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ADVANCING SUSTAINABLE DEVELOPMENT GOALS THROUGH PUBLIC HEALTH SERVICE LEARNING

AVANZANDO METAS DE DESARROLLO SOSTENIBLE MEDIANTE EL APRENDIZAJE DEL SERVICIO DE SALUD PÚBLICA

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ABSTRACT

Objective: To discuss the development and implementation of a service learning experience designed to improve the health status of vulnerable populations in a middle-income country through the implementation of science-based programs designed to address the World Health Organization's "Ten Threats to Global Health." **Methods:** Describes the pragmatic development of a service learning experience designed to provide hands-on experiences to public health and medical students as they develop into professionals in high-middle-and low-income countries. **Results:** "Exploring Global Social Determinants of Health in the Dominican Republic," originally designed as an observational experience of social determinants of health, has evolved into an experiential learning experience designed to assist students in the application of their public health knowledge and experience. **Conclusion:** Public health professionals, including those in training, have a responsibility to implement actions designed to improve the health status of populations around the world. Service learning programs such as "Exploring Global Social Determinants of Health in the Dominican Republic," provide those hands-on opportunities.

Key words: Dominican Republic; Needs Assessment; Program Planning; Service Learning; Batey; Social Determinants of Health. (source: MeSH NLM)

RESUMEN

Objetivo: Describir el desarrollo y la implementación de una experiencia de aprendizaje de servicio diseñada para mejorar el estado de salud de las poblaciones vulnerables en un país de ingresos medios a través de la implementación de programas basados en la ciencia y diseñados para abordar las "Diez amenazas a la salud global" de la Organización Mundial de la Salud. **Métodos:** Describe el desarrollo pragmático de una experiencia de aprendizaje de servicio diseñada para proporcionar experiencias prácticas a los estudiantes de medicina y salud pública a medida que se convierten en profesionales en países de ingresos medios altos y bajos. **Resultados:** "Explorando los determinantes sociales globales de la salud en la República Dominicana", originalmente diseñado como una experiencia de observación de los determinantes sociales de la salud, se ha convertido en una experiencia de aprendizaje experimental diseñada para ayudar a los estudiantes en la aplicación de su conocimiento y experiencia en salud pública. **Conclusión:** Los profesionales de la salud pública, incluidos los que están en capacitación, tienen la responsabilidad de implementar acciones diseñadas para mejorar el estado de salud de las poblaciones de todo el mundo. Los programas de servicio de aprendizaje como "Explorando los determinantes sociales globales de la salud en la República Dominicana" brindan esas oportunidades prácticas.

Palabras clave: República Dominicana; Necesita valoración; Planificación del programa; Servicio de aprendizaje; Batey Los determinantes sociales de la salud. (fuente: DeCS BIREME)

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INTRODUCTION

From the decrees and prohibitions about clean and unclean living found in the Christian Bible, to the Ancient Greeks, to the Sustainable Development Goals, recorded history has documented humans' quest for equality and good health⁽¹⁻⁸⁾. However, and despite the direct correlation between a society's health status and its economic and technological development, health disparities and unequal access to health care have and continue to be a reality for many people around the world. "We watch in wonder as life expectancy and good health continue to increase in parts of the world and in alarm as they fail to improve in others....these inequities in health, avoidable health inequalities, arise because of the circumstances in which people grow, live, work, and age, and the systems put in place to deal with illness"^(1,2). Morbidity and mortality data provide a clear call for action in order to provide equal access to health care services for people around the world.

In 1978, the Alma-Ata Declaration put forth health equity as an international objective and proposed primary health care as the mechanism for bringing health services to communities and societies around the world⁽⁹⁻¹⁰⁾. The declaration proposed a shift in health care from a purely medical approach to a partnership with communities where existing resources would be harnessed to achieve affordable, preventive, curative, and promotive services. This paradigm shift was designed to move health care from large medical facilities to multidisciplinary efforts designed to deliver cost-effective programs, which would include educational interventions and affordable medications.

In 1982, the World Health Assembly adopted the "Global Strategy for Health for All by the Year 2000," commonly

known as "Health for All"⁽³⁾. Commonly misunderstood as a strategy to eliminate disease and disability, "Health for All" efforts were designed to ensure an equal distribution of resources as a mechanism to remove barriers to care. It acknowledged that everyone, from medical personnel to parents and teachers, had a social responsibility to decrease negative outcomes associated with disease, the end result being that everyone, regardless of socioeconomic status, could live a productive life in the spirit of self-reliance and self-determination.

