Høj, S. B., Bruneau, J., & Hickman, M. (2021). Framing public health response to the opioid and overdose crisis: are there alternatives to cascade of care model? *European Journal of Public Health*, *31*(4), 670-671. https://doi.org/10.1093/eurpub/ckab031

Commentary

Title

Framing public health response to the opioid and overdose crisis – are there alternatives to Cascade of Care Model?

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Competing interest statement

JB has received honoraria from AbbVie and Gilead Sciences and investigator-driven grants from Gilead Sciences.

MH has received unrestricted honoraria from Gilead, MSD and Abbvie in last 3 years.

Funding

None.

Key words

Cascade of care, opioid use disorder, overdose, opioid epidemic, quality indicators, performance metrics, Haddon matrix

Editorial

The 'cascade of care' has seen widespread uptake as a framework for measuring patient engagement in care for chronic conditions including HIV, hepatitis C, and diabetes.[1] Attention recently turned to its potential utility in the field of addiction care, particularly in relation to opioid use disorders (OUD) and opioid agonist treatment (OAT).[2,3] The OUD cascade is now being positioned as a tool to guide public health action in epidemics of opioid addiction and overdose, in North America and elsewhere.[2,3]

Critically, the measurement framework we choose reveals what we think needs to change and hence what we think the "problem" is. The OUD cascade represents a problem of inadequate engagement and retention in OAT, and positions these as the primary objects of intervention and evaluation. However, it neither directly nor adequately captures the problem of excess mortality risks conferred by different opioids (such as fentanyls) and polydrug use (such as interaction between opioids and benzodiazepines) that have contributed to epidemics of overdose deaths, nor clearly emerging

issues in North America and Europe elated to the serious consequences of social and economic deprivation, which drives not only overdose, but suicide and other injuries.

As a guide for action in an overdose emergency, the OUD cascade places heavy emphasis on the health system and invokes assumptions that could generate problematic policy silences. For instance, the cascade implies that all people at risk of overdose have OUD, and are eligible and willing to receive OAT; but people who use stimulants are also exposed to fentanyl contamination, and people who return to opioid use after long periods of abstinence face elevated overdose risk. Perhaps more importantly, the cascade implies that OAT is the only viable means of reducing overdose risk. Yet unlike HIV and HCV, for which obtaining medication is the direct means of achieving viral suppression or cure, numerous adjunct interventions complement OAT to protect the lives of people who use drugs; from take-home naloxone to overdose prevention and supervised consumption sites (OPS/SCS) and drug checking services.[4] There may also be a need for further adjunct interventions, for example, to address comorbidity in people with OUD, and seek to modify polydrug use and replace severely toxic opioid synthetics.

To better map the multi-faceted problem of opioid overdose and guide intervention and surveillance, we propose an alternative framework: the Haddon matrix. The Haddon Matrix combines the epidemiologic triad of causation with concepts of primary, secondary and tertiary prevention to identify factors contributing to the incidence and harms of injury.[5] Specifically, it delineates contributing factors at the levels of the host (person at risk), causative agent (or its vehicle; in this case, opioids and the manner of consumption), and environment (physical/sociocultural), throughout three phases of injury prevention: preventing the agent from reaching the host (pre-event); minimising the likelihood of injury when agent and host interact (event); and minimising subsequent harms (post-event).[5] Interventions can be mapped in a similar manner. By comparison, the OUD cascade primarily focuses attention on the pre-event phase, i.e. preventing opioid consumption. Haddon's matrix is useful for identifying a comprehensive range of contributing factors and potential countermeasures, could easily be populated with pertinent surveillance metrics, and can be expanded to systematise the selection of interventions based on pre-determined decision parameters (e.g. increasing impact, cost-effectiveness, reducing stigma).

There is a clear need for data to guide responses to the evolving opioid epidemics in North America, Europe – especially UK- and other settings globally. However, we must consider how our measurement frameworks define the problems to solve and strategies to prioritise. A primary target of any intervention or policy, and thus a key driver of the choice of metrics, should be to prevent premature mortality. For some individuals this may involve achieving and maintaining recovery or abstinence through OAT; others will rely more heavily on adjunct interventions. We know that current strategies in North America and many countries in Europe are not working, neither to promote recovery nor secure population reductions in overdose mortality. If we wish to distil this complex health and social problem into a set of benchmarks for action, we must ensure that those benchmarks capture a full picture of mortality risk and drive a comprehensive response adapted to the specific needs of affected communities. Although the cascade of care could play an important role in improving the accessibility and acceptability of treatment for OUD, it is blind to many important drivers of the overdose epidemic. We propose the Haddon's matrix as an additional or alternative framework that may allow a more robust and comprehensive application of public health principles to address overdose risk with multiple interventions, at multiple points in the causal process, across multiple levels of influence.

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