



Medical Education

Service learning with reflective learning outcomes by a medical student at an international meeting

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1. Introduction

Service learning is defined as a “structured learning experience that combines community service with preparation and reflection” [1]. As the healthcare system evolves, reorienting medical education toward community health is one strategy for aligning the priorities of academic medical centers with those of the general population [2]. In recent years, Taiwan medical education has undergone a dramatic change, and medical students are now encouraged to acknowledge the competencies of general medicine and study in community medicine. Thus, medical students are exposed to a wide range of community services, mostly involving rural areas.

Reflective capacity is crucial in developing critical thinking and clinical reasoning skills and in cultivating professionalism [3]. The use of reflective narratives to augment reflective practice instruction is well documented. Reflective writing has also been shown to be an effective method of self-reflection for medical students to facilitate the maturation process in dealing with uncertainty, promote personal and professional development, and augment their ability to connect with others [4,5].

The purpose of the present study was to demonstrate a medical student's self-reflection and learning outcomes linked to the six core competencies of the Accreditation Council for Graduate Medical Education (ACGME) after voluntary participation at an international meeting. Instead of traditional community service,

medical students participated at the 20th International Mucopolysaccharidosis (MPS) Network Meeting, which gathered patients with MPS, physicians, researchers, and other professionals from around the world in a learning setting.

2. Process of learning

The 20th International MPS Network Meeting organized by the Taiwan MPS Society in Taoyuan, Taiwan involved MPS families from 14 countries. This meeting is held annually to update participants on academic progress in MPS and to connect MPS societies worldwide. Geneticists from all over Taiwan participated in this activity. Medical students from Tzu Chi University were invited to volunteer as translators and caregivers. Notification was sent through e-mail to obtain voluntary participation from medical students. Twelve students (5th year and 6th year) registered and orientation was conducted. Five learning objectives were designed for this service-learning program (i.e., how worldwide MPS societies network, updates on MPS treatment and research, techniques in caring for children with MPS, the history of the Taiwan MPS Society and its founder, and a structured self-reflective session under mentor guidance).

One week prior to service learning, students were given an abstract of the academic talks and the reference web for preparation. Students also requested a review of pediatric emergencies to enhance their knowledge and skills in airway management, because children with MPS often have airway difficulties due to intracellular accumulation of degradation products [6]. Students were divided into two groups that alternated roles as translators and caregivers. Interviews with the founder of the Taiwan MPS Society and representatives from other countries were arranged. A

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mentor-guided self-reflective group meeting was conducted during the activity. Students recorded and reflected about their experiences with narrative writing whereas the five learning objectives were assessed through a questionnaire.

One section was arranged for one medical student to discuss her narrative reflective writing face-to-face with the mentor. The discussion mainly focused on the ACGME six core competencies, that is, medical knowledge, patient care, interpersonal and communicating skills, practice-based learning and improvement, systems-based practice, and professionalism. This medical student's narrative reflective learning outcomes were elucidated.

3. Results

3.1. Narrative reflective writing

"This two-day, one-night service learning is indeed tiring but memorable. Before this meeting, I had only seen pediatric MPS morphology in a textbook, because it is a rare genetic disorder. At first, I was anxious as I doubted my ability to deal with these patients and families. I was in Group A, with translation sessions in the morning and caregiving in the afternoon. The moment I stepped into the hall, I told myself that I will try to overcome obstacles. I have five parents sitting around me, all from China. I started to translate from English to Mandarin Chinese, and asked questions on their behalf. Their children had different subtypes of MPS, so I tried not to neglect any of them. This was the first time I needed to listen, understand, organize, and translate within seconds. Slowly, I realized I not only needed to do interlanguage translation but also convert professional medical terms to simple common terms to help them understand better. With all these considerations, the translation process was very challenging. Sometimes I wondered if I should translate all the information for the parents, especially when it concerned the uncertainty of treatment results and poor prognoses. It seemed very cruel to tell the truth. It reminded me about cases in the hospital, when doctors have to tell patients they are terminally ill.

After lunch, I switched to the caregiver team. It was totally different from the morning session. We helped MPS children use their creativity to design a mask to use in the dinner session. I encountered four Malaysian children with MPS. Although they had different cultures and languages, they were carefree when interacting with each other. It must be a valuable occasion for them as this is the only time when they are 'normal' to everyone. Although they might look different, or might have mental retardation, they are who they are. Their laughter and innocence touched my heart. Despite the disabilities, the parents praised their children for everything they do, encouraging them to mix with everyone. Meanwhile, the parents shared their experiences with each other. All families had their own hidden stories, challenges, and obstacles, and told how the MPS network enlightened their life. After struggling for years, parents are experienced and are even better practiced than medical personnel in dealing with children with MPS.

