



Bristol Airport Limited
12 mppa Planning Appeal
Proof of Evidence – Health,
SUMMARY
Mr Ryngan Pyper

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1 Introduction

- 1.1.1 My name is Ryngan Pyper. I am a Director at BCA Insight Ltd and a specialist in delivering health related impact assessments. I work across the fields of public health, environmental science and impact assessment. I am the author of, and on the writing teams for, key academic and practitioner publications on health in EIA^{1,2,3,4}. In my public health training I specialised in epidemiology, health statistics, public health ethics, infection & disease, health & social behaviour, and qualitative methods.
- 1.1.2 In my Proof of Evidence (POE) I demonstrate that the Environmental Statement (ES) and ES Addendum (ESA) health assessments provide robust conclusions based on reasonable professional judgement as to the public health effects of the Appeal Proposal. My conclusions are based on public health evidence and inputs from other EIA topic chapters. My approach has also been informed by relevant UK guidance on Health Impact Assessment (HIA) and by international good practice publications to assessing health in the EIA^{4,5}.
- 1.1.3 My evidence relates to the human health effects of the Appeal Proposal, with a focus on responding, from the health perspective, to issue 2 in NSC's reasons for refusal (RFR) (CD4.16). I focus on RFR 2, as it explicitly references health and well-being. I respond to the following health issues raised by RFR 2:
- 1) Whether the noise and air quality effects of the Appeal Proposal constitute 'significant' 'population' health effects. An important technical distinction that adds considerably more weight to an issue.
 - 2) Whether the Appeal Proposal contributes to improving the health and well-being of the local population. A policy test that should weigh-up effects consistently and in their entirety.
- 1.1.4 On issue 1: I conclude that the 'population health' effects associated with changes in air quality and noise are not significant and that this is a reasonable professional judgement of such effects. This is the case even if there are a limited number of significant individual receptor effects. I draw on inputs from other EIA chapters and reference to relevant public health evidence sources.
- 1.1.5 On issue 2: I conclude that there are likely to be significant beneficial effects to population health from investment and employment due to the Appeal Proposal and that this is a reasonable professional judgement of such effects. I show that on balance the Appeal Proposal is likely to contribute to improving the health and well-being of the local population more than it detracts from it.
- 1.1.6 My full POE cross-refers to the POEs of Mr Williams in relation to noise, Mr Peirce in relation to air quality, Mr Brass in relation to socioeconomics and Mr Melling in relation to the planning balance.
- 1.1.7 I find that it is difficult to reconcile NSC's Decision Notice judgment (CD4.16) with a public health perspective of both the beneficial and adverse influences of the Appeal Proposal on population health.
- 1.1.8 In their Committee Report, NSC Officers conclusion on the ES Health chapter is that:

BAL's projected Health Impact Assessment is realistic. There are no overriding health or well-being impacts which would warrant refusal of the application.

2 Assessment Summary

- 2.1.1 In my full POE I set out the basis for reaching a conclusion on EIA health 'significance' and why it is correct to take a 'population' health approach. These two points frame my position on the professional judgments I have reached. I summarise the key points below.

Position on EIA health significance

- 2.1.2 Determining 'significance' for health in EIA is the output of a careful and structured analysis.
- 2.1.3 Health in EIA significance was clarified by a 2020 joint publication between EUPHA, representing public health, and IAIA, representing EIA practitioners⁴. The EUPHA/IAIA publication states:

"A determination of significance should be based on professional judgement and best available evidence." [Emphasis added]

- 2.1.4 The EUPHA/IAIA publication represents a clear consensus position statement on determining health significance. The EUPHA/IAIA publication provides a qualitative analysis model to transparently explore what it means for a health effect to be significant or not significant.
- 2.1.5 Whilst the EUPHA/IAIA model is not obligatory, it is a clear demonstration of the depth of analysis involved. The model relates evidence to decision prompts, which collectively inform a professional judgement. Such a thorough and robust analysis was undertaken as part of the ES Health chapter.
- 2.1.6 The methods bring together different types of evidence, e.g. academic literature, public health priorities, regulatory standards and health policy. The methods thus not only take into account a range of evidence sources, but also a diversity of professional perspectives, e.g. academics, public health practitioners, regulators and policy makers.
- 2.1.7 The methods used support consensus building, such that late changes in viewpoints on the significance of effects should be avoided, or at least be transparent. Consensus on the significance of the Appeal Proposal's health effects was built between the EIA team, NSC Officers and Public Health England.
- 2.1.8 The NSC Decision Notice does not reference alternative methods or evidence sources.

