

The logo for Sax Institute, featuring the word "sax" in a bold, lowercase sans-serif font, followed by "institute" in a lighter, lowercase sans-serif font. A thin white line arches over the "i" in "institute".

saxinstitute

Optimising the transfer of research evidence into policy and practice – messing with the truth.

Don Nutbeam

Professor of Public Health, University of Sydney
Senior Advisor, Sax Institute, Sydney

The WHO Ottawa Charter and the “new public health”

- *The Ottawa Charter for Health Promotion* has guided the development of health promotion, and shaped public health practice in many countries over the past 25 years.
- It was developed, in part, as a response to the marginalisation of public health, and an unduly simplistic, individual behaviour focus on disease prevention
- The major themes of the Charter reflected both the traditional roots of public health (public policy and environmental control to address the determinants of health), new tools such as community mobilisation, and emerging challenges to reorient health services



30 years on – what has changed?

- The globalisation of trade has had significant social and economic consequences for countries, and their citizens.
- Patterns of migration are having profound effects on living and working conditions, and on social relationships
- Changes to the profile of the burden of disease have occurred new threats to health have emerged such as HIV, SARS, SARS and obesity, some have diminished.
- Such profound changes require continuous adaptations to our existing health promotion strategies and the development of new strategies

30 years on – what has changed?

- Greater understanding of the underlying social, economic and environmental determinants of health, and their differential impact on health inequalities
- Renewed focus on public health intervention, and significant growth in quality and range of evidence of effectiveness
- Greater recognition of the need for sophisticated, multi-component interventions to solve complex public health problems
- **How we define “evidence”, interpret its meaning and use it will have a fundamental impact on continued progress**
- <http://www.who.int/healthpromotion/conferences/9gchp/en/>

What is evidence?

- Evidence represents proof of an unknown or disputed fact
- Evidence is derived from research - the results of systematic investigation towards increasing the sum of knowledge
- Evidence can be independently observed and verified, and there is broad consensus as to its contents (if not its interpretation and meaning)

(Davies, Nutley and Smith, 2000)

What is evidence?

“The raw ingredient of evidence is information.

Good quality policy-making depends upon information from a variety of sources - expert knowledge; existing domestic and international research;.... stakeholder consultation, ...evaluation of previous policies...

There is a great deal of critical evidence held in the minds of both the front line staff in departments, agencies and local authorities to whom the policy is directed.”

<http://www.policyhub.gov.uk/evalpolicy/index.asp>

What is public policy?

- Those **public issues** identified for attention by the government, and the **courses of action** that are taken to address them (eg legislation, regulation, resource allocation)

WHO Health Promotion Glossary

<http://www.who.int/healthpromotion/about/HPG/en/>

- **Public policy-making** – “The process by which governments translate their **political vision** into programmes and actions to **deliver outcomes** - desired changes in the real world”

<http://www.policyhub.gov.uk/evalpolicy/index.asp>

How does policy develop and change?

Policy making is rarely an “event”, it tends to emerge and evolve over time, subject to continuous re-interpretation, with no definite beginning or end. Changes are driven by underlying **analysis and beliefs** about:

- **The state of evidence:**
 - Information available at the time needed about the cause of problem, and effect of intervention,
- **The social and political climate**
 - what is popular, what is politically acceptable
- **The power and influence of competing interests**
 - who wins, who loses, who will fight, who will compromise

Many models to illustrate the relationship between evidence and policy

- **Knowledge-driven model** - the existence of new knowledge will create pressure for its use
- **Problem solving model** - direct application of knowledge to a decision
- **Interactive model** - research knowledge one "input" alongside experience, political insight, social pressure etc
- **Political model** - evidence used to justify a pre-determined position,
- **Tactical model** - evidence used to delay or avoid responsibility for unpopular decision,
- (Carol Weiss 1979)

Where does evidence fit in such a complex process?

- Policy is most likely to be evidence informed if:
 - evidence is **available and accessible** at the time it is needed
 - the evidence **fits with political vision** and balance of interests (or can be made to fit),
 - the evidence **points to actions** for which the powers, resources and infrastructure are available
 - there are ways to **accommodate competing interests**
 - **How we define “evidence” and how we use it is contested**

Evidence of what?

How to measure success in public health interventions?

Use of **outcome hierarchies** which distinguish between:

- changes to **health and social outcomes** (usually long term)
- changes to **health determinants** (behavioural, socio-economic, environmental, usually medium term)
- **health promotion impacts** (changes to knowledge, motivation, capacity, social norms, public policy organisational practice, usually in short-term)

Implies use of much wider range of indicators

Health promotion outcome logic model

Health Promotion Actions

Health Promotion Outcomes (intervention impact measures)

Intermediate Health Outcomes (modifiable determinants of health)

Social and Health Outcomes

Education

patient education, school education, broadcast media communication

Health Literacy

health-related knowledge, attitude, motivation, behavioural intentions, personal skills, self-efficacy

Healthy Lifestyles

tobacco use, physical activity, food choices alcohol and illicit drug use

Social Outcomes

quality of life, functional independence, social capital, equity

Social mobilisation

community development, group facilitation, technical advice

Social action & influence

community participation, Social norms, public opinion

Effective health services

provision of preventive services, access to and appropriateness of health services

Health Outcomes

reduced morbidity, disability, avoidable mortality

Advocacy

Lobbying, political organisation and activism, overcoming bureaucratic inertia

Healthy public policy & organisational practice

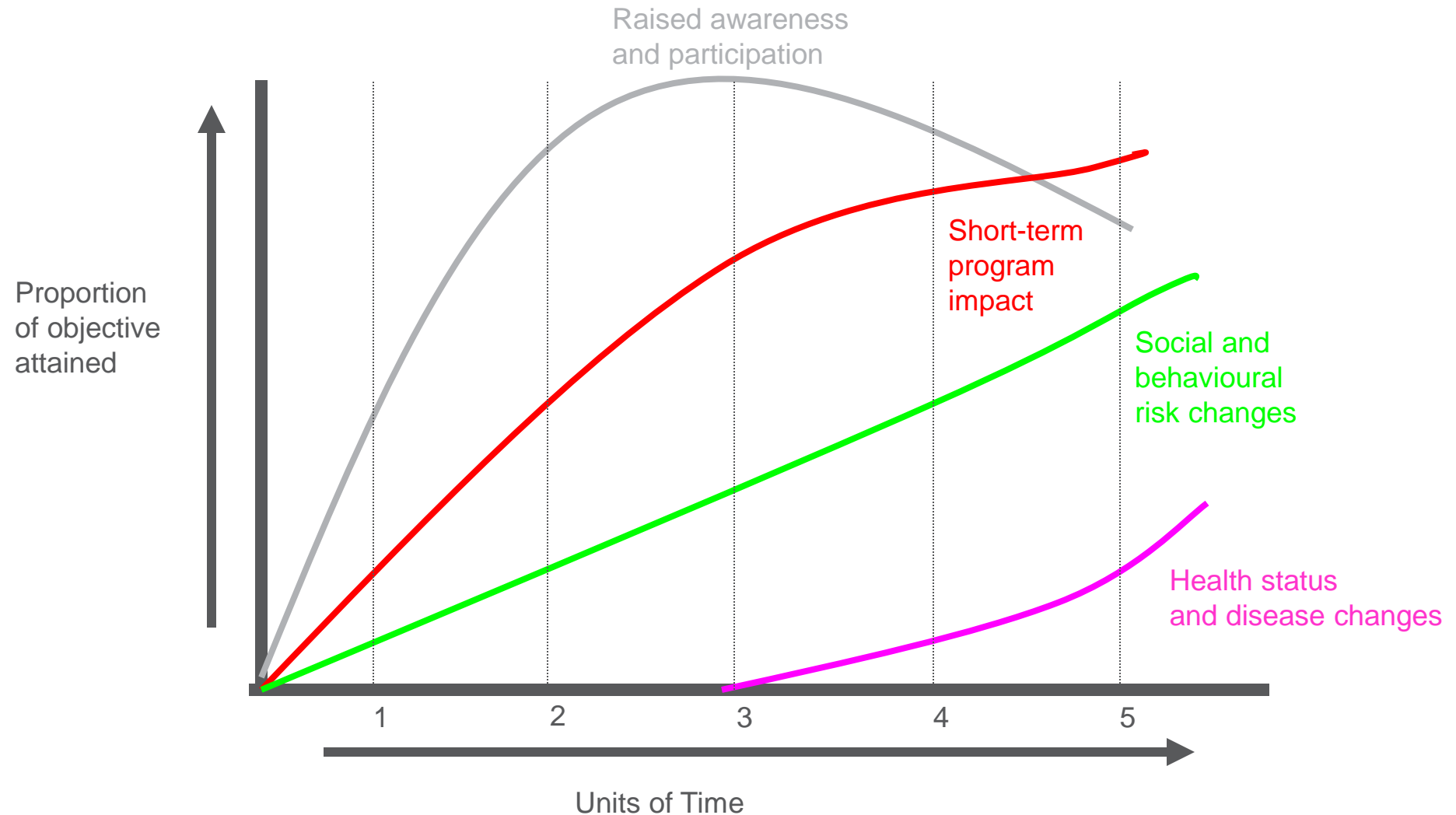
policy statements, legislation, regulation, resource allocation organisational practices

Healthy Environments

safe physical environment, supportive economic and social conditions, restricted access to tobacco, alcohol

Evidence of what?

