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# **Models, Targets and the End of Hepatitis C**

Models and targets as 'evidence-making interventions'

# Two actors, two moments

## Two actors

- Mathematical models
- Quantifiable targets

## Two moments

- Treatment-as-prevention
- Prevention-as-elimination



## Evidence-making interventions in health: A conceptual framing

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### ARTICLE INFO

#### Keywords:

Evidencing

Ontology

Relational materialism

Translation

Intervention

Implementation science

### ABSTRACT

We outline a framework for conceptualising interventions in health as ‘evidence-making interventions’. An evidence-making intervention (EMI) approach is distinct from a mainstream evidence-based intervention (EBI) approach in that it attends to health, evidence and intervention as matters of local knowledge-making practice. An EMI approach emphasises relational materiality and performativity, engaging with interventions, and their knowing, as matters-of-practice. Rather than concentrating on how ‘evidenced interventions’ are implemented ‘into’ given ‘contexts’ - as if evidence, intervention and context were stable and separate - an EMI approach focuses on the processes and practices through which ‘evidence’, ‘intervention’ and ‘context’ come to be. There are two strands to our analysis: First, we identify concepts to think-with in an EMI approach; and second, we illustrate their implications through case examples. We first reflect on developments in ‘implementation science’ to distinguish how an EMI approach thinks differently. We note a ‘within-limits contingency’ of implementation science in contrast to the ‘open contingency’ of an EMI approach. This helps notice the performativity of science and intervention as evidencing-making practices. We next conceptualise an EMI approach in relation to: ‘objects and practices’; ‘effects and events’; and ‘concerns and care’. We position an EMI approach in relation to theories of ‘relational materialism’, arguing that this affords a more critical, as well as more careful, way of knowing and doing health intervention.

# From cure to prevention

## Miracle cure

“From a technical side what was done with hepatitis C is as close as a **miracle** as you can get in the scientific field. I mean it is quite an achievement. It went **beyond everybody’s expectations...** Where we are today is **nothing short of a miracle**. It’s just **unbelievable**. I mean we’re down to eight weeks and 90%+ cure rates. It’s **amazing**. There is **nothing like it before.**” [#10]

## Achievable prevention

20:1000

# Performing new entities

We can now treat hepatitis C like **a disease rather than as a cancer...** The difficulty before was, well, the drugs and the drug treatment were always delivered **as if they were a cancer cure, not an infection, not as an antibiotic...** [#58]

# Performing doability

**“That’s when it kind of clicked... This is doable... You look at what’s coming down the pipe. I’m telling you, this is completely doable.”** [#10]

The model makes it that **I’m going treat a certain number of people every year**, based on the fact that I’ve got a health system set up to do so... I thought, **‘Oh, I can now eliminate this disease’**... I thought, **‘this is going to be doable.’** [#3]

I think **we were surprised**... With those treatment rates, **20 per thousand**. I think we were **very surprised** to see the substantial reductions in chronic prevalence that the modelling predicted. [#44]

# The model takes flight

I mean, **it really took fire**. As soon as people started talking about hepatitis C elimination, **everyone wanted to talk about it**, and **all of a sudden** there was a slew of workshops organised at conferences focusing on that, there were pharmaceutical lunchtime sessions focusing on that, and editorials that were being written about **hepatitis C elimination**... It felt like an **explosion of interest**. [#44]

# Anticipated elimination

The modelling data was starting to appear with the **need for incredibly small numbers** of treatment... As soon as it was online and I read the paper, I thought ‘Shit, if this is true’... **That’s when the dream of elimination really started** [...] I’d think, ‘Hang on a minute, if **it’s that simple, this easy**, what can we do from a public health perspective? **Could this actually get rid of it?**’. [#14]



# Things change, affects are made

We were **selling it as a big problem**. To prevent that liver failure, and then to move it to the next stage that actually we could prevent the disease... That **was so exciting**, that this **could work...** It's **hugely exciting**. /

There is a **visceral excitement** about it. **Is it going to be true? Is it going to work?** /

It feeds backwards, and forwards, and we become, yeah, **drunk on our own publicity**. And we **may be** completely wrong, but **hopefully** we won't be. /

The **modelling has made me do what I do**. I'm now **following the model...** [#14]

# Evidence implications

Elimination is... **Not in line** with the direct results from the modelling...

**People take and interpret from it what they want, and maybe overstep...**

The first papers were just about hepatitis C treatment and treatment-as-prevention, and **people were starting to talk about elimination**. All they were talking about was **we can just scale-up treatment and we'll eliminate hepatitis C**, that's all we need to do. **Treatment is the answer.** [#44]

# Onto-epistemological concern

We were cautious because **we hadn't yet done the modelling to indicate that you could drive down incidence to levels that were that low.**

I was worried because **we didn't have the modelling evidence.** I mean the models **had not looked at elimination...** These models **didn't even look at incidence** as the main outcome. And **yet people were talking about them in the context of elimination...** So, there was already that **disconnect.**

They were **going in the elimination direction**, and those were the first words that were kind of thrown around it... I felt **it was further than the modelling could go** at the time. [#44]

# Elimination made in targets

It's just amazing to see the huge shift from theoretical exercises, that treatment can be used for prevention, to **now all of a sudden they're being used for this target setting...**

...People are so **excited about reaching and making these targets** that they're willing to commit to them even though they don't understand what kind of epidemic they have... That is fascinating, that you **don't have to understand your epidemic to be willing to somehow reach some quantifiable target.** [#44]

# Virtual precision

“**Magic numbers**” which are “**completely impossible to measure**” [#62]

It’s elimination as a ‘public health problem’. So, it’s recalibrated as a public health problem [that] seemingly has to be a 90% reduction of transmission. But there isn’t anything in the literature saying that this is a definition of elimination as a public health threat. It’s **totally arbitrary**. The **numbers are arbitrary**. [#58]

# Actualising virtual elimination

The targets are a **mechanism** for driving people to treat hep C. [#64]

A **tool** by which to they get to treat people. [#62]

You need to set the targets high enough that people are going to want to try and achieve them, and you need something that's going at least like **feel it might be able to be achieved**. [#59]

# Ontological interventions

I don't think it matters, because **what matters is that they've set a target**. That's what matters to the people who are infected with hep C. [HCV-64]

WHO probably know that there's **no hope of those targets being met**. But I don't think that was their main purpose. Their **prime purpose was to raise the profile** of hepatitis C, and what they've done is remarkable. [HCV-58]

# What counts: A conclusion

Numbers are made-to-matter in practices

Enumerations are performative actors, making material effects

A different implementation science – one which can treat models and targets as ‘evidence-making interventions’



# Acknowledgements

UNSW SHARP Programme  
UNSW Scientia Fellowship Programme  
Carla Treloar (UNSW)  
Jake Rance (UNSW)  
UNSW ethics approvals board  
Our participants

# Ends