The interviews with the founder of the Taiwan MPS Society, and MPS representatives from Australia, Indonesia, and Canada were inspiring. I was amazed by all the representatives. Most of them were parents of children with MPS, and they created a support network among MPS families. Some well-established MPS societies even provide scholarships for MPS research, encouraging students to get involved in research during summer or winter vacations. I noticed differences between countries, especially those with or without government and social support, which significantly affects how the society works.

Throughout the meeting, I learned the connections between different parties. Physicians link MPS patients to MPS societies, and drug companies sponsor the expensive treatment, whereas families support each other physically and mentally. Through the talks,

everyone learned about recent advances in medical knowledge about MPS, including the new enzyme replacement therapy. There was a report about outcomes in different subtypes by Dr. Sung from Korea, and a report on genetic mutations in particular subtypes that differ among races by Dr. David Whiteman from United States. Everyone played their role, creating a perfect MPS network.

During the first night, we had a mentored self-reflective session. During the activity, everyone shared obstacles that they had encountered. We had another brainstorming session that stimulated us to think about and reorganize what happened throughout the day. One person shared an experience in which he failed to handle a child with MPS who suddenly became very irritable, and he needed help from his mentor and the patient's father. Without hesitation, the father helped his son stand up. Immediately, the child stopped crying, and a smile appeared on his face. Group B met a child with breathing difficulties due to an upper respiratory illness, and another who accidentally swallowed a magnetic checker. Students in charge provided respiratory support and removed the foreign body from the patient's mouth, respectively. Our mentor explained the management of both situations to the parents and us. Besides giving opinions and suggestions, our mentor shared positive feedback from organizers and participants."

3.2. Elucidating learning outcomes after the mentoring process

"This was the first time I needed to listen, understand, organize and translate within seconds. Slowly,..... converted professional medical terms to simple common terms to help them....."

As physicians, we are required to demonstrate interpersonal and communication skills that result in an effective exchange of information and collaboration with patients, their families, and health professionals. A systematic review showed the best training strategies for communication skills including role-play, feedback, and small group discussions [7,8]. This two-day service learning exposed students to an informal clinical setting where they communicated with MPS patients, families, and physicians, and also other medical students. In dealing with different parties, students have to figure out how to interact effectively. For example, when talking to families, students learn how to use appropriate words to avoid hurting their feelings. The self-reflective session helps students self-reflect, understand their internal feelings, and communicate with other teammates through sharing and listening to feedback from different perspectives.

"All families had their own hidden stories, challenges and obstacles, and told how the MPS network enlightened their life."

During clinical practice, students tend to become used to the medical environment where medical professionals know more than patients. However, in the present setting, the opposite is true. Almost all MPS families know more than the medical personnel, and parents are well-trained; they have had hands-on experiences in taking care of their children. This in turn reminds students of their limits and weak points in both medical knowledge and skills, and most importantly, the patient and their families are our best teachers.

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When applying the Plan-Do-Study-Act cycles of the Model for Improvement, students learn and improve through various clinical settings. When preparing, students plan how to handle various

situations. When volunteering, students participate in and learn from all participants and society. Parents taught them how to communicate, showed them sensitivity when meeting the needs of MPS children, and inspired them with determination in creating an MPS society. All these remind students that there is still a lot more to learn, and there is a life-long learning process throughout the medical path.

“Throughout the meeting, I learned the connections between different parties.....

I noticed differences between countries, especially those with or without government and social support, which significantly affects how the society works.”

As a physician, it is important to be aware of and respond to the larger context and system of healthcare. Physicians should be able to call effectively on other resources in the system to provide optimal healthcare for patients [8]. A good interprofessional collaborative team ultimately enhances patient safety and improves the quality of patient care. Taiwan has a complete healthcare support system in dealing with genetic disorders. Through this international meeting, students observed how different professionals work together. Families interact with doctors and drug suppliers concerning future treatment for their children, and share experiences as caregivers with other MPS families. It is imperative to know the role of medical personnel in assisting patients under this well-organized system, and the resources available to coordinate patient care within the healthcare system relevant to their clinical specialty. Growing up in Taiwan, students never know how other countries work. Through interview sessions, students realized various countries have different healthcare systems. Regardless of the healthcare and support system, there is always a network based on available resources. The international MPS Network is one of the best examples showing how MPS societies interact between countries, sharing available resources to give patients optimum care worldwide. Collaboration between MPS societies allows them to share available resources globally. Participants from different countries made up a population that was diverse in sex, age, culture, race, disabilities, and religion. It is a great chance to help students develop communication skills and learn to respect a patient's autonomy. This international meeting soon became an informal community classroom; all resources were available for students to learn and to explore.

