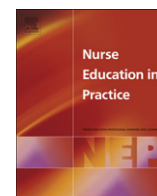


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Nursing students with latex allergy

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ABSTRACT

Latex allergy affects millions of people in the general population and a higher percentage of health care workers. Nursing students with a latex sensitivity pose a unique challenge for the nurse educator. Students may enter the program with pre-existing latex allergy or develop the allergy during the educational process. This manuscript explores the implications of latex allergies exhibited by the nursing student. It addresses the responsibilities of the educator in the skills or simulation laboratory and during clinical learning experiences. It also offers suggestions for ensuring the safety of the student while reducing the legal liabilities of the educational program. The article addresses possible policy ramifications for nursing schools.

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Background

The World Health Organization (WHO) (2010) estimates the health care industry employs 60 million people worldwide. In the United States, *The Career Guide to Industries 2010-11 Edition* (Bureau of Labor Statistics, US Department of Labor, 2011) indicates 14.3 million health care personnel work in hospitals, nursing and residential care centers, and in physician offices. The reported numbers of health care workers suffering from latex allergy varies. Worldwide, studies have consistently found a 1% rate of latex sensitization in the general population and 5%–12% sensitivity in those with occupational latex exposure (Charous et al., 2002; Buss and Frode, 2007; Bousquest et al., 2006; Deval et al., 2008). The American Latex Allergy Association (ALAA) estimates as many as 17% of health care workers and 1% of the general US population are allergic to latex. This translates to about 3 million United States citizens. (American Latex Allergy Association, 2011a). It is hypothesized the higher rates of affected health care workers is due to continuous exposure to latex in the health care setting. Latex glove use increased significantly beginning in the late 1980's following recommendations by worldwide government agencies and health care practitioners for latex glove use to prevent blood transmissible diseases, particularly HIV (Behrman and Howarth, 2008; UK Health Departments nd, Bousquest et al., 2006).

Natural rubber latex (NRL) allergy results from a reaction to a protein that comes from the sap of the Brazilian rubber tree. Skin

contact with latex is one type of exposure that may cause sensitivity. The other type of exposure occurs when the latex protein binds to powder in gloves, becomes airborne, and is inhaled. People with a history of environmental allergies and asthma, certain food allergies such as avocado, bananas, kiwi, and papaya, and repeated latex exposure are more likely to develop a latex allergy (National Institute of Occupational Safety and Health, 1997; Deval et al., 2008). Germany passed a regulation banning the use of powdered NRL gloves in 1998. Since the implementation of this ban, the incidence of suspected cases of NRL-induced occupational allergy decreased by 79.9% (Allmers et al., 2004).

Common reaction types

Three classifications of latex allergy, each with specific signs and symptoms have been identified (National Institute of Occupational Safety and Health, 1997; Deval et al., 2008). The most common type of reaction to latex is irritant contact dermatitis from material in the latex glove. However, the irritation could result from exposure to soaps or detergents or from incomplete drying after hand washing, rather than latex. The person presenting with irritant contact dermatitis may complain of itchy, red, dry and cracked skin. This is considered a non-immune, non-allergic reaction, although the non-intact skin could advance further sensitization of latex (National Institute of Occupational Safety and Health, 1997; Deval et al., 2008).

The second category is allergic contact dermatitis, also known as type IV delayed hypersensitivity. Usually occurring 48–72 h after latex contact, the resulting itchy, red, blistering skin reaction is thought to occur due to chemicals used in processing the latex

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(National Institute of Occupational Safety and Health, 1997; Deval et al., 2008).

The most serious reaction to latex is IgE histamine mediated allergy or type I latex allergy (Occupational Safety and Health Administration, 2008; Deval et al., 2008). A person reacts from contact with latex in the glove itself or from inhalation of latex allergens, which disperses when gloves are removed. Symptoms can be localized or systemic and range from hives, rhinitis, conjunctivitis, or asthma, and may progress to anaphylactic shock. With each exposure to latex, the immune system's IgE antibodies sense it and trigger the immune response. This type of reaction can occur within seconds of exposure (National Institute of Occupational Safety and Health, 1997). See Table 1, Types, Causes, Symptoms and Management of Latex Allergies (Occupational Safety and Health Administration, U.S. Department of Labor, 2008).

