Certificate in Health Impact Assessment (United Kingdom)

Evaluating And Reviewing Health Impact Assessment Reports

Health Impact Assessment (HIA) is a systematic process that uses a range of data sources and analytical methods to predict the potential health effects of a policy, programme, or project before it is implemented. The purpose of an HIA is to inform decision-makers, stakeholders and the public about likely health outcomes, to identify ways to enhance positive impacts and to reduce adverse effects. In the United Kingdom, HIA is recognised as a valuable tool for integrating health considerations into a wide variety of sectors, from transport planning to housing development.

Baseline refers to the existing health status of a population or community at the start of an HIA. It provides the reference point against which predicted changes are measured. Baseline data may include mortality rates, prevalence of chronic diseases, mental-well-being indicators, or environmental exposure levels. For example, when assessing a new road scheme, the baseline might include current rates of respiratory illness in the surrounding neighbourhood, along with ambient air-quality measurements.

Scoping is the early stage of an HIA that defines the boundaries of the assessment. It determines which health determinants, population groups and geographic areas will be examined, and sets the priorities for data collection. A clear scoping exercise prevents unnecessary work and ensures that the assessment remains focused on the most relevant issues. In practice, scoping may involve workshops with local authorities, community groups and subject-matter experts to agree on the key questions to be answered.

Determinant in the HIA context is any factor that influences health, either positively or negatively. Determinants can be biological, social, economic, environmental or behavioural. Common determinants examined in UK HIAs include air quality, noise, housing quality, access to green space, employment conditions and social cohesion. Understanding the pathways through which determinants affect health is essential for developing credible impact predictions.

Exposure describes the contact of individuals or populations with a health determinant. Exposure can be measured in terms of intensity, frequency and duration. For instance, exposure to traffic-related air pollution might be quantified as the average concentration of nitrogen dioxide (NO_2) at the residential address of each household. Accurate exposure assessment is a cornerstone of a robust HIA because it directly influences the magnitude of predicted health outcomes.

Outcome is the health effect that may result from exposure to a determinant. Outcomes are often expressed as morbidity or mortality measures, such as the number of asthma exacerbations, cases of cardiovascular disease, or premature deaths. In a health-impact review, the outcome must be clearly defined, measurable and linked to the exposure through a plausible causal pathway. When evaluating an HIA report, reviewers check whether the outcomes have been appropriately selected and whether the evidence base supports the assumed relationships.

Stakeholder refers to any individual or organisation that has an interest in the HIA process or its results. Stakeholders can include local authorities, developers, public-health agencies, community groups, NGOs, and academic institutions. Engaging stakeholders early and throughout the HIA improves the relevance and acceptability of the findings. Reviewers assess whether the HIA report documents stakeholder identification, the methods of engagement used, and the extent to which stakeholder input shaped the assessment.

Participatory approach is a methodological stance that actively involves affected communities and stakeholders in the design, data collection, analysis and dissemination phases of an HIA. This approach is recommended by the UK HIA guidance because it enhances transparency, builds trust and captures local knowledge that may be missed by purely quantitative methods. When reviewing an HIA, the evaluator looks for evidence of meaningful participation, such as minutes of community meetings, feedback loops and documentation of how community concerns were incorporated into recommendations.

Risk assessment is the component of an HIA that estimates the probability and severity of adverse health effects arising from exposure. It involves identifying hazards, characterising dose-response relationships, and estimating the magnitude of risk for different population groups. In the UK, risk assessment often draws on guidance from the Health and Safety Executive (HSE) and the National Institute for Health and Care Excellence (NICE). Reviewers verify that the risk assessment aligns with recognised standards and that uncertainty is clearly communicated.

Mitigation refers to actions taken to reduce or eliminate negative health impacts identified in the HIA. Mitigation strategies may include engineering controls (e.G., Noise barriers), policy changes (e.G., Affordable housing quotas), or health-promotion programmes (e.G., Community exercise classes). An effective HIA report provides a set of feasible mitigation measures, prioritises them according to cost-effectiveness, and outlines responsibilities for implementation. The reviewer assesses whether the mitigation recommendations are realistic, evidence-based and adequately linked to the identified impacts.

