

EDITORIALS

Public Health England's draft report on shale gas extraction

Mistaking best practices for actual practices

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Global interest in developing unconventional natural gas reserves continues to increase, despite the paucity of empirical evidence on risks to the environment and human health. The operations required to produce natural gas from hydrocarbon reservoirs such as shale are spatially intense and sometimes occur close to human populations. Although research has been conducted to understand the potential impacts of gas development on public health, for the most part these efforts fall short. In addition, efforts to summarise the existing public health science tend to focus on regulations and engineering solutions, rather than on health outcome data and pathways of exposure. A focus on mostly hypothetical regulatory and engineering solutions may mistake best practices for actual practices, and supplants the empirical with the theoretical.

To the extent that they are technically and economically feasible, risk reduction technologies that mitigate adverse health outcomes should be deployed. However, reviewing the public health aspects of the development of the shale gas industry requires more than merely gesturing to technological improvements that lack empirical data on their effectiveness in the real world. The optimism that fail-safe engineering solutions can ensure safe shale gas development may result more from a triumph of marketing than a demonstration of experience.

Public Health England's draft report thoroughly assesses the peer reviewed scientific literature on the public health implications of extracting shale gas.¹ It accurately presents the problems of air and water quality,²⁻⁵ and it correctly recognises that many uncertainties surround the public health implications of extracting shale gas. The review was rigorous in its presentation of the evidence, but there are problems with its conclusions.

The review appropriately acknowledges differences in geology and regulation between the United States and the United Kingdom. Yet, in a leap of faith unsubstantiated by scientific evidence, its authors suggest that many of the environmental and public health problems experienced in the US would

probably not apply to the UK. Unfortunately, the conclusion that shale gas operations present a low risk to public health is not substantiated by the literature. The correct conclusion that Public Health England should have drawn is that the public health impacts remain undetermined and that more environmental and public health studies are needed.

Furthermore, the report incorrectly assumes that many of the reported problems experienced in the US are the result of a poor regulatory environment. This position ignores many of the inherent risks of the industry that no amount of regulation can sufficiently remedy, such as well casing, cement failures, and accidental spillage of waste water.⁶ There is no reason to believe that these problems would be different in the UK, and the report provides little evidence to the contrary, despite repeated assertions that regulations will ensure the safe development of shale gas extraction.

The report also has other shortfalls. More attention should have been paid to drilling in areas that are densely populated. In the US, much of the extraction of shale gas occurs in rural sparsely populated areas. This would not be the case in the UK. Studies suggest that health risks are modified by geographical distance of residences from active shale gas extraction.⁷ Recent evidence suggests a higher prevalence of some adverse birth outcomes for those living in closer proximity.⁸

Public health is an evidence based discipline, and findings from well designed studies should form the backbone of public policy. There is also a need for an assessment of the public health infrastructure and the ability of healthcare professionals to respond to the risks presented by the development of the shale gas industry.⁹ Rigorous, quantitative epidemiological research is needed to assess the risks to public health, and data are just starting to emerge.¹⁰ As investigations of shale gas extraction in the US have continually suggested, assurances of safety are no proxy for adequate protection.

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