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QUALITY-OF-CARE INDICATORS FOR PELVIC ORGAN PROLAPSE: DEVELOPMENT OF AN INFRASTRUCTURE FOR QUALITY ASSESSMENT

Jennifer T. Anger, MD, MPH[1], **Victoria C.S. Scott**[2], **Krista Kiyosaki**[3], **Aqsa A. Khan, MD**[2], **Claudia Sevilla**[4], **Sarah E. Connor, MPH**[2], **Carol P. Roth, RN, MPH**[5], **Mark S. Litwin, MD, MPH**[2], **Neil S. Wenger, MD**[5,6], and **Paul G. Shekelle, MD, PhD**[5,7]

[1]Department of Surgery, Division of Urology, Cedars-Sinai Medical Center, Los Angeles, CA, United States.

[2]Departments of Urology and Health Policy & Management, University of California, Los Angeles, Los Angeles, CA, United States.

[3]University of Hawaii Medical School, Honolulu, HI, United States.

[4]Department of Urology, University of Southern California, Los Angeles, CA, United States.

[5]Southern California Evidence-Based Practice Center RAND Corporation, Los Angeles, CA, United States.

[6]David Geffen School of Medicine, University of California - Los Angeles, Los Angeles, CA, United States

[7]Veterans' Affairs Greater West Los Angeles Medical Center, Los Angeles, CA, United States.

Abstract

Introduction—A paucity of data exists addressing the quality of care provided to women with pelvic organ prolapse (POP). We sought to develop a means to measure this quality through the development of quality-of-care indicators (QIs).

Corresponding Author: Jennifer T. Anger, MD, MPH Associate Director of Urological Research Cedars-Sinai Medical Center 99 N. La Cienega Blvd., #307 Beverly Hills, CA 90211 TEL: (310) 385-2992 FAX: (310) 385-2973 Jennifer.Anger@cshs.org.

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Contributions:

1. JT Anger: Protocol/project development, Data collection, Data analysis, Manuscript writing/editing
2. VCS Scott: Data collection, Data analysis, Manuscript writing/editing
3. K Kiyosaki: Data collection, Data analysis, Manuscript writing/editing
4. AA Khan: Data collection, Data analysis, Manuscript writing/editing
5. C Sevilla: Data collection, Data analysis, Manuscript writing/editing
6. SE Connor: Data collection, Data analysis, Manuscript writing/editing
7. CP Roth: Protocol/project development, Data collection, Data analysis, Manuscript writing/editing
8. MS Litwin: Protocol/project development, Data collection, Data analysis, Manuscript writing/editing
9. NS Wenger: Protocol/project development, Data collection, Data analysis, Manuscript writing/editing
10. PG Shekelle: Protocol/project development, Data collection, Data analysis, Manuscript writing/editing

Methods—QIs were modeled after those previously described in the Assessing the Care of Vulnerable Elders (ACOVE) project. The indicators were then presented to a panel of nine experts. Using the RAND Appropriateness Method, we analyzed each indicator's preliminary rankings. A forum was then held in which each indicator was thoroughly discussed by the panelists as a group, after which panelists individually re-rated the indicators. QIs with median scores of at least seven were considered valid.

Results—QIs were developed that addressed screening, diagnosis, work-up, and both nonsurgical and surgical management. Areas of controversy included whether screening should be performed to identify prolapse, whether pessary users should undergo a vaginal exam by a health professional every six months versus annually, and whether a colpocleisis should be offered to older women planning to undergo surgery for POP. Fourteen of 21 potential indicators were rated as valid for pelvic organ prolapse (median score ≥ 7).

Conclusion—We developed and rated fourteen potential quality indicators for the care of women with POP. Once these QIs are tested for feasibility they can be used on a larger scale to measure and compare the care provided to women with prolapse in different clinical settings.

