One Health Simulation

An Interdisciplinary Approach to Global Health Education

A.Gaspar[1], F.Scholtes[2], B.Mousset[1], G.Philippe[1*] and C.Delguste[3*]

1. *Center for Interdisciplinary Research on medicines (CIRM), Department of Pharmacy, Faculty of Medicine, University of Liège, Belgium*
2. *Department of Preclinical Sciences, Faculty of Medicine, University of Liège, Belgium*
3. *FARAH, Faculty of veterinary medicine, University of Liège, Belgium*

Introduction

The **One Health** approach aims to improve health by recognizing the **interconnectedness between humans, animals, and the environment**. To address emerging global health challenges, interprofessional collaboration is necessary. In this study, **simulation**, replicating real-life scenarios, was used as an **educational strategy** to promote the One Health concept.

The objectives were to: (1) **familiarize** students with the **One Health concept**; (2) deepen their understanding of **complex health issues**; (3) engage them in **interprofessional collaboration** during a health crisis simulation; and (4) raise awareness of their **future roles** in healthcare.

Methods

This study explored the **feasibility** of a **crisis simulation exercise** and assessed changes in participants' perceptions of **interprofessional collaboration.**

Participants:

Voluntary **3rd-year undergraduate students**:

- 5 pharmacy students
- 3 medical students
- 3 biomedical science students

Facilitated by 1 veterinarian and 2 pharmacists serving as tutors.

Evaluation metrics:

- **Theoretical Framework**: Kolb's experiential learning cycle[1] and Herrington's authentic learning context model[2]
- Interprofessional collaboration perceptions measured using the Readiness for Interprofessional Learning Scale (**RIPLS**)[3]

Key Structure:

- 6-hours day-long activity
- Morning and afternoon sessions (A and B) : Each sequence concluded with dedicated debriefing phases to solidify collaborative skills and knowledge integration.

Morning simulation (A)

The mysterious origins of the Sjovik outbreak

July 2, 2024

*The peaceful town of Sjovik is grappling with a **mysterious and frightening disease**. The alarming symptoms have captured global attention due to a video posted by a **famous influencer**. Lily Diore (25 million followers) filmed herself on-site with her friend suffering from dramatic **convulsions**. This video has caused significant concern among her followers, drawing increased media attention to Sjovik. The origins remain **unclear** at this time. Overwhelmed by the scale of media dissemination, local authorities are calling for collaboration with volunteer experts from the University of Liège to prevent a future pandemic.*

Objectives

1. Discover and Explore **key concepts of One Health**
2. Investigate the underlying **mechanisms of epidemic emergence**
3. Examine the **impact of climate change on epidemic spread**
4. Characterize the **multifactorial nature of the problem**

Afternoon simulation (B)

How to manage the situation on-site?

January 2, 2025

***Six months** have passed since the first mysterious symptoms appeared in Sjovik, and the situation has reached a **critical point**. The once-peaceful town is now the epicenter of a health crisis threatening to escalate into a **global pandemic**. Despite local authorities' efforts, the epidemic continues to spread, now reaching several countries across the **Eurasian belt**. Cases are multiplying at an alarming rate, and the media, already in a frenzy, is fueling **widespread panic**.*

*In this urgent context, an expert team from the University of Liège is on its way to Sjovik. Their mission: to provide their expertise in containing the outbreak and develop an **effective local management plan**. These scientists know they are in a **race against time**.*

Objectives

1. Understand and use key **Crisis Resource Management** (CRM) principles in decision-making.
2. **Collaborate** in interdisciplinary teams
3. **Strategize** actions during an epidemic
4. Plan for **immediate response** (CRM frameworks to manage acute phases of an epidemic)
5. Develop **long-term management** plans (strategies for epidemic control and prevention)

