

## What is the role of consensus statements in a risk society?

Camille La Brooy<sup>a</sup> , Bridget Pratt<sup>b</sup>  and Margaret Kelaher<sup>a</sup> 

<sup>a</sup>Centre for Health Policy, Melbourne School of Population and Global Health, The University of Melbourne, Carlton, VIC, Australia; <sup>b</sup>Nossal Institute of Global Health, University of Melbourne, Melbourne, Australia

### ABSTRACT

This paper explores the role of consensus statements in a risk society. It uses Beck's theory of risk to show that scientists have employed consensus statements in order to re-establish faith in science. Through analysing the goals of participants in consensus fora and comparing them to the fora processes, this paper considers how consensus statements and guidelines in public health can be viewed as remedies for the decline in expert trust experienced in the current risk society. To collect data, 25 interviews were undertaken with consensus panel participants from the USA, UK and Australia. Interviewees were from peak national agencies/commissioning agencies and were categorised as policymaker, practitioner and consumer stakeholders. Participants made recommendations for improving consensus processes in order to mitigate perceptions of risk. These were: (1) clearly stated goals; (2) robust, evidence-based and transparent processes of methodological development and participation/deliberation/decision-making; (3) diverse stakeholder representation, including increased consumer participation; (4) transparency about conflicts of interest; and, (5) robust, carefully worded recommendations. Poor-quality consensus statements can further entrench scepticism about the scientific enterprise. While consensus statements can be seen as a tool for moderating perceptions of risk, policymakers and scientists must ensure the integrity, strength and transparency of their research methods. This has the potential to facilitate policy, improve scientific accountability to the public and legitimise processes. While fostering greater trust is not a primary objective for scientists, an increase in legitimacy of process can be an important unintended consequence of improved quality consensus statements and an important antidote to the risk society.

### ARTICLE HISTORY

Received 24 September 2018  
Accepted 5 April 2019

### KEYWORDS

Consensus statements;  
guidelines; risk;  
participation processes;  
science; faith in  
expert systems

## Introduction

In modern risk societies, public policy is increasingly driven by the management and elimination of risk (Dupras and Williams-Jones 2012). In particular, public health decision-making and its implementation faces growing pressure and scrutiny, and must respond to risk in a climate of increased scepticism and simultaneous fearfulness. Consequently, careful analysis and the application of robust theory are needed to produce an understanding of public health policy and how it responds to risk.

**CONTACT** Camille La Brooy  [clabrooy@unimelb.edu.au](mailto:clabrooy@unimelb.edu.au)  Centre for Health Policy, Melbourne School of Population and Global Health, The University of Melbourne, Level 4, 207 Bouverie Street, Carlton, VIC 3053, Australia

© 2019 The University of Melbourne. Published by Informa UK Limited, trading as Taylor & Francis Group  
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

The risk society thesis considers the ways in which modern society is organised around responses to the risks introduced by modernisation (Beck 1992). Formulated in the early 1990s, the theory rapidly proved valuable for our understanding of the execution of public policy initiatives. Beck (1992) argues that in late modern societies characterised by risk, uncritical confidence in scientific knowledge is declining and the status of expert knowledge is increasingly contested (Gabe 2013). The rise of evidence-based policymaking in public health (Law 2010; Brownson 2011; Lhachimi, Bala, and Vanagas 2016) is seen as a foil to the risk society (Hooker, Capon, and Hess 2017), shifting authority from experts to their methods, which are portrayed as rigorous and open to scrutiny (Hanquet et al. 2015). However, this leads to a dilemma in policymaking when there is an imperative to act in an environment of incomplete evidence, because the alternative – expert opinion – has suffered a decline in the risk society (Kerr and Cunningham-Burley 2000; Rose 2000; Cantelli, Kodate, and Krieger 2010; Schmidt et al. 2014; Burgess, Wardman, and Mythen 2018). Expert decision-making is ‘chronically contested’ (Giddens 1990) and in fact rejected by notions of evidence-based policymaking; this has required the creation of new processes to enable policymaking to proceed and its obligation to society to be met in situations of incomplete evidence. Therefore, we see new methods of institutionalising participation to support policymaking initiatives to address this trust gap. Consensus statements represent a key example of these efforts to bridge this gap. This paper uses the risk society thesis to explore the role of consensus statements in public health policymaking, considering the goals and processes underlying their development and questioning their ability to renew faith in expert systems.

### **Consensus statements**

Consensus statements are documents developed by independent and usually multidisciplinary panels of experts, convened to review the research literature for the purpose of advancing the understanding of an issue, procedure, or method (American Diabetes Association 2002). The need for consensus statements arises when clinicians, scientists or policymakers desire guidance on a subject for which there is a relative deficiency of comprehensive evidence that might otherwise allow for a more definitive statement to be made (US Department of Health and Human Services 2014).

Evidence-based clinical guidelines and consensus statements translate findings from health research into recommendations for clinical practice and, when implemented, can improve health outcomes (Buchan et al. 2010). They address many topics in public health, including medical imaging (e.g. *The clinical indications for musculoskeletal ultrasound* (Klauser et al. 2012)), genetic testing (e.g. *The second ESGAR consensus statement on CT colonography* (Neri et al. 2013)), drug prescription/administration/monitoring (e.g. *Evidence-based guidelines for treating depressive disorders with antidepressants* (Cleare et al. 2015)), surgery (*Bariatric surgery: an IDF statement for obese Type 2 diabetes* (Dixon et al. 2011)) and disease treatment (e.g. *Diagnostics, monitoring and out-patient care in children with suspected pulmonary hypertension/paediatric pulmonary hypertensive vascular disease: Expert consensus statement on the diagnosis and treatment of paediatric pulmonary hypertension* (Lammers et al. 2016)). Consensus statements are developed by disparate groups, including government agencies and professional societies. Buchan et al.’s (2010) broad study of all clinical guidelines and consensus statements produced in Australia between 2003 and 2007 found that government agencies produced or funded just over half of the clinical practice guidelines identified. Yet, their study illustrates that even government-commissioned guidelines lack comprehensive information and central coordination, leading to gaps, duplications, inconsistencies and varying methodological quality (Buchan et al. 2010). Critical literature that explores methodological shortcomings in consensus statement development is in rare in public health, despite the growing influence of consensus statements on policymaking. The increasing influence but questionable quality of consensus statements can add to rather than moderate perceptions of risk.

