Chess, not chequers

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"Nothing can be done until everything is done": the use of complexity arguments by food, beverage, alcohol and gambling industries

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ABSTRACT

Background: Corporations use a range of strategies to obscure their role in causing public health harms and to limit the usage of effective public health interventions. This is well-documented in relation to the activities of the tobacco industry, but research on other industries is less well-developed. We therefore analysed public statements and documents from four unhealthy commodity industries to investigate whether and how they used arguments about complexity in this way.

Methods: We analysed archival, trade, sector and gambling industry documents and websites and minutes of reports of relevant health sector committees, using standard document analysis methods.

on apparently scientific concepts and methods in this way has the goal of changing how policy issues are understood and defined. It also tends to manufacture uncertainty and undermine scientific consensus, thereby curtailing the potential for effective public health policy responses. Such discourses can exert an impact on the real world of policymaking. For example, the tobacco industry formed the use of the concepts of psychological stress as an alternative explanation for coronary heart disease (CHD), appropriating researchers and conferences and using the concepts in litigation to argue that these act as unmeasured confounders in the relationship between smoking and disease.6
Evidence of effectiveness
Evidence of cost-effectiveness

The dangerous olive of evidence...

All possible interventions

Viewpoint

The need for a complex systems model of evidence for public health

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Despite major investment in both research and policy, many pressing contemporary public health challenges remain. To date, the evidence underpinning responses to these challenges has largely been generated by tools and methods that were developed to answer questions about the effectiveness of clinical interventions, and as such are grounded in these models of cause and effect. Identification, implementation, and evaluation of effective approaches to major public health challenges require a wider set of approaches and a focus on complex systems.

A complex systems model of public health which requires high levels of individual agency, have long reach and impact, and tend to widen health inequalities. Shifts within multiple systems across the many systems that influence obesity are required, some of which might only have small effects on individual but can drive large changes when aggregated at population level. Although randomized controlled trials of individual level interventions are relatively straightforward to do, it is often impossible to randomize a populations-level intervention, such as the introduction of a national tax on sugar-sweetened beverages, or the multiple factors that support eating, such as physical infrastructure, spatial...
Using systems science to understand the determinants of inequities in healthy eating

Source: Friel et al PLOS ONE 2017

Numbers shown refer to the recommended policy actions. For full details refer to the main report.

Global action plan on physical activity 2018–2030: more active people for a healthier world.

1.1
Build research and development

1.2
Strengthen policy, leadership and governance

1.3
Create active societies

1.4
More active people for a healthier world

2.1
Implement community-wide initiatives

2.2
Incorporate physical activity into health and social services

2.3
Improve access to public open spaces

2.4
Strengthen road safety

2.5
Improve walking and cycling networks

2.6
Integrate transport and urban planning policies

2.7
Implement proactive building policies

2.8
Promote the co-benefits

3.1
Provide programmes across multiple settings

3.2
Enhance physical education and school based programs

3.3
Prioritize programmes for the least active

3.4
Implement community-wide initiatives

3.5
Incorporate physical activity into health and social services

3.6
Improve access to public open spaces

3.7
Strengthen road safety

3.8
Improve walking and cycling networks

3.9
Integrate transport and urban planning policies

3.10
Implement proactive building policies

3.11
Promote the co-benefits

4.1
Build workforce capacity

4.2
Develop innovative finance mechanisms

4.3
Strengthen policy, leadership and governance

4.4
Expand advocacy

4.5
Improve and integrate data systems

4.6
CREATE ACTIVE SYSTEMS

4.7
CREATE ACTIVE PEOPLE

4.8
CREATE ACTIVE ENVIRONMENTS

4.9
CREATE ACTIVE SOCIETIES

A Community Based Systems Diagram of Obesity Causes

Fig 3. Causal loop diagram of causes of childhood obesity in community
Source: Allender et al PLOS ONE 2015
Sugar tax → Increased price → Reduced sales → Reduced consumption → Reduced obesity

Political lobbying, PR offensive Media
Sugar tax → Increased price → Reduced sales → Reduced consumption → Reduced obesity

Minimise magnitude
Price restructuring, Reformulation
Reduced price, Minimise changes
Reduced sales, Minimise impact
Reduced consumption, Obfuscate
Reduced obesity, Manipulate the discourse

2018 Surgeon General's Report, Fig 2.1. Thanks to Cliff Douglas [Ecking]
Places to Intervene in a System (in increasing order of effectiveness)

12. Constants, parameters, numbers (such as subsidies, taxes, standards)
11. The sizes of buffers and other stabilizing stocks, relative to their flows.
10. The structure of material stocks and flows (such as transport networks, population age structures)
  9. The lengths of delays, relative to the rate of system change
  8. The strength of negative feedback loops, relative to the impacts they are trying to correct against
  7. The gain around driving positive feedback loops
  6. The structure of information flows (who does and does not have access to what kinds of information)
  5. The rules of the system (such as incentives, punishments, constraints)
  4. The power to add, change, evolve, or selforganize system structure
  3. The goals of the system
  2. The mindset or paradigm out of which the system—its goals, structure, rules, delays, parameters—arises
  1. The power to transcend paradigms

Leverage Points: Places to Intervene in a System, Meadows 1999
Conclusions

- Obesity is a normal response, by normal people, to an abnormal environment. Many other important problems echo this.
- The public health evidence base is structurally biased towards short term impacts of tightly defined, highly agentic, individual level interventions.
- This promotes responses aimed at proximal risk factors, may widen inequalities, and ignores the lessons of Geoffrey Rose.
- Time dimension is important: 20 year vision, 5 year strategy, 1 year plan.
- (Complex) systems approaches can help address some of these problems.
- Let’s play chess, not chequers.