Theoretical distribution over time of outcomes from public health intervention



Building evidence through research saxinstitute

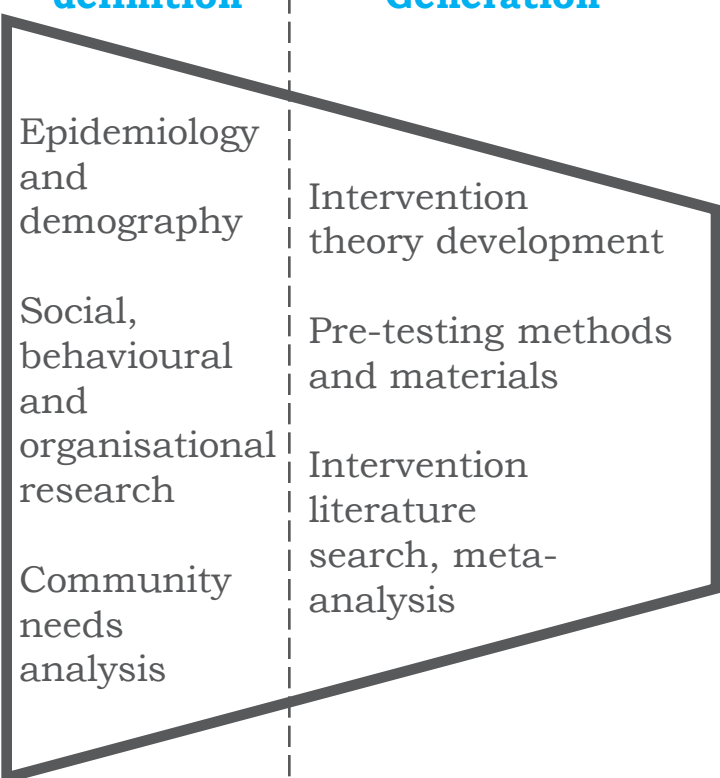
What is the best evaluation research method?

- Different stages in the development of ideas need **different evaluation methods**
- Multi-level interventions require **multiple layer evaluations**
- **Assessment of outcome** is of greatest interest to academics and policy makers, and needs to be tied to relevant, measurable objectives
- Understanding **process of implementation** and conditions for success of is of greatest interest to practitioners

Building evidence for public health intervention: Stages of Research and Evaluation

Problem definition

Solution Generation



Epidemiology and demography

Intervention theory development

Social, behavioural and organisational research

Pre-testing methods and materials

Community needs analysis

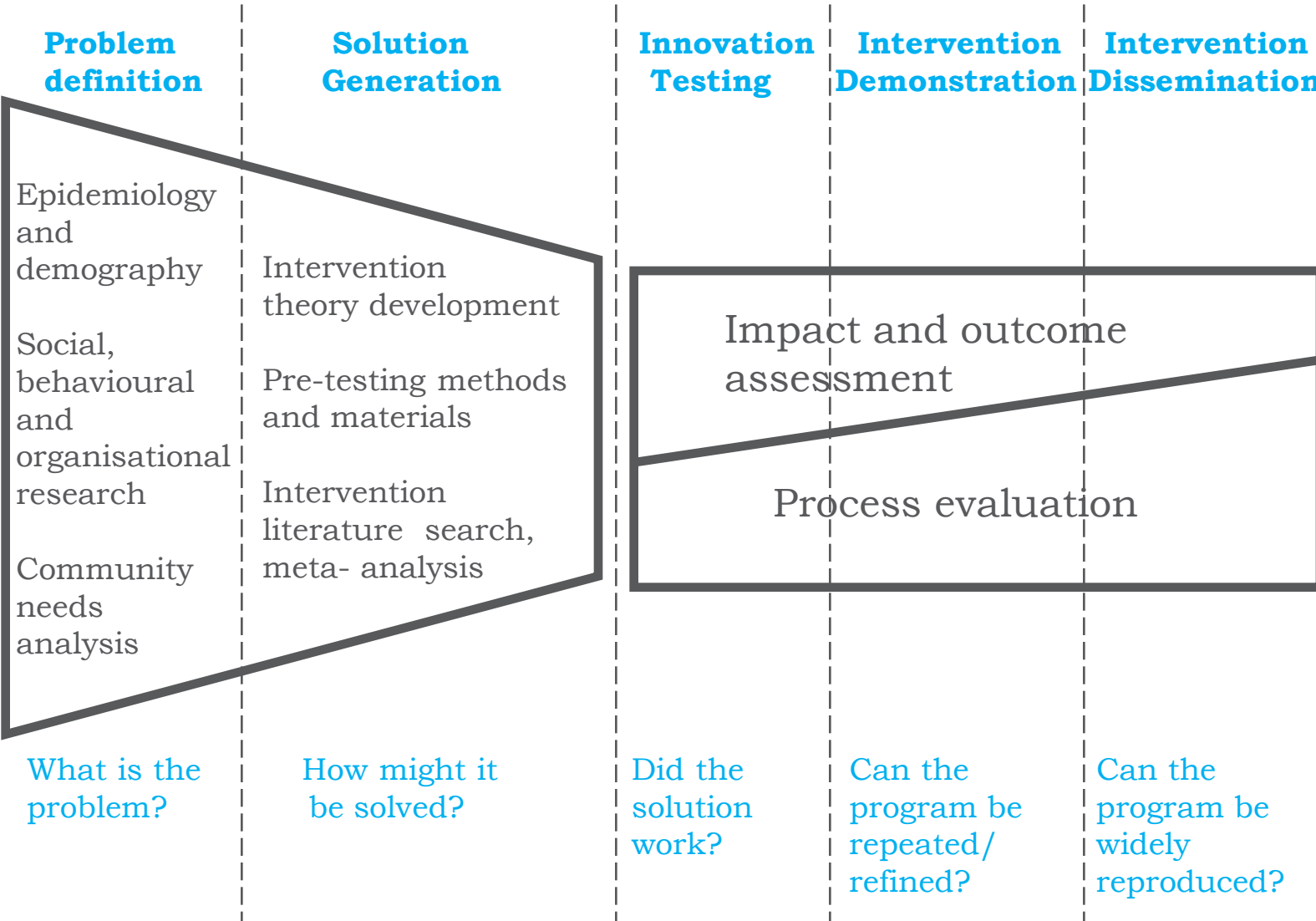
Intervention literature search, meta-analysis

What is the problem?

How might it be solved?

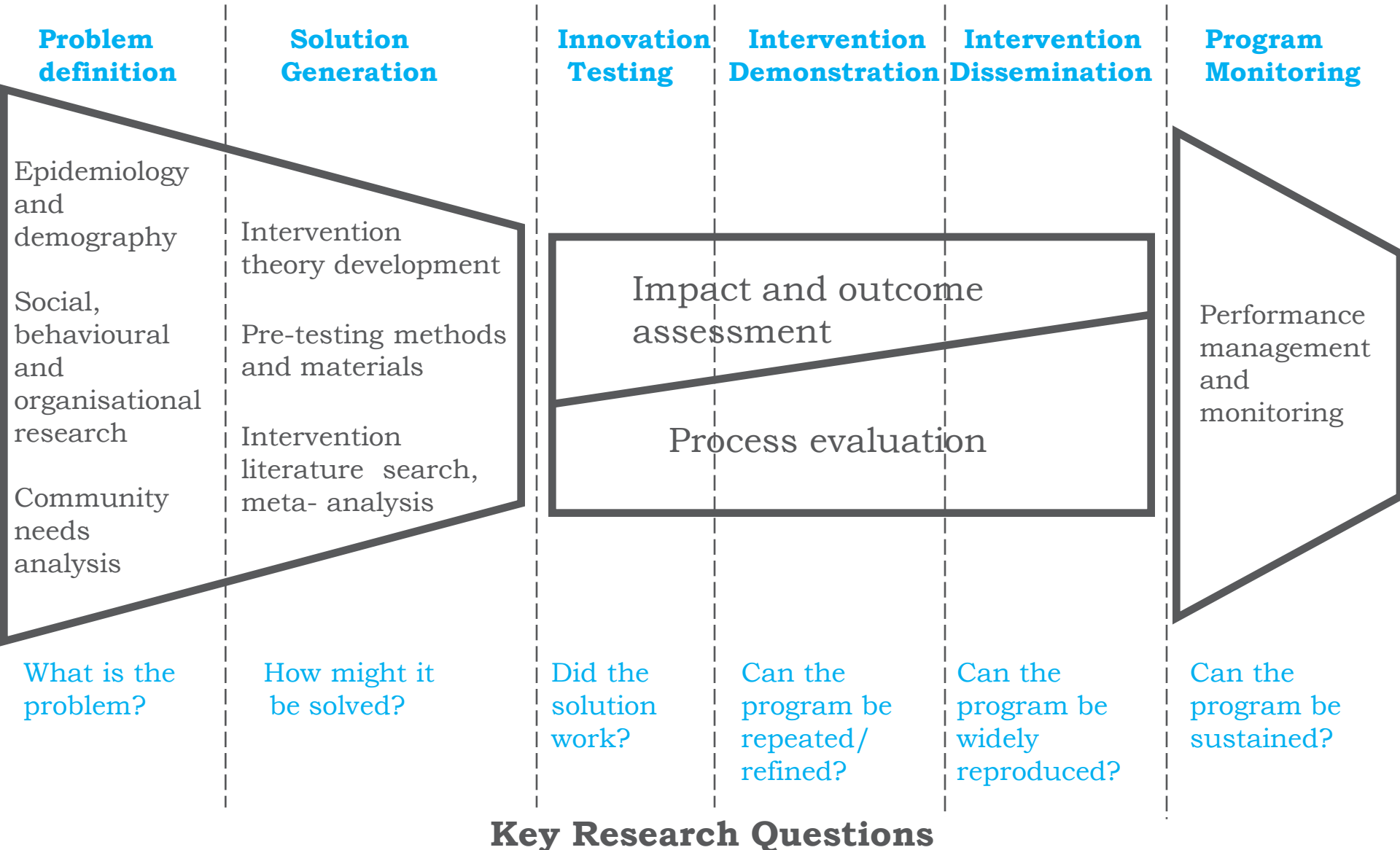
Key Research Questions

Building evidence for public health intervention: Stages of Research and Evaluation