### Increase in the number of consensus publications over time (1980–2017)

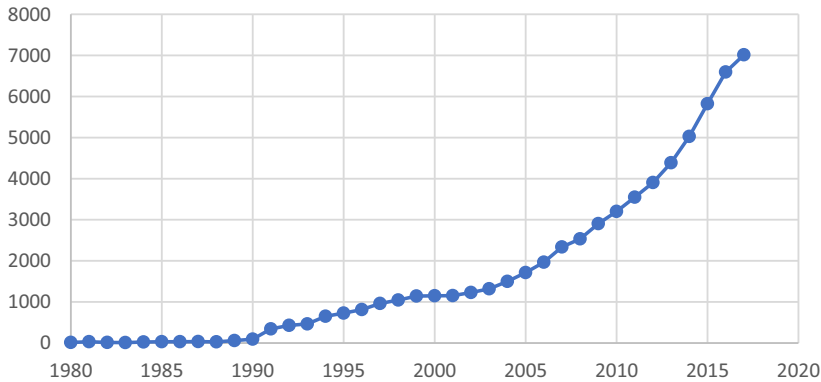


Figure 1. Increase in the number of consensus publications over time (1980–2017).

Figure 1 shows that the publication of consensus statements and discussion about them in academic literature has grown exponentially since the 1980s, demonstrating their growing importance and influence in policymaking debates. A systematic search in Web of Science, 1980–2017, using the parameters ‘consensus and (statement or report or guideline\* or conference or guidance) revealed a dramatic increase in the number of consensus statements and articles discussing their application’.

#### ***Processes in consensus statements***

The effectiveness of consensus as policy tools is highly contingent on their quality. Consensus statements are frequently criticised in the literature with respect to the process of their development, the nature of the consensus they achieve and their impact on public and policy perceptions of the role of science (Lenzer 2013; Jacobs et al. 2014; Mahawar et al. 2015). First, expertise is often linked with ideological and/or financial interests (Lenzer 2013). Second, consensus statements are seen as inefficient largely because they are required to elicit agreement from researchers who are inexperienced in communicating outside their specific disciplines and whose fundamental training is not directed towards generating consensus (Sarewitz 2011). This can result in processes that generate a form of consensus that, although hard won, does not go beyond well-accepted facts and does not facilitate evidence-based change in practice (Sarewitz 2011).

These weaknesses mean that consensus processes can be co-opted or undermined by particular interest groups, with areas of dissent papered over (as in the plethora of industry-sponsored clinical guidelines in medicine (Lenzer 2013)). Appraisal tools exist (e.g. the AGREE and AGREE II tools (Burgers et al. 2004; Fervers et al. 2005; de Haas et al. 2007; Brouwers et al. 2010; Shimbo et al. 2010; Langton et al. 2011; Hogeveen et al. 2012; Jacobs et al. 2014)), but they typically lack guidance around the processes of stakeholder participation, deliberation, and decision-making, focusing more on the methodology of reviewing evidence and the nature of recommendations. In a review of ten consensus statements, Lenzer (2013) raised concerns about panel member independence in eight. In particular, Lenzer discussed the issue of panel stacking in consensus statements promoting alteplase therapy for stroke, and the ability of financial interests to skew recommendations. Lenzer argued for much stricter guidelines about financial disclosure, the inclusion of parties with professional conflicts that cannot be divested (e.g. a heart surgeon advising on heart surgery), and for a strong focus on including panel members who are experts

in evaluating evidence rather than content. Lenzer also suggested that participants should be required to disclose pre-existing research/opinions in order to address ideological 'panel stacking'. While this suggestion highlights the need to consider not only the composition of consensus panels but the processes via which consensus is reached, which is critical to the credibility of consensus statements in policymaking, to date, appraisal tools for consensus statements have been silent on this issue. This is problematic in a risk society, as Beck (1992) argues, because in order for science to become politically relevant, new knowledge – such as consensus recommendations – must be introduced with consideration of due process and democratic imperatives (Bergkamp 2017).

### ***Consensus statements and the risk society***

The key way in which consensus statements can be seen to mitigate against the risks of expert decision-making is by providing a transparent framework in which bias can be addressed and a deliberative process of decision-making, which accounts for a diversity of evidence and perspectives, can occur. In Beck's (1992) outline of the social and political dynamics of the risk society, he suggests risk can be mitigated by 'opening up the political'. According to Beck, the proven instruments of the political system are to expand to conditions outside it. In particular, he argues in favour of 'modernisation parliaments' in which 'interdisciplinary groups of experts would look through, evaluate and approve plans, all the way to inclusion of citizens' groups in technological planning and the decision-making processes in research policy' (Beck 1992, 229). Moreover, he argues broadly in favour of democratisation, and that political decision-making processes must be understood as 'collective action', 'collective learning' and 'collective creation' (Beck 1992, 191). In consensus fora we see this through the deliberative processes underpinning multi-stakeholder decision-making. Yet, this is largely absent from the stated intent of individual consensus statements, which instead (in public health) list condition-specific objectives as a way of providing guidance. Beck (1992, 62) suggested that conditions and implications of risk are magnified and multiplied as a result of 'unclear' states of information, mistakes and poor quality. He argued that the conditions that precipitated risk in the first place can be exacerbated by attempts to mitigate this risk. In this vein, Beck cautions that poor quality tools can exacerbate conditions of risk, rather than remedying them. As such, consensus statements require high-quality processes of methodological development that are clear and transparent so as not to exacerbate the initial predicament of risk.

