



Developing Leaders in Indigenous health: The Kalaupapa service learning project

Volume 1 | Issue 1

Article 3, August 2016

Winona K. Lee¹

*The University of Hawai'i at Mānoa
John A. Burns School of Medicine*

Chessa C. D. Harris

*The University of Hawai'i at Mānoa
John A. Burns School of Medicine*

Kawika A. Mortensen

*The University of Hawai'i at Mānoa
John A. Burns School of Medicine*

Malia S. Lee

*The University of Hawai'i at Mānoa
John A. Burns School of Medicine*

Abstract

The Kalaupapa service learning project engages indigenous and disadvantaged students in the cultural, historical, and modern day experiences of patients with Hansen's disease (aka leprosy). The project offers an immersive, culturally-based, educational curriculum for students pursuing careers in medicine which culminates with a huaka'i (excursion) to the Kalaupapa settlement.

The Kalaupapa service learning project has been previously shown to enhance students' knowledge related to humanism in medicine. This paper explores the potential of the Kalaupapa service learning project to increase student knowledge of indigenous perspectives and potentially contribute to their development as future leaders in indigenous health. Student participants completed written reflections that addressed student perspectives of the experience and community post-participation. A total of 41 student reflections (from 2008-2013) were analysed; and emerging themes across reflections were identified. Results showed that resiliency, unity, and personal relationships were prominent themes. For indigenous students, demonstrating resiliency, fostering personal relationships, and achieving unity among peers are significant contributors to student success. In addition, the experience may have reinforced students' desire to serve rural and underserved communities. The Kalaupapa service learning project is an educational model that not only enhances future physicians' knowledge and awareness of humanism in medicine but also broadens the participants' knowledge of indigenous values and perspectives and has the potential to develop future leaders in indigenous health.

¹ Corresponding author: Winona K. Lee, winonal@hawaii.edu

Keywords: Service learning, diversity, healthcare workforce, Native Hawaiian, indigenous.

Acknowledgments. The authors wish to thank Dr Benjamin Young, founding Director of ‘Imi Ho‘ōla, and Dr Nanette Judd, immediate past Director of ‘Imi Ho‘ōla for their contributions to the development of the Kalaupapa service learning project and this manuscript. The authors also wish to thank the Queen’s Health Systems Native Hawaiian Health Initiative for its support of the ‘Imi Ho‘ōla Post-Baccalaureate Program. The views expressed in written materials or publications do not necessarily reflect the official policies of The Queen’s Health Systems, and mentioning trade names, commercial practices, or the organization does not imply endorsement by The Queen’s Health Systems.

Ethical approval. Ethical approval was granted on March 20, 2014 by the University of Hawai‘i (UH) Human Studies Program. The project was determined to be exempt from federal regulations pertaining to the protection of human research participants, regulations code 45CFR 46.101(b) (Exempt Category 4). IRB: DOC032114-03212014071409.

Background

The Liaison Committee on Medical Education (LCME), the accreditation body of U.S. medical schools, requires schools to provide service learning curricula as part of their physician training programs. Service learning, grounded in the pedagogical theories of John Dewey, emphasises experiential learning outside of the classroom that is then brought back via student reflection and application of new insights and perspectives (Dewey, 1938). Dewey advocates that educational experiences combined with community interaction provide the context necessary to promote knowledge acquisition, intellectual decision-making, and moral growth of the learner, ultimately resulting in a sense of purpose (1938). This unique and intentional approach further connects students to the academic topics of the classroom environment and the experiences of “real-life” which is mutually beneficial to the student learner and the community involved (Buckner, Ndjakani, Banks, & Blumenthal, 2010; Hunt, Bonham, & Jones, 2011; Long et al., 2011). Many medical students

begin their careers with a strong interest in community health and serving the underserved (Meili, Fuller, & Lydiate, 2011). Studies show that students participating in activities focused on community and the underserved feel more confident in leading groups toward a common goal and are better prepared to identify community needs (Buckner, et al., 2010; Long et al., 2011). This is of particular interest for institutions preparing future physicians to become leaders and advocates for their patients, families, and communities. Service learning can integrate the cultural values of a community into formal instruction, which has been shown to be effective for developing strong educational foundations for students with indigenous backgrounds (Kana’iaupuni, Ledward, & Jensen, 2010).

Efforts to integrate indigenous knowledge into western educational systems, particularly science education, demonstrate the potential benefits of culture-based education (Kana’iaupuni, 2010; Gibson & Puniwai, 2006; Semken & Freeman, 2008). Culture-based education empowers students through strengthening cultural identity and has a positive impact on student outcomes, including increased self-esteem, self-confidence and resiliency (Gibson & Puniwai, 2006). Cultivating these traits is a vital aspect of developing indigenous leaders who are invested and connected with their communities. This paper describes the potential of the Kalaupapa service learning project to increase student knowledge of indigenous perspectives and potentially contribute to their development as future physicians and leaders in indigenous health.

