**Answered in chat:**

**Q: (Nicola) Important and ambitious project; congratulation. As you develop the index, will you use models such as the DPSEEA framework (that help capture, analyse and communicate complex relationships, that both demands and assists identifying a logical, stepwise chain of cause-effect between indicators)? It is precisely the challenging area of health determinant interplay that will lead to health (all dimensions) improvement?**

A: Good question, Nicola. We have taken quite a simple approach for the beta. This thinking is something important for the next phase, when we consider weights between the indicators. Though to some extent it relates more strongly to theorising how the index responds to change (i.e. projection, policy assessment) than how it is constructed in a cross-sectional state.

**Q: Tks Myer. I think we need to develop (and fund) a multi-disciplinary team as we go forward to look at this?**

A: Nicola, that's a great idea but we have limited resources as always. ONS is working with an advisory group which is quite wide-ranging in expertise. But always open to offers of help!!

**Q: I like the 'places ' concept... again, look forward to developing this - I am involved with RSM and RIBA architecture project looking at helath and place. Let us collaborate !? nicola stingelin Myer: I offer my help**

A: Nicola, definitely - please drop Greg and I an email about that work.

**Answered in the presentation:**

**Q: (Richard) How sensitive is the overall index at national and local levels to different weightings of the domains?**

A: At domain level, changes to weights for the three domains have a large effect on the total Health Index score, because “Healthy Places” has been improving while the other two have shown a steady slight decline. Where the three are evenly weighted at present, this has led to the top-level Index score remaining quite stable.

The beta version of the Health Index does not include varied weighting for subdomains, but the full version will. We plan to use a budget allocation process with our expert advisory group as participants to produce these weights. There is reasonable likelihood of subdomains changing between the beta and full version, and to produce the beta Health Index we have worked with only a small subset of our experts. For these two reasons it did not make sense to produce this weighting for the beta version.

At present, we are completing sensitivity analysis to see how different the Health Index scores become when methodologies are changed but data remain the same. This will incorporate varied subdomain weighting when we have those results, and we will publish this sensitivity analysis in our methodology content on ONS’s website.

**Q: (Nicola) How do we move from correlation to understanding causalities?**

A: In a broad sense, the three domains of the Index will hopefully demonstrate causality as we observe change in each over time at different points: improvements to the environment (Healthy Places) or individuals’ lives (Healthy Lives) should impact health outcomes (Healthy People).

We are developing a flexible projections model for health topics, using the Health Index data as model inputs. This aims to allow simple “what if” scenario projections, to see the impact of changing one aspect of health on other elements of health. This project plans to incorporate causal time series analysis between different indicators within the Health Index.

**Q: (Caroline) For measures such as hypertension which increase with age, is this an example of where you've used incidence rather than prevalence. I'm trying to understand how/if the expected aging of the population would show on the health index.**

A: The hypertension indicator consists of a prevalence measure, from the Quality and Outcomes Framework (QOF) produced by NHS digital. We use prevalence here because hypertension is unlikely to cause death in itself but is a risk factor for acute problems such as heart attacks and strokes, so it is more useful to know the ‘stock’ of the population living with hypertension to measure the risk to ill health.

Many indicators in the Health Index are not age-standardised, as the source data are not. This can mean some measures are higher just because the population are older, rather than because that area is less healthy. Using the Health Index in conjunction with information such as the median population age of an area can help identify where ageing is a driver for lower Health Index scores; and this is presented within the LCP Health Index explorer tool as an option for producing custom charts.

**Q: (Paul) Would it make sense to show expected variability around each indicator?**

A: Possibly.

We aim to be transparent about how uncertain the results of the Health Index are. However, it also needs to be clearly understood by expert and non-technical audiences alike. The different indicators will likely have quite different confidence intervals: for example, if some are admin sources with greater coverage, while others are survey sources. It may be counter-productive for transparency if the reasons for different variability are not immediately clear.

There are instances where the variability in values could be a feature of the indicator. For example, two areas could have the same score for an indicator, but one has greater inequality than the other. We plan to include indices measuring inequality as a measure not within the Health Index itself, but available to plot elements of the Index against on LCP’s Explorer tool.

Projections produced using the related health projections model mentioned previously will likely present uncertainty through fan charts on time series graphs. Other options for alternative data visualisations will also be considered.

**Q: (Nicola) When one starts predicting, what validation methods will be used for making the predictions and looking whether they were accurate?**

A: For specific topics to demonstrate the concept of the model, we are conducting literature reviews to validate the effect sizes observed for the Health Index’s choice of data, compared to effect sizes accepted in published work.

A by-product of using the Health Index data as base data for the projections model is that the data sources used are ones which are expected to be available for future years. The baseline projections – before an intervention to any indicator is applied – can be compared to future years of data to see how accurate they are. Similarly, as more years of data become available, there are more years of back-series to inform the projection, which will improve the quality.