### ***Aims of this paper***

This paper explores the goals and processes of consensus statements through analysis of the views of participants in consensus fora. It examines how the goals and processes of consensus statements can be seen as a response to the various conditions of risk outlined by Beck (1992). It also considers whether their generation is intended to facilitate scientific processes. Finally, the value and challenges associated with their generation are explored in order to consider whether they facilitate the re-establishment of expert credibility in a risk society. This is important, as consensus statements aim to converge and unify opinions, yet convergence to the correct alternative is not assured if proper methods are not followed (and, sometimes, even if they are) (Mahawar et al. 2015).

### **Methods**

In order to understand the role of consensus statements in conditions of risk, 25 interviews were undertaken with stakeholders who participated in the creation of public health-related consensus

statements in Australia, the United Kingdom (UK) and the United States (US) between November 2017 and February 2018. These countries were chosen because of the predominance of English in their consensus statements and to represent differing health funding arrangements. While the UK has a single-payer healthcare system, the US has a multi-payer system and Australia is a mix of both (Hussey and Anderson 2003). Hussey and Anderson suggest that single-payer systems, due to their monopsony power in the health services market, are better positioned than multi-payer insurers to influence guidelines. For example, in the UK, a single public agency, the National Institute for Clinical Excellence (NICE), compiles guidelines, while in multi-payer systems, financial incentives for insurers may mean that guidelines focus on short-term goals (Hussey and Anderson 2003).

We began with a systematic approach to sampling. Firstly, we attempted to recruit participants for the study based on a systematic review of the literature to identify the most frequent commissioners of consensus statements. An initial Medline search found 202 consensus statements in four case study areas (genetic testing, medical imaging, depression and obesity). These statements were ranked, using the Google Scholar citation index, to find the five most cited commissioners in each area in each country. Given that many organisations were frequent commissioners and many of the key governmental agencies in each country involved in creating consensus statements and monitoring quality of evidence did not appear in the systematic search results, we decided to directly approach these organisations. Participants were recruited by approaching authors and key contact people listed on the commissioning organisation's website. The remaining participants were obtained via referrals from previous participants. In total, 25 respondents from 20 organisations participated; we obtained four from the systematic sampling, eight through recruiting via approaching key agencies and the remaining 13 respondents through referral. The organisations they represented (which must remain anonymous) included four governmental agencies, five governmental agencies responsible for developing evidence, twelve professional associations, three research institutes and one consumer organisation.

We interviewed 14 US, 6 UK and 5 Australian participants, all policymaker, practitioners or consumer stakeholders. These categories are frequently overlapping, and participants often wore multiple hats, and therefore spoke from their experience in a wide range of consensus fora. The participants worked in one of the four case study areas. Eight interviewees had participated in a consensus forum on depression, six in a consensus forum on genetic testing, six in a forum on obesity and five in a forum on medical imaging. However, some participants' diverse experience meant they spoke about consensus statements more generally. Questions were focused on the goals and processes of consensus panels, in particular the strengths and weaknesses of specific procedural aspects such as panel selection, panel member diversity, deliberative and decision-making methods, governance, conflicts of interest and their mitigation strategies, and the challenges participants faced.

Interviews took between 30 and 60 min, and were conducted via Skype. The methodological approach was iterative, which enabled us to introduce new topics raised by study participants and identify new patterns and emerging themes. Interviews were recorded electronically and transcribed for analysis in the NVivo software package, which was used to undertake a thematic analysis of the interview data.

## Results

Despite the varying social contexts in the three countries and their differing health systems, we found clear commonalities when it came to goals and processes related to consensus statements. The results below focus on the goals of consensus processes in order to explore their links to the risk society, and the processes of consensus in order to examine their potential to offer a solution to the problems generated from risk.

### ***Goals of consensus statements in the field of medicine and their relationship to risk***

According to participants, the growth in consensus statements reflects policymakers' and clinicians' need for peer-informed legitimacy for decision-making given funding constraints, scientific and medical breakthroughs, a culture of litigation, and a broader scepticism about the praxis informing treatment/care, diagnosis, preventative measures and health promotion. Interviewees' responses supported views in the literature regarding the rationale for the creation of consensus statements (US Department of Health and Human Services 2014). As a respondent stated:

One [reason for the recent proliferation of consensus statements is that] in areas where scientific evidence exists on maybe two sides of a question and in other ... or maybe multiple sides, but certainly two sides of a question. That is, whether a given clinical strategy for treating patients that either insurance companies or government will pay for, whether the evidence is solid enough to justify continuing to pay for it, or the controversy arises when there is a convention of American medical practice that is something that has been going on for years and years and decades, that people are being taught how to do it and that sort of thing when they're medical students, etc. and nursing students, etc. and then all of a sudden people begin to raise the question, 'Why are we doing this? Was there ever evidence to substantiate that these things made a difference or were effective in the way in which they're usually done, under the circumstances in which they're done, and for whatever reasons they were done?'