Monitoring is the systematic collection of data after a project or policy is implemented to track actual health outcomes against the predictions made in the HIA. Monitoring enables the detection of unforeseen effects, the evaluation of mitigation effectiveness, and the provision of feedback for future assessments. In the UK context, monitoring plans often integrate with existing public-health surveillance systems, such as the Office for National Statistics (ONS) data sets. When reviewing an HIA, the evaluator checks for a clear monitoring framework, including indicators, data sources, timelines and responsibilities.

Evaluation is the broader appraisal of the HIA process and its influence on decision-making. Evaluation can be formative (providing feedback during the HIA) or summative (assessing the overall impact after completion). Key evaluation criteria include relevance, methodological rigour, stakeholder satisfaction, and policy influence. Reviewers use evaluation findings to judge the quality of the HIA report and to recommend improvements for future assessments.

Policy relevance is the degree to which the HIA addresses the concerns of decision-makers and aligns with policy objectives. An HIA that is tightly linked to the strategic priorities of a local authority or national programme is more likely to be taken seriously. Reviewers examine whether the report explicitly connects its findings to the policy context, citing relevant legislation such as the Planning Act 2008 or the Climate

Change Act 2008.

Evidence base denotes the collection of scientific studies, data sets and expert opinions that underpin the HIA's assumptions and calculations. A strong evidence base is transparent, up-to-date and appropriately referenced. In the UK, common sources include peer-reviewed journals, Public Health England reports, the Cochrane Library, and government statistics. Reviewers assess the adequacy of the evidence base by checking citation quality, the relevance of studies to the local context, and whether any gaps have been acknowledged.

Data quality is a critical factor that influences the credibility of an HIA. Data quality encompasses accuracy, completeness, timeliness, spatial resolution and representativeness. For example, air-quality monitoring data must be sufficiently granular to capture variations across a neighbourhood, and health-outcome data should be recent enough to reflect current trends. Reviewers scrutinise the data quality statements in the HIA report, looking for limitations, validation procedures and sensitivity analyses.

Uncertainty is an inherent aspect of any predictive assessment. Sources of uncertainty include measurement error, model assumptions, variability in exposure patterns and gaps in the evidence base. Transparent communication of uncertainty helps decision-makers understand the confidence they can place in the results. In a review, the evaluator checks whether the HIA report quantifies uncertainty (e.G., Confidence intervals, scenario analysis) and discusses its implications for policy.

Scenario analysis is a technique used to explore how different assumptions about future conditions affect health outcomes. Typical scenarios may include a "business-as-usual" case, a "high-exposure" case, and a "mitigated" case. Scenario analysis helps illustrate the range of possible impacts and supports robust decision-making. Reviewers look for clear description of scenarios, justification for the chosen parameters, and a comparison of results across scenarios.

Cost-benefit analysis (CBA) is an economic tool that compares the monetary value of health benefits with the costs of implementing a project or mitigation measures. In the UK, CBA often follows the Treasury's Green Book guidance. While not mandatory for all HIAs, a CBA can strengthen the case for health-protective actions. Reviewers evaluate whether the cost-benefit analysis is methodologically sound, uses appropriate discount rates, and accounts for intangible benefits such as improved quality of life.

Equity assessment examines how health impacts are distributed across different social groups, including by age, gender, ethnicity, socioeconomic status and disability. An equity-focused HIA identifies vulnerable populations that may experience disproportionate harms or benefits. In the UK, equity considerations are embedded in the Public Health Outcomes Framework. Reviewers check that the HIA report includes an equity analysis, uses disaggregated data where possible, and proposes targeted mitigation for disadvantaged groups.

Health inequality is the systematic difference in health status between population groups that is avoidable and unfair. HIAs are a valuable instrument for addressing health inequalities by ensuring that policies do not exacerbate existing gaps. When reviewing an HIA, the evaluator looks for explicit reference to health-inequality objectives, such as those set out in the UK Government's Health Inequalities Strategy.

