

THE REGIONAL MIGRATION STUDY GROUP

STRENGTHENING HEALTH SYSTEMS IN NORTH AND CENTRAL AMERICA: WHAT ROLE FOR MIGRATION?

By Allison Squires and Hiram Beltrán-Sánchez



STRENGTHENING HEALTH SYSTEMS IN NORTH AND CENTRAL AMERICA: What Role for Migration?

Allison Squires
New York University College of Nursing — Global Division

Hiram Beltrán-Sánchez
Center for Population and Development Studies, Harvard University

February 2013



Acknowledgments

The authors would like to thank the New York University College of Nursing research assistants who contributed to this report at various stages: Lismarys Arjona, Katy Murtaugh, and Jamie Rose Carroll. The authors would also like to thank their respective universities for granting the use of their library resources to develop this report.

This research has been made possible through the generous support of the Tinker Foundation, the MacArthur Foundation, and the Open Society Foundations.

This report was produced for the Regional Migration Study Group convened by the Migration Policy Institute (MPI) and the Latin American Program of the Woodrow Wilson International Center for Scholars. The Study Group, a three-year initiative, is acting as a virtual think tank for policymakers and civil society officials in the United States, Mexico, and Central America who manage day-to-day migration relations and other issues related to human capital and global competitiveness.

The Study Group's mission, membership, and research can be found at: www.migrationpolicy.org/regionalstudygroup.

© 2013 Migration Policy Institute.
All Rights Reserved.

Cover Photo: Modified version of North American map (2725801) – BigStockPhoto.com
Cover Design: Burke Speaker, MPI
Typesetting: April Siruno, MPI

No part of this publication may be reproduced or transmitted in any form by any means, electronic or mechanical, including photocopy, or any information storage and retrieval system, without permission from the Migration Policy Institute. A full-text PDF of this document is available for free download from: www.migrationpolicy.org.

Information for reproducing excerpts from this report can be found at www.migrationpolicy.org/about/copy.php. Inquiries can also be directed to: Permissions Department, Migration Policy Institute, 1400 16th Street, NW, Suite 300, Washington, DC 20036, or by contacting communications@migrationpolicy.org.

Suggested citation: Squires, Allison and Hiram Beltrán-Sánchez. 2013. *Strengthening Health Systems in North and Central America: What Role for Migration?* Washington, DC.



Table of Contents

Executive Summary	1
I. Sector Overview	2
A. El Salvador	3
B. Guatemala.....	4
C. Honduras	5
D. Mexico.....	6
E. The United States	8
II. An Overview of Regional Nursing Workforce Issues	10
A. Trends in International Nurse Migration	10
B. Trends in US Nursing Workforce Demand	13
C. Hidden Nurses	14
D. Standardization of Training.....	14
E. Looking Forward.....	15
III. Why Health Care Matters	15
A. Aging Populations	16
B. Epidemiological Changes in the Health Profile of the Americas	18
C. The Cost-Effectiveness of Nursing Services.....	23
D. Regional Shortages of Nursing Personnel.....	24
E. Production of Nurses in the Region.....	25
F. Barriers to the Production and Migration of Nurses in the Region	26
G. Anticipating Demand from Medical Tourists and Expatriate Communities.....	35
IV. Implications	37
A. Policy Recommendations	37
B. Suggestions for Future Research	41
V. Concluding Remarks	42
Appendices	43
Works Cited	46
About the Authors	55



Executive Summary

As the demographics, epidemiological profiles, and migration patterns of El Salvador, Guatemala, Honduras, Mexico, and the United States change, there is rich opportunity to explore how the effective management of migration across these countries might help meet the demand for health care services. Using a comparative case study, this report looks at health care services and human resources in all five countries to identify constraints on health care capacity. Nursing personnel are the focus of the report.

The report begins by providing general background information on the health care sector in each country. Section II explores the international, multibillion-dollar phenomenon of nurse migration and highlight the contributions of internationally educated nurses (IENs) to the US health care system. Nursing human resource issues specific to each country and their links to general educational issues that affect nursing are briefly discussed. Section III reviews the major health care issues in each country, discussing how changing demographics and epidemiological profiles increase the demand for services and how nursing services can meet this new demand. The report concludes with eight recommendations for fostering migration as a way to meet health care demand in all the study countries. These include investments in educational systems, ways to facilitate the credentialing of nurses across borders, developing visas based on improving language concordance between nurses and patients disproportionately affected by health disparities, integrating transitional educational programs as part of the credentialing process for internationally educated nurses, and ways to capitalize on “hidden nurses” of Hispanic heritage who are currently living in the United States.

There is rich opportunity to explore how the effective management of migration across these countries might help meet the demand for health care services.

Using migration to meet health care demand is complex. Nonetheless, we advocate exploring and investing in the possibility because of the potential benefits to health care systems, economies, and patient outcomes.



I. Sector Overview

The Organization for Economic Cooperation and Development (OECD) reports that in 2011, international migration began to reverse a three-year decline initially caused by the 2008 global economic crisis.¹ For many decades, migration has been integral to the economic stabilization policies of Latin America.² Nurses most often migrate from rural to urban areas, largely within the South American continent, or internationally to Spain.³ The migration of workers from the region to the United States for formal employment in the health care sector has been insignificant at best. Even with the availability of an unlimited number of trade visas through the North American Free Trade Agreement (NAFTA), Mexican nurses and other health care workers have not migrated in large numbers to the United States to work as nurses.⁴ There is some speculation, however, that there are between 1,000 and 3,000 Mexican nurses residing in the United States. Many work illegally or legally in caregiving roles.⁵

The consequences of recession-induced declines in migration, including of health workers, offer a policy window into the future of international health care worker migration. International migration influences both domestic and international health workforce dynamics. Changing demographics in the Americas warrant an examination of how policymakers might use migration as a way to address emerging health care challenges.

The migration of workers from the region to the United States for formal employment in the health care sector has been insignificant at best.

The purpose of this study is to explore the intersecting dynamics of evolving demographic trends, shifting epidemiological profiles, and worker migration in five countries in the Americas in order to develop policy recommendations for health workforce development, specifically for nursing personnel. The countries highlighted in this study are El Salvador, Guatemala, Honduras, Mexico, and the United States. The report begins with a health sector overview for each country.

1 Organization for Economic Cooperation and Development (OECD), "OECD International Migration Outlook 2012," www.oecd.org/migration/internationalmigrationpoliciesanddata/internationalmigrationoutlook2012.htm.

2 Mariano Sana, "Growth in Migrant Remittances from the United States to Mexico, 1994-2004," *Social Forces* 83, no. 3 (2008): 995-1025; Germán A. Zárate Hoyos, "International Migration as a Strategy of Economic Stabilization at the Household Level in Mexico and Central America," *Papeles de Población* 56 (2008): 19-36.

3 Mary Lou de Leon Siantz and Silvina Malvárez, "Migration of Nurses: A Latin American Perspective," *Online Journal of Issues in Nursing* 13, no. 2 (2008), www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/vol132008/No2May08/LatinAmericanPerspective.aspx; Silvina Malvarez, Christianne Famer Rocha, Maria Cristina Cometo, and Patricia Fabiana Gomez, *Serie 55: Notas Preliminares Sobre Migración y Escasez de Enfermeras en América Latina* (Washington, DC: Pan-American Health Organization, 2008): 117.

4 Allison Squires, "The North American Free Trade Agreement (NAFTA) and Mexican Nursing," *Health Policy and Planning* 26, no. 2 (2011): 124-32.

5 Personal communication from members of the International Bilingual Nurses Association, an advocacy group for internationally educated nurses residing in the United States.



A. El Salvador

El Salvador is one of 57 countries in the world categorized as having critical shortages of health care personnel. El Salvador's health care system is managed by the Ministry of Public Health, and recent legislation is expanding health care coverage across the country.⁶ District-based hospitals are underfunded when compared to national hospitals, which are concentrated in urban areas.⁷ Recent health system reforms have tried varieties of contracting models to improve resource management, some with more success than others.⁸

Physician-based care has historically been the preferred model for health service delivery among the populace; other models, usually based on community health workers, face strong resistance because of the common perception that these workers are poorly prepared.⁹ Implementation of quality improvement programs is often hampered by lack of resources and the inability of trainers to remove staff from the workplace.¹⁰ Most nurses receive practical nursing levels of education (that is, from one to three years of postsecondary training; see Appendix A) and the articulation of educational programs has yet to be organized.

El Salvador's main health care human resources (HRH) issue, besides a critical shortage, centers on hiring and staffing nurses for acute care, due to underfinancing. For example, a single nurse may care for 20 or 30 patients per shift. Slow hiring processes and large patient loads deter individuals from seeking employment. Nurses are willing to work in primary care and rural clinics. But the number of nurses needed by such clinics is smaller than that required by larger hospitals, so vacancies arise less frequently. Nurses do work with community health workers in primary care and rural clinics, or are replaced by them when not available.¹¹ Some nurses may even work as nurse practitioners without formal credentialing.¹² Attempts to improve the capacity of midwifery human resources have been limited at best (and not a topic of study since Abramsky and Swietnicki wrote about them in 1994).¹³

El Salvador at a Glance

Total Population	6,193,000
Gross National Income per Capita (PPP International \$)	\$6,550
Life Expectancy at Birth, Male / Female (years)	68 / 76
Probability of Dying between 15 and 60 years, Male / Female (per 1,000 Population)	281 / 128
Total Expenditure on Health per Capita (int'l \$, 2010)	\$450
Total Expenditure on Health as Percentage of GDP (2010)	6.9%

Notes: Figures are for 2009 unless indicated. GDP = gross domestic product; PPP = purchasing power parity. Source: World Health Organization, "Global Health Observatory," <http://apps.who.int/gho/data/>.

- 6 Mónica Acosta, María del Rocío Sáenz, Blanca Gutiérrez, and Juan Luis Bermúdez-Madriz, "The Health System of El Salvador," *Salud Pública de México* 53, no. 2 (2011): S188–S196.
- 7 John L. Fiedler, Jonathan B. Wight, and Robert M. Schmidt, "Risk adjustment and hospital cost-based resource allocation, with an application to El Salvador," *Social Science & Medicine* 48, no. 2 (1999): 197–212.
- 8 Jean Macq, Patrick Martiny, Luis Bernardo Villalobos, Alejandro Solis, Jose Miranda, Hilda Cecilia Mendez, and Charles Collins, "Public Purchasers Contracting External Primary Care Providers in Central America for Better Responsiveness, Efficiency of Health Care and Public Governance: Issues and Challenges," *Health Policy* 87, no. 3 (2008): 377–78.
- 9 Sandy Smith-Nonini, "'Popular' Health and the State: Dialectics of the Peace Process in El Salvador," *Social Science and Medicine* 44, no. 5 (1997): 635–45.
- 10 Miguela A. Caniza, Gabriela Maron, Jonathan McCullers, Wilfrido A. Clara, Rafael Cedillos, Lourdes Dueñas, Sandra Arnold, Bonnie F. Williams, and Elaine Tuomanen, "Planning and Implementation of an Infection Control Training Program for Health-care Providers in Latin America," *Infection Control and Hospital Epidemiology* 28, no. 12 (2007): 1328–33.
- 11 Maureen Lewis, Gunnar Eskeland, and Ximena Traa-Valerezo, "Primary Health Care in Practice: Is It Effective?" *Health Policy (Amsterdam, Netherlands)* 70, no. 3 (2004): 303–25.
- 12 Madrean Schober and Janet Quillian, "Nurse Practitioners Provide Care in El Salvador," *Journal of the American Academy of Nurse Practitioners* 11, no. 2 (1999): 51–5.
- 13 Deborah Abramsky and Colette Swietnicki, "Parteras de Cuscatlan: Training Midwives in Rural El Salvador," *The Birth Gazette* 10, no. 4 (1994): 17–9.



B. Guatemala

As noted in Tables 1 to 3, Guatemala has some of the poorest health indicators and HRH numbers seen in any study country. One reason for this is that health services are costly, and the financial burden is not evenly distributed across the country.¹⁴ The Ministry of Health, the system's steward, is attempting to implement a basic primary care package of services in an effort to reduce these inequities.¹⁵ Disparities in access also parallel an ethnic divide in the country. The indigenous population was subject to brutal repression for many years, and national health statistics reflect this. When indigenous health statistics are removed from the indicators, Guatemala's health profile looks more like Mexico's.¹⁶

Most nurses in Guatemala are trained at the auxiliary nursing level.¹⁷ Despite this low level of education, they perform tasks often reserved for physicians due to capacity shortages. For example, nursing auxiliaries insert intrauterine devices for contraception.¹⁸ Capacity-building efforts for HRH in Guatemala have focused, in recent years, on midwifery training, most often led by a lay midwife¹⁹ or a traditional birth attendant.²⁰ Studies of nursing human resources in the country are virtually nonexistent.

Guatemala at a Glance

Total Population	14,389,000
Gross National Income per Capita (PPP International \$)	\$4,650
Life Expectancy at Birth, Male / Female (years)	66 / 73
Probability of Dying between 15 and 60 years, Male / Female (per 1,000 Population)	280 / 151
Total Expenditure on Health per Capita (int'l \$, 2010)	\$325
Total Expenditure on Health as Percentage of GDP (2010)	6.9%

Notes: Figures are for 2009 unless indicated. GDP = gross domestic product; PPP = purchasing power parity.
Source: World Health Organization, "Global Health Observatory," <http://apps.who.int/gho/data/>.

Most nurses in Guatemala are trained at the auxiliary nursing level.

14 Diana Bowser and Ajay Mahal, "Guatemala: The Economic Burden of Illness and Health System Implications," *Health Policy* 2-3 (2011): 159-66.

15 Víctor Becerril-Montekio and Luis Lopez-Davila, "The Health System of Guatemala," *Salud Pública de México* 53, no. 2 (2011): S197-S208.

16 Bowser and Mahal, "Guatemala: The Economic Burden of Illness and Health System Implications."

17 Ricardo Vernon, "Nurse Auxiliaries as Providers of Intrauterine Devices for Contraception in Guatemala and Honduras," *Reproductive Health Matters* 17, no. 33 (2009): 51-60.

18 Ibid.

19 A lay midwife has some formal training in delivering babies and in basic infection control.

20 A traditional birth attendant learns to deliver babies by apprenticing with a senior midwife. Jennifer Foster, Angela Anderson, Jennifer Houston, and Maya Doe-Simkins, "A Report of a Midwifery Model for Training Traditional Midwives in Guatemala," *Midwifery* 20, no. 3 (2004): 217-25; Ana Garces, Elizabeth M. McClure, Elwyn Chomba, Archana Patel, Omrana Pasha, Antoinette Tshefu, Fabian Esamai, Shivaprasad Goudar, Adrien Lokangaka, K. Michael Hambidge, Linda L. Wright, Marion Koso-Thomas, Carl Bose, Walemar A. Carlo, Edward A. Liechty, Patricia L. Hibberd, Sherri Bucher, Ryan Whitworth, and Robert L. Goldenberg, "Home Birth Attendants in Low Income Countries: Who Are They and What Do They Do?" *BMC Pregnancy Childbirth* 12, no. 10 (2012): 34; Jonathan N. Maupin, "Remaking the Guatemalan Midwife: Health Care Reform and Midwifery Training Programs in Highland Guatemala," *Medical Anthropology* 27, no. 4 (2008): 353-82.



C. Honduras

Similar to its neighbor El Salvador, Honduras also has a critical shortage of health care personnel in all categories and is on the World Health Organization (WHO) official “Do Not Recruit” list. Operationally, the health sector in Honduras consists of a public subsector made up of the Ministry of Health (SS), which plays a steering and regulatory role, and the Honduran Social Security Institute (IHSS), which is responsible for collecting and managing fiscal resources, including the contributions required of workers and employers.²¹ Both for-profit and nonprofit institutions offer health care. Most in Honduras believe that private health care services are best, largely because they consider the public system to be poorly resourced.²²

Like most such systems in Latin America during the 1990s, the Honduran health care system underwent an extensive series of reform aimed at modernization and decentralization. The efforts centered on five main areas: (1) strengthening the steering role of the Ministry of Health; (2) progressively integrating with the IHSS; (3) developing a comprehensive health services network; (4) decentralizing; and (5) promoting equity, efficiency, effectiveness, and social participation as essential requirements for the health care model. Successive projects carried out through 2005 focused on improving management and prioritizing health spending toward disease burden reduction through a decentralized model. Innovations focused on delegating functions to departmental regions in order to improve local access to timely and quality health services. Other efforts sought to improve efficiency in service delivery, modernize the hospital network, improve the administrative structure of the SS and IHSS, and promote greater transparency in procurement and purchasing mechanisms. The latest national health plan, in effect until 2014, aims to create a national health insurance plan for the country’s poor.²³

HRH investments have mostly occurred at the auxiliary level in Honduras. Nursing auxiliaries provide services traditionally reserved for professionally educated personnel.²⁴ Community health workers and traditional birth attendants receive more investment in training and capacity building than nursing personnel.²⁵ The multipurpose, nonprofessional worker (an individual trained periodically with different skills for health service delivery by NGOs or government programs) is also touted as a solution to reduce maternal mortality in the country.²⁶ As in the case of Guatemala, rigorous research studies of nursing personnel are nonexistent.

Honduras at a Glance

Total Population	7,601,000
Gross National Income per Capita (PPP International \$)	\$3,770
Life Expectancy at Birth, Male / Female (years)	67 / 73
Probability of Dying between 15 and 60 years, Male / Female (per 1,000 Population)	237 / 134
Total Expenditure on Health per Capita (int'l \$, 2010)	\$263
Total Expenditure on Health as Percentage of GDP (2010)	6.8%

Notes: Figures are for 2009 unless indicated. GDP = gross domestic product; PPP = purchasing power parity.

Source: World Health Organization, “Global Health Observatory,” <http://apps.who.int/gho/data/>.

21 Juan Luis Bermúdez-Madriz, María del Rocío Sáenz, Jorine Muiser, and Mónica Acosta, “The Health System of Honduras,” *Salud Pública de México* 53, no. 2 (2011): S209–S219.

22 Moises Leon, “Perceptions of Health Care Quality in Central America,” *International Journal for Quality in Health Care* 15, no. 1 (2003): 67–71.

23 Bermúdez-Madriz et al., “The Health System of Honduras.”

24 Vernon, “Nurse Auxiliaries as Providers of Intrauterine Devices.”

25 Vincent Fauveau, Della Sherratt, and Luc de Bernis, “Human Resources for Maternal Health: Multi-Purpose or Specialists?” *Human Resources for Health* 6, no. 1 (2008): 21; Lisa Kane Low, Holly Scheib, Joanne M. Bailey, and Emma Sacks, “Challenges for Traditional Birth Attendants in Northern Rural Honduras,” *Midwifery* 22, no. 1 (2006): 78–87; Wolfgang Rennert and Elizabeth Koop, “Primary Health Care for Remote Village Communities in Honduras: A Model for Training and Support of Community Health Workers,” *Family Medicine* 41, no. 9 (2009): 646–51.

26 Fauveau, Sherratt, and de Bernis, “Human Resources for Maternal Health.”



D. Mexico

Mexico's health care system covers the majority of the population. It includes a three-part, quasi-decentralized, state-managed system and a robust, private physician practice and hospital system accessible to anyone who can afford to pay the fees.²⁷ Social programs — such as Progresa-Oportunidades, which provides health clinic visits, nutritional support, and conditional cash transfers in exchange for regular school attendance — have also made progress toward reducing extreme poverty, improving education levels in rural indigenous communities, increasing access to basic health care services, and increasing economic stability for families.²⁸ Other post-2000 reforms in the system have increased spending on health care and improved coverage for selected interventions.²⁹

Mexico at a Glance

Total Population	113,423,000
Gross National Income per Capita (PPP International \$)	\$14,400
Life Expectancy at Birth, Male / Female (years)	73 / 78
Probability of Dying between 15 and 60 years, Male / Female (per 1,000 Population)	157 / 88
Total Expenditure on Health per Capita (int'l \$, 2010)	\$959
Total Expenditure on Health as Percentage of GDP (2010)	6.3%

Notes: Figures are for 2009 unless indicated. GDP = gross domestic product; PPP = purchasing power parity.
Source: World Health Organization, "Global Health Observatory," <http://apps.who.int/gho/data/>.

The 21st century addition of the Seguro Popular program has created a form of low-cost, state-subsidized insurance for individuals unable to afford private insurance or the high out-of-pocket private-sector charges.³⁰ While the effectiveness of Seguro Popular is the subject of much debate, it is generally acknowledged to have helped reduce inequality, increase access to services, and improve the management of catastrophic illnesses such as cancer.³¹ Researchers have also found a connection between migrant remittances and households where Seguro Popular is covering at least one family member.³² The long-term sustainability of the system is a common concern because of the growing burden of non-communicable diseases (or NCDs) in the country. NCDs are more costly and pose a threat to the financial stability of an insurance scheme if they are not managed well or prevented.

27 Octavio Gómez-Dantés, Sergio Sesma, Victor M. Becerril, Felicia M. Knaul, Héctor Arreola, and Julio Frenk, "Sistema de Salud en México," *Salud Pública de México* 53, Suppl. 2 (2011): S220-S232.

28 Sarah L. Barber and Paul. J. Gertler, "Empowering Women to Obtain High Quality Care: Evidence from an Evaluation of Mexico's Conditional Cash Transfer Programme," *Health Policy and Planning* 24, no. 1 (2009): 18–25; Shiri Noy, "New Contexts, Different Patterns? A Comparative Analysis of Social Spending and Government Health Expenditure in Latin America and the OECD," *International Journal of Comparative Sociology* 52, no. 3 (2011): 215–44.

29 Emmanuela Gakidou, Rafael Lozano, Eduardo González-Pier, Jesse Abbott-Klafter, Jeremy. T. Barofsky, Chloe Bryson-Cahn, and Dennis M. Feehan, "Assessing the Effect of the 2001-06 Mexican Health Reform: An Interim Report Card," *Salud Pública de México* 49, no. 1 (2007): S88–S109.

30 José Enrique Pérez-Salvador and Cristina Gutiérrez-Delgado, "Impact of Size of Families in Mexico's Popular Health Insurance Program," *Salud Pública de México* 52, no. 3 (2010): 234–43.

31 Reanne Frank, Oswaldo Palma-Coca, Juan Rauda-Esquivel, Gustavo Olaiz-Fernández, Claudia Díaz-Olavarrieta, and Dolores Acevedo-García, "The Relationship between Remittances and Health Care Provision in Mexico," *American Journal of Public Health* 99, no. 7 (2009): 1227–31; Felicia M. Knaul and Julio Frenk, "Health Insurance in Mexico: Achieving Universal Coverage through Structural Reform," *Health Affairs* 24, no. 6 (2005): 1467–76; Felicia Knaul, Héctor Arreola-Ornelas, Oscar Méndez, and Ana Martínez, "Fair Health Financing and Catastrophic Health Expenditures: Potential Impact of the Coverage Extension of the Popular Health Insurance in Mexico," *Salud Pública de México* 47, no. 1 (2005): S54–S65; Asa C. Laurell, "Health System Reform in Mexico: A Critical Review," *International Journal of Health Services* 37, no. 3 (2007): 515–35; Asa C. Laurell, "The Second Health Reform: Insurance and Prayer-Provider Split," *Salud Colectiva* 6, no. 2 (2010): 137–48; Asa C. Laurell, "Mexican Health Insurance: Uncertain Universal Coverage," *Ciencia and Saude Coletiva* 16, no. 6 (2011): 2795–806.

32 Frank et al., "The Relationship between Remittances and Health Care Provision in Mexico."



Physicians dominate Mexico's health care system. Medical schools have been consistently overproducing graduates since the 1980s, resulting in high levels of wasted labor among this professional group.³³ The country needs more dentists³⁴ and formally educated pharmacists.³⁵ Social workers and nutritionists are produced in adequate numbers. Mexico imports the majority of its physical and occupational therapists from South America or Spain due to a lack of programs to prepare Mexican nationals in the field and the public's lack of awareness of their roles. The health system has few positions for these roles, despite their importance in rehabilitative services and managing patients with NCDs.

