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CLINICAL OPINION

The POP-Q system: two decades of progress and debate

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Abstract I appreciate the opportunity to provide my reflections on the POP-Q, now more than 20 years since it was first conceived and 17 years since its publication in the *American Journal of Obstetrics and Gynecology*. The invitation led me to dig into old files and recall—through a series of insightful emails, faxes, meeting summaries and draft documents—a document made possible by the combined efforts of an extraordinary group of individuals.

Keywords Pelvic organ prolapse · Pelvic organ prolapse quantification · POP-Q system

A brief history of POP-Q

The immediately consecutive and proximate meetings of AUGS (Boston) and ICS (Halifax) in the fall of 1992 allowed key leaders who attended both meetings to have informal discussions regarding the need for standard terminology relating to pelvic organ prolapse (POP). In November 1992, Paul Abrams (ICS Honorary Secretary) proposed using the well-established ICS Standardisation Committee process to develop such a document and invited AUGS and SGS Presidents (Charles deProsse and Leon Tancer respectively) to have their societies participate and to propose contributors.

The POP subcommittee members were named in mid-1993 by Anders Mattiasson, overall Chair of the ICS Standardisation Committees, with input from the societies. I was privileged to be named its chair. Exchanges of ideas among committee members through the first half of 1993 culminated in the first face-to-face subcommittee meeting in Rome in September. All members were represented, with Lewis Wall serving as proxy for John DeLancey.

There were multiple issues on which the committee was aligned from the start, as documented in the meeting minutes circulated shortly after the Rome meeting. Chief among these were the following:

1. "None of the existing grading systems has been adequately validated with respect to the clinical significance of worsening grades. Thus the document should present a system of evaluation that would describe prolapse with accuracy without assigning a 'severity value.'"
2. The hymen should be the fixed point of reference and two anterior, two superior, and two posterior defined points of measurement were specified. (These were numbered 1 through 6 initially but changed to Aa, Ba, ("a" for anterior) C (for cervix), D (for pouch of Douglas), Bp, and Ap ("p" for posterior) respectively at the suggestion of Bernard Schüssler in his invited review of an early draft. The committee agreed.) GH and PB were also designated as components of the quantitative assessment.
3. "[The quantitative description of prolapse] should sell the concept that numerical or descriptive (e.g., mild, moderate, severe) grades are meaningless unless they are related to some functional deficit and that an accurate, non-judgmental description is the first step toward establishing meaningful grades. … studies to correlate measurements with functional status should be suggested so that a functionally meaningful grading system might follow."

Thus, remarkably, the initial subcommittee consensus was that there should be no ordinal rating system. However, we soon recognized the impracticality of this

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position, given the ingrained status of prolapse grading in the gynecological community. To subtly distinguish the new from the old, the ordinal ranks of pelvic organ support were designated "stages" rather than "grades." Once the need for a staging system was grudgingly accepted, the group agreed that no stage should be confined to a single plane (e.g., the hymen, as in previous systems), since very modest treatment changes (e.g., surgically moving point C from a few millimeters beyond the hymen to a few millimeters above the hymen) could be exaggerated as a two-stage improvement in pelvic support. We also agreed that no ranking system should allow the assignment of a stage until the quantitative description was completed.

John DeLancey (with Lewis Wall), Linda Brubaker, and I were assigned to draft portions of what became known as the POP-Q (a designation that ironically appears nowhere in the standardization document), Bob Shull drafted the section on ancillary techniques for describing POP, Kari Bø and Peter Klarskov drafted the section for pelvic floor muscle testing, and Tony Smith did the description of functional symptoms. Throughout the drafting process, Lewis Wall, Bernard Schüssler, Glenn Hurt (who championed "pelvic organ prolapse" in preference to "genital prolapse" or "pelvic relaxation") and Anders Mattiasson provided reviews and insightful suggestions. Thanks to the selfless dedication and resolute availability of all these individuals, a remarkably prescient draft was completed by mid-1994. This was refined during and immediately after the June 1994 ICS and subcommittee meetings in Prague.