Keywords

Delphi Method; RAND Appropriateness method; pelvic floor disorders

INTRODUCTION

The 2005–2006 National Health and Nutrition Examination Survey (NHANES) reported at least one pelvic floor disorder in 10% of women aged 20-39 and in 50% of women above the age of 79 [1]. Roughly 2.9% of women experienced pelvic organ prolapse (POP). Despite a relatively high prevalence of POP, there is a dearth of evidence-based recommendations to guide the diagnosis and care for women with this condition. Consequently, these patients often receive inadequate care, often involving not only a lack of care, but also inappropriate care. A retrospective analysis of whether hospital characteristics predict compliance with recommended surgical intervention for uterovaginal prolapse found the overall compliance rate to be only 35% [2]. With the limited number of randomized, clinical controlled trials adequate to establish standards of care in the field of POP, this study was designed to develop tools to measure the quality of care provided to women with prolapse.

Quality-of-care research examines the extent to which health care delivered to individual patients and populations is consistent with current medical literature and produces the desired health outcomes [3]. In a study on the quality of care provided to patients in a random sample of adults living in 12 metropolitan areas, McGlynn et al. found that only 55% received the recommended care for chronic and acute conditions [4]. Additionally, 11% of patients received unnecessary or inappropriate care. The quality of care was measured by provider adherence to quality-of-care indicators (QIs). A QI establishes the lowest level of care, or "the floor," that should be provided to a patient with a specific condition. If patients do not receive the care described by the QI, their care is considered inadequate. Clinical guidelines differ from QIs in that clinical guidelines state the optimal care, or "the ceiling" specific patients should receive. QIs have been used in the methodology employed to examine the quality of care provided to patients with various diseases [5-6]. In this study, we develop QIs for women with POP in order to provide an infrastructure in which the quality of care provided to these patients can be measured.

MATERIALS AND METHODS

The Assessing the Care of Vulnerable Elders (ACOVE) project was used as a model in the creation of potential QIs in this study [7-8]. In this model, QIs are constructed in an "if-then-because" format. The "if" component describes the specific type of patient for whom the QI is relevant. The "then" portion states the intervention that should or should not be performed. The "because" section describes the expected impact the intervention would have on the patient. For example, "if" a woman is being managed with a pessary, "then" the pessary should be assessed by a physician every six months, "because" this reduces the risk of vaginal erosion and other complications from prolonged pessary use. We sought to encompass all care for the patient, regardless of whether the care was provided by a generalist or specialist.

Literature Review

Approval was obtained from the UCLA Institutional Review Board. A search of various professional societies, including the National Guideline Clearinghouse, Society for Urodynamics and Female Urology (SUFU), American College of Obstetrics and Gynecology (ACOG), American Urogynecologic Society (AUGS), American Urologic Association (AUA) and the Joint Commission on Accreditation of Healthcare Organization (JCAHO), was performed in order to evaluate clinical practice reviews and guidelines for POP. Based on this search, domains were identified in which process quality-of-care indicators would be developed. Each of the eight domains selected in this study can be categorized under the general areas of "prevention and screening," "diagnosis," or "treatment." PubMed and Cochrane Library searches were performed in order to review the current literature and evidence available in each of the domains identified. The search terms used include, "pelvic organ prolapse" and "primary care/patient history/medical history," "physical examination/physical exam/check-up," "pessary/pessary use," "staging," "surgical treatment/surgical management/uterosacral ligament fixation/sacrospinous ligament fixation/sacral hysteropexy/colpopexy," "hysterectomy for prolapse," "rectocele repair," and "colpocleisis." These searches were used to develop specific evidence-based QIs for each of the domains selected. Searches were limited to manuscripts involving female patients and published in English in 1997–2010. After the 2011 FDA mesh warning, the search was repeated with the above terms in addition to the terms "mesh" and "complications", encompassing articles through June 27, 2012.

All of the titles of peer-reviewed articles identified in the searches were reviewed. Each search retrieved 20–222 titles. The most relevant and significant titles were evaluated and the corresponding abstracts were evaluated. Based on the evaluation of abstracts, the most pertinent abstracts were identified and the respective manuscripts were reviewed. Review of the manuscripts allowed the determination of the highest level of evidence available for each domain. From this literature review, potential candidate QIs were developed, and summaries of the literature and level of evidence of each potential quality indicator were compiled and sent to nine expert panelists.