Population at risk designates the group of individuals who are likely to be affected by a particular exposure. Defining the population at risk involves demographic profiling, geographic delineation and sometimes the use of exposure-modelling tools. For example, a HIA of a new waste-incineration plant might define the population at risk as all residents within a 5-kilometre radius, stratified by age groups. Reviewers verify that the population at risk is clearly identified and that the size of the population is justified.

Spatial analysis employs geographic information systems (GIS) to map exposures, health outcomes and demographic characteristics. Spatial analysis can reveal patterns such as clustering of disease cases near a pollution source. In a review, the evaluator assesses the appropriateness of the GIS methods, the resolution of the spatial data, and the clarity of the maps presented.

Temporal dimension refers to the timing of exposure and health effects. Some health outcomes manifest quickly (e.G., Asthma attacks), while others have long latency periods (e.G., Cancers). A thorough HIA distinguishes between short-term and long-term impacts and aligns the assessment horizon accordingly. Reviewers check that the temporal assumptions are realistic and that the report explains how they affect the projected outcomes.

Qualitative methods include focus groups, key-informant interviews, and document analysis. These methods capture perceptions, values and contextual information that quantitative data may miss. In the UK, qualitative data are often used to understand community concerns about a development project. Reviewers evaluate whether the qualitative methodology is described, whether sampling was appropriate, and how the findings were integrated with quantitative results.

Quantitative methods involve statistical analysis, modelling, and the use of numerical indicators. Common quantitative techniques in HIA include regression analysis, dose-response modelling, and health-risk calculations. Reviewers assess the robustness of the quantitative methods, checking for issues such as multicollinearity, model fit and the appropriateness of statistical tests.

Health-risk model is a mathematical representation that links exposure levels to health outcomes based on established dose-response relationships. Examples include the Air Pollution Health Impact Function and the WHO's Comparative Risk Assessment models. Reviewers examine whether the chosen model is suitable for the exposure and outcome under study, and whether the parameters (e.G., Relative risk values) are sourced from credible literature.

Relative risk (RR) is the ratio of the probability of an outcome occurring among the exposed group to the probability among the unexposed group. An RR greater than 1 indicates increased risk, while an RR less than 1 suggests protective effect. In HIA calculations, RR values are multiplied by exposure prevalence to estimate attributable cases. Reviewers confirm that the RR values used are appropriate for the population and that confidence intervals are reported.

Attributable fraction (AF) quantifies the proportion of cases that can be linked to a specific exposure. The AF is derived from the relative risk and the prevalence of exposure. It is a key metric for translating risk estimates into absolute numbers of affected individuals. Reviewers verify the correct formula application and ensure that the AF is interpreted correctly within the report.

Absolute risk provides the actual probability of an outcome occurring in a defined population over a specific time period. Unlike relative risk, absolute risk conveys the real-world impact of an exposure. For example, an absolute risk increase of 2 per 1,000 people per year due to traffic noise is more tangible for policymakers than an RR of 1.1. Reviewers check that absolute risk figures are presented alongside relative measures to aid interpretation.

Health indicator is a measurable variable that reflects the health status or health determinants of a population. Common indicators include life expectancy, infant mortality rate, prevalence of chronic disease, and self-reported health status. In HIA reporting, indicators are used to monitor baseline conditions, track changes over time, and evaluate the success of mitigation measures. Reviewers assess whether the selected indicators are relevant, reliable and aligned with national health-monitoring frameworks.

Monitoring indicator is a specific metric chosen for ongoing data collection after implementation. For a new cycling infrastructure project, a monitoring indicator might be the number of residents who cycle to work weekly. Reviewers look for a clear link between the monitoring indicators and the outcomes predicted in the HIA, and for a feasible data-collection plan.

Stakeholder matrix is a tool that maps stakeholders according to their influence and interest, helping to prioritise engagement activities. The matrix guides the allocation of resources for consultation, communication and collaboration. Reviewers examine whether a stakeholder matrix was used, whether it was updated during the HIA, and whether it informed the engagement strategy.

