Impacts of a simulation-based vaccination training course on master's degree students in pharmacy

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Background

As a result of the SARS-COV-2 pandemic, a new competence for pharmacists has been introduced in Belgium by the law of the 28 February 2022. Community pharmacists are now allowed to prepare and administer vaccines for the prophylaxis of COVID-19. To be allowed to vaccinate inside the pharmacy they legally need to follow and pass a specific 8-hour training course on vaccination.

Aim

The aim of this study is to evaluate if a simulation-based vaccination training course can provide future pharmacists to develop an interest in practicing vaccination in their future professional life, self-confidence to do it and the necessary skills. At the University of Liège, this training course is divided into a theorical and a practical part. The theorical part consists of an e-learning course referring to the theorical notions mentioned in the law. The practical training combines two parts. Firstly, in an Experimental Pharmacy, students follow a presentation on the legislative and ethical aspects and participate in role-playing games about vaccine hesitation and eligibility criteria. Secondly, in the Center of Medical Simulation, they participate in four workshops relating to the act of vaccination under the supervision of a physician and a nurse: preparation and injection of the vaccine in an intramuscular injection pad (1), cardiopulmonary resuscitation on a "little Anne QCPR®" (2), identification, distinction, and management with simulated patients of the vasovagal syncope (3) and of the anaphylactic shock (4).

Methods

The framework of this quantitative study was carried out on 88 master's degree students in pharmacy. Validated questionnaires were used and aimed to analyze the evolution of the students' perception in 3 areas: the satisfaction with the training (1), the interest of this simulation-based training in a public health setting, in the pharmacy curriculum and in relation to theorical courses (2) and the self-confidence in addressing a patient vaccine hesitancy at the counter, in preparing and injecting a vaccine as well as in managing adverse events that may occur following a vaccination (3). These topics are evaluated by Likert scale from 1 (totally disagree with the affirmation) to 5 (totally agree). In addition, the vaccination skills acquired during this training were evaluate with procedural checklists. The data were collected before (T0) and right after the vaccination training course (T1) and then 3 months later during a second simulation training (T2).

Results

Even before the training, the students have a great interest in practicing vaccination in community pharmacies (T0 92,7%; T2 97,7% of the students totally agree or agree with the affirmation) and for simulation training course (T0 86,0%; T2 92,1%). The student's self-confidence increased considerably in preparing and injecting the vaccine (T0 36,6%; T1 72,1%; T2 86,4% of the students totally agree or agree with the affirmation) and in managing adverse events (T0 31,2%; T1 86,2%; T2 86,6%). We also note a clear difference in terms of communication and vaccine hesitancy. The skills evaluated on the final assessment show that 84 students on 88 (95,4%) can carry out the procedures. Finally, about the satisfaction of the training course, we can observe that 87,6% of the students are satisfied with the training.

Conclusion

This training provides the students an increasing interest in public health and in simulation and increasing self-confidence in terms of vaccination procedures and communication. They also have the necessary skills to practice vaccination and so, in that way, respond to the requirements of the law.

Keywords: vaccination; training; pharmacy students; simulation

References

[1] Loi n°2022040449 du 28 février 2022 relatif à la vaccination et à l'administration, par des pharmaciens exerçant au sein d'officines pharmaceutiques ouvertes au public, des vaccins autorisés dans le cadre de la prophylaxie du COVID-19. Service public fédéral santé publique, sécurité de la chaine alimentaire et environnement (Belgique). Available: https://www.ejustice.just.fgov.be/cgi/article_body.pl?language=fr&caller=summary&pub_date=22-03-11&numac=2022040449

[2] Delwaide AL. Analyse du cadre légal de la vaccination par le pharmacien d'officine à l'étranger et transposabilité au système belge [Online]. Liège : Université de Liège ; 2022. 111 p. Available: https://hdl.handle.net/2268/267063

[3] Almeida RG, Mazzo A, Martins JC, Jorge BM, Souza Júnior VD, Mendes IA. Self-confidence in the care of critically ill patients: before and after a simulated intervention. Revista Brasileira de Enfermagem [Online]. Dec 2019 [cited on jan 16 2023];72(6):1618-23. Available: https://doi.org/10.1590/0034-7167-2018-0758

[4] Ren Q, Chen F, Zhang H, Tu J, Xu X, Liu C. Effects of a standardized patient-based simulation in anaphylactic shock management for new graduate nurses. BMC Nursing [Online]. August 1st, 2022 [cited on jan 16 2023]; 21(1). Available: https://doi.org/10.1186/s12912-022-00995-y

[5] Moreau R, Lepage H, Blanchet F, Megerlin F. Le pharmacien d'officine et la vaccination : actualité et opportunité. Annales Pharmaceutiques Françaises [En ligne]. Nov 2012 [cité le 1 mars 2023];70(6):309-14. Disponible : https://doi.org/10.1016/j.pharma.2012.09.006

[6] Comboroure JC, Mueller JE. Perception de la vaccination et rôle du pharmacien d'officine : une enquête auprès des étudiants en dernière année de pharmacie en France. Annales Pharmaceutiques Françaises [En ligne]. Mars 2014 [cité le 1 mars 2023];72(2):122-31. Disponible : https://doi.org/10.1016/j.pharma.2013.10.001

[7] Carroll PR, Chen Y, Vicheth P, Webber P, Hanrahan JR. Evaluation of a vaccination training program for pharmacy graduands in Australia. Currents in Pharmacy Teaching and Learning [En ligne]. Juil 2020 [cité le 1 mars 2023];12(7):850-7. Disponible : https://doi.org/10.1016/j.cptl.2020.02.016

[8] Roulleau P. La simulation améliore-t-elle la prise en charge clinique des patients. Qualité et sécurité en anesthésie. [En ligne]. 2012 [cité le 1 mars 2023].

[9] Feret B, Orr K, Bratberg J, MacDonnell C. Evaluation of immunization training in the curriculum of first- and third-year pharmacy students. Currents in Pharmacy Teaching and Learning [En ligne]. Juil 2015 [cité le 2 mars 2023];7(4):541-5. Disponible : https://doi.org/10.1016/j.cptl.2015.04.013

[10] Vyas D, Galal SM, Rogan EL, Boyce EG. Training students to address vaccine hesitancy and/or refusal. American Journal of Pharmaceutical Education [En ligne]. Oct 2018 [cité le 2 mars 2023];82(8):6338. Disponible: https://doi.org/10.5688/ajpe6338

[11] Bushell M, Frost J, Deeks L, Kosari S, Hussain Z, Naunton M. Evaluation of vaccination training in pharmacy curriculum: preparing students for workforce needs. Pharmacy [En ligne]. 20 août 2020 [cité le 2 mars 2023];8(3):151. Disponible : https://doi.org/10.3390/pharmacy8030151