Expert Panel

RAND Appropriate Panels apply a multidisciplinary approach, but are typically limited to nine panelists. Prior to selecting the panel we sought to include a balanced mix of three groups of panelists (gynecologists, urologists, and internists) so that diversity would be maintained within each specialty, rather than having only one panelist representing a specialty. The nine experts selected for the panel included three urologists with expertise in female urology, three internists with expertise in quality-of-care research and three urogynecologists (See Table 1 for list of panelists). Each of the panelists received a

document containing the potential QIs and literature reviews for each domain. Experts were asked to evaluate the validity and feasibility of the QIs according to the modified RAND Appropriateness Method [9]. In the RAND/UCLA Appropriateness Method, panel members review the proposed QIs and literature reviews, then rate the validity and feasibility of each QI in a nine-point scale. Separate QIs were developed for both UI [10] and POP.

The expert panel convened at UCLA and moderated discussions took place over two days, including one day for UI discussions (manuscript in press) and one day for POP discussions. Each quality indicator was discussed, including expert opinions regarding the advantages and disadvantages of each indicator and the appropriate literature. The panelists were encouraged to add new QIs, or modify the proposed QIs, if necessary. Upon completion of the discussion of each QI, experts completed a second round of validity and feasibility rankings for the specific QI.

Utilization of the Validity and Feasibility Scales

We used validity and feasibility scales and thresholds for scoring them similar to those used in earlier quality indicators projects by McGlynn [4] and ACOVE [7]. The validity scale used to rank the QIs was based on the level of professional consensus and evidence in the current literature demonstrating that performance of the care described in the QI leads to an improvement in the health of patients. The QIs were ranked on a nine-point scale, with a score of 1 awarded to QIs that are clearly not valid and a score of 9 given to QIs that are definitely valid. A score of 1-3 indicates that the QI is not a valid measure of good quality; 4-6 suggests that there is uncertain or equivocal evidence that the QI is a valid measure; and 7-9 that the QI is clearly valid.

Indicators were ranked on a nine-point scale for feasibility as well, with a score of 1 suggesting that the indicator is definitely not feasible and a score of 9 maintaining that it definitely is feasible. An indicator was deemed feasible if a standard medical record is likely to contain the information necessary to measure compliance with the indicator, and, if the assessment of adherence to the indicator determined by medical record data is likely to be unbiased and reliable.

Statistical Methods

The level of agreement for the first and second round rankings for each of the QIs was determined using the RAND/UCLA Appropriateness Method [9]. The level of agreement for the two rounds was defined as “in agreement,” “in disagreement” or “indeterminate” and was determined by the number of ratings for each QI that fell within the same three-point distribution as the mean. The three-point distributions were defined as 1-3, 4-6 and 7-9. Rankings were considered “in agreement” if no more than two of the nine ratings fell outside of the three-point distribution that included the median and “in disagreement” if more than two scores fell outside of this region. All other rank distributions were defined as “indeterminate.”

A QI was considered “accepted” or “approved” by the expert panel if the median validity score of the second round rankings was 7 or above and without disagreement. A QI was considered feasible if the median feasibility rating was 4 or above and without disagreement. Of note, the 2011 FDA warning about mesh complications occurred after the initial panel was convened. Therefore at a later date the panel re-ranked two additional indicators specifically addressing post-operative follow-up.

RESULTS

Definitions

The sources reviewed during the literature search were used to clarify the definition for terms related to POP (Appendix 1). This list of definitions was distributed to experts prior to the panel meeting to ensure that the experts were in agreement regarding the specific meaning of the terms used in discussions and in the language used to construct the QIs.

