Implementing Quality of Care Measures: Lessons from a Standardized Patient Study in Seven Provinces of China

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In this *AJPH* issue, Xu et al. (p. xxx) helpfully detail an impressive implementation advancement of the unannounced standardized patient (USP) method as part of a large project to longitudinally track the quality of primary care across a large geographic area. New constraints imposed by the COVID-19 pandemic required the team to design new and resilient techniques to ethically and safely conduct a large, representative data collection effort in China, the most populous country in the world. The authors' initiative, the Primary heAlth Care quAlity Cohort In ChinA (ACACIA), was launched in 2017 with the original protocol published by the authors elsewhere.[1] ACACIA uses USPs to collect data on the quality of primary care, allowing the evaluation of the appropriateness of care based on the true underlying condition the USPs simulate in clinical encounters with providers.[2] Using representative sampling, the study overcomes selection issues prominent in most "real patient" data. These learnings have implications for how future studies can develop resilient data collection infrastructure in post-pandemic primary care environments.

CONTEXT: STANDARDIZED PATIENT STUDIES

Western societies are largely familiar with standardized patients (SPs) as a training tool for medical students, but around the world (especially in resource-constrained settings and those without easily accessible and routinely collected data), the USP method has increasingly become a popular option for obtaining reliable care quality data. SPs are locally recruited individuals who undergo training to portray—often unannounced—a standardized, simulated case scenario to a sample of practicing providers at health facilities. After the visit, the SP recalls elements of the encounter through a structured questionnaire, and the data captured are translated into quality-of-care measures. Procedures are strictly followed to ensure all research conduct is ethical, and the data reveal levels of appropriate and inappropriate care provided.[3]

It is important to recognize how these data differ from medical records and why USP data should not be considered a substitute for real-patient data or vice versa. Because of standardization, USP data allow researchers to examine the care provided in response to the same patient presentation by different providers composing an intentionally designed sample. Because the underlying condition is known (predetermined) by the researchers, several crucial advantages exist over other data types. First, the correct (and incorrect) diagnosis and the appropriate (and inappropriate) treatments are known by design. Second, how a provider arrives at a specific diagnosis through the process of analyzing patient history and conducting physical examinations, known as differential diagnosis, can be accurately evaluated. Third, provider practice can be benchmarked to existing guidelines and the protocol(s) for the condition(s) of interest. These nuances of appropriateness of care are difficult to ascertain when examining quality of care data derived from real patients, because the underlying conditions of real patients are not known; only the diagnosed conditions (if any) are available, and validated USP data have regularly shown that most interactions result either in no formal diagnosis or in incorrect diagnosis. For this and other reasons (such as case-mix confounding) described elsewhere, the USP method has opened the door for researchers to understand new and critical dimensions of quality of care.[3]

Before COVID-19, the evidence base in global health for quality of care was rapidly expanding thanks to innovations in USP study design. Government commitments to improve health reflected a critical understanding that achieving universal access to health care could be detrimental if that care is not high quality or equitable. Specifically, USP studies across countries in Asia and Africa (totaling more than 20 000

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observations) amassed evidence shedding new light on a wide variety of quality-of-care topics, including primary care patterns, patient–provider dynamics, the role of patient characteristics, laboratory quality issues, overuse of antimicrobial medicines, provider decision-making, private sector engagement, public and private sector differences, and new evaluation approaches to quality improvement interventions.[3–5]

LESSONS: ACACIA DURING COVID-19

In their article, Xu et al. detail three particularly notable elements related to using USPs for health care research: scale, scope, and use of technology. In terms of scale, the study covers seven Chinese provinces where nearly 400 million people—28.2% of China's 2020 population—reside.[6] For scope, where other published SP studies typically present one to five health conditions, the team developed 12 SP case scenarios and implemented 11 presenting conditions while laudably expanding the available conditions to mental health with a postpartum depression scenario. Last, the use of technology throughout the entire SP implementation process from design to data collection, including monitoring, appeared essential for reducing expenditures without sacrificing implementation fidelity.

In addition to building a resilient data structure for capturing quality of care measures, Xu et al. document lessons and cost-conscious processes that extend existing resources within the field on how to implement the USP method for health care quality research.[3,7] Despite the wide scope of case scenarios, the authors estimate that, by the end of the project, the effort will cost less than two million Chinese yuan (approximately US $300 000–$350 000 for 2200 planned SP visits, or US $136–$159 per visit), falling within the lower bound of average cost per visit in other studies conducted in other settings.[3]

In addition to the implementation learnings, Xu et al.'s study shows that only 27.3% of SP visits have received accurate diagnoses and 19.2% have received entirely incorrect diagnoses. If these trends persist, there is a case to be made that these figures should replace the findings from a 2007 systematic review reporting that providers were performing 40% to 60% of recommended guidelines; however, more careful discussion is warranted on outcome definitions, selection bias in analyzing medical record data, and the ability to generalize to other settings. Nonetheless, analyses derived from the ACACIA project will certainly contribute to the global understanding of why quality of care is low and varied and what mechanisms may improve the appropriateness of care.

IMPLICATIONS: FUTURE STANDARDIZED PATIENT STUDIES

Not all SP studies will be able to replicate the techniques mentioned with the same level of efficiency, nor will all SP studies be able to leverage the same avenues as Xu et al. did. For example, in the Quality of Tuberculosis Care surveillance study conducted in two Indian cities, voice recording SP–provider encounters was impossible in clinics we sampled because of noise pollution and the inability to decipher what "take this medicine" and "that one twice a day" referred to when listening to recordings.[8] In addition, technology use for capturing data after SP visits proved difficult in monsoon season.

In terms of scale, not many studies will be able to have an impact on such a large population without spanning data collection efforts across multiple countries. On USP study implementation costs, a formal multistudy costing analysis will illuminate the extent to which upfront training and technology costs and recurring human resource and transport costs accounting for distance and spatial spread influence USP study expenses. Certainly, the shared learnings revealed through Xu et al.'s experience can both provide a cheaper way to conduct additional waves or expand ACACIA in the future, and they can provide ideas for other teams to draw from when implementing small- or large-scale studies of this kind.

CONCLUSION

A successful outcome of the COVID-19 pandemic may be that we are able to better understand mechanisms to improve quality of care, particularly for subpopulations that continue to experience disparities. This cannot happen without robust, cost-effective data structures that collect and monitor quality improvement efforts. With these systems in place to collect USP data across a large geographic area, China will be equipped with additional data to move the needle on its pledge to "provide all citizens with equal access to basic health care with reasonable quality and financial risk protection" as long as it has the will to continue to be able to respond to the issues identified from the data.[9] Xu et al. provide a critically important exposition into what it takes to put quality-of-care data first at a time when the world grapples with how fragile health and health care can be. The full results of

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the ACACIA study and other postpandemic USP studies will be essential to understand primary care environment changes and levels of quality as governments, providers, and care seekers adapt to new public health realities. AJPH

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CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

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