It is essential the nurse educator is aware of the signs, symptoms and ramifications of latex sensitivity in nursing students. The nurse educator could be the first person to notice latex sensitivity symptoms in a beginning nursing student. Students may have their first significant exposure to latex in the skills laboratory or clinical learning site. Early identification and diagnosis prevents continued exposure and worsening allergic symptoms.

Diagnosis

If a student displays symptoms when in contact with latex, the nurse educator should refer to school policy and guide the student to the school or university health care practitioner or private physician or allergist for proper diagnosis and treatment. Diagnosis depends on the history and physical symptoms associated with

latex exposure. Practitioners often perform blood and skin testing (Behrman and Howarth, 2008; American Latex Allergy Association, 2011b). During the diagnosing period, the student should avoid all latex containing equipment and personal protective equipment (PPE). If diagnosed with a latex allergy, the student is responsible for notifying the office dealing with student disabilities.

Latex allergy and accommodation policy

In the United States, the Job Accommodation Network (JAN) considers latex allergy a disability and reasonable accommodations must be made (DeFreitas-Saab, 2010). Schools of nursing should consider a screening and disclosure policy for all students entering the program. The student would complete a latex allergy questionnaire as part of the necessary health form students complete prior to starting a clinical learning experience. Questions may include items to determine if there are any known allergies, including latex; or foods such as bananas, kiwi, papaya or avocados and what the reaction is. Consider asking if problems like itchy eyes and tingling lips occur when blowing up a balloon or with dental procedures. Previous employment, such as food handling may involve exposure to latex on a routine basis, therefore questions regarding employment history may be relevant (Schumann and Buhr, 2000). Have school policy committees and legal counsel review and decide which questions are appropriate to ask nursing students.

In post-secondary education in the United States, it is the responsibility of the student to report a disability that needs accommodation. Colleges and universities develop their own methods of organizing disability services (Helms et al., 2006). In the

Table 1
Types, causes, symptoms and management of latex allergies.

Type of Reaction	Symptoms/Signs	Cause	Prevention/Management
(1) Irritant Contact Dermatitis	Itchy, red, inflamed, scaling, dry and cracked skin	Direct skin irritation by gloves, powder, soaps/detergents, incomplete hand drying	Obtain medical diagnosis, dermatology consultation, avoid irritant product, assure glove material provides proper barrier; consider alternative gloves/products, cotton/liners
(2) Allergic Contact Dermatitis (Type IV delayed hypersensitivity or allergic contact sensitivity)	Itchy, red, inflamed, scaling, dry and cracked blistering (similar to poison ivy reaction); 24–72 h. After contact	Accelerators (e.g. thiurams, carbamates, benzothiazoles) processing chemicals (e.g., biocides, antioxidants) NRL Consider penetration of glove barrier by chemicals	Obtain medical diagnosis, dermatology consultation; identify chemical. Consider use of glove liners such as cotton. Use alternative glove material without chemical. Assure glove material is suitable for intended use (proper barrier)
(3) NRL Allergy – IgE mediated (Type 1 immediate hypersensitivity)		NRL proteins; direct contact/ breathing NRL proteins including glove powder containing NRL proteins, from powdered NRL gloves/ environment	For (3)(a), (3)(b), and (3)(c): Obtain medical diagnosis, allergy consultation; substitute non-NRL gloves and other non-NRL products for affected worker
(3)(a) Localized contact urticaria	Hives in area of contact with NRL	Wearing NRL gloves or other direct contact with NRL allergenic proteins	Eliminate exposure to glove powder - use of reduced allergen, powder-free gloves or non-NRL gloves for coworkers (assure glove material provides a proper barrier)
(3)(b) Other Allergic Manifestation	Allergic rhinitis, allergic conjunctivitis, asthma	Exposure to aerosolized NRL allergenic protein. Key role - glove powder	Clean NRL-containing powder from environment Consider NRL safe environment
(3)(c) Generalized Reaction	Manifesting as generalized urticaria, asthma, upper respiratory symptoms, and/or flushing, rapid pulse, falling blood pressure, weakness. Can progress to anaphylactic shock	Exposure to NRL allergenic proteins by any one of several routes	

*Taken from Occupational Safety & Health Administration, US Department of Labor (2008) (Public Domain).

case of latex sensitivity, the office dealing with accommodations communicates with the nursing faculty to ensure appropriate accommodations in all learning environments. Once notified of a latex allergy the educator has a responsibility to the student to make reasonable adaptations. The educator should document all actions and referrals.