‘Imi Ho‘ōla Post-Baccalaureate Program

As part of the University of Hawai‘i John A. Burns School of Medicine’s (JABSOM) longstanding commitment to diversity, the ‘Imi Ho‘ōla (Hawaiian meaning “those who seek to heal”) program is a successful pipeline for underrepresented and disadvantaged students to enter into medicine. ‘Imi Ho‘ōla’s mission is to improve health care for Hawai‘i and the Pacific by increasing the number of physicians through a one-year enrichment program. ‘Imi Ho‘ōla is a post-baccalaureate curriculum that accepts up to 12 students from economically, socially, and/or

educationally disadvantaged backgrounds who possess the potential to succeed in medicine and demonstrate a commitment to serve underrepresented communities in Hawai‘i and the Pacific. Upon completion of the program, students matriculate into the first-year medical class at JABSOM. ‘Imi Ho‘ōla is institutionalised and is a program located in the Department of Native Hawaiian Health at JABSOM (Lee, Lee, & Carpenter, 2014). Since its inception in 1973, 253 ‘Imi Ho‘ōla alumni have matriculated and graduated from JABSOM.

History of Kalaupapa

In 1865, the Kingdom of Hawai‘i passed the *Act to Prevent the Spread of Leprosy* which gave police and district justices the right to arrest anyone suspected of having leprosy, evaluate their condition and forcibly relocate them to Kalaupapa on the island of Moloka‘i. An estimated 8,000 patients were sent to the settlement, permanently separating them from their families and society (Hansen’s disease, 2014). At least 90% of these patients were Native Hawaiian (Law, 2012). Patients sent to Kalaupapa dealt with food shortages, lack of medical care and supplies, inadequate housing, loss of personal freedom, mandatory relocation of children, cultural restrictions, and governmental negligence (Moblo, 1999). These conditions, combined with lack of a cure, stigmatisation due to leprosy and complete loss of personal support systems, made Kalaupapa synonymous with imprisonment and death. A few dedicated individuals, such as Father Damien, advocated for patients’ rights. However, patients were generally left to fend for their own survival. In 1941, Dr Guy Faget developed a cure for leprosy. Subsequently, Hawai‘i’s isolation policy was lifted in 1969, giving patients the choice to leave the settlement (Hansen’s disease, 2014). Although free to leave, decades of mistreatment and stigma made the patients’ re-entry into society difficult, and many former patients chose to remain in Kalaupapa and share their personal stories from the place that had become their permanent home.

The Kalaupapa Service Learning Project

The Kalaupapa service learning project formally began in 2008. However, the idea of connecting students with this rural, underserved community

of Indigenous patients and residents was initially conceived by former ‘Imi Ho‘ōla Director, Dr Benjamin Young 40 years ago. In 1976, Dr Young was sailing on the voyaging canoe *Hokule‘a*, as part of the Polynesian Voyaging Society. On their way back from Tahiti to Honolulu, the ship anchored at Kalaupapa. It was during that visit, that Dr Young envisioned the idea of the first student *huaka‘i* (fieldtrip) to Kalaupapa. Dr Young contacted Mr Richard Marks, a patient with Hansen’s disease, respected historian, successful businessman and Sheriff. He along with his wife Gloria hosted students annually since 1977 until his death in 2008. During the visits, students would learn about the community by engaging with patients and residents in the hospital and community centers. Students and hosts would also participate in cultural activities such as fishing and traditional food preparation. Mrs Marks has continued to work with the program to identify the community service needs and learning activities to engage the students while in Kalaupapa. The Marks family, as leaders of the community and advocacy group, *Ka ‘Ohana O Kalaupapa* (the family of Kalaupapa) emphasise the importance of respecting patients’ experiences and preserving the history of Kalaupapa. In 2008, the program developed and implemented the curriculum that is now known as the Kalaupapa service learning project. Mrs Marks continues to provide direct input to the project by identifying the student service activities based on community needs. Mrs Marks also coordinates hospital visits with remaining patients and tours of historical sites. At the end of the visit in Kalaupapa, students host a *lu‘au* (traditional Native Hawaiian celebration) for the Marks family in appreciation of the privilege to spend time with the Kalaupapa community.