It's just that sometimes, depending on the particular context, the condition that's being managed is a very rare one and it ends up being just too few numbers of patients to serve as a basis for generating the kind of evidence that would be ideally wanted. Many of the conditions we deal with, there's not enough evidence in the literature on which to base guidelines, so when that happens, you're forced to seek other ways of establishing guidelines, which is, most of the time, by consensus-making.

This need for peer-informed legitimacy can be seen to reflect conditions of risk, given increasing reliance on scientific legitimacy and expert opinion to mitigate risk. Consensus statements facilitate scientific processes by convening experts to provide guidance on particular issues when evidence is deficient. According to participants, consensus statements therefore provide an agreed view from leading experts in the field when two or more approaches can be taken. Thus, they can serve two primary scientific purposes: providing a process of expert review when the evidence appears multidirectional, and establishing a consensus based on expert opinion when evidence is underdeveloped.

Consensus statements that involve a review of multidirectional evidence were felt to be of higher quality than those that were generated to compensate for flimsy evidence. However, most consensus statements we found in the aforementioned case study areas (genetic testing, medical imaging, depression, obesity) appeared to involve mixed-methods approaches.

A key benefit of evidence review is to challenge existing praxis. It creates an impetus to think critically about existing modus operandi and to create a forum to deliberatively explore why clinicians conduct procedures the way they do. Expert opinion, based on expert practice, requires review and updating with new evidence. Consensus fora provide opportunities for such review and opportunities to ensure margins for error are eliminated:

They began to discover there was very skimpy, if any, evidence at all to substantiate doing a lot of those procedures. Then they began to say, 'Well, let's take what evidence we have', and it seemed as if even for some of those things that were basically done routinely, the studies that were done were few in number and poorly designed and the questions being asked were not formulated in a way that were really even germane to what was really done in clinical practice.

Consensus processes allow for the review of taken-for-granted procedures to obtain best practice that may not have been substantiated scientifically but are a function of routine praxis. In addition, some consensus statement recommendations are graded when firm conclusions cannot be drawn. These types of recommendations are particularly true of government-commissioned consensus processes, for which the consequences of errors are more serious. Several participants confirmed that many consensus processes did not result in firm outcomes.

You know, [a peak agency] does not provide a guideline if there's insufficient evidence. There will be topics where they have done a systematic evidence review, and they come up with the ... They look at the review, and if there's insufficient evidence on the benefits and harms, they'll come out with an insufficient evidence statement which basically is because there's not enough evidence they basically give no recommendation for or against.

Guidance and recommendations from national bodies (as in the example above) are more conservative than recommendations from societies and smaller commissioning agencies. This tends to curb any potential for overreach in the development of consensus guidelines, ensuring instead that they exist as a tool for legitimisation. For example:

Obviously, you need to be careful you're not doing something worse and being a cowboy and trying all of the different things without knowing the guidelines.

Thus, decision-making and the wording of recommendations can be seen to be important. Clarity around authorship and the identity of other decision-makers is also important, as the specific role of the various panel members can affect the nature of recommendations being produced.

### ***Robust processes and challenges to the quality of consensus statements arising from the risk society***

One of the major challenges of consensus development is that consensus processes are frequently underfunded, which has implications for the number and nature of participants, the extent of evidence review, opportunities for public consultation and comment, and specific elements of process, including the number of iterations of deliberation. Funding is especially important in science-related consensus processes, particularly in terms of sponsorship from and participation of industry as legitimate stakeholders. The increasing number of consensus processes means that their ability to provide independent guidance can become questionable, as a participant affirmed:

There's way too many of them. They've got to be simpler. Yes, I mean, I think as people are looking at de-prescribing and choosing wisely and efforts like that, guidelines that would be energised by people who aren't in the pocket of industry, who are genuinely independent and who, nor are they in the pocket of insurance companies and they want to just figure out, what's the best approach for patients or the harm/benefit ratio, it's reasonable.

Thus, many commentators critical of consensus processes argue that there needs to be greater transparency in terms of the deliberative methodologies being utilised. Further, while financial conflicts of interest are always declared upon publication of consensus guidelines, interviewees frequently mentioned that not all conflicts of interest are directly financial in nature. For example, recommendations based on selected expertise can have substantial ideological bias, yet, frequently there are indirect financial implications of these divergences of opinion.

Greater inclusion of laypeople, consumers, citizens, carers and family members in consensus processes serves to mitigate the potential for disaffected voices to seek media and other negative attention. In addition, according to interviewees, this has resulted in not only multi-stakeholder participation but broadening conceptions of expertise that is valued and utilised in consensus processes. Interviewees suggested that interdisciplinary expertise and lay expertise are valued to differing degrees according to the consensus topic, commissioning body and participating stakeholders:

I think that healthcare is a really complex field, and everybody that works in healthcare ... All the roles overlap and intersect. For the end user, which is a patient or a consumer or a carer family, then it's not so much about who does what in what discipline, it's actually person-centred care is about the care centring on the person, not about specially whose discipline is delivering it or some other discipline is delivering it. If you want to have that person-centred care, you have to have the multi-discipline range represented on the panel.

The inclusion of laypeople in consensus processes was generally felt to encourage greater accountability and transparency, thus democratising consensus processes. Further, interviewees agreed that their inclusion allows for recommendations to be moderated to prevent alienation of affected parties. For example:

... the wording of the recommendation could be modified to take into account what people were saying. There was a lot of care taken over the precise wording of recommendation, so the maximum number of people could sign up to it.

Inclusion of laypeople is important not only to promote diversity on the panel but for the strength of the consensus. Some interviewees mentioned that on some occasions, recommendations were muted in order to obtain greater buy-in from stakeholders. For example:

Effectively if there's an area of uncertainty what you see is that the recommendation will be just a little bit softer.

