

Why does the undergraduate education in Ecuador fall short to train skills for rural health? A qualitative study

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ABSTRACT

Background and Objectives

Since 1970, Ecuador establishes mandatory rural health service as a requirement for licensing work. Medical education is based in the hospital with little contact with rural areas. There is little information on the training and skills needs of recent graduated doctors. The research focuses on the perceptions of rural doctors on obstetric skills needed in rural areas. The aim of our study was to describe how the basic doctor in rural areas addresses training and teaching in obstetric skills needed in rural areas during undergraduate medical education.

Methods

A qualitative research project was performed using focus group discussions involving 23 rural doctors who work in rural and marginal urban areas in Southern Ecuador. We identified themes that came from the data collected in the focus group and we selected those which are of interest for the readers in a detailed analysis. Rural doctors responded

the following question: How do you feel with obstetric skills training at the University where you studied?

Results

The majority of participants describe two predominant themes: the undergraduate theoretical teaching process of obstetrical skills and the practice experiences during the clinical attachment. Not all required skills are taught and internalized during undergraduate rotations including internship.

Discussion

There is no definition of the recent graduate profile that determines a standard for medical education. Rural doctors expressed lack of knowledge and practice for the obstetrical skills that they were required to perform. There is an urgent need to identify a baseline undergraduate curriculum that meets the country needs.

KEY WORDS: Clinical Competence, Medical Education, Obstetrics, Rural Health Services, Undergraduate.

¿Por qué la educación de pregrado en Ecuador se queda corta para capacitar habilidades para la salud rural? Un estudio cualitativo

Resumen

Objetivos

Desde 1970, Ecuador establece un servicio obligatorio de salud rural como un requisito para el trabajo de licencia. La educación médica se basa en el hospital con poco contacto con las zonas rurales. Hay poca información sobre las necesidades de capacitación y habilidades de los médicos recién graduados. La investigación se centra en las percepciones de los médicos rurales sobre las habilidades obstétricas necesarias en las zonas rurales. El objetivo de nuestro estudio fue describir cómo el médico de cabecera en áreas rurales aborda la capacitación y la enseñanza en habilidades obstétricas necesarias en áreas rurales durante la educación médica de pregrado.

Métodos

Se realizó un proyecto de investigación cualitativa utilizando discusiones de grupos focales con la participación de 23 médicos rurales que trabajan en áreas rurales y urbanas marginales en el sur de Ecuador. Identificamos los temas que provienen de los datos recopilados en el grupo focal y seleccionamos aquellos que son de interés para el lector en un análisis detallado. Los médicos rurales respondieron la siguiente pregunta: ¿Cómo te sientes con el entrenamiento de habilidades obstétricas en la universidad donde estudiaste?

Resultados

La mayoría de los participantes describen dos temas predominantes: el proceso de enseñanza teórica de pregrado de las habilidades obstétricas y las experiencias prácticas durante el apego clínico. No todas las habilidades requeridas se enseñan e internalizan durante las rotaciones de pregrado, incluidas las prácticas.

Discusión

No hay una definición del perfil reciente de graduados que determina un estándar para la educación médica. Los médicos rurales expresaron falta de conocimiento y práctica para las habilidades obstétricas que debían realizar. Existe una necesidad urgente de identificar un plan de estudios de licenciatura de línea de base que satisfaga las necesidades del país.

Introduction

Since 1970, Ecuadorian graduates in medicine, dentistry, midwifery and nursing are required to serve one year in rural areas as a requisite to register their degrees and obtain a license to practice in the health system. This license from the Ministry of Public Health is also needed to participate in a specialist training program.(1) These recent medical graduates are called “rural doctors” (RDs). This initiative aims to provide medical care to Ecuador’s most vulnerable populations, who have little or no access to public health services. RDs argued that the project does not meet its established objectives although the experience seems gratifying professionally and personally. (2) RDs provide services across all fields. Especially in obstetrical work seems important due primarily to the lack of specialists like gynecologists in rural communities.(3)(4)(5)(6) At present, there is no academic program to monitor these young professionals.