Quality Indicators

The expert panel approved fourteen of twenty-one process quality indicators for POP in their second round of ranking (Table 2). The accepted indicators in the category of "Screening/ Diagnosis: Initial Evaluation" and "Treatment/Management with Pessary" are relevant for generalists and specialists. However, the indicators under the "Surgical Management" section are more applicable to specialists.

DISCUSSION

Screening/Diagnosis

The expert panel declined the QI indicating that women over 65 who are seen for annual exams should be examined for POP (Table 2, QI 1). Although severe, untreated prolapse may have significantly adverse effects on elderly women, such as urinary retention, the members decided that this risk is quite low compared to the risk that this quality indicator would cause overtreatment of asymptomatic POP. The panel did approve the QI stating that any woman who complains of a new or worsening vaginal bulge or protrusion should be examined for POP, as this assessment of severity will guide management (Table 2, QI 2).

Treatment/Management with Pessary

The pessary is the gold standard in the non-surgical management of POP. The 2007 ACOG Practice Bulletin provides a Level A recommendation that pessaries can appropriately be fitted in most women with POP, regardless of prolapse site or stage [11]. Based on Level I evidence and expert opinion, the panel accepted the QI stating that a woman with symptomatic POP should be offered a pessary as first line management (Table 2, QI 3). However, there was some controversy regarding the QI that requires women who have a pessary to be examined every six months due to the vast range of patients' competency in managing their own pessaries (Table 2, QI 4). There are many patients who can competently assess the location and position of their pessaries while maintaining appropriate hygiene to prevent infection. However, there are also many patients, particularly the elderly, who lack the physical and mental capacity to maintain their pessaries, and therefore require close supervision to prevent complications. This QI was ultimately accepted.

Surgical Management

Pre-operative screening and staging—The panel accepted the QI stating that a woman with asymptomatic POP of stage 1 or less should not be offered surgical intervention in order to prevent physicians from offering surgical therapy to women with no indications for a procedure (Table 2, QI 5). The panel also accepted the QI maintaining that women who undergo surgical interventions should be pre-operatively staged with documentation of specific prolapse components, ensuring that the selected procedure is the most appropriate while providing a means of assessing surgical outcomes (Table 2, QI 6). A prospective cohort study demonstrated that clinically significant apical prolapse was nearly always present when there is anterior and posterior vaginal wall prolapse and concluded that the

high failure rate of isolated anterior and posterior repairs may be due to failure to diagnose and treat apical support defects [12].

Approaches for surgical correction of apical prolapse—The quality indicator requiring that a woman with symptomatic apical prolapse who elects to have surgery should be counseled on the risks and benefits of abdominal and vaginal surgery was accepted by the panel (Table 2, QI 7). The transabdominal sacrocolpopexy is considered the gold standard in the surgical management of vaginal vault prolapse, with long-term success rates of up to 100% [13]. Prospective, randomized trials and systematic literature reviews have demonstrated anatomic superiority of sacrocolpopexy to vaginal vault suspension [14-15]. One systematic review that compared the two approaches reported significantly less recurrent prolapse after the abdominal approach, but no significant difference in reoperation rates [16]. However, the vaginal approach was found to have fewer complications and allowed patients earlier return to activities of daily living. Furthermore, the use of robotic and laparoscopic techniques with sacrocolpopexy has decreased the difference in convalescence between vaginal and abdominal approaches to apical prolapse. The 2007 ACOG Practice Bulletin suggests a level B recommendation that surgical uterine preservation options for women with prolapse include uterosacral or sacrospinous ligament fixation by the vaginal approach or sacral hysteropexy by the abdominal approach [11].

Hysterectomy and vault suspension—There is a lack of data comparing recurrent prolapse rates between women who undergo a vaginal vault suspension at the time of hysterectomy and those who undergo a hysterectomy alone. However, the expert panel approved the quality indictor stating that a woman who undergoes hysterectomy for POP should undergo a vault suspension procedure (Table 2, QI 8). Epidemiologic studies demonstrate that women who undergo a hysterectomy specifically for prolapse are at higher risk of recurrent prolapse than women who have other indications for a hysterectomy [17]. One case-control study reported the incidence of POP requiring surgical correction after hysterectomy to be 1.3 per 1000 women-years and that women who underwent a hysterectomy for prolapse repair had a 4.7 times higher risk of receiving subsequent prolapse repair [18].