The Kalaupapa service learning project is integrated into ‘Imi Ho‘ōla’s Scientific Basis of Medicine (SBOM) course. The SBOM course is designed with specific learning objectives that are focused on helping students gain knowledge and understanding of health care services from the perspective of health professionals as well as the perspectives of the patient, family, and community. Learning objectives for SBOM are to: 1) Explain and give examples of varying global perspectives regarding health and disease; 2) Describe the need for healthcare services in rural

and underserved populations; 3) Articulate the roles of health professionals working in the health care setting; 4) Predict the epidemiological and psychosocial impact diseases/health conditions have on society; and, 5) Recognise and apply professional behaviours and attitudes as recommended by the Association of American Medical Colleges (AAMC). During the spring semester, Hansen's disease is discussed utilising multiple teaching methods, and the history of Kalaupapa as a settlement for Hansen's disease patients in Hawai'i is used as a case study to promote student understanding of how

individuals with widely stigmatised diseases are impacted through cultural, religious, economic, and political perspectives. The Kalaupapa service learning project is considered the capstone of this learning process, as it culminates with a three-day immersive experience in Kalaupapa, Moloka'i. Continued student learning regarding leprosy and its impacts is gained through interaction with the remaining patients at Kalaupapa. The Kalaupapa service learning project is a highlight of the SBOM course. Components of the service learning project are described in Table 1.

Table 1. *Kalaupapa Service Learning Project - Components and Activities*

Component	Activity
Fundraising	Students raise a total of \$3,000 to be used to support travel expenses including meals, equipment/tools and host gifts
Coordination and implementation	Students are responsible for purchasing and planning the service project (i.e. providing meals, equipment/supplies)
Problem-based learning health care problem	Students create learning issues related to Hansen's disease that are researched and presented individually to the class
Individual student research and thesis paper	Students conduct research relevant to Hansen's disease utilising standard texts and journal articles. Using their research, students develop a 10 page thesis paper on the topic
Required reading and written exam on <i>Holy Man: Father Damien of Molokai</i> by Gavan Daws	Students complete the required reading and take a written exam to assess their comprehension and critical analysis of the book
Oral Presentation	Students present a 10 minute presentation on their thesis paper
Service in Kalaupapa	Students complete a 3 day project that may include cleaning yards, painting, or visiting residents. Students also conduct a <i>lu'au</i> (traditional celebration) and talent night for the hosts
Tour of Kalaupapa	Hosts take students on a tour that highlights contributions of Saint Damien and historical sites of Kalaupapa
Reflection Paper	Students complete a reflection paper on their service learning project experience

The Kalaupapa service learning project was originally conducted to determine whether service learning enhanced students' knowledge

and awareness of humanism in medicine and these results were recently published in BMC Medical Education (Lee, Harris, Mortensen,

Long, & Sugimoto-Matsuda, 2016). Humanistic physicians strive to provide compassionate health care services that respect the cultural values and backgrounds of their patients and families (Chou, Kellom, & Shea, 2014). The authors re-examined the prominent themes of the project and found them to be aligned with indigenous perspectives on health and potentially influential for students to leadership potential in indigenous health fields.

Methods

As part of the service learning experience, students were required to electronically submit a two-page reflection essay about their experience while at Kalaupapa. Four prompts guided student responses (see Table 2). These essays were then filed as part of the each student's academic record. Data were extracted from all available student reflection essays from the classes of 2008-2011. Thus, this study took a phenomenological approach, which examines the meaning of events through the lens of the people closest to the event or situation (Bogdan & Biklen, 2010). In addition, use of the reflection essays allowed for inclusion of the students' exact words and voices, as opposed to summaries or second-hand information. Data access and research procedures were approved by the Institutional Review Board of the University of Hawai'i at Mānoa. In addition, informed voluntary consent is obtained at the start of the 'Imi Ho'ōla academic year for the use of student likeness, photograph(s), voice, or name for publication and video purposes. All available essays from students who participated in classes of 2008-2013 were included in the analysis. The demographic profile of the 41 student participants who completed reflections is described in Table 3. A total of 41 reflection essays were thematically analysed by the four primary individuals on the research team (O'Connor & Gibson, 2003). Prior to analysis, essays were de-identified by an unbiased source. Personal identifiers such as name, date, class, and instructor were removed from each essay. The essays were assigned an identification number and randomly assigned to the group for analysis. Every essay was read in its entirety by two members of the research team who independently identified emerging themes for each of the four prompts. Allowing codes and

themes to emerge from the reflections supported the flexibility that is needed in qualitative research to be grounded in and reflective of the voices of the participants (Silverman & Marvasti, 2008). In addition, validity and reliability were ensured through multiple independent sources evaluating the same data (O'Connor & Gibson, 2003). Team members were instructed to review each essay in four stages: 1) read without highlighting or marking; 2) highlight key words; 3) assign names for themes that describe highlighted key words; and, 4) review themes and expand or consolidate. All members worked from a common matrix template to organise their key words and themes for each of the four prompts. Once all essays were read and reviewed independently, team members then came together and compared their findings. This multi-session process was facilitated by a fifth member of the research team. During these group sessions, themes within each prompt were condensed or expanded, based on consensus. After the themes were established, related quotes from the essays that could exemplify the themes were added.