While some progress was achieved by the year 2000, the international community acknowledged its inability to achieve "Health for All" by the turn of the century, and extended its efforts through the Millennium Development Goals (MDG). These efforts focused on eight areas which sought not only to improve the health status of individuals and communities, but also sought to promote equality by reducing hunger, increasing educational achievement, and promoting environmental development sustainability^(2,8).

In 2015, an extension and an expansion of the MDG were codified into the Sustainable Development Goals, which "are the blueprint to achieve a better and more sustainable future for all." In fact, the Sustainable Development Goals (see Figure 1) are expected to "... address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice". On the 40th anniversary of the signing of the Declaration of Alma-Ata in 2018, 194 United Nations member states gathered to "review progress and challenges and renew their commitments to the never-ending quest to provide primary care for 7.5 billion people"⁽¹⁾.



Source: <https://news.un.org/en/story/2015/12/519172-sustainable-development-goals-kick-start-new-year>

Figure 1. Sustainable Development Goals.

Government initiatives are carried out by public health professionals who continue to honor the commitment of improving the health status of all individuals. This commitment includes teaching undergraduate and graduate public health, health education, and health promotion students the importance and value of positively impacting communities through service learning.

Service learning is a high-impact educational strategy designed to provide hands-on learning opportunities where students can apply the theoretical constructs learned in the classroom to real-life environments. In fact, service learning has been defined as “..a pedagogical approach that promotes students’ civic engagement and intellectual growth, and is based on the principles of experiential learning”⁽¹¹⁾. In addition to the important benefits of “learning by doing”⁽¹²⁾ and extending classroom learning into the community, perhaps one of the most important characteristics of service learning is in “fostering a sense of caring for others”⁽¹³⁾.

METHODS

The purpose of this paper is to describe the development and implementation of a service learning course in the Dominican Republic along with lessons learned from the experience. The service learning program “Exploring Global Health in the Dominican Republic” is a collaborative endeavor between the Department of Public Health at Fresno State and the School of Medicine at the Universidad Central del Este in the Dominican Republic. The program, directly aligned with the University’s mission, allows participants to gain applied public health experience while providing direct services to batey residents. Program participants spend time with medical students from the Universidad Central del Este to plan and implement health education and promotion activities designed to improve the health conditions of batey residents⁽¹⁴⁻¹⁵⁾.

RESULTS

The Dominican Republic

Located in the Island of Hispaniola, the Dominican Republic (DR) is the second largest nation in land area and the third in population in the Greater Antilles in the Caribbean. The country shares the Island of Hispaniola with Haiti, which is one of the poorest nations in the Western Hemisphere⁽¹⁶⁾. Agriculture is one of the top three sources of employment in the DR and according to the World Factbook, agriculture represents slightly

over five percent of the DR’s economy and employs 14% of the working population in the country⁽¹⁶⁾.

Given its proximity to Haiti, it is not surprising that the DR is home to a large population of Haitians who are employed in the service, hospitality, and agricultural industries. Most Haitian agricultural workers are employed in the sugar cane industry and live and work around housing complexes known as bateyes. Life in the bateyes is characterized by poverty, limited educational opportunities, and lack of access to health care services. In addition, batey residents have limited access to the educational and health care system in the Dominican Republic and many cannot afford the transportation costs from their marginalized residences to the urban areas where health care facilities are located⁽¹⁷⁻¹⁹⁾.

Little is known from the professional literature about the health status of batey residents. Lack of potable water and contaminated water have been identified as a source of non-communicable diseases among batey residents⁽²⁰⁻²¹⁾. Mosquito borne diseases, occupational injuries, teen pregnancies, sexually transmitted diseases, HIV/AIDS, and low immunization rates have also been identified as top health concerns among batey residents^(21,23-27). The combined effects of these social determinants of health could lead batey residents to be considered a vulnerable population, a condition exacerbated by their undocumented status and limited access to primary care facilities.

Service Learning in the Dominican Republic

Several service learning programs are known to provide public health and medical services to batey residents^(14-15,21,23). Since 2014, students in the public health program at California State University, Fresno (Fresno State) have been engaging in a life-changing experience in the rural eastern province of San Pedro de Macoris in the DR. These students spend almost two weeks expanding their knowledge about global health, while also engaging in practical projects designed to apply public health principles among marginalized populations. The class is designed to provide an opportunity to explore and experience the effects of poverty and lack of education on the health status of vulnerable populations, especially children.