Several quality indicators regarding surgical management for POP that were inspired by level A recommendations from the 2007 ACOG Practice Bulletin were rejected by the panel. It is important to note that the rejection of a quality indicator by the panel does not represent the panel's disagreement with the statement of the quality indicator, only that it would not be considered poor care if a physician did not comply with the statement.

SUI after prolapse reduction and slings—The 2007 ACOG Practice Bulletin states that women who have a positive stress test are more likely to develop postoperative stress urinary incontinence after prolapse repair than women who have a negative stress test, based on a level A recommendation [11]. However, the panel rejected the quality indicator asserting that a stress continent woman with anterior POP who undergoes surgical intervention should be examined for SUI after prolapse reduction (Table 2, QI 9). The panel also rejected the quality indicator which states that a woman with a positive stress test after POP reduction who chooses to undergo vaginal POP repair should be offered a midurethral synthetic sling (Table 2, QI 10). This indicator was originally proposed based on the ACOG recommendation that a midurethral sling, as opposed to a Kelly suburethral fascial plication, will provide lower rates of postoperative stress incontinence in women with positive prolapse reduction stress tests [11].

Sacrocolpopexy and mesh—An additional quality indicator rejected by the expert panel states that a woman who undergoes an abdominal sacrocolpopexy (open, laparoscopic, or robotic) should have synthetic mesh, rather than biologic material (Table 2, QI 11). The 2007 ACOG Practice Bulletin endorses a level A recommendation that cadaveric fascia should not be used as graft material, given the inferior long-term results when compared to those after a sacrocolpopexy performed with synthetic mesh [11].

Abdominal sacrocolpopexy and continence procedures—The Colpopexy and Urinary Reduction Efforts (CARE) trial demonstrated significantly lower rate of stress incontinence in women who underwent a sacrocolpopexy with Burch colposuspension compared to women who received only a sacrocolpopexy [19]. Based on this evidence, the panel approved the quality indicator stating that women who elect to undergo an abdominal sacrocolpopexy (open, laparoscopic, or robotic), regardless of pre-operative stress testing with prolapse reduction, should be offered a continence procedure (Table 2, QI 10). Furthermore, the panel accepted the QI stating that women undergoing any method of surgical repair of anterior/apical POP should be counseled about the risk of post-operative stress urinary incontinence (Table 2, QI 9).

Intra-operative cystoscopy—According to the 2007 ACOG Practice Bulletin, there is a Level C recommendation that “cystoscopy should be performed intra-operatively to assess for bladder or ureteral damage after all prolapse or incontinence procedures during which the bladder or ureters may be at risk of injury.” [11] Despite this low level recommendation, the panel approved the QI stating that intra-operative cytoscopy should be performed in such cases (Table 2, QI 12).

Rectocele repair—Neither QI regarding rectocele repair was approved by the expert panel. Again, this does not represent the panel’s disagreement with the statement, only that they do not believe there is enough evidence available to determine whether failure to comply with the QI would constitute poor care. These QIs state that a woman who undergoes a rectocele repair with perineorrhaphy should be counseled pre-operatively about the possible long term complications of surgery, including dyspareunia and defecatory dysfunction (Table 2, QI E) and that a woman who undergoes a rectocele repair with perineorrhaphy should undergo a posterior colporrhaphy by vaginal approach (Table 2, QI F).

Colpocleisis—The 2007 ACOG Practice Bulletin reports a Level C recommendation that women who are at high risk for complications with reconstructive procedures and no longer desire vaginal intercourse are candidates for colpocleisis [11]. Although colpocleisis may benefit elderly women with POP who are certain they will not resume sexual intercourse through relief of pelvic floor symptoms without significant morbidity, the panel discussion included debate as to whether offering this procedure to all women was ethical. Despite concern as to whether all elderly women with POP should be offered a procedure that would eliminate future sexual intercourse, the panel passed this QI (Table 2, QI 11).