Table 2. Student Reflection Prompts

Number	Prompt
1	Based on what you observed and experienced during your time in Kalaupapa, discuss the role of disease and how it has impacted the individual, family, community, and society of Kalaupapa.
2	What did you learn about yourself through your experience at Kalaupapa?
3	What did you learn about others?
4	How could a future trip to Kalaupapa be improved to better facilitate your learning?

Results

The demographic profile of the participants who completed post-participation reflections is summarised in Table 3. Student participants in the Kalaupapa service learning project are from disadvantaged backgrounds, many are indigenous (36%) and the majority of participants originated from rural communities of Hawai'i and the Pacific (i.e. Guam and American Samoa). Ninety-

five (95%) of the students included in the study are of Asian and Pacific Islander descent and seventy-one (71%) self-identify as being raised with English as a Second Language (ESL).

Each of the four reflection prompts/questions were designed to support learning objectives (LO) of the Scientific Basis of Medicine (SBOM) course.

Table 3. Demographic Profile of Post Participation Student Reflections

Demographic Profile of Post Participation Student Reflections (N=41)			
	Descriptor	Frequency	Percent (%)
Gender	Male	19	26.3
	Female	22	53.7
Origin	Hawaii	33	80.5
	Guam	7	17.1
	American Samoan	1	2.4
Origin	Rural	27	65.9
	Urban	14	34.1
ESL	No	12	29.3
	Yes	29	70.7
Primary Ethnicity	Hawaiian	9	22.0
	Filipino	12	29.3
	Asian (Chinese, Japanese, Korean, Vietnamese)	13	31.7
	Chamorro	5	12.2
	American Indian	1	2.4
	Caucasian	1	2.4
Indigenous	No	26	63.4
	Yes	15	36.6
Age Upon Entry (N=41)			
Min Mean Max		22	26 34

Question 1. Based on what you observed and experienced during your time in Kalaupapa, discuss the role of disease and how it has impacted the individual, family, community, and society of Kalaupapa.

Question 1 was intended to illicit responses that would support LO1): explain and give examples of varying global perspectives regarding health

and disease; LO2): describe the need for healthcare services in rural and underserved populations; and LO4): predict the epidemiological and psychosocial impact diseases/health conditions have on society.

Sense of Loss and Resulting Isolation

Student reflections described an immense sense of loss experienced by patients with Hansen's disease due to the forced separation from their 'ohana (family unit). Adults and children, once diagnosed with the disease, were forcibly taken from their families and sent to Kalaupapa, Moloka'i. This physical and emotional separation led to strong feelings of isolation for the patients sent to Kalaupapa. The isolation experienced by patients was further impacted by the remote geographical location of the settlement. Kalaupapa remains underdeveloped and is characterised by vast open fields, small houses, paved roads, cemeteries, and remnants of its historical sites that symbolise the experiences endured by the patients of Kalaupapa.

The term 'isolation' cannot be truly understood until one experiences it oneself... Families were torn apart. Mothers were unable to raise their children, divorce was sanctioned for those spouses that had the disease, and patients were isolated from the larger community. (Student Reflection #5)

Once an individual was diagnosed with Hansen's disease, they were basically marked as a prisoner and cast away to live in this remote peninsula. Many of their rights were taken away and they had no choice but to make this their new home, while leaving behind loved ones and friends. Many times, individuals were alone and had to battle this separation along with their disease. (Student Reflection #41)

Unity

Student reflections also described the unification of the patients and residents of Kalaupapa. The creation of strong relationships between individual patients, among healthcare staff and patients, and the larger Kalaupapa community emerged repeatedly in the reflections. Residents and patients found unity through common health and social challenges, as well as a unifying sense of faith and spirituality.

After examining the land and the people of Kalaupapa, I noticed that it is a very close-knit

community where everyone is like family...The community rather than stigmatised the residents, view these people as their role models...who despite the sufferings, continued to strive forward with a positive outlook on life. (Student Reflection #32)

Resilience

The theme of individual resilience, demonstrated by the residents of Kalaupapa, also emerged in student reflections. The shared experience of historical trauma and isolation eventually led to the creation of lasting relationships between individuals, families, and communities. The resilience demonstrated by inflicted patients was strengthened by the presence of spirituality and hope.

I sensed that Kalaupapa was an incredibly peaceful and spiritual place because it was made up of people who had already had their share of unrest in the past...Their inspiring spirituality that spoke of strength in self, forgiveness towards others, and motivations to keep moving forward no matter the obstacles that stand in the way. (Student Reflection #34)

Question 2. What did you learn about yourself through your experience at Kalaupapa?

Question 2 gives students the opportunity to reflect on LO5): recognise and apply professional behaviors and attitudes as recommended by the AAMC.

