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Status and development of allied health personnel in cardiothoracic surgery in Latin America

A. Bertolotti[1], R.R. Favaloro[2]

[1]Heart and Lung Transplantation Division; [2]Department of Cardiovascular and Thoracic Surgery, Favaloro Foundation University Hospital, Buenos Aires, Argentina.

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ABSTRACT

Introdution: The role of allied health personnel (not physician) in cardiothoracic surgery has evolved substantially since the beginnings of this discipline in the 70´s, especially in developed countries.
Methods: To explore the status of allied health personnel in cardiothoracic surgery in Latin America, a research was geared to know the general context of human resources in public health and specifically in cardiothoracic surgery. Official data from the World Health Organization and the Pan American Health Organization were acquired. An on-line survey was sent to Latin-American cardiothoracic surgeons through either scientific societies or personal e-mail, to get direct information on human resources management of the surgical services.
Results: There is lack of information on the medical literature regarding the allied health personnel activities in the region. Sixty one Latin American cardiothoracic centers answered the survey. The survey revealed that the profile of the allied health personnel is outlined by nurses, perfusion and anesthesiology technicians; whose routine activities are restricted to minor controls.
Conclusion: At the moment, the lack of information and official data generates difficulties in analyzing the development status of allied health personnel in cardiothoracic surgery departments in the region of Latin America. In the light of the results and growing interest of developed countries in incorporating the allied health personnel to improve the work capacity and the quality of care in cardiothoracic surgery centers, it would be sensible to develop policies oriented to train and organize this activity in Latin America.

Keywords: *allied health personnel, Latin-America, physician assistant, cardiothoracic surgery training.*

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INTRODUCTION

The role of allied health personnel (non physicians and others) (AHP) in cardiothoracic surgery (CTS) has considerably evolved since the beginnings of this discipline in the 70´s, and especially during the last decade.
According to the Association of Physician Assistants in Cardiovascular Surgery (APACVS), Dr. John W. Kirklin and his wife, Dr. Margaret Kirklin, founded in 1967 the first Surgeon Assistant Training Program at the University of Alabama in Birmingham, USA. In times of apparent shortage of surgeons, Dr. Kirklin thought of the idea of training non-physician professionals to perform routine tasks in cardiovascular surgery, under the surgeon's supervision (1). Almost four decades later, in 2006, Thourani and Miller published an account of their 30-year experience with physician assistants (PA) in CTS at 5 University Hospitals of the Emory Healthcare

Corresponding author:
Prof. Alejandro M. Bertolotti, MD
Cardiothoracic Surgeon
Associate Director, Heart and Lung Transplantation Division
Favaloro Foundation University Hospital
Belgrano 1745, (C1093AAS); Buenos Aires, Argentina
e-mail: abertolotti@ffavaloro.org

(2). They pointed out the changes in the regulation of residents duty hours in 2003, as one of the causes for the increasing interest in, and demand of PAs help (3).
More recently, in 2009, Grover et al, using a simulation model to project the future supply of cardiothoracic surgeons, concluded that within the next 10 years, the USA will face a shortage of cardiothoracic surgeons (4).
Thus, in this context, the role of PAs will become particularly important and necessary in the comprehensive management of CTS patients.
To explore the status of AHP in CTS in Latin America (LA), a research was geared to know the general context of human resources in public health and specifically in cardiothoracic surgery.

METHODS

A systematic search of published articles related to the use of AHP in CTS in Latin-American countries was performed on PubMed, SciELO (Scientific Electronic Library Online: http://www.scielo.org) and LILACS (Literatura Latinoamericana y del Caribe en Ciencias de la Salud: http://lilacs.bvsalud.org). Official data from the World Health Organization (WHO) and the Pan American Health Organization (PAHO) were also obtained to better understand the general context of human resources in public health and/or specifically in cardiothoracic surgery in this region.
Finally, to get direct information on human resources management of the surgical services, an on-line survey was sent to Latin-American cardiothoracic surgeons through either, a personal e-mail or scientific societies: Sociedad Latinoamericana de Cirugía Cardiovascular y Torácica (SLCCT), Colegio Argentino de Cirujanos Cardiovasculares y Endovasculares (CACCVE), Sociedad Chilena de Cardiología (SOCHICAR). The questions were aimed to get information on general characteristics, and to know the assignment of routine tasks in CTS patients' care.

