Assessing Point of Care Ultrasound in Nicaragua: A Survey of Utility, Access, Training, and Interest Amongst Health Care Providers in Rural and Urban Centers

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INTRODUCTION

• There are numerous indications for point-of-care ultrasound (POCUS) use in resource-limited settings.
• A review of its use in developing countries highlighted several key applications, including obstetrics, trauma, cardiac, and procedural guidance ultrasound [1].
• Availability in Nicaragua is severely limited, and the need for and potential receptivity to ultrasound use is largely unknown.

• We sought to conduct a needs assessment survey to evaluate Nicaraguan medical professionals' experience with ultrasound, potential barriers to ultrasound use, existing resources, and overall interest in usage (Figure 1).
• The intent was to use the needs assessment survey to inform the potential development of a future ultrasound-training program in Nicaragua.

METHODS

Survey Design:
• Student researchers revised the needs assessment survey based on recommendations from Henwood, et al. [2].
• The survey was translated and reviewed by native Spanish speakers in the healthcare field. It consisted of 18 multiple choice and fill-in-the-blank questions.

Data Collection:
• Health care providers were invited to participate in the survey online through Google Forms or by paper form.
• Responses were collected over a 4-week period in both rural and urban settings in Nicaragua from May-June 2015.
• SPSS 22 for Mac was used for data analysis. The chi squared test was used to assess the statistical significance of differences in survey responses by site (rural vs. urban).

Subject Demographics:
• Physicians, medical students, and nurses (including nursing students) participated in the study (Figure 3).
• Urban settings included public hospitals and smaller clinics in León, Chinandega, and Rivas. Rural settings included clinics in Sabana Grande and Totogalpa (Figure 4).

RESULTS

• Access to ultrasound was very limited in the sampled areas of Nicaragua. Even among ultrasound users, many had <5 hours of experience and no formal training. Despite its many applications, ultrasound use was dominated by obstetrics and was not widely used in a point-of-care setting. Most health care providers believed that POCUS could change management of patient care in a majority of cases.

• Significant barriers to ultrasound implementation included the lack of teachers, funds, machines, time, and internet access. However, the active interest in learning more about ultrasound amongst health care providers, the availability of electricity, and the continuity in the UNAN-UCD relationship suggests that an ultrasound teaching project in Nicaragua is feasible.

LIMITATIONS

• The respondent sample size was small, especially in rural areas, which limited the study's power to detect differences in survey responses as statistically significant. Descriptive findings, however, may help to inform the development of an ultrasound training program in Nicaragua.

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