Position on a population health approach

- 2.1.9 A second area of general clarification is that EIA takes a 'population health' approach.
- 2.1.10 To take an individual level approach to significance would likely mean that all effects, positive and negative, would be significant on all projects. This would be contrary to supporting decision makers in identifying the material issues.
- 2.1.11 'Population health' refers to the health outcomes of a group of individuals, including the distribution of such outcomes within the group⁶. The EUPHA/IAIA publication states in relation to good practice:

"EIA takes a population health approach. Inequalities are a key feature of population health, so where there is potential for significant health effects consider differences between the general population and vulnerable groups."

"Where the effect is best characterised as only affecting a few individuals... in EIA and public health terms the effect may not be a significant population health change."

- 2.1.12 Public Health England's 2020 Guidance on health in spatial planning⁵ considers magnitude in relation to determining significance for health. The PHE Guidance finds on the measure of population extent:
- 'not significant' effects are associated with a "*small minority of population affected*" (slight effect) or "*very few people affected*" (neutral effect).
 - 'significant' effects are associated with a "*large minority of population affected*" (moderate effect) or a "*majority of population affected*" (major effect).
- 2.1.13 The intention of both the international and national guidance is, on the issue of population extent, to require a sizable proportion of the population to be affected for there to be a significant health effect.

2.1.14 Even if effects to small numbers of individuals are given more weight; consistently applied, this should not change the balance of conclusions presented in the ES.

2.2 Summary of the ES and ESA

2.2.1 This section summaries the health assessment submitted with the planning application. The summary covers both the original December 2018 ES and the November 2020 ESA. The ESA took account of updated forecast aircraft fleet mix and movement numbers. The ESA does not change the ES health assessment conclusions.

Overview of the ES Health chapter

2.2.2 The full Health POE introduces the scope, evidence base and methods of the ES Health chapter.

2.2.3 The NSC’s February 2020 Committee Report (CD4.11) states:

“Chapter 16 of the ES examines the impact of the proposed development on human health and wellbeing. It is referred to as a ‘Health Impact Assessment’ (HIA)... To assess the HIA, officers consulted with Public Health England (PHE) and the Council’s Public Health Team. PHE are a statutory consultee for HIA’s and has the expertise to advise on its acceptability. PHE’s comments on the application show that it considers that the HIA has been carried out in accordance with good practice and its methodology and scope to assess the likely impacts on health and wellbeing is proportionate to the proposed development.”

Operational Noise

2.2.4 The health assessment concludes for operational noise that the significance of the effect would be **negligible** for the general population and up to **minor adverse** (not significant in EIA terms) for vulnerable groups. In their Committee Report NSC Officers state:

The small increase in exposure for much of the local population is unlikely to result in a significant population health effect, but this affect is no more than ‘minor adverse’. Officers’ assisted by PHE comments agree with this assessment.

Operational Air quality

2.2.5 The UK Government states that: ⁷

Air Quality Standards are concentrations recorded over a given time period, which are considered to be acceptable in terms of what is scientifically known about the effects of each pollutant on health and on the environment.

2.2.6 The health assessment concludes for operational air quality that the significance of the effect would be **negligible** for the general population and up to **minor adverse** (not significant in EIA terms) for vulnerable groups. In their Committee Report NSC Officers state:

All projected changes in concentrations of all air pollutants will however remain within statutory acceptable levels ... Officers agree with this To that extent the health impact is contended to be ‘negligible’ to the wider population and ‘minor adverse’ to vulnerable groups.