Management

Management of latex hypersensitivity focuses on the principle that the best treatment is avoiding exposure to latex containing products. See Table 2 for the educator's role in managing latex allergy. The educator should teach the student to know the equipment that may contain latex. This includes, but is not limited to PPE, tourniquets, band-aids, stethoscopes, wound drains and blood pressure cuffs. There are thousands of household and workplace products that may contain latex. The nurse educator and student are able to download lists of products that contain latex and medical, dental and consumer products that are latex free from various websites. These websites also have contact information for latex free manufacturers and links to allergy assistance in a multitude of different countries. There are other online resources for the student and nurse educator to access detailed information about latex allergy. See Table 3.

Developing a school policy in conjunction with the office that handles student accommodations and disability information is best practice. The policy should include statements regarding the possibility and risk of latex exposure to the student in the skills laboratory, simulation laboratory and clinical settings. Include policy statements regarding the provision of latex free gloves, self-responsibility for disclosing latex allergy, and for carrying required emergency medications. Finally, ensure that policies disclose that latex allergy does not exempt the student from the requirements of the program.

Simulation and skills laboratory

Nursing programs are increasingly using simulators and skills laboratories to enhance learning. Chances are the nurse educator will eventually encounter students with latex allergies. The nurse educator should take precaution to ensure the student's health and safety in the skills and simulation laboratory. The laboratory or simulation area needs equipped with latex free products. The educator should choose products clearly marked as latex free. If students are required to purchase equipment, such as stethoscopes or blood pressure cuffs, consider recommending or requiring latex free products. If all equipment is latex free, sharing of equipment does not become an issue for the latex sensitive student. Latex free equipment and supplies may result in increased initial cost. However, long-term cost savings from decreased lawsuits and compensation claims is substantial (Korniewicz et al., 2005). The ALAA suggests vinyl, nitrile, neoprene and polymer as glove material alternatives (American Latex Allergy Association, 2011d).

Table 2

Educator Role in Management.

Review policies regarding latex allergy
Screen students for potential latex allergy
Teach students to read packaging carefully
Select latex free alternatives as necessary
Discuss latex allergy implications on career choices
Refer to academic or career counselor as needed
Document discussions with student
Communicate with other faculty members
Know the plan for dealing with medical emergencies

Table 3

Online resources latex allergy.

Allergy Clinic
http://www.allergyclinic.co.uk/latex.htm
American Latex Allergy Association/ALERT
www.latexallergyresources.org
Latex Guide: Occupational Aspects of Management
http://www.nhsplus.nhs.uk/providers/images/library/files/guidelines/latex_allergy_guidelines.pdf
NIOSH
http://www.cdc.gov/niosh/docs/98-113/
OSHA
www.osha.gov/SLTC/latexallergy
Spina Bifida Association of America
http://www.spinabifidaassociation.org/site/c.liKW7PLrF/b.2700271/k.1779/Latex_Natural_Rubber_Allergy_in_Spina_Bifida.htm
World Allergy Organization
http://www.worldallergy.org/public/allergic_diseases_center/latexallergy/latexallergy.php
http://www.worldallergy.org/links/patient_links.php?language=all&region=all&country=all

High fidelity human simulators are commonplace in nursing education. Simulators may contain latex parts. Laerdal a leading manufacturer of high fidelity human patient simulators known commonly as "Sim Man" discloses that some external parts, such as vein tubing, as well as some internal parts contain latex. The company recommends that those with latex allergies wear non-latex gloves when handling the simulator (Laerdal General Latex Information n.d.).

Clinical learning experiences

Program coordinators, clinical faculty and latex allergic students need to investigate what products are available at clinical learning sites for students with latex allergy. Every agency is different. Students observe and participate in clinical learning experiences in a variety of settings, including, traditional inpatient sites such as hospitals and nursing homes, community centers, home health agencies, daycares as well as public and private schools.

