

1.K. Skills building seminar: Prevention and control of noncommunicable diseases in WHO/Europe region: demonstrating the impact of public health efforts through the Natural Experiments Study project

Organised by: WHO EURO, EUPHA (CHR)

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Background

All countries working to prevent and control noncommunicable diseases (NCDs) face one particular problem, namely, to find credible evidence that the public health interventions being conducted are actually working. The traditional logic framework used in public policy often starts from the assumption that some evidence-based policy is being adopted, that resources are invested in that policy, and success is measured by the actual adoption of the policy and possibly by gathering some evidence of its outputs.

Natural experiments studies propose to go one step beyond that and to investigate what are the impacts on society attributable to a policy after it has been adopted and enforced. Thus, for example, after banning trans-fatty acids in food products, a natural experiment study would gather evidence on any changes in mortality from cardiovascular disease. While traditional evaluation would check whether the new foods being produced actually are free of synthetic trans-fats, a natural experiments study would connect the ban to any specific reduction in mortality associated with the enforcement of the ban.

Expanding the number of natural experiment studies will deliver an accumulating collection of rigorously evaluated

examples of country action in the prevention and control of NCDs and will expand the global evidence base on the impact of the most effective interventions in different settings. Such evidence, because of the difficulties involved in conducting studies such as these, is very rare but exceedingly valuable.

Aim

The aim of this workshop is to contribute to capacity building in the use of natural experiment methodologies. Specifically:

- (a) Introduce participants to the research design and methods of natural experiments;
- (b) Share examples of natural experiment studies performed within the context of a WHO/Europe project;
- (c) Provide a forum for discussions on the advantages and limitations of using such methods.

Workshop structure

The workshop will be structured as follows:

Introductory presentation that outlines the vision for increased work on natural experiments (15 minutes).

Speaker: Gauden Galea, Director, Division of Noncommunicable Diseases and Promoting Health through the Life-course, WHO/Europe.

One practical lecture on the methods and design considerations for natural experiments (20 minutes).

Speaker: David Stuckler, University Bocconi, Italy & EUPHA pillar lead Policy.

Short presentations on the findings from countries implementing studies. (30 minutes).

Question and answer sessions on methods, advantages and limitations.

Key messages:

- Greater attention to rigorous evaluations of policy impact in terms of better noncommunicable disease outcomes is needed to demonstrate the positive impact of public health efforts.
- Innovative methods exist to support natural experiment-style evaluations and should be more widely used.

Principles and the methods of the WHO/Europe Natural Experiments Study

Gauden Galea

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Issue/problem

The WHO/Europe Natural Experiments Study is aiming to solve a particular problem faced by all countries working to prevent and control noncommunicable diseases (NCDs), namely, to find credible evidence that the public health interventions being conducted are actually working. The traditional logic framework used in public policy often starts from the assumption that some evidence-based policy is being adopted, that resources are invested in that policy, and success is measured by the actual adoption of the policy and possibly by gathering some evidence of its outputs. This study proposes to go one step beyond that and to investigate what are the impacts on society attributable to a policy after it has been adopted and enforced.

Description of the problem/approach

The WHO/Europe Natural Experiments Study project is a multi-country initiative, where each country participating has developed its own methods and conducted its own data analysis. The framework for each country study is the same, however, and has four components, each to be described in further detail: the intervention, the dose, the outcomes, and the comparators.

Results (effects/changes)

Studies in this project include evaluations of nutritional interventions such as trans-fatty acids regulation in food, alcohol control and tobacco control. Each study evaluates a discrete intervention that has an evidence-based rationale and a high level of implementation and enforcement at the nationally. But to what extent is the intervention attributable to the health outcomes intended? As an example early results will be presented from a small selection of the more advanced studies in this project.

Lessons

The presentation will describe the vision of the WHO/Europe Natural Experiments Study project - the approach, methods applied, and the limitations.

Introduction to Natural Experiments: from John Snow through to the present

David Stuckler

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This presentation will address in more detail some of the methodological considerations for natural experiment studies, using the following outline to guide meeting participants:

Selecting the intervention

This is a key component of each study. The intervention should be a policy or a service that is clearly defined, executed at a specific point in time, and amenable to rigorous evaluation.

The Dose

The second component of the study must be to develop indicators of how well the policy was implemented. Many public health policies are adopted in name only, action plans are adopted and forgotten, regulations are enacted but not enforced.

The Outcomes

Traditional evaluations would stop once an intervention has been assessed as being a policy based in evidence, with evidence of good implementation. The current project takes a further step. It makes the effort to define indicators of health-related end-points to assess changes in behaviour, morbidity, or mortality.

The Comparators

Any study will need consider the possible comparators suitable for their intervention. For instance, there may be evidence that an intervention is implemented more strongly in one district than in another or introduced gradually over time; a team may be interested to see if the health impact was stronger in those districts or marked by temporal impact.

The Analysis

The methods for statistical analysis to explore the impact of the intervention on relevant health outcomes must also be considered, including:

- True randomization and 'as-if' random
- Balance tests (pre-treatment characteristics)
- Regression discontinuity
- Difference-in-difference models

Lessons

Participants will learn that study design is extremely important. Natural experiments are very powerful for demonstrating the impact of public health, but must use rigorous methodologies.

Preliminary findings from the WHO/Europe Natural Experiments Study

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Issue/problem

Eight countries were included in the WHO/Europe Natural Experiments Study project, each had a high-burden public health problem, for example:

- Austria had high trans-fatty acids (TFA) content in food – samples taken in 2008 found 10% of convenience foods had TFA levels above 10%, much higher than recommended;
- The Russian Federation has been a high tobacco-use country – according to the Global Adult Tobacco Survey 2010, adult smoking prevalence in the Russian Federation was one of the highest in the European Region, at 39.1%.

Description of the problem/approach

A research group from each country was invited to attend a workshop introducing the principles of natural experiment studies. Each group identified a national intervention that had been implemented to prevent and control NCDs. The following intervention areas were proposed by various research groups:

- Regulation of TFA in food;
- Regulation of salt in food;
- Regulation of soft drinks;
- Alcohol control;
- Tobacco control.

Through workshops and follow up support between research groups, WHO/Europe and external experts, natural experiment study designs were developed. Whilst not all groups are expected to reach a completed study, the purpose of the project is to build greater capacity within the European

Region to test the attributable impact of public health interventions and a better case for the control of NCDs.

Results (effects/changes)

All the countries represented in this project have made serious efforts towards NCD control. The presentation will explore the findings of one or two of the more advanced studies looking

for health outcomes attributable to these efforts and share some of the learning from the project.

Lessons

WHO played an active role in monitoring and supporting the process to help ensure NCD control efforts remain strong and will bring about real change in public health.