Awareness of Self and Others

Students gained self-awareness, recognising their ability for self-reflection and subsequent personal and professional growth. They grasped that their openness to this process of growth was vital to evaluating one's own personal strengths and weaknesses. Understanding the communities' hardships allowed the students to reflect on their own strengths and weaknesses, ultimately enabling them to gain increased empathy toward others and affirmation of their original altruistic motives for entering medicine. With increased self-awareness, students develop a clearer understanding of their own attitudes and beliefs which impact how they approach their patients. Self-awareness is a key initial step to developing cultural competency and can have a positive impact on students' ability to develop effective working relationships with other professionals who are a part of the health care team.

Through this experience, I am increasingly proud and grateful to have been born and raised in the beautiful and historically rich islands of Hawai'i. I am also proud to be a part of a resilient culture, Hawaiian, that was able to bounce back from hardships and discrimination that plagued its path...this experience also reminds me to be appreciative of what I have today, never to take things for granted, and by no means should I be afraid of hard work to reach my goals in life. (Student Reflection #27)

It's easy to read about these accounts but when you are watching them tell their stories, with tears in their eyes, I could not help but feel a degree of pain they felt. I learned that people with disease are more than just the disease they have....when I listened to the residents, I was able to put myself in their shoes and experience a piece of their journey. (Student Reflection #4)

Resilience

Students expressed that through increased self-awareness and understanding of relationships with others, they learned how resilient they were. Traits that were repeatedly reflected upon included mental and physical strength, perseverance and fortitude. "What [the patients shared] was an inspiration and has motivated me that there is nothing in life that I cannot overcome and that as long as I have the will to move forward, I will have the strength to tackle it." (Student Reflection #32)

Reinforced Future Professional Goals

Thematic analysis revealed that students reinforced their perspective of future goals, reflected on their motives for entering medicine and affirmed their desire to continue to work toward reaching those goals. The service learning project offered students a longitudinal experience that inspired them to reflect and at times reinforce their future career aspirations. This ongoing reflection is an important skill for students pursuing careers as physicians.

Through my personal experience at Kalaupapa, I have reaffirmed that I eventually want to serve rural communities that are in dire need of physicians. The experience has taught me that my duty is to those who need me...I have noticed and appreciate the tight-knit relationship between patient and doctor, and those are the types of relationships that I hope to build in the future. (Student Reflection #1)

Question 3. What did you learn about others?

Question 3 helps students apply their perceptions to concepts associated with LO3): articulate the roles of health professionals working in the health care setting; and LO5): recognise and apply professional behaviors and attitudes as recommended by the AAMC.

Teamwork

Student reflections described the need to put forth their best effort and work together to achieve the goals of the learning service project. As students experienced success with group tasks and activities, a greater sense of respect, support, and trust of their peers developed among them. Recognising the importance of teamwork enables students to value the role of peer groups which can be helpful for studying, completing projects, and providing mutual support for each other. Knowing necessity of teamwork offers students the opportunity to learn about themselves and how they function as part of a team. This is significant as students continue their journey throughout their medical training.

I learned that I am part of a very dynamic and altruistic group of students. Everyone has qualities, resources or characteristics that add to the success of our group as a whole. (Student Reflection #36)

Fellowship

Student reflections described that the opportunity to work together outside the normal academic environment promoted the breakdown of traditional roles in favor of fellowship among group participants. Student reflections revealed that relaxed social environments advanced bonding and camaraderie among participants. The *lu'au* (i.e. traditional Hawaiian gathering) and participant talent show offered opportunities for open self-expression and team spirit, fostering a sense of community among the participants. It is important for students to develop their ability to connect with others through fellowship and social interactions within the professional setting in order to successfully pursue medicine, which relies on many individuals coming together to provide comprehensive services to patients and their families.

It was also nice to get to know the faculty members outside of the academic setting. I was

able to realise that they too are very much like us, each having unique characteristics that I would have never known about inside the classroom. (Student Reflection #35)

Sharing the experiences on the trip brought all of us closer together, not just as classmates but also as a family. (Student Reflection #16)

Future

Many of the student reflections stated that the bonds established during their shared experience at Kalaupapa would continue well past graduation and into their future careers. Students felt that they could rely on their classmates for support and help in both the immediate and distant future. Participants were also able to identify how the experience influenced them as future medical students and physicians since trusting and relying on their classmates will be an important part of becoming a part of a community.

This experience has brought our class closer than we were before and I will always be grateful for that. I will take what I have learned to guide me as I work towards becoming a physician and when I am a physician. (Student Reflection #26)

Question 4. How could a future trip to Kalaupapa be improved to better facilitate your learning?