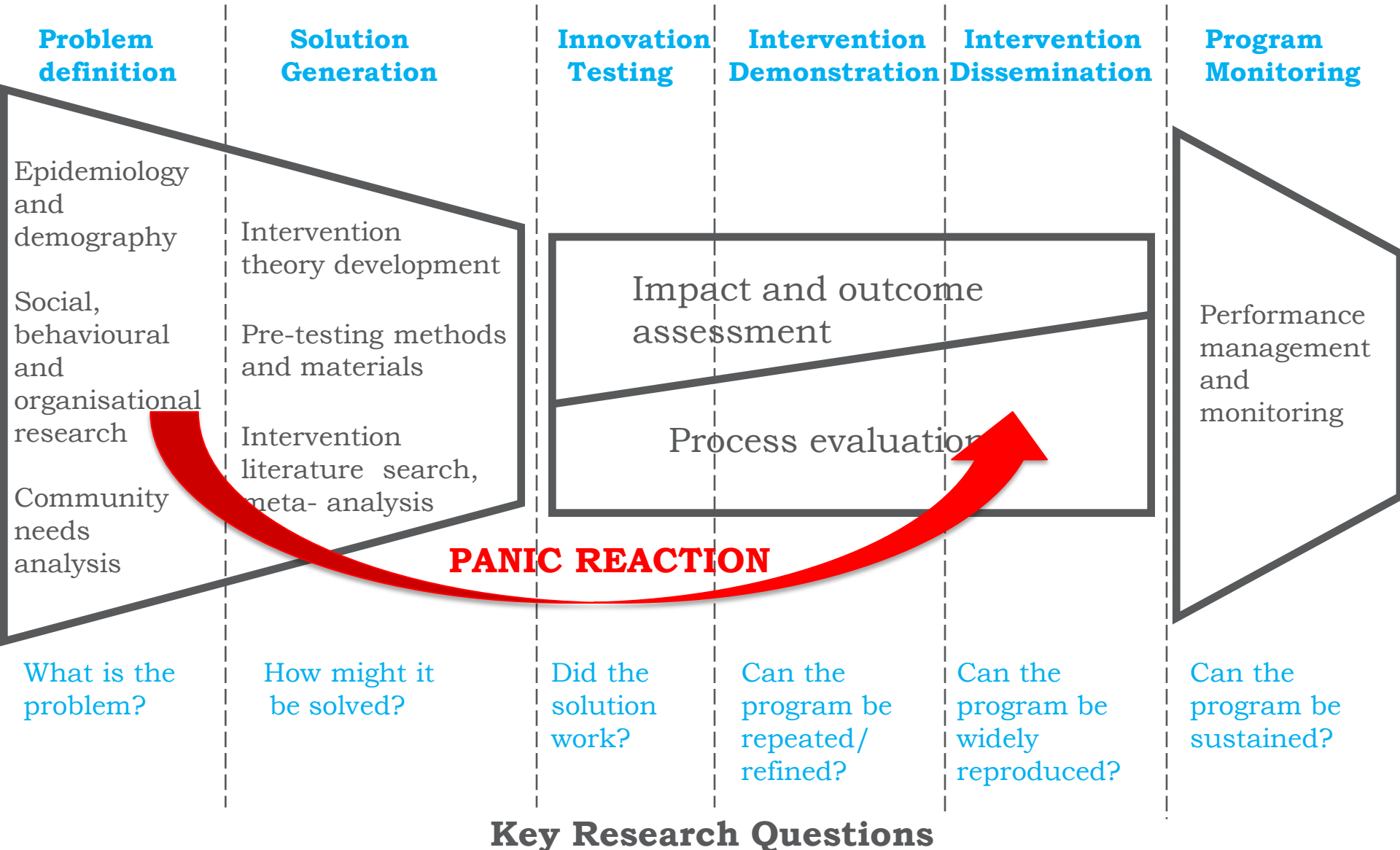


Key Research Questions

Building evidence for public health intervention: Stages of Research and Evaluation

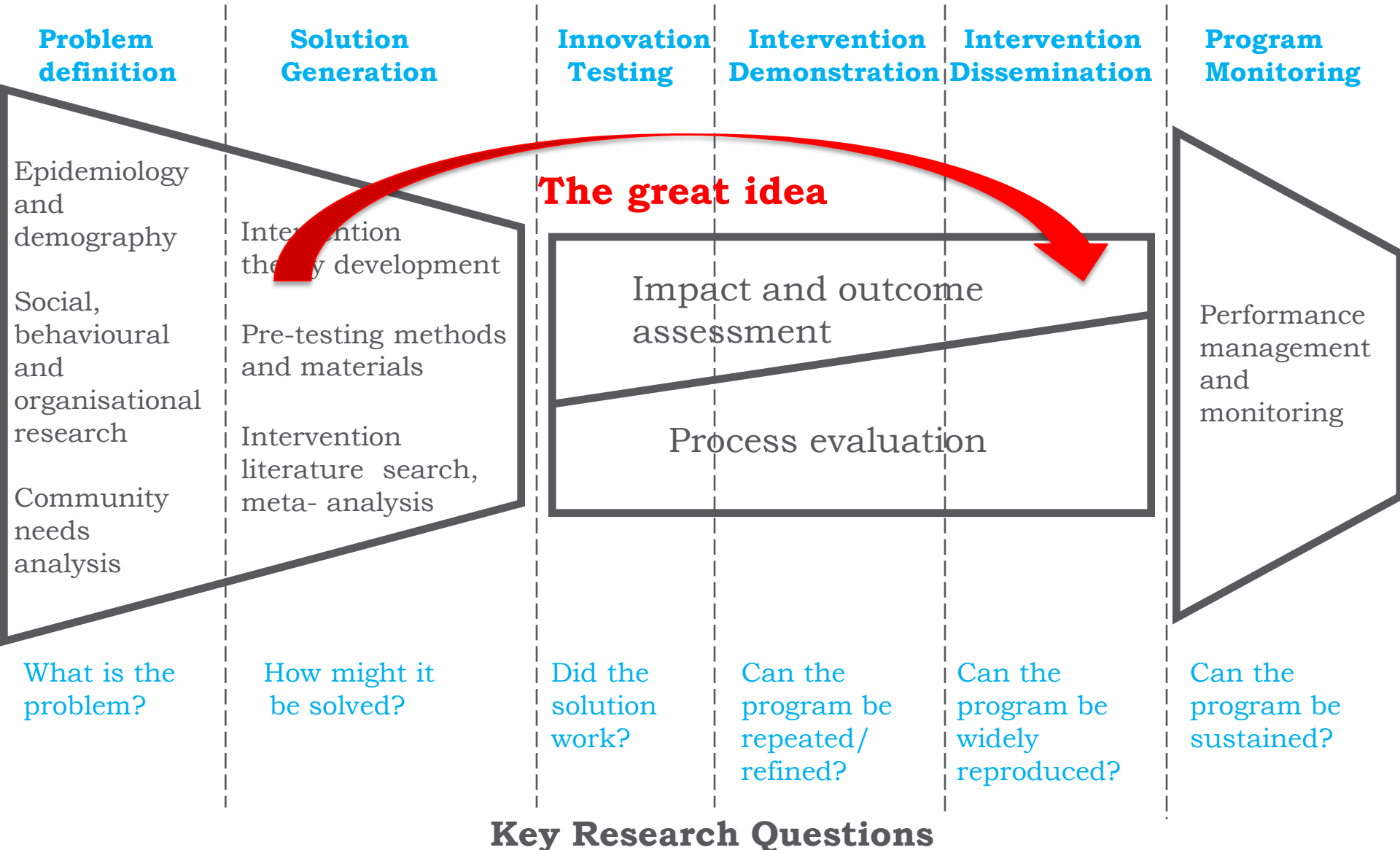


Building evidence for public health intervention: Stages of Research and Evaluation

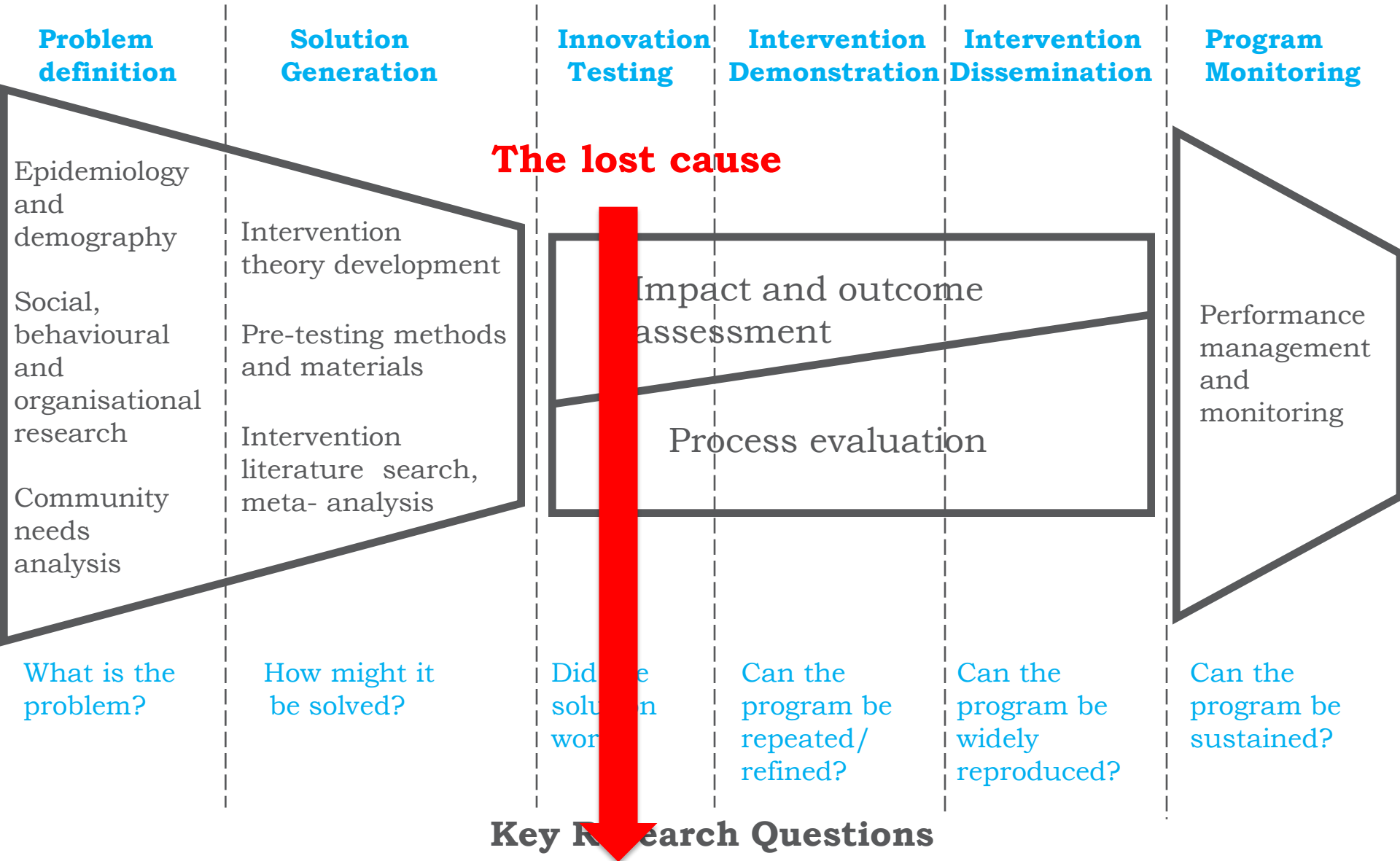


PANIC REACTION

Building evidence for public health intervention: Stages of Research and Evaluation