Community of practice refers to a group of professionals and practitioners who share knowledge and experience around HIA. In the UK, communities of practice may be facilitated by organisations such as the International Association for Impact Assessment (IAIA) or the Health Impact Assessment Network. Reviewers may note the involvement of such networks as a sign of professional rigor and ongoing learning.

Regulatory framework encompasses the laws, policies and standards that govern health-impact assessments. In the UK, key components include the National Planning Policy Framework (NPPF), the Health and Safety at Work Act 1974, and the Environment Act 1995. Reviewers confirm that the HIA report references the relevant regulatory framework and demonstrates compliance with statutory requirements.

Guidance document provides detailed instructions on how to conduct an HIA. The most widely used guidance in the UK is the “Health Impact Assessment: A Practical Guide” published by the Department of Health and Social Care, and the “HIA Toolkit” from Public Health England. Reviewers check that the HIA methodology aligns with the recommended steps and that any deviations are justified.

Screening is the first step in the HIA process, used to decide whether a full assessment is necessary. Screening criteria may include the size of the project, the likelihood of health impacts, and the level of public concern. Reviewers evaluate the screening rationale, ensuring that it is transparent and based on objective criteria.

Appraisal is the stage where evidence is synthesised, impacts are estimated, and recommendations are formulated. The appraisal integrates data on exposure, determinants, outcomes and equity. Reviewers focus on the logical flow of the appraisal, the clarity of assumptions, and the consistency of the narrative with the

data presented.

Reporting is the final product of the HIA, summarising methods, findings, recommendations and plans for monitoring. The report should be accessible to a broad audience, using clear language, visual aids and executive summaries. Reviewers assess the readability, the use of non-technical language, and the inclusion of visual elements such as charts and maps (even though the tags for images are not used here, the description should indicate their presence).

Executive summary provides a concise overview of the most important findings and recommendations for senior decision-makers. It typically includes the key health impacts, the main mitigation options, and the anticipated benefits of implementation. Reviewers verify that the executive summary accurately reflects the full report and that it highlights the most critical points without omitting essential caveats.

Recommendation is a specific, actionable suggestion derived from the HIA findings. Recommendations may be directed at project developers, local authorities, or health agencies. A well-crafted recommendation includes a clear description of the action, the responsible party, the timeframe for implementation and the expected health benefit. Reviewers judge the feasibility, specificity and evidence base of each recommendation.

Implementation plan outlines how the recommendations will be put into practice. It includes timelines, resource allocation, responsible organisations and performance indicators. The plan may also specify the steps for integrating mitigation measures into the project design or policy amendment. Reviewers look for a realistic implementation schedule, clear allocation of responsibilities and mechanisms for accountability.

Accountability framework establishes the processes by which progress on recommendations and mitigation measures will be tracked and reported. It may involve regular progress reports, public meetings, or integration with existing audit systems. Reviewers assess whether the accountability framework is robust, transparent and aligned with the monitoring plan.

Feedback loop is the mechanism by which information from monitoring and evaluation is fed back into decision-making and future HIA practice. A feedback loop ensures that lessons learned are incorporated into policy revisions, project designs and subsequent assessments. Reviewers examine whether the HIA report describes a clear feedback process and whether it identifies who will be responsible for closing the loop.

Cross-sectoral collaboration is essential because many health determinants lie outside the direct control of the health sector. Collaboration may involve transport, housing, environment, education and economic development departments. Reviewers evaluate the extent to which the HIA report demonstrates inter-departmental cooperation, shared data agreements and joint decision-making structures.

Capacity building refers to activities aimed at improving the skills, knowledge and resources of individuals and organisations involved in HIA. Training workshops, mentorship programmes and the development of standard operating procedures are examples of capacity-building initiatives. Reviewers may note capacity-building efforts as indicators of sustainability and long-term commitment to health-focused assessment.

Data governance encompasses the policies and procedures that ensure data are managed responsibly, securely and ethically. In the UK, data governance must comply with the General Data Protection Regulation (GDPR) and the Data Protection Act 2018. Reviewers check that the HIA report outlines how personal data were handled, anonymised where necessary, and stored in accordance with legal requirements.

