3.7 Ways that evidence can be used in decision-making

Evidence can be used in at least four different ways,(29) each of which can be illustrated with an example drawn from the COVID-19 pandemic and from another sector. The Evidence Commission is primarily focused on supporting the first two ways that evidence can be used, while recognizing that transparent deliberative processes and other approaches can be used to address (at least in part) the second two ways.

Ways that evidence can be used	Explanation	Examples drawn from the COVID-19 pandemic and one other sector
Conceptual or 'enlightenment'	Evidence changes the way we think about a problem, option(s) to address it and/or implementation consideration(s)	• Ten different types of 'indirect' evidence* (bit.ly/3wO9DH5) were marshalled to collectively support the hypothesis that SARS-CoV-2 is transmitted primarily by aerosols rather than by large respiratory droplets and hence that additional options (like masks and ventilation systems) need to be pursued to reduce the spread of COVID-19 • Behavioural research over the last decade has shown that 'defaults' can have larger effects than financial incentives in pension policy and other types of policy
Instrumental	Evidence directly informs a specific decision about a problem, option or implementation consideration	• The findings from the RECOVERY randomized-controlled trial, alongside six other smaller trials analyzed in an evidence synthesis, led to the widespread prescribing of dexamethasone in COVID-19 patients needing oxygen or ventilation (bit.ly/30lZsgA), and an estimated saving of one million lives worldwide within nine months (bit.ly/3F9JJAy) • The findings from an Educational Endowment Foundation evidence synthesis led the UK government to re-direct funding and activity to tutoring to help students 'catch up' after COVID-related school disruptions
Symbolic	Evidence is selectively cited (or 'cherry picked') or new research is selectively commissioned to justify a decision made for reasons other than that evidence**	• The US government's purchase and stockpiling of 29 million hydroxychloroquine pills was justified using a single non-randomized study involving only 26 hospitalized patients (six of whom were lost during follow-up) and the 'gut instinct' of a US president (bit.ly/3DbFtzZ) • Many governments and organizations supported the Scared Straight crime-prevention program based on low-quality evaluations (yet the evidence syntheses described in **section 4.8** found evidence of harm and no evidence of benefit)
Tactical	Lack of evidence is used to justify action or inaction	• Lack of evidence about the transmission of SARS-CoV-2 by aerosols (as opposed to heavier droplets) was used by event organizers to argue that they could continue convening crowded indoor events without limiting the number of attendees or mandating the wearing of masks (rather than heeding the precautionary principle***) • Lack of evidence about early-childhood programs was used by government policymakers to justify decisions to not make investments in this age group (and the Perry Preschool Project described in **section 1.6** helped to build the case for action)

** Direct evidence comes from research that directly compares the interventions that decision-makers are interested in, can be applied to the people who they are considering targeting, and measures outcomes that are important to them. Evidence can be indirect because it involves related but different types of interventions, people or outcomes, or because the interventions that can be chosen have not been tested in head-to-head comparisons (for more, see bit.ly/3CnKGnf). As we address in **section 4.7**, direct evidence is considered to be higher quality than indirect evidence.*

*** Some people use the term 'policy-based evidence' to contrast such symbolic uses of evidence with evidence-based (or evidence-informed) policymaking.*

**** The Wingspread Statement on the Precautionary Principle (1998) states that: "When an activity raises the threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not established scientifically. In this context the proponent of an activity [e.g., the event convenor], rather than the public, should bear the burden of proof." It is the seriousness of the threat of harm that justifies – in the absence of sufficient evidence – the use of precautionary measures that are likely to have greater benefit, fewer harms, and/or lower costs.*

There can be many reasons why evidence is not used to address the many questions that can be asked when making a decision, including:

- No evidence on the topic yet exists (although this can only be known after searching in the right places for it)
- Decision-makers aren't aware of the available evidence
- Decision-makers don't consider the available evidence to be of high quality or to have implications for their context
- Decision-makers have made a decision for other reasons (e.g., government policymakers may have faced institutional constraints, interest-group pressure, competing values within the governing party or their constituents).

We return to matching forms of evidence to decision-related questions in **section 4.6**.

Professional, Julian Elliott

Clinician researcher leveraging technology for efficiently preparing and maintaining 'living' evidence syntheses and guidelines to inform decision-making

I come away from my work with the Evidence Commission even more convinced that we need to find ways to systematize the many aspects of the COVID-19 evidence response that went well, and address the many things that went poorly. This includes the incredible work many have undertaken to establish living evidence projects, which we now see being adopted beyond COVID-19. There has also been significant progress in clinical research with the widespread, successful implementation of 'platform trials,' and in publishing with the adoption of preprints. I also note with dismay the uneven coverage of key questions, particularly the unconscionably low level of funding for high-quality studies of non-drug interventions (e.g., behavioural, environmental, social and systems interventions), the low quality and out-datedness of evidence syntheses, and the heart-breaking amounts of wasteful duplication.