Mesh—The panel was held in July of 2010, one year prior to the second FDA warning about vaginally placed mesh for prolapse. In order to address the quality of care provided to women who have mesh for pelvic prolapse, two additional indicators were ranked and passed by the panel. These specifically address mesh-related follow-up within three months of surgery and again at one year after surgery.

Though the RAND Appropriateness method is a valid means to develop QIs to measure the care provided, there are limitations to this type of methodology. The quality of care

indicators ranked are sensible, appropriate, and supported by the literature. However, the involvement of panel discussions is, by definition, not an independent review process. However, the moderators took care to assure that all opinions were voiced. In addition, QIs may need to be updated as more evidence becomes available in the literature on a given indicator. For example, the candidate indicator that patients who undergo vaginal prolapse repair should be offered a midurethral sling was ultimately rejected by the panel. However, 2012 data from the Outcomes Following Vaginal Prolapse Repair and Midurethral Sling (OPUS) Trial provided new level I evidence that a "prophylactic" midurethral sling improves incontinence outcomes significantly among women without symptoms of stress incontinence undergoing vaginal POP surgery [20]. It is possible that the panel may have endorsed such an indicator were this evidence available at the time.

In conclusion, we developed a set of process-focused quality indicators for pelvic organ prolapse that can be used retrospectively to measure the quality of care provided to specific populations. This set of quality indicators may also be used prospectively as a guide for the minimum level of care that should be provided to patients. The next step will be to test the feasibility of these QIs through a pilot test on a small population of women seeking care for POP. After the pilot test, these indicators can be used on a larger scale, with the ultimate goal of identifying specific areas of health care delivery that need improvement. They can also be applied to quality improvement interventions. This set of quality indicators can be modified with time, as additional evidence is contributed to the current literature.

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Appendix 1: Definitions of terms related to POP

American Congress of Obstetricians and Gynecologists (ACOG): An association of medical professionals based in Washington, D.C. They specialize in obstetrics and gynecology and represent 90% of board-certified obstetrician-gynecologists in the United States.

ACOG Practice Bulletin for Pelvic Organ Prolapse Recommendations: Developed by the ACOG Committee on Practice Bulletins. It was designed to aid practitioners in making decisions regarding appropriate obstetric and gynecologic care.

- Level A Recommendation: Based on good and consistent scientific evidence
- Level B Recommendation: Based on limited or inconsistent scientific evidence
- Level C Recommendation: Based on consensus and expert opinion

Pelvic Organ Prolapse (POP): The descent of one or more pelvic structures: the uterine cervix or vaginal apex, anterior vagina (usually with bladder, cystocele), posterior vagina (usually with rectum, rectocele) or peritoneum of the cul-de-sac (usually with small intestine, enterocele).

POP Staging System: Objective, site-specific system for describing, quantifying and staging pelvic support in women. There are two main systems used to classify POP.

- **Baden-Walker System:** Grade posterior urethral descent, lowest part of other sites.
  - -Grade 0: Normal position for each respective site
  - -Grade 1: Descent halfway to hymen
  - -Grade 2: Descent to hymen
  - -Grade 3: Descent halfway past the hymen

-Grade 4: Maximum possible descent for each site

- **Pelvic Organ Prolapse Quantification (POP-Q) System:** Six vaginal sites are used in staging prolapse. Stages are based on the maximal extent of prolapse relative to the hymen in one or more compartments.