Building evidence for public health intervention: Stages of Research and Evaluation



The lost cause



Key elements of the model

- Different stages in the development of ideas require research to answer different questions
- Type and intensity of evaluation research needs to be related to stage of development of a program and perceived “risks”
- Measuring outcome and tracing causality of greater interest to academics, policy makers
- Understanding the processes of implementation and how to create conditions for success are of greatest interest to practitioners

Inadequacies of current intervention research

- Current research is heavily directed towards the right of the model – we confuse “evidence” with descriptions of determinants and modifiable risk factors
- “Quality” is confused with methodology; focus on controlled trial methodology and limited measurable outcome measures often leads to regressive intervention methods (single risk, single method, single setting) - **we learn more and more about less and less**
- Change process insufficiently studied or described - **we pursue the right answers to the wrong questions**

Building evidence of the effectiveness of health promotion interventions – messy business?



A game of snooker,
Or water polo?

The “snooker” paradigm of intervention research

- One person, one opponent
- Level playing surface, no background noise
- Highly defined playing strategy, predictable outcomes
- Action occurs above ground under spotlights



The “snooker” paradigm of intervention research

- One person, one opponent
- Level playing surface, no background noise
- Highly defined playing strategy, predictable outcomes
- Action occurs above ground under spotlights
- *Single intervention method, single setting, single issue*
- *Manageable intervention environment*
- *Well designed protocol, defined sequence of events*
- *Capable of intensive examination of all key elements*
- *Attractive to academics and research funders*

The “water polo” paradigm of intervention research

- Team game multiple opponents
- Constantly changing playing environment, considerable background noise
- Fast moving, constantly changing game plan
- Much action occurs below the surface



The “water polo” paradigm of intervention research

- Team game, multiple opponents
- Constantly changing playing environment, considerable background noise
- Fast moving, constantly changing game plan
- Much action occurs below the surface
- *Multi-level intervention, multi-setting, multi-outcome*
- *Difficult to manage and predict intervention environment*
- *Need for flexibility and willingness to adapt*
- *Unforeseeable actions and consequences*
- *Much less attractive to academics and research funders*

What do we need to do?

Grow and improve evidence

- Need careful debate about the nature of “evidence” in public health intervention
- Need to encourage more intervention research (left side of model)
- Need to reflect complexity of effective intervention in the development of research methods and outcome measurement, **not confuse quality with methodology**
- Need to combining research methods (quantitative, with qualitative), and “build” evidence derived from a much richer base of knowledge and experience than if often advocated, get the right answers to the right questions

What do we need to do?

Adopt tested knowledge translation strategies

- **Synthesis**
 - Synthesise and summarise research findings
- **Dissemination**
 - Get the best available research to stakeholders in a way that they can use it
- **Exchange**
 - Bring people together to share knowledge and experience
- **Mobilisation**
 - People, systems and processes in place to support knowledge translation activities
- **Co-production**

<https://www.saxinstitute.org.au/about-us/>

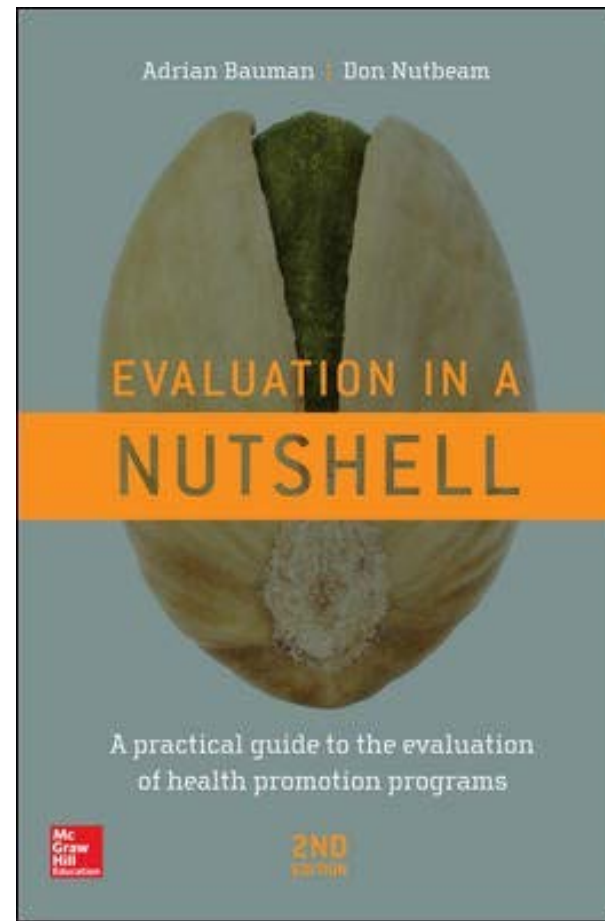
How do we get this done?

- Understand better the place of evidence in policy making process - achieving best “fit” with political vision and desired outcomes
- Recognise the complementary role of effective public health advocacy as a part of the policy development process
- Engage with public servants, academics and public health practitioners to build skills in the rapid appraisal of evidence
- Build knowledge translation and knowledge broking capabilities

Want to know more?

Evaluation in a Nutshell:

A practical guide to the evaluation of health promotion programs





Welcome to the 20th Annual Health Promotion Conference

Knowledge to Action: Using Research Evidence in Health Promotion Policy and Practice

National University of Ireland Galway
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Health Promotion Evidence, Action, Evolution



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Europe



**Organisation
mondiale de la Santé**

BUREAU RÉGIONAL DE L'
Europe



Weltgesundheitsorganisation

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здравоохранения**

Европейское региональное бюро

Gauden Galea
Director, NCDs and Life-Course
WHO/Europe
galeag@who.int

enable ottawa governments information education
 beyond **people** charter individuals regions
 sectors **work** societies equity
 environment **resources** change countries care society **control** major within skills
 environments **life** responsibility international living support personal november well-being
 policy **organization** needs **World** community
 able economic **conditions** action services
 communities take. requires
 voluntary **social** prerequisites strategies healthier setting towards
 physical **must** development achieve commitment essential individual
 opportunities **public** professional natural making cultural therefore
 advocate decisions ensuring nongovernmental sector
 resource concerned planning

HEALTH 2020

A European policy framework
supporting action across government
and society for health
and well-being







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World Health
Organization

REGIONAL OFFICE FOR Europe



90 91 92 93 94 95 96 97 98 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14

INVESTING IN HEALTH



A Summary of the Findings
of the Commission on Macroeconomics
and Health



WORLD HEALTH ORGANIZATION
CMH SUPPORT UNIT

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PERSPECTIVE

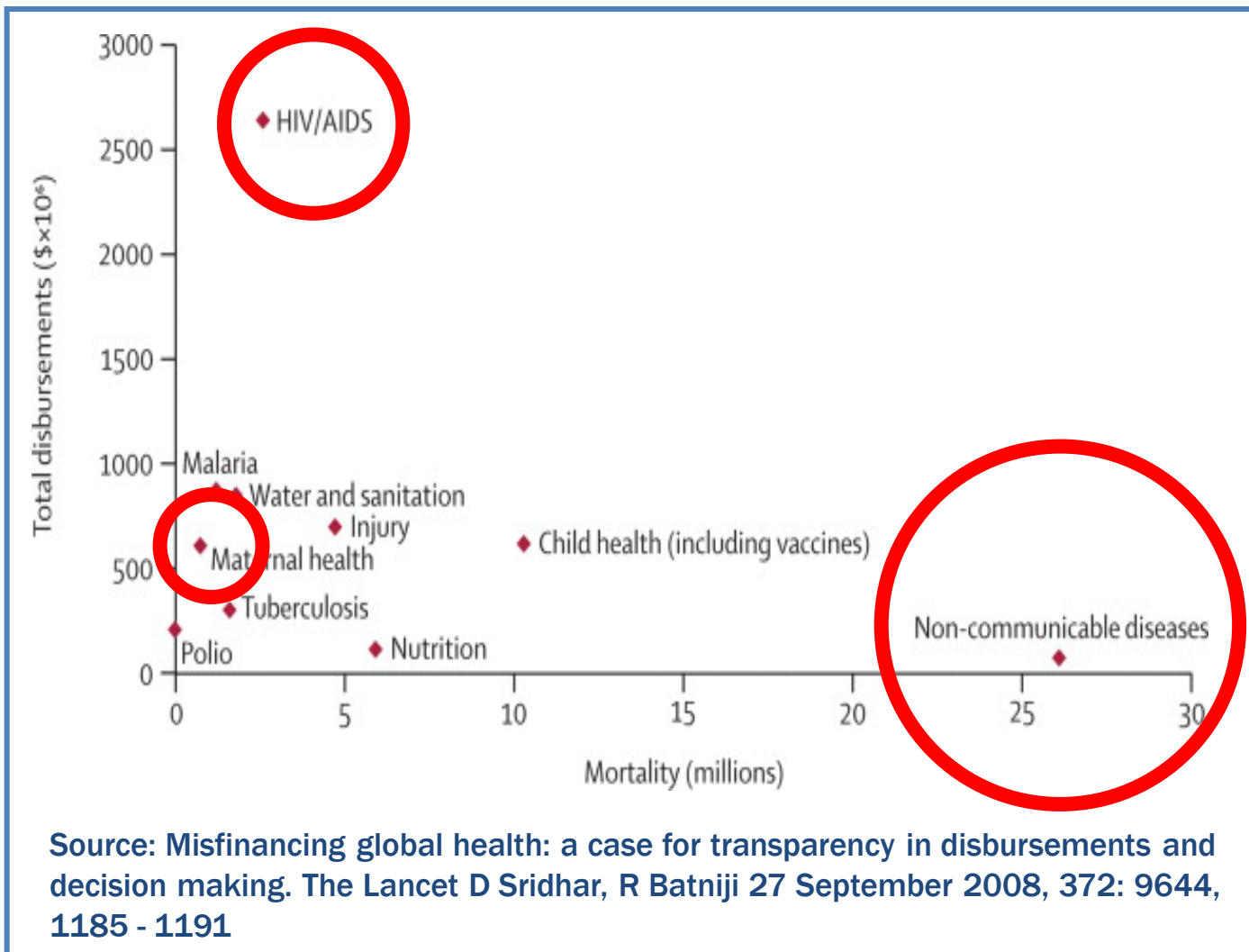
Missing In Action: International Aid Agencies In Poor Countries To Fight Chronic Disease

