

surveys. We performed descriptive analyses of socio-demographic characteristics and analyzed the use of anticonvulsant drugs disaggregated per hospital.

For our complementary qualitative analyses, we reviewed 13 maternal mortality records that recorded hypertensive disorders as the main cause of death, and extracted relevant variables in an Excel spreadsheet. Additionally, we recruited 14 key stakeholders, including heads of Obstetrics and Gynecology departments and researchers in the maternal health field in Oaxaca, via snowball sampling to participate in an in-depth interview. Interviews explored types of drugs used to treat preeclampsia and eclampsia, adherence to MOH technical guidelines, and general implementation of evidence-based practices. Themes were then extracted from transcribed interviews.

Our medical record review found that in 33% of cases, pregnancy termination took longer than six hours. Only 5% of women were admitted to intensive care units (ICU), and 33% of hospitals lacked ICUs. For these cases, the use of anticonvulsant medication did not follow technical guidelines. Of women with severe preeclampsia, only 50% were treated with MS. Of these, almost one-quarter were administered MS in combination with other anticonvulsants; 38% were not provided anticonvulsant treatment at all. For women with eclampsia, MS was given in 82% of cases, of which three-quarters received MS in conjunction with other drugs.

Of the 13 women whose death certificates we reviewed, nine were referred from a smaller facility to a general hospital. Reasons included lack of an obstetrics and gynecology laboratory, or ICU. According to the records, only two of these women were given MS.

Of the 84 physicians surveyed, 96% reported being aware of their

hospital's treatment guidelines for care of preeclampsia and eclampsia, and 92% stated that MS was always available in their facilities. Barriers to its usage included fear of side effects and lack of experience managing the drug. Stakeholder interviews further explored barriers to MS usage. These included erratic or incomplete administration of MS due to shift changes or unclear information from a referring facility; the amount of time it takes to prepare dosages of MS; lack of supervision over guideline implementation; and staff shortages and heavy patient-loads that make consistent, quality monitoring of patients difficult.

To improve alignment between knowledge of technical guidelines and practice, we recommend stocking facilities with pre-prepared dosages of MS; establishing incentives for staff to follow evidence-based practices; ensuring adequate coverage of shifts and supervision; and improved communication between referral facilities and providers regarding the order and timing of treatment. While these recommendations would require wide-sweeping health system changes, a comprehensive approach is vital to avert maternal mortality in Oaxaca and in other states of the country.

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An education-support program that addresses many of the shortcomings of medical social service in Mexico

To the editor: Mexico has achieved universal health insurance coverage,¹⁻² but for many marginalized populations coverage signifies little more than an enrollment card, and fails to ensure access to high quality care.³ In the recent article "Social Service in Medicine in Mexico" published in your journal, Gustavo Nigenda explains that social service physicians (pasantes) are an important health care provider for these marginalized populations, but also accurately outlines shortcomings of this model: pasantes are typically unpracticed and unsupervised during their social service year (pasantía), and lack the experience necessary to provide high quality care independently.⁴ We have implemented a pasante education and support program in the southern mountains of Chiapas, Mexico for the past two years. Our experience has confirmed Nigenda's argument that efforts to truly achieve effective access to high quality health care in

Mexico should focus on supporting pasantes during their pasantía.*

Nigenda suggests that the Mexican government contract fully licensed physicians to work in rural clinics alongside pasantes, in the hopes that the presence of another physician will improve the pasante experience.⁴ While we agree wholeheartedly that pasantes need support during their pasantía, our experience has shown that, beyond the simple presence of another physician, several crucial elements can make the pasantía a transformative educational year that better serves patients. If properly implemented and adapted, we believe that our program offers a model that can be replicated in other sites throughout Mexico.

