

# Guideline for reporting evidence-based practice educational interventions and teaching (GREET) checklist<sup>1</sup>

BRIEF NAME: “Informed Health Choices (IHC) secondary school intervention”

**1. Intervention:** Informed Health Choices (IHC) secondary school resources

The intervention, use of the IHC secondary school resources will be compared to routine practice (teaching according to the national lower-secondary school curriculum without intervening).

WHY this educational process

**2. Theory:** The IHC secondary school resources are based on the *IHC Key Concepts* framework. The framework includes concepts (principles) that people should understand and apply when deciding whether to believe a claim about the effects of health actions (things that people do to care for their health or the health of others) and what to do.<sup>2, 3</sup> The framework is based on evidence of the importance of the included concepts,<sup>4</sup> logic, feedback, other relevant frameworks,<sup>5</sup> and adaptation of the IHC Key Concepts to other types of interventions such as educational, environmental, and policing interventions.<sup>6</sup>

The resources were developed by the investigators between 2020 and 2022 using human-centred design methods.<sup>7</sup> This includes cycles of idea generation and prototyping, piloting with observation, user-testing with teachers and students, and feedback from teachers, students, and curriculum developers in Kenya, Rwanda, and Uganda, and an international advisory group. The aim of the design process was to ensure that teachers and students find the resources to be engaging, useful, and easy to use.

The teaching strategies used in the resources are based in part on an overview of systematic reviews of teaching strategies,<sup>8</sup> and draw on several educational theories. These include social constructivist theory (which postulates that learning can be maximized through well-designed, intentional social interaction with other learners),<sup>9</sup>

the theory of active student response (which postulates that learning is enhanced by high levels of active student response),<sup>10</sup> and the elaborative retrieval hypothesis (which postulates that the search for correct answers on practice tests or quizzes results in multiple retrieval routes which aid later recall).<sup>11</sup>

**3. Learning objectives:** The primary learning goal is for students to have a basic ability to think critically about health actions and understand why this is important. They should be able to recognise claims about the effects of health actions and assess some of those claims. They should understand why it is important for them that researchers study the effects of health actions and recognise two key features of reliable comparisons of health actions. They should recognise that health actions can have both advantages and disadvantages and the importance of weighing the benefits and savings against the harms and costs when deciding what to do.

**4. Evidence-based practice content:** The resources focus on nine IHC Key Concepts that were prioritised by curriculum developers, teachers, and researchers in Kenya, Rwanda, and Uganda (Additional file 1).

## WHAT

**5. Materials:** The IHC secondary school resources (*Be smart about your health*) are open access digital resources for lower-secondary school teachers. The 10 lessons are provided as lesson plans in two formats: for teachers who are using either a blackboard and or a projector in the classroom. The aim is for students to learn to think critically about health claims and choices. The resources will be made available to schools in the intervention group. Teachers in those schools will download the resources to a computer or smartphone and deliver the lessons. Schools in the control group will continue teaching the national curriculum, which does not include teaching critical thinking about health. No additional materials will be provided to the control schools.

Each Lesson includes an introduction, an activity, and a wrap-up. The introduction includes the key messages from the previous lesson, a question about the previous lesson, and what this lesson is about. The activity is designed to help students achieve the learning goals. The wrap-up includes a question about what was learned, the key messages for the lesson, a homework assignment, if there is one, and what the next lesson is about. Lessons 5 and 10 include quizzes and discussions of application of what students learned in their daily lives.

For each of the 10 lessons there is an overview and background for teachers. The overview includes learning goals, key terms introduced in the lesson, and the main teaching strategies used in the lesson. The background includes a description of what the lesson is about and if relevant, common misunderstandings and closely related content that is not covered in the lesson.

In addition, there is a teachers' guide, materials for teacher training workshops, information about how to use the resources (help), optional printouts (PDFs) for teachers and students, and a glossary. Teachers will be provided with binders with printouts at the training workshops.

**6. Educational strategies:** Key strategies used across lessons include guided note taking, small group discussion, use of response cards,<sup>10</sup> homework, use of a standard lesson structure, setting objectives and providing feedback, and multimedia design. Other strategies used in some of the lessons include concept cartoons, inquiry-based instruction, and role play.

**7. Incentives:** The incentive for teachers and students is the value they perceive in learning to think critically about health actions. Teachers at schools without Internet access will be reimbursed for the cost of downloading the resources and any other costs related to participation in the trial. They will not be paid for participating in the trial and there will be no other financial incentives for the schools, head teachers, teachers, or students. The evaluation administered at the end of the school term will not count towards the students' school marks or assessment of the teachers or schools.

#### WHO WILL PROVIDE

**8. Instructors:** The headteacher<sup>1</sup> at each participating school will select teachers of relevant subjects (e.g., biology) for year-1 or year-2 of lower-secondary school. The teachers will be invited to a 2-3-day workshop to introduce them to the resources and the learning content. The training will be facilitated by other teachers who have participated in one of the teaching networks that helped to develop the resources or who piloted use of the resources (Appendix 5). The facilitators will be provided with presentations and other materials for the workshops, and they will review the material and plans for the workshops with the research team prior to the workshops.

#### HOW

**9. Delivery:** The 10 lessons will be delivered by the teachers during regular classroom time. They can use a computer, smartphone, or printouts when delivering the lessons. Depending on what equipment is available to the teachers, they will deliver the lessons to students using only a blackboard or using a projector and slide presentations that are included in the digital resources. The number of students in a class will vary.

#### WHERE

**10. Environment:** Representative samples of schools will be recruited, including rural and urban schools. The conditions in the schools will vary. Details of the contexts in

each of the three countries can be found in reports of the context analyses undertaken prior to developing the resources.<sup>13-15</sup>

#### WHEN and HOW MUCH

11. **Schedule:** The 10 lessons will be taught in a single school term. Each school will decide how to fit the lessons into the schedule for that term.

12. **Amount of time:** Each lesson is designed to be delivered in a single period (40 minutes). The students will be encouraged to collect and assess claims about the effects of health actions outside of class and to discuss claims with their families and friends. The teacher will need up to 30 minutes to prepare for each lesson.

#### PLANNED CHANGES

13. **Adaptation:** No specific adaptation is required, but teachers will be able to adapt the lessons, for example by using different or additional examples or editing the presentations.

#### UNPLANNED CHANGES

14. **Modifications:** As part of planned process evaluations, teachers will be asked to complete an evaluation form after each lesson, including information about changes they made to the lesson plan, and each teacher will be observed for one lesson. We will not give feedback to the teachers during the trial.

#### HOW WELL

15. **Attendance:** The teacher will record attendance for each lesson. Students will be encouraged to attend all lessons by telling them when the next lesson will be and its learning goals. The lessons have been designed to appeal to students and to make clear the relevance and importance of the learning goals.

16. **Fidelity:** We will explore the extent to which the lessons were delivered as planned in the process evaluation, based on the evaluation forms completed by teachers after each lesson, our observations of their teaching a lesson, and interviews with teachers and students.

17. **Delivery schedule:** The teachers will be asked to record when each lesson was taught, the duration of each lesson, and whether all the lessons were completed as planned.

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