RDs are allocated to health centers according to some rules. The best students are the first to be assigned, followed by married students and finally single students.(7)(8) The rural practice is carried out in different types of health centers, ranging from the simplest to the most complex levels, and from marginalized urban areas to rural areas. Doctors receive a salary based on geographical access to their designated post, with a bonus for more remote areas.(9)

During the undergraduate medical curriculum, students have little contact with rural areas until their final year, when they have a two-month rotation known as the “pre-rural”. This is because medical education in Ecuador shows a predominant orientation towards hospital training.(10)(11) (12) A recent study by our team indicated that regarding obstetrical and gynecological skills a large gap exists between the skills that are important for a RD in the rural year and the former training in the undergraduate curriculum. Skills rated important for rural practice, like ‘episiotomy and repair’ or ‘speculum examination during pregnancy’, have not been seen nor practiced by up to 45% of respondents.(13)

The aim of our study was to describe how the basic doctor in rural areas addresses training in obstetric skills during undergraduate medical education.

Methodology

A qualitative research project was performed using focus group discussions. A thematic approach was used to identify themes that came from the data collected in the focus group. We selected the themes which are of interest for the readers in a detailed analysis from an interpretivist paradigm. (14)

Recent medical graduates who were in their rural practice year (2012-2013) were invited by the Chief of the Provincial Health Department of Loja (*Dirección Provincial de Salud*) to participate. Ninety RDs are divided in three local departments (*jefaturas de area*) and meet once in a month in each town to submit reports and receive feedback on programs of the Ministry of Public Health. They only meet once a month because their rural practices are far away and the routes are difficult. This made it difficult to recruit more participants in the focus groups. Two focus groups were conducted finally for the reasons mentioned before.

The group discussions were held on-site at the local places to gain interaction between RD that become from different universities. One group was among 11 rural doctors working in marginalized urban areas of Loja city, a small industrial town located in Southern Ecuador with 170.000 inhabitants. A second was with 12 doctors working in the rural area of *Saraguro* district, with around 30.000 inhabitants most of them indigenous *Kechua* speaking people.

Participants received an informed consent form to record their participation and ensure the confidentiality of their opinions and personal information. Spanish was the communication language.

The researcher guided the focus groups with the presence of two observers who recorded relevant information. The researcher knew the results from the previous research and did not have any relation with the participants. Before each focus group session the participants were informed about the goal of the study, objectives and the importance of their contribution in the discussion. Respect, participation and tolerance were the rules explicated to them and that information would be handled in a confident manner.

An ice-breaker question was used to start the discussion. After that RDs responded the following question: How do you feel with obstetric skills training at the University where you studied? Clarifications were sought if the responses were very general with two questions: Did you perform any obstetric skills during your rural service? And, were there a specific skill that you could not perform due to lack of knowledge or practice?

The focus groups lasted two hours each. The recordings from the sessions and observational notes were transcribed. The researcher and another member verify the data integrity. The text was analyzed independently by two researchers. Manual coding was used in the word processor after several lectures by the authors. Those codes were categorized according the themes of interest. For the analysis they use an interpretative level based on realistic approach, that permits to identify the underlying ideas, assumptions and conceptualizations from the data.(14)(15) Since almost no new information was revealed in the second focus group, researches consider to have reached saturation of data.

The recent created ethical and research committee from the *Universidad Técnica Particular de Loja* approved the study protocol. The Chief of the *Dirección Provincial de Salud de Loja* authorized the focus group after the RDs monthly meetings that usually have.

Results

The 23 participants in the focus groups came from six universities. Nine women and two men participated in the first group, and six women and six men participated in the second group. The

average age of the participants was 25 years. They worked in the provinces of Loja, Zamora Chinchipe and Azuay. (Table 1)

Tabla 1: Characteristics of the participants in the two focus groups

	Women	Men
Age (years)		
24	4	2
25	7	3
26	4	2
28		1
Focus group # 1		
Universidad Nacional de Loja (public)	4	1
Universidad Técnica Particular de Loja (private)	4	1
Pontificia Universidad Católica del Ecuador (private)	1	
Focus group # 2		
Universidad Nacional de Loja (public)	1	2
Universidad de Cuenca (public)	2	
Universidad Estatal de Guayaquil (public)		1
Universidad Técnica Particular de Loja (private)		1
Universidad Católica de Azogues (private)	3	2

The majority of participants describe two predominant themes that come from the interaction of the two focus groups about the training in obstetrical skills during undergraduate medical education: the undergraduate theoretical teaching process of obstetrical skills and the practice experiences during the clinical attachment.