RESULTS

Medline Search. Key words used for the search (physician assistant – allied health personnel/professional – cardiac/thoracic/cardiothoracic surgery – Latin America/name of a country) did not retrieve any article.
Survey. Sixty one CTS centers from 14 LA countries sent information and data by answering the survey received through an e-mail. *Table 1* shows the characteristics and distribution of the centers by country.
Table 2 shows the assignment of the tasks to the staff involved in the management of CTS patients, according to the data sent by the different centers. Although the number of centers that have participated constitute a small sample, these results could be extrapolated across the board. Therefore, based on these data, it is possible to infer that the profile of the AHP in LA centers is outlined by nurses, perfusion and anesthesiology technicians. The routine activities of these personnel are restricted to minor controls: follow up of vital signs, taking the patient to the OR, wound dressing and administrative tasks. In Argentina, nurses are not allowed to perform invasive procedures or prescribe treatments (By Act Nº 24,004 art. 11). On the contrary, residents and staff surgeons carry the heaviest burden in patients care. Interestingly, the Intensive Care Unit (ICU) postoperative care is done exclusively by attending physicians. Residents only participate under close staff supervision.
Considering the number of surgical procedures reported on the survey, these 61 cen-

ters perform a mean of 22,500 surgeries a year, or an average of 368 per center per year. Only 10 centers from Argentina, Brazil, Chile, Columbia, Peru and Venezuela reported more than 700 surgeries per year. Therefore, if we consider that each CTS center has a mean of four staff surgeons, each of them is doing, on average, less than 100 procedures per year.

Furthermore, the number of cardiothoracic surgeries performed in LA is unknown, due to the lack of CTS databases. In 2007,

Table 1 - *Characteristics of the Latin-American cardiothoracic centers participating in the survey.*

N° of CTS centers		**61**
Type of Hospital	*Private* *Public* *University*	35 (58 %) 26 (42 %) 22 (36 %)
N° of Centers by Country	*Argentina* *Brazil* *Bolivia* *Chile* *Columbia* *Costa Rica* *Cuba* *Ecuador* *Honduras* *Mexico* *Panama* *Paraguay* *Peru* *Uruguay* *Venezuela*	29 1 2 3 7 3 1 2 1 2 1 2 4 1 2
Average (range) N° of Surgeons/Center		4 (1-15)
Total N° of procedures per year (all centers)		22,500
Average N° of procedures by center per year	*22,500/61*	368
Centers doing > 700 surgeries per year		10
CTS: Cardiothoracic surgery		

Table 2 - *Assignment of the tasks of staff involved in the management of cardiothoracic patients. Results of the survey (61 cardiothoracic centers).*

	Tasks	**AHP**	**Resident**	**Surgeon/Physician**
Preoperative Workup	*Check up preop* *Explain details/risk* *Admission history*	4 % - 4 %	50 % 6 % 51 %	46 % 94 % 45 %
Intraoperative Assistance	*Conduits Harvesting*	1 %	41 %	58 %
Perioperative Care	*Intensive Care Unit* *Wound Care*	- 25 %	- 35 %	100 % 40 %
AHP: allied health personnel				

Felitti estimated the number of cardiac surgeries on adults performed in Argentina. In this retrospective analysis within July 2005 and June 2006, he found that 10,476 surgeries were performed in 172 centers throughout the country, which indicates a use rate of one surgery in 2,673 inhabitants per year (374 surgeries per million) (5).

Although the number of cardiac surgeries in Latin America has increased, it is well under the mean of 1000/million adults seen in developed countries. In most countries of this region the number of cardiac surgeries is under 400/million adults, so there is an oversupply of cardiac surgeons and insufficient AHP.

WHO/PAHO: human resources in public health. According to the WHO/PAHO, many countries around the world are facing an urgent shortage of human resources in the field of health. Nursing shortage has become an increasing challenge in both industrial and developing countries, negatively affecting healthcare and the well-being of the global population (6).

In a context of increasing competition for scarce human resources, and to meet the growing needs resulting from this shortage, international migration of healthcare personnel from developing countries to the United States, Europe, Canada, and within Latin America is growing in numbers. This phenomenon has led to further destabilization of the workforce in developing countries, undermining global healthcare initiatives (7).

The distribution, composition and competencies of the healthcare workforce, perpetuate inequities and limited access to services, requiring planning and a policy on human resources based on standards to create new ways of managing the workforce. In America, the difference in the number of active nurses and physicians is significant: in North America, the relation is 3:1; while in many Latin American and Caribbean countries this relation is inverted. Shortage of nurses determines that there are 19 countries in LA with more doctors than nurses (8). In Argentina, Abramzon reported that this relation reached up to 1 nurse every 10 physicians (9).

Only a 30 % of nursing staff has professional training.

Due to the lack of public health competency framework, in LA there is a trend for graduate physicians to join specialized residencies.

With the objective of analyzing the status of postgraduate medical training in the region, the PAHO organized in September 2010 a Meeting on Medical Residencies, in Asuncion del Paraguay.

During this meeting, Rosa Maria Borrell (MD PhD; Regional Consultant of the PAHO/WHO for the Development of Human Resources for Health) explained that there is a deficit of: a) policies and plans on the number and type of specialists that are needed in the health sector for each country; b) assessment of the needs, and planning studies on specialists that require different population concentrations; c) a balanced mechanism for selecting hospital quotas; d) studies on specialized medical workforce (e.g.; the data from the countries are obtained through the specialist associations) (10).

