IOCD 2025 Conference

The 1st International Online Conference on Diseases

09–11 September 2025 | Online

MDPI

Fostering reflective learning in Masters students through CDC clinical case studies in clinical parasitology

Peña-Fernández A[1*,2], Peña MA[3]

[1] Department of Surgery, Medical and Social Sciences, Univ. de Alcalá, Madrid, Spain; [2] De Montfort Univ., Leicester, UK; [3] Department of Biomedical Sciences, Univ. de Alcalá, Madrid, Spain.

Email: antonio.penafer@uah.es

To improve the clinical skills in parasitology of students working toward their Master's in Advanced Biomedical Sciences (De Montfort University, UK), a series of parasitology mini case studies were introduced in 2020/21, requiring students to reflect on their knowledge and seek information from different sources to suggest possible diagnoses. This Master's course is attended by graduates from a range of backgrounds who may or may not have studied human parasitology during their undergraduate studies.

METHODS

A series of teaching sessions (theoretical and practical) have been created related to emergency preparedness and response (Peña-Fernández et al., 2016).

Students are provided with different scenarios to develop an intervention programme to protect human health in the aftermath of a biological incident (Figure 1).

During the theoretical component of the training students were provided with different slides collected from the Laboratory Identification of Parasitic Diseases of Public Health Concern (DPDx; Figure 2) (CDC, 2017).

This experience was tested between 2020/21 and 2022/2023.

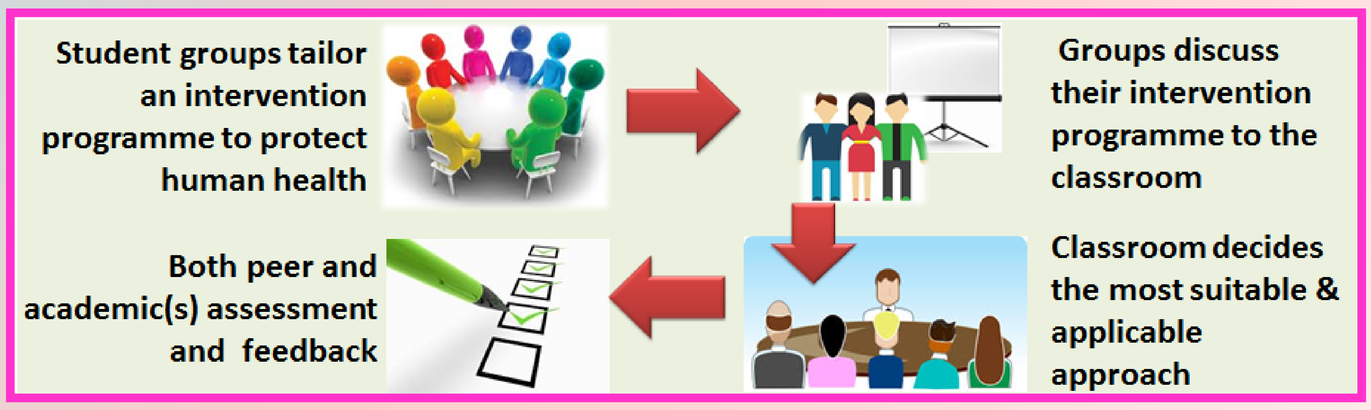

Figure 1. Detail of the practical component created (workshop). Peer teaching could be a valuable methodology for universities to engage learners in their learning through leading problem-based learning sessions.

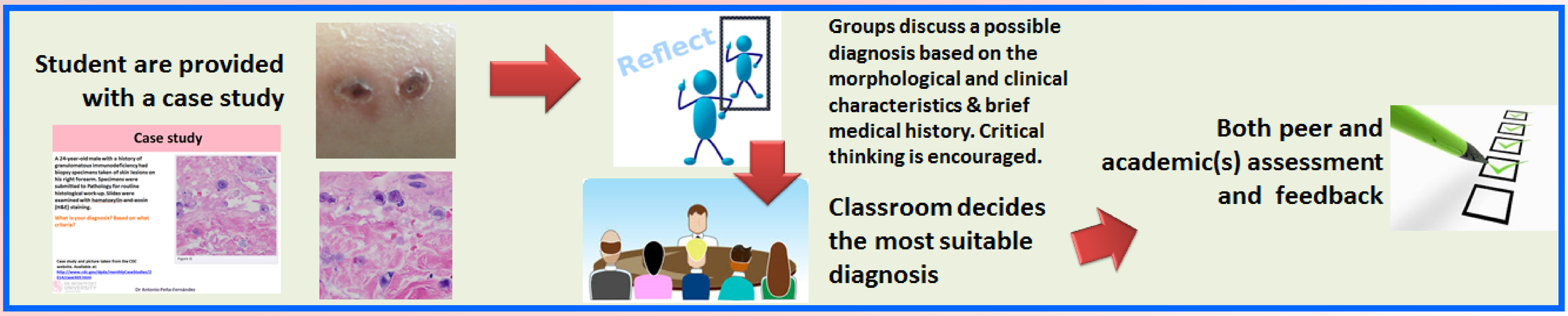

Figure 2. Detail of the introduction of case studies during the theoretical component of the course. Slides collected from the DPDx (Case #369 – Available at: https://www.cdc.gov/dpdx/monthlyCaseStudies/2014/case369.html).

RESULTS

Students (n=15/36; 2021-23) reported learning techniques to detect microsporidia spores (66.7%) and *Cyclospora oocysts* (75%) in environmental/clinical samples, which would be logical given the size of oocysts versus spores (10 vs. <1 µm). Our intervention would have been shown to facilitate the acquisition of clinical skills. In addition, students showed a gradual improvement in clinical case resolution throughout the course.

To study the impact of this intervention in a short period of time, these mini cases were used in a five-hour training session as part of the Master's in Industrial and Galenic Pharmacy at the Spanish University of Alcalá (2023/24). This MSc is for pharmacists only and has a full compulsory module on parasitology.

CONCLUSIONS

A priori, these case-studies have been shown to be effective in facilitating the acquisition of different transversal competences including critical thinking, clinical skills, communication and team work. Students quickly familiarised themselves with what they had learned about parasitology and showed a high success rate in responding to the various mini cases presented during the session, displaying similar results.

REFERENCES

CDC (Centres for Disease Control and Prevention). Laboratory Identification of Parasitic Diseases of Public Health Concern (DPDx); Monthly Case Studies 2017. Available at: https://www.cdc.gov/dpdx/monthlyCaseStudies/2016/index.html

Peña-Fernández A., Dunford LJ., Haris PI., Lobo-Bedmar MC., Peña MA. Harmonising the training of students within the EU to implement intervention programmes to protect the public in the aftermath of a HazMat incident. ICERI2016 Proceedings 2016; pp. 3559-3565.

Quintanilla G., Copa-Patiño JL., Guerrero A., González-Santander M., Hernández N., Arias MS., Domínguez MI., Peña MA., Evans MD., Peña-Fernández A. Reflective practice applications: "Guided Weekly Reflection Papers" extended from Alcalá University (Spain) to De Montfort University (UK). EDULEARN16 Proceedings 2016; 6250-6256.