A. Undergraduate theoretical teaching process

A.1) Differences in the method to teach

Teaching according the experience of the tutor

"Each doctor explains according to his experience and says that's how you have to do! ... Another comes and says ... That is bad ... it is not ...!" (Group 1 Rural Doctor number 3: G1RD#3)

"The doctor explains different about what the book said..." (G1RD#5)

"You have to learn what the doctor tell you for the doctor, and what the book said for the university assessment." (G2RD#3)

There were no clear strategies to transfer knowledge. Participants reported that professors used audiovisual materials to teach, and the methodology consisted of watching the video and observing the professor demonstrate on a model. Students practiced on models with little or no supervision. In some cases, students learned only through observation, and had no opportunity of any kind to practice medical skills.

"... just saw how the teacher use the models, but we did not have any experience with the model ..." (G1RD#3)

"Our practices were to watch ... but never deliver the baby, only to watch" (G2RD#4)

They were forced to attend patients without the relevant knowledge and skills.

"The books say wonders but the reality is different" (G2R#4)

"... in the practice we have to take care, get to do something!" (G1R#8)

"The teaching doctors leave you alone in the internship, sometimes you do not know what you have to do it" (G1R#4)

Students indicated that they preferred learning by practice rather than through theory, even without tutorship.

"I'd rather practice than theory." (G2RD#7)

"... that formed in the classroom is for notebook ..." (G1RD#6)

"... the theory in college, the practice in the hospital ..." (G2RD#7)

"..when you practice alone you lose their fear, the nerves" (G2RD#8)

A.2) The curriculum does not respond to educational requirements

They received insufficient preparation for their rural practice. They were unfamiliar with the Ministry of Health's treatment protocols

"We never received a formal orientation for the rural year by the University" (G2R#2)

".. in the University we never review the protocols from the Ministry ..." (G1R#3)

"... in the Ministry of Health we have a lot of health programs and those we did not see at the University" (G2R#5)

"The programs of the Ministry are not included in the college, for example the attention of bleeding at 12 weeks gestation" (G2R#2)

In addition, there was a lack of communication between the university, the faculty, and students in terms of activities during the internship. Doctors mentioned that their hospital rotations had no relation to their university teaching.

"College does not affect what hospitals teach" (G1R#1)

"The University has nothing to do with the internship" (G2R#10)

B. Practice experiences during the clinical attachment

B.1) Limited knowledge and practice in undergraduate training:

The majority of participants had no opportunity to practice the skills they learned through the undergraduate curriculum. They felt unprepared to perform skills in a clinical setting.

"We are not trained to midwifery" (G1R#3)

"... we cannot take care of a breech delivery." (G1R#2)

B.2) Assistant role in the hospitals instead of medical students:

Participants indicated that hospital rotations were not properly implemented and interns were considered administrative assistants in the hospitals.

"...Is only dedicated to filling records and paper." (G2R#1)

"...the intern is the end, is a messenger." (G1R#7)

B.3) Poor organization of the rotations:

Participants noted an inadequate distribution of rotations among the different medical departments during the internship at different hospitals. Rotations were not structured for medical training either before or after the internship.

"All of us rotated through different places and not necessarily all the same places, so, few acquired some skills and others could not." (G1R#4)

"... too many students and we rotated once in obstetrics and gynecology during hospital practices" (G1R#5)

Medical services did not correspond to specific learning objectives for rotations.

"I think the disorganization is the central part, there should be a little more order, do not expect us to be more organized" (G2R#6)

Discussion

The research shows a mix of many unstructured educational events and the students look for opportunities to learn. Rural doctors view their training in obstetrical skills insufficient for their rural year. The themes that come out from the interaction of each focus group of rural doctors are problems with undergraduate teaching and practice experiences.