Thus, given the impact of participation on recommendations, rendering transparent these deliberative aspects of consensus generation is important.

### ***Improving conditions of risk***

Consensus statements that are methodologically weak, that lack transparency and are created in spite of conflicts of interest (and lack risk mitigation strategies) exacerbate perceptions of risk by adding yet another document to the pile of weak evidence that already exists. Several participants spoke about the implications of problematic methodological development. For example:

The evidence was so bad, it was ridiculous. They rely entirely on industry-funded studies. They didn't look for unpublished studies. They didn't look at change, priority outcome, I mean whatever was the end point. They didn't check whether that was actually the end point that was recorded. There was just bad methodology when they made that recommendation.

The ability of consensus statements to facilitate the scientific enterprise is contingent on the quality of consensus processes (i.e. the deliberation aspect of consensus generation), but also strong methodological development (in terms of evidence review).

I think people need to be really careful about the methodology in a consensus statement. That's the tricky bit, because in a clinical guideline you have to be really clear about the methodology. Who was involved? What their discipline is, you won't get it approved... unless you name each person that was involved, and their disciplines, and their affiliations and their roles on the working group.

The preponderance of multi-stakeholder and multidisciplinary consensus committees emphasises that methodological crosschecking is vital to the integrity of the process. The promotion of multi-stakeholder deliberative committees that include consumer participation to facilitate reaching consensus, in both the 202 consensus statements surveyed as well as interviewee responses, exemplifies an effort to democratise science. This serves to promote greater transparency and accountability of the discipline to the public, who are often responsible for the funding of science and beholden to the ability of experts to manage risks.

The process of democratic discussion I think, well I think it's superior when the data has been laid on the table, and now the issue is what do we do with it? It's more in the process of developing recommendations... Having said that, there are ways of asking the questions that limit that discussion, that limit that democratic participation or severely bias it. The case has been made I think for a series of democratic deliberations to determine what should be the key questions that the guidelines should address... People may decide whether they will follow the [recommendations/guidance] or not, and that decision will be perhaps... There's a possibility that that decision may be more thoughtful because the guideline simply is more transparent...

In terms of deliberative processes, nearly all our participants claimed they had felt heard and had the expertise to participate in consensus fora. In addition, they felt that the decision-making



processes in which they participated were fair and democratic. On most occasions, recommendations were made via a unanimous or specified percentage of participants who agreed with the recommendations, and objections were mentioned in reporting. Wording, however, was frequently up to the authors involved in the production of consensus statements. The participants were mindful of the framing, choices, emphases and omissions of the language in the published consensus statement. Sometimes the consensus processes included opportunities for stakeholder and public comment or submissions on draft statements.

Consensus statements were felt to be of poor quality when development occurred exclusively behind closed doors. For example:

The process by which they go through is not fully open to the public and available to the public. I guess I would say that would be one of the things that I've observed. I've never really thought of it that way. There is some sense of a secret society into how this information is all vetted, discussed, and reviewed, although I do think their exhaustive reports really cover it completely. I think that just reflects a lack of trust in general among people for anything that we do.

The interviewees stated that the scope of the consensus process, the topic, the commissioning agency and the nature of funding all influenced its openness and transparency. They believed that a democratic imperative was not a primary driver of the inclusion of a diversity of stakeholders; instead, getting the right mix of participants was seen as a key means of ensuring the quality of consensus statements, and the presence of a variety of experts facilitated review of the evidence. Nonetheless, broader democratic ideals of legitimacy and transparency were felt to be important.

According to Beck (1992), as a result of the risk society, the public remains both critical and credulous with respect to science. Science remains people's best hope of safeguarding against risks, but scientists need to be increasingly careful about their recommendations. The proliferation of consensus statements illustrates that both scientists and policymakers have come to this realisation. Consensus statements can be seen as a means of legitimising decision-making by clinicians and policymakers.

## Discussion

The proliferation of consensus statements and clinical guidelines highlights how institutional risks are being managed through new forms of alliances. It demonstrates how the roles traditionally played by policymakers, citizens and experts have evolved as a result of the risk society. Questions posed by the risk society are still as relevant today as when the thesis originally emerged. For example, as Cantelli, Kodate, and Krieger (2010) posited, it is important to know how trust can be established, the forms of accountability and participation needed to ensure the sustainability of democracy in an era of uncertainty, the implications of collectively binding decisions if expertise lacks credibility, and the long-term implications if decision-making is opaque. The issue of quality in consensus development also highlights the importance of transparent processes in both policy and science in order to foster greater legitimacy and accountability.

The strength of any consensus statement is highly contingent on the nature of the evidence and stakeholders involved in its creation. Therefore, not only evidence must be scrutinised, but the processes through which consensus committees are convened, the nature of the recommendations, the type of deliberative proceedings and the financial interests – and otherwise – that influence the development of consensus. Transparency is required at all levels of consensus generation, and is as good for the democratic imperatives underlying public policymaking as it is for science.

Our data demonstrates the importance of strong evidence to ground decisions, and when evidence falls short, of decisions being made through strong processes. Participants noted that greater accountability and legitimacy in methodological development is important, as are

transparent decision-making and processes. Yet, the idea prevails that scientists prefer to conduct their activities, as one participant said, 'behind closed doors' and 'operating like a 'secret society'. Rendering transparent the processes of how consensus is made should be an objective for scientists and policymakers alike; communicating that objective to the broader public ensures that processes are better known. Transparency facilitates the confidence of the public, who often feel isolated from the activities of (so-called) elites. This reinforces the idea that consensus statement quality is not only contingent on the methods of evidence review, but on processes of participation that need to be elucidated. It should be noted that there is no evidence to suggest that participants feel that consensus processes should not be seen as an alternative to scientific process. However, while scientific processes are often well articulated, consensus processes remain frequently opaque.