The penultimate version of the document was completed in August 1994 and circulated to members of all three societies for a 1-year review, during which time several inter- and intrarater reliability and clinical utility studies were reported and minor revisions were effected. Ultimately, the final version was adopted by the sponsoring societies between October 1995 and March 1996 and published in July 1996 [1]. Cries for revision (and occasionally of derision) immediately ensued and recur with regularity [2–6]. Many of the perceived limitations attributed to the POP-Q system in these criticisms are derived from the misconceptions that the POP-Q should identify the precise cause of an individual patient's POP, should define clinically relevant POP, and should determine the best intervention to correct POP.

The actual role of POP-Q

What was and remains the role of the POP-Q system and why do I retain confidence in it and pride in the people who produced it? The POP-Q system is no more or less than a reproducible, quantitative description of the position of the vaginal segments and, indirectly through GH and PB, of perineal position. It conveys where a segment is, not why it is there, not how best to correct its position, and not even if it needs to be treated. Similarly, it does not identify the clinical relevance of a particular level of support or its relationship to symptoms. Rather, it provides a standard measuring system to facilitate the process of understanding relationships between anatomy and function and between interventions and anatomy. Just as a sphygmomanometer measures blood pressure, allowing researchers and clinicians to determine the impact of high blood pressure and of its treatment, the POP-Q is a measuring tool to be used in our efforts to further our understanding of POP. Without such a measuring system, it is difficult to communicate with others across space or with ourselves across time.

With over 20 years of hindsight (we and others involved in the project began piloting POP-Q several years before it was published), would I change anything? Yes, but not as much as one might suspect. My changes would be as follows:

1. Point D would not be omitted in the absence of a cervix. I think the original document placed too much emphasis on point D as a measurement to differentiate suspensory failure from cervical elongation. In fact, post hysterectomy, it reflects the residual integrity of the uterosacral ligaments and their attachments to the upper posterior vagina. I found value in and measured point D after hysterectomy very early after the introduction of the POP-Q.
2. The ordinal staging system would consistently refer to *pelvic organ support* rather than *pelvic organ prolapse*. There are places in the document where this is properly expressed (e.g., right before the stage definition, the document reads "the five stages of pelvic organ support are as follows:"), but the section title refers to the "Ordinal stages of pelvic organ prolapse." I regret that the staging system has been interpreted as implying that clinically relevant prolapse starts at stage II or that stage I pelvic organ support is abnormal.
3. Remove language stating that a staging system is needed to describe and compare populations, to evaluate what symptoms are related to POP and to assess and compare the results of treatments. In fact, I think there is greater value in relating symptoms to the numerical values of the various vaginal segments than to the arbitrary ordinal stages. Similarly, showing the shift in the quantitation values for individual points is better able to reflect the anatomical results of surgical procedures than shifts in stage [7, 8]. In addition, changes in the GH and PB measurements (which are not part of the staging system) seem able to indicate improvements in perineal descent after successful surgery [9]. Finally, others have demonstrated that the single most distal POP-Q point may be preferable to the POP-Q ordinal stage to summarize or compare group data [10]. In truth, the committee's

original desire to forgo a grading or staging system altogether was probably ideal, except for the fact that idyllic positions seldom survive the popular vote.

Concluding observations and unsolicited advice

In conclusion, I believe that some of the meaningful advances made and yet to be made in the field of Female Pelvic Medicine and Reconstructive Pelvic Surgery are derived from our ability to measure, record, and communicate pelvic support via the POP-Q. Yes, it seems complex at first; yes, it can be hard to teach (especially if the student is disinterested, as is often the case); and yes, we sometimes have to simplify it to communicate with less knowledgeable colleagues and patients (but that is the responsibility of a sub-specialist). However, in the end, pelvic organ prolapse is not simple and I believe the POP-Q remains a valid example of Einstein's aphorism, "Everything should be made as simple as possible, but no simpler." Thus, as changes are considered, be careful not to become more complex than necessary or simpler than possible.

Disclaimer and disclosures Dr. Bump was the chair of the ICS/AUGS/SGS Subcommittee for the Standardisation of Terminology on Pelvic Organ Prolapse and Pelvic Floor Dysfunction when the original POP-Q system was developed and approved. This article represents solely his opinions and recollections, which have not been reviewed or endorsed by the sponsoring societies or any member of the original committee.

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