There are approximately 200,000 nurses (across all categories) in Mexico, serving a population of around 116 million people. The nursing profession is slowly transitioning its workforce, as more nurses are being prepared in university programs. Nurses could be used more extensively and cost effectively throughout the health care system, but the overabundance of physicians is a barrier. Nurses with a bachelor of science in nursing (BSN) degree are underemployed in Mexico, because the health system has traditionally hired and retained nurses with the lowest levels of education in order to save on personnel costs.³⁶

Medical schools have been consistently overproducing graduates since the 1980s.

Mexico is increasingly publishing nursing workforce studies internationally, and there is a growing group of nurse researchers in the country who publish in domestic professional journals as well. Access to domestic studies is limited outside of Mexico because many domestic journals are not listed in international health research databases. Squires' study³⁷ of the professionalization of Mexican nursing in the latter part of the 20th century provides extensive detail about the profession and workforce studies produced domestically. The findings of other international studies suggest that nursing personnel in Mexico may have challenging work environments in the hospital setting,³⁸ that nurse-midwives in Mexico have superior outcomes to lay midwives and general practice physicians during deliveries,³⁹ and that some socioeconomic indicators can explain as much as 50 percent of the reasons behind the nurse-to-population ratio and nursing workforce composition.⁴⁰ Most states play a strong role in shaping the national health sector, and Mexican nursing is no exception: hiring policies, NAFTA, and educational

33 Gustavo Nigenda, José Ruiz, and Rosa Bejarano, "Educational and Labor Wastage of Doctors in Mexico: Towards the Construction of a Common Methodology," *Human Resources for Health* 3, no. 1 (2005): 3.

34 Pan-American Health Organization (PAHO), "Health Situation in the Americas — Basic Indicators 2012," http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.

35 Fred Doloresco and Lee. C. Vermeulen, "Global Survey of Hospital Pharmacy Practice," *American Journal of Health-System Pharmacy: AJHP: Official Journal of the American Society of Health-System Pharmacists* 66, no. 5, Suppl 3 (2009): S13–S19.

36 Gustavo Nigenda, José Ruiz, Yetzi Rosales, and Rosa Bejarano, "Enfermeras con licenciatura en México: estimación de los niveles de deserción escolar y desperdicio laboral" [University-trained nurses in Mexico: an assessment of educational attrition and labor wastage], *Salud Pública de México* 48, no. 1 (2006): 22–29.

37 Allison Squires, *A Case Study of the Professionalization of Mexican Nursing: 1980-2005* (Yale University: Unpublished doctoral dissertation, 2007).

38 Allison Squires and Adrián Juárez, "A Qualitative Study of the Work Environments of Mexican Nurses," *International Journal of Nursing Studies* 49, no. 7 (2012): 793–802.

39 Lisa M. DeMaria, Lourdes Campero, Marianne Vidler, and Dilys M. Walker, "Non-Physician Providers of Obstetric Care in Mexico: Perspectives of Physicians, Obstetric Nurses and Professional Midwives," *Human Resources for Health* 10, no. 1 (2012): 6; Dilys Walker, Lisa M. DeMaria, Leticia Suarez, and Leslie Cragin, "Skilled Birth Attendants in Mexico: How Does Care During Normal Birth by General Physicians, Obstetric Nurses, and Professional Midwives Compare with World Health Organization Evidence-Based Practice Guidelines?" *Journal of Midwifery and Women's Health* 57, no. 1 (2011): 18–27.

40 Allison Squires and Hiram Beltrán-Sánchez, "Predicting Nursing Human Resources: An Exploratory Study," *Policy, Politics and Nursing Practice* 10, no. 2 (2009): 101–9; Allison Squires and Hiram Beltrán-Sánchez, "Exploring the Links between Macro-Level Contextual Factors and their Influence on Nursing Workforce Composition," *Policy, Politics and Nursing Practice* 12, no. 4 (2011): 215–23.



reforms enacted at the national level have all influenced the development of the profession.⁴¹

The recent drug-related violence that has made international headlines has overshadowed significant political, economic, and social strides made by Mexico in the health care sector during the past two decades. The violence occasionally affects the health care sector, as when workers who attempt to treat individuals, regardless of their identity, are threatened by drug-gang members in their place of work or neighborhood.⁴² Such events drive health care workers out of their communities or to other parts of the country with fewer security issues. They generally do not go abroad for work, however, since most cannot meet the professional licensure or language requirements for work visas.

E. The United States

The health system challenges faced in the United States are widely acknowledged as unique. Cost control is the primary concern across the sector. HRH policymakers theorize that once the *Affordable Care Act* (ACA) becomes fully operational in 2014, it will have a positive impact on nursing hiring in the country. Because more people will have health insurance, hospitals will take fewer losses due to patients who cannot pay or who repay costs slowly (sometimes by as little as \$10 a month). Some reimbursement is better than no reimbursement for operations and the bottom line, and insurance reimbursement will always be more than patients from the middle class or of low socioeconomic status can pay out of pocket, even in government programs such as Medicaid.

United States at a Glance

Total Population	310,384,000
Gross National Income per Capita (PPP International \$)	\$47,310
Life Expectancy at Birth, Male / Female (years)	76 / 81
Probability of Dying between 15 and 60 years, Male/Female (per 1,000 Population)	134 / 78
Total Expenditure on Health per Capita (int'l \$, 2010)	\$8,362
Total Expenditure on Health as Percentage of GDP (2010)	17.9%

Notes: Figures are for 2009 unless indicated. GDP = gross domestic product; PPP = purchasing power parity.
Source: World Health Organization, "Global Health Observatory," <http://apps.who.int/gho/data/>.

For US nurses,⁴³ ACA will mean more jobs and reduced waiting periods for hiring. (The educational system is already meeting the current demand for nurses.⁴⁴) ACA will also mean different roles for nurses: many frontline workers in hospitals may shift to case management positions, while nurses' aides could see expanded opportunities in the primary care system.⁴⁵

The unknown challenge for the US health care system is the baby-boom factor. Baby boomers represent the majority of working nurses in the country. Their retirement, starting now in increasing numbers, is expected to increase employment opportunities for nurses. As baby boomers age, meanwhile, they will drive up demand for health care services. Illnesses associated with aging and high rates of obesity

41 Allison Squires, "The Institutional Tensions between the Development of the State and Nursing Profession in Mexico. Historical Sociology of Latin American Medical Professions II: Para-Medical Practitioners and the State presented at the 2010 meeting of the Latin American Studies Association "Crisis, Response, and Recovery," Toronto, Canada, 2010, <http://lasa.international.pitt.edu/members/congress-papers/lasa2010/files/4226.pdf>; Squires, "The North American Free Trade Agreement (NAFTA) and Mexican Nursing."

42 Gary LaFree and Andromachi Tseloni, "Democracy and Crime: A Multilevel Analysis of Homicide Trends in Countries, 1950-2000," *Annals of the American Academy of Political and Social Science* 605 (2006): 26-49.

43 For a detailed account of the nursing workforce in the present, past, and future, see Institute of Medicine (IOM), *The Future of Nursing: Leading Change, Advancing Health* (Washington, DC: Institute of Medicine, The National Academies, 2010), www.iom.edu/Reports/2010/The-Future-of-Nursing-Leading-Change-Advancing-Health.aspx.

44 David I. Auerbach, Peter I. Buerhaus, and Douglas O. Staiger, "Registered Nurse Supply Grows Faster than Projected Amid Surge in New Entrants Ages 23-26," *Health Affairs* 30, no. 12 (2011): 2286-92.

45 Arthur Garson, Donna M. Green, Lia Rodriguez, Richard Beech, and Christopher Nye, "A New Corps of Grand Aides has the Potential to Extend Reach of Primary Care Workforce and Save Money," *Health Affairs* 31, no. 5 (2012): 1016-21.



generate multiple chronic conditions that require complex, and sometimes costly, care management. The market for home care and long-term care is likely to grow, but only as long as insurance (such as Medicare and supplemental insurance plans) pays for those services.

Internationally educated nurses (IENs) may or may not be seen as a staffing solution in the future. US nursing homes face multiple hiring challenges, and the majority of nurses working in those places are IENs. With hospitals focusing on hiring nurses with BSNs, however, those with only associate's degrees may find their job opportunities limited to nursing homes, which could increase the number of domestically educated nurses working in those facilities.

In an environment increasingly focused on cost containment thanks to the ACA and other policy initiatives aimed at reducing medical errors, hospitals are likely to be more cautious in hiring IENs than they were in the past. Nursing homes and other facilities have more domestic hiring options than in previous years. US associate degree graduates, once the staple of hospital hires, find nursing home jobs are often their only option for employment since hospitals are shifting toward hiring BSN-prepared nurses. Generally, when domestically educated nurses are produced in sufficient numbers, hospitals will prefer to hire them. Increased domestic production of nurses reduces demand for internationally educated ones. A decade of research has also documented the additional costs related to transitioning IENs to the US nursing role, costs that can add an additional \$25,000 to recruitment.⁴⁶

Increased domestic production of nurses reduces demand for internationally educated ones.

Nonetheless, IENs with language skills that match population needs may prove an attractive recruitment option for hospitals, even when domestic candidates are available. Health disparities persist in minority populations in the United States, and one of the most effective ways to address them is to employ providers that speak the same language as patients.⁴⁷ Hispanic nurses, for example, comprise only 4 percent of the US nursing workforce, while Hispanics overall are about 15 percent of the population.⁴⁸ It is important to note, however, that Hispanic nurses do not necessarily speak Spanish, as they tend to be second or third generation Americans. Conversely, approximately three percent of all US registered nurses may speak Spanish, but not all of these nurses may be of Hispanic origin.⁴⁹ The most recent National Sample Survey of Registered Nurses (NSSRN) collected data about bilingualism in the nursing workforce, but due to budget cuts the Department of Health and Human Services is no longer conducting the survey; the last available data from that sample is from 2008. At present, US states do not collect data about language skills during the licensure renewal process.

Reducing health disparities by hiring same-language providers may be a viable way to manage international nurse migration (INM) to the United States in the 21st century. This would require countries to invest in bilingual education for nurses. Additionally, it is important to remember that an

46 Gina M. Higginbottom, "The Transitioning Experiences of Internationally-Educated Nurses into a Canadian Health Care System: A Focused Ethnography," *BMC Nursing* 10 (2011): 14; Yu Xu, "Transitioning International Nurses: An Outlined Evidence-Based Program for Acute Care Settings," *Policy, Politics and Nursing Practice* 11, no. 3 (2010): 202–13; Yu Xu, "Is Transition of Internationally Educated Nurses a Regulatory Issue?" *Policy, Politics and Nursing Practice* 11, no. 1 (2010): 62–70.

47 Agency for Health-care Research and Quality, *National Health-care Quality Report: No. 12-0005* (Washington, DC: Agency for Health-care Research and Quality, 2012); Neil S. Macnaughton, "Health Disparities and Health-Seeking Behavior among Latino Men: A Review of the Literature," *Journal of Transcultural Nursing* 19, no. 1 (2008): 83–91; Caraway L. Timmins, "The Impact of Language Barriers on the Health Care of Latinos in the United States: A Review of the Literature and Guidelines for Practice," *Journal of Midwifery and Women's Health* 47, no. 2 (2002): 80–96, www.ncbi.nlm.nih.gov/pubmed/12019990.

48 IOM, *The Future of Nursing*.

49 David E. Kalist, "Registered Nurses and the Value of Bilingualism." *Industrial and Labor Relations Review* 59 (2005): 101.



IEN's language skills affect the transition process to the new country.⁵⁰ Furthermore, new language competence takes time to develop, affecting job opportunities and career progression.⁵¹

II. An Overview of Regional Nursing Workforce Issues

The International Council of Nurses is the global representative body for the nursing profession. The organization offers the following widely accepted definition of the profession and its services:

*Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles.*⁵²

This definition provides a common way to describe the services that nursing personnel provide to individuals seeking care in a health system. Nurses meet the definition through combining critical thinking skills, psychomotor skills to deliver interventions, and affective skills that facilitate relationship building with patients.

Nurses do not have the same role in every country, however. Regulations unique to each country determine what nurses are allowed and not allowed to do; organizations may restrict practice even further. For example, in some countries nurses are not allowed to administer pain medication intravenously; only physicians are allowed to perform that task. That means that a nurse educated in one country who moves to work in another may have to learn new skills, or not put certain ones into practice. In most cases, nurses who migrate increase their scope of practice,⁵³ since those countries with the highest salaries usually have nursing roles with more responsibility.

A. Trends in International Nurse Migration

International nurse migration is a multibillion-dollar phenomenon affecting countries around the world and one that health care organizations use to address significant staff vacancies.⁵⁴ Most nurses who

50 H. Magnusdottir, "Overcoming Strangeness and Communication Barriers: A Phenomenological Study of Becoming a Foreign Nurse," *International Nursing Review* 52 (2005): 263–69; Yu Xu, Jay Shen, Anne L. Bolstad, Margaret Covelli, and Miriam Torpey, "Evaluation of an Intervention on Socio Cultural Communication Skills of International Nurses," *Nursing Economics* 28, no. 6 (2010): 386–93; Jay J. Shen, Yu Xu, Anne L. Bolstad, Margaret Covelli, Miriam Torpey, and Roseann Colosimo, "Effects of a Short-Term Linguistic Class on Communication Competence of International Nurses: Implications for Practice, Policy, and Research," *Nursing Economics* 30, no. 1 (2012): 21–28, www.ncbi.nlm.nih.gov/pubmed/22479960.

51 Silvina Montrul, "Dominant Language Transfer in Adult Second Language Learners and Heritage Speakers," *Second Language Research* 26, no. 3 (2010): 293–327; Adam M. Watkins and Chris Melde, "Latino and Asian Students' Perceptions of the Quality of Their Educators: The Role of Generational Status and Language Proficiency," *Youth and Society* 42, no. 1 (2009): 3–32.

52 International Council of Nurses (ICN), 2012, www.icn.ch/about-icn/icn-definition-of-nursing/.

53 A health-care worker's scope of practice encompasses what he or she is allowed to do legally. Role limitations are unique to each country. Other limitations may be set due to competition for patients, an organization's desire to maintain power, or jurisdictional arguments.

54 Isabella Aboderin, "Contexts, Motives and Experiences of Nigerian Overseas Nurses: Understanding Links to Globalization," *Journal of Clinical Nursing* 16 (2007): 2237–45; Barbara A. Anderson and Alexander A. Isaacs, "Simply Not There: The Impact of International Migration of Nurses and Midwives — Perspectives from Guyana," *Journal of Midwifery and Women's*



migrate internationally for work come from developing countries and work in developed ones. They often remain permanently in the developed country, never returning to their home country.⁵⁵

International nurse migration has many positive and negative consequences for the sending country. In many developing countries, the emigration of nurses has contributed to poorer health outcomes; absent nurses often mean a lack of professional personnel to deliver health care services and improve the functioning of health systems.⁵⁶ At the same time, nurses who have migrated send millions of dollars in remittances back to their home countries.⁵⁷ Remittances can contribute significantly to a country's economy, in some cases as much as 10 percent of the overall gross domestic product (GDP). Knowledge exchanges between nurses who have migrated and those practicing in the home country can also improve patient care and clinical practice. The extent of such consequences can be mediated through national-level HRH policy planning.

International nurse migration has many positive and negative consequences for the sending country.

What we do know is that history plays a role in who is a source and receiving country and therefore, influences present-day INM markets and regulatory policy.⁵⁸ As is globally known, the Philippines has the longest history of developing and sending nurses abroad for work,⁵⁹ with countries who were former British colonies (e.g., India, many African countries) as the next-largest providers in the developing world.⁶⁰ Migration of nurses from Latin America to Spain for nursing work is a common yet not a well-

Health 52 (2007): 392–97; Barbara L. Brush, “Global Nurse Migration Today,” *Journal of Nursing Scholarship* 40, no. 1 (2008): 20–25; James Buchan, “The Impact of Global Nurse Migration on Health Services Delivery,” *Policy, Politics, and Nursing Practice* 7, no. 3 (2006): 16S–25S; James Buchan, “International Recruitment of Nurses: Policies and Practices in the United Kingdom,” *Health Services Research* 42, no. 3 (2007): 1321–35; James Buchan, Tina Parkin, and Julie Sochalski, *International Nurse Mobility: Trends and Policy Implications* (Geneva: World Health Organization, 2003); James Buchan and Julie Sochalski, “The Migration of Nurses: Trends and Policies,” *Bulletin of the World Health Organization* 82, no. 8 (2004): 587–94; Sylvia Denton, “Nation-to-Nation Challenges to Addressing the Effects of Emerging Global Nurse Migration on Health Care Delivery,” *Policy, Politics, and Nursing Practice* 7, no. 3 (2006): 76S–80S; Lesleyanne Hawthorne, “The Globalisation of the Nursing Workforce: Barriers Confronting Overseas Qualified Nurses in Australia,” *Nursing Inquiry* 8, no. 4 (2001): 213–29; Mary Ellen Jeans, “In-Country Challenges to Addressing the Effects of Emerging Global Nurse Migration on Health Services Delivery,” *Policy, Politics, and Nursing Practice* 7, no. 3 (2006): 58S–61S; Mireille Kingma, *Nurses on the Move: Migration and the Global Health Care Economy* (Ithaca, NY: Cornell University Press, 2005); Mireille Kingma, “Nurse Migration and the Global Health Care Economy,” *Policy, Politics and Nursing Practice* 9, no. 4 (2008): 328–33; de Leon Siantz and Malvarez, “Migration of Nurses;” Barbara Nichols, “The Impact of Global Nurse Migration on Health Services Delivery,” *Policy, Politics, and Nursing Practice* 7, no. 3 (2006): 6S–8S; Marlene M. Rosenkoetter and Deena A. Nardi, “American Academy of Nursing Expert Panel on Global Nursing and Health: White Paper on Global Nursing and Health,” *Journal of Transcultural Nursing* 18, no. 4 (2007): 305–15; Marla Salmon, Jean Yan, Hermi Hewitt, and Victoria Guisinger, “Managing Migration: The Caribbean Approach to Addressing Nursing Services Capacity,” *Health Services Research* 42, no. 3 (2007): 1354–72; Pam Smith and Maureen Mackintosh, “Profession, Market and Class: Nurse Migration and the Remaking of Division and Disadvantage,” *Journal of Clinical Nursing* 16, no. 12 (2007): 2213–20.

55 Kingma, *Nurses on the Move*.

56 World Health Organization (WHO), *Working Together for Health: The World Health Report 2006* (Geneva: WHO, 2006).

57 Kingma, *Nurses on the Move*.

58 Eleanore E. Glaessel-Brown, “Use of Immigration Policy to Manage Nursing Shortages,” *Image — the Journal of Nursing Scholarship* 30, no. 4 (1998): 323–27.

59 Rochelle E. Ball, “Divergent Development, Racialized Rights: Globalised Labour Markets and the Trade of Nurses — The Case of the Philippines,” *Women’s Studies International* 27 (2004): 119–33; Barbara L. Brush and Julie Sochalski, “International Nurse Migration: Lessons from the Philippines,” *Policy, Politics, and Nursing Practice* 8, no. 1 (2007): 37–46; Catherine Choy, *Empire of Care* (Durham, NC: Duke University Press, 2003); Fely Marilyn E. Lorenzo, Jaime Galvez-Tan, Kriselle Icamina, and Lara Javier, “Nurse Migration from a Source Country Perspective: Philippine Country Case Study,” *Health Services Research* 42, no. 3 (2007): 1406–18; Margarita Evidente Perrin, A. Hagopian, A. Sales, and B. Huang, “Nurse Migration and its Implications for Philippine Hospitals,” *International Nursing Review* 54 (2007): 219–26.

60 Barbara DiCicco-Bloom, “The Racial and Gendered Experiences of Immigrant Nurses from Kerala, India,” *Journal of Transcultural Nursing* 15, no. 1 (2004): 26–33; Delanyo Dovlo, “Migration of Nurses from Sub-Saharan Africa: A Review of Issues and



documented phenomenon in the research literature.⁶¹ Mexico, even with its participation in NAFTA, has seen little to no migration of nurses for work in the United States.⁶² Nurses from Canada, the other NAFTA partner, tend to migrate to the United States temporarily for work and then return to their home country.⁶³ Market watchers also see China as a potentially huge recruitment pool for INM, despite numerous barriers to preparing Chinese nurses to function in the Western role.⁶⁴ No matter where nurses migrate from or to, nurse migration affects a country's ability to operate its health system and so can adversely affect patient outcomes.

With the United States as the top receiving country of IENs, INM may be at a social and economic crossroads because of the political and economic changes that have occurred during the past four years. US health system administrators have used the international migration of nursing personnel as one solution to solve personnel shortages. The phenomenon went largely unstudied until the 21st century. Reports of brain drain crippling health care systems in the developing world and the job performance issues of IENs (such as poor communication skills, knowledge gaps in pharmacology and pathophysiology, etc.) have prompted hospitals and health care systems to rethink recruiting practices.⁶⁵ The evidence along with the 2008 global economic crisis caused major shifts in the United States that affected INM. Constrained resources limited hiring in US health care organizations, thereby decreasing the need for IENs to fill vacancies. Consequently, the recruitment shift to domestic hiring has virtually decimated the international staffing and nurse placement industry in the United States which, for revenue generation, relied heavily on the now-expired H-1C visa, other forms of expired work visas, and placement bonuses or contracts with hospitals for bringing nurses to work there.⁶⁶ One of the only open visa avenues for IEN entry into the US nursing employment market is NAFTA's Trade Negotiation (TN) visa.

*Mexico has seen little to no migration of nurses
for work in the United States.*

Then in 2011, WHO passed the voluntary code of practice for international nurse recruitment.⁶⁷ A global evidence base captured the detrimental consequences of health worker migration on low- and middle-income country health systems (primarily through "brain drain") and the often difficult, individual experiences of migrating nurses; this evidence shaped the creation of the voluntary code of practice and helped pass the historic measure.

The final change in the market for internationally educated nurses comes from the US nursing labor

Challenges," *Health Services Research* 42, no. 3 (2007): 1373–88; Binod Khadria, "International Nurse Recruitment in India," *Health Services Research* 42, no. 3 (2007): 1429–35; Linda Ogilvie, Judy E. Mill, Barbara Astle, Anne Fanning, and Mary Opare, "The Exodus of Health Professionals from Sub-Saharan Africa: Balancing Human Rights and Societal Needs in the Twenty-First Century," *Nursing Inquiry* 14, no. 2 (2007): 114–24.

61 de Leon Siantz and Malvarez, "Migration of Nurses."

62 Graciela Arroyo de Cordero and Juana Jiménez Sánchez, "Repercusiones de la escasez versus migración de enfermeras como fenómeno global" [Repercussions of the Shortage versus Migration of Nurses as a Global Phenomenon], *Revista de Enfermería del Instituto Mexicano del Seguro Social* 13, no. 1 (2005): 33–40; Mary M. Lebold and Catherine D. Walsh, "Innovations in Health Care Delivery: Response to Global Nurse Migration — An Education Example," *Policy, Politics and Nursing Practice* 7, no. 3 Suppl (2006): 40S–43S; Squires, "The North American Free Trade Agreement (NAFTA) and Mexican Nursing."

63 Lisa Little, "Nurse Migration: A Canadian Case Study," *Health Services Research* 42, no. 3 (2007): 1336–53.

64 Zhiwu Z. Fang, "Potential of China in Global Nurse Migration," *Health Services Research* 42, no. 3 (2007): 1419–28.

65 Allison Squires, "International recruitment: Part 1," *Nursing Management* (September 2008): 16, 18–21; Allison Squires, "International Recruitment: Part 2," *Nursing Management* (October 2008): 18, 20, 22, 24, 26.

66 American Association of International Health-care Recruitment (AAIHR), "Two New Nurse Immigration Bills Introduced," June 2011, www.aaihr.org/news.php?newsid=13.

67 WHO, "The WHO Global Code of Practice on the International Recruitment of Health Personnel," 2011, www.who.int/hrh/migration/code/code_en.pdf.



market. By 2011 production capacity of nursing personnel had reached replacement levels, meaning that enough new nurses were graduating to replace the experienced nurses most likely to leave bedside nursing roles due to their age.⁶⁸

B. Trends in US Nursing Workforce Demand

Recent forecasts predict a nearly 1 million nurse shortage by 2030;⁶⁹ however, the United States has adjusted its domestic nursing human resources production capacity. Even still, the bulk of US nurses are in their 40s,⁷⁰ and their impending retirement has long-term implications for US nursing workforce dynamics.