International resources for preventing and treating chronic disease in low-income countries are virtually nonexistent, although some middle-income countries are making progress.

by Gerard F. Anderson

ABSTRACT: Chronic conditions are not just a problem for industrialized countries; they also affect more than a billion people in low- and middle-income countries. This Perspective shows how some middle-income countries are beginning to respond to the growing cost and prevalence of noncommunicable chronic diseases (NCDs). The primary message here, and prevalence of noncommunicable chronic diseases (NCDs). Evidence from middle- and low-income countries will need substantial international assistance to con-





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Generation of political priority for global health initiatives: a framework and case study of maternal mortality

Jeremy Shiffman, Stephanie Smith

Lancet 2007; 370: 1370-79

See Editorial page 1283

Department of Public Administration, Maxwell School of Syracuse University, Syracuse, NY, USA (J Shiffman PhD, S Smith MPA)

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Why do some global health initiatives receive priority from international and national political leaders whereas others receive little attention? To analyse this question we propose a framework consisting of four categories: the strength of the actors involved in the initiative, the power of the ideas they use to portray the issue, the nature of the political contexts in which they operate, and characteristics of the issue itself. We apply this framework to the case of a global initiative to reduce maternal mortality, which was launched in 1987. We undertook archival research and interviewed people connected with the initiative, using a process-tracing method that is commonly employed in qualitative research. We report that despite two decades of effort the initiative remains in an early phase of development, hampered by difficulties in all these categories. However, the initiative's 20th year, 2007, presents opportunities to build political momentum. To generate political priority, advocates will need to address several challenges, including the creation of effective institutions to guide the initiative and the development of a public positioning of the issue to convince political leaders to act. We use the framework and case study to suggest areas for future research on the determinants of political priority for global health initiatives, which is a subject that has attracted much speculation but little scholarship.

Introduction

Global health initiatives vary in the amount of political priority they receive from international and national leaders. Child immunisation, family planning and HIV/AIDS, for instance, have received little attention and

human rights. Global political priority is the degree to which international and national political leaders actively give attention to a health issue. We argue that attention is

90 91 92 93 94 95 96 97 98 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14

Policy community cohesion

Leadership

Guiding institutions

Civil society mobilisation

Internal frame: policy community agreement

External frame: public portrayals

Policy windows

Global governance structure

Credible indicators

Severity

Effective interventions

Health Policy

Generation of political priority: a case study of maternal health initiatives: a framework and case study of maternal health initiatives: Jeremy Shiffman, Stephen Smith

Lancet 2007; 370: 1023-1028

See Editorials

Department of Public Administration, Maxwell School of Syracuse University, Syracuse, NY, USA (J Shiffman PhD, S Smith MPA)

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Global health initiatives receive little attention? To analyse this question, we use a framework consisting of four categories: the strength of the actors involved in the issue, the power of the ideas they use to portray the issue, the nature of the political contexts in which they operate, and the characteristics of the issue itself. We apply this framework to the case of a global initiative to reduce maternal mortality, which was launched in 1987 and has since become a major research and interviewed people connected with the initiative. We use a grounded theory method that is commonly employed in qualitative research to explore the reasons why some global health initiatives receive little attention and others receive a great deal of political momentum. To create political momentum, the initiative remains in an early phase of development, the creation of effective indicators and credible indicators, and the development of a public positioning of the issue to convince political leaders. We use the framework and case study to suggest areas for future research on the determinants of political priority for global health initiatives, which is a subject that has attracted much speculation but little scholarship.

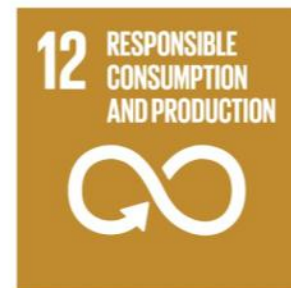
Introduction

Global health initiatives vary in the amount of attention they receive from national political leaders. Child health, family planning, and HIV/AIDS, for instance, at some points have attracted great resources, whereas malnutrition and reproductive health have received little attention. The degree to which a global health initiative receives attention to an issue, and back up that attention with the provision of financial, technical, and other resources, is a subject that has attracted much speculation but little scholarship.

Historic crossroads: NCDs included in the 2030 Agenda for Sustainable Development



SUSTAINABLE DEVELOPMENT GOALS



9 NCD targets for 2025

A **25%** relative reduction in risk of premature mortality from cardiovascular disease, cancer, diabetes or chronic respiratory diseases



At least a **10%** relative reduction in the harmful use of alcohol



A **10%** relative reduction in prevalence of insufficient physical activity



A **25%** relative reduction in prevalence of raised blood pressure or contain the prevalence of raised blood pressure



A **30%** relative reduction in prevalence of current tobacco use



Halt the rise in diabetes and obesity



A **30%** relative reduction in mean population intake of salt/sodium



An **80%** availability of the affordable basic technologies and essential medicines, incl. generics, required to treat NCDs



At least **50%** of eligible people receive drug therapy and counselling to prevent heart attacks and strokes



Country	Circulatory system	All Neoplasms	Digestive system	Respiratory system
Kyrgyzstan	701.9	109.2	74.8	92.6
Russian Federation	673.3	177.9	56.6	45.8
Ukraine	667.1	157.5	48.0	29.0
Republic of Moldova	658.0	164.1	102.6	49.7
Kazakhstan	621.1	156.6	58.0	59.6
Bulgaria	592.0	156.9	31.6	36.1
Belarus	587.2	162.9	43.1	34.8
TFYR Macedonia	553.0	170.5	17.2	33.4
Azerbaijan	551.6	87.6	60.4	55.9
Romania	539.8	179.8	59.5	49.0
Lithuania	494.5	190.5	55.9	28.2
Serbia	473.5	205.6	31.3	35.9
Latvia	466.2	194.8	34.9	22.3
Montenegro	460.8	128.7	20.0	35.5
Slovakia	440.2	198.5	47.3	49.4
Armenia	432.4	188.5	52.8	53.8
Bosnia and Herzegovina	426.8	158.0	19.2	27.8
Hungary	401.0	242.4	51.3	42.5
Estonia	369.2	187.9	31.9	21.7
Croatia	342.1	210.8	35.8	27.9
Czech Republic	325.1	186.0	31.8	37.0
Poland	317.8	198.3	34.6	38.1
Georgia	247.7	56.0	15.3	9.7
Turkey	243.8	121.2	14.9	50.9
Greece	220.1	147.4	13.9	46.6
Slovenia	218.4	197.2	39.7	32.3
Finland	203.7	138.2	31.8	21.3
Austria	196.8	159.5	23.5	26.4
Germany	195.2	158.8	27.5	35.2
Malta	189.3	150.2	16.0	35.5
Sweden	182.2	145.4	16.7	27.3
Ireland	181.5	176.2	22.5	61.5
Cyprus	179.6	117.8	14.1	32.0
Iceland	172.8	159.8	14.0	39.6
United Kingdom	164.2	173.9	31.7	67.6
Luxembourg	163.8	155.9	24.7	36.4
Italy	159.8	163.1	20.3	27.6
Belgium	159.4	171.2	25.4	54.1
Portugal	151.9	156.6	26.7	55.8
Norway	146.2	154.6	16.1	45.3
Switzerland	144.9	141.6	18.7	25.4
Denmark	139.2	188.5	30.2	61.0
Netherlands	139.2	184.9	19.5	48.1
Spain	132.5	156.9	25.3	45.1
Israel	117.8	139.1	16.8	34.3
France	113.9	167.9	23.3	25.4



Indicator

- Circulatory system
- All Neoplasms
- Digestive system
- Respiratory system

Mortality Rates by Main NCDs in Europe

(2007-2012, last available year)

