



SIMULATION-BASED VACCINATION TRAINING COURSE TARGETING VACCINE HESITANCY FOR PHARMACY STUDENTS

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New pharmaceutical service



COVID-19 pandemic





prophylactic

COVID-19 vaccines by pharmacists

Law of February 2022





vaccination
training program
at University of
Liège

« Law relating to vaccination and the administration, by pharmacists working in pharmaceutical pharmacies open to the public, of vaccines authorized in the context of Covid-19 prophylaxis »



prophylactic

INFLUENZA vaccines by pharmacists

Law of October 2023





Vaccination training program

3 parts:



1. Online:

e-learning









2. Activities at the Center for Medical Simulation

 $\frac{1}{2}$ day







3. Activities at the Educational Pharmacy

 $\frac{1}{2}$ day

Legal criteria for training

minimum 8h

Theoretical aspects

- composition of vaccines
- CSS recommendations
- allergies to certaincomponents
- allergic reactions



Practical aspects

- sterile administration
- recognition of serious allergic reactions
- basic **resuscitation** techniques







Activities at the Educational Pharmacy

2 parts:

 Pharmaceutical legislation and ethics (specificity, regulation, storage, preparation, administration of vaccines, etc.)

- Vaccination advice (anti-vax patient, ambivalent patient, convinced patient with eligibility and history)
 - Role playing (improvisation) followed by debriefing

Activities at the Center for Medical Simulation

 Procedural workshops (preparation, vaccine injection, cardiopulmonary resuscitation)



Workshops with simulated patients (vagal discomfort and

anaphylactic shock)



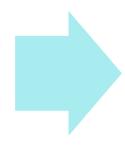
2 studies

2023

quantitative pre-post design study

Master's students in Pharmacy (n=88)

Results



2024

new mixed-method study

Master's students in Pharmacy (n=65)

Methodology

Evaluation of simulation-based vaccination training 2023: quantitative pre- and post design study

Questionnaires based on the Kirkpatrick model

Adapted to the pharmaceutical, vaccination and Belgian context

Variables considered:

- training satisfaction (level 1)
- interest of the training (level 2a)
- self-confidence (level 2b)

Items assessed by a **5-point Likert scale** ranging from 0 (totally disagree with the statement) to 4 (totally agree).

Average of the scores of the items constituting them, reexpressed out of a total of 100

Evaluation of simulation-based vaccination training 2023: quantitative pre- and post design study

Objective structured clinical evaluation (ECOS)

- Individual participation, 4 weeks after the practical training day, duration = 7 min
- Standardized patient visiting the pharmacy for a Covid-19 vaccination reminder
- Simulation of pharmacy-based vaccination
 - preparation and injection of the vaccine
- knowledge regarding identification
- distinction, and management of adverse effects
- Analytical checklist (procedure for vaccine preparation and injection, questions regarding knowledge of adverse effects, and communication during the vaccination procedure)

Table 3.2.1 – Evolution of interest and feeling of confidence between TO and T1

Variable	ТО	T1	Difference	p-value (Wilcoxon)
Public health benefit	87.5 (79.2 - 95.8)	91.7 (79.2 - 100)	0.0 (-4.2 - 8.3)	0.816
Interest in the training in the course	91.7 (83.3 - 100)	100.0 (91.7 - 100)	0.0 (0.0 - 8.3)	0.016
Interest in simulation	85.0 (75.0 - 95.0)	90.0 (80.0 - 100)	0.0 (-10.0 - 15.0)	0.062
Confidence in responding to vaccine hesitancy at the counter	66.7 (56.3 - 72.9)	77.1 (70.8 - 85.4)	12.5 (6.3 - 20.8)	< 0.001
Confidence in preparing and injecting the vaccine	50.0 (12.5 - 75.0)	75.0 (62.5 - 87.5)	25.0 (0.0 - 50.0)	< 0.001
Confidence in managing side effects	45.8 (12.5 - 66.7)	75.0 (70.8 - 87.5)	33.3 (16.7 - 66.7)	< 0.001
Confidence in communicating during the vaccination procedure	56.3 (43.8 - 75.0)	75.0 (65.6 - 84.4)	15.6 (3.1 - 28.1)	< 0.001

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injecting the vaccine	50.0 (12.5 75.0)	75.0 (62.5 - 67.5)	25.0 (0.0 50.0)	₹0.001
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Table 3 – Descriptive statistics OSCE assessment

Variable	Number of	Median (P25 – P75) /
	students	Number (%)
Vaccine preparation	86	75.0 (62,5-87,5)
Vaccine injection	86	88.9 (77.8-88.9)
Knowledge of adverse effect	86	100.0 (100.0-100.0)
Communication during the vaccination procedure	86	100.0 (100.0-100.0)
Total skill score for OSCE station	86	87.93 (79.31-93.10)

Competences

Skills necessary to ensure quality and safety of the vaccination procedure in pharmacies

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Vaccine injection	86	88.9 (77.8-88.9)
Knowledge of adverse effect	86	100.0 (100.0-100.0)
Communication during the vaccination procedure	86	100.0 (100.0-100.0)
TOTAL SKIII SCOLE TOLOSCE STATION	80	87.33 (73.31-33.10)

Bias

- general communication and politeness during the vaccination procedure
- no communication relating to vaccine hesitancy or relationship with the patient

Areas of improvement

Confidence and skills in communication with patients during vaccination, communication relating to vaccine hesitancy



2024 mixed-method study to address these gaps

2024: mixed-method study

2 same parts: a **theoretical section** and a **practical section**, activities at the ULiège Experimental Pharmacy and the Medical Simulation Center

Assessment of the training's impact on vaccine hesitancy

Quantitative analysis: pre- and post tests using validated perception questionnaires based on the Kirkpatrick model and OSCE to assess:

- training satisfaction
- interest of the training
- self-confidence about vaccine hesitancy
- knowledge level
- competencies

Qualitative analysis: Focus Groups focusing on vaccine hesitancy

Focus on vaccine hesitancy

2023

Pharmaceutical legislation and ethics conference (specificity, regulation, storage, preparation, administration of vaccines, etc.)

Vaccination advice role
playing (anti-vax patient,
ambivalent patient,
convinced patient with
eligibility and history) and
debriefings



2024

Integrated activity

- Creation of cases articulated around the themes of vaccine hesitancy and legislation
 - Unsensitized patients
 - Patients unaware of the benefits
 - Scared patients
- Use of decision trees around large profiles
- Emphasis on debriefing

Conclusions

	2023	2024
Development of an intervention	 Response to the law Response to the needs of future community pharmacists Response to health needs: vaccine coverage and reduction of healthcare burden 	 Enhancement of the counter communication about vaccine hesitancy Response to health needs: vaccine coverage and reduction of healthcare burden
	Vaccination act	Vaccine hesitancy
Evaluation of the intervention: Study	 interest satisfaction gain in self-confidence skills development vaccination act knowledge of adverse effects 	 interest satisfaction gain in self-confidence skills development vaccination act communication about vaccine hesitancy









Thank you