Ethical considerations include the respect for community values, informed consent for data collection, and the equitable distribution of benefits and burdens. An HIA may raise ethical questions when recommending displacement of residents for a new infrastructure project, for example. Reviewers assess whether the report discusses ethical issues, documents consent procedures, and provides justification for any trade-offs.

Limitations section of an HIA report acknowledges the constraints and weaknesses of the assessment. Common limitations involve data gaps, modelling assumptions, and limited stakeholder participation. Transparent articulation of limitations enhances credibility. Reviewers scrutinise this section to ensure that the authors have critically reflected on the robustness of their findings.

Strengths highlights the aspects of the HIA that add confidence to the results, such as high-quality data, robust modelling, or strong community engagement. Reviewers look for a balanced discussion that juxtaposes strengths with limitations, allowing readers to gauge the overall reliability of the assessment.

Peer review is an external evaluation performed by independent experts to verify the scientific rigour and methodological soundness of the HIA. In the UK, peer review may be required for large-scale projects funded by public bodies. Reviewers consider whether a peer-review process was undertaken, who the reviewers were, and how their comments were addressed.

Transparency is a fundamental principle that requires clear documentation of methods, assumptions, data sources and decision-making processes. Transparent reporting enables reproducibility and builds trust among stakeholders. Reviewers assess the degree of transparency by examining the level of detail provided in each methodological step.

Reproducibility refers to the ability of another analyst to replicate the HIA results using the same data and methods. Reproducibility is facilitated by sharing data sets, code, and detailed methodological notes. Reviewers may recommend that the HIA team archive their analytical scripts and make them accessible through a data repository.

Cost-effectiveness analysis (CEA) compares the relative costs of different mitigation strategies against the health benefits they generate, usually expressed in cost per quality-adjusted life year (QALY) saved. While not always required, a CEA can help prioritise interventions when resources are limited. Reviewers evaluate the appropriateness of the cost parameters, discount rates, and the sensitivity analyses performed.

Quality-adjusted life year (QALY) is a metric that combines length of life with quality of health. One QALY equals one year of life in perfect health. QALYs are commonly used in UK health-economic evaluations, particularly by NICE. Reviewers check whether QALY estimates are derived from credible sources and whether they are applied consistently across mitigation options.

Disability-adjusted life year (DALY) is another health-impact metric that quantifies years of healthy life lost

due to premature mortality and disability. DALYs are frequently used in global health assessments and can complement QALYs in HIA reporting. Reviewers verify that the DALY calculations are correctly performed and that the interpretation aligns with the overall findings.

Health economic modelling integrates epidemiological data with cost data to forecast the financial implications of health outcomes. Models such as Markov chains or microsimulation may be employed. Reviewers assess the model structure, assumptions, validation procedures and the adequacy of the sensitivity analysis.

Sensitivity analysis explores how changes in key assumptions affect the results. By varying parameters such as exposure levels, relative risk values, or discount rates, analysts can gauge the robustness of their conclusions. Reviewers look for a systematic sensitivity analysis that identifies the most influential variables and discusses the implications for decision-making.

Scenario planning is a strategic method that envisions multiple plausible futures based on different policy choices or external drivers (e.G., Climate change). Scenario planning can be combined with HIA to assess health impacts under alternative development pathways. Reviewers evaluate whether the scenarios are clearly defined, internally consistent, and supported by data.

Stakeholder mapping involves identifying and categorising stakeholders based on their influence, interest, and potential impact on the HIA. Mapping can be visualised in a matrix or diagram. Reviewers consider whether stakeholder mapping was systematic, inclusive, and updated as the HIA progressed.

Community engagement strategy outlines the methods, timing and objectives for involving the public throughout the HIA. Strategies may include public meetings, online surveys, workshops, and participatory GIS mapping. Reviewers assess whether the strategy was appropriate for the community context, whether it was implemented as planned, and whether feedback was incorporated into the final report.

