Web Appendix

Web Appendix 1 Sample Size Calculation

Compute the sampling variance of the mean: $var(\bar{y})$, based on desired coefficient of variation - 0.08.

$$var(\bar{y}) = se(\bar{y})^2 = (cv * \bar{y})^2 = (0.08 * (-0.9))^2 = 0.0052$$

Estimate number of completed interviews in need for a simple random sample(SRS):n_{srs}

$$n_{srs} = \frac{s^2}{var(\bar{y})} = \frac{4.54}{0.0052} = 875$$

Estimate design effect:

$$d_{eff} = 1 + \delta(n-1) = 1 + 0.0486 * (27-1) = 2.26$$

Multiply n_{srs} by the design effect to account for a complex survey design:

$$n_{complex} = n_{srs} * d_{eff} = 875 * 2.26 \approx 1981$$

Web Appendix 2 Evidence-based process of developing quality criteria for the SP cases

In partnership with the Lanzhou University Evidence Medicine Center, we have developed a working paper on the results of our review of the literature in quality checklist development and also our recommended protocol of developing

those checklists. We provide an abstract of that working paper below and will make available the full paper once it is fully developed.

Objective To explore the procedures and methods for determining the quality checklist for the most common conditions in the context of primary health care, particularly to be used for quality inspection by unannounced standardized patients. **Methods** We conducted a systematic search of literature in the subject matter, while adopting the WHO handbook for guideline development. **Results** A total of 14 related articles were included and the methodological aspects were evaluated. Based on this review, we propose five key steps in the checklist development: (1) Forming a multidisciplinary team; (2) Reviewing, evaluating and selecting relevant literature based on evidence-based medicine quality of evidence principles; (3) Extracting essential quality information to form a pool of quality items; (4) using expert consensus to select candidate quality checklist items from the pool; (5) pre-testing to determine the final items. **Discussion** We recommend a checklist development method based on evidence-based method augmented by expert opinions through a multidisciplinary group discussion. The selection of the items on the checklist will

consider their importance and feasibility. Our proposed methods can be mainly applied to common conditions seen in the primary care settings and may not be applied to more complex conditions.