chart



5

6

7

## 1 **Appendix H – Economic evidence tables**

### 2 **Economic evidence tables for review question: What is the accuracy of prediction tools for identifying women at high risk of pelvic floor dysfunction?**

4 No evidence was identified which was applicable to this review question.

5

## 1 **Appendix I – Economic evidence profiles**

### 2 **Economic evidence profiles for review question: What is the accuracy of prediction tools for identifying women at high risk** 3 **of pelvic floor dysfunction?**

4 No economic evidence was identified which was applicable to this review question.

5

6

7

8

9

10

11



## 1 **Appendix J – Economic analysis**

### 2 **Economic evidence analysis for review question: What is the accuracy of** 3 **prediction tools for identifying women at high risk of pelvic floor dysfunction?**

4 No economic analysis was conducted for this review question.

5

## 1 Appendix K – Excluded studies

### 2 Excluded studies for review question: What is the effectiveness of prediction tools for identifying women at risk of pelvic floor dysfunction?

#### 4 Clinical studies

#### 5 Table 3: Excluded studies and reasons for their exclusion

Study	Reason for exclusion
Abdollah, F., Sun, M., Suardi, N., Gallina, A., Tutolo, M., Passoni, N., Bianchi, M., Salonia, A., Colombo, R., Rigatti, P., Karakiewicz, P. I., Montorsi, F., Briganti, A., A novel tool to assess the risk of urinary incontinence after nerve-sparing radical prostatectomy, <i>BJU International</i> , 111, 905-913, 2013	Incorrect population
Altomare, D. F., Spazzafumo, L., Rinaldi, M., Dodi, G., Ghiselli, R., Piloni, V., Set-up and statistical validation of a new scoring system for obstructed defaecation syndrome, <i>Colorectal Disease</i> , 10, 84-88, 2008	Incorrect study type - not prediction tool, not all female
Ates, M., Teber, D., Gozen, A.S., Tefekli, A., Hruza, M., Sugiono, M., Erdogan, S., Rassweiler, J., A new postoperative predictor of time to urinary continence after laparoscopic radical prostatectomy: the urine loss ratio, <i>European Urology</i> , 52, 178-185, 2007	Incorrect population
Awwad, J., Sayegh, R., Yeretian, J., Deeb, M.E., Prevalence, risk factors, and predictors of pelvic organ prolapse: a community-based study, <i>Menopause</i> , 19, 1235-1241, 2012	Not a predictor tool
Barnoiu, O. S., Baron Lopez, F., Garcia Galisteo, E., Soler Martinez, J., Vozmediano Chicharro, R., Del Rosal Samaniego, J. M., Machuca Santacruz, J., Navarro Vilchez, P., Sanchez Luque, J., Bautista Vidal, C., Gomez Lechuga, P., Baena Gonzalez, V., Comprehensive prediction model of urinary incontinence one year following robot-assisted radical prostatectomy, <i>Urologia internationalis</i> , 90, 31-5, 2013	Incorrect population
Barnoiu, O. S., Garcia Galisteo, E., Baron Lopez, F., Vozmediano Chicharro, R., Soler Martinez, J., Del Rosal Samaniego, J. M., Machuca Santacruz, J., Baena Gonzalez, V., Prospective urodynamic model for prediction of urinary incontinence after robot-assisted radical prostatectomy, <i>Urologia Internationalis</i> , 92, 306-9, 2014	Incorrect population
Baumann, B. C., He, J., Hwang, W., Tucker, K., Lerner, S., Tangen, C., Herr, H., Guzzo, T. J., Malkowicz, S., Christodouleas, J. P., Robust risk stratification model predicts local-regional recurrence after radical cystectomy in different patient cohorts, <i>International journal of radiation oncology biology physics.</i> , 87, S82, 2013	Abstract only
Chai, T. C., Moalli, P. A., Richter, H. E., Lake, A. G., Kim, H. Y., Nager, C. W., Sirls, L. T., Brubaker, L., Kusek, J. W., Preoperative Urodynamic Parameters (Valsalva Leak Point Pressure and Maximum Urethral Closure Pressure), Urinary Collagen and Plasma Vitamin D Levels as Predictors of Mid Urethral Sling Surgery Outcome, <i>Journal of Urology</i> , 196, 819-23, 2016	Incorrect outcome
Darekar, A., Carlsson, M., Quinn, S., Ntanios, F., Mangan, E., Arumi, D., Scholfield, D., Development of a predictive model for urgency urinary incontinence, <i>Contemporary Clinical Trials</i> <i>Contemp Clin Trials</i> , 51, 44-49, 2016	Intervention and population do not meet the inclusion criteria. Prediction tool is developed to determine who will respond to treatment for OAB.