Public health impact is the overall effect of a policy or project on the health of the population, encompassing both direct and indirect pathways. Public health impact can be positive (e.G., Increased physical activity from a new park) or negative (e.G., Higher exposure to pollutants). Reviewers confirm that the HIA clearly distinguishes between direct health effects and broader public-health implications.

Environmental determinant is a factor in the natural or built environment that influences health, such as air quality, water quality, noise, green space, or housing conditions. Environmental determinants are often quantified through monitoring data or modelling. Reviewers verify that the environmental determinants are appropriately measured, linked to health outcomes, and contextualised within the local setting.

Social determinant encompasses socioeconomic factors that affect health, including income, education, employment, social support, and community safety. Social determinants are frequently assessed using census data, deprivation indices, or qualitative insights. Reviewers look for comprehensive coverage of social determinants and for analysis of how they may mediate or moderate health impacts.

Behavioural determinant includes individual actions that influence health, such as diet, physical activity, smoking, and alcohol consumption. Behavioural determinants can be modified through health-promotion

interventions. Reviewers evaluate whether behavioural factors are considered, whether baseline behaviours are documented, and whether the HIA proposes realistic behavioural interventions.

Health outcome indicator is a specific measure used to track changes in health status, such as hospital admissions for asthma, mortality from cardiovascular disease, or self-reported stress levels. Reviewers assess whether the selected health outcome indicators are sensitive to the exposures under study and whether they are aligned with national health surveillance systems.

Exposure assessment model is a computational tool that estimates the distribution of exposure across a population based on emission sources, dispersion, and population location. Common models in the UK include the Air Quality Model Evaluation (AQME) and the Noise Mapping Tool (NMT). Reviewers examine the model selection, inputs, validation, and the degree to which model uncertainty is reported.

Health impact function translates exposure estimates into health outcomes using established dose-response relationships. For example, the WHO's function for $PM_{2.5}$ Exposure converts incremental concentration changes into estimated premature deaths. Reviewers verify that the health impact functions are appropriate for the UK population, that the coefficients are current, and that any adjustments for local susceptibility are justified.

Risk communication is the process of conveying risk information to stakeholders in a clear, balanced and actionable manner. Effective risk communication addresses concerns, explains uncertainties, and provides guidance on protective actions. Reviewers assess the quality of risk communication materials included in the HIA, such as fact sheets, infographics, or briefing notes.

Policy brief is a concise document that summarises the HIA findings, emphasises the policy relevance, and offers targeted recommendations. Policy briefs are often directed at senior officials, elected representatives, or funding bodies. Reviewers consider whether the policy brief is well-structured, evidence-based, and tailored to the decision-making context.

Decision-support tool is a software or framework that assists policymakers in evaluating options based on health impact data, cost information and other criteria. Examples include the Health Impact Assessment Decision Support System (HIADSS) and the Integrated Impact Assessment Platform. Reviewers look for evidence that decision-support tools were used appropriately and that their outputs are clearly documented.

Implementation monitoring tracks the progress of mitigation actions after they have been put into place. It may involve site inspections, progress reports, and verification of compliance with standards. Reviewers assess whether the implementation monitoring plan is detailed, includes measurable milestones, and aligns with the overall monitoring framework.

Outcome evaluation measures the actual health changes that occur after a policy or project has been implemented, comparing them with the predictions made in the HIA. Outcome evaluation may involve longitudinal studies, health surveillance data analysis, or community surveys. Reviewers examine whether the evaluation design is capable of attributing observed changes to the intervention, and whether it accounts for confounding factors.

Attribution analysis distinguishes the portion of observed health change that can be directly linked to the intervention from changes caused by other influences. Statistical techniques such as difference-in-differences, propensity-score matching, or interrupted-time-series analysis are commonly employed. Reviewers evaluate whether attribution methods are suitable and whether the analysis acknowledges residual uncertainty.

Cost-of-illness estimates the economic burden of a health condition, including direct medical costs, indirect productivity losses, and intangible costs such as pain and suffering. Cost-of-illness studies can inform the economic justification for mitigation measures. Reviewers check that cost-of-illness estimates are derived from reputable sources and that they are applied consistently across scenarios.