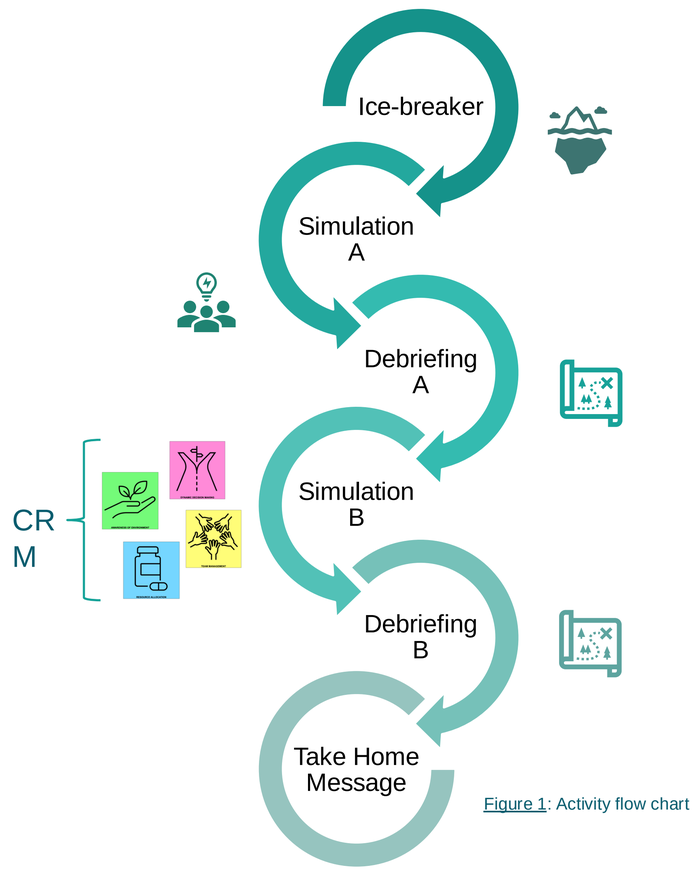

Figure 1: Activity flow chart

Simulation overview:

- Role-play scenario of a **fictional zoonotic epidemic**
- **Interprofessional education** simulation - **CRM**
- 2 **evolving** sequences (A and B), each followed by **structured debriefing** sessions

Results

The **satisfaction survey** showed high levels of agreement, with statistically significant improvement **perception** of **interprofessional collaboration**.

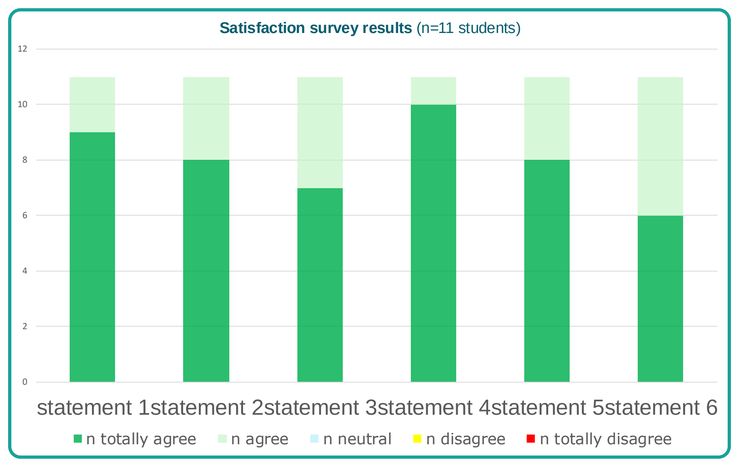

Figure 2: Satisfaction survey results

Statement 1: *"Learning through simulation with other students/professionals allowed me to gain **knowledge** about the core concepts of **One Health** and **ecosystem preservation**."*

Statement 2: *"Learning through simulation with other students/professionals helped me acquire **communication** and **interprofessional collaboration** skills."*

Statement 3: *"Learning through simulation with other students/professionals enabled me to understand and apply **key concepts** of Crisis Resource Management (**CRM**)."*

Statement 4: *"Learning through simulation with other students/professionals encouraged me to think about a strategy for **managing/preventing a health crisis** within a One Health context."*

Statement 5 (personal refection): *"Overall **I enjoyed** the activity."*

Statement 6 (about learning approach): *"The focus on **debriefing** helped me **consolidate** my learning during the simulation; it's a learning method that suits me."*

	Theme of the statement	p-value
1	Collaborative learning benefits	0.340
2	Interdisciplinary collaboration outcomes	0.081
3	**Enhanced clinical understanding**	**0.025**
4	Communication skills development	0.340
5	**Teamwork importance**	**0.001**
6	Recognizing professional limits	0.053
7	**Long-Term professional impact**	**0.011**
8	**Positive interprofessional perceptions**	**0.004**
9	Respect and trust in small groups	1.0
10	**Efficiency concerns**	**0.037**
11	Necessity of interprofessional learning	0.588
12	**Improved patient communication**	**0.006**
13	**Welcoming group projects**	**0.000**
14	**Shared learning opportunities**	**0.010**
15	**Understanding patient issues**	**0.001**
16	Teamwork skills for future practice	0.103

Figure 3: RIPLS pre-post survey results

Bias: voluntary and motivated students, social desirability

Limitation: small number of participants (n=11)

Conclusion

This activity enabled students to **explore the One Health concept**, enhance their **perception of interprofessional collaboration**, and apply **key CRM principles**. This study demonstrates the feasibility of a **health crisis simulation**. Despite social desirability bias and the limited number of motivated participants, it provides a **foundation** for the development of additional activities aligned with the One Health framework.

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* *Share last authorship*