Market shifts in hiring patterns for US hospitals are also moving the preferred degree for entry-level or frontline nursing personnel to the bachelor's level. The move is evidence based: research consistently demonstrates patient outcomes improve when patients are cared for by nurses with bachelor's degrees.⁷¹ Thus for hospitals, hiring a BSN nurse is now viewed as part of a larger risk-management plan.

A less-discussed but still important factor in the US nursing workforce is the career progression of the entry-level nurse. Once, the average nurse worked in the same hospital for her entire career, perhaps with a promotion to management or staff education at some point. Other than Kovner, Brewer, and colleagues — who are conducting a longitudinal study of career progression of a cohort of new graduate nurses⁷² — few researchers are focusing on career progression trends in nursing. Generational shifts in the workforce suggest that the likelihood of nurses remaining in frontline care for their entire careers (which could span 40 years) is decreasing.⁷³ Researchers at the RN Work Project⁷⁴ are trying to understand why this generational shift is occurring and what it means for workforce planning. Nonetheless, until the evidence emerges that means that as the current cohort of nurses in their 40s and older begin to leave frontline positions due to retirement or health reasons, there may not be enough nurses to replace them. Meanwhile, the younger generation will not stay in bedside positions as long as their counterparts from other generations. Early results from the RN Work Project suggest that familial and career advancement opportunities out of frontline nursing roles are two of the prominent reasons for nurses leaving those roles.

68 Auerbach, Buerhaus, and Staiger, "Registered Nurse Supply Grows Faster."

69 Ibid.

70 IOM, *The Future of Nursing*.

71 See Linda H. Aiken, Sean P. Clarke, Robyn B. Cheung, Douglas M. Sloane, and Jeffrey H. Silber, "Educational Levels of Hospital Nurses and Surgical Patient Mortality," *JAMA: The Journal of the American Medical Association* 290, no. 12 (2003): 1617–23; Matthew McHugh and Amy Witkoski-Stimpfel, "Nurse Reported Quality of Care: A Measure of Hospital Quality," *Research in Nursing and Health* 35, no. 6 (2012): 566–575. The study cited here by Aiken et al. was the first to identify the link between educational preparation of nurses and patient outcomes. Since then, dozens of other studies, too numerous to cite in this report, have followed and produced similar results.

72 Carol S. Brewer, Christine T. Kovner, William Greene, and Ying Cheng, "Predictors of RNs' Intent to Work Decisions 1 Year Later in a U.S. National Sample," *International Journal of Nursing Studies* 46, no. 7 (2009): 940–56; Carol S. Brewer, Christine T. Kovner, Shakthi Poornima, Susan Fairchild, Hongsoo Kim, and Maja Djukic, "A Comparison of Second-Degree Baccalaureate and Traditional-Baccalaureate New Graduate RNs: Implications for the Workforce," *Journal of Professional Nursing* 25, no. 1 (2009): 5–14; Carol S. Brewer, Christine T. Kovner, William Greene, Magdalene Tukov-Shuser, and Maja Djukic, "Predictors of Actual Turnover in a National Sample of Newly Licensed Registered Nurses Employed in Hospitals," *Journal of Advanced Nursing* 68, no. 3 (2012): 521–38; Carol S. Brewer, Christine T. Kovner, Siritorn Yingrengreung, and Maja Djukic, "New Nurses: Has the Recession Increased their Commitment to their Jobs?" *American Journal of Nursing* 112, no. 3 (2012): 34–44; Christine T. Kovner, Carol S. Brewer, Susan Fairchild, Shakthi Poornima, Hongsoo Kim, and Maja Djukic, "Newly Licensed RNs' Characteristics, Work Attitudes, and Intentions to Work," *American Journal of Nursing* 107, no. 9 (2007): 58–70; Christine T. Kovner, Sean P. Corcoran, and Carol S. Brewer, "The Relative Geographic Immobility of New Registered Nurses Calls for New Strategies to Augment that Workforce," *Health Affairs* 30, no. 12 (2011): 2293–300.

73 David M. Keepnews, Carol S. Brewer, Christine T. Kovner, and Juh H. Shin, "Generational Differences among Newly Licensed Registered Nurses," *Nursing Outlook* 58, no. 3 (2010): 155–63.

74 See RN Work Project, www.rnworkproject.org.



At present, estimates indicate that IENs comprise up to 30 percent of the US nursing workforce in some parts of the country.⁷⁵ The current state of INM to the United States is a stark contrast to the trends seen in the past 20 years. Applications by IENs and their first-time-candidate pass rates on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) are at the lowest levels in the nearly 30 years that the National Council of State Boards of Nursing (NCSBN) has tracked the data.⁷⁶ That means the number of viable international candidates who meet US standards for safe nursing practice are decreasing. Nonetheless, the United States could once again turn to IENs as a solution to resolve or abate nursing shortages, but they will have fewer candidates to draw from than in past years.

C. Hidden Nurses

Migration from Latin America to the United States has produced a group of “hidden nurses.” Of these, some are nurses from Latin America (and perhaps other countries) who are working in the country in various legal and illegal capacities, not often in health care. Those who do work in health care may work as nurses’ aides or as community health workers. A network of these nurses suggests their numbers could be as high as 10,000 nationally, with at least 1,000 in Texas alone.⁷⁷ Official counts have only been done by grassroots organizations supporting the domestic career advancement of these nurses.

The other type of “hidden nurses” is children of immigrant parents who came across the border at very young ages. They have graduated high school and university in the United States and have US nursing degrees, but they are unable to obtain work visas because they cannot prove their citizenship or get a social security card, or because visa requirements require them to return to their “originating” country for a period. There are no estimates of the number of people in this situation, but anecdotally, entry-level nursing faculty working in schools in the southwestern part of the United States can usually name at least one student in each class year who fits the description.

For both these types, as with all immigrants without legal status, counting is difficult. Fear of exposure and deportation keep many hidden.

D. Standardization of Training

People not working in health care often find the number of categories of nursing personnel puzzling. Why not have one level of entry at a certain educational level? The answer is complicated. For the sake of development and professional infrastructure building, sometimes multiple levels of entry are needed just to ensure that a country has enough nurses to provide care (see Appendix A). Nurses themselves have worked toward a single level of entry in every country (the preferred level is the bachelor’s degree) since the 1920s. Internal politics and resistance from physicians, health system administrators, and other key actors are the main reasons why multiple levels of entry still exist today.

75 Linda H. Aiken, “US Nurse Labor Market Dynamics are Key to Global Nurse Sufficiency,” *Health Services Research* 42, no. 3 (2007): 1299–320; Peter Buerhaus, Peter, David I. Auerbach, and David O. Staiger, “New Signs of a Strengthening US Nurse Labor Market?” *Health Affairs* W4 (2004): 526–33; Peter Buerhaus, David I. Auerbach, and David O. Staiger, “Recent Trends in the Registered Nurse Labor Market in the U.S.: Short-Run Swings on Top of Long-Term Trends,” *Nursing Economics* 25, no. 2 (2007): 59–67; Yu Xu and Chanyeong Kwak, “Characteristics of Internationally Educated Nurses in the United States,” *Nursing Economics* 23, no. 5 (2005): 233–38; Yu Xu and Chanyeong Kwak, “Trended Profile of Internationally Educated Nurses in the United States: Implications for the Nurse Shortage and Beyond,” *Journal of Nursing Administration* 36, no. 11 (2006): 522–25.

76 National Council of State Boards of Nursing (NCSBN), “Number of Candidates Taking NCLEX Examination and Percent Passing, by Type of Candidate,” 2011, www.ncsbn.org/Table_of_Pass_Rates_2011.pdf. The National Council of State Boards of Nursing (NCSBN) is an organization comprised of all the state boards of nursing in the United States and is the entity responsible for developing, administering, and managing the US licensure exam. It also collaborates with equivalent bodies internationally to improve the regulation of nursing personnel at domestic and international levels.

77 The International Bilingual Nurses Alliance is a network of nursing education groups that help individuals with previous nursing education and experience obtain licensure in the United States and/or create support networks for them.



Despite multiple levels of entry, the market in the United States is shifting hiring patterns toward nurses educated at the bachelor's degree level.⁷⁸ Mexico is also moving toward that degree as the minimum standard for entry into practice. The other countries in this study do not yet have the resources, sufficiently educated populations, or technical capacity to make the shift to the bachelor's degree as the standard of entry.

E. Looking Forward

Nursing human resources are complex, with characteristics both specific to and shared among countries. The ACA, changes in nursing production in the United States, and changes in migration patterns will affect demand for IENs in the US market during the next two decades. How Latin American countries prioritize the development of nursing human resources will depend on the political will of public, private, and government actors to commit resources.

III. Why Health Care Matters

Across the Americas, the 21st century health profile differs greatly from that of the 20th century. People live longer, and infectious diseases that once caused large numbers of deaths are controlled or eliminated. The relationship between health outcomes and migration is complex. Migration experiences affect all aspects of health, from the physical to the mental. Where and how migrants arrive in the country also influences their health in the long term.

In general, migration in Mexico and Central America is comprised of two main flows: migration within the region and migration to the United States, which generally involves crossing the border with Mexico. The first migration pattern is primarily due to demand for agricultural labor in southern Mexico, with large number of migrants from Guatemala.⁷⁹ Most migrants to the United States are from Mexico, but flows from El Salvador, Guatemala, and Honduras have recently increased.⁸⁰ Mexicans accounted for at least 90 percent of US immigration from the study countries in the 1960s–80s. By 2009 immigrants from El Salvador and Guatemala accounted for about 9 percent and 5 percent, respectively, of the immigrant population from the study region. Researchers also estimate that about 37 percent of the foreign-born population in the United States in 2010 came from Central America (29.4 percent from Mexico, 3 percent from El Salvador, 1.4 percent from Honduras, and 2 percent from Guatemala).⁸¹ Since the 2008 recession, however, migration trends seem to have reversed for the Mexican population.⁸² Some estimates suggest that more Mexican migrants left the United States than came in. This new migration pattern may have important implications for Mexican society.

Changing demographics in the study countries are shifting the demand for health services and the type of providers needed to deliver them in a cost-effective way. In the following subsections we first provide a brief overview of the health profiles of the study countries. We then review how nurses can provide

78 American Association of Colleges of Nursing (AACN), "Employment of new nurse graduates and employer preferences for baccalaureate-prepared nurses," 2012, www.aacn.nche.edu/leading_initiatives_news/news/2012/employment12.

79 Centro Latinoamericano de Demografía (CELADE), "International Migration," 2006, www.eclac.org/publicaciones/xml/6/32706/Observatoriodemografico1.pdf.

80 Marc R. Rosenblum and Kate Brick, *US Immigration Policy and Mexican/Central American Migration Flows: Then and Now* (Washington, DC: Migration Policy Institute, 2011), www.migrationpolicy.org/pubs/RMSG-regionalflows.pdf.

81 Pew Hispanic Center, *Statistical Portrait of the Foreign-Born Population in the United States, 2010* (Washington, DC: Pew Hispanic Center, 2012), www.pewhispanic.org/2012/02/21/statistical-portrait-of-the-foreign-born-population-in-the-united-states-2010/.

82 Jeffrey S. Passel, D'Vera Cohn, and Ana Gonzalez-Barrera, *Net Immigration from Mexico Falls to Zero — and Perhaps Less* (Washington, DC: Pew Hispanic Center, 2012), www.pewhispanic.org/files/2012/04/Mexican-migrants-report_final.pdf; Pew Hispanic Center, *Statistical Portrait of the Foreign-Born Population*.



cost-effective services to address many of the issues generated by changing population profiles. We then describe the current production and institutional development issues that affect nursing human resources development and could influence INM dynamics.

A. Aging Populations

The structure of the population in Mexico and Central America has changed rapidly since the 1950s, mainly due to large reductions in mortality accompanied by declines in fertility.⁸³ For instance, while about 45 percent of the population was younger than 14 years in Mexico in 1970, by 2010 this percentage had declined to 30 percent, paralleled by an increasing number of adults and elderly.⁸⁴

As shown in Figure 1, Mexico experienced the fastest transition to an aging population among these countries due to a sharp decline in fertility in the 1970s and important reductions in adult mortality that lead to large increases in the over-30 population. In contrast, Guatemala’s age structure remained fairly similar between 1970 and 2010 among adults, with small reductions in fertility occurring over the period, as shown by the shrinking base of the pyramid. El Salvador and Honduras, on the other hand, experienced some reductions in fertility; but the distribution of adults in the population remained fairly similar over the 30-year period. Some estimates suggest that by 2020 all of these countries, except Guatemala, will see major increases in their elderly populations (Figure 2). For example, Mexico and El Salvador are expected to have about 9 percent of their population aged 65 or older in 2020. An increasing number of older people has shifted the bulk of diseases from early to late life. At the same time, older adults in Mexico are also less likely to have health insurance.⁸⁵

Table 1. Relevant Demographic Indicators in the Study Countries (2012)

Country	Total Population (thousands)	Annual Deaths (thousands)	Annual Population Growth (%)	Life Expectancy at Birth (years)
El Salvador	6,264	41.3	0.6	72.5
Guatemala	15,318	81.5	2.5	71.5
Honduras	7,912	37.8	2.0	73.6
Mexico	116,147	557.6	1.1	77.2
United States	315,791	2,646.7	0.9	78.8

Source: Pan-American Health Organization (PAHO), “Health Situation in the Americas — Basic Indicators 2012,” http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.

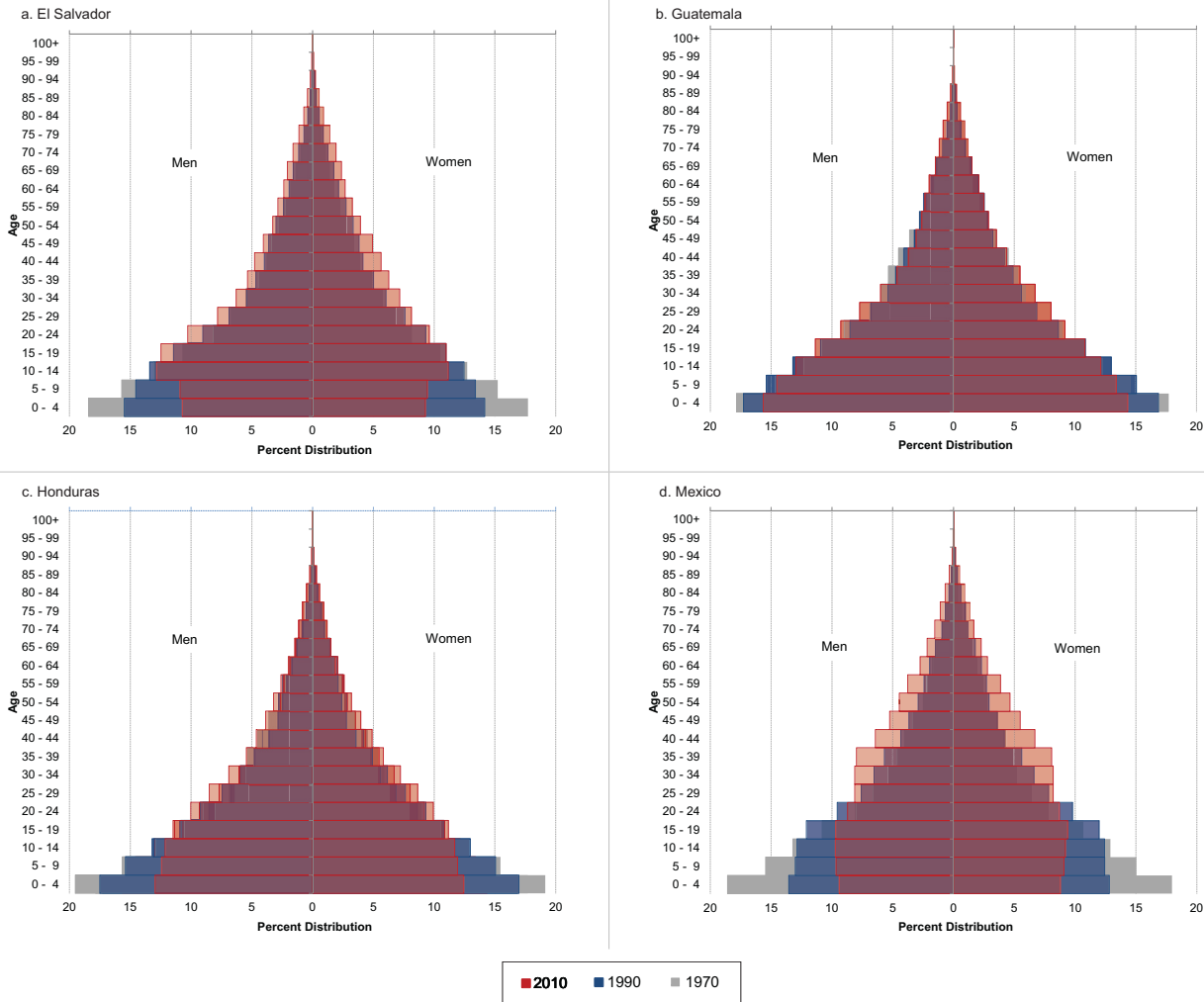
83 Alberto Palloni, Guido Pinto-Aguirre, and Martha Pelaez, “Demographic and Health Conditions of Ageing in Latin America and the Caribbean,” *International Journal of Epidemiology* 31 (2002): 762–71.

84 CELADAE, “Population Division of ECLAC.”

85 Steven P. Wallace and Verónica F. Gutierrez, “Equity of Access to Health Care for Older Adults in Four Major Latin American Cities,” *Pan American Journal of Public Health* 17, no. 5–6 (2005): 394–409.

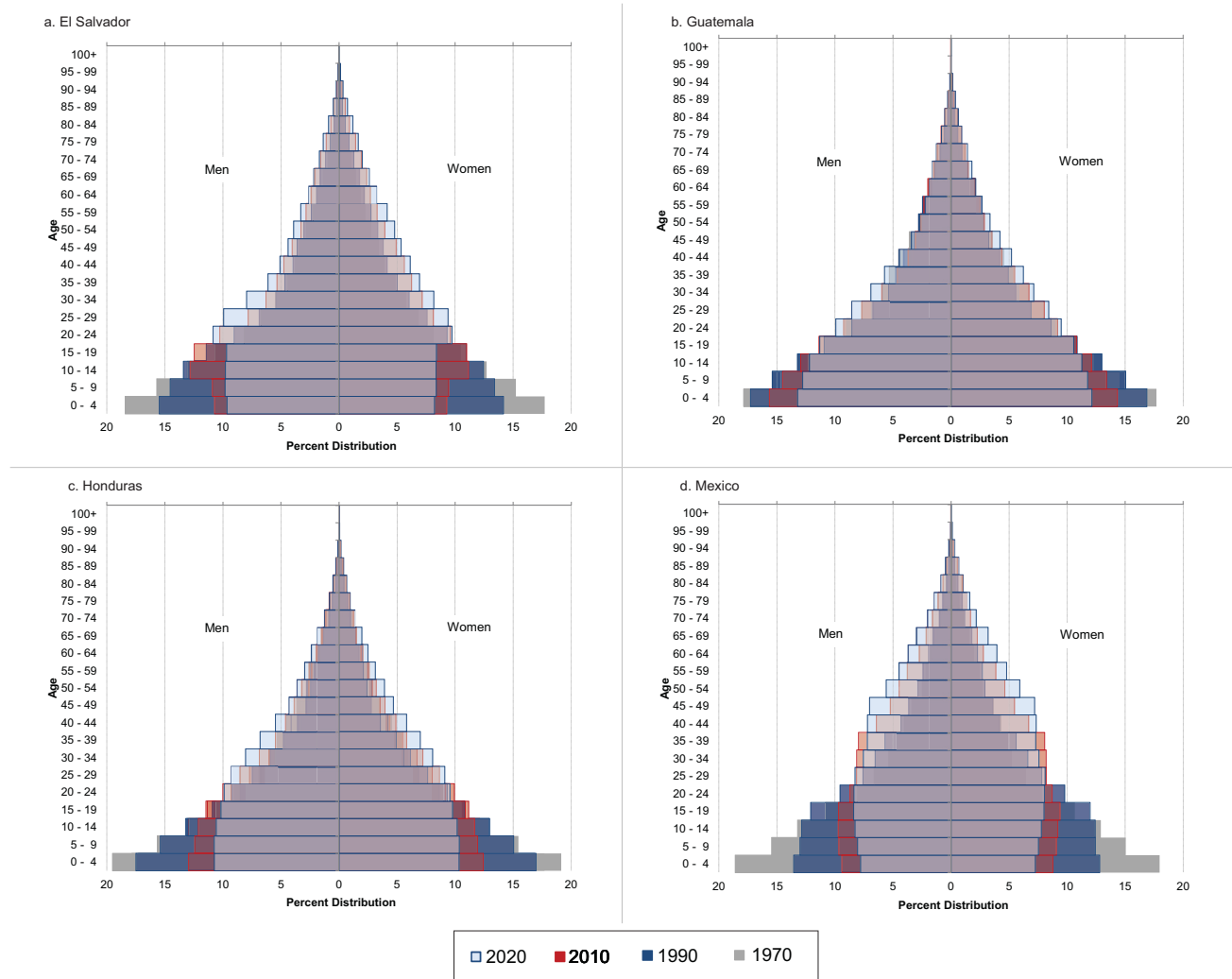


Figure 1. Population Age Distribution for El Salvador, Guatemala, Honduras, and Mexico (Men and Women), 1970, 1990, and 2010



Source: Centro Latinoamericano de Demografía (Latin American Demographic Center, CELADE), “Population Division of ECLAC,” 2011, www.eclac.cl/celade/proyecciones/basedatos_BD.htm.

Figure 2. Population Age Distribution for El Salvador, Guatemala, Honduras, and Mexico (Men and Women), 1970, 1990, 2010, and projection for 2020



Source: Centro Latinoamericano de Demografía (Latin American Demographic Center, CELADE), “Population Division of ECLAC,” 2011, www.eclac.cl/celade/proyecciones/basedatos_BD.htm.

B. Epidemiological Changes in the Health Profile of the Americas

International regulations require all countries to track the types of diseases and causes of death and injury experienced by their populations. These data are known as *epidemiological data*. Table 2 compares basic mortality and morbidity indicators across the study countries. Causes of death or injury in a country usually result from accidents, suicides, homicides, or conflicts of varying scales. Rates often differ significantly by gender. In general, researchers categorize diseases into two types: infectious and non-communicable (that is, chronic) diseases, or NCDs. An infectious disease occurs through contact with someone or something that causes the disease. Most are preventable and curable with medication and early intervention. Malaria is the exception, since mosquitoes bearing malaria are hard to control without adequate resources. Countries with higher levels of socioeconomic development have lower rates of infectious diseases because health and social systems have adequate resources to prevent them and treat them early, when and if they do occur.



HIV-AIDS is a disease that now straddles both infectious and noncommunicable categories. HIV's transmission pattern and how it kills a person if treatment is not given fits the profile of an infectious disease. With treatment, however, HIV is now viewed globally as a chronic disease with management patterns similar to NCDs. HIV is relevant to discussions of migration because HIV rates can rise in countries with high rates of international migration, such as those in the Americas. In general, migrants come to the United States for work and may contract the disease while away from home. In the United States, Hispanics now comprise at least 17 percent of new HIV infections.⁸⁶ Those infected may eventually return to their home country, where they may face discrimination and stigma in their original communities. Access to treatment will vary based on the country's resources and the historical organization of its response to the AIDS epidemic. Health systems in all study countries have to be able to respond to HIV and the associated risks that migration presents.

Table 2. Basic Mortality and Morbidity Indicators in the Study Countries (2012)

Country	General Mortality Rate (per 1,000 pop.)	Mortality Rate from Infectious Diseases (per 100,000 pop.)	AIDS Incidence Rate (per 100,000 pop.)
El Salvador	7.4	80.1	No data available
Guatemala	7.6	110.2	18.4
Honduras	No data available	No data available	8.3
Mexico	6.0	34.1	5.1
United States	4.9	24.9	11.1

Note: All data reflect adjusted rates for both genders.

Source: Pan-American Health Organization (PAHO), "Health Situation in the Americas — Basic Indicators 2012," http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.

All countries will experience significant increases in health care expenditures due to NCDs. WHO defines NCDs as diseases that develop due to genetic predisposition, personal health habits, and environmental exposure. They include cardiovascular diseases (CVDs), diabetes, renal disease, and cancer, among others. Table 3 summarizes the basic NCD mortality data for the study countries.