Although question 4 did elicit student responses that were concerned with future improvements, the nature of the responses resonated with LO5): recognise and apply professional behaviors and attitudes as recommended by the AAMC.

Length of Stay

The overall consensus of student reflections was that the time at Kalaupapa should be extended. During the service learning project, students became invested in the culture and the people around them. Regardless of time constraints, it was also evident in the reflections that the students' goals for their careers were reinforced during their time at the settlement.

An additional suggestion for improvement would be to extend the length of the trip by at least one day, so that there would be either time do additional activities, such as visit the hospital, or more time for each activity. Although we managed to accomplish many things during our short trip, many aspects felt rushed and thus

could not be fully appreciated or enjoyed had there been more time. (Student Reflection #21)

Level of Interaction

It was communicated from students that there was a desire for increased interaction with patients in the hospital facility at Kalaupapa. Students expressed a desire to gain an understanding of rising above diversity through personal testimonies of the patients. Students also noted that it would be constructive to have time set aside to evaluate and share the information they acquired with others.

Future trips to Kalaupapa could be improved to better facilitate learning by allowing more opportunities to interact with residents and hear their stories. Being able to hear the residents tell their personal stories and experiences is very powerful in helping one to understand the impact of disease. (Student Reflection #21)

The only suggestion I could provide, is to include a sharing time... the result is the creation of an even greater bond, and the realisation that there is always more to learn about a person. (Student Reflection #5)

Gratitude

Respondents expressed gratitude in their reflections. Students described how thankful and honoured they were to be afforded this unique experience. Students shared that lessons gained while at Kalaupapa can be taken with them throughout life, and that these lessons will add to their professional development. Many students realised how important it is to “hear the patient’s stories” in order to better address their health care needs. Students expressed gratitude in being able to discover the beauty of the land and learned its important role in the healing of the indigenous people of Kalaupapa. The gratitude and reverence for this unique learning experience demonstrated by the students illustrates the importance of having students learn directly from our communities and not just from the institutions in which they are housed.

It truly was a blessing to be able to go to Kalaupapa and share this experience with my classmates and the faculty. Getting to learn and see the historical places in Kalaupapa was such a memorable experience...It is also a trip that reminds us to not take anything for granted and helping others is a gift in itself. (Student Reflection #6)

In general, my trip to Kalaupapa genuinely changed my outlook on life and provided me with deeper insight into the psychosocial aspects of medicine. (Student Reflection #3)

Discussion

Resilience

Resilience of the patients who were sent to Kalaupapa, as well as the resilience of the students in the program, was a prominent theme. Students appeared to value and relate closely to this characteristic demonstrated by the patients. With the loss of identity, separation of family and destruction of social supports, patients relied on their individual and collective resilience to overcome their disheartening circumstances. Patients also relied on their faith and spirituality in order to find a compelling reason to rebuild and create a new sense of themselves and their community. Through this service learning experience, students appreciated how Native Hawaiian patients redefined health and disease according to their own terms (LOC1), described how the lack of services, medical and otherwise, encouraged their own self-reliance (LOC2) and better understood how the loss of identity, family relationships, and familiar social supports impacted society both within and beyond Kalaupapa (LOC4). Similarly, students reflected on their own personal resilience. The service learning project allowed each student to discover what was needed to create a successful learning experience but also what they must look to in order to achieve their professional goals to become physicians. Similarly to the patients from Kalaupapa, students overcame personal barriers to their academic journey, despite past disappointments, and described finding the mental and physical strength to persevere through the challenging one year program. In order to be academically successful, students have had to rely on their perseverance, inner strength, faith, and belief in themselves. In the competitive field of medicine, resiliency is a vital factor that contributes to success for students from underrepresented, indigenous and underserved populations. For many indigenous students, they are the first in their families to pursue the daunting career of medicine and have had limited role models and resources. Therefore,

finding the factors that build and sustain their personal resiliency is vital to their success.

Unity

An overarching theme of unity was highlighted by student learners and the patients/residents of Kalaupapa. Students recognised patients' need to regain a sense of family and community in their collective isolation, and redefine these concepts in order to build a support network (LO1). Their ability to pull together influenced the availability of healthcare services at Kalaupapa, and how they were viewed as a collective by healthcare professionals (LO4).

Mirroring the patients of Kalaupapa, students unified through fellowship and teamwork as they accomplished mutual goals for the Kalaupapa service learning project. Encouragement of group work was reinforced by the project's student fundraising initiatives and student led coordination and planning. The overarching theme of unity among and between the community and student learners are in alignment with other service learning experiences in medical education that promote collaborative partnerships and community-based approaches to team-building (Wald et al., 2015). As future physicians, students must work together with colleagues as well as other health professionals as part of a multi-disciplinary team (LO3). Finding unity within the peer group as well as within the student's family support networks are very important aspects of the indigenous student experience. Indigenous beliefs encourage the concept of being connected with others and unified in harmonious relationships with others. The concept of unity is a significant source of support for students and the development of strong interprofessional skills is critical not only to the success of the service learning project, but also to the students' development as a future leaders in indigenous health (LO5).

