# A live tool to guide the implementation and evaluation of tuberculosis infection prevention and control

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## Introduction

The implementation of complex health interventions is contingent on the capacity of systems and sub-systems to deal with complexity, however this is a relatively sparse area of research. In particular, little is known on what constitutes, and contributes, to the complexity surrounding the implementation of tuberculosis (TB) infection prevention and control (TBIPC) and what study designs have been adopted to explore and explain it. We conducted a scoping review that examined studies of TBIPC implementation at health facilities in low- and middle-income countries. Review findings prompted the development of a live tool for use by health system practitioners, users and researchers to guide the implementation and evaluation of TBIPC.

## Methods

A systematic search was performed in five electronic databases to identify empirical studies relevant to the topic published before July 2018. Data on study design and systemic influences on TBIPC were extracted from the 77 included papers. Systemic influences were organised according to Sheikh et al.'s perspective (2011) of health policy and systems as social construction. The results were visualised and transformed into an interactive, online map with features for the ongoing inclusion of newly published empirical research as well as cross-system users' input.

## Results

Influences such as available facility space and funding were mapped as hardware. Software influences included autonomy to implement TBIPC, presence of champions and workplace TB stigma. The socio-political context constituted of influences such as poverty and TB sickness allowance. Examples of linkages between and within the categories were between formal policy (hardware) and health workers' perceived importance of TBIPC (software) as well as between workplace TB stigma (software) and health worker concern for contracting TB infection (software). The online interactive map can expose or hide detail and map systemic influences according to study characteristics selected, e.g. by region, study participant perspective and/or the methodology used. Similarly, information layers specified by users themselves can be added.

## Conclusion

The interactive tool provides comprehensive insight into reported systemic influences that constitute, and contribute, to the complexity surrounding TBIPC implementation. This flexible tool also reveals a vast array of under-investigated topical and system arenas and can play an essential role in cross-system information sharing, thereby progressing TBIPC research, development and implementation. The tool's digital infrastructure, including web-based visualisations and input sheets, can be replicated to be used for other complex interventions.