Preventing and managing NCDs is a challenge on many levels, from the individual to the national. Compared to infectious diseases, NCDs are expensive to treat and manage; individuals may live with the condition for many years. Should complications occur due to poor management, hospitalization is inevitable and contributes significantly to health system expenditures. Most NCDs are preventable and depend on an individual maintaining healthy lifestyle habits; cancer is one exception, since genetic predisposition can mean even the healthiest individual may still get cancer. Most elderly individuals have at least one NCD due to the effects of aging on health; therefore, health systems with growing aging populations can expect increased expenditures due to both aging and NCD disease progression. Well-functioning primary health care can successfully manage NCDs and prevent the worst and most expensive complications from happening.

The principal problem is that most people who get NCDs do not treat them early enough, and may face barriers to receiving adequate treatment. A patient with high blood pressure who does not take her medications because they cost too much ends up in the hospital with a heart attack, costing the health care system tens of thousands of dollars. The diabetic who does not lose weight or keep his blood sugar

86 Yorghos Apostolopoulos, Sevil Sonmez, Jennie Kronenfeld, Ellis Castillo, Lucia McLendon, and Donna Smith. "STI/HIV Risks for Mexican Migrant Laborers: Exploring Ethnographies," *Journal for Immigrant and Minority Health* 8, no. 3 (2006): 291–302; Centers for Disease Control, "Fact sheet: Estimates of New HIV Infections in the United States, 2007–2010," 2012, www.cdc.gov/nchhstp/newsroom/docs/2012/HIV-Infections-2007-2010.pdf.



levels under control ends up hospitalized, losing his limbs or being treated for kidney failure due to poor self-management. An asthma patient without a good home management program supervised by a nurse ends up hospitalized with asthma attacks.

Table 3. Noncommunicable Disease Mortality Rates in Four Study Countries,* 2012

Country	Type II Diabetes** (per 100,000 pop.)	Cardiovascular Disease (per 100,000 pop.)	Cerebrovascular Disease (per 100,000 pop.)	Cancer (per 100,000 pop.)
El Salvador	39.2	61.6	23.4	97.5
Guatemala	53.9	46.9	35.2	90.2
Mexico	89.6	74.0	33.8	73.7
United States	14.0	70.8	22.8	119.1

Note: * All data reflect adjusted rates for both genders; ** Type II Diabetes is known as “adult onset” diabetes because it tends to manifest itself in adults. With the obesity epidemic, providers are now seeing Type II diabetes in children.
Source: Pan-American Health Organization (PAHO), “Health Situation in the Americas — Basic Indicators 2012,” http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.

This combination results in most people receiving the most expensive treatments or developing the most expensive complications — like kidney failure, which requires dialysis — because their NCDs have not been effectively managed. These treatments usually occur in a hospital, the most expensive place in any health care system to receive care.

In recent years, the majority of deaths among people aged 30 to 70 in Mexico, Honduras, El Salvador, and Guatemala have been from NCDs, for example, cancer and CVDs (Figure 3). These conditions are now the leading causes of death in these countries, where mortality levels surpass those of the United States. The prevalence of obesity, high glucose levels, and high blood pressure show that these countries are experiencing important changes in their health profiles (Figure 4). Particularly important is the high mortality associated with CVDs and diabetes, conditions that increasingly burden health care systems. WHO estimates that the costs associated with treatment and management of these diseases will increase dramatically in the next years.⁸⁷ Nevertheless, despite increasing NCD prevalence, life expectancy in the highlighted countries has continued to increase in the past decades. For example, in El Salvador, Guatemala, and Honduras, life expectancy at birth reached about 70 years for the total population, and 76 years in Mexico. (These values are somewhat lower than the 79 years estimated for the United States.⁸⁸) However, these gains in life expectancy are likely to slow down or even reverse, given the current epidemiological patterns in the region.

The five study countries, meanwhile, share similar NCD characteristics. Females in all these countries are likely to be overweight as adults, with Mexican women recently surpassing their American counterparts. Among males there is more variation across countries. Males in Mexico and El Salvador show the highest percent adult prevalence, at about 60 percent and 68 percent respectively, only slightly lower than American males at 72 percent, while Guatemala and Honduras show lower levels. Yet even in these last two countries, about one out of two males aged 25 or older are likely to be overweight. The prevalence of high blood glucose levels (an indicator of diabetes status) in women is lowest in Honduras and the United States, and highest in Mexico and Guatemala.⁸⁹ Among males, adults

87 Pan-American Health Organization (PAHO), “Health Situation in the Americas — Basic Indicators 2012,” http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.

88 WHO, *WHO Statistics Report 2012*.

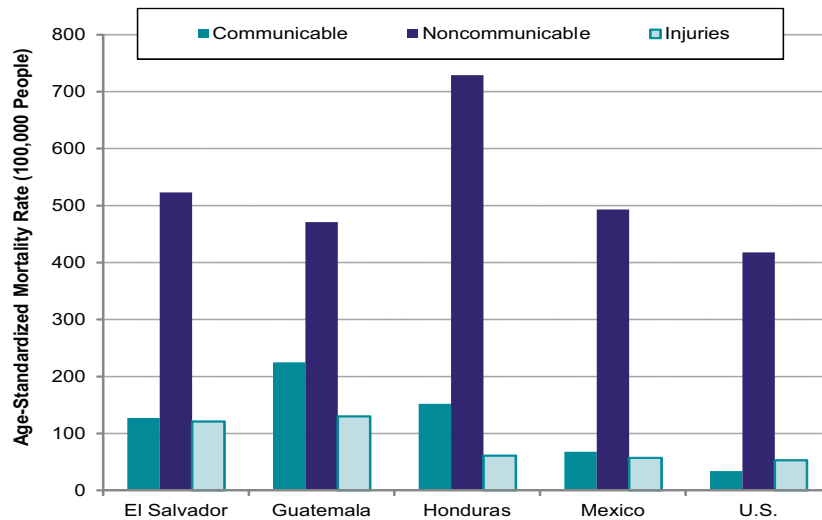
89 Pablo Kuri-Morales, Jonathan Emberson, Jesús Alegre-Díaz, Roberto Tapia-Conyer, Rory Collins, Richard Peto, and Gary Whitlock, “The Prevalence of Chronic Diseases and Major Disease Risk Factors at Different Ages among 150,000 Men and Women Living in Mexico City: Cross-Sectional Analyses of a Prospective Study,” *BMC Public Health* 9, no. 1 (2009): 9.



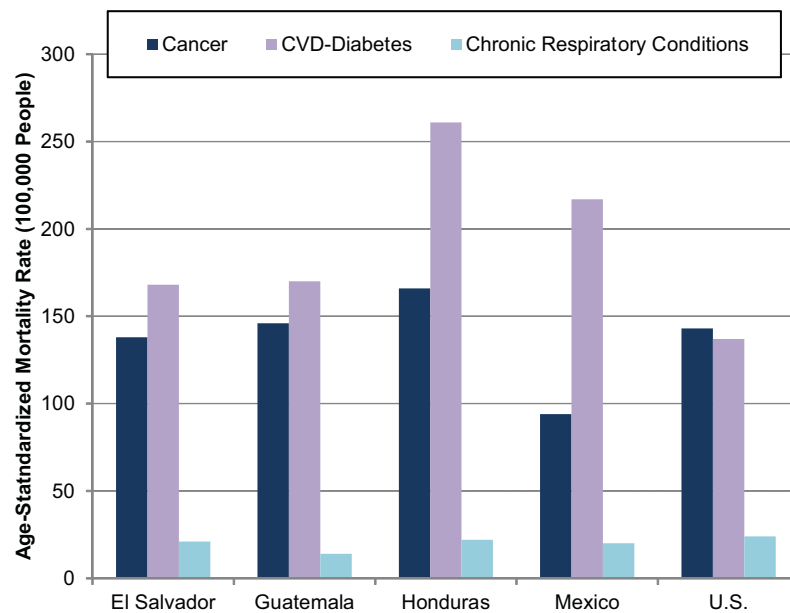
with elevated glucose levels ranged from 11 percent to 13 percent across all countries but Honduras, which has a lower rate.

Figure 3. Age-Standardized Adult Mortality Rate by Cause in El Salvador, Guatemala, Honduras, and Mexico (Ages 30-70 per 100,000 Population), 2008

a. Communicable Diseases (e.g., Infectious Diseases), Non-Communicable Diseases (e.g., Cancer), and Injuries



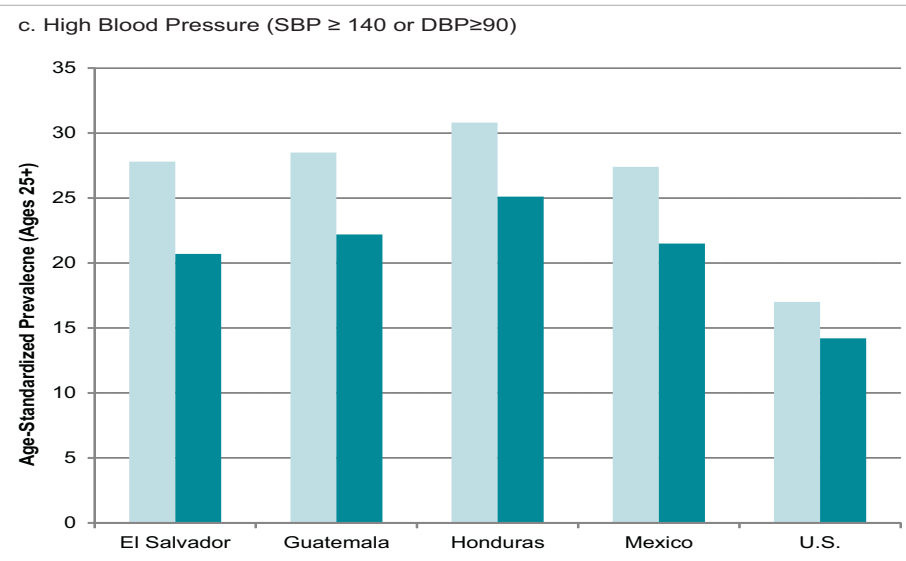
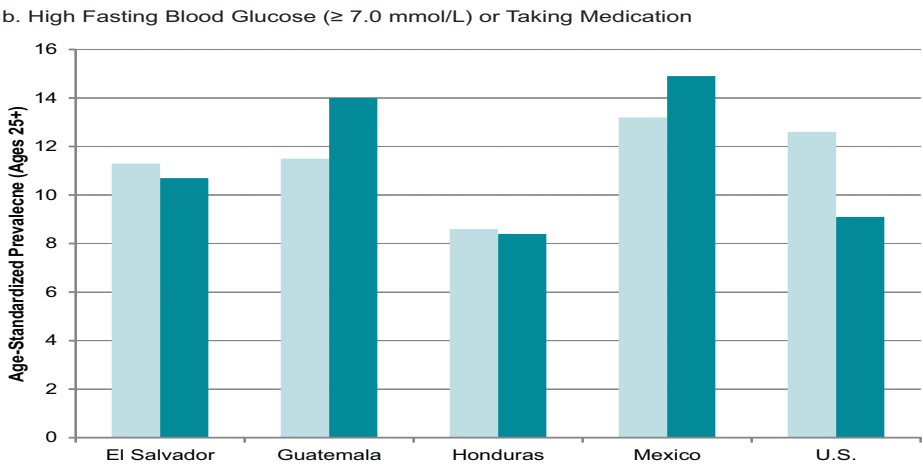
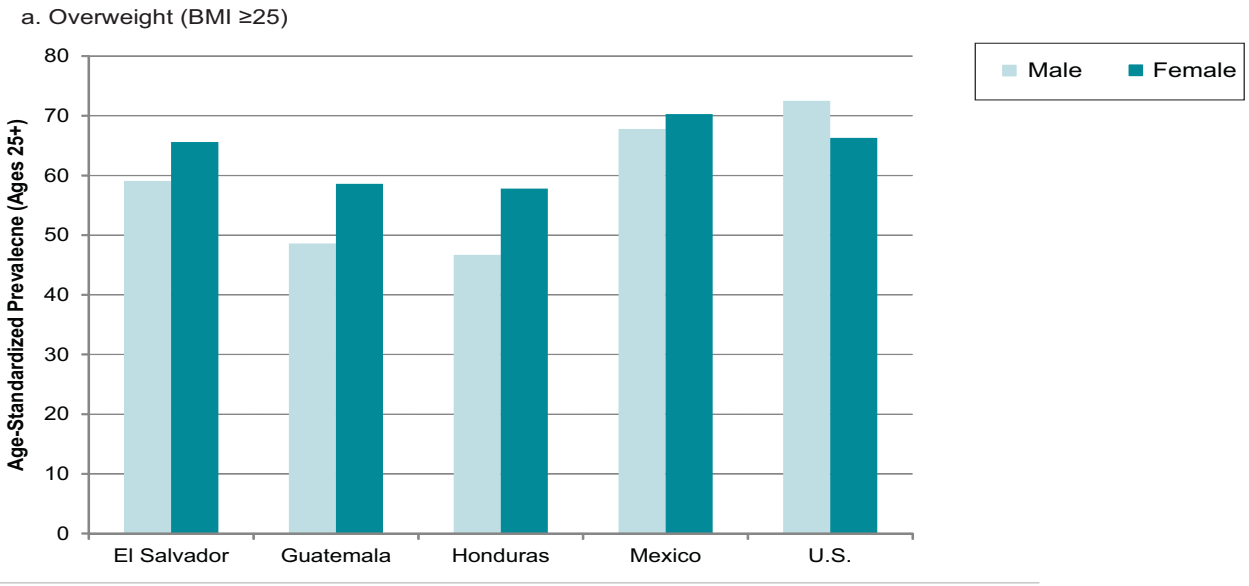
b. Cancer, Cardiovascular Disease and Diabetes, and Chronic Respiratory Conditions



Source: World Health Organization (WHO), WHO Statistics Report 2012 (Geneva: WHO), www.who.int/gho/publications/world_health_statistics/en/index.html.



Figure 4. Age-Standardized Adult Prevalence of Overweight, High Glucose and High Blood Pressure in El Salvador, Guatemala, Honduras, and Mexico (Men and Women Aged 25 or Older), 2008



Source: WHO 2012



On the other hand, high blood pressure is far more prevalent among males than females in all countries. Even with the presence of a large number of risk factors, the United States has the lowest prevalence of high blood pressure, a result that has been attributed to the widespread use of anti-hypertensive medication in the adult population.⁹⁰ Among the other countries, males show a particularly high prevalence of high blood pressure: about one-third of them (ranging from about 28 percent to 31 percent) have this condition. Females show a somewhat lower prevalence than males, but about one-fourth of women in El Salvador, Guatemala, and Mexico have high blood pressure. Particularly important is the increasing prevalence of NCD risk factors among young adults (aged 20-40). In Mexico, for example, about 30 percent of adults aged 20-29 had high blood pressure in 2002, and the use of anti-hypertensive medication among this group is almost nonexistent.⁹¹ Similarly, overweight and obese individuals have dramatically increased in all countries in the past two decades.

C. The Cost-Effectiveness of Nursing Services

Research demonstrates that NCDs can be successfully managed by nurses, and that nursing personnel are essential to successful outcomes.⁹² Nursing personnel also help avoid complications related to the treatment and management of NCDs in the acute care (hospital) setting.⁹³ Health systems with effective care coordination systems can effectively manage the NCD burden in their populations, but not without adequate numbers of HRH.

A nurse's level of education also matters for patient outcomes. The European RN4CAST⁹⁴ project, for example, has shown that the addition of one BSN nurse to a staffing mix⁹⁵ in a hospital can decrease hospital patient mortality by 10 percent. That study drew from research that began in the United States⁹⁶ and showed similar effects with minority patient outcomes.⁹⁷ Conversely, patient outcomes worsen when patients are cared for by nurses educated at the practical or technical level.⁹⁸ Poor outcomes, in a hospital or primary care setting, translate into higher health system costs. If hired in the right number, nurses — especially those with a bachelor's degree — pay for themselves as they generate cost savings by reducing poor patient outcomes.⁹⁹

90 Eileen M. Crimmins and Hiram Beltrán-Sánchez, "Mortality and Morbidity Trends: Is There Compression of Morbidity?" *Journals of Gerontology Series B-Psychological Sciences and Social Sciences* 66B, no. 1 (2011): 75–86.

91 Hiram Beltrán-Sánchez, Eileen M. Crimmins, Duncan Thomas, and Graciela M. Teruel, "Links between Childhood and Adult Social Circumstances and Obesity and Hypertension in the Mexican Population," *Journal of Aging and Health* 23, no. 7 (2011): 1141–65.

92 Sandra N. Bleich, David M. Cutler, Alyce S. Adams, Rafael Lozano, and Christopher J. L. Murray. 2007, "Impact of Insurance and Supply of Health Professionals on Coverage of Treatment for Hypertension in Mexico: Population Based Study," *BMJ (Clinical research ed.)* 335, no. 7625 (2007): 875; Mike Callaghan, Nathan Ford, and Helen Schneider, "A Systematic Review of Task-Shifting for HIV Treatment and Care in Africa," *Human Resources for Health* 8, no. 1 (2010): 8; George A. Diamond and Sanjay Kaul, "Cost, Effectiveness, and Cost-Effectiveness," *Circulation. Cardiovascular Quality and Outcomes* 2, no. 1 (2009): 49–54; Ann M. Dozier Deborah J. Ossip, Sergio Diaz, Essie Sierra-Torres, Zahira Quiñones de Monegro, Latoya Armstrong, Nancy P. Chin, and Scott McIntosh, "Health Care Workers in the Dominican Republic: Self-Perceived Role in Smoking Cessation," *Evaluation and the Health Professions* 32, no. 2 (2009): 144–64; Macnaughton, "Health Disparities and Health-Seeking Behavior among Latino Men;" Neelam Sekhri, Richard Feachem, and Angela Ni, "Public-Private Integrated Partnerships Demonstrate the Potential to Improve Health Care Access, Quality, and Efficiency," *Health Affairs (Project Hope)* 30, no. 8 (2011): 1498–507; Joan R. Thompson, Claire Horton, and Carlos Flores, "Advancing Diabetes Self-Management in the Mexican American Population: A Community Health Worker Model in A Primary Care Setting," *The Diabetes Educator* 33, Suppl 6 (2007): 159S–165S.

93 Margo Brooks-Carthon, Ann Kutney-Lee, Olga Jarrin, Douglas Sloane, and Linda H. Aiken, "Nurse Staffing and Post-Surgical Outcomes in Black Adults," *Journal of the American Geriatrics Society* 60, no. 6 (2012): 1078–84; McHugh and Witkoski-Stimpfel, "Nurse Reported Quality of Care."

94 See RN4Cast, Nurse Forcecasting in Europe, www.rn4cast.eu.

95 The staffing mix is the combination of formally educated and nonformally educated nursing personnel caring for patients in a single unit/ward.

96 Aiken et al., "Educational Levels of Hospital Nurses and Surgical Patient Mortality," McHugh, "Nurse Reported Quality of Care."

97 Brooks-Carthon et al., "Nurse Staffing and Post-Surgical Outcomes in Black Adults."

98 Garson et al., "A New Corps of Grand Aides has the Potential."

99 Timothy M. Dall, Yaozhu J. Chen, Rita F. Seifert, Peggy J. Maddox, and Paul F. Hogan, "The Economic Value of Professional Nursing," *Medical Care* 47, no. 1 (2009): 97–104.



D. Regional Shortages of Nursing Personnel

Historically, nursing human resources data were difficult to track and often inaccurate. Across the region, policymakers are working to develop uniform health workforce metrics so comparative country analyses can be conducted and capacity-building investments be made more strategically.¹⁰⁰

Table 4 provides a comparison of the 2012 Health Indicators data for the study countries. WHO reports the following critical threshold for countries to consider: an adequate number of health care workers is 2.3 per 1,000 population, with a physician-to-nurse ratio of 1:3.¹⁰¹

*The United States has approximately
3 million registered nurses — approximately one-fifth of the
world’s total registered nursing population.*

Table 4. Health Care Human Resources Data for the Study Countries, 2012

Country	Nurses (per 1,000 population)	Physicians (per 1,000 population)
El Salvador	.51	2.01
Guatemala	.9	.99
Honduras	.2	.3
Mexico	2.54	2.2
United States	8.5	2.6

Source: Pan-American Health Organization (PAHO), “Health Situation in the Americas — Basic Indicators 2012,” http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.

El Salvador, Honduras, and Guatemala still rely on auxiliary nurses to deliver the majority of nursing services. Many of these nurses are still working even as newer educational requirements mean that the younger generation is better prepared to handle patients. Furthermore, hiring issues in the public health care system create extensive labor wastage for nurses prepared at the bachelor’s level in Mexico¹⁰² and at the technical level in El Salvador.¹⁰³ All countries also experience misdistribution of health care personnel in rural areas, even though nurses are far more likely to work in these areas than physicians. These factors decrease the health care system’s ability to respond effectively to the disease burden in each country.

100 Khassoum Diallo, Pascal Zurn, Neeru Gupta, and Mario Dal Poz, “Monitoring and Evaluation of Human Resources for Health: An International Perspective,” *Human Resources for Health* 1, no. 1 (2003): 3; Neeru Gupta, Pascal Zurn, Khassoum Diallo, and Mario Dal Poz, “Uses of Population Census Data for Monitoring Geographical Imbalance in the Health Workforce: Snapshots from Three Developing Countries,” *International Journal for Equity in Health* 2, no. 1 (2003): 11; Neeru Gupta, Blerta Maliqi, Adson França, Frank Nyongator, Muhammad A. Pate, David Sanders, Hedia Belhadj, and Bernadette Daelmans, “Human Resources for Maternal, Newborn and Child Health: From Measurement and Planning to Performance for Improved Health Outcomes,” *Human Resources for Health* 9, no. 1 (2011): 16; Gustavo Nigenda, Maria Machado, Fernando Ruiz, Victor Carrasco, Patricia Moliné, and Sabado Girardi, “Towards the Construction of Health Workforce Metrics for Latin America and the Caribbean,” *Human Resources for Health* 9, no. 1 (2011): 24.

101 WHO, “Achieving the health-related MDGs. It takes a workforce!,” 2012, www.who.int/hrh/workforce_mdgs/en/index.html.

102 Nigenda et al. “Enfermeras con licenciatura en México.”

103 Personal communication, El Salvador Nursing Licensure Organization, September 8, 2012.



The United States has approximately 3 million registered nurses — approximately one-fifth of the world's total registered nursing population. Three percent of the US population is employed in a nursing position. Those numbers add up to more nurses in the United States alone than in all of Latin America and the Caribbean combined.

E. *Production of Nurses in the Region*

The human resources issues around nursing are complex, more so than for physicians. Around the world, there are multiple avenues to becoming a nurse. They are decided by the history of nursing in a given country and the quality and structure of its present-day educational system. (See Appendix A for a general overview of each nursing level.) WHO, along with the International Labor Organization (ILO), distinguishes between professional and nonprofessional nursing personnel, using the categories of “nurses and midwives” and “nursing auxiliaries.” Midwives are sometimes categorized outside nursing personnel. These distinctions are important because nursing auxiliaries may have little training, sometimes as little as two weeks. In some countries, they perform tasks normally reserved for formally educated nurses due to personnel shortages or a lack of regulatory enforcement.

The lines between nursing auxiliaries and community health workers are often blurred for the same reasons. In some cases, countries have no choice but to use less-educated nursing personnel in care-delivery systems because of critical shortages. Other reasons for using less-educated (and therefore less-expensive) workers include the desire to cut health system costs or maximize private-sector profits. Administrators make these decisions, often with little knowledge about the consequences to patient outcomes. International institutions have historically recommended cutting personnel costs in the health care system as part of national structural adjustment policies.

Domestic dynamics are important to understand because not all nurses can migrate internationally for work.

A recent article by Squires, Kovner, and Kurth¹⁰⁴ attempts to standardize the language and thinking around systems for producing nursing human resources. Appendix B provides the conceptual model from their work and Appendix C synthesizes findings from nursing workforce studies and theories of professions.