Study	Reason for exclusion
Diokno, A. C., Ogunyemi, T., Siadat, M. R., Arslanturk, S., Killinger, K. A., Continece Index: a new screening questionnaire to predict the probability of future incontinence in older women in the community, <i>International Urology &amp; Nephrology</i> , 47, 1091-7, 2015	Development of a tool to identify older women most at risk of developing UI.
Fritel, X., Pizzoferrato, A., Fauconnier, A., Guilhot, J., Is it possible to predict the risk of postnatal urinary or fecal incontinence prior to delivery?, <i>Neurourology and Urodynamics</i> , 36, S237â S238, 2017	Conference abstract
Goh, J. T. W., Browning, A., Berhan, B., Chang, A., Predicting the risk of failure of closure of obstetric fistula and residual urinary incontinence using a classification system, <i>International Urogynecology Journal/Int Urogynecol J Pelvic Floor Dysfunct</i> , 19, 1659-1662, 2008	Population does not meet the inclusion criteria, all women already have fistula
Gray, M., McClain, R., Peruggia, M., Patrie, J., Steers, W. D., A model for predicting motor urge urinary incontinence, <i>Nursing Research</i> , 50, 116-122, 2001	Intervention does not meet the inclusion criteria, the model predicts diagnosis of a specific form of urinary incontinence. The tool is not predictive
Jelovsek, J. E., Chagin, K., Brubaker, L., Rogers, R. G., Richter, H. E., Arya, L., Barber, M. D., Shepherd, J. P., Nolen, T. L., Norton, P., Sung, V., Menefee, S., Siddiqui, N., Meikle, S. F., Kattan, M. W., Pelvic Floor Disorders Network, A model for predicting the risk of de novo stress urinary incontinence in women undergoing pelvic organ prolapse surgery, <i>Obstetrics &amp; Gynecology</i> , 123, 279-87, 2014	Prediction tool for development of UI, tool for use in women who already have POP.
Jelovsek, J. E., Chagin, K., Gyhagen, M., Hagen, S., Wilson, D., Kattan, M. W., Elders, A., Barber, M. D., Areskoug, B., MacArthur, C., Milsom, I., Predicting risk of pelvic floor disorders 12 and 20 years after delivery, <i>American Journal of Obstetrics &amp; Gynecology/Am J Obstet Gynecol</i> , 218, 222.e1-222.e19, 2018	Development of prognostic models to estimate risk of developing PFD
Jelovsek, J. E., Chagin, K., Lukacz, E. S., Nolen, T. L., Shepherd, J. P., Barber, M. D., Sung, V., Brubaker, L., Norton, P. A., Rahn, D. D., Smith, A. L., Ballard, A., Jeppson, P., Meikle, S. F., Kattan, M. W., Nidhd Pelvic Floor Disorders Network, Models for Predicting Recurrence, Complications, and Health Status in Women After Pelvic Organ Prolapse Surgery, <i>Obstetrics &amp; Gynecology/Obstet Gynecol</i> , 132, 298-309, 2018	Population does not meet the inclusion criteria, women have PFD, and are undergoing surgery. the prediction tool examines recurrence.
Jelovsek, J. E., Hill, A. J., Chagin, K. M., Kattan, M. W., Barber, M. D., Predicting Risk of Urinary Incontinence and Adverse Events After Midurethral Sling Surgery in Women, <i>Obstetrics &amp; Gynecology</i> , 127, 330-40, 2016	Population does not meet the inclusion criteria, women have PFD, and are undergoing surgery.
Kim, K. W., Lee, J. I., Kim, J. S., Lee, Y. J., Choi, W. J., Jung, H., Park, K. Y., Park, C. H., Son, K. H., Risk factors for urinary retention following minor thoracic surgery, <i>Interactive Cardiovascular &amp; Thoracic Surgery/Interact Cardiovasc Thorac Surg</i> , 20, 486-92, 2015	Intervention does not meet the inclusion criteria, prediction tool for Postoperative urinary retention (POUR), not pelvic floor dysfunction
Kretschmer, A., Nitti, V., Surgical Treatment of Male Postprostatectomy Incontinence: Current Concepts, <i>European Urology Focus</i> , 3, 364-376, 2017	Incorrect population
Lakeman, M. M., Van Der Vaart, C. H., Van Der Steeg, J. W., Roovers, J. P., Hys, V. A. study group, Predicting the development of stress urinary incontinence 3 years after hysterectomy, <i>International Urogynecology Journal</i> , 22, 1179-84, 2011	Model to predict SUI following hysterectomy
Matsushita, K., Kent, M. T., Vickers, A. J., von Bodman, C., Bernstein, M., Touijer, K. A., Coleman, J. A., Laudone, V. T., Scardino, P. T., Eastham, J. A., Akin, O., Sandhu, J. S., Preoperative predictive model	Incorrect population