Source: WHO/Europe Mortality Database

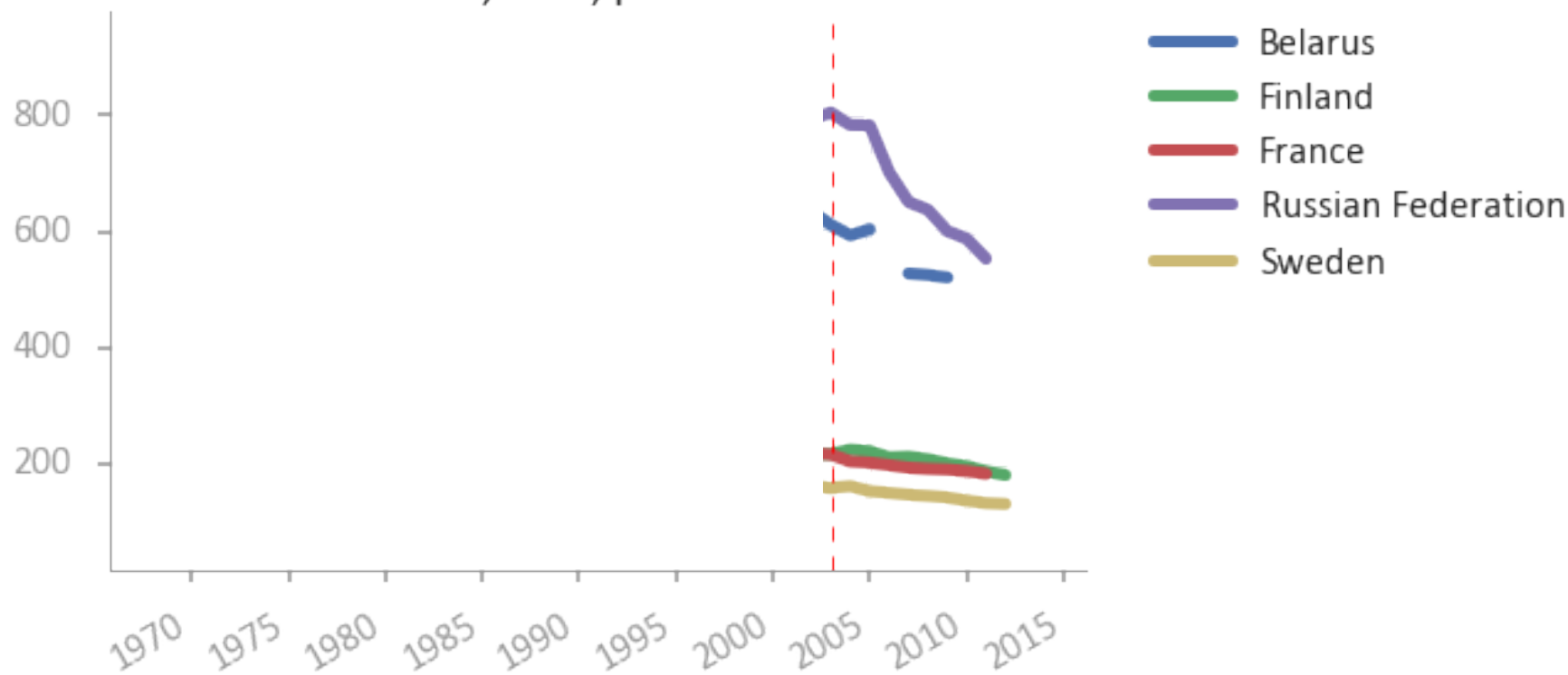
Premature Mortality from NCDs in Europe

Probability
of dying at
exact ages
30-70 from
major
NCDs



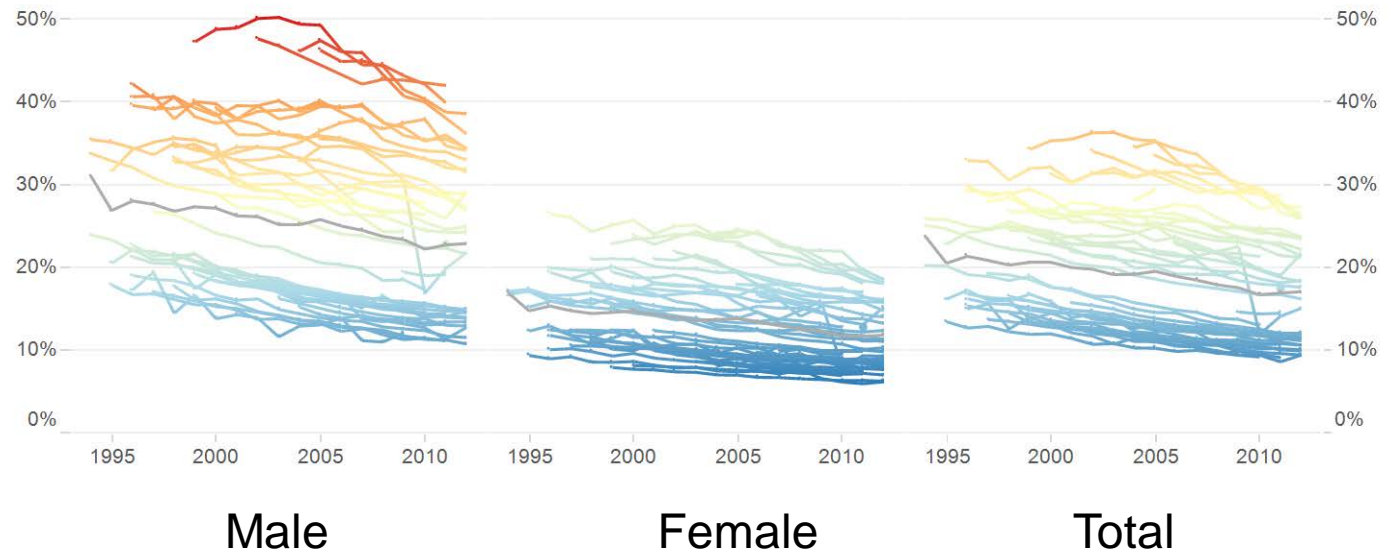
Source: WHO/Europe Mortality Database

Standardized Mortality Rate, all causes, 0-64, per 100 000



Premature Mortality from NCDs in Europe

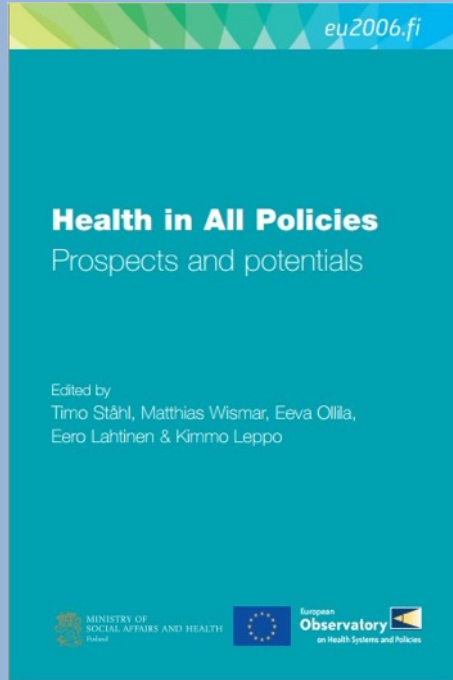
Probability
of dying at
exact ages
30-70 from
major
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Source: WHO/Europe Mortality Database



Health in All Policies



Trade in All Policies

Health in All Policies



Trade in All Policies

Corporate Watch

Breast milk scandal strikes Aptamil manufacturer Danone

comments

June 28, 2013 by [Melanie Newman](#)
Published in: [All Stories](#), [Corporate Watch](#)

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Danone's formula milk sales increase in Turkey. (image baby bottle via Shutterstock.com)

The multi-national food giant Danone has been accused of misleading mothers with a controversial marketing campaign that warned they might not be providing enough breast milk. The company suggested mothers use powdered baby milk to make up any shortfall.

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PODCAST Kids crossing Europe's and America's borders – alone: A US public radio collaboration between Reveal and the Bureau

April 11 @ 12:55pm

More

About the Bureau

The aim of the Bureau is to

<https://www.thebureauinvestigates.com/2013/06/28/after-nestle-now-breast-milk-scandal-strikes-aptamil-manufacturer-danone/>



FITNESS

Coca-Cola Funds Scientists Who Shift Blame for Obesity Away From Bad Diets

By ANAHAD O'CONNOR AUGUST 9, 2015 5:25 PM 1255
Comments

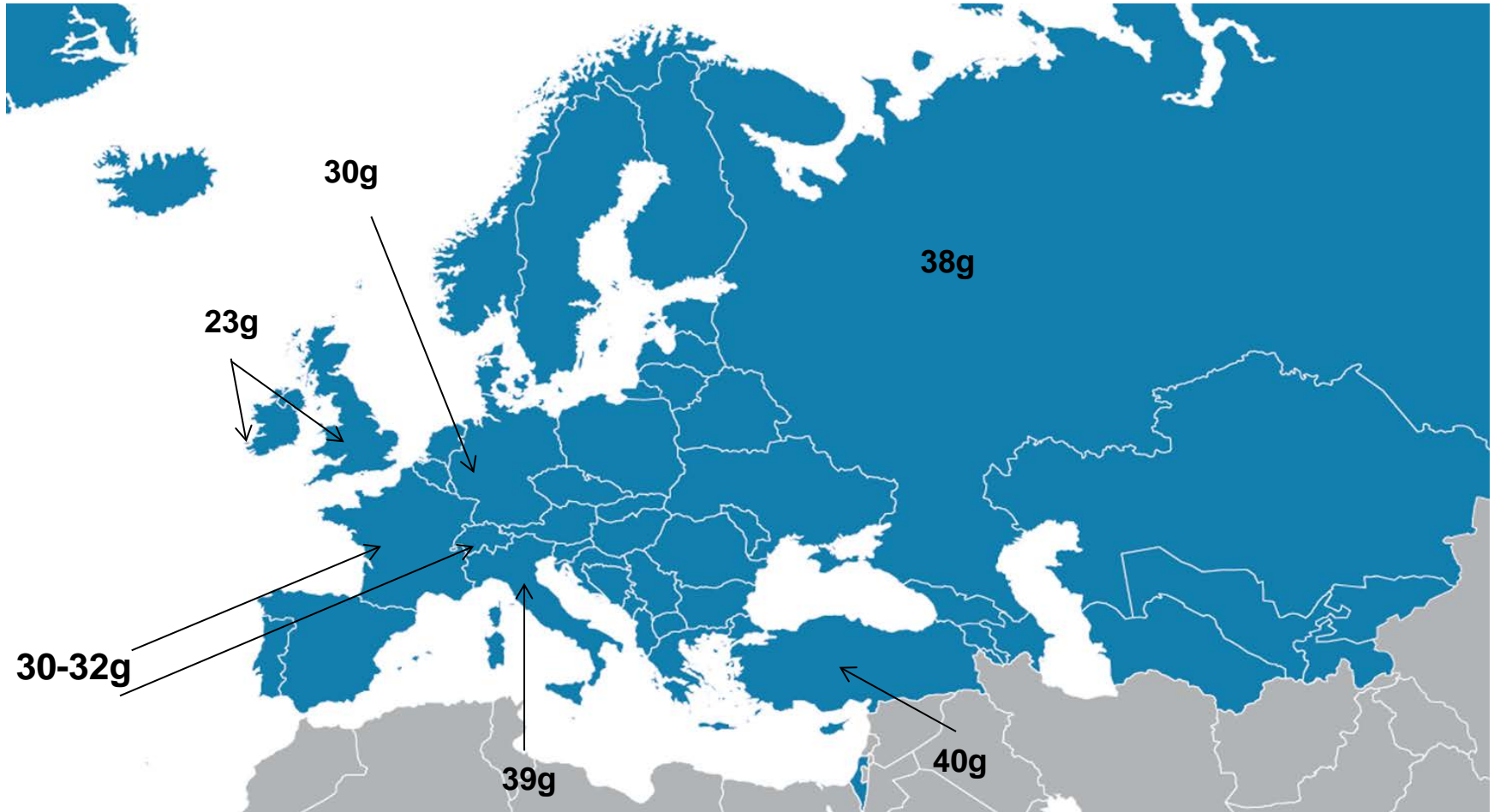


An image from a video by the Coca-Cola Foundation. In November 2012, the foundation announced a \$3 million grant to Chicago's Garfield Park Conservatory Alliance. The grant was intended to establish a wellness program.