The creation of greater public confidence can be regarded as a positive unintended consequence of consensus fora that employ robust processes that are evidence-based and result in quality recommendations. This is key to ensuring the efficient implementation of public health measures in modern risk societies (Dupras and Williams-Jones 2012). Consensus statements are a way to address deficits in trust and to advance democratic values, which is a key imperative of Beck's 1992 thesis (Van Bouwel and Van Oudheusden 2017). While our research suggests that advancing democratic values is not a primary goal for participants of consensus fora, doing so can improve conditions of risk and reflexive modernisation and should be seen as another positive outcome. Renewing the public's faith in expert opinion, via strategies of transparency and accountability, legitimises the consensus process and underpins its value as a policymaking tool. This is not to suggest that consensus should be viewed as an alternative to scientific process, but rather as a way to help policymakers to produce the best possible decisions with the best possible evidence.

Participants advocated greater consumer participation, whether via inclusion on panels or public comment at the conclusion of consensus presentations or after report publication, as a means of increasing transparency. Returning to Beck's ideas about 'opening up the political' (Beck 1992, 183), consumer participation facilitates scientific enterprise by improving the consensus part of the processes through strengthened deliberative proceedings. A broadening of stakeholders furthers the goals of both science and deliberative democracy (see Beck 1992, 229). Surowiecki (2004) argued that the key to establishing a 'wise crowd' is to improve participation by maximising diversity of opinion, independence, decentralisation and aggregation, resulting in better decision-making. He added that 'rational bubbles' – well-informed clusters of unidisciplinary experts – can reduce the quality of results due to homogeneity of opinion, centralisation, division, imitation and emotionality (Surowiecki, 2004). In a risk society, finding new ways of actively engaging citizens in political decision-making is increasingly important, given declining trust in politicians and governments. Consensus statements can be regarded as an important tool that can mitigate conditions of risk if they are created with coherent goals, strong, transparent and accountable processes, and the recommendations are legitimate in the eyes of the public.

## Limitations

This paper makes a *prima facie* case for the importance of transparent goals and processes associated with the generation of consensus statements. In doing so we focused on four areas of public health, but it was beyond the scope of this study to present a detailed comparison of these areas.

The variation in write-up and the lack of a uniform way of reporting participation methodologies in consensus statements has been used as a way to better understand the role of quality of the paper, aside from the quality of evidence. A transparent participation process

was regarded as an indicator of excellence, together with methodological processes which existing frameworks engage with in order to appraise quality. We did not engage with the evidence review aspect of quality; the contribution of our study is its focus on participatory processes that are omitted from current quality appraisal frameworks. We intend to examine these participatory and deliberative indicators of quality in a quantitative study.

Our analysis involved qualitative data obtained from consensus panel members. Qualitative approaches are inevitably subject to criticism about their generalisability due to small numbers of participants. However, we believe our recruitment of consensus panel members from a range of organisational types across three countries reinforces the validity of our results, as does our achievement of thematic saturation during the interview process.

## Conclusion

This paper considers how the recent proliferation of consensus statements results from growing pressure on both public policymakers and scientists to respond to risks in a climate of increased scepticism and fearfulness. The increasing use of consensus statements reflects the need for policymakers and clinicians to obtain peer-informed legitimacy for decision-making in an environment of funding constraints, scientific/medical breakthroughs, a culture of litigation, and broad scepticism about the praxis informing treatment/care, diagnosis, preventative measures and health promotion. Consensus statements can thus be viewed as an important tool for moderating perceptions of risk. However, bolstering methodologies and making processes more transparent would render consensus statements more accountable, facilitating the desired renewal of legitimacy. Participants made recommendations for improving consensus statement processes in order to mitigate conditions of risk:

- state goals clearly;
- employ a robust, evidence-based, transparent processes of methodological development and participation/deliberation/decision-making;
- ensure diverse stakeholder representation, including consumer participation;
- be transparent about conflicts of interest; and
- deliver robust, carefully worded recommendations.

These recommendations highlight the value stakeholders place on strong inputs to and outputs from consensus processes, and their awareness of the need to avoid entrenching scepticism about science and alienating the public through processes that are not transparent, accountable and legitimate.

## Acknowledgements

We would also like to acknowledge the key informants who gave their time to participate in an interview.

## Authorship

All authors:

1. made important contributions to conception and design, or acquisition of data, or analysis and interpretation of data;
2. were involved in drafting the manuscript or revising it critically for important intellectual content;
3. gave final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; and

4. agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

## Declarations

### Ethics

The project mentioned in this paper was approved by the Melbourne School of Population and Global Health (MSPGH) Human Ethics Advisory Group (HEAG). The MSPGH HEAG can be contacted at +61 3 8344 0826. The Project reference for the HEAG is 1647960.1.

## Consent for publication

All participants quoted in this study gave signed consent to participate, have their interview recorded, transcribed and be quoted in any published materials, as outlined by the MSPGH HEAG ethics guidelines and subsequent approval.

## Availability of data and material

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study. Interview transcripts are not able to be shared due to privacy reasons of participants as determined by the Ethics process.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Funding

The project was funded by the Australian Research Council.