  -Stage 0: No prolapse

  -Stage I: Criteria for stage 0 are not met and the most distal prolapse is >1 cm above the level of the hymen

  -Stage II: The most distal prolapse is between 1 cm above and 1 cm below the hymen

  -Stage III: The most distal prolapse is more than 1 cm below the hymen by no more than 2 cm less than the total vaginal length

  -Stage IV: Complete procidentia or vault eversion

Apical Support Defects: Loss of apical support (support of the cervix or vaginal cuff after hysterectomy) is usually associated with defects of the anterior or posterior wall (this is gaining recognition as a critical component to overall pelvic floor support).
Pessary: Plastic or silicone device inserted into the vagina traditionally used for support during pregnancy, and may be used for nonsurgical management of POP. It can be fitted in most women with prolapse, regardless of prolapse stage or site of predominant prolapse. These devices are available in various shapes and sizes and can be categorized as supportive (ring pessary) or space occupying (donut pessary).
Abdominal Sacrocolpopexy: Surgical technique to correct upper genital tract prolapse, performed through an incision in the lower abdomen. Mesh supports are used and secured to the sacrum.
Colporrhaphy: Surgical technique used to treat prolapse of the bladder/urethra or the correction of bowel prolapse.
Perineorrhaphy: Surgical technique used to treat rectocele and defects of the perineum. It corrects defects in the rectovaginal fascia without interfering with bowel function and sexual function.
Colpoclesis: Obliterative surgical procedure that involves removing the vaginal mucosa and closing the vaginal canal. It is an effective technique with low morbidity for correction of POP in women who do not wish to have vaginal intercourse.

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Table 1

Members of the RAND Appropriateness Panel

Matthew Barber, MD	Cleveland Clinic Foundation, Urogynecology President of the American Urogynecologic Society (AUGS)
Kimberly Kenton, MD	Loyola University Medical Center, Urogynecology AUGS Board of Directors
Thomas Mattimore, MD	UCLA, Internal Medicine Expertise with RAND Appropriateness Panels
Victor Nitti, MD	New York University, Urology/Female Pelvic Medicine Past President of the Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU)
Neil Resnick, MD	University of Pittsburgh, Internal Medicine/Geriatrics Expert in pelvic floor disorders among the aging
Larissa Rodríguez, MD	UCLA, Urology/Female Pelvic Medicine SUFU and AUGS member
Christopher Tarnay, MD	UCLA, Urogynecology AUGS member
Neil Wenger, MD, MPH	UCLA, Internal Medicine Expert in quality indicator development Consultant on this application
J. Christian Winters, MD	Louisiana State University, Urology/Female Pelvic Medicine Current SUFU President

Table 2

Results of panelist ratings of the validity and feasibility of each quality indicator