Domestic dynamics are important to understand because not all nurses can migrate internationally for work. In most countries, only registered nurses or higher are eligible for legal work internationally. These nurses must pass a country's professional licensure exam in order to obtain a work visa. Licensure exams provide the public and the employer with a minimum safety guarantee from the employee: a passed exam ensures that the nurse has the minimum basic knowledge to deliver nursing services to patients *safely* and with *minimal risk of causing harm to the patient*.

The licensure exam does not, however, guarantee the communicative competence of the nurse in the language of the country where he or she seeks to migrate for work. US work visa requirements — such as those for the H1-B, TN, and E-3 visas — set minimum standards for a passing score on a language exam. Recently, US work visas for nurses began to require higher scores on a spoken English assessment as part of the credentialing process. Both employer and patient complaints, and some research studies, about internationally educated nurses' communicative competence generated the change.

¹⁰⁴ Allison Squires, Christine T. Kovner, and Ann Kurth, *Sustainable Nursing Human Resources Systems* (New York University, Faculty Archive Publications Online, in press).



In the case of nurses, higher spoken English standards were important. It can be easy for some nurses to pass the reading, writing, and listening portion of a language exam (even the NCLEX-RN), but not always the spoken part. Since nurse-patient communication is essential for safe and effective care, it is a necessary part of the overall process to evaluate a candidate's ability to work safely and successfully in the new country. This would apply to any health care worker employed in another country with a different official language

F. Barriers to the Production and Migration of Nurses in the Region

El Salvador, Guatemala, Honduras, and Mexico share similar health-system characteristics and challenges. Their educational systems are key: can they provide the basic education required for nurses to function in a world that demands a global skill set?

First, health sector spending represents between 6-7 percent of national GDP for those countries.¹⁰⁵ Both the public and private sectors provide health care in all countries, and their market shares vary widely. Neither sector is conclusively more effective at care delivery.¹⁰⁶ There are extensive inequalities in access to and hiring due to significant socioeconomic disparities in the population.¹⁰⁷

The public sector is the largest employer of health care professionals. For nurses, the public sector tends to pay better than the private sector. The reverse is true for physicians, but for them the public sector usually offers steadier employment. Private-sector pay for physicians depends on how many physicians practice in the local market; in many cases, competition is tough. Health sector reforms across the region have adversely affected all types of human resources by decreasing employment security, reducing benefits, and increasing contract-based work (with contracts lasting as little as three months).¹⁰⁸ Burnout rates,¹⁰⁹ consequently, average 12 percent for physicians and 7 percent for nurses, but researchers believe these estimates to be low.¹¹⁰ Contract work also receives mixed reviews from providers, with physicians preferring it and nurses disliking it.¹¹¹

Of particular concern in the region, drug trafficking threatens health care system operations and health care workers in various ways. Most often, drug-related violence may deter patients from seeking health care services. Health care workers may find themselves threatened by gang members if they seek to treat victims of drug violence in the emergency room. In rare cases, health care personnel are killed in drug-related violence.¹¹²

The educational system of a country and the quality of its graduates play a large role in the quality of health care providers it produces and, subsequently, the costs and quality of care and services delivered

105 PAHO, "Health Situation in the Americas."

106 Sanjay Basu, Jason Andrews, Sandeep Kishore, Rajesh Panjabi, and David Stuckler, "Comparative Performance of Private and Public Health-care Systems in Low and Middle-Income Countries: A Systematic Review," *PLoS Medicine* 9, no. 6 (2012): e1001244.

107 Il-Ho Kim, Carles Muntaner, Haejoo Chung, and Joan Benach, "Case Studies on Employment-Related Health Inequalities in Countries Representing Different Types of Labor Markets," *International Journal of Health Services* 40, no. 2 (2010): 255-67.

108 N. Homedes and A. Ugalde, "Human Resources: The Cinderella of Health Sector Reform in Latin America," *Human Resources for Health* 3, no. 1 (2005); Riitta-Liisa Kolehmainen-Aitken, "Decentralization's Impact on the Health Workforce: Perspectives of Managers, Workers and National Leaders," *Human Resources for Health* 2, no. 5 (2004): 1-11; Jane Lethbridge, "Public Sector Reform and Demand for Human Resources for Health (HRH)," *Human Resources for Health* 2, no. 1 (2004): 15.

109 Burnout is defined here as the presence of emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment, as measured by the multidimensional Maslach Burnout Inventory.

110 Armand Grau, Daniel Flichtentrei, Rosa Suñer, María Prats, and Florencia Braga, "Influence of Personal, Professional and Cross-National Factors in Burnout Syndrome in Hispanic Americans and Spanish Health Workers (2007)," *Revista Española de Salud* 83, no. 2 (2009): 215-30.

111 Gustavo Nigenda and Luz Maria González, "Contracting Private Sector Providers for Public Sector Health Services in Jalisco, Mexico: Perspectives of System Actors," *Human Resources for Health* 7, no. 1(2009): 79.

112 LaFree and Tseloni, "Democracy and Crime."



to the population.¹¹³ Since the educational system often reflects the class structures of a country, this means students from certain socioeconomic groups are more likely to choose certain occupations. Many will choose the one that offers the best financial stability for their family as well as class advancement. Since health professions require “lifelong” learning, the education system and access to it are critical for sustaining quality HRH.

With the exception of the United States, most nurses from Mexico, El Salvador, Guatemala, and Honduras come from families of low socioeconomic status. These women and men are excellent examples of class advancement; they are often the first members of their families to go to high school or any kind of postsecondary education. Many are women who defied a parent and chose to get an education beyond the sixth grade, despite cultural prohibitions against female education. Nurses who come from middle-class families — few, because the middle class has long been so small in these societies — tend to progress rapidly in their careers, achieving graduate degrees and leadership positions by the time they reach their 30s and 40s. They often choose nursing despite their families’ desire for them to study medicine and become physicians. Men who enter nursing often face stereotypes, but the challenge shrinks when a bachelor’s degree commands a higher salary than would a technical degree.

Thus, for most people entering nursing in the countries highlighted here, their baseline education comes from public school systems or private schools of varying quality. The politics of K-12 education are complex and further complicated by historical factors involving access to education, teacher politics, union priorities, and the actions of elites that have facilitated or created barriers to public education access.

Most nurses from Mexico, El Salvador, Guatemala, and Honduras come from families of low socioeconomic status.

The lead author’s experience working with nurses in the Spanish-speaking countries highlighted in this report suggests that many nurses face basic literacy and numeracy issues. The mathematic preparation required to be a nurse is a minimum of Algebra I. Medication calculations are done using basic algebraic techniques, used to adjust dosages. Many nurses do not learn these basic algebraic techniques until they reach nursing school and may end up at a disadvantage. More importantly, if they lack these skills, or educational standards are not high enough, then students end up with poor competencies in this area and put their patients at risk. Therefore, teachers in nursing programs must have these basic competencies as well. A lack of formal nursing education program standards and accreditation processes — the mechanisms that would reduce these issues — threatens the quality of nursing human resources production.

In the United States, entrants into nursing programs need a minimum of two years of advanced high school math, which includes at least Algebra I and geometry. They cannot pass nursing programs without these basic math skills. BSN programs prefer to see candidates with at least three years of high-school-level math, preferably four. Students are also required to take a course in statistics as part of their general nursing education or as a prerequisite for entry. The statistics requirement exists so students can develop basic competencies in reading and critiquing health research to gauge whether it is appropriate for clinical practice.

The other basic educational competency area that needs further development is writing. The ability to write is a fundamental part of effective communication for entrance into nursing programs, career advancement, and, in the case of US nurses, a skill needed to document legally required patient-care

¹¹³ Frenk et al., “Health Professionals for a New Century.”

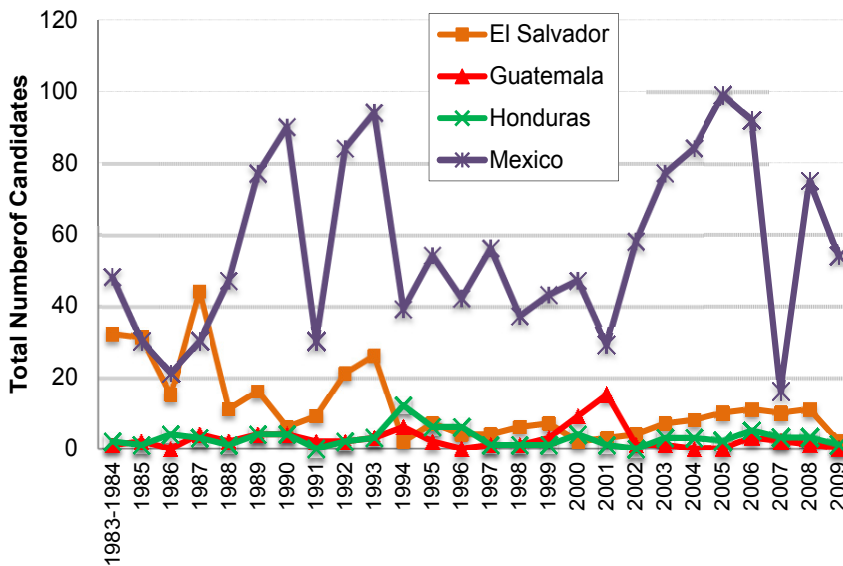


actions. Basic writing skills are also important when learning a second language, like English. Individuals with poor writing skills in their first language will have difficulty passing second-language assessment exams like the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). High passing scores on these exams (i.e. 7.0 on the spoken part of the IELTS) are now requirements for all nursing work visas in the United States; one reason for this change is that poor communication skills among IENs have been shown to put them at greater risk for committing or contributing to medical errors.¹¹⁴

A nurse’s ability to migrate depends on the basic quality of her education, but her reasons for migrating may be various. The two are closely linked, and the following figures explain how. Figure 5 illustrates the number of annual candidates from the four Spanish-speaking countries who passed the credentialing requirements to take the NCLEX-RN exam between 1983 and 2009. As Figure 5 illustrates, numbers from El Salvador, Honduras, and Guatemala since 1992 have barely reached 20 applicants per year.

When paired with economic data like GDP or when significant events — e.g., changes in a health care system’s retirement policy — occur, candidate numbers will change. To illustrate, Mexico’s 1987 economic crash appears to have prompted an increase in applicants that lasted several years, while the peso crisis of 1994 decreased numbers. Changes in Mexico’s health system retirement policy may explain the large increase in applicant numbers after 2002, along with multiple private-sector attempts to place Mexican nurses in the United States in the early part of that decade. El Salvador shows the effect that political stability has on migration, when applicant numbers dropped in the early 1990s after the civil war resolved.

Figure 5. Candidates Taking the US NCLEX-RN Nursing Licensure Exam in El Salvador, Guatemala, Honduras, and Mexico, 1983-2009



Source: National Council of State Boards of Nursing Annual NCLEX-RN testing data, 1983-2009: www.ncsbn.org/1232.htm.

Meanwhile, even as aforementioned analyses may explain drivers of migration, the historical pass rates on the NCLEX-RN illustrate the consequences of the educational system and the differences in nursing roles between the United States and Central American countries. Figure 6 shows the percentages of candidates who passed the exam over a 27-year period. The trendlines show the average by year to

114 Shen et al., “Effects of a Short-Term Linguistic Class;” Xu, “Transitioning International Nurses;” Xu, “Is Transition of Internationally Educated Nurses a Regulatory Issue?”



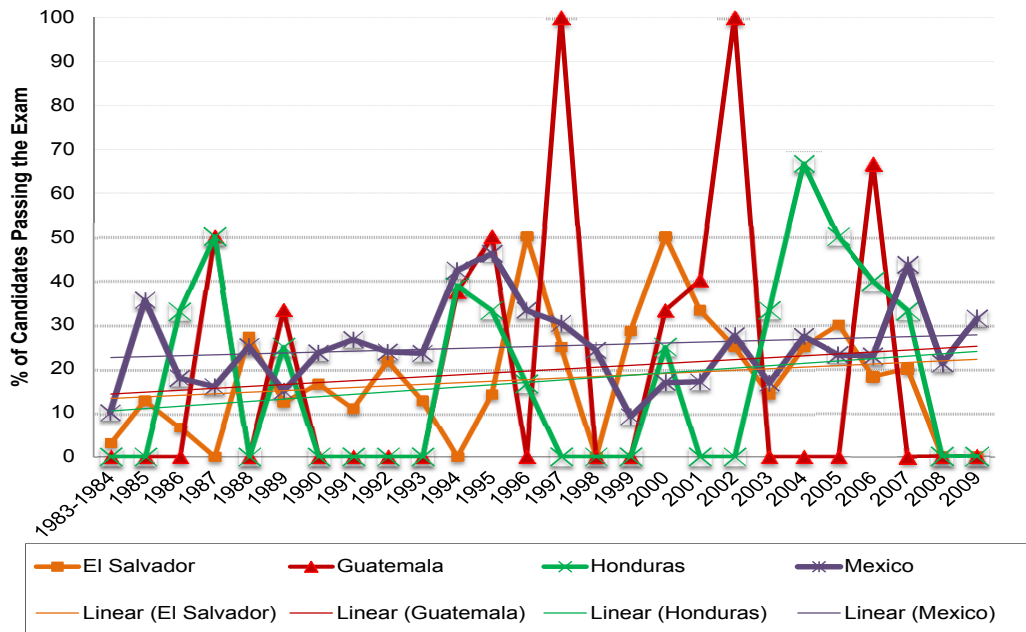
compensate for times when five or fewer candidates took the exam and passed that year.

Overall, the average pass rates show that only about 25 percent of nurses from these countries are likely to pass the NCLEX-RN. While not included here, data for Mexico from 2010 to 2012 will show significantly higher overall pass rates because the majority of Mexican nurses taking the exam in those years were products of NursesNow International (NNI), a company that prepared Mexican nurses for work in the United States through a transitional educational program. Section III discusses NNI as a case study in migration to meet health care demand.

The descriptive trends illustrated in Figures 5 and 6 warrant further studies that could determine the extent of the changes in applicant numbers and the relationship to contextual variables such as socioeconomic factors. Event analysis and ecological analyses (a technique used by epidemiologists to account for the influence of contextual variables like socioeconomic data on longitudinal trends) can effectively study these trends, while controlling for variation between countries.

For IENs and policymakers from the countries highlighted in this report, the challenge of passing the NCLEX-RN exam is best illustrated by the case of Puerto Rico. Since it is a territory from which individuals can easily come to work in the United States, developing the Puerto Rican bilingual nurse workforce would be logical. Historically, however, pass rates for Puerto Rican nurses have never surpassed 40 percent on the NCLEX-RN.¹¹⁵ These poor pass rates — despite the incentive for legal, well-paid work on the mainland — have two possible explanations. The first is the quality of nursing education; the second is English language ability. Without investments in either of those areas, NCLEX-RN pass rates will not increase. Puerto Rico provides a sobering example of how opportunity is often unmatched by investment.

Figure 6. Annual Pass Rates on the US NCLEX-RN Licensure Exam in El Salvador, Guatemala, Honduras, and Mexico, 1983-2009



Note: A country can have 100 percent pass rate if only one candidate took the exam and passed.
Source: National Council of State Boards of Nursing Annual NCLEX-RN testing data, 1983-2009.

HRH are affected by all of the contextual issues described above, and nurses are more acutely vulnerable to them than physicians. The contextual factors contribute to the shortage of registered and graduate prepared nurses in the countries, and their global competitiveness as nurses.

¹¹⁵ NCSBN 2011.



Case Study: Building Institutions to Train Nurses for Export

Strengthening the professional institution of nursing is a necessary step if nurses from the Latin American countries highlighted here are to become globally competitive. To illustrate this point, we will outline a case study of a private-sector venture attempting to work with Mexican nursing, educational, and health system institutions to prepare Mexican nurses for work in the United States. It also offers many salient lessons about the challenges of using migration as a way to meet health care demands.

The private sector has made numerous attempts over the past decade to prepare Mexican nurses for work in the United States, with varying degrees of success. Investors consistently see the opportunities inherent in professional migration, but are perhaps more cautious under the shadow of the global recession. One example of a private-sector effort to use migration to meet health care demand in the United States comes from NNI, a for-profit company that recently closed its doors despite a proven training model and promising business model.

NNI began under the best of circumstances in the mid-2000s when international nurse migration was peaking. A Mexican national with a Harvard MBA spent two years developing an idea to promote circular migration of Mexican nurses through long-term staffing placements in US hospitals. Mexican nurses working for NNI would get placed on three-year contracts to work as nurses in US hospitals under trade negotiation visas (available through the NAFTA in unlimited quantities, yet underutilized by nurses). Time spent working in the United States on the visa would not count toward citizenship. The business model was also politically palatable since nurses would have legal work options but not receive permanent residency due to TN visa restrictions. Global concerns about brain drain and health care professionals in general would not affect NNI's business model since it was designed to prepare a maximum of 80 nurses per year. Even if it achieved maximum production capacity, it would not adversely affect the nursing workforce in Mexico. NNI would encourage nurses to return to Mexico during their time spent working in the United States and, eventually, would bring them back to work in capacity-building activities for the Mexican nursing profession. Another goal of NNI was to facilitate cross-border knowledge exchanges between US and Mexican hospitals and nursing communities, further adding to the uniqueness of its approach.

The CEO then found his business partner, the chief operating officer (COO), through old university connections. The new COO was also a Mexican national, educated at the Instituto Tecnológico de Monterrey, with graduate work completed at the London School of Economics. The COO's most recent experience was running an educational exchange and business internship program for Mexican university students, thus making him the ideal person for navigating the complex credentialing process required for an IEN. The final business partner was GlobeMed Industries, an experienced international health-staffing agency that had successfully imported Indian nurses to work in the United States for a decade. The partnerships and business model all fell into place by early 2008. A venture capital firm provided the majority of financing for the project, along with several other smaller investors.

The company began to recruit Mexican nurses for its first class. The uniqueness of NNI's model compared to previous attempts was to prepare Mexican nurses through a full-time, Transitional Education Program (TEP) specifically designed (initially by the CEO, not a nurse) to address the nursing role differences between the United States and Mexico. To ensure minimal time conflicts, nurses participating in the program would receive a monthly stipend of about \$650 — a salary 50 percent greater than what they would earn in a private hospital as a staff nurse and about 30 percent less than what they would earn in a public hospital. NNI hoped this would ensure that the nurse could commit the time to the program and balance family demands without the additional distraction of another job. Many nurses still worked another job despite the stipend, a phenomenon quite common in the profession, regardless of job type.

Serendipitously and only a few months after NNI opened its doors for business, a US nurse with extensive, in-depth knowledge of Mexican nursing happened to land on their doorstep as she was conducting research



for another project. With a Yale PhD, a decade of US hospital nursing and education experience, and a long history of periodically living and working in Mexico rounding out her credentials, NNI immediately hired her to strengthen their program. In collaboration with two other exceptional US nurses from the top nursing school in the country (University of Pennsylvania) who also had experience living in Mexico, it took four iterations of the program for the company to achieve first-time pass rates on the NCLEX-RN exam equivalent to those of US nurses.

During TEP's evolution, and out of necessity due to the lack of English skills among Mexican nurses, NNI also developed a "Nursing English" program designed to address the significant language gaps Mexican nurses faced when preparing for the US licensure exam. NNI began offering low-cost, nursing-schedule-friendly English as a Second Language (ESL) classes for nurses in the Monterrey area within one year of its opening, discovering that there was a significant market for these classes. NNI also offered to provide ESL teachers to nursing schools *for free* if the schools provided the classroom space. Fewer schools than anticipated took advantage of the offer, mostly due to internal politics and concern that making their nurses bilingual would cause a massive brain drain.

Nonetheless, the final version of TEP included three months of intensive nursing English, a ten-week classroom-based program with US nursing teachers, and a six-week preceptor-led¹¹⁶ clinical practicum in a Dallas-area hospital where they would apply what they had learned in the classroom with live and simulated patients. Upon completion of the program, nurses generally passed the NCLEX-RN exam within four months. US hospital placement occurred as jobs became available.

In many ways, it seemed like the business, a cross-border collaboration of the best kind, was destined for success. The Mexico-based team had drawn the best talent from across disciplines, all comfortable adapting to changing landscapes and out-of-the-box thinking. NNI had the blessing of Mexican nursing professional entities, US and Mexican government officials, and strong private-sector support. While the process was hard work, the incentives — both in human-capacity-building rewards and financial — drove the business forward, capitalizing on the energy of a young and highly educated Mexico-US team.

Some things, however, no business plan can account for — and in the end, the combination of events would mean NNI would shut its doors as a for-profit entity. Reflecting the interconnected nature of business in the 21st century, these factors include global economic events, Mexico-specific challenges, and a changing US nursing labor market.

The 2008 economic crisis had repercussions for the US health care system that NNI could not have anticipated. With financial purse strings tightening and increasing unemployment, US hospitals slowed their hiring of nurses to a trickle. For the first time in a decade, graduates from US nursing programs encountered difficulty finding employment (often taking an unprecedented six to nine months).¹¹⁷ Experienced nurses who had worked part time for years switched back to working full time so they could receive benefits that a now-unemployed spouse had previously carried for the family. These nurses, many from the baby-boomer generation, also had to work full time to make up for substantial losses to retirement portfolios that now would delay their retirement.

The international nurse staffing industry in the United States, meanwhile, nearly died as a result of the 2008 economic crisis. Those firms that survived had the extensive infrastructure needed to support them through economic downturns. Hospitals previously open to hiring IENs found themselves with more US-educated applicants than ever before, thereby removing the need to hire IENs to supplement staffing. Even long-term-

¹¹⁶ A preceptor is a skilled practitioner or faculty member who supervises students in a clinical setting to facilitate practical experience with patients. See Florence Myrick and Olive Yonge, *Nursing Preceptorship: Connecting Practice and Education* (Philadelphia, PA: Lippincott Williams & Wilkins, 2005), 4.

¹¹⁷ Auerbach, Buerhaus, and Staiger, "Registered Nurse Supply Grows Faster."



care facilities found themselves with more US applicants than they had historically known, as nurses sought experience and paid work with benefits. The cost of IENs also became a factor in hospitals' hiring calculus. Research from the past decade showed that such a hire could cost a hospital an additional \$20,000-\$30,000 more than a US-educated nurse (and sometimes even more). These additional costs included placement fees to staffing agencies and orientation programs to address the knowledge gaps and role differences now found to affect IEN performance on the job.

Even though NNI's business model ensured their nurses would not incur any additional costs beyond those experienced by a hospital hiring a new graduate nurse,¹¹⁸ previously wide-open markets for IENs had closed or narrowed significantly. A placement period previously forecast as one to three months increased to between six and twelve months. The longer the Mexican nurse had to wait for placement, the greater the risk to NNI as a business. A Mexican nurse, newly bilingual in English, would lose her hard-won fluency without the ability to use the language on a daily basis. Without clinical practice opportunities, the nurse ran the risk of losing the new skills gained through NNI's program. The longer the nurse had to wait for placement, the less attractive she would become to the US hospital.

From a financial perspective, this also meant that NNI's ability to be independently financially solvent was further delayed and required continuous infusions of capital to keep the program running. It was thought that GlobeMed's experience in the industry would mediate the effects of the crisis since it could capitalize on previous business relationships in Texas and other parts of the country. The problem, however, was that Globe Med had always operated in a "growth" environment with high demand that made its operations very easy. It never had to think imaginatively or try alternative models for approaching health care facilities. Globe Med's inability to adapt would prompt NNI's closure in the coming years.

Despite the events of 2008, NNI's first class of nurses started in the program in January 2009 and would face another major obstacle later that year when swine flu emerged in the world, with many of the worst cases in Mexico. NNI had to shut down operations for nearly a month, first, because it could not risk students transmitting the infection among one another and, second, because the Mexican health system needed extra help to ensure its stability during the influenza crisis, and drew many nurses back to work for a short period. The flu was also a public relations challenge for NNI, since it had to work closely with its US partners to mediate the fears of nurses coming to work in the country.

With health care reform and the economic stimulus passed by early 2010, US hospitals began to slowly increase their hiring rates — at least for domestic nurses. Many stimulus funds benefitted hospitals and helped to offset the growing number of uninsured people (due to higher unemployment rates) who needed medical treatment. NNI saw its first nurses placed in public hospitals along the Texas border and in the Houston area, an ideal fit for their nurses because of these locations' large Hispanic populations.