Operational Socioeconomic

2.2.7 The health assessment concludes for operational economic impacts that the significance of the effect would be up to **minor beneficial** for the general population and up to **moderate beneficial** (significant in EIA terms) for vulnerable groups. In their Committee Report NSC Officers state:

The HIA indicates that the ... provision of long-term good quality employment opportunities ... are likely to have a long-term beneficial effect on population health ...

While the scale of the benefits ... are considered ... to be lower than claimed by BAL. they would still provide long-term good quality employment opportunities, and this is likely to have a long-term beneficial effect on population health.

3 Response to Issues Raised

3.1 Overview

- 3.1.1 I address the RFR health points (see paragraph 1.1.3 of this summary) through my responses to specific points made in the NSC SOC. As an overarching point the NSC SOC states (paragraph 6) that:

In essence, BAL has overstated the economic and other benefits of the Proposed Development and understated the environmental and social harm that the Proposed Development would cause. [emphasis added]

- 3.1.2 I disagree with this statement as it applies to the health assessment. The ES and ESA present reasoned, evidence-based, professional judgments as to the population health significance of the beneficial and adverse effects. These conclusions are consistent with those reached by NSC Officers, supported by the Council's Public Health Team and by Public Health England.
- 3.1.3 I have described the health assessment methodology used, including that this aligns with national and international EIA good practice. I have shown how the reaching of a conclusion of EIA health significance is the endpoint of a careful and structured analysis. I also showed that the methods draw together evidence sources and professional perspectives to build consensus. A consensus that was reached with NSC Officers.

3.2 Noise and health

- 3.2.1 This summary focuses on the main point made by the NSC SOC states (paragraph 61):

The Council's position is that the increase in aircraft movements and the lifting of the current seasonal restrictions on night flights arising from the Proposed Development would have a significant adverse impact on the health and wellbeing of residents in local communities [emphasis added].

- 3.2.2 Firstly, I disagree that there is a 'significant' effect. Secondly, and linked to this, the conclusion should relate to 'population health'. The general way in which the statement is linked to 'residents' implies this is not a population health conclusion.
- 3.2.3 On the first point. 'Significance' is the output of a careful and structured analysis. Such an analysis was undertaken within the ES and was confirmed in the ESA. I find the change in noise level to be negligible for the general population and minor adverse for vulnerable groups. These conclusions acknowledge that there would be a small change in health-related risk factors for a small minority of the population. In public health terms this is not an unacceptable, and thus significant, level of change in risk factors in the context of other noise sources and other influences on population health. My conclusion that the effect is not significant aligns with that of NSC Officers, who took advice from the Council's Public Health Team and Public Health England.
- 3.2.4 On the second point. NSC appear not to be taking a public health, population level, approach. The framing of the conclusion in relation to 'residents in communities' is ambiguous. All development has the potential for significant adverse effects to some particularly sensitive individuals. To determine

the significance of effects on that basis would mean all issues, positive and negative, considered within a health assessment would be significant. This does not help the decision-making process. I am clear that a public health approach should be taken, i.e. conclusions should relate to populations, including vulnerable population groups. In my opinion the NSC SOC (para 61) statement is not consistent with taking a population health approach. The ES and ESA show that, in population health outcome terms, significant health effects are not expected. This conclusion extends to the sub-population of people, including residents, who may be more sensitive to noise.

3.3 Air quality and health

3.3.1 This summary focuses on the main points made by the NSC SOC (paragraph 73):

The Council will contend that in relation to air quality the Proposed Development will not contribute to improving the health and well-being of the local population – indeed, it will result in an increase in emissions of air pollutants and consequential increased risk to health, contrary to Policy CS26 of the CS [emphasis added].

3.3.2 I point out in relation to this statement that the NSC SOC is being very selective in singling out a single adverse effect as the sole basis for this policy test. It is also an adverse effect that has been shown to be not significant. If this approach is taken consistently every development would fail this policy test.

3.3.3 It is my view that this policy test can only be usefully explored based on the overall balance of effects from the Appeal Proposal, including giving more weight to those effects that are shown to be significant.