Indicator	Validity* Rating	Feasibility* Rating
Screening/Diagnosis: Initial Evaluation		
A. A woman over age 65 who is seen for a routine annual examination should be examined for pelvic organ prolapse (POP).	2.5, D, 2-5	5.0, I, 2-7
1. IF a woman complains of a new or worsening vaginal bulge or protrusion, THEN she should have a pelvic examination BECAUSE these symptoms are strongly associated with POP and treatments are available.	8.0, A, 7-9	8.0, A, 5-9
Treatment/Management with Pessary		
2. IF a woman has symptoms of prolapse, THEN she should be offered a pessary BECAUSE pessaries are an effective, low-risk, non-surgical means to improve symptoms.	7.0, A, 6-8	7.0, A, 7-8
3. IF a pessary is fitted THEN a patient should undergo a pelvic exam every 6 months BECAUSE pessaries lost to follow-up can cause serious complications.	6.5, I, 3-8	7.0, A, 1-8
Surgical Management		
4. IF a woman has asymptomatic POP of stage 1 or less, THEN she should **not** be offered surgical intervention stage I prolapse BECAUSE there is no proven benefit of surgery for asymptomatic prolapse.	7.5, A, 7-9	7.5, A, 3-9
5. IF surgical intervention is performed, THEN the prolapse should be **staged** by pre-operative pelvic examination and specific prolapse components (**anterior, posterior, apical**) should be documented BECAUSE surgery should be tailored to the specific defects present.	7.0, A, 5-9	7.0, A, 6-9
6. IF a woman with symptomatic apical prolapse undergoes surgery and is a candidate for vaginal and abdominal surgery, THEN she should be counseled about the risks and benefits of both approaches BECAUSE each has unique risks and benefits.	7.0, A, 2-9	6.5, I, 1-8
7. IF prolapse surgery that includes the use of mesh is performed, THEN pre-operative counseling should be given about the specific risks associated with synthetic mesh BECAUSE risks of mesh include urinary tract erosion, fistula, infection, vaginal mesh extrusion, chronic pain, and injury to adjacent organs.	7.0, A, 4-9	6.5, I, 1-9
8. IF a hysterectomy for POP is performed, THEN a concomitant vault suspension procedure should be completed BECAUSE hysterectomy alone for prolapse results in high recurrence rates.	8.0, A, 5-9	8.0, A, 7-9
9. IF surgical repair of anterior/apical POP is performed, THEN the patient should be counseled about the risk of post-operative stress urinary incontinence (SUI) BECAUSE level I evidence exists that SUI can be prevented with a concomitant incontinence procedure.	7.0, A, 6-8	7.0, I, 6-8
B. A stress continent woman with anterior POP who undergoes surgical intervention should be examined for SUI after prolapse reduction.	3.5, I, 1-6	6.0, I, 1-8
C. A woman with positive stress testing with POP reduction who chooses to undergo a vaginal POP repair should be offered a midurethral synthetic sling.	6.0, D, 4-8	7.0, A, 5-8
D. A woman who undergoes an abdominal sacrocolpopexy (either open, laparoscopic, or robotic) should have synthetic mesh instead of biologic graft material.	5.0, I, 3-7	7.0, I, 4-8
10. IF a woman elects to undergo an abdominal sacrocolpopexy (either open, laparoscopic, or robotic), regardless of the results of pre-operative stress testing with prolapse reduction, THEN she should be offered a concomitant continence procedure BECAUSE of the increased risk of stress urinary incontinence after surgery for high stage prolapse.	7.0, A, 5-8	7.0, A, 4-8
11. IF a woman over age 65 with advanced POP (stage 3 or greater) plans to undergo surgical treatment of prolapse and no longer wishes to engage in sexual activity, THEN she should be offered a colpocleisis	6.5, I, 4-9	6.0, I, 2-9

Indicator	Validity* Rating	Feasibility* Rating
BECAUSE this operation has low morbidity and high efficacy.		
12. IF a patient undergoes surgery for anterior and/or apical vaginal prolapse, THEN intra-operative cystoscopy to evaluate for bladder and ureteral integrity should be performed BECAUSE missed urinary tract injuries result in serious complications.	7.5, A, 5-9	7.5, A, 7-9
E. A woman who undergoes a rectocele repair with perineorrhaphy should be counseled pre-operatively about possible long-term complications of surgery, including dyspareunia resulting from the repair, as well as persistent defecatory dysfunction.	5.0, I, 3-7	6.0, I, 3-8
F. A woman who undergoes a rectocele repair with perineorrhaphy should undergo posterior colporrhaphy by a vaginal approach.	5.5, I, 1-7	7.0, I, 1-8
G. A woman greater than age 65 with an intact uterus who elects to undergo a partial colpocleisis should have her endometrium evaluated.	3.0, I, 1-5	4.0, D, 1-7
13. IF a woman undergoes prolapse surgery, THEN she should be re-evaluated with a pelvic examination within three months of surgery BECAUSE prolapse surgery can result in treatable adverse events, including pelvic pain and mesh-related complications.	7.7, A, 6-8	8.1, A, 8-9
14. IF a woman undergoes prolapse surgery with mesh, THEN she should be re-evaluated with a pelvic examination one year after surgery BECAUSE mesh can result in delayed complications.	7.4, A, 5-9	7.7, A, 5-9

*median score, level of agreement, range of second round rankings (scale of 1-9)

Level of agreement:

A=agreement with first round rankings

D=disagreement with first round rankings

I=indeterminate

Shaded areas indicate quality indicators that were rejected by the panel.