Study	Reason for exclusion
of recovery of urinary continence after radical prostatectomy, BJU International, 116, 577-83, 2015	
Meister, M. R., Cahill, A. G., Conner, S. N., Woolfolk, C. L., Lowder, J. L., Predicting obstetric anal sphincter injuries in a modern obstetric population, American Journal of Obstetrics & GynecologyAm J Obstet Gynecol, 215, 310.e1-7, 2016	Intervention does not meet the inclusion criteria, the study identifies risk factors for perineal lacerations and obstetric anal sphincter
Milsom, I., Can we predict and prevent pelvic floor dysfunction?: Ulf Ulmsten Memorial Lecture 2015, International Urogynecology JournalInt Urogynecol J Pelvic Floor Dysfunct, 26, 1719-1723, 2015	Narrative review
Parida, P. K., Mishra, D., Pati, G. K., Nath, P., Dash, K. R., Behera, S. K., Parida, S., Khatua, C. R., Panigrahi, S., Mahapatra, A., Khuntia, H. K., Singh, S. P., A prospective study on incidence, risk factors, and validation of a risk score for post-infection irritable bowel syndrome in coastal eastern India, Indian Journal of Gastroenterology, 38, 134-142, 2019	Condition of interest does not meet the inclusion criteria, the prediction tool is for irritable bowel syndrome
Rogers, R. G., Rockwood, T. H., Constantine, M. L., Thakar, R., Kammerer-Doak, D. N., Pauls, R. N., Parekh, M., Ridgeway, B., Jha, S., Pitkin, J., Reid, F., Sutherland, S. E., Lukacz, E. S., Domoney, C., Sand, P., Davila, G. W., Espuna Pons, M. E., A new measure of sexual function in women with pelvic floor disorders (PFD): the Pelvic Organ Prolapse/Incontinence Sexual Questionnaire, IUGA-Revised (PISQ-IR), International Urogynecology JournalInt Urogynecol J Pelvic Floor Dysfunct, 24, 1091-103, 2013	Intervention does not meet the inclusion criteria, the tool evaluates levels of sexual function not prediction of developing sexual dysfunction
Ross, J. H., Carter-Brooks, C. M., Ruppert, K. M., Giugale, L. E., Shepherd, J. P., Zyczynski, H. M., Assessing the Performance of the De Novo Postoperative Stress Urinary Incontinence Calculator, Female pelvic medicine & reconstructive surgery., 27, 2019	Intervention does not meet the inclusion criteria: the study estimates risk of SUI after surgery
Sanaee, M. S., Pan, K., Lee, T., Koenig, N. A., Geoffrion, R., Urinary tract infection after clean-contaminated pelvic surgery: a retrospective cohort study and prediction model, International Urogynecology Journal., 31, 2019	Intervention does not meet the inclusion criteria, model to predict UTI after surgery
Sliker-Ten Hove, M. C. P., Pool-Goudzwaard, A. L., Eijkemans, M. J. C., Steegers-Theunissen, R. P. M., Burger, C. W., Vierhout, M. E., Prediction model and prognostic index to estimate clinically relevant pelvic organ prolapse in a general female population [Erratum: 2010; 21(3): 387-388], International Urogynecology JournalInt Urogynecol J Pelvic Floor Dysfunct, 20, 1013-1021, 2009	Prediction model for POP using a cross sectional data set
Sutkin, G., Alperin, M., Meyn, L., Wiesenfeld, H. C., Ellison, R., Zyczynski, H. M., Symptomatic urinary tract infections after surgery for prolapse and/or incontinence, International Urogynecology Journal, 21, 955-961, 2010	Not a prediction tool
Troko, J., Bach, F., Tooze-Hobson, P., Predicting urinary incontinence in women in later life: A systematic review, Maturitas, 94, 110-116, 2016	Systematic review to identify studies investigating risk and prediction strategies for UI. No study on tools which meets the inclusion criteria for this review, the included studies identify risk factors for UI
van Delft, K., Thakar, R., Sultan, A. H., Schwertner-Tiepelmann, N., Kluivers, K., Levator ani muscle avulsion during childbirth: a risk prediction model, BJOG : an international journal of obstetrics and gynaecology, 121, 1155-1163, 2014	Intervention does not meet the inclusion criteria, the study aims to determine the incidence of LAM avulsion, and to develop a