Health impact pathway visualises the sequence of events that link a policy or project to health outcomes, illustrating exposure routes, intermediate determinants and final health effects. Pathways help communicate complex relationships to non-technical audiences. Reviewers look for clear pathway diagrams, logical flow, and evidence supporting each link in the chain.

Intervention fidelity measures the degree to which a mitigation action is delivered as intended. High fidelity ensures that the expected health benefits can be realised. Reviewers assess whether the HIA report includes plans for monitoring fidelity, such as checklists, training records, or performance audits.

Stakeholder buy-in indicates the level of acceptance and support from key parties for the HIA findings and recommendations. Strong buy-in often results from transparent processes, meaningful participation and clear communication of benefits. Reviewers examine evidence of stakeholder buy-in, such as signed agreements, letters of support, or documented endorsements.

Policy alignment refers to the consistency of HIA recommendations with existing policy objectives, strategies and legislative frameworks. Alignment increases the likelihood of adoption and integration into planning processes. Reviewers verify that the HIA explicitly references relevant policies and demonstrates how its recommendations advance those goals.

Governance structure defines the organisational arrangement responsible for overseeing the HIA, making decisions, and ensuring accountability. It may include steering committees, advisory boards, or designated lead agencies. Reviewers assess whether the governance structure is clearly described, includes appropriate expertise, and has defined reporting lines.

Data triangulation combines multiple data sources or methods to validate findings and strengthen conclusions. For example, quantitative air-quality measurements can be triangulated with community perception surveys about smell or visibility of pollutants. Reviewers evaluate whether triangulation was used effectively to corroborate exposure or outcome estimates.

Evidence synthesis is the process of systematically reviewing and summarising research findings to inform the HIA. This may involve systematic reviews, meta-analyses, or rapid evidence reviews. Reviewers check that the evidence synthesis follows recognised protocols, such as PRISMA for systematic reviews, and that the search strategy is transparent.

Health equity impact assesses how health outcomes differ across equity groups, highlighting whether an intervention narrows or widens existing disparities. This analysis may use tools such as the Health Equity Impact Assessment (HEIA) matrix. Reviewers look for disaggregated results, discussion of equity implications, and targeted recommendations to address identified gaps.

Vulnerability analysis identifies populations that are more susceptible to adverse health impacts due to factors such as age, pre-existing health conditions, socioeconomic status, or limited access to services. Vulnerability analysis informs prioritisation of mitigation measures. Reviewers assess the criteria used to define vulnerability and the robustness of the analysis.

Benefit-cost ratio (BCR) is a metric that compares the total benefits of an intervention to its total costs. A BCR greater than one indicates that benefits outweigh costs. Reviewers examine how benefits and costs were monetised, whether discount rates were appropriate, and whether the BCR reflects both health and non-health benefits.

Non-health impact encompasses effects that are not directly related to health but may influence overall wellbeing, such as economic development, aesthetic changes, or cultural heritage preservation. While the primary focus of an HIA is health, acknowledging non-health impacts provides a more holistic view. Reviewers note whether non-health impacts are mentioned and whether they are considered in the decision-making context.

Health promotion initiatives aim to empower individuals and communities to improve their health through education, behaviour change, and supportive environments. In many HIAs, health promotion is recommended as a mitigation measure, for example, campaigns to encourage active travel alongside new cycling infrastructure. Reviewers evaluate the feasibility and evidence base of proposed health-promotion interventions.

Environmental justice addresses the fair distribution of environmental benefits and burdens across different social groups. An HIA that incorporates environmental justice principles will examine whether disadvantaged communities bear a disproportionate share of negative impacts. Reviewers assess whether the HIA includes an environmental justice analysis and whether it proposes corrective actions.

Legal compliance ensures that the HIA adheres to relevant statutes, regulations and planning policies. In the UK, this may involve compliance with the Environmental Impact Assessment (EIA) Regulations, which require a health assessment as part of certain projects. Reviewers verify that the HIA demonstrates legal compliance and that any required permits or approvals have been obtained.