Development of Leaders in Indigenous Health

The Kalaupapa service learning project immersed students in the historical and modern day patient experience of those impacted by Hansen's disease and their lives in Kalaupapa. The combination of academic enhancement through student research and thesis development, along with experiential learning in a community-based

setting, created an ideal educational opportunity for students to learn about and reflect upon indigenous perspectives and values such as the importance of relationships, unity and teamwork as well as resiliency. Following the service learning project, students expressed respect and empathy for the patients' struggles and strengths, as well as those of their peers. The experience also reinforced students' commitment to service, particularly to populations in rural and underserved communities. This understanding of the history and impact of Hansen's disease on patients and families helped students develop empathy and concern for underserved communities (LO2). Learners also gained a deeper understanding of the patient experience and of themselves as future physicians (LO5). Medical student "wholeness" and engagement with patients are essential to the training of caring, compassionate health providers. The findings of this study demonstrate that a longitudinal year-long service learning experience focused on a predominantly indigenous, underserved and rural community may also be an effective teaching method to enhance students' awareness and perspectives of the essential aspects of indigenous health.

Limitations

Limitations of the study included the number of student reflections used in the analysis and limited prompts for the reflection assignment. There was also a potential bias that existed for the thematic reviewers, since two of the four reviewers were instructors of the service learning project. Because the reflections were graded assignments, this may also have impacted the responses provided by the students. The study is also limited, because there are no data available regarding the students' knowledge and attitudes toward humanism in medicine or indigenous values/practices prior to the service learning experience. Student participants in the Kalaupapa service learning project come from disadvantaged backgrounds and the majority of the students originate from rural communities of Hawai'i and the Pacific (i.e. Guam and American Samoa). As noted previously, ninety-five (95%) of the students included in the study are of Asian and Pacific Islander descent and 71% self-identify as being raised with English as a Second Language (ESL). Although this study may be highly relevant

to educational programs that service students from disadvantaged and underrepresented backgrounds, these student factors may introduce potential bias and limit the study's transferability to the general post-baccalaureate and medical student populations.

Future Directions

Given the feedback obtained from the students, there is consideration to extend the amount of time spent during the service learning project while in Kalaupapa. Pre and post surveys of student knowledge, attitudes, and beliefs regarding humanism in medicine and indigenous perspectives toward health would strengthen the program's ability to effectively assess the learners' gains. The instructors would also like to integrate additional community input to assess learning objectives and development of the service learning project over the course of the year. Being able to have students interact with community members from Kalaupapa would enrich the humanistic aspect of the project and offer additional opportunities for student enrichment and exploration of the themes that have been identified by the reflection papers. The program will explore conducting a follow up survey with program graduates to assess whether findings of the study are maintained over time.

Conclusion

In order to meet the unique needs of indigenous communities, educational programs must prepare a health care workforce that values and engages with indigenous perspectives. Through the Kalaupapa service learning project, students were able to learn and reflect on the traumatic history of the mandatory quarantine of Hansen's disease patients. From this experience, students gained a clearer understanding of resiliency of both the patients and of themselves. By reinforcing their motivation for medicine and commitment to service rural populations, students were able to identify how to be resilient and flourish in the competitive field of medicine, where indigenous medical students and role models remain underrepresented. Students were also able to recognise the importance of developing trusting relationships with peers and finding strength as a unified group which will be critical as part of their training as members of a

multidisciplinary health care team. For indigenous students, the importance of an empathetic and grateful approach to the patients' life experiences allows them to develop the cultural competency skills needed to be effective health care providers and to create the foundation necessary to maximise their potential as future leaders in indigenous health.

Abbreviations

LCME: Liaison Committee on Medical Education

JABSOM: John A. Burns School of Medicine

SBOM: Scientific Basis of Medicine

AAMC: Association of American Medical Colleges

LO1: Learning objective 1

LO2: Learning objective 2

LO3: Learning objective 3

LO4: Learning objective 4

LO5: Learning objective 5

References

- Bogdan, R. C., & Biklen, S. K. (2010). Foundations of qualitative research in education. In W. Luttrell (Ed.), *Qualitative educational research: Readings in reflexive methodology and transformative practice* (pp. 21-44). New York, NY: Routledge.
- Buckner, A. V., Ndjakani, Y. D., Banks, B., & Blumenthal, D.S. (2010). Using service-learning to teach community health: The Morehouse School of Medicine community health course. *Academic Medicine*, 85(10), 1645-1651. doi:10.1097/ACM.0b013e3181f08348
- Chou, C. M., Kellom, K., & Shea, J. A., (2014) Attitudes and habits of highly humanistic physicians. *Academic Medicine*, 89(9), 1252-1258. doi:10.1097/ACM.0000000000000405
- Dewey, J. (1938). *Experience and education*. New York, NY: Macmillan.
- Gibson, B. A., & Puniwai, N. (2006). Developing an archetype for integrating native Hawaiian traditional knowledge with earth system science