They reported important deficiencies in teaching and training obstetrical skills at the university level and during the subsequent hospital rotations. This information complements and underlines a previous study that acknowledged often poor preparation in the recent graduates in Ecuador. (13) It calls the attention that they came from different universities and show similarity in the problems.

As the insufficiently trained RDs are responsible in the rural areas for a large part of the obstetrical work, this may explain partly the high perinatal mortality figures in the country. Other authors have described the lack of skills training and practice during undergraduate training. Remmen found that not all skills included in the curriculum are practiced during rotations.(16) Hannon describes that this limited practice is due to inadequate supervision and training during internships.(17) The reality of medical education in Ecuador excludes students from being properly trained for their compulsory rural year. The lack of access to specialist care and the low standards for training in undergraduate medical education may explain partly the very high perinatal mortality rate in the country that by the year 2010 was in 92,6 x 100.000 newborns, and for 2014 was 49,16. (18)

Worldwide, a trend can be observed to structure the undergraduate medical education curriculum towards clear objectives. The result of the undergraduate education should be real, observable and

recognizable competencies for medical students upon graduation, not only for the knowledge acquired, but also their effort in training activities.(19)

The Royal College of Physicians and Surgeons of Canada, for example, has created basic, generic competencies for medical graduates known as “CanMEDS”.(20) These competencies are used worldwide, and have been tailored for specialists, in particular family medicine doctors that will work in rural areas and attend to the needs of these communities.(21) In Ecuador, a middle ground between general competencies for recent medical graduates and the competencies for RDs based on their clinical reality should be sought.(22)

The limited supervision during internship rotations and disorganization that was reported by the respondent’s results in the observed mismatch of what is needed in practice and what is trained in the undergraduate curriculum. Not all tutors give feedback in the practical environment. As also happens in developed countries the knowledge heterogeneity does not allow effective learning. (23)(24) Using direct observation during training is related to improved compliance with clinical guidelines and health facility norms. However, there remains a wide gap between research evidence and the reality of applying this method into medical training.(25)

The lack of definition of training of obstetrical skills both in the undergraduate curriculum and during the pre-rural in the hospital creates friction between health professionals. The work carried out by senior students in the clinical year seems to depend on the degree of control that a university has in the clinical setting and the requirements of each hospital. The lack of human resources in the hospitals, especially nurses, in some units, forces students to do administrative tasks. Some studies elsewhere show that during the internship, there is an increase in student workload, little time to study, and an insufficient and variable collaborative learning environment, all aspects that influence the education of future doctors.(26)(27)

In the future it is essential to have professional guidelines that provide orientation to, and monitoring and evaluation of teaching, in accordance with the level of training, and these should be well-articulated between the university and the hospitals where medical student internship rotations are carried out.

Some limitations of this study need attention.

RDs came from a number of universities from different accreditation levels. The sample of this project does not permit to identify differences between the universities.

Although the study focused on obstetric skills, other knowledge and skills required for the rural service year were sometimes discussed in the focus groups. Caution should be taken in generalizing the results; the data reflect the reality of rural doctors in Southern Ecuador, but results mirror the situation for the rest of recent medical graduates serving their rural year in the rest of the country.

Conclusions

The overall picture of this research is that the undergraduate curriculum in Ecuador is a mix of many unstructured educational events and the final result depends on the opportunities of each medical student.

Rural doctors expressed lack of knowledge and practice for the obstetrical skills that they were required to perform. In Ecuador, there is no agreed upon definition of the recent medical graduate among academic institutions and the government, impeding the creation of standards for medical

education. There is an urgent need to identify a baseline undergraduate curriculum that meets the country needs.

The way to go is to recognize the problem at each university, to work together for the improvement of the teaching strategies, and to enhance the training of the students in order to become capable basic doctors.

Recommendations

A number of practical recommendations can be made. In Ecuador the role and functions of the senior medical students in the hospitals should be clearly defined in order to provide optimal education and training. A participative discussion between universities and the Ministry of Health to define competencies and the profile of medical professionals needed in Ecuador is proposed. The professional profile could be based on the CanMEDS competencies.