## ORCID

Camille La Brooy  <http://orcid.org/0000-0003-1428-2224>

Bridget Pratt  <http://orcid.org/0000-0002-4934-3560>

Margaret Kelaher  <http://orcid.org/0000-0002-9899-858X>

## References

- American Diabetes Association. 2002. "Consensus Statements." *Diabetes Care* 25 (suppl 1): s139.
- Beck, U. 1992. *Risk Society: Towards a New Modernity*. London: Sage.
- Bergkamp, L. 2017. "The Concept of Risk Society as a Model for Risk Regulation – Its Hidden and Not so Hidden Ambitions, Side Effects, and Risks." *Journal of Risk Research* 20 (10): 1275–1291. doi:10.1080/13669877.2016.1153500.
- Brouwers, M. C., M. E. Kho, G. P. Browman, J. S. Burgers, F. Cluzeau, G. Feder, B. Fervers, et al. 2010. "AGREE II: Advancing Guideline Development, Reporting and Evaluation in Health Care." *Journal of Clinical Epidemiology* 63 (12): 1308–1311. doi:10.1016/j.jclinepi.2010.07.001.
- Brownson, R. C. 2011. *Evidence-Based Public Health*. Oxford: Oxford University Press.
- Buchan, H., K. Currie, E. Lourey, and G. Duggan. 2010. "Australian Clinical Practice Guidelines – A National Study." *Medical Journal of Australia* 192 (9): 490–494.
- Burgers, J. S., B. Fervers, M. Haugh, M. Brouwers, G. Browman, T. Philip, and F. A. Cluzeau. 2004. "International Assessment of the Quality of Clinical Practice Guidelines in Oncology Using the Appraisal of Guidelines and Research and Evaluation Instrument." *Journal of Clinical Oncology* 22 (10): 2000–2007. doi:10.1200/JCO.2004.06.157.