- education. *Journal of Geoscience Education*, 54(3), 287-294.
- Hansen's disease. (2014). *National Park Service*. Retrieved from <http://www.nps.gov/kala/planyourvisit/upload/HansensDisease.pdf>
- Hunt, J. B., Bonham, C., & Jones, L. (2011). Understanding the goals of service learning and community-based medical education: A systematic review. *Academic Medicine*, 86(2), 246-251. doi:10.1097/ACM.0b013e3182046481
- Kana'iaupuni, S., Ledward, B., & Jensen, U. (2010). Culture-based education and its relationship to student outcomes. *Kamehameha Schools, Research & Evaluation*. Retrieved from http://www.ksbe.edu/_assets/spi/pdfs/CBE_relationship_to_student_outcomes.pdf
- Lee, W. K., Harris, C. D., Mortensen, K. A., Long, L. M., & Sugimoto-Matsuda, J. (2016). Enhancing student perspectives of humanism in medicine: reflections from the Kalaupapa service learning project. *BMC Medical Education*, 16. doi:10.1186/s12909-016-0664
- Law, A. S. (2012). *Kalaupapa: A collective memory*. Honolulu, HI: University of Hawai'i Press.
- Lee, W. K., Lee, M. S., & Carpenter, D. A. (2014). Medical school hotline: Celebrating 40 years of 'Imi Ho'ola. *Hawai'i Journal of Medicine & Public Health*, 73(2), 66-67.
- Long, J. A., Lee, R. S., Federico, S., Battaglia, C., Wong, S., & Earnest, M. (2011). Developing leadership and advocacy skills in medical students through service learning. *Journal of Public Health Management and Practice*, 17(4), 369-372. doi:10.1097/PHH.0b013e3182140c47
- Meili, R., Fuller, D., & Lydiate, J. (2011). Teaching social accountability by making the links: Qualitative evaluation of student experiences in a service-learning project. *Medical Teacher*, 33(8), 659-666. doi:10.3109/0142159X.2010.530308
- Moblo, P. (1999). Ethnic intercession: Leadership at kalaupapa leprosy colony, 1871-1887. *Pacific Studies*, 22(2), 27-69.
- O'Connor, H., & Gibson, N. (2003). A step-by-step guide to qualitative data analysis. *Pimatisiwin: A Journal of Aboriginal & Indigenous Community Health*, 1(1), 63-90. Retrieved from <http://www.pimatisiwin.com/uploads/1289566991.pdf>
- Semken, S., & Freeman, C. B. (2008). Sense of place in the practice and assessment of place-based science teaching. *Science Education*, 92(6), 1042-1057. doi: 10.1002/sce.20279
- Silverman, D., & Marvasti, A. (2008). *Doing qualitative research: A comprehensive guide* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Wald, H. S., Anthony, D., Hutchinson, T. A., Liben, S., Smilovitch, M., & Donato, A. A. (2015). Professional identity formation in medical education for humanistic, resilient physicians: pedagogic strategies for bridging theory to practice. *Academic Medicine*, 90(6), 753-760.
- Winona Lee** is Director, 'Imi Ho'ola Post-Baccalaureate Program, Department of Native Hawaiian Health, The University of Hawai'i at Mānoa - John A. Burns School of Medicine. winonal@hawaii.edu
- Chessa Harris** is Instructor, 'Imi Ho'ola Post-Baccalaureate Program, Department of Native Hawaiian Health, The University of Hawai'i at Mānoa - John A. Burns School of Medicine. chessa@hawaii.edu
- Kawika Mortensen** is Research Associate, Native Hawaiian Center of Excellence, Department of Native Hawaiian Health, The University of Hawai'i at Mānoa - John A. Burns School of Medicine. kawikaam@hawaii.edu
- Malia Lee** is Director, Native Hawaiian Center of Excellence, Department of Native Hawaiian Health, The University of Hawai'i at Mānoa - John A. Burns School of Medicine. mll@hawaii.edu
- Authors' contributions.** WL served as principal investigator and was responsible for the research design, data analysis and interpretation, ethics approval and authorship of the manuscript. CH contributed to research design, including questionnaire development, collection, analysis and interpretation of data and manuscript revision. KM contributed to research design, data analysis, interpretation of data and manuscript revision. ML contributed to interpretation of data

and manuscript revision. All authors read and approved the final manuscript.