The educator should investigate clinical agency employee policy and procedures regarding latex sensitivity. Students generally fall under many of the same guidelines as employees. In the United States, The Occupational Safety and Health Administration (OSHA), a federal agency regulating the safety and health of American workers, protects employees with latex allergy by requiring employers to provide and make readily accessible hypoallergenic gloves, glove liners, powder-free gloves, and similar alternatives (Occupational Safety and Health Administration, U.S. Department of Labor, 1992a,b). In Germany, health care workers are protected by a ban of powdered NRL gloves (Allmers et al., 2004). In the United Kingdom, latex is classified as a hazardous substance governed by the terms of the Control of Substances Hazardous to Health (COSHH) regulations of 2002. Health care institutions in this country are required to decrease the risks associated with latex by limiting its use and providing latex free alternative supplies (National Patient Safety Agency, 2005). This may not be the case in developing countries such as Thailand, where powdered gloves are widely used. In this situation, educating students, nurses and patients regarding latex allergy is paramount (Supapvanich et al., 2011).

The type of available latex free options may differ according to the clinical education site. Agencies have different budgets and needs for PPE. If the student is required to bring individual supplies, decisions need made regarding who will be responsible for the cost, the nursing program or the student. The nursing program may

consider including this expense in program fees. Students with a documented disability may also be eligible for supplies through the office that deals with student accommodations and disabilities.

Inpatient settings generally have latex free equipment and supplies available. The educator helps the student learn to identify which equipment/PPE is safe for use. The student should verbalize accommodation needs to the staff on the clinical unit. Students must become comfortable and independent with the self-reporting of the disability.

When planning clinical learning experiences, the program administrator or person responsible for clinical assignments should investigate the option of a latex free clinical site. Some urology, pediatric and spina bifida centers are latex free. Although this may not be an option for all nursing programs, if a latex free site is available, students with latex sensitivity should receive priority placement.

Medical emergencies

Students with severe anaphylactic reactions may require use of an epinephrine pen (Deval et al., 2008). Talk with the student regarding responsibility for having the epinephrine pen available at all times. The student should wear medical alert identification. A plan should be developed for potential anaphylaxis while participating in the clinical learning experience. The nurse educator must investigate school and clinical agency policy regarding students having medication for personal use on the clinical unit. The student may also need to carry other medication such as antihistamines if ordered by their physician. The student, primary faculty member and office dealing with student disability should develop the plan and share it with appropriate clinical faculty or preceptors. Considerations when developing this plan will include several factors. Specific responses depend on the type of clinical experience. Students should follow policies and procedures of the institution or agency to which they are assigned. The nurse educator becomes familiar with the location and content of these policies and procedures. If the student requires use of an epinephrine pen during a clinical learning experience at an inpatient, hospital setting the nurse educator may accompany the student to the emergency department. Based on the student condition, an in-house emergency may need activated.

In many countries, community health care is a large employer of nurses. This involves caring for clients and families outside of the typical inpatient setting, perhaps in the home or outpatient clinic and often focuses on disease prevention and wellness services. Students in baccalaureate degree programs often spend time with nurses who work in the community. Therefore, students in a community setting (i.e. a home health agency under the preceptorship of an RN not employed by the nursing program) experiencing a medical emergency should be transported to the emergency room via ambulance. The preceptor must be aware of the student's latex allergy from the onset of the experience and have direct contact information for the supervising faculty member. It is ill advised for the preceptor to attempt to drive the student to the emergency room. Students at long-term care sites experiencing anaphylaxis also require ambulance transportation to an emergency room.

Secondly, the nurse educator weighs the options of traveling with the ill student or remaining with the other students on the unit. This depends on several factors including the policy of the individual state board of nursing regarding supervision of students at the clinical site. What will the clinical faculty member do with the other students while accompanying the ill student? A readily available, widely applicable, alternative clinical assignment should be available for students. Make students aware of this alternate

activity at the beginning of the course and alert students to its location. The educator may place it on a course website. If a course website is not available, place the assignment in a folder on the clinical unit or give it to the students with the other course materials. Instruct students to complete the assignment off the clinical unit in the event of an unplanned instructor absence or emergency such as a severely ill student. The severity of the reaction is another factor to consider. In instances of mild reactions, such as asthma like symptoms, the instructor may decide to remain with the group. In severe reactions, the instructor should accompany the student.