Study	Reason for exclusion
	prediction model for LAM avulsion
van der Ploeg, J. M., Steyerberg, E. W., Zwolsman, S. E., van der Vaart, C. H., Roovers, J. W. R., Stress urinary incontinence after vaginal prolapse repair: development and internal validation of a prediction model with and without the stress test, <i>Neurourology &amp; Urodynamics</i> Neurourol Urodyn, 38, 1086-1092, 2019	Intervention does not meet the inclusion criteria, the prediction model aims to determine persistent SUI or treatment for SUI after prolapse surgery
Vella, M., Robinson, D., Cardozo, L., Srikrishna, S., Cartwright, R., Predicting detrusor overactivity using a physician-based scoring system, <i>International Urogynecology Journal</i> , 19, 1223-1227, 2008	Intervention does not meet the inclusion criteria, the tool is developed to distinguish between SUI and OAB
Wilson, D., Dornan, J., Milsom, I., Freeman, R., UR-CHOICE: can we provide mothers-to-be with information about the risk of future pelvic floor dysfunction?, <i>International Urogynecology Journal</i> , 25, 1449-1452, 2014	Narrative review on the UR-CHOICE tool, a scoring system for prelabour women.
Yip, S. K., Sahota, D., Pang, M. W., Chang, A., Screening test model using duration of labor for the detection of postpartum urinary retention, <i>Neurourology &amp; Urodynamics</i> Neurourol Urodyn, 24, 248-53, 2005	Screening model to detect postpartum urinary retention

1

## 2 Economic studies

3 No economic evidence was identified for this review.

4

## 1 Appendix L – Research recommendations

### 2 Research recommendations for review question: What is the effectiveness of 3 prediction tools for identifying women at risk of pelvic floor dysfunction?