Some hypotheses have been proposed to understand the complex situation. According to Borrell, the amount of residents responds to the demands of the hospital's complexity, personal aspirations of the graduate, and their prospect of future opportunities for better jobs, including the potential migration to developed countries. Six thousand foreign physicians settle in the USA every year. Currently, in Canada, the United Kingdom, USA and Australia, 2 out of 6 doctors are from Haiti, 2 out of 6 doctors are from Jamaica, 1 out of 6 doctors are from Dominican Republic, and 1

out of 10 are from Bolivia, Columbia, Costa Rica, Ecuador, Guatemala, Panama and Peru (8).

Borrell related that the learning conditions of the residents are shameful, that they are more responsible of the medical care, with an increased burden of care tasks including bureaucratic activities, and within extended labor journals hours. Moreover, in recent years there have been more and more reports of harassment and abuse (10).

Translating this situational analysis to CTS residencies in LA, the consequence is an oversupply of overqualified physicians performing a poor amount of surgical procedures and with a low income, performing administrative work and duties that could potentially be carried out by AHP.

In 2007, during the 27th Pan American Sanitary Conference, it was developed a set of regional goals in human resources for health, which should be accomplished by 2015 (6):

1. Define long-range policies and planning to better adapt the workforce, so it will be prepared to face the expected changes in health systems. All countries of the region will have achieved a human resources density ratio level of 25 per 10,000, and the ratio of qualified nurses to physicians will reach at least 1:1.
2. Place the right people in the right places by deploying the appropriate personnel into the right positions and into the most suitable areas of the countries.
3. Promote national and international initiatives for developing countries to retain their health workers and avoid personnel deficits.
4. Create relationships between the workers and the health organizations that promote healthy work environments.
5. Develop mechanisms of cooperation between training institutions (universities and schools) and the health services institutions.

DISCUSSION

At the moment, the lack of information and official data generates difficulties in analyzing the development status of AHP in CTS in the region of Latin America.

We conclude, based on a very small sample obtained through a voluntary survey, that the figure of PAs in CTS is underdeveloped.

Given the grounds set at the beginning of this work to explain the growing demand and interest in PAs' help in USA, we found substantial differences in the Latin-American healthcare system context.

The number of cardiac surgeries in LA is far below the average in developed countries. Although the number of active cardiothoracic surgeons and CTS residents could be enough to satisfy the demand on this specialty, the majority of them are probably performing less than 100 surgeries yearly.

On the other hand, data from the PAHO/WHO show clearly that there is a large deficit in the Latin American healthcare workforce, especially non-physician professionals.

CONCLUSION

In the light of the excellent results and growing interest of developed countries of North America and Europe, in incorporating the AHP to improve the work capacity and the quality of care in CTS, it would be sensible to develop policies oriented to train and organize this activity in Latin America.

However, Latin-American cardiothoracic surgeons should conduct more comprehensive studies to better assess the acceptance of this different work method, and to ensure the feasibility of establishing new job opportunities in this field.

REFERENCES

1. The History of the Association of Physician Assistants in Cardiovascular Surgery. http://www.apacvs.org/sections/whoweare/index.html
2. Thourani VH, Miller JI. Physicians Assistants in Cardiothoracic Surgery: A 30-year Experience in a University Center. ann Thorac Surg 2006; 81:195-200.
3. Accreditation Council for Graduate Medical Education. Common program requirements for duty hours. Available at: http://www.acgme.org. Accessed October 5, 2003.
4. Grover A, Gorman K, Dall T, et al. Shortage of Cardiothoracic Surgeons is Likely By 2020. Circulation. 2009;120:488-94.
5. Felitti H, Pettinari F, Martinez G, et al. Assessment of the Number of Cardiac Surgeries in Argentina. Rev Argent Cardiol 2007;75:374-77.
6. 27th Pan American Sanitary Conference. 59th Session of the Regional Committee. Washington, D.C., USA, 1-5 October 2007. Regional Goals for Human Resources for Health 2007-2015. CSP27/10 (Eng.)19 July 2007
7. Siantz de Leon ML, Malvárez S. "Migration of Nurses: A Latin American Perspective" OJIN: The Online Journal of Issues in Nursing. May 31, 2008; Vol. 13 No. 2 Manuscript 2.
8. PAHO: The Health Analysis & Information Systems Areas. 2001-2005. Washington DC, 2005
9. Abramzón M.: Argentina: recursos humanos en salud en 2004 - 1a ed. - Buenos Aires: Organización Panamericana de la Salud – OPS (PAHO), 2005.112 p.
10. Borrell RM: Las Residencias Médicas y la necesidad de una nueva mirada. Available at: http://new.paho.org/hq/dmdocuments/2010/residenc-medicas-pres-RosaMBorrell.pdf

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