Working side-by-side with students in an applied epidemiology course, students engaged in the program deliver health promotion and health education programs while overcoming cultural and language barriers not only amongst themselves, but also with batey residents, many of whom speak neither English (the primary language of the American students) or Spanish (the official language in the DR). The class structure is based on academic learning in the classroom where students are exposed to the history, language,

culture, and health care system in the DR, and an experiential learning component where students bring products and services to various bateyes in the region.

Since its inception, students participating in the program have impacted the lives of over 1,000 residents. The

short time spent in the country belies work which begins many months in advance, and includes fundraising and preparing health education interventions for low literacy populations. Table 1 documents collaborative efforts between public health and medical students as part of this service learning experience.

Table 1. Collaborative Efforts between Public Health and Medicine.

Assisted in the administration of de-worming medicine to batey residents.	The medication — which was provided by the local county health department and distributed under the supervision of a licensed medical doctor — provided a first line of defense for the prevention of chronic illnesses among this population group.
Larvicide Application	Applied larvicide to non-drinking water containers to prevent the development of mosquitos, which can have a devastating impact on the health status of batey residents.
Head Lice Disinfestation.	These efforts included washing the heads of children who willingly and patiently waited to have their heads washed in order to remove the unwelcome parasites.

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Table 2 documents the health education and health promotion activities advanced as part of this program.

All presentations were developed using strategies for low-literacy populations.

Table 2. Health Education and Health Promotion Activities.

Water purification efforts	Distributed and educated batey residents on the proper use and care of point-one Sawyer water filtration systems.
Sex education and condom distribution	Topics included condom use demonstration and information about pregnancy prevention.
Dental and personal hygiene demonstrations	Interactive sessions educated the population regarding proper dental hygiene product use and the distribution of soap among batey residents.
Mosquito and larvae development prevention	Sessions included information about the identification of reservoirs along with the application of larvicide to standing and non-drinking water.

Table 3 shows items distributed following educational opportunities during the service learning experience.

Table 3. Service Learning Activities.

Mosquito Net Distribution	Distributed hundreds of mosquito nets to families as a first line of defense against mosquito bites. In addition, students have distributed insect repellent to families.
Food Distribution	Items included basic food staples, such as rice, salt, beans, coffee, sugar, eggs, and in some cases, peanut butter as a protein supplement. These door-to-door distributions were meant to provide food for a family for approximately one week.
Female Hygiene Product distribution	Distributed a limited number of sanitary napkins to young girls and women in the bateyes. Due to high costs, many batey residents forgo sanitary napkins during a menstrual cycle.
Clothing Distribution	Distributed hundreds of pounds of clothing for men, women, and children. These gently used clothing items were donated by the "Pink Cow," a Fresno-based thrift shop, along with items donated by the students themselves. Students also distributed shoes, including those from students who removed the shoes they were wearing at the time, leaving them with batey residents.
Toy Distribution	Distributed toys ranging from Legos®, to dolls, to soccer balls. Gracious children in the bateyes and in an orphanage repaid the students with hugs and fantastic smiles.
Personal hygiene item distribution	Items included soap, shampoo, and dental products. One of the health education lectures was designed to teach batey residents proper dental care.
Condom distribution	Adolescent pregnancies continue to be a problem and desperate conditions lead young women, some as young as 13, to have children. Thanks to a generous donation from Global Protection Corporation, condoms were distributed among batey residents.

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DISCUSSION

Service learning is a powerful tool to enable students to apply theoretical concepts acquired in the classroom to real life situations. The service learning experience described in this paper allows students to apply public health principles while addressing their own biases and limitations, overcoming language barriers, and expanding their professional and social networks. The class seeks to equip program participants with the confidence to provide community service and education, no matter the challenges.

Overwhelmingly, students return home from this trip with a new sense of perspective. In reviewing their experiences, students have made comments which

address the impact of this class in their professional development:

"I will forever be grateful for and humbled by this life changing experience."

"It warms my heart to know that we were able to make even the smallest difference in the lives of those who need it the most."

"This experience has helped me appreciate what I have so much more and motivated me to help others as much as I can."