#### 4 Research question

5 What is the effectiveness of prediction tools for identifying women at risk of pelvic floor  
6 dysfunction?

#### 7 Why this is important

8 Identification of women who are high risk of developing symptoms associated with pelvic  
9 floor dysfunction is needed, so that these women can be provided with advice regarding  
10 potential prevention strategies. Currently there is no evidence on the effectiveness of any  
11 tools designed to predict pelvic floor dysfunction. For this reason, research on this topic is  
12 required, to allow recommendations for the use of prediction tools in current practice to be  
13 developed.

14 **Table 4: Research recommendation rationale**

Research question	
<b>Why is this needed</b>	
<b>Importance to 'patients' or the population</b>	Having an effective tool that can accurately predict if a woman is likely to be at an increased risk of developing pelvic floor dysfunction would enable preventative strategies to be offered with the aim of preventing pelvic floor dysfunction developing.
<b>Relevance to NICE guidance</b>	The absence of evidence regarding this topic currently prevents NICE guidance from making any recommendations regarding which prediction tools should be used to identify potential at risk women for developing pelvic floor dysfunction.
<b>Relevance to the NHS</b>	Giving advice on strategies that could prevent pelvic floor dysfunction would be a lower cost intervention compared to needing to treat pelvic floor dysfunction, which would have higher cost impacts on the NHS.
<b>National priorities</b>	A national priority in the <a href="#">NHS long term plan</a> (2019 ) is the use of physiotherapy to prevent symptoms of pelvic floor dysfunction associated with childbirth. Pelvic floor muscle training to prevent pelvic floor dysfunction is also a key recommendation, following the <a href="#">Independent Medicine and Medical Devices Safety Review</a> (Cumberledge review) into mesh surgery in 2020. Having a tool that could identify those who are at greater risk of pelvic floor dysfunction to ensure they get the support required would aid the achievement of these preventative national priorities.
<b>Current evidence base</b>	There is no evidence on effective tools that can predict pelvic floor dysfunction
<b>Equality</b>	None known
<b>Feasibility</b>	Researchers will need to first develop a prediction tool before research evaluating the tools effectiveness can begin. Assessing the effectiveness of the prediction tool using a prospective research design would likely require a long follow-up period. In the short term, retrospectively applying the prediction tool may be beneficial, but results would likely be confounded by recall inaccuracy.

<b>Research question</b>	
<b>Other comments</b>	None

1 **Table 5: Research recommendation modified PICO table**

<b>Criterion</b>	<b>Explanation</b>
<b>Population</b>	<ul style="list-style-type: none"> <li>• Women and young women (aged 12 years and older) without symptoms associated with PFD</li> <li>• Women and young women (aged 12 years and older) with symptoms associated with PFD, if the tool is used retrospectively</li> </ul>
<b>Intervention</b>	Any tool (either validated or non-validated) that uses risk factors and other measurements to predict the development of symptoms associated with PFD
<b>Comparator</b>	<ul style="list-style-type: none"> <li>• Any other tool using a different set of risk factors</li> <li>• No tool</li> </ul>
<b>Outcomes</b>	<ul style="list-style-type: none"> <li>• Development of the following symptoms associated with PFD:                             <ul style="list-style-type: none"> <li>○ urinary incontinence</li> <li>○ emptying disorders of the bladder</li> <li>○ faecal incontinence</li> <li>○ emptying disorders of the bowel</li> <li>○ pelvic organ prolapse</li> <li>○ sexual dysfunction</li> <li>○ chronic pelvic pain syndromes</li> </ul> </li> </ul>
<b>Study design</b>	RCT, prospective cohort or retrospective cohort study
<b>Timeframe</b>	An RCT or prospective study design would require regular (every year) follow-up intervals, ideally for 5 years or more A retrospective recall study design could be carried out cross-sectionally.
<b>Additional information</b>	Not applicable

2 *PFD: pelvic floor dysfunction; RCT: randomised controlled trial*