Compañeros en Salud (CES), the Mexican branch of an international non-profit organization Partners in Health (PIH), directs our pasante education and support program in close collaboration with the Chiapas Ministry of Health (MOH). Since February 2012, we have collaborated with two health jurisdictions within Chiapas to rehabilitate six underutilized rural health clinics in marginalized regions of the Sierra Madre Mountains. We recruit pasantes from medical schools throughout Mexico to complete their pasantía in these rural health centers, most of which were not previously staffed by a physician.

CES approaches the entire pasante year as a learning experience, including classroom learning, on-site support and mentorship, and access to clinical information resources. One crucial element of the CES program

is classroom training that fosters transformative learning by utilizing best practices in adult education and incorporating “teach-back” and reflection. CES-affiliated pasantes participate in a certificate course in Global Health and Social Medicine sponsored by the Tecnológico de Monterrey that is delivered three days each month over the course of 12 months. The course has three interrelated strands: clinical skills, clinic management, and global health and social medicine. The course content aims to teach pasantes a mix of patient-level and system-level thinking that will prepare them to be better providers and leaders in their careers. Supportive supervision is another crucial element of the CES program. Similar to the accompaniment proposed by Nigenda,⁴ CES pasantes receive monthly visits by CES supervisors, and intermittent support visits by both Mexican and international physicians from differing specialties. Beyond simply placing another physician alongside the pasantes, we actively train CES supervisors in effective teaching and support strategies. In contrast to a common form of vertical supervision that seeks to identify errors, these mentors work with pasantes to analyze strengths and weaknesses in their own performance, clinic function, and community relations, and then form clear plans to develop strengths and address weaknesses together. To ensure pasantes do not face financial barriers to working in Chiapas, CES also provides the pasantes with a matching scholarship to the MOH stipend, for a total of 5 000 pesos monthly (~380USD). Finally, CES has strengthened the medical supply chain to our supported clinics, and equipped pasantes with clinical information resources – such as treatment algorithms, textbooks, and UpToDate – to help them achieve the Mexican norms and provide quality, patient-centered care.

From February 2012 until now, CES-supported pasantes have delivered over 20 000 patient encounters and we have achieved excellent levels of patient satisfaction in anonymous patient exit surveys. In anonymous evaluation surveys, pasantes themselves reported that their medical knowledge, clinical and leadership skills all improved during the CES program. Further, most pasantes felt the program had an overall positive effect on their career goals and plans, and 100% of pasantes reported they were glad they had done their pasantía with CES in Chiapas.* Finally, beyond transforming the pasantía experience alone, the CES education and support program appears to be influencing pasante career goals, leading them to consider careers in primary care and working with the undeserved. To date, 90% of graduates of our program have either expressed interest in or continued to work with marginalized populations in Chiapas.

We believe that the results of our experience educating and supporting pasantes over the past two years show that it is possible for Mexico to avoid the trap in which the pasantía can be a dreaded experience, during which unpracticed and unsupervised medical students provide lower quality care to the poorest Mexicans. Instead, we have shown that a simple but well-designed program can make the pasantía a transformative experience, improve pasante knowledge and skills, and allow pasantes to provide high quality care.

We agree with Nigenda,⁴ that, in order to ensure patients in rural

* Van Wieren A, Palazeulos L, Elliott PF, Arrieta J, Flores H, Palazeulos D. Service, training, mentorship: First report of an innovative education-support program to revitalize primary care social service in Chiapas, Mexico. 2014. Manuscript currently submitted and under review at Global Health Action.

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Mexico have access to high quality care, the Mexican government should direct resources to projects that educate and support pasantes. However, we believe that simply assigning another physician to practice alongside and supervise pasantes – without providing a guiding framework of how to teach or support the pasante – would prove inadequate.

The CES program demonstrates how a combination of on-site support, academic training, and access to clinical information resources might inspire a new generation of Mexican physicians to dedicate their careers to serving the most marginalized Mexicans. If even a fraction of these transformed pasantes go on to mentor and inspire the next generation of pasantes, we will truly make progress in ensuring that universal coverage in Mexico translates into effective health care delivery for those Mexicans who need it the most.

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