3.3.4 As show in the ES, and confirmed the ESA, the economic beneficial effects of the Appeal Proposal are likely to be moderate and extend to the population level; whilst the adverse environmental exposures are incremental in their level of change and limited to a small minority. Even if the basis for significance is reweighted, consistently applied, this would not change the overall picture that on balance the Appeal Proposal is likely to contribute to improving the health and well-being of the local population more than it detracts from it.

3.3.5 The NSC SOC states (paragraph 74) that:

...the Council will contend that increases in exposure even below air quality objectives increases the risk of harm to health and well-being [74].

3.3.6 The ES health assessment has specifically taken this point into account in reaching its conclusions on population health.

3.3.7 Whilst the non-threshold nature of health effects from these pollutants can be acknowledged, as is the case with the ES; any increase in concentrations has to be placed within the context of acceptability in terms of health protection standards, i.e. Air Quality Standards.

4 Conclusion

4.1.1 The value of the EIA health assessment for decision makers is in understanding whether there are likely to be significant population level effects, including to vulnerable groups. The ES health assessment does this with methods that are robust and in line with good practice.

4.1.2 The conclusions reached in the ES are consistent with those of NSC Officers who were advised by the Council's Public Health Team and by Public Health England.

4.1.3 The NSC Decision Notice RFR 2 is not consistent with the findings of the ES and ESA health assessment.

4.1.4 As set out in the ES and ESA, my conclusion is that:

- significant beneficial effects to population health are likely, in relation to investment and employment due to the Appeal Proposal; and
- significant adverse effects to population health are unlikely, in relation to noise and air quality effects of the Appeal Proposal.

4.1.5 On this basis, it is my professional judgement that health effects are not proper grounds for refusing the Appeal. I conclude by reiterating the NSC Officers conclusion:

BAL's projected Health Impact Assessment is realistic. There are no overriding health or well-being impacts which would warrant refusal of the application.

¹ Cave, B., Fothergill, J., Pyper, R., Gibson, G. and Saunders, P. (2017) Health in Environmental Impact Assessment: A Primer for a Proportionate Approach. Ben Cave Associates Ltd, IEMA and the Faculty of Public Health. Lincoln, England. Available at www.iema.net

² Pyper R, Cave B. Environmental topics: 'Human health' (7.2). In: Carroll B et al. eds. Environmental Impact Assessment Handbook: ICE Bookshop; 2019: 107-62. <https://www.icevirtuallibrary.com/doi/abs/10.1680/eiah3e.61415.107>

³ Cave, B.; Pyper, R.; Fischer-Bonde, B.; Humboldt-Dachroeden, S.; Martín-Olmedo, P. Lessons from an International Initiative to Set and Share Good Practice on Human Health in Environmental Impact Assessment. Int. J. Environ. Res. Public Health 2021, 18, 1392. <https://doi.org/10.3390/ijerph18041392>

³ International Association for Impact Assessment. Key Citations Series. Health Impact Assessment. April 2021. https://www.iaia.org/uploads/pdf/key-citations/Key-Citations_HIA.pdf

⁴ Cave, B., Claßen, T., Fischer-Bonde, B., Humboldt-Dachroeden, S., Martín-Olmedo, P., Mekel, O., Pyper, R., Silva, F., Viliani, F., Xiao, Y. 2020. Human health: Ensuring a high level of protection. A reference paper on addressing Human Health in Environmental Impact Assessment. As per EU Directive 2011/92/EU amended by 2014/52/EU. International Association for Impact Assessment and European Public Health Association.

⁵ Public Health England. Guide for local authority public health and planning teams to improve the use of HIAs in spatial planning London. 2020. <https://www.gov.uk/government/publications/health-impact-assessment-in-spatial-planning>

⁶ Kindig, D.; Stoddart, G. What Is Population Health? Am. J. Public Health 2003, 93, 380–383.

⁷ Department for Environment Food & Rural Affairs. UK and EU Air Quality Limits. <https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits> [Checked 12/05/2021].