The company then encountered the reality of hospital operations during the placement cycle. While the business details for NNI's model had been carefully researched, hospital operations details had not. Financial models that projected growth estimates did not account for hospital hiring patterns. To explain, US hospitals require all new employees to go through an orientation period; for nurses, this period can last from eight to twelve weeks. Programs rarely begin in December, during economic downturns, because staffing during holiday periods is challenging enough without managing new hires. July represents a peak new-hire period when not only new nurses, but also new medical residents, begin work. Given the history and occasionally unique

¹¹⁸ US hospitals spend between six and 12 weeks providing orientation to new hires. This probationary employment period ensures that the nurse is safe to practice and can handle the care demands of the patient population. New graduate orientation programs are the most expensive and extensive. Variability in nursing education has created the need for these programs, which can cost a health care facility anywhere from \$25,000 to \$65,000 per nurse in nonproductive time, sometimes more. A new graduate nurse needs to work for the facility for at least two years to make up the costs. Since nurses are most likely to leave their first job in the first two years, that means hospitals with poor retention programs can incur significant costs related to hiring new graduates.



challenges of orienting internationally educated nurses, NNI found itself with nine months of the year when nurses could begin working. These periods did not always match when NNI's program graduates became ready to work in the United States. The longer a candidate had to await placement after completing TEP, the more likely he or she would be to lose his or her new skills.

Further complicating an NNI graduate's readiness to work was the process of obtaining educational transcripts from the candidate's nursing program(s). With the exception of graduates from three Mexican nursing programs (the Escuela Nacional de Enfermería y Obstetricia at the Universidad Autónoma de México in Mexico City, the Universidad Autónoma de Nuevo León in Monterrey, and the Universidad de Morelos, also in Nuevo León), all other programs did not know how to make an educational transcript acceptable for an international credentials evaluation. Not willing to let a simple issue like that become a barrier, NNI sent consultants to the programs to help guide them through the process.

Despite their efforts, other delays around processing transcripts emerged. Perhaps one of the most absurd examples was seen at a university where the dean of the medical school¹¹⁹ was retiring, so all affiliated clerical staff, who might normally create a transcript, were otherwise occupied with transcribing his biography. Additional transcript challenges included inaccessible records due to the year of the candidate's graduation (more common with candidates who graduated before 1995), inability to verify the candidate's attendance, and other administrative issues that could delay the candidate's work eligibility by 1 to 15 months. The costs for transcript processing ranged from \$40 to \$850; in one case the company was charged \$1,500.

Once the paperwork was collected and organized in Mexico, the US credentials evaluation began as required by law. Credentials evaluation on the US side is known to be cumbersome and inefficient. It includes verifying nursing candidate educational records, comparing them to US requirements, and determining if the candidate meets work visa requirements. The Commission on Graduates of Foreign Nursing Schools (CGFNS) had a market monopoly on credentialing nursing personnel that was politically well protected. They had approved a few external credentialing agencies, one of which NNI used. Even that agency proved problematic because of internal politics related to how the company was managed. The credentials evaluation process is expensive for an individual or company. Regardless of where the evaluation occurs, customer service is poor and operations appear designed to discourage immigrants from applying.

CGFNS, however, experienced significant revenue losses after the 2008 economic crisis as applications dropped from across the globe. Its long-term viability as an agency depended on how it could respond to market changes. For NNI, CGFNS was the last alternative since its credentials evaluation costs were the most expensive and their process took the longest (six to eight months). It would also not credential anyone without a bachelor's degree. It was not clear if this was internal policy or due to some issue with the education of the nurses. NNI was never able to obtain an answer since CGFNS did not respond to inquiries about individuals.

Credentials evaluations provided a few difficult lessons for NNI. First, candidates without bachelor's degrees, overall, found it harder to obtain approval for NCLEX test permissions and work visas. NNI tried to target only BSN nurses for their program, but these had an easier time obtaining jobs in Mexico's health care system and were harder to recruit. The pool of candidates for that category was much smaller too, since less than 10 percent of all Mexican nurses had a bachelor's degree.¹²⁰

Another issue that arose late in NNI's existence was candidates' previous histories living in the United States. NNI had no way of verifying if candidates had previously lived in the United States, legally or not. As it turned

119 It is not uncommon for medical schools in Latin America to govern nursing schools under a very- old-fashioned and often paternalistic model steeped in gender dynamics. Consequently, autonomous governance is a goal of most nursing schools in the region.

120 Nigenda et al. "Enfermeras con licenciatura en México," Yetzi Rosales-Martínez, Gustavo Nigenda, Omar Galárraga, and José Arturo Ruíz-Larios, "Expectativas de migración internacional en estudiantes de enfermería en México, Distrito Federal" [Migration expectations among nursing students in Mexico City], *Salud Pública de México* 52, no. 3 (2010): 244-53.



out, one of the first candidates NNI sent to the United States for work did not have her TN visa renewed after three years because the previous time she had lived in the United States, she had been there illegally. She had to return to Mexico and leave her US-born children behind with relatives.

The final issue that affected NNI's success was investor expectation. Managing investors is a key function of the senior administrative team. The initial business plan for NNI projected a healthy return on investment within three years. The operation was projected to be self-sustaining within two to three years once placement had begun. It assumed that a certain number of nurses would get placed in hospitals every year. After the second year, when only ten nurses were placed and over 30 had graduated from NNI's program, it became apparent that it would take much longer for placements to occur. Pressure from investors understandably increased, but HRH capacity building takes time and must cope with the inevitable variability that comes with human beings.

After year three, it had become apparent that the investors expected this business to produce a return similar to a "killer iPhone app" — where investment in product development was minimal but returns were high. The original CEO was fired at the close of year four. The operations team in Mexico still believed NNI could succeed, but it would take two to three more years before the current business model could provide a return. The investors pulled out in the summer of 2012.

A debriefing after the business closed provided the following conclusions. In general, long-term placement models were not attractive to US hospitals, so it would be difficult to generate profits from staffing contracts. Nor was the US retiree population in Mexico large enough yet to provide an employment market for bilingual Mexican nurses. A not-for-profit model might be the most viable operational model because of changing markets.

Combine the challenges described above with changes in the US nursing labor market, and migration to meet health care demand becomes what might be an unapproachable challenge for the private sector seeking a profit. Nonetheless, while the economic slowdown has slowed the rate of hiring, health-care has consistently increased the hiring of nursing personnel for the past three years and is projected to be a growth sector for the next two decades.¹²¹ Concordantly with the domestic demand for nurses, in the past five years US nursing school enrollments have soared and graduates have flooded the market. A recent study by Auerbach et al.¹²² shows that enrollments of nursing students in their mid-twenties have now reached replacement levels — meaning that enough will nurses will graduate and work long enough to replace those most likely to retire in the next five to ten years. Hospitals can and will be able to pick and choose from the highest-quality candidates to fill their vacancies. Even rural areas have an easier time hiring new graduates, though they still have trouble retaining them for more than two years. The demand for IENs, therefore, has dropped as domestic production has become stable.

A niche market remains, however, for bilingual nurses. The US health care system needs these nurses to reduce health care disparities in non-English-speaking minorities, address system access issues in these populations, and improve the quality of care received by non-English speakers. Even though Hispanic enrollments are increasing in US nursing programs, they represent 3 percent of all US nurses and there are no reliable statistics about their level of Spanish-language competence. In some regions of the country, the diversity of the Latino population in the United States also means that linguistic variations in accents in this group may mean even Spanish speakers may have some difficulty communicating with one another. NNI, in that case, had an excellent opportunity to fill that niche gap in the labor market.

A linguistically concordant visa system would also broaden the market for IENs and lessen the focus on nurses from English-speaking countries. As an initiative, it could mediate the worst-possible effects from the "brain drain" phenomenon by expanding the recruitment market. It could also create the incentive for different countries to invest more sustainably in developing their nursing workforces.

¹²¹ Auerbach, Buerhaus, and Staiger, "Registered Nurse Supply Grows Faster than Projected."

¹²² Ibid.



In the end, NNI produced two major contributions to the INM world. First, the development of its proven Nursing English program and the success that it had with developing fluency in non-English speakers made a marketable product that could be expanded throughout Latin America. Further development of that business model, in light of the nurses' incomes and nursing program resources, would need further study. The second contribution was its TEP model. Hospitals who received NNI nurses indicated that they did not have to implement special programs nor make additional investments in NNI's nurses, beyond those normally required for a new graduate nurse. That suggests that TEP may provide a viable screening and preparation (both clinically and linguistically) mechanism for IENs seeking to migrate for work in the United States.

G. Anticipating Demand from Medical Tourists and Expatriate Communities

How does medical tourism fit in to a discussion about nurses and migration? The relevance to the conversation comes from the need to harmonize health insurance regulation, health care professional credentials, and hospital quality-of-care standards across borders to care for migrant workers, patients, and tourists alike.

Medical tourism involves (1) individuals traveling abroad to receive treatment for a specific issue and (2) individuals who are traveling or living in another country and who need medical care, usually urgently. Some regions of the world (for example, the European Union) are striving to standardize health care-provider education, language competency, and the accreditation of health care facilities across borders. Migration of health care workers in the region is already common; clients who can pay seek care in the country they perceive as having the best quality of care. The latter, it is important to note, does not always translate into the least-expensive care.

In the case of the United States, proponents view medical tourism as a cost-effective solution to the constantly rising costs of care. It extends the concept of "choice" in health care providers across borders. Opponents express concern about follow-up care, and international accreditation standards that are not equivalent across countries. The phenomenon is also completely unregulated, leaving patients with little or no recourse in the event of medical mistakes.

Nonetheless, private hospitals in some countries are seeking accreditation by the Joint Commission for Accreditation of Health care Organizations (JCAHO).¹²³ JCAHO accredits US hospitals to ensure they meet specific standards that ensure a certain level of quality in health care service provision. The accreditation is optional for US health care facilities, and expensive. Medicare does provide higher reimbursement rates to JCAHO-accredited facilities as an incentive. While many of JCAHO's standards duplicate state hospital regulations, its emphasis on quality processes (including nurse staffing standards) addresses a regulatory gap.

JCAHO has expanded its accreditation services internationally. The international arm is called the "Joint Commission International" (JCI). For medical tourism, JCI fills one part of the regulatory gap and provides accreditation to hospitals outside the United States who may receive international patients who are medical tourists. JCI accreditation provides a minimum set of standards for the facility and can assure both insurance companies and patients that minimum quality standards have been met.

¹²³ For more information about JCAHO and JCI, see The Joint Commission, www.jointcommission.org/.



It is important to note that JCI standards for nursing services are not the same as they are in the United States. For example, JCAHO requires a minimum staffing level for registered nursing personnel on different inpatient units; JCI does not. JCAHO also requires personnel competency assessments on an annual basis; JCI does not. JCI's watered-down standards for nursing are notable. Nursing roles and the quality of nursing care is not the same in every country. In developing countries nurses do far less than nurses in the United States; have more patients, on average, under their care (even in private facilities); and have less responsibility for patient outcomes. This is a concern because hundreds of studies have demonstrated that the number of nurses and their minimum level of education make a significant difference in patient outcomes, especially surgical outcomes. (Comparable studies have not taken place for developing countries.) Since most patients seeking care abroad are undergoing surgical procedures, it means that nurses are a key part of a country's ability to develop a medical tourism industry. Arguments in support of medical tourism fail to factor in the quality of nursing care provided to patients while abroad.

In the case of the United States, proponents view medical tourism as a cost-effective solution to the constantly rising costs of care.

Mexico is the only other study country capable of supporting a medical tourism industry involving receiving patients. Guatemala and Honduras have too little political stability and health care systems that need substantial investment in physical infrastructure, HRH, and technology to provide standards of care at the level required for JCI accreditation. Private hospitals in those countries might be able to meet those standards, but nursing services will not. El Salvador has potential to develop a medical tourism industry since its stability is longer lived yet it still lacks the necessary investment in HRH to be sustainable at this time. Gang-related violence also threatens to tarnish any perception of the country's hard-won stability.

Mexico can support a medical tourism industry for several reasons, primarily because its general tourism industry is already well established. First, private hospital care has a long history in the country and has catered to the wealthy elite of Mexico for decades. These same hospitals have actively sought and received JCI accreditation. Second, Mexico's proximity to the United States makes it a more palatable trip than a fourteen-plus-hour flight across the world to India or Thailand. In the event of complications, a flight to Houston — where many Latin American elites go for complex surgical procedures and cancer care— is rarely more than three hours.

The final piece that makes Mexico suited for medical tourism is the number of US and Canadian expatriates living in the country. While numbers are imprecise, estimates put the combined population at well over 1 million people. Many of these individuals are retirees who are drawn to the good weather and inexpensive cost of living. The Mexican government is also investing heavily in building retirement communities geared toward North Americans. The sustainability and profitability of these communities will depend on Mexico's ability to provide health care services to the aging populations living there.

There are two domestic threats to the developing industry in Mexico. The first is obvious; the second is not as well known. Drug-related violence in northern Mexico and some beach resorts has already deterred millions of tourists from the country during the past five years. Retirees will not move into retirement communities if they perceive a safety threat and cannot rely on the police to address even petty crimes. The second threat to the industry is the lack of bilingual nurses. While it is fairly easy to find a bilingual Mexican physician in the country, bilingual nurses are few and far between. Since the services that most retirees will need as they age can come from nursing care, and nurses are the most cost-effective sources of care delivery in these communities, the lack of bilingual nurses in Mexico poses a barrier to medical tourism development.



In conclusion, medical tourism has potential for development in the region, with Mexico leading the way. Investments in developing bilingual skills in nursing personnel will be essential for success, along with the fostering of JCI accreditation. None of this will be possible, however, unless the issues related to drug violence — including US demand for illegal drugs — are systematically addressed in all the countries cited in this report.

*Medical tourism has potential for development in the region,
with Mexico leading the way.*

IV. Implications

Countries seeking to help their nurses migrate for additional job opportunities can find themselves in a complex but win-win situation. Improving capacity would require decades of investment in the education and health care systems by state, international, and private-sector actors. The initial investments first pay off domestically through improved health outcomes and system functioning, before workers are capable of migrating and sending remittances. In the long term, investments in nursing personnel are investments in women and marginalized minorities that go toward reducing socioeconomic inequality, improving education and health care and improving overall population health profiles — to name just a few benefits. The current state of nursing personnel production in El Salvador, Guatemala, Honduras and Mexico clearly illustrates what happens when there is insufficient investment.

A. Policy Recommendations

The following are eight recommendations for improving nursing personnel production in these four countries, with an eye toward a sustainable cross-border supply of health care demand that enables increased remittance flows.

Recommendation No. 1: Improve Educational Access

The development of nursing human resources hinges on *improving educational access at all levels* and ensuring that education remains accessible (financially) after completion of basic professional-level education. Most of the study countries have made substantial strides in primary and secondary education, but nursing human resources production will not improve without ongoing and increased investment. Setting national goals for minimum competencies for graduates (that is, math skills, writing in both the native language and English as a Second Language (ESL), arts, and basic sciences) is an important step toward producing high school graduates with the necessary skills to become nurses.

Access to that educational opportunity should occur at any age. Nurses over the age of 35 should be able to return to school without facing admissions discrimination, especially if they are now expected to work until 60 or 65.

Nursing education must also have a firm place at the tertiary level; a bachelor's degree should be accessible to anyone without one, or to those with just basic auxiliary level nursing training. The university-based bachelor's degree is the "gold standard" for international equivalence, and the easiest way to verify credentials for legal work across borders. Graduate education must also be developed; teachers must be adequate, both in number and in up-to-date knowledge.



Key actors for policy initiative: Ministry of health officials, ministry of education officials, nurses, nurse educators, politicians, nongovernmental organizations (NGOs), faith-based organizations.

Recommendation No. 2: Create or Strengthen Existing Accreditation Bodies for Nursing Education Programs

As access expands, however, countries also need to make sure that the education that nursing personnel receive produces quality graduates who can provide safe care to patients, both domestic and international. Strengthening accreditation bodies — or creating them where none exist — will improve a country’s capacity to produce nurses capable of migrating for work abroad and meeting international standards for service provision. Making these bodies independent of state, union, and professional associations will also strengthen their ability to conduct transparent and credible work.

Key actors for policy initiative: Ministry of health officials, ministry of education officials, nurses, nurse educators, politicians, NGOs, faith-based organizations, international regulators of health worker migration.

Recommendation No. 3: Develop Comprehensive ESL Programs

The final strategic investment that relates to education is developing comprehensive ESL programs for students, starting at the secondary school level and ending with programs for working nurses. Implementing programs at the secondary level helps ensure that the next generation has the bilingual skills they will need. Developing ESL programs for nurses will build the capacity of the current working generation. Whether or not these nurses migrate for work, the country will benefit from the investment because these nurses will be able to read international research literature and improve the quality of care delivered domestically.

Key actors for policy initiative: Ministry of health officials, ministry of education officials, nurses, nurse educators, politicians, NGOs, faith-based organizations, ESL teachers, international regulators of health worker migration.

Recommendation No. 4: Standardize Transcripts

As illustrated in the NNI case study, a simple transcript can prove to be a big barrier to credentialing and migration. Universities and nursing programs will need to develop a standardized transcript that meets international credentialing standards. Strengthening credentialing processes will also go a long way toward facilitating migration and avoiding the pitfalls of “brain drain.” First and foremost, nursing programs (especially BSN programs) will need to standardize what a transcript looks like, provide university support for transcript processing, and standardize fees so that extortive amounts are not charged to individuals or businesses during processing. Standardized credentialing across countries might also facilitate nurse migration within the region and facilitate capacity building.

With this change may also come additions to nursing school curricula and a need for additional resources. For example, it is common for nursing schools in many developing countries to not include a course in psychiatric and mental health nursing. That course, at least for work in the United States, is a required educational component.

Key actors for policy initiative: Ministry of health officials, ministry of education officials, nurses, nurse educators, international regulators of health worker migration.



Recommendation No. 5: Certify Nurses to Work with Expatriate Communities

Another step in strengthening credentials would be to create a specialty certification for nurses who might work for elderly, expatriate populations in the region. Certification would evaluate candidates' entry-level education, minimum English-language communication standards (not necessarily at the level required for migration), and employment history. The certification would be a way for employers to determine if the nurse would be able to effectively manage the health care needs of and communicate with potential expatriate clients.

Key actors for policy initiative: *Domestic professional regulatory bodies, nurses, nurse leaders, expatriate organizations, legal experts in migration and credentialing.*

Recommendation No. 6: Create Preferential Visas for Nurses with Specific Language Skills

Nurses are at the forefront of patient-provider communication in the hospital setting and contribute significantly to ensuring adequate care is received in the primary care setting. Managed migration has the potential to address the constant communication gap between providers and patients that has persisted for decades in the US health care system. This could happen through a *preferred visa system*, where nurses who speak a language that matches a community that serves a large number of non-English-speaking immigrants receive priority for work visas. In the past, visas for nurses went to whoever applied and successfully passed the credentials evaluation. That system contributes to brain drain and disproportionately burdens a select group of countries, mostly English-speaking ones.

These visas should go only to nurses with bachelor's degrees. By setting the BSN as the minimum standard for migration, the policy would encourage education investment in the sending country as well as set up the nurse for career advancement.

Key actors for policy initiative: *Trade experts, migration experts, human rights experts, nursing professionals, legislators (home country and receiving country).*

Recommendation No. 7: Create Transitional Educational Programs

Nurse researchers in the United States are calling for the creation of transitional education programs for internationally-educated nurses, like those that already exist in Canada, the United Kingdom, and Australia.¹²⁴ The success of Nurses Now International in preparing Mexican nurses for work in the United States showed the value of transitional education programs (TEPs) for placement agencies and receiving institutions alike. A certificate from a TEP could supplement a transcript or serve as its equivalent in the credentials evaluation process. Organizations offering a TEP to IENs could be accredited and periodically audited by CGFNS to streamline the overall process.

In an additional quality assurance check, a TEP allows the placement agency to conduct a detailed evaluation of the potential migrant. It saves the receiving institution orientation costs by ensuring that IENs need not be separated out from US-educated new hires. Cost analyses of the programs, however, will need to occur to determine who bears the additional costs a TEP adds to the migration process.

Key actors for policy initiative: *International recruiters, CGFNS, nurses, nurse educators, legal experts, financial experts, migration regulators.*

¹²⁴ Yu Xu and Flora He, "Transition programs for internationally educated nurses: what can the United States learn from the United Kingdom, Australia, and Canada?" *Nursing economic\$* 30, no. 4 (2012): 215.

**Recommendation No. 8: Create Legal Work Options for “Hidden Nurses”**

Nursing students. Graduates from nursing programs who have their BSN but who do not have a legal means of work because of their immigration history could

be granted TN visas through NAFTA as part of the *DREAM Act*¹²⁵ or other legislation. Students would need to demonstrate proof of graduation from a US high school and bachelor’s degree in a nursing program in order to qualify. The TN visa mechanism, because it does not provide credit toward citizenship, may prove more politically palatable. Stipulations in the visa, like working for two or three years in a community that is at least 25 percent Hispanic, would target job opportunities in areas of the country where a bilingual nurse would best benefit patients and have the potential to reduce health disparities in local communities.

Aides. To capitalize on an underutilized workforce and improve access to primary care services, unlicensed nurses from Latin America living in the United States may offer a unique solution. A “grand aide,” as proposed by Garson et al.,¹²⁶ facilitates access to primary health care in low-income populations through a combination of telephone calls and home visits. Registered nurses supervise the role. Tests of the model with Medicaid patients in Texas reduced systemic costs by 62 percent; salaries (\$15-\$22 per hour) were easily covered by the cost savings they generated.

In addition, putting unlicensed nurses from Latin America in these roles could offer a legal means of work similar to that experienced in their home country. Their foundational nursing education provides them with a stronger knowledge base than most medical assistants or nurses’ aides trained in the United States. Additional training needs would be minimal. Their Spanish-language skills also would help facilitate access to the health care system in populations with known health disparities. Since the educational qualifications of a grand aide do not meet any requirements for a TN visa, legislators and advocates would need to create another legal work option.

Key actors for policy initiative: *Primary care organizations, nursing organizations, community colleges, legal experts, legislators, migration regulators, hospitals.*

125 The bipartisan *Development, Relief, and Education for Alien Minors (DREAM) Act*, which has been introduced in the U.S. Congress in various forms since 2001, seeks to provide a path to legalization for eligible unauthorized youth and young adults, allowing individuals to apply for legal permanent resident status on a conditional basis if, upon enactment of the law, they are under the age of 35, arrived in the United States before the age of 16, have lived in the United States for at least the last five years, and have obtained a US high school diploma or equivalent. The conditional basis of their status would be removed in six years if they successfully complete at least two years of post-secondary education or military service and if they maintain good moral character during that time period.

126 Garson, “A New Corps of Grand Aides has the Potential.”



B. Suggestions for Future Research

There are multiple and needed opportunities for future research on managed migration, nurses, and health services in the region. Had more independent studies (meaning nonstate or Pan American Health Organization [PAHO]/WHO reports) about nursing human resources been available for the Central American countries involved in this study, it would have added another dimension to the report. Nonetheless, the dearth of information provides an excellent starting place. We make our recommendations by topic and country:

1. Multicountry Studies

Econometric studies of the links between nursing personnel production, socioeconomic indicators, and health outcomes are needed for Mexico and Central America. These studies would help to determine strategic investments in domestic health services delivery and medical tourism services.

Longitudinal studies examining the links between trends in INM, social and political events, and other drivers of migration are also needed. At present, INM is mostly understood at the individual level. Researchers in nursing and social sciences have yet to tackle a longitudinal study that can examine how socioeconomic and political events drive migration (e.g., are affected nurses prompted to migrate right away or within several years?).

2. Mexico, El Salvador, Guatemala, and Honduras

In-depth, mixed-methods case studies of nursing human resources in Guatemala, El Salvador, and Honduras would help target investment needs in professional education. Squires completed such a study for Mexico in 2007,¹²⁷ but numerous changes have since occurred in nursing and an update is needed.

Ongoing research efforts in the United States ensure that nursing workforce studies at the organizational through the national level will continue to occur. These same studies can and should be replicated in the other study countries. The more evidence there is that nursing roles in other countries produce equivalent, positive patient outcomes, the easier the credentialing process will become.

3. United States

For the United States, it will be important to examine the impact of the ACA on the nursing workforce to see how it shifts service demands and production. The US nursing research community is well positioned to conduct such studies, but funding mechanisms need to improve in order to support them.