Remind the student latex allergy emergencies may also happen at home. Exposure could range from contact with balloons, household gloves, or latex condoms. Encourage the student to keep their emergency medication available and up to date. Those with latex allergies should inform their health care providers such as doctors, dentists, and nurses to prevent personal exposure during medical and dental procedures. In addition to avoiding contact with latex products, avoid foods and lactiferous plants that have a cross reactivity to latex such as bananas and avocados or poinsettia plants. Those with latex allergy should inform local emergency services of their allergy (American Latex Allergy Association, 2011c).

Student privacy

Finally, the faculty member considers whom to contact regarding the emergency. The student should contact family as necessary. If the student is unable or unwilling to have family members notified, the educator remains aware of the laws governing privacy. The educator should know the protocol of the nursing program. Informing the primary instructor or program coordinator may be required. Also, consider who will be responsible for the student upon discharge from the emergency room. When the student is released, will he or she drive home or take public transportation? Review the student's living arrangements when answering this question. Throughout the world, college students pose a unique challenge. They may live alone, in a dormitory, with parents, or commute to campus. Reflect on adopting policy that requires a visit to the campus health center after an emergency room visit during a clinical learning experience. Appropriate incident or accident reports need filed in a timely fashion.

In the United States two federal government policies, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Family Educational Rights and Privacy Act (FERPA), protect privacy. Nurses and physicians rely heavily on the guidelines set forth by HIPAA. HIPAA regulates the sharing of personal health information. FERPA ensures student rights for privacy and handling of educational records (Shellenbarger and Perez-Stearns, 2010). The United States Department of Education interprets FERPA to permit post-secondary schools to disclose information from education records to parents or medical personnel if a health or safety emergency involves a student (United States Department of Education, Family Compliance office n.d.). The major duty of HIPAA's confidentiality requirement is to protect an individual's personal health information (Winberley et al., 2005). The emergency room nurse or physician may not be permitted under HIPAA to contact the parents of the student without consent from the student. The nurse educator practicing under FERPA may contact the parent if the health of the student is in jeopardy.

Other countries may have different standards regarding confidentiality of educational and medical information. The nurse educator should be aware of the regulations where they practice.

Conclusion

Nurse education programs are obligated to accommodate students with latex allergies. The educator recognizes the signs and symptoms of latex sensitivity and is knowledgeable regarding policies, procedures and documentation that transpire when a student with a latex allergy enrolls. Nursing faculty familiar with institution and clinical learning agency policies are better able to provide a safe learning experience and appropriate accommodation. Through awareness and a proactive approach, the faculty member will educate the student within the auspices of applicable institutional policies and laws.

Conflict of interest statement

The authors have no conflict of interest.