- Burgess, A., J. Wardman, and G. Mythen. 2018. "Considering Risk: Placing the Work of Ulrich Beck in Context." *Journal of Risk Research* 21 (1): 1–5. doi:[10.1080/13669877.2017.1383075](https://doi.org/10.1080/13669877.2017.1383075).
- Cantelli, F., N. Kodate, and K. Krieger. 2010. "Questioning World Risk Society: Three Challenges for Research on the Governance of Uncertainty." *Global Policy*, May 9. <https://www.globalpolicyjournal.com/articles/health-and-social-policy/questioning-world-risk-society-three-challenges-research-governanc>.
- Cleare, A., C. Pariante, A. Young, I. Anderson, D. Christmas, P. Cowen, C. Dickens, I. Ferrier, et al. 2015. "Evidence-Based Guidelines for Treating Depressive Disorders with Antidepressants: A Revision of the 2008 British Association for Psychopharmacology Guidelines." *Journal of Psychopharmacology* 29 (5): 459–525. doi:[10.1177/0269881115581093](https://doi.org/10.1177/0269881115581093).
- de Haas, E. R. M., H. C. de Vilder, W. S. van Reesema, J. J. E. van Everdingen, and H. A. M. Neumann. 2007. "Quality of Clinical Practice Guidelines in Dermatological Oncology." *Journal of the European Academy of Dermatology and Venereology* 21 (9): 1193–1198.
- Dixon, J. B., P. Zimmet, K. G. Albertit, and F. Rubino. 2011. "Bariatric Surgery: An IDF Statement for Obese Type 2 Diabetes." *Obesity Research & Clinical Practice* 5: e171–e189. doi:[10.1016/j.orcp.2011.07.002](https://doi.org/10.1016/j.orcp.2011.07.002).
- Dupras, C., and B. Williams-Jones. 2012. "The Expert and the Lay Public: Reflections on Influenza A (H1N1) and the Risk Society." *American Journal of Public Health* 102 (4): 591–595. doi:[10.2105/AJPH.2011.300417](https://doi.org/10.2105/AJPH.2011.300417).
- Fervers, B., J. S. Burgers, M. C. Haugh, M. Brouwers, G. Browman, F. Cluzeau, and T. Philip. 2005. "Predictors of High Quality Clinical Practice Guidelines: Examples in Oncology." *International Journal for Quality in Health Care* 17 (2): 123–132. doi:[10.1093/intqhc/mzi011](https://doi.org/10.1093/intqhc/mzi011).
- Gabe, J. 2013. "Health, Medicine and Risk: The Need for a Sociological Approach." *Medical Sociology* 7 (2): 16–23.
- Giddens, A. 1990. *The Consequences of Modernity*. Cambridge: Polity Press.
- Hanquet, G., P. Stefanoff, W. Hellenbrand, S. Heuberger, P. Lopalco, and J. M. Stuart. 2015. "Strong Public Health Recommendations from Weak Evidence? Lessons Learned in Developing Guidance on the Public Health Management of Meningococcal Disease." *BioMed Research International* 2015: 569235. doi:[10.1155/2015/569235](https://doi.org/10.1155/2015/569235).
- Hogveen, S. E., D. Han, S. Trudeau-Tavara, J. Buck, C. B. Brezden-Masley, M. L. Quan, and C. E. Simmons. 2012. "Comparison of International Breast Cancer Guidelines: Are We Globally Consistent? Cancer Guideline AGREement." *Current Oncology* 19 (3): e184–e190.
- Hooker, C., A. Capon, and I. Hess. 2017. "Communicating with the Public about the Risks of Naturally Occurring Asbestos." *Public Health Research and Practice* 27 (5): e2751747.
- Hussey, P., and G. F. Anderson. 2003. "A Comparison of Single- and Multi-Payer Health Insurance Systems and Options for Reform." *Health Policy* 66 (3): 215–228. doi:[10.1016/S0168-8510\(03\)00050-2](https://doi.org/10.1016/S0168-8510(03)00050-2).
- Jacobs, C., I. D. Graham, C. Jacobs, M. Clemons, I. D. Graham, D. Fergusson, M. Chasse, B. Hutton, and J. Makarski. 2014. "Clinical Practice Guidelines and Consensus Statements in Oncology – An Assessment of Their Methodological Quality." *PLoS One* 9 (10): e110469. doi:[10.1371/journal.pone.0110469](https://doi.org/10.1371/journal.pone.0110469).
- Kerr, A., and S. Cunningham-Burley. 2000. "On Ambivalence and Risk: Reflexive Modernity and the New Human Genetics." *Sociology* 34 (2): 283–304. doi:[10.1177/S0038038500000183](https://doi.org/10.1177/S0038038500000183).
- Klauser, A. S., A. Tagliafico, G. M. Allen, N. Boutry, R. Campbell, M. Court-Payen, A. Grainger, et al. 2012. "Clinical Indications for Musculoskeletal Ultrasound: A Delphi-Based Consensus Paper of the European Society of Musculoskeletal Radiology." *European Radiology* 22 (5): 1140–1148. doi:[10.1007/s00330-011-2356-3](https://doi.org/10.1007/s00330-011-2356-3).
- Lhachimi, S. K., M. M. Bala, and G. Vanagas. 2016. "Evidence-Based Public Health." *BioMed Research International* 2017: 2607397. doi:[10.1155/2017/2607397](https://doi.org/10.1155/2017/2607397).
- Lammers, A. E., C. Aplitz, P. Zartner, A. Hager, K.-O. Dubowy, and G. Hansmann. 2016. "Diagnostics, Monitoring and Outpatient Care in Children with Suspected Pulmonary Hypertension/Paediatric Pulmonary Hypertensive Vascular Disease. Expert Consensus Statement on the Diagnosis and Treatment of Paediatric Pulmonary Hypertension. The European Paediatric Pulmonary Vascular Disease Network, Endorsed by ISHLT and DGPK." *Heart* 102 (Suppl 2):1–13. doi:[10.1136/heartjnl-2015-307792](https://doi.org/10.1136/heartjnl-2015-307792).
- Langton, J. M., A. K. Drew, L. Mellish, J. Olivier, R. L. Ward, and S. A. Pearson. 2011. "The Quality of Web-Based Oncology Guidelines and Protocols: How Do International Sites Stack up?" *British Journal of Cancer* 105 (8): 1166–1172. doi:[10.1038/bjc.2011.378](https://doi.org/10.1038/bjc.2011.378).
- Law, C. 2010. "Policy and Evidence-Based Public Health." Chap. 2 in *Evidence-Based Public Health: Effectiveness and Efficiency*, edited by A. Killoran and M. Kelly. Oxford: Oxford University Press. doi:[10.1093/acprof:oso/9780199563623.001.0001](https://doi.org/10.1093/acprof:oso/9780199563623.001.0001).
- Lenzer, J. 2013. "Ensuring the Integrity of Clinical Practice Guidelines: A Tool for Protecting Patients." *British Medical Journal* 347: f5535. doi:[10.1136/bmj.f5535](https://doi.org/10.1136/bmj.f5535).
- Mahawar, K. K., S. Aggarwal, W. R. J. Carr, N. Jennings, S. Balupuri, and P. K. Small. 2015. "Consensus Statements and Bariatric Surgery." *Obesity Surgery* 25 (6): 1063–1065. doi:[10.1007/s11695-015-1606-x](https://doi.org/10.1007/s11695-015-1606-x).
- Neri, E., S. Halligan, M. Hellström, P. Lefere, T. Mang, D. Regge, J. Stoker, S. Taylor, and A. Laghi. 2013. "The Second ESGAR Consensus Statement on CT Colonography." *European Radiology* 23 (3): 720–729. doi:[10.1007/s00330-012-2632-x](https://doi.org/10.1007/s00330-012-2632-x).
- Rose, H. 2000. "Risk, Trust and Scepticism in the Age of the New Genetics." In *The Risk Society and beyond: Critical Issues for Social Theory*, edited by B. Adam, U. Beck, and J. Van Loon, 68–81. London: Sage.

- Schmidt, L., C. Gomes, S. Guerreiro, and T. O'Riordan. 2014. "Are We All on the Same Boat? The Challenge of Adaptation Facing Portuguese Coastal Communities: Risk Perception, Trust-Building and Genuine Participation." *Land Use Policy* 38: 355–365. doi:10.1016/j.landusepol.2013.11.008.
- Shimbo, T., T. Fukui, C. Ishioka, K. Okamoto, T. Okamoto, S. Kameoka, A. Sato, et al. 2010. "Quality of Guideline Development Assessed by the Evaluation Committee of the Japan Society of Clinical Oncology." *International Journal of Clinical Oncology* 15 (3): 227–233. doi:10.1007/s10147-010-0060-y.
- Sarewitz, D. 2011. "The Voice of Science: Let's Agree to Disagree." *Nature* 478 (7367): 7. doi:10.1038/478007a.
- Surowiecki, J. 2004. *The Wisdom of Crowds: Why the Many Are Smarter than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations*. New York: Doubleday.
- US Department of Health and Human Services. 2014. *NIH Consensus Development Program*. Office of Disease Prevention. <https://consensus.nih.gov/>
- Van Bouwel, J., and M. Van Oudheusden. 2017. "Participation beyond Consensus? Technology Assessments, Consensus Conferences and Democratic Modulation." *Social Epistemology: A Journal of Knowledge, Culture, and Policy* 31 (6): 497–513. doi:10.1080/02691728.2017.1352624.