Other studies examining the differences in patient outcomes between hospitals where nurses speak the same language as patients, compared to those where they don't, would also be useful. These studies would demonstrate the actual need for bilingual nurses and provide greater detail about consequences to patient outcomes.

Finally, feasibility studies for implementing a preferential visa for nurses, based on language capacity, would be a good first step prior to developing policy and the legislation to implement it.

¹²⁷ Squires, *A Case Study of the Professionalization of Mexican Nursing: 1980-2005*.



V. Concluding Remarks

This report has sought to highlight clear areas where socioeconomic investments in nursing and health care services have the potential to generate very high returns on investment. These returns have the potential for significant domestic payoffs. The impacts, however, require further study.

The NNI case study suggests that migration as a strategy to meet health care demand is not impossible, but may be improbable under current global economic conditions. The private sector could exercise its speed and creativity to create different enterprise models, lasting perhaps seven to ten years, to address this social issue—yet the risks and rate of returns are clear in this report.

Finally, if this report communicates anything, we hope it is how complex and interconnected the production of nursing human resources is in any country. An investor or policymaker who assumes a “nurse is a nurse” no matter where she comes from is naïve. The eight recommendations offered in this report, if acted upon even in small ways, have the potential to improve the flows of people and resources among the study countries.

*An investor or policymaker who assumes a “nurse is a nurse”
no matter where she comes from is naïve.*



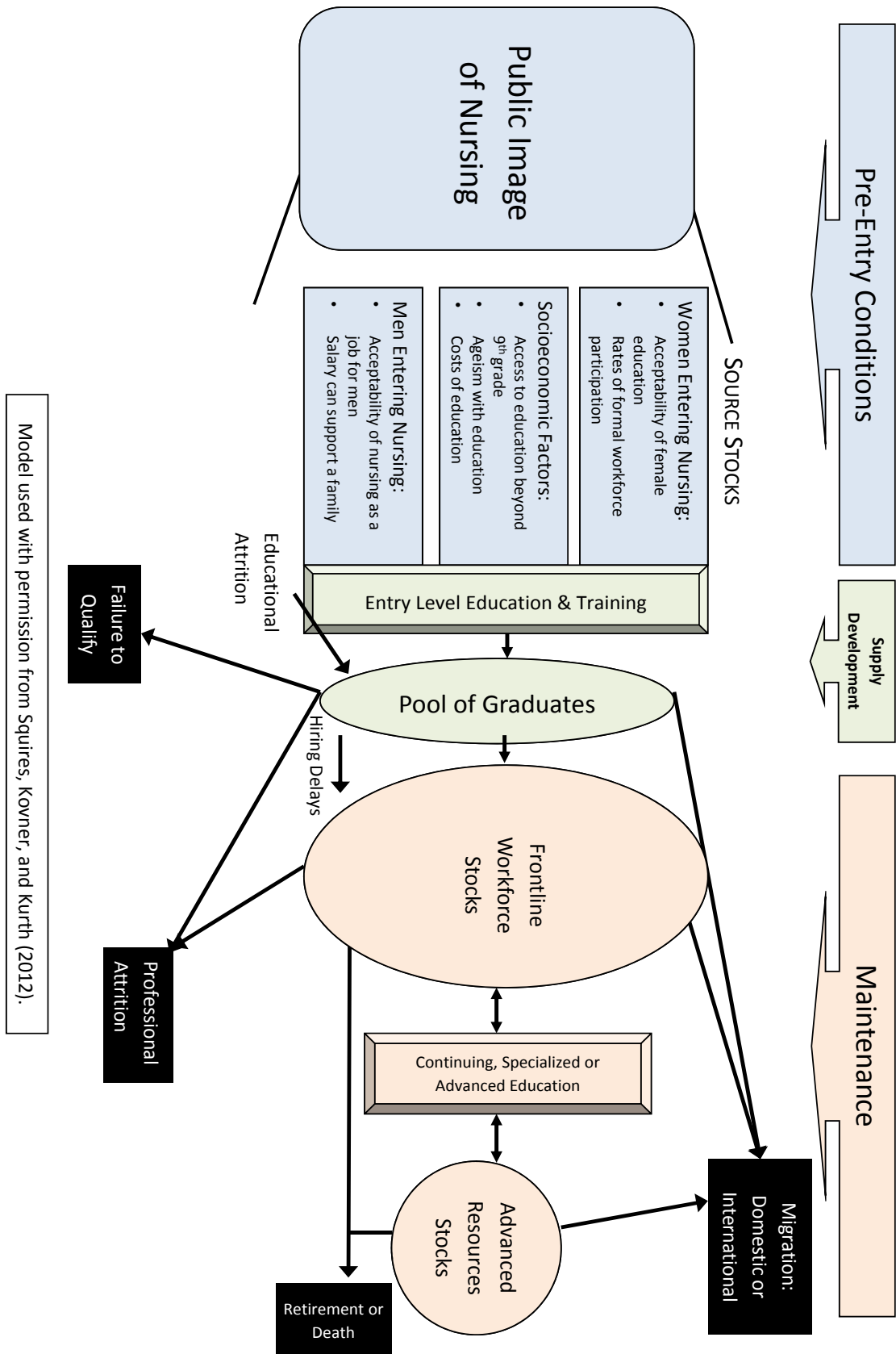
Appendices

Appendix A. Levels of Nursing and Midwifery Human Resources

Type of Nurse	Basic Training Time	Notes
Nursing Assistant / Nurse's Aide / Auxiliary Nurse / Patient Care Technician / Patient Care Assistant	2 weeks to 1 year	Minimum education for entry will vary by country and can be as low as sixth grade or require a high school diploma; it is not uncommon to “grandfather” in workers in this category into higher levels of nursing personnel in countries with critical shortages. In the United States, they are frequently used as part of welfare-to-work retraining positions.
Vocational Nurse	2-4 years during high school	Nursing training occurs during high school years and results in a diploma that may be considered equivalent to a high school diploma.
Practical or Technical Nurse	1-3 years after high school	Education may occur in the university setting or equivalent tertiary educational institution.
Lay Midwife	Highly variable	Lay midwives may be formally or informally trained through apprenticeship programs. They may or may not receive a certificate verifying their training.
Registered Nurse – Diploma	2 years after high school	These programs occur in hospital-based training schools and were the original training model when the profession formally organized in the late 19 th century.
Registered Nurse – Associate or Technical Degree	3 years after high school	Occur in universities or, in the case of the United States, community colleges.
Registered Nurse – Bachelor's Degree	4 to 5 years after high school	Only university-based training or at the “college” level in the United States. Nurse-midwives in many countries have this level of education too.
Advanced Practice Nurse	2-3 years after basic nursing education	Usually known as “nurse practitioners,” these individuals are prepared at the bachelor's or master's level of education and fall into the category of “mid-level providers” who work most often in primary care settings. The United States requires a master's degree at a minimum for this role, as does Canada and the United Kingdom. In some countries, midwives fall into this category.
Graduate Prepared Nurse	2-3 years after basic nursing education	Nurses who serve in educational, administrative, informatics, and other roles.
Doctorally Prepared Nurse	3-10 years after a master's degree	Nurses prepared to conduct research and policy analyses.

Source: Authors' compilation.

Appendix B. A Conceptual Model of a Nursing Human Resources System





Appendix C: Synthesis of Findings from Nursing Workforce Studies and Theories of Professions

Nursing human resources are tied to the status of women in a country, their ability to access education at all levels, the acceptability of women working in the formal sector, and a country's education system.¹²⁸ Research on institutional strengthening and women's development has demonstrated strong links between the two.¹²⁹ As salaries for nurses reach the level where they can support a family as the primary breadwinner, and as the profession is associated with the bachelor's degree as the minimum level of entry, the gender balance of nursing shifts, too.¹³⁰

The pre-entry conditions to the profession subsequently influence the development of the supply of nurses. The pool of graduates will include annual graduation numbers, but may not account for those who fail to qualify for licensure or certification to work. That group influences the number of nurses working in frontline workforce stocks. The availability of continuing education programs, advanced degrees, and other career advancement opportunities for nurses also affects supply and retention of nurses at the organizational and national levels. Administrators, educators, case managers, and others are common roles comprising advanced resources stocks.

Attrition from the system is a global problem and the subject of numerous studies in high-income countries, with the topic expanding slowly into low- and middle-income countries (LMICs). Nurses leave the system for a variety of reasons. The most common ones are retirement or death, but the health care system can also drive nurses away if there are few opportunities for advancement and the quality of the work environment is poor. They may stay in the country, but work in another field. In some countries, migration is a common exit point, most often for the best-educated nurses, who can pass credentials evaluations more easily.¹³¹

When there are multiple levels of entry into the profession, articulation of educational programs is key to retaining nurses in the health care system.¹³² A nurse educated at a practical or technical level should be able to easily continue his or her education, at any age, to obtain a bachelor's degree or higher. Educational program articulation has become increasingly important in the United States. The Institute of Medicine's 2010 report, *The Future of Nursing*, came out in support of multiple levels of entry into nursing in the United States, in part because many students who pursue an associate's degree at a community college come from socioeconomically disadvantaged backgrounds. Without a low-cost option for becoming a nurse, many minority students would not be able to do so, and the profession in the United States would remain largely Caucasian. The report did stress, however, that articulation between associate's and bachelor's degrees is essential for promoting professional growth in the field and making it easier to encourage professional development.

128 Kingma, *Nurses on the Move*; Kingma, "Nurse Migration and the Global Health Care Economy;" Squires, *A Case Study of the Professionalization of Mexican Nursing*; Squires and Beltrán-Sánchez, "Predicting Nursing Human Resources;" Squires and Beltrán-Sánchez, "Exploring the Links between Macro-Level Contextual Factors."

129 Gani Aldashev, "Legal Institutions, Political Economy, and Development," *Oxford Review of Economic Policy* 25, no. 2 (2009): 257–70; Marlis C. Buchmann, Irene Kriesi, and Stefan Sacchi, "Labour Market Structures and Women's Employment Levels," *Work, Employment and Society* 24, no. 2 (2010): 279–99; Ann L. Owen and Rongling You, "Growth, Attitudes towards Women, and Women's Welfare," *Review of Development Economics* 13, no. 1 (2009): 134–50; Liam Swiss, "The Adoption of Women and Gender as Development Assistance Priorities: An Event History Analysis of World Polity Effects," *International Sociology* 27, no. 1 (2011): 96–119.

130 The sources for this statement are several unpublished manuscripts the lead author has read about nursing in the Middle East as an associate editor for the *International Journal of Nursing Studies*, the top nursing services research journal in the world.

131 Under certain circumstances, migration can create an incentive to standardize entry-level nursing education. Canada, the United Kingdom, Ireland, and members of the European Union (EU) have all moved or are in the process of moving nursing education to the post-high-school, bachelor's-degree level. EU members or aspiring members must sign on to the Bologna accord, which was designed to standardize higher education across the region and includes nursing education (European Higher Education Area, 2012, retrieved from: www.ond.vlaanderen.be/hogeronderwijs/bologna/). The accord has created the incentive for nonmember states (primarily in Eastern Europe and the Former Soviet Union States) to "upgrade" their nursing education to the university and bachelor's-degree level. The potential for remittances from nurses working abroad drives many of these policy changes, as does medical tourism in the region.

132 Julio Frenk, Lincoln Chen, Zulfiqar A. Bhutta, Jordan Cohen, Nigel Crisp, Timothy Evans, Harvey Fineberg, Patricia Garcia, Yang Ke, Patrick Kelly, Barry Kistnasamy, Afaf Meleis, David Naylor, Ariel Pablos-Mendez, Srinath Reddy, Susan Scrimshaw, Jaime Sepulveda, David Serwadda, and Huda Zurayk, "Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World," *Lancet* 376, no. 9756 (2011): 1923–58.



Works Cited

- American Association of Colleges of Nursing (AACN). 2012. Employment of new nurse graduates and employer preferences for baccalaureate-prepared nurses (AACN Research Brief, October 2012). www.aacn.nche.edu/leading_initiatives_news/news/2012/employment12.
- Aboderin, Isabella. 2007. Contexts, Motives and Experiences of Nigerian Overseas Nurses: Understanding Links to Globalization. *Journal of Clinical Nursing* 16: 2237–45.
- Abramsky, Deborah and Colette Swietnicki. 1994. Parteras de Cuscatlan: Training Midwives in Rural El Salvador. *The Birth Gazette* 10 (4): 17–19.
- Acosta, Mónica, María del Rocío Sáenz, Blanca Gutiérrez, and Juan Luis Bermúdez-Madriz. 2011. The Health System of El Salvador. *Salud Pública de México* 53 (2): S188–S196.
- Agency for Health-care Research and Quality. 2012. *National Health-care Quality Report: No. 12-0005*. Washington, DC: Agency for Health-care Research and Quality.
- Aiken, Linda H. 2007. US Nurse Labor Market Dynamics are Key to Global Nurse Sufficiency. *Health Services Research* 42 (3): 1299–320.
- Aiken, Linda H., Sean P. Clarke, Robyn B. Cheung, Douglas M. Sloane, and Jeffrey H. Silber. 2003. Educational Levels of Hospital Nurses and Surgical Patient Mortality. *JAMA: The Journal of the American Medical Association* 290 (12): 1617–23.
- Aldashev, Gani. 2009. Legal Institutions, Political Economy, and Development. *Oxford Review of Economic Policy* 25 (2): 257–70.
- American Association of International Health-care Recruitment (AAIHR). 2011. Two New Nurse Immigration Bills Introduced. www.aaihr.org/news.php?newsid=13.
- Anderson, Barbara A. and Alexander A. Isaacs. 2007. Simply Not There: The Impact of International Migration of Nurses and Midwives — Perspectives from Guyana. *Journal of Midwifery and Women's Health* 52: 392–97.
- Apostolopoulos, Yorghos, Sevil Sonmez, Jennie Kronenfeld, Ellis Castillo, Lucia McLendon, and Donna Smith. 2006. STI/HIV Risks for Mexican Migrant Laborers: Exploring Ethnographies. *Journal for Immigrant and Minority Health* 8 (3): 291–302.
- Arroyo-de Cordero, Graciela and Juana Jiménez Sánchez. 2005. Repercusiones de la escasez versus migración de enfermeras como fenómeno global. [Repercussions of the Shortage versus Migration of Nurses as a Global Phenomenon.] *Revista de Enfermería del Instituto Mexicano del Seguro Social* 13 (1): 33–40.
- Auerbach, David I., Peter I. Buerhaus, and Douglas O. Staiger. 2011. Registered Nurse Supply Grows Faster than Projected Amid Surge in New Entrants Ages 23–26. *Health Affairs* 30 (12): 2286–92.
- Ball, Rochelle E. 2004. Divergent Development, Racialized Rights: Globalised Labour Markets and the Trade of Nurses — The Case of the Philippines. *Women's Studies International* 27: 119–33.
- Barber, Sarah L. and Paul J. Gertler. 2009. Empowering Women to Obtain High Quality Care: Evidence from an Evaluation of Mexico's Conditional Cash Transfer Programme. *Health Policy and Planning* 24 (1): 18–25.
- Basu, Sanjay, Jason Andrews, Sandeep Kishore, Rajesh Panjabi, and David Stuckler. 2012. Comparative Performance of Private and Public Health-care Systems in Low and Middle-Income Countries: A Systematic Review. *PLoS Medicine* 9(6): e1001244.
- Becerril-Montekio, Víctor and Luis López-Dávila. 2011. The Health System of Guatemala. *Salud Pública de México* 53 (2): S197–S208.



- Beltrán-Sánchez, Hiram., Eileen M. Crimmins, Duncan Thomas, and Graciela M. Teruel. 2011. Links between Childhood and Adult Social Circumstances and Obesity and Hypertension in the Mexican Population. *Journal of Aging and Health* 23 (7): 1141–65.
- Bermúdez-Madriz, Juan Luis, María del Rocío Sáenz, Jorine Muiser, and Mónica Acosta. 2011. The Health System of Honduras. *Salud Pública de México* 53 (2): S209–S219.
- Bleich, Sandra N., David M. Cutler, Alyce S. Adams, Rafael Lozano, and Christopher J. L. Murray. 2007. Impact of Insurance and Supply of Health Professionals on Coverage of Treatment for Hypertension in Mexico: Population Based Study. *BMJ (Clinical research ed.)* 335 (7625): 875.
- Bowser, Diana and Ajay Mahal. 2011. Guatemala: The Economic Burden of Illness and Health System Implications. *Health Policy* 100 (2-3): 159–66.
- Brewer, Carol S., Christine T. Kovner, William Greene, and Ying Cheng. 2009. Predictors of RNs' Intent to Work Decisions 1 Year Later in a U.S. National Sample. *International Journal of Nursing Studies* 46 (7): 940–56.
- Brewer, Carol S., Christine T. Kovner, Siritorn Yingrengreung, and Maja Djukic. 2012. New Nurses: Has the Recession Increased their Commitment to their Jobs? *American Journal of Nursing* 112 (3): 34–44.
- Brewer, Carol S., Christine T. Kovner, Shakthi Poornima, Susan Fairchild, Hongsoo Kim, and Maja Djukic. 2009. A Comparison of Second-Degree Baccalaureate and Traditional-Baccalaureate New Graduate RNs: Implications for the Workforce. *Journal of Professional Nursing* 25 (1): 5–14.
- Brewer, Carol S., Christine T. Kovner, William Greene, Magdalene Tukov-Shuser, and Maja Djukic. 2012. Predictors of Actual Turnover in a National Sample of Newly Licensed Registered Nurses Employed in Hospitals. *Journal of Advanced Nursing* 68 (3): 521–38.
- Brooks Carthon, J. Margo, Ann Kutney-Lee, Olga Jarrin, Douglas Sloane, and Linda. H. Aiken. 2012. Nurse Staffing and Post-Surgical Outcomes in Black Adults. *Journal of the American Geriatrics Society* 60 (6): 1078–84.
- Brush, Barbara L. 2008. Global Nurse Migration Today. *Journal of Nursing Scholarship* 40 (1): 20–25.
- Brush, Barbara L. and Julie Sochalski. 2007. International Nurse Migration: Lessons from the Philippines. *Policy, Politics, and Nursing Practice* 8 (1): 37–46.
- Buchan, James 2006. The Impact of Global Nurse Migration on Health Services Delivery. *Policy, Politics, and Nursing Practice* 7 (3): 16S–25S.
- _____. 2007. International Recruitment of Nurses: Policies and Practices in the United Kingdom. *Health Services Research* 42 (3): 1321–35.
- Buchan, James and Julie Sochalski. 2004. The Migration of Nurses: Trends and Policies. *Bulletin of the World Health Organization* 82 (8): 587–94.
- Buchan, James, Tina Parkin, and Julie Sochalski. 2003. *International Nurse Mobility: Trends and Policy Implications*. Geneva: World Health Organization.
- Buchmann, Marlis C., Irene Kriesi, and Stefan Sacchi. 2010. Labour Market Structures and Women's Employment Levels. *Work, Employment and Society* 24 (2): 279–99.
- Buerhaus, Peter, David I. Auerbach, and David O. Staiger. 2004. New Signs of a Strengthening US Nurse Labor Market? *Health Affairs* W4: 526–33.
- Buerhaus, Peter, Douglas I. Auerbach, and David O. Staiger. 2007. Recent Trends in the Registered Nurse Labor Market in the U.S.: Short-Run Swings on Top of Long-Term Trends. *Nursing Economics* 25 (2): 59–67.



- Callaghan, Mike, Nathan Ford, and Helen Schneider. 2010. A Systematic Review of Task- Shifting for HIV Treatment and Care in Africa. *Human Resources for Health* 8 (1): 8.
- Caniza, Miguela A., Gabriela Maron, Jonathan McCullers, Wilfrido A. Clara, Rafael Cedillos, Lourdes Dueñas, Sandra Arnold, Bonnie F. Williams, and Elaine Tuomanen. 2007. Planning and Implementation of an Infection Control Training Program for Healthcare Providers in Latin America. *Infection Control and Hospital Epidemiology* 28 (12): 1328–33. Centers for Disease Control (CDC). 2012. Fact sheet: Estimates of New HIV Infections in the United States, 2007-2010. www.cdc.gov/nchhstp/newsroom/docs/2012/HIV-Infections-2007-2010.pdf.
- Centro Latinoamericano de Demografía (Latin American Demographic Center, CELADE). 2006. International Migration. *Latin America and the Caribbean Demographic Observatory*. www.eclac.org/publicaciones/xml/6/32706/Observatoriodemografico1.pdf.
- _____. 2011. Population Division of ECLAC. www.eclac.cl/celade/proyecciones/basedatos_BD.htm.
- Choy, Catherine C. 2003. *Empire of Care*. Durham, NC: Duke University Press.
- Crimmins, Eileen M. and Hiram Beltrán-Sánchez. 2011. Mortality and Morbidity Trends: Is There Compression of Morbidity? *Journals of Gerontology Series B-Psychological Sciences and Social Sciences* 66B (1): 75–86.
- Dall, Timothy M., Yaozhu J. Chen, Rita F. Seifert, Peggy J. Maddox, and Paul F. Hogan. 2009. The Economic Value of Professional Nursing. *Medical Care* 47 (1): 97–104.
- Denton, Sylvia. 2006. Nation-to-Nation Challenges to Addressing the Effects of Emerging Global Nurse Migration on Health Care Delivery. *Policy, Politics, and Nursing Practice* 7 (3): 76S–80S.
- DeMaria, Lisa M., Lourdes Campero, Marianne Vidler, and Dilys M. Walker. 2012. Non-Physician Providers of Obstetric Care in Mexico: Perspectives of Physicians, Obstetric Nurses and Professional Midwives. *Human Resources for Health* 10 (1): 6.
- Diallo, Khassoum, Pascal Zurn, Neeru Gupta, and Mario Dal Poz. 2003. Monitoring and Evaluation of Human Resources for Health: An International Perspective. *Human Resources for Health* 1 (1): 3.
- Diamond, George A. and Sanjay Kaul. 2009. Cost, Effectiveness, and Cost-Effectiveness. *Circulation. Cardiovascular Quality and Outcomes* 2 (1): 49–54.
- DiCicco-Bloom, Barbara. 2004. The Racial and Gendered Experiences of Immigrant Nurses from Kerala, India. *Journal of Transcultural Nursing* 15 (1): 26–33.
- Doloresco, Fred, and Lee C. Vermeulen. 2009. Global Survey of Hospital Pharmacy Practice. *American Journal of Health-System Pharmacy: AJHP: Official Journal of the American Society of Health-System Pharmacists* 66 (5, Suppl 3): S13–9.
- Dovlo, Delanyo. 2007. Migration of Nurses from Sub-Saharan Africa: A Review of Issues and Challenges. *Health Services Research* 42 (3): 1373–88.
- Dozier, Ann M., Deborah J. Ossip, Sergio Diaz, Essie Sierra-Torres, Zahira Quiñones de Monegro, Latoya Armstrong, Nancy P. Chin, and Scott McIntosh. 2009. Health Care Workers in the Dominican Republic: Self-Perceived Role in Smoking Cessation. *Evaluation and the Health Professions* 32 (2): 144–64.
- Fang, Zhiwu Z. 2007. Potential of China in Global Nurse Migration. *Health Services Research* 42 (3): 1419–28.
- Fauveau, Vincent, Della Sherratt, and Luc de Bernis. 2008. Human Resources for Maternal Health: Multi-Purpose or Specialists? *Human Resources for Health* 6 (1): 21.