In addition, more studies could pilot the pertinence of the obligatory rural practice year as a rotation in the undergraduate curriculum. This practice should have shared supervision and interaction in-between Ministry of Health and universities to obtain a capable basic doctor.

Skills training in the undergraduate curriculum can assist the accomplishment of adequate levels of competence regarding obstetrical skills. At present, in one University, a skills laboratory center was established(28). Students are trained and directly observed. This center may improve awareness of the faculty in modern teaching techniques for hands on skills.

The rural medical practice year should also become subject to an academic program. Public health policies should aim to recruit doctors with specific competencies to guarantee long-term presence in rural areas, and contribute to improving health indicators. This will also help to reduce obstetrical and infant mortality in the rural areas.

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Conflicts of Interest

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References

1. Decreto Supremo No 44. Registro Oficial Nro 13 Ecuador; 1970.
2. Cavender A, Albán M. Compulsory medical service in Ecuador: the physician's perspective. *Social Science & Medicine* [Internet]. 1998 Dec;47(12):1937–46. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S0277953698003359>
3. Hunsaker M, Glasser M, Neilsen K, Lipsky M. Medical students' assessments of skill development in rural primary care clinics. *Rural and Remote Health* [Internet]. 2006;6(616). Available from: http://www.rrh.org.au/publishedarticles/article_print_616.pdf
4. College of Family Physicians of Canada, Society of Rural Physicians of Canada, Society of Obstetricians and Gynaecologists of Canada. Joint position paper on training for rural family practitioners in advanced maternity skills and cesarean section. *Canadian family physician Médecin de famille canadien* [Internet]. 1999;45:2416–22, 2426–32. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2328629&tool=pmcentrez&rendertype=abstract>
5. Strasser R, Neusy A-J. Context counts: training health workers in and for rural and remote areas. *Bulletin of the World Health Organization* [Internet]. 2010 Oct 1;88(10):777–82. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2947041&tool=pmcentrez&rendertype=abstract>
6. Gaus D, Herrera D, Heisler M, Cline BL, Richmond J. Making secondary care a primary concern: the rural hospital in Ecuador. *Revista Panamericana de Salud Pública* [Internet]. 2008 Mar;23(3):212–7. Available from: http://www.scielo.org/scielo.php?script=sci_arttext&pid=S1020-49892008000300013
7. Reglamento de profesionales en el año de servicios de medicina rural. Registro Oficial Ecuador; 2001.
8. Ley Orgánica de Salud. Registro Oficial. 2006;Nro 423.
9. Frehywot S, Mullan F, Payne PW, Ross H. Compulsory service programmes for recruiting health workers in remote and rural areas: do they work? *Bulletin of the World Health Organization* [Internet]. 2010;88(5):364–70. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2865657&tool=pmcentrez&rendertype=abstract>
10. Borrell RM. La educación médica en América Latina: debates centrales sobre los paradigmas científicos y epistemológicos. In: UNR Editora, editor. *Proceso de transformación Curricular: otro paradigma es posible*. Rosario, Argentina: Universidad Nacional de Rosario; 2005. p. 1–32.
11. Villanueva RMT, Tapia RMN, Syr R, Perea S. El internado médico de pregrado y las competencias clínicas . México en el contexto latinoamericano. *Educación Médica Superior* [Internet]. 2007;21(4):1–10. Available from: <http://scielo.sld.cu/pdf/ems/v21n4/ems05407.pdf>
12. Carrillo J, Delgado B, Kosik RO, Huang L, Zhao X, Su T-P, et al. Medical education in Ecuador. *Medical Teacher* [Internet]. 2013;35(12):979–84. Available from: <http://www.tandfonline.com/doi/full/10.3109/0142159X.2013.826789>
13. Sánchez del Hierro G, Remmen R, Verhoeven V, Van Royen P, Hendrickx K. Are recent graduates enough prepared to perform obstetric skills in their rural and compulsory year? A study from Ecuador. *BMJ Open* [Internet]. 2014 Jul;4(7):e005759. Available from: <http://bmjopen.bmj.com/cgi/content/long/4/7/e005759>

14. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* [Internet]. 2006 Jan;3(2):77–101. Available from: <http://www.tandfonline.com/doi/abs/10.1191/1478088706qp063oa>
15. Sandelowski M. Whatever happened to qualitative description? *Research in Nursing & Health* [Internet]. 2000 Aug;23(4):334–40. Available from: [http://doi.wiley.com/10.1002/1098-240X\(200008\)23:4%3C334::AID-NUR9%3E3.0.CO;2-G](http://doi.wiley.com/10.1002/1098-240X(200008)23:4%3C334::AID-NUR9%3E3.0.CO;2-G)
16. Remmen R, Derese A, Scherpbier A, Denekens J, Hermann I, Van der Vleuten C, et al. Can medical schools rely on clerkships to train students in basic clinical skills? *Medical Education* [Internet]. 1999;33(8):600–5. Available from: <http://doi.wiley.com/10.1046/j.1365-2923.1999.00467.x>
17. Hannon FB. A national medical education needs' assessment of interns and the development of an intern education and training programme. *Medical education*. 2000 Apr;34(4):275–84.
18. Instituto Nacional de Estadísticas y Censos. Ecuador en Cifras [Internet]. 2015. Available from: <http://www.ecuadorencifras.gob.ec/>
19. Frank JR, Snell LS, Cate O Ten, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. *Medical teacher* [Internet]. 2010 Jan;32(8):638–45. Available from: <http://www.tandfonline.com/doi/full/10.3109/0142159X.2010.501190>
20. Frank J (Ed). *The CanMEDS 2005 physician competency framework. Better standards. Better physicians. Better care.* [Internet]. Ottawa: The Royal College of Physicians and Surgeons of Canada; 2005. Available from: <http://meds.queensu.ca/medicine/obgyn/pdf/CanMEDS2005.booklet.pdf>
21. Rourke J, Frank JR. Implementing the CanMEDS physician roles in rural specialist education: the multi-specialty community training network. *Education for health (Abingdon, England)* [Internet]. 2005 Nov;18(3):368–78. Available from: http://old.educationforhealth.net/EfHArticleArchive/1357-6283_v18n3s6_727315619.pdf
22. Bell E, Walker J, Allen R, MacCarrick G, Albert E. Non clinical rural and remote competencies : can they be defined ? *Focus on Health Professional Education: A Multi-Disciplinary Journal* [Internet]. 2010;11(2):28–41. Available from: <http://epubs.rcsi.ie/cgi/viewcontent.cgi?article=1004&context=mededart>
23. Lyss-Lerman P, Teherani A, Aagaard E, Loeser H, Cooke M, Harper GM. What training is needed in the fourth year of medical school? Views of residency program directors. *Academic medicine : journal of the Association of American Medical Colleges*. 2009 Jul;84(7):823–9.
24. Eyal L, Cohen R. Preparation for clinical practice: a survey of medical students' and graduates' perceptions of the effectiveness of their medical school curriculum. *Medical teacher* [Internet]. 2006 Sep;28(6):e162-70. Available from: <http://informahealthcare.com/doi/abs/10.1080/01421590600776578>
25. Russell G, Ng A. Taking time to watch: observation and learning in family practice. *Canadian family physician Médecin de famille canadien* [Internet]. 2009 Sep;55(9):948–50. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2743595/pdf/0550948.pdf>
26. Ríos V, Gasca A, Urbina R, Flores R, Lloret A. Nuevos modelos educativos en el internado médico de pregrado. *La participación de la Universidad. Reencuentro* [Internet]. 2005;42:0. Available from: <http://www.redalyc.org/articulo.oa?id=34004217>

27. Sánchez A, Flores R, Urbina R, Lara N. Expectativas y realidades del internado médico de pregrado . Un estudio cualitativo. Investigación en Salud [Internet]. 2008;X(3):14–21. Available from: <http://www.redalyc.org/articulo.oa?id=14219995004>
28. Universidad Técnica Particular de Loja. Malla titulación de la carrera de medicina [Internet]. Loja, Ecuador; 2013. Available from: <http://www.utpl.edu.ec/medicina/files/malla-titulacion-medicina.pdf>