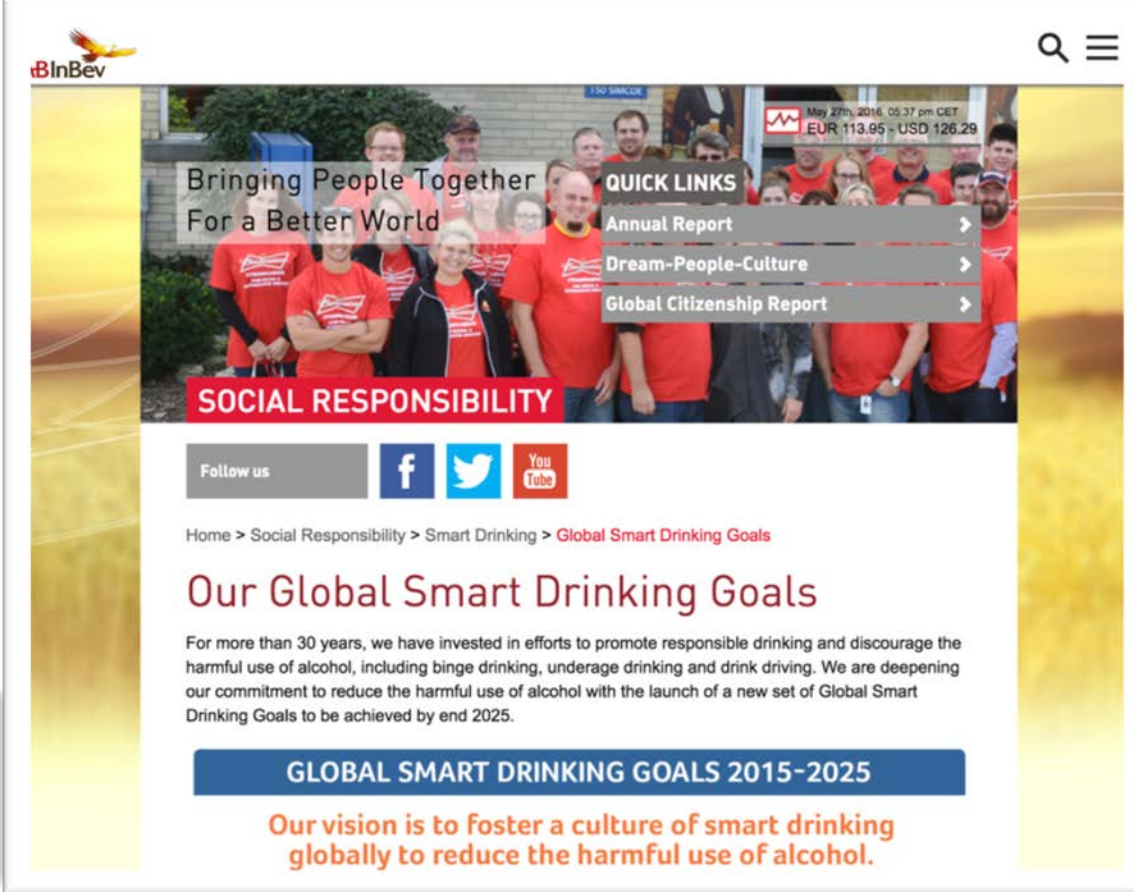
http://well.blogs.nytimes.com/2015/08/09/coca-cola-funds-scientists-who-shift-blame-for-obesity-away-from-bad-diets/?_r=0



Why do we need clear labelling across Europe? Sugar content of soda....



Subverting the SDGs?






InBev

Bringing People Together For a Better World

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- Annual Report
- Dream-People-Culture
- Global Citizenship Report

SOCIAL RESPONSIBILITY

Follow us   

Home > Social Responsibility > Smart Drinking > Global Smart Drinking Goals

Our Global Smart Drinking Goals

For more than 30 years, we have invested in efforts to promote responsible drinking and discourage the harmful use of alcohol, including binge drinking, underage drinking and drink driving. We are deepening our commitment to reduce the harmful use of alcohol with the launch of a new set of Global Smart Drinking Goals to be achieved by end 2025.

GLOBAL SMART DRINKING GOALS 2015-2025

Our vision is to foster a culture of smart drinking globally to reduce the harmful use of alcohol.

Alcohol Ads Go Digital

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Gawker-Hulk Bombshell
A tech billionaire has reportedly been bankrolling Hogan's suit

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With Better Targeting, Alcohol Brands Bet Big on Digital

Annual budgets increase as much as 50 percent
By Lauren Johnson

June 16, 2015, 1:26 PM EDT Technology

Alcohol brands are stepping up their digital marketing.

For years, beer and spirits brands steered clear of digital marketing and social media because of challenges in making sure posts do not break strict regulations by pitching underage consumers. But with Facebook and Twitter offering more sophisticated age targeting, brands can now, more or less, rest assured they are hitting the 21-and-over set.

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Лорен Джонсон

16 июня 2015, 1:26 вечера EDT Технологии

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Популярные Работа

Заместитель Председателя
Полыания. Digital Media

Finland: Regulating Digital Marketing of Alcohol



Source: Marjatta Montonen
http://www.eurocare.org/montonen_6eapc

Nutrient Profiles



World Health Organization
REGIONAL OFFICE FOR Europe



WHO Regional Office for Europe
NUTRIENT PROFILE MODEL



Price Policies



World Health Organization
REGIONAL OFFICE FOR Europe



Using price policies to promote healthier diets



[FINLAND SMOKE-FREE BY 2040](#)[CONTACT US](#)

Finland Tobacco-Free by 2040

The government of Finland is urged to undertake policies that make Finland tobacco-free by 2040. This means that tobacco use is reduced by 10 % annually. Nowadays, around one quarter of adults uses tobacco products.

A broad range of trade unions, institutes and organizations representing influential actors of civil society call for concrete measures to support Tobacco-free Finland by 2040: families need support to raise tobacco-free generations, encourage individuals to quit smoking and provide



The tobacco-free workplace criteria

Tobacco-Free Finland 2040 video:



The Best Smoke-Free Workplace Competition

This annual award for comprehensive

Tags # CIGARETTES # HEALTH MINISTER # JAMES REILLY # SMOKING

Reilly: Tobacco industry wants to take me to court over plain packaging

The Minister for Health said it would be an "extraordinary society" which put the intellectual property rights of the tobacco industry ahead of the health of its citizens.

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MINISTER FOR HEALTH
James Reilly has said he expects the tobacco industry to take him to court over his plan to introduce plain packaging on cigarettes.

Speaking in the Seanad tonight, Minister Reilly said he believes tobacco companies will argue that their intellectual property rights are being infringed by graphic photographs being introduced on cigarette packets.



Image: Screenshot via Oireachtas.ie

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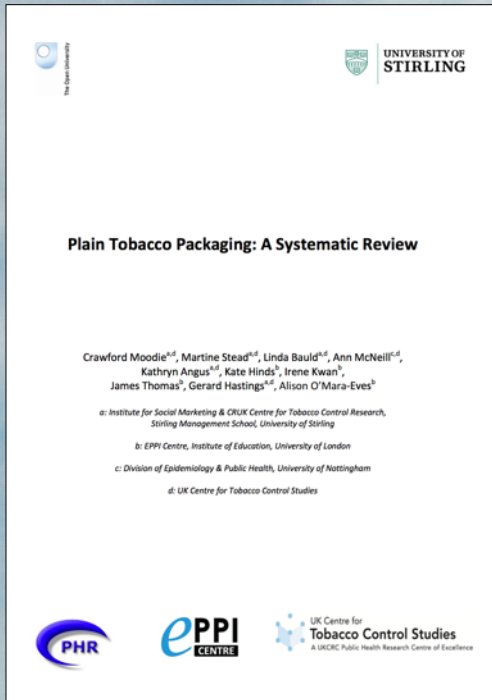
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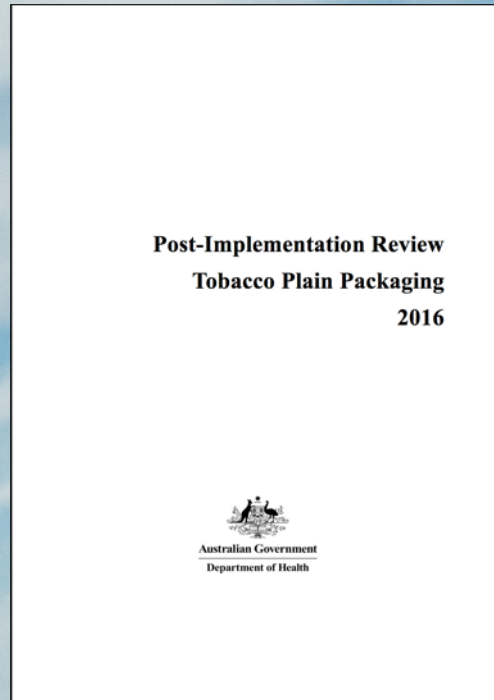
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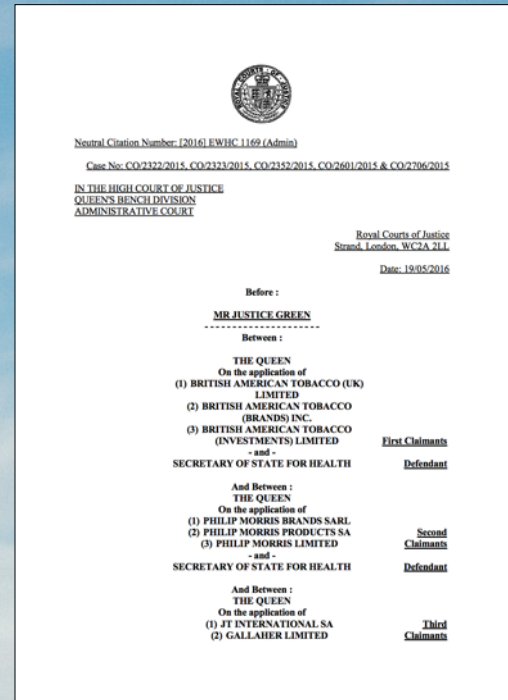