- Fiedler, John L., Jonathan B. Wight, and Robert M. Schmidt. 1999. Risk adjustment and hospital cost-based resource allocation, with an application to El Salvador. *Social Science & Medicine* 48 (2): 197-212.
- Foster, Jennifer, Angela Anderson, Jennifer Houston, and Maya Doe-Simkins. 2004. A Report of a Midwifery Model for Training Traditional Midwives in Guatemala. *Midwifery* 20 (3): 217-25.
- Frank, Reanne, Oswaldo Palma-Coca, Juan Rauda-Esquivel, Gustavo Olaiz-Fernández, Claudia Díaz-Olavarrieta, and Dolores Acevedo-García. 2009. The Relationship between Remittances and Health Care Provision in Mexico. *American Journal of Public Health* 99 (7): 1227-31.
- Frenk, Julio, Lincoln Chen, Zulfiqar A. Bhutta, Jordan Cohen, Nigel Crisp, Timothy Evans, Harvey Fineberg, Patricia Garcia, Yang Ke, Patrick Kelly, Barry Kistnasamy, Afaf Meleis, David Naylor, Ariel Pablos-Mendez, Srinath Reddy, Susan Scrimshaw, Jaime Sepulveda, David Serwadda, and Huda Zurayk. 2011. Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World. *Lancet* 376 (9756): 1923-58.
- Gakidou, Emmanuela, Rafael Lozano, Eduardo González-Pier, Jesse Abbott-Klafter, Jeremy T. Barofsky, Chloe Bryson-Cahn, and Dennis M. Feehan. Assessing the Effect of the 2001-06 Mexican Health Reform: An Interim Report Card. *Salud Pública de México* 49 (1): S88-S109.
- Garces, Ana, Elizabeth M. McClure, Elwyn Chomba, Archana Patel, Omrana Pasha, Antoinette Tshefu, Fabian Esamai, Shivaprasad Goudar, Adrien Lokangaka, K. Michael Hambidge, Linda L. Wright, Marion Koso-Thomas, Carl Bose, Walemar A. Carlo, Edward A. Liechty, Patricia L. Hibberd, Sherri Bucher, Ryan Whitworth, and Robert L. Goldenberg. 2012. Home Birth Attendants in Low Income Countries: Who Are They and What Do They Do? *BMC Pregnancy Childbirth* 12 (10): 34.
- Garson, Arthur, Donna M. Green, Lia Rodriguez, Richard Beech, and Christopher Nye. 2012. A New Corps of Grand Aides has the Potential to Extend Reach of Primary Care Workforce and Save Money. *Health Affairs* 31 (5): 1016-21.
- Glaessel-Brown, Eleanore E. 1998. Use of Immigration Policy to Manage Nursing Shortages. *The Journal of Nursing Scholarship* 30 (4): 323-27.
- Gómez-Dantés, Octavio, Sergio Sesma, Victor M. Becerril, Felicia M. Knaul, Héctor Arreola, and Julio Frenk. 2011. Sistema de Salud en México. [The Health System in Mexico.] *Salud Pública de México* 53 (Suppl 2): S220-S232.
- Grau, Armand, Daniel Flichtentrei, Rosa Suñer, María Prats, and Florencia Braga. 2009. Influence of Personal, Professional and Cross-National Factors in Burnout Syndrome in Hispanic Americans and Spanish Health Workers 2007. *Revista Española de Salud* 83 (2): 215-30.
- Gupta, Neeru, Pascal Zurn, Khassoum Diallo, and Mario Dal Poz. 2003. Uses of Population Census Data for Monitoring Geographical Imbalance in the Health Workforce: Snapshots from Three Developing Countries. *International Journal for Equity in Health* 2 (1): 11.
- Gupta, Neeru, Blerta Maliqi, Adson França, Frank Nyongator, Muhammad A. Pate, David Sanders, Hedia Belhadj, and Bernadette Daelmans. 2011. Human Resources for Maternal, Newborn and Child Health: From Measurement and Planning to Performance for Improved Health Outcomes. *Human Resources for Health* 9 (1): 16.
- Hawthorne, Leslyanne. 2001. The Globalisation of the Nursing Workforce: Barriers Confronting Overseas Qualified Nurses in Australia. *Nursing Inquiry* 8 (4): 213-29.
- Higginbottom, Gina M. 2011. The Transitioning Experiences of Internationally-Educated Nurses into a Canadian Health Care System: A Focused Ethnography. *BMC Nursing* 10: 14.



- Homedes, Núria and Antonio Ugalde. 2005. Human Resources: The Cinderella of Health Sector Reform in Latin America. *Human Resources for Health* 3 (1): 1.
- Institute of Medicine (IOM). 2010. *The Future of Nursing: Leading Change, Advancing Health*. Washington, DC: The National Academies Press.
- International Council of Nurses (ICN). 2012. www.icn.ch/about-icn/icn-definition-of-nursing/.
- Jeanes, Mary Ellen. 2006. In-Country Challenges to Addressing the Effects of Emerging Global Nurse Migration on Health Services Delivery. *Policy, Politics, and Nursing Practice* 7 (3): 58S–61S.
- Kalist, David E. 2005. Registered Nurses and the Value of Bilingualism. *Industrial and Labor Relations Review* 59(1): 101-118.
- Keepnews, David M., Carol S. Brewer, Christine T. Kovner, and Juh H. Shin. 2010. Generational Differences among Newly Licensed Registered Nurses. *Nursing Outlook* 58 (3): 155–63.
- Khadria, Binod. 2007. International Nurse Recruitment in India. *Health Services Research* 42 (3): 1429–35.
- Kim, Il-Ho, Carles Muntaner, Haejoo Chung, and Joan Benach. 2010. Case Studies on Employment-Related Health Inequalities in Countries Representing Different Types of Labor Markets. *International Journal of Health Services* 40 (2): 255–67.
- Knaul, Felicia, H. Arreolo-Ornelas, Oscar Méndez, Ana Martínez. 2005. Fair Health Financing and Catastrophic Health Expenditures: Potential Impact of the Coverage Extension of the Popular Health Insurance in Mexico. *Salud Pública de México* 47 (Suppl 1): S54–S65.
- Knaul, Felicia M. and Julio Frenk. 2005. Health Insurance in Mexico: Achieving Universal Coverage through Structural Reform. *Health Affairs* 24 (6): 1467–76.
- Kingma, Mireille. 2005. *Nurses on the Move: Migration and the Global Health Care Economy*. Ithaca, NY: Cornell University Press.
- _____. 2008. Nurse Migration and the Global Health Care Economy. *Policy, Politics and Nursing Practice* 9 (4): 328–33.
- Kolehmainen-Aitken, Riitta Liisa. 2004. Decentralization's Impact on the Health Workforce: Perspectives of Managers, Workers and National Leaders. *Human Resources for Health* 2 (5): 1-11.
- Kovner, Christine T., Sean P. Corcoran, and Carol S. Brewer. 2011. The Relative Geographic Immobility of New Registered Nurses Calls for New Strategies to Augment that Workforce. *Health Affairs* 30 (12): 2293–300.
- Kovner, Christine T., Carol S. Brewer, Susan Fairchild, Shakthi Poornima, Hongsoo Kim, and Maja Djukic. 2007. Newly Licensed RNs' Characteristics, Work Attitudes, and Intentions to Work. *American Journal of Nursing* 107 (9): 58–70.
- Kuri-Morales, Pablo, Jonathan Emberson, Jesús Alegre-Díaz, Roberto Tapia-Conyer, Rory Collins, Richard Peto, and Gary Whitlock. 2009. The Prevalence of Chronic Diseases and Major Disease Risk Factors at Different Ages among 150,000 Men and Women Living in Mexico City: Cross-Sectional Analyses of a Prospective Study. *BMC Public Health* 9 (1): 9.
- LaFree, Gary and Andromachi Tseloni. 2006. Democracy and Crime: A Multilevel Analysis of Homicide Trends in Countries, 1950-2000. *Annals of the American Academy of Political and Social Science* 605: 26–49.
- Laurell, Asa C. 2007. Health System Reform in Mexico: A Critical Review. *International Journal of Health Services* 37 (3): 515–35.
- _____. 2010. The Second Health Reform: Insurance and Prayer-Provider Split. *Salud Colectiva* 6 (2): 137–48.



- _____. 2011. Mexican Health Insurance: Uncertain Universal Coverage. *Ciência and Saúde Coletiva* 16 (6): 2795–806.
- Lebold, Mary M. and Catherine D. Walsh. 2006. Innovations in Health Care Delivery: Response to Global Nurse Migration — An Education Example. *Policy, Politics and Nursing Practice* 7 (3 Suppl): 40S–43S.
- Leon, Moises. 2003. Perceptions of Health Care Quality in Central America. *International Journal for Quality in Health Care* 15 (1): 67–71.
- de Leon Siantz, Mary Lou and Silvina Malvárez. 2008. Migration of Nurses: A Latin American Perspective. *Online Journal of Issues in Nursing* 13 (2). www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANA-Periodicals/OJIN/TableofContents/vol132008/No2May08/LatinAmericanPerspective.aspx.
- Lethbridge, Jane. 2004. Public Sector Reform and Demand for Human Resources for Health (HRH). *Human Resources for Health* 2 (1): 15.
- Lewis, Maureen, Gunnar Eskeland, and Ximena Traa-Valerezo. 2004. Primary Health Care in Practice: Is It Effective? *Health Policy (Amsterdam, Netherlands)* 70 (3): 303–25.
- Little, Lisa. 2007. Nurse Migration: A Canadian Case Study. *Health Services Research* 42 (3): 1336–53.
- Lorenzo, Fely Marilyn E., Jaime Galvez-Tan, Kriselle Icamina, and Lara Javier. 2007. Nurse Migration from a Source Country Perspective: Philippine Country Case Study. *Health Services Research* 42 (3): 1406–18.
- Low, Lisa Kane, Holly Scheib, Joanne M. Bailey, and Emma Sacks. 2006. Challenges for Traditional Birth Attendants in Northern Rural Honduras. *Midwifery* 22 (1): 78–87.
- Magnusdottir, Hildur. 2005. Overcoming Strangeness and Communication Barriers: A Phenomenological Study of Becoming a Foreign Nurse. *International Nursing Review* 52: 263–69.
- Macnaughton, Neil S. 2008. Health Disparities and Health-Seeking Behavior among Latino Men: A Review of the Literature. *Journal of Transcultural Nursing* 19 (1): 83–91.
- Macq, Jean, Patrick Martiny, Luis Bernardo Villalobos, Alejandro Solis, Jose Miranda, Hilda Cecilia Mendez, and Charles Collins. 2008. Public Purchasers Contracting External Primary Care Providers in Central America for Better Responsiveness, Efficiency of Health Care and Public Governance: Issues and Challenges. *Health Policy* 87 (3): 377–78.
- Malvarez, Silvina, Christianne Famer Rocha, Maria Cristina Cometo, and Patricia Fabiana Gomez. 2008. *Serie 55: Notas Preliminares Sobre Migración y Escasez de Enfermeras en América Latina*. Washington, DC: Pan-American Health Organization.
- Maupin, Jonathan N. 2008. Remaking the Guatemalan Midwife: Health Care Reform and Midwifery Training Programs in Highland Guatemala. *Medical Anthropology* 27 (4): 353–82.
- McHugh, Matthew and Amy Witkoski-Stimpfel. 2012. Nurse Reported Quality of Care: A Measure of Hospital Quality. *Research in Nursing and Health* 35 (6): 566–575.
- Montrul, Silvina. 2010. Dominant Language Transfer in Adult Second Language Learners and Heritage Speakers. *Second Language Research* 26 (3): 293–327.
- Myrick, Florence and Olive Yonge. 2005. *Nursing Preceptorship: Connecting Practice and Education*. Philadelphia, PA: Lippincott Williams & Wilkins.
- National Council of State Boards of Nursing (NCSBN). 2011. Number of Candidates Taking NCLEX Examination and Percent Passing, by Type of Candidate. www.ncsbn.org/Table_of_Pass_Rates_2011.pdf.
- Nichols, Barbara. 2006. The Impact of Global Nurse Migration on Health Services Delivery. *Policy, Politics, and Nursing Practice* 7 (3): 6S–8S.



- Nigenda, Gustavo, José Ruiz, and Rosa Bejarano. 2005. Educational and Labor Wastage of Doctors in Mexico: Towards the Construction of a Common Methodology. *Human Resources for Health* 3 (1): 3.
- Nigenda, Gustavo and Luz Maria González. 2009. Contracting Private Sector Providers for Public Sector Health Services in Jalisco, Mexico: Perspectives of System Actors. *Human Resources for Health* 7 (1):79.
- Nigenda, Gustavo, José Ruiz, Yetzi Rosales, and Rosa Bejarano. 2006. Enfermeras con licenciatura en México: estimación de los niveles de deserción escolar y desperdicio laboral. [University-trained Nurses in Mexico: An Assessment of Educational Attrition and Labor Wastage.] *Salud Pública de México* 48 (1): 22–29.
- Nigenda, Gustavo, Maria Machado, Fernando Ruiz, Victor Carrasco, Patricia Moliné, and Sabado Girardi. 2011. Towards the Construction of Health Workforce Metrics for Latin America and the Caribbean. *Human Resources for Health* 9 (1): 24.
- Noy, Shiri. 2011. New Contexts, Different Patterns? A Comparative Analysis of Social Spending and Government Health Expenditure in Latin America and the OECD. *International Journal of Comparative Sociology* 52 (3): 215–44.
- Organization for Economic Cooperation and Development (OECD). OECD International Migration Outlook 2012. www.oecd.org/migration/internationalmigrationpoliciesanddata/internationalmigrationoutlook2012.htm.
- Ogilvie, Linda, Judy E. Mill, Barbara Astle, Anne Fanning, and Mary Opare. 2007. The Exodus of Health Professionals from Sub-Saharan Africa: Balancing Human Rights and Societal Needs in the Twenty-First Century. *Nursing Inquiry* 14 (2): 114–24.
- Owen, Ann L. and Rongling You. 2009. Growth, Attitudes towards Women, and Women's Welfare. *Review of Development Economics* 13 (1): 134–50.
- Palloni, Alberto, Guido Pinto-Aguirre, and Martha Pelaez. 2002. Demographic and Health Conditions of Ageing in Latin America and the Caribbean. *International Journal of Epidemiology* 31: 762–71.
- Pan-American Health Organization (PAHO). 2012. Health Situation in the Americas — Basic Indicators 2012. http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf.
- Passel, Jeffrey S., D'Vera Cohn, Ana Gonzalez-Barrera. 2012. *Net Immigration from Mexico Falls to Zero — and Perhaps Less*. Washington, DC: Pew Hispanic Center. www.pewhispanic.org/files/2012/04/Mexican-migrants-report_final.pdf.
- Pérez-Salvador, José Enrique and Cristina Gutiérrez-Delgado. 2010. Impact of Size of Families in Mexico's Popular Health Insurance Program. *Salud Pública de México* 52 (3): 234–43.
- Perrin, Margarita Evidente, A. Hagopian, A. Sales, and B. Huang. 2007. Nurse Migration and its Implications for Philippine Hospitals. *International Nursing Review* 54: 219–26.
- Pew Hispanic Center. 2012. *Statistical Portrait of the Foreign-Born Population in the United States, 2010*. Washington, DC: Pew Hispanic Center. www.pewhispanic.org/2012/02/21/statistical-portrait-of-the-foreign-born-population-in-the-united-states-2010/.
- Rennert, Wolfgang and Elizabeth Koop. 2009. Primary Health Care for Remote Village Communities in Honduras: A Model for Training and Support of Community Health Workers. *Family Medicine* 41 (9): 646–51.
- Rosales-Martínez, Yetzi, Gustavo Nigenda, Omar Galárraga, and José Arturo Ruíz-Larios. 2010. Expectativas de migración internacional en estudiantes de enfermería en México, Distrito Federal. [Migration expectations among nursing students in Mexico City.] *Salud Pública de México*, 52(3): 244-253.
- Rosenblum, Marc R. and Kate Brick. 2011. *US Immigration Policy and Mexican/Central American Migration Flows: Then and Now*. Washington, DC: Migration Policy Institute. www.migrationpolicy.org/pubs/RMSG-regionalflows.pdf.



- Rosenkoetter, Marlene M. and Deena A. Nardi. 2007. American Academy of Nursing Expert Panel on Global Nursing and Health: White Paper on Global Nursing and Health. *Journal of Transcultural Nursing* 18 (4): 305–15.
- Salmon, Marla, Jean Yan, Hermi Hewitt, and Victoria Guisinger. 2007. Managed Migration: The Caribbean Approach to Addressing Nursing Services Capacity. *Health Services Research* 42 (3): 1354–72.
- Sana, Mariano. 2008. Growth in Migrant Remittances from the United States to Mexico, 1994–2004. *Social Forces* 83 (3): 995–1025.
- Schober, Madrean and Janet Quillian. 1999. Nurse Practitioners Provide Care in El Salvador. *Journal of the American Academy of Nurse Practitioners* 11 (2): 51–55.
- Sekhri, Neelam, Richard Feachem, and Angela Ni. 2011. Public-Private Integrated Partnerships Demonstrate the Potential to Improve Health Care Access, Quality, and Efficiency. *Health Affairs (Project Hope)* 30 (8): 1498–507.
- Shen, Jay J., Yu Xu, Anne L. Bolstad, Margaret Covelli, Miriam Torpey, and Roseann Colosimo. 2012. Effects of a Short-Term Linguistic Class on Communication Competence of International Nurses: Implications for Practice, Policy, and Research. *Nursing Economics* 30 (1): 21–8. www.ncbi.nlm.nih.gov/pubmed/22479960.
- Smith, Pam and Maureen Mackintosh. 2007. Profession, Market and Class: Nurse Migration and the Remaking of Division and Disadvantage. *Journal of Clinical Nursing* 16 (12): 2213–20.
- Smith-Nonini, Sandy. 1997. “Popular” Health and the State: Dialectics of the Peace Process in El Salvador. *Social Science and Medicine* 44 (5): 635–45.
- Squires, Allison. 2007. *A Case Study of the Professionalization of Mexican Nursing: 1980–2005*. Yale University: Unpublished doctoral dissertation.
- _____. 2008. International Recruitment: Part 1. *Nursing Management* (September 2008): 16, 18–21.
- _____. 2008. International Recruitment: Part 2. *Nursing Management* (October 2008): 18, 20, 22, 24, 26.
- _____. 2010. The Institutional Tensions between the Development of the State and Nursing Profession in Mexico. Historical Sociology of Latin American Medical Professions II: Para-Medical Practitioners and the State presented at the 2010 meeting of the Latin American Studies Association “Crisis, Response, and Recovery,” Toronto, Canada. <http://lasa.international.pitt.edu/members/congress-papers/lasa2010/files/4226.pdf>.
- _____. 2011. The North American Free Trade Agreement (NAFTA) and Mexican Nursing. *Health Policy and Planning* 26 (2): 124–32.
- Squires, Allison and Adrián Juárez. 2012. A Qualitative Study of the Work Environments of Mexican Nurses. *International Journal of Nursing Studies* 49 (7): 793–802.
- Squires, Allison and Hiram Beltrán-Sánchez. 2009. Predicting Nursing Human Resources: An Exploratory Study. *Policy, Politics and Nursing Practice* 10 (2): 101–9.
- _____. 2011. Exploring the Links between Macro-Level Contextual Factors and their Influence on Nursing Workforce Composition. *Policy, Politics and Nursing Practice* 12 (4): 215–23.
- Squires, Allison, Christine T. Kovner, and Ann Kurth. In Press. *Sustainable Nursing Human Resources Systems*. New York University: Faculty Archive Publications Online.
- Swiss, Liam. 2011. The Adoption of Women and Gender as Development Assistance Priorities: An Event History Analysis of World Polity Effects. *International Sociology* 27 (1): 96–119.
- Thompson, Joan R., Claire Horton, and Carlos Flores. 2007. Advancing Diabetes Self-Management in the Mexican American Population: A Community Health Worker Model in a Primary Care Setting. *The Diabetes Educator* 33 (Suppl 6): 159S–165S.



- Timmins, Caraway L. 2002. The Impact of Language Barriers on the Health Care of Latinos in the United States: A Review of the Literature and Guidelines for Practice. *Journal of Midwifery and Women's Health* 47 (2): 80–96. www.ncbi.nlm.nih.gov/pubmed/12019990.
- Vernon, Ricardo. 2009. Nurse Auxiliaries as Providers of Intrauterine Devices for Contraception in Guatemala and Honduras. *Reproductive Health Matters* 17 (33): 51–60.
- Walker, Dilys, Lisa M. DeMaria, Leticia Suarez, and Leslie Cragin. 2011. Skilled Birth Attendants in Mexico: How Does Care During Normal Birth by General Physicians, Obstetric Nurses, and Professional Midwives Compare with World Health Organization Evidence-Based Practice Guidelines? *Journal of Midwifery and Women's Health* 57 (1): 18–27.
- Wallace, Steven P. and Verónica F. Gutiérrez. 2005. Equity of Access to Health Care for Older Adults in Four Major Latin American Cities. *Pan American Journal of Public Health* 17 (5–6): 394–409.
- Watkins, Adam M. and Chris Melde. 2009. Latino and Asian Students' Perceptions of the Quality of Their Educators: The Role of Generational Status and Language Proficiency. *Youth and Society* 42 (1): 3–32.
- World Health Organization (WHO). 2006. *Working Together for Health: The World Health Report 2006*. Geneva: WHO.
- _____. 2011. The WHO Global Code of Practice on the International Recruitment of Health Personnel. www.who.int/hrh/migration/code/code_en.pdf.
- _____. 2012. *WHO Statistics Report 2012*. Geneva: WHO. www.who.int/gho/publications/world_health_statistics/en/index.html.
- Xu, Yu. 2010. Is Transition of Internationally Educated Nurses a Regulatory Issue? *Policy, Politics and Nursing Practice* 11 (1): 62–70.
- _____. 2010. Transitioning International Nurses: An Outlined Evidence-Based Program for Acute Care Settings. *Policy, Politics and Nursing Practice* 11 (3): 202–13.
- Xu, Yu and Flora He. 2012. Transition Programs for Internationally Educated Nurses: What Can the United States Learn from the United Kingdom, Australia, and Canada? *Nursing Economics*, 30 (4): 215.
- Xu, Yu and Chanyeong Kwak. 2005. Characteristics of Internationally Educated Nurses in the United States. *Nursing Economics* 23 (5): 233–38.
- _____. 2006. Trended Profile of Internationally Educated Nurses in the United States: Implications for the Nurse Shortage and Beyond. *Journal of Nursing Administration* 36 (11): 522–25.
- Xu, Yu, Jay Shen, Anne L. Bolstad, Margaret Covelli, and Miriam Torpey. 2010. Evaluation of an Intervention on Socio Cultural Communication Skills of International Nurses. *Nursing Economics* 28 (6): 386–93.
- Zárate Hoyos, Germán A. 2008. International Migration as a Strategy of Economic Stabilization at the Household Level in Mexico and Central America. *Papeles de Población* 56: 19–36.



About the Authors



Allison Squires is an Assistant Professor at New York University College of Nursing – Global and an affiliated faculty member at the Center for Latin American and Caribbean Studies and an affiliated researcher with the Center for Drug Use and HIV Research. Dr. Squires began a joint appointment with the NYU College of Medicine in 2012. Her research focuses on health care human resources in developing countries with specific expertise in nursing human resources. She is a co-investigator and policy adviser for the Canada-funded *Source Country Perspectives on the Migration of Health Professionals*. She was also part of the research team for the European RN4CAST study.

Dr. Squires became interested in international nurse migration when she served as a staff nurse and educator in US hospitals, working alongside internationally educated nurse colleagues from 12 countries. She has nearly two decades of experience working with nurses in Latin America, primarily in Mexico. Overall, she has worked on research studies involving 30 countries.

Dr. Squires received her PhD from Yale University and completed her postdoctoral fellowship at the Center for Health Outcomes and Policy Research at the University of Pennsylvania.



Hiram Beltrán-Sánchez is a Research Fellow at the Center for Population and Development Studies at Harvard University, where his research focuses on developing and applying demographic methodologies to studying adult population health at national and individual levels.

Dr. Beltrán-Sánchez's research comprises two areas: national trends in adult morbidity, mortality, and longevity; and health, health behaviors, and biomarkers in adult populations in low-income countries. He is currently studying the implications of longer life expectancy in developed countries on compression/extension of morbidity.

He is also studying physiological and health patterns in the adult Mexican population and their links to previously experienced conditions.

He obtained a PhD in demography at the University of Pennsylvania.

For more on MPI's Regional Migration Study Group please visit:
www.migrationpolicy.org/regionalstudygroup



The Migration Policy Institute is a nonprofit, nonpartisan think tank dedicated to the study of the movement of people worldwide. MPI provides analysis, development, and evaluation of migration and refugee policies at the local, national, and international levels. It aims to meet the rising demand for pragmatic and thoughtful responses to the challenges and opportunities that large-scale migration, whether voluntary or forced, presents to communities and institutions in an increasingly integrated world.

www.migrationpolicy.org

1400 16th Street NW
Suite 300
Washington, DC 20036

Tel: 001 202-266-1940
Fax: 001 202-266-1900