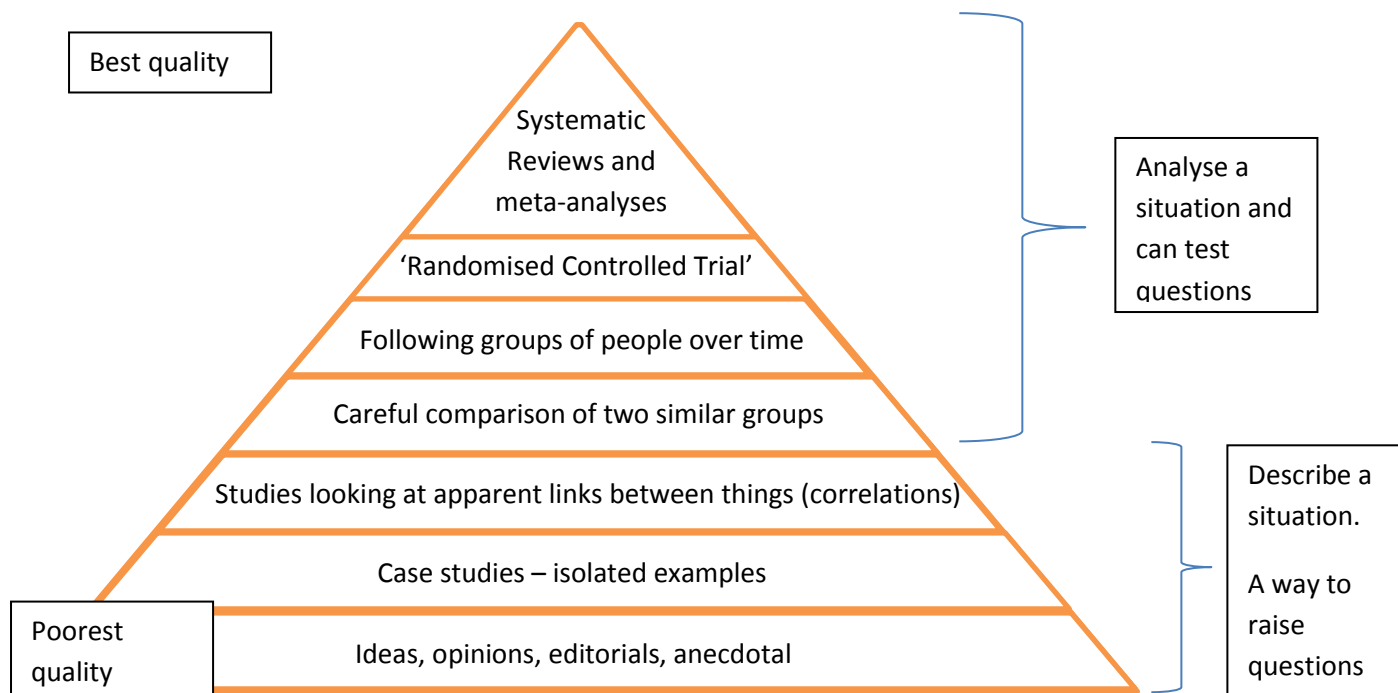


Scientific research on community water fluoridation 2007-2015

1. Research in context

1.1 When looking at the scientific evidence on any subject, it is more important to look at the quality of the evidence, rather than the quantity. The quality of evidence is often presented as a 'hierarchy', which can be represented in the diagram below.



1.2 The best evidence comes from so-called systematic reviews of the scientific literature. These set often very tight criteria for what will be acceptable research in terms of quality and then seek to summarise what the accepted research says. At the other end of the scale there is opinion or anecdote. Much of the evidence in relation to any health question sits somewhere in the middle, involving studies that compare groups of people and ask why they might be different.

1.3 Reviews of evidence often focus on research published in peer-reviewed scientific journals where the research has been looked at by other scientists before it is accepted for publication. This is a helpful way of stopping bad science being published, but is not infallible. One big advantage is it allows the wider scientific community to comment on the research and, if there are significant concerns, journals might publish commentaries that criticise the research. In extreme cases the authors or the journal might withdraw the paper. In this way we can have more faith in published scientific literature than on what appears on websites or in newspapers.

1.4 The evidence in relation to community water fluoridation includes evidence towards to the top of the hierarchy outlined above. This paper focusses on the systematic reviews that have been published since 2007. If there are other studies the Committee would like commentary on we will gladly bring back further material.

2. Research evidence published since 2007

The following is a list of the high quality systematic reviews of the evidence regarding the effectiveness of water fluoridation in reducing levels of tooth decay that have taken place since 2007.

Systematic review	Main findings / statements following research
National Health and Medical Research Council (Australian Government) (2007)	“The existing body of evidence strongly suggests that water fluoridation is beneficial at reducing dental caries” (tooth decay)
Griffin et al. (2007) (focussed on adults)	“Our finding that fluoride [Community Water Fluoridation] is effective among all adults supports the development and implementation of fluoride programs to serve this population.”
(US) Community Preventative Services Task Force (2013)	“Evidence shows the prevalence of caries is substantially lower in communities with CWF [Community Water Fluoridation]”
(UK) Cochrane Oral Health Group (2015):	Found that water fluoridation significantly reduced the number of decayed, missing, filled and treated teeth in 5 year-old and 12 year-old children but much of the evidence around starting new schemes was older

In 2014 PHE published a health monitoring report that, as well as looking at general health (see below) looked at differences in decay rates and dental fluorosis (mottling of the tooth surface) between fluoridated and non-fluoridated communities. This sought to adjust for other factors that could affect tooth decay levels and showed that children in fluoridated areas have lower levels of decay than those in similar areas without fluoridation and that levels of fluorosis do not appear problematic in either fluoridated or non-fluoridated communities.

In the fifty years of fluoridation in England and 70 years in the USA there have been many claims that it causes harm to health but no credible scientific evidence to support these claims. The table below summarises the review published since 2007 that have looked at whether there is any evidence of harm to health. None of these identified any credible evidence of harm.

Review	Main findings / statements following research
National Health and Medical Research Council (Australian Government) (2007)	No evidence of harm to health identified
(European) Scientific Committee on Health and Environmental Risks - SCHER (2011)	No evidence of harm to health identified
The Royal Society of New Zealand (2014) <i>Health effects of water fluoridation: A review of the scientific evidence.</i>	“Given the caveat that science can never be absolute, the panel is unanimous in its conclusion that there are no adverse effects of fluoride of any significance arising from fluoridation at the levels used in New Zealand.”
(US) Community Preventative Services Task Force (2013)	“Research evidence, however, does not demonstrate that CWF results in any unwanted health effects other than dental fluorosis. While harms have been proposed, most have no biological plausibility or insufficient evidence to draw conclusions”
Public Health England (2014): <i>Water Fluoridation Health Monitoring for England</i>	No evidence of harm to health
(Irish) Health Review Board (2015): <i>Health effects of water fluoridation</i>	“In summary the literature found no strong evidence that CWF is definitively associated with negative health effects”

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