References

- Allmers, H., Schmengler, J., John, S., 2004. Decreasing the incidence of occupational contact urticarial caused by natural rubber latex allergy in German health care workers. *J. Allergy Clin. Immunol.* 114 (2), 347–351.
- American Latex Allergy Association, 2011a. Latex Allergy Statistics. <http://www.latexallergyresources.org/topics/LatexAllergyStatistics.cfm>.
- American Latex Allergy Association, 2011b. Latex Allergy Testing. <http://www.latexallergyresources.org/links/testing.cfm>.
- American Latex Allergy Association, 2011c. Latex Allergy Topics. <http://www.latexallergyresources.org/topics/>.
- American Latex Allergy Association, 2011d. Latex-free Medical/dental Products. <http://www.latexallergyresources.org/ResourceManual/Section1/medicalProducts.cfm#Gloves>.
- Behrman, A., Howarth, M., 2008. Latex Allergy. *EMedicine*. <http://www.emedicine.com/>.
- Bousquest, J., Flahault, A., Vandenplas, O., Ameille, J., Duron, J., Pecquet, C., Chevre, K., Annesi-Maesano, I., 2006. Natural rubber latex allergy among health care workers: a systematic review of the evidence. *J. Allergy Clin. Immunol.* 118 (2), 447–454.
- Bureau of Labor Statistics, US Department of Labor, 2011. Career Guide to Industries, 2010–11 Edition, Healthcare on the Internet. <http://www.bls.gov/oco/cg/cgs035.htm>.
- Buss, Z.S., Frode, T.S., 2007. Latex allergen sensitization and risk factors due to glove use by health care workers at public health units in Florianopolis. Brazil. *J. Investig. Allergol. Clin. Immunol.* 17 (1), 27–33.
- Charous, B., Blanco, C., Tarlo, S., Hamilton, R., Baur, X., Beezhold, D., Sussman, G., Yunginger, J., 2002. Natural rubber latex allergy after 12 years: recommendations and perspectives. *J. Allergy Clin. Immunol.* 109 (1), 31–34.
- DeFreitas-Saab, T., 2010. Job Accommodation Network. Employees with Latex Allergy. <http://askjan.org/media/downloads/LatexA&CSeries.pdf>.
- Deval, R., Ramesh, V., Prasad, G., Jain, A., 2008. Natural rubber latex allergy. *Indian J. Dermatol. Venereol. Leprol* 74, 304–310.
- Helms, L., Jorgensen, J., Anderson, M.A., 2006. Disability law and nursing education: an update. *J. Prof. Nurs.* 22 (3), 190–196.
- Korniewicz, D.M., Chookaew, N., El-Masri, M., Mudd, K., Bollinger, M.E., 2005. Conversion to low-protein, powder-free surgical gloves. Is it worth the cost? *AAOHN J.* 53 (9), 388–393.
- Laerdal General Latex Information. n.d. <http://www.laerdal.com/us/doc/297/General-Latex-Information>.
- National Institute of Occupational Safety and Health (NIOSH), 1997. Preventing Allergic Reactions to Natural Rubber Latex in the Workplace. Pub. No 97-135. Cincinnati. <http://www.latexallergyresources.org/resourcemanual/section6/NioshBooklet.cfm>.
- National Patient Safety Agency Patient Safety Information, 2005. Protecting People with Allergy Associated with Latex. <http://www.nrls.npsa.nhs.uk/resources/?EntryId45=59791>.
- Occupational Safety & Health Administration, U.S. Department of Labor, 1992a. Fact Sheet No. OSHA 92–46. Bloodborne Pathogens Final Standard: Summary of Key Provisions. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FACT_SHEETS&p_id=139.
- Occupational Safety & Health Administration, U.S. Department of Labor, 1992b. Regulations, Standard 29 1910–1030 Bloodborne Pathogens, Paragraph (d) (3) (iii). http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10051.
- Occupational Safety & Health Administration, U.S. Department of Labor, 2008. Potential for Sensitization and Possible Allergic Reaction to Natural Rubber Latex Gloves and Other Natural Rubber Products. <http://www.osha.gov/dts/shib/shib012808.html>.
- Schumann, L., Buhr, V., 2000. Screening patients for latex allergies. *J. Am. Acad. Nurse. Pract.* 12 (9), 380–383.
- Shellenbarger, T., Perez-Stearns, C., 2010. From the classroom to clinical: a family educational rights and privacy act primer for the nurse educator. *Teaching and Learning in Nursing* 5, 164–168.
- Supapvanich, C., Povey, A., Vocht, F., 2011. Knowledge about occupational latex allergy amongst Thai nurses and student nurses. *Health* 3 (5), 312–318.
- UK Health Departments. nd. Guidance for clinical health care workers: Protection against infection with blood-borne viruses recommendations of the expert advisory group on AIDS and the advisory group on hepatitis. http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4014474.pdf.
- United States Department of Education, Family Policy Compliance Office, n.d. Balancing student privacy and school safety: A guide to the family educational rights and privacy act for colleges and universities. <http://www2.ed.gov/policy/gen/guid/fpco/brochures/postsec.pdf>.
- Winberley, P., Isaacson, J., Walden, D., Wiggins, N., Miller, R., Stacy, A., 2005. HIPPA and nursing education: how to teach in a paranoid health care environment. *J. Nurs. Edu.* 44 (11), 489–492.
- World Health Organization (WHO) Migration of health workers, Fact sheet N301. 2010. <http://www.who.int/mediacentre/factsheets/fs301/en/index.html>.