Immune Patrol: Innovative learning, critical thinking, healthy futures

Investing in the future by filling a gap in children's education today

World Health Organization
European Region

Introduction

Vaccines protect against many life-threatening diseases, saving millions from illness and death annually. Yet, some people still postpone or do not get vaccinated.

Barriers to vaccination may include access barriers, a lack of awareness regarding the threat posed by the diseases and the benefits of vaccines or others. The varied reasons necessitate multiple approaches to close the resulting immunization gaps. One of these approaches leverages our current understanding of health education.

Schools are the primary source of knowledge within communities, offering a distinctive platform to equitably reach all children and foster healthy behaviours, not only among children but also throughout the surrounding community.

The COVID-19 pandemic has reinforced the importance of health literacy to make health-related choices at all ages, encompassing the need for awareness on preventing the spread of infectious diseases, including through vaccination.

Building population-wide health literacy is a collective responsibility for society as a whole. Innovation and collaboration within the education sector can help strengthen healthy literacy and thereby positive health-seeking behaviour from a young age with enduring impact throughout a person's life.

Involving schools

While school curricula in the European Region have long incorporated health topics like physical education, nutrition etc., there has been an omission of comprehensive information on prevention of infectious diseases through immunization. This is a missed opportunity, depriving children of vital knowledge on the life-saving potential of vaccines.

With misinformation related to vaccines abundant on social media and elsewhere, it is also vital to equip children with critical skills to differentiate between fact and fiction.

To fill these gaps, the WHO Regional Office for Europe teamed up with experts in immunization and game-based learning approaches to create a digital, game-based education package, on vaccine-preventable diseases and immunization, called the Immune patrol.

Reaching children through schools

Incorporating health subjects into school curricula has demonstrated:

- **extensive reach:** schools in the European Region enrol over 95% of primary school-age children;
- **community ripple effect:** promoting awareness and healthy choices at school has a positive spillover effect on caregivers, parents and communities.
- **beneficial impact** on health behaviour;
- **increased knowledge:** improving pupils' knowledge and decision-making skills within a given health topic.

Innovative approach

Immune Patrol offers in-classroom tasks and online games with creative assignments designed to help schoolchildren build a basic understanding of the science behind immunization. It also equips them with the skills to critically assess the credibility of online sources. This knowledge serves as a foundation, empowering them to make informed health-related choices in the future.

Strengthening health education through Immune Patrol also increases resilience to misinformation, benefiting both children and their communities as they grow up and take on roles as teachers, doctors, nurses, parents and community leaders.

Game-based learning for lasting impact

Game-based approaches are proven to effectively facilitate children's learning and retention of information.

Research also shows that they enhance problem-solving skills, and contribute to the development of confidence, independence and critical thinking. In addition, game-based approaches motivate children to learn and foster a lasting understanding of complex topics and their real-life applications.

Positive reviews and teaching outcomes

Immune Patrol was piloted and evaluated in Armenia, Denmark, Republic of Moldova and Ukraine, involving more than 1000 students. The evaluation in each country assessed the learning outcomes of Immune Patrol in comparison to a non-game version of the same educational package.

Results clearly demonstrated:

- for both groups, a significant increase in pupils' knowledge and understanding of immunization, coupled with increased motivation to learn and recognition of the importance of learning about immunization and communicable diseases.

- for those learning via the game-based modules, an even more substantial increase in learning outcomes.

Teachers reported that pupils:

- learned more efficiently and faster through game playing;

- enriched their vocabulary with new terminology;

- were eager to participate and actively engaged, expressing enthusiasm for the new approach to learning;

- showed increased interest in their own health.

Target group

To optimize learning outcomes and enhance health-seeking behaviour throughout life, Immune Patrol was designed for children aged 10 to 12. However, the package can be implemented for and benefit children up to the age of 14.

The education package

Immune Patrol was developed for seamless integration in school health curricula at the country level, but it is equally suitable for implementation in individual schools, cities or districts.

Immune patrol is readily accessible, offered free of charge and presented in a comprehensive, well-structured format. This ensures teachers can get started using it right away without any prior knowledge of immunization or vaccine-preventable diseases.

The package consists of six modules, each of which has a specified learning goal. Each module can be completed by the class in 45 to 90 minutes. The implementation is facilitated by teachers and consists of a teacher's platform and a pupils' platform.

Module 0 – Diseases and transmission
Module 1 – Immune system
Module 2 – Vaccination
Module 3 – Herd immunity
Module 4 – Vaccine development
Module 5 – Source criticism

Structure of each module

Each module is structured in the same way, commencing with an explainer video introducing the pupils to the topic.

This is followed by a physical classroom activity (called a “Task”), succeeded by an online activity, game or simulation (called a “Mission”).

It concludes with a teacher-facilitated debrief. This approach combines online educational activities with traditional classroom methods, accommodating various learning styles and ability levels.

1. Explainer video
2. Task: Physical activity
3. Mission: Online activity, game or simulation
4. Debrief

The journey

Pupils become members of the Immune Patrol Academy, a fictional elite training centre that will teach them how vaccines can help protect them and others against infectious diseases.

They will also learn how to identify misleading information about vaccines and diseases. Organized into groups, they embark on a collective journey through different modules, facilitated by an animated character named lieutenant Juliet.

Upon completion, pupils graduate from the Immune Patrol Academy and are ready to apply their newfound knowledge in real life!

Flexible journey

Pupils always start with Module 0, designed to establish a fundamental knowledge about infectious disease and vaccination.

WHO recommends completing the remaining modules in sequence (1–5), however the order can be adjusted if preferred. A step-by-step teacher’s manual, complete with learning goals for each module and supporting videos, is also provided in the package.

Technical requirements

For optimal implementation, it is recommended to have one computer or another device for the teacher and an additional device for each group of students.

If a projector is available this can be used to show the embedded videos, however it is not essential. Internet access is required and the game operates on most computers and tablets.

WHO is also developing an offline version of the package, allowing implementation in contexts where internet connection is limited.

An offline and downloadable version will be available in 2024.

Availability

Immune Patrol is currently available in English and several other languages. Additional languages are continuously being added.

Further information and collaboration

To access Immune Patrol and view various videos included in the package, please visit the website of the WHO Regional Office for Europe.

QR code:

If you are interested in learning more about Immune Patrol and/or collaborating with WHO to implement the package in your country, please contact: euvaccine@who.int