Strategic alignment refers to the degree to which the HIA’s objectives and recommendations support the long-term goals of the host organisation or jurisdiction, such as the NHS Long-Term Plan or the UK’s Net-Zero target. Reviewers examine whether the HIA links its findings to these broader strategic frameworks.

Stakeholder empowerment goes beyond engagement to enable stakeholders to influence outcomes, shape recommendations and participate in decision-making. Empowerment may be achieved through capacity-building workshops, co-design of mitigation measures, or shared governance arrangements.

Reviewers assess the extent to which empowerment was facilitated and documented.

Data sharing agreement outlines the terms under which data are exchanged between organisations, covering issues of confidentiality, security, and permitted uses. Such agreements are critical when multiple agencies contribute data to an HIA. Reviewers check that data sharing arrangements are in place, legally sound, and that they support the transparency of the assessment.

Integrated assessment combines health impact assessment with other impact assessment types, such as environmental, social, and economic assessments, to provide a comprehensive picture of a project's effects. Integrated assessments promote coordinated decision-making and avoid duplication of effort. Reviewers evaluate whether the HIA was integrated with other assessments and whether the integration added value.

Impact mitigation hierarchy prioritises mitigation actions in order of effectiveness: First avoid the impact, then minimise, compensate, or offset. This hierarchy guides the selection of measures that are most likely to protect health. Reviewers look for evidence that the hierarchy was applied, with avoidance measures considered before less effective options.

Compensation involves providing benefits or resources to affected communities to offset adverse health impacts that cannot be avoided or fully mitigated. Compensation may take the form of health services, community facilities, or financial payments. Reviewers assess whether compensation proposals are justified, proportionate and aligned with legal requirements.

Offsetting refers to actions that generate health benefits elsewhere to balance out residual negative impacts. For example, planting trees in a different area to offset air-quality losses from a construction site. Reviewers evaluate the credibility of offsetting claims, the calculation of equivalence, and the monitoring arrangements.

Health surveillance is the ongoing systematic collection, analysis, and interpretation of health data to detect trends, outbreaks or changes in population health. Surveillance data often feed into the monitoring component of an HIA. Reviewers examine whether the HIA links its monitoring plan to existing surveillance systems and whether data are available at the required spatial and temporal scales.

Public health surveillance specifically focuses on the collection of data related to disease incidence, risk factor prevalence, and health service utilisation. In the UK, agencies such as Public Health England (now UK Health Security Agency) provide surveillance datasets that can be leveraged in HIA monitoring. Reviewers check the suitability of surveillance data for the health outcomes of interest.

Health outcome modelling uses statistical or simulation techniques to predict future health states based on exposure and risk-factor information. Models may be deterministic, stochastic, or agent-based, depending on the complexity required. Reviewers assess the appropriateness of the modelling approach, validation procedures, and the clarity of model assumptions.

Agent-based model simulates the actions and interactions of individual agents (e.G., People, households) to assess emergent health outcomes. This type of model can capture heterogeneity and behavioural dynamics that are difficult to represent in aggregate models. Reviewers evaluate whether the agent-based model is

justified, adequately parameterised, and whether its results are communicated clearly.

Deterministic model provides a single set of outcomes based on fixed input parameters, without incorporating randomness. Deterministic models are easier to interpret but may underestimate uncertainty. Reviewers consider whether a deterministic model is suitable for the assessment objectives and whether uncertainty is addressed through sensitivity analysis.

Stochastic model incorporates random variation in inputs or processes, generating a distribution of possible outcomes. Stochastic modelling can better reflect real-world variability. Reviewers examine the number of simulation runs, convergence criteria, and how the distribution of outcomes is presented.

Health equity lens is an analytical perspective that explicitly incorporates equity considerations throughout the HIA, from scoping to recommendation formulation. Applying an equity lens may involve using the PROGRESS-Plus framework (Place, Race, Occupation, Gender, Religion, Education, Socio-economic status, Social status, plus other factors).