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Home > March 2007 - Volume 18 - Issue 2 > **Modeling Infectious Diseases Dissemination Through Online Role-Playing Games**

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Epidemiology:
March 2007 - Volume 18 - Issue 2 - pp 260-261
doi: 10.1097/01.ede.0000254692.80550.60
Virtual Epidemiology

Modeling Infectious Diseases Dissemination Through Online Role-Playing Games

Balicer, Ran D.

Abstract

As mathematical modeling of infectious diseases becomes increasingly important for developing public health policies, a novel platform for such studies might be considered. Millions of people worldwide play interactive online role-playing games, forming complex and rich networks among their virtual characters. An unexpected outbreak of an infective communicable disease (unplanned by the game creators) recently occurred in this virtual world. This outbreak holds surprising similarities to real-world epidemics. It is possible that these virtual environments could serve as a platform for studying the dissemination of infectious diseases, and as a testing ground for novel interventions to control emerging communicable diseases.

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Picture Sources: [World of Warcraft Cover](#) [Corrupted Blood Incident](#) [Ran Balicer](#) [Epidemiology](#)

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Reducing Health Disparities: Strategy Planning and Implementation in Israel's Largest Health Care Organization (pages 1281–1299)

Ran D. Balicer, Efrat Shadmi, Nicky Lieberman, Sari Greenberg-Dotan, Margalit Goldfracht, Liora Jana, Arnon D. Cohen, Sigal Regev-Rosenberg and Orit Jacobson
Article first published online: 25 FEB 2011 | DOI: 10.1111/j.1475-6773.2011.01247.x

Selected quality indicators for targeting and reducing gaps

1. Influenza immunization
2. Mammography tests
3. Fecal occult blood tests
4. Diabetes control
5. Blood pressure control
6. Hyperlipidemia control
7. Anemia in infants

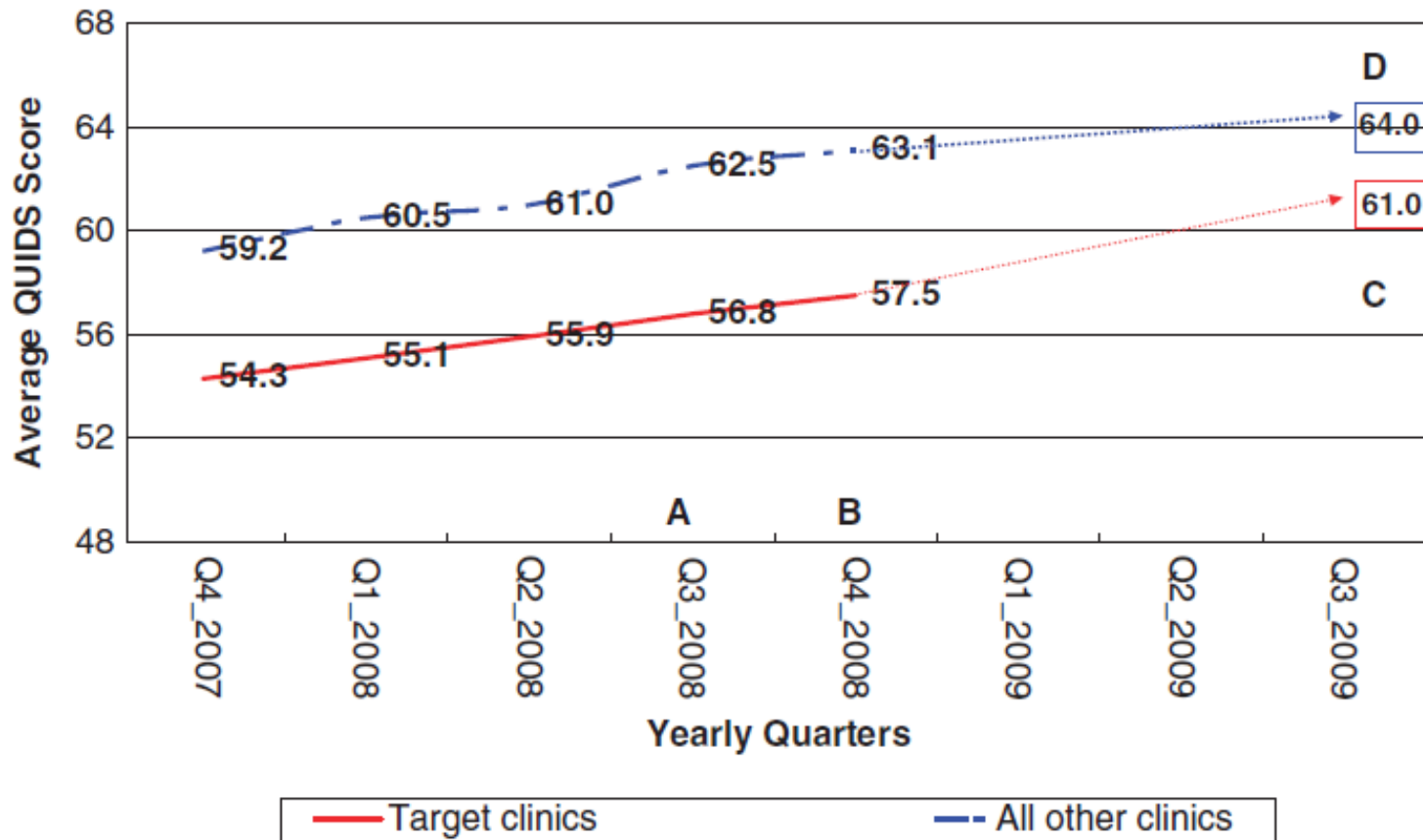


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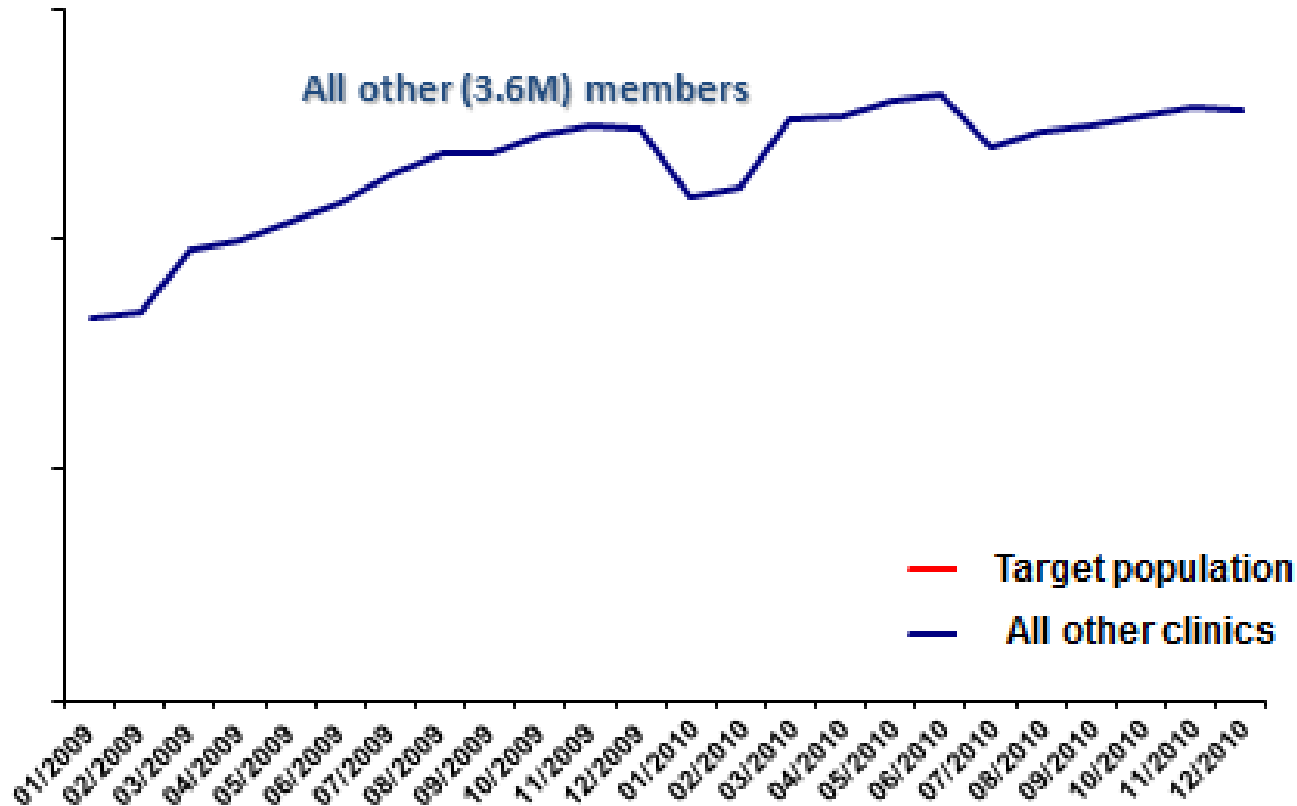


55 lowest performing clinics

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Over 70% reduction in gaps in quality score (~70 quality indicators)



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