"I am also extremely grateful for all the wonderful people I met and bond with along the way!"

Program participants have addressed their increased

knowledge about the culture and history of the DR, and have also developed a better understanding of issues related to poverty and health in a middle-income country. One student stated, "I believe that taking this trip helps to provide a deeper perspective about health access, cultures of health, and how to take different approaches to education across multiple barriers to good health." Another student noted, "The evidence of malnourishment was evident in some of the women and children. A few of the kids appeared to have Kwashiorkor, a severe protein-energy malnutrition. We met a mother of seven children who weighed just over 80 pounds. The most basic of needs needed to be met, so the generous sponsorship was spent on nutritious and culturally acceptable foods. Beans, rice, noodles, maize, and oil were a few of the items purchased for the families. No feeling can compare to the smiles and gratefulness of the families we received that day."

Another student indicated, "Batey residents live in highly precarious conditions with limited access to basic services such as water, health and education. We assisted the medical students of the Universidad Central del Este (UCE) with parasite and lice prevention. Where the money raised by our group of 12 Fresno State students was used to purchase food, hygiene products, lice shampoo, toys, shoes, clothes, and mosquito nets. Visiting an orphanage is a life-changing experience – filled with emotions and sentimental memories. We were lucky enough to get an opportunity to the local Fundación de Niños. We brought toys, candy, and some film to share with the children and teenagers at the orphanage. Everyone was so active, happy, and appreciative. We take so much for granted. After meeting these sweet kids, you start holding on tight to the little things in life – especially when you see those who do not have them. Only at such times do you tie over the insignificant and immaterial things and appreciate the bigger picture. So fortunate to have met these angels."

Students also learn about legal challenges and limitations encountered by public health professionals. A program participant stated "In a country like the Dominican Republic, where access to birth control methods and sexual education are hampered by a legal framework insistent on keeping young men and women in the dark about their sexualities, insisting on having that conservation is even more crucial. 30% of teens in the Dominican Republic have had at least one pregnancy, and they have one of the highest HIV infection in the world. Thank you to #globalprotectioncorp for the donations to our program."

Another student said "Education is information that can be used to shape a person's life choices, or used as a way to make smarter decisions to prevent serious health conditions, a person can have all the resources to prevent a disease but without the education on what to do with these resources the first step cannot be taken. I think there are many locals who can use some health education here every day, however there are third world countries that do not have the support we have in our healthcare system."

LESSONS LEARNED

"Exploring Global Social Determinants of Health in the Dominican Republic" is an experiential learning experience designed to assist students in applying their public health knowledge and experience. The program was originally designed as an observational experience of social determinants of health in a middle-income country, but has evolved to include visits to orphanages and other teaching strategies in service learning which were not envisioned in the original plan.

The original program plan did not include the need to develop partnerships outside the University; however, the program elements described in Tables 2 and 3 would not be possible without the financial support of many donors, including Friends for Civic Engagement and the Fresno Rotary Club, among others. Their input in the program development has also been instrumental in making necessary changes to the program. Including service organizations in the target area has also enabled the origination of a sustainability effort for the program.

Service learning is a transformative experience; however, program development teams must be ready to deal with unexpected situations. Facing extreme poverty for the first time can be overwhelming for some individuals, and as such, program leaders must be ready to provide support as needed. It is not unusual to have many students experiencing sadness following the first visit to a batey, and expressing feelings of guilt for the things they may take for granted. Education and training in service learning enables the opportunity to learn to transform feelings of hopelessness into possible opportunities for future professional development.

A final lesson, and one that is still a work-in-progress for us, is the issue of sustainability. By its very nature, this program is of a short duration of time, and the distance from California to the DR makes it impossible to have an ongoing presence in the bateyes. Our partnership with a local university has allowed us access and local support, but additional supports are needed in order

to ensure that the efforts underway continue, even if one day this service learning program is no longer offered.

CONCLUSION

Service learning has been identified as a high impact learning activity which allows students to apply theoretical knowledge gained in the classroom in real life situations. A well-developed service learning experience enables students to apply their knowledge while expanding their skills to work in settings which may be outside of their skill-set, education, and comfort zone. This program was established in 2014, and with the support of nearly 75 course alumni, the program continues to expand its scope of work, always cognizant of the mission statement of Fresno State, "To boldly educate and empower students for success (2019, para. Our Mission).

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