“Sometimes I wondered if I should translate,.....

.....Everyone plays their role, creating a perfect MPS network.....”

Professionalism is the commitment to carry out professional responsibilities and adhere to ethical principles [3,8]. It has many components, including honesty, commitment, communication, and responsibilities. Challenges and obstacles while volunteering help students discover limitations and weaknesses. Rather than volunteering, students are actually learning. Parents reveal their past, their determination, and how they overcome difficulties in dealing with their MPS child.

“We had another brainstorming session that stimulated us to think about and reorganize what happened throughout the day.”

Students are taught to be patient-centered in dealing with clinical situations. Although they might face obstacles in a hospital, a hectic clerkship or internship does not provide a chance to reflect or to discuss how to handle different situations with a mentor. Empathy declines rapidly after exposure to the increasing workload and stress of clinical experience [9]. According to the ACGME core competencies, physicians must be able to provide patient care that

is compassionate, appropriate, and effective for the treatment of health [8]. There is a saying “Not until we face it do we learn it.” During the group self-reflective session, everyone identified their own problems. Facing similar situations, such as hesitation during translation, everyone reacted spontaneously. Some suggested complete translation and others suggested adding some comforting words or slight modifications. Although they may have acted differently, their actions came from the same thought – to give the best to the patient.

4. Discussion

Service learning involves two imperative parts: preparation, to ensure students understand the new framework and methods with which they will be working; and follow-up, building in sufficient time for student reporting and reflection [10]. A mentor is necessary to guide students through the process of service learning, either prior to, during, or after the activity, to enhance the effect of learning [11].

The traditional service learning concept often combines services organized in a community setting. In some schools, community service activities are closely linked with curricular emphasis, whereas others are the result of the independent efforts by students individually or in an organized group [12]. However, there are concerns about integrating community services into medical education, including the need for collaborative planning with agencies to provide opportunities for volunteering, ongoing funding, and core staff to support these programs [12]. In addition, medical students, especially those who are presently involved in internships, do not have time to plan and organize. Students are in class or clinical practice during the day, and it is often difficult to connect to provide feedback [12].

In this study, service learning was integrated into an international meeting. The Taiwan MPS Society as the host, invited MPS families, geneticists, and researchers worldwide. It was an international meeting, therefore, the agenda was well planned a few months in advance. The medical students involved could plan ahead, sparing their weekend for this activity. Students and mentors could spend time together for feedback and self-reflective sessions during lunch breaks or in the evening. This provides a more complete evaluation and more effective structured service learning, overcoming some of the limitations in community services. It takes only 2 days, thus, it does not interfere with clinical practice and does not become a burden for medical students.

To change a point of view, service in a particular community requires a period of time to make a difference. Students need to plan and organize according to the needs of the community, and set up short-term and long-term goals. This becomes a burden for the organizers because they have to ensure the longevity of the service. Student interest is the most important requirement in community service [12]. When it becomes a burden, student interest decreases. Also, service learning must be voluntary because commitment and self-sacrifice, whether individual or institutional, is the key [11]. If universities become the organizers, compulsory participation will affect the willingness to volunteer.

As mentioned above, students requested a review of pediatric emergencies to enrich their knowledge and skills in preparation for this project. Although students did not encounter any emergency situations, they gained knowledge that could be applied in the future. Interaction with families helped students understand different clinical manifestations and dysmorphic features in different subtypes of MPS. Learning scientific knowledge is actually for patient care. Spontaneous reaction and application of medical skills and knowledge create a great learning opportunity for students. Teaching and learning in the community helps

students apply knowledge and skills that they learn in the classroom to real-world community settings [13]. Although students had been exposed to clinical practice, this was the first time that they had to be prepared and react immediately to the new knowledge.

Reflective narrative writing in medical education is an important opportunity to support medical students when they are dealing with the healthcare context [3]. It constructs meaning from their experiential learning, and, combined with a mentor's feedback, is useful in cultivating reflective capacity and gives valuable chances for transformative professional growth. This article only presents one medical student's learning outcomes, which may limit the representation of these 12 medical students, but it elucidates that a student's personal learning outcomes can be achieved through the use of reflective narrative results. In the future, more of the teaching faculty should be involved and there should be a qualitative study of narrative outcomes from more students participating in service learning.

In conclusion, through service learning, students are exposed to different environments. Volunteering at an international meeting provides an effective service learning setting because it is well planned, is related to their future profession, and has a specific target population. Most importantly, mentored self-reflection can be done during the service, because it is a key element of service learning, and can provide guidance and opinions effectively. The reflective narrative outcomes can be elicited and linked to the six core competencies of the ACGME.

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