

Proposed steps of a health assessment study:

Objective: To understand if chemical and physical stressors impact human health, and if so, how and to what extent?

Funding body commissions project. Project leader appointed to initiate Scoping & Planning

Scoping & Planning

This phase establishes processes that underpin the legitimacy and quality of the research.
Key focus areas:

- To clearly define the **scope and objectives** of the research
- To establish the foundational **project structure** to ensure effective communication and involvement of stakeholders
- To develop processes to maintain **transparency and independence**
- To **build capacity** of all stakeholders to understand the technical and social issues

Governance and Ethics Review

- Establish appropriate project structure and terms of reference, for an:
 - Oversight Committee
 - Joint Steering Committee
 - Community Reference Group
 - Subject Matter Reference Group, or equivalents.
- Initiate ethics review

Scope and Objectives

- Involve community and other stakeholders to define:
 - Site selection
 - Specific research objectives
 - Deliverables and timeline
- Appoint Project team for Identification phase

Stakeholder Involvement and Communication Plan

- Identify processes to integrate community perspectives with scientific knowledge into project
- Define how to communicate project outcomes and manage expectations, and options for communication products
- Establish risk management protocols and feedback procedures

Identification

This phase identifies site-specific:

- potential hazards**
- exposure pathways**
- health concerns** of the community, and
- confounding factors** for chemical, physical and social stressors.

For **chemical and physical stressors**, this phase informs on the site-specific potential hazards related to chemicals in air, water and soil, as well as noise and light hazards, to undertake the screening and further assessment phases.

For **social stressors**, the focus is to understand the community profile and to characterise the sources of stress. Inform strategies to mitigate social stressors and increase resilience in the community.

Chemical and Physical Hazards

- Develop a Conceptual Site Model (CSM) to identify potential hazards and exposure pathways, plus other local confounding sources, of chemical and physical stress
- Use non-target analytical approaches, as required, to catalogue the key chemicals in environmental and human (e.g. blood) samples

Social Hazards

- Develop a community and population profile
- Through community involvement and data collection, characterise:
 - sources of stress of concern
 - perceived impacts
 - health concerns

Stage Gate 1

Screening plan
 Define scope, resources required and timeline. Appoint project team(s)

Yes
Chemical assessment needed?

Need more data
Intervention strategy needed?

Screening

Exposure Screening Assessment

This phase involves assessment and validation of *existing* data for:

- chemical levels in air, soil, water and people (e.g. blood),
- measures of physical stressors (light, noise), and
- health symptom data.

- Collate existing exposure data for all relevant media
- Analyse health data for relevance and identify patterns
- Check data sets for quality: are data reproducible, reliable and representative?
- Identify data gaps and collect new data as necessary to understand key exposure and health factors for the region

Communicate findings and seek feedback

Screening

Social Stressor Screening Assessment

Assess and validate existing and new data related to social risk factors and 'precursors' that may contribute to adverse health outcomes at the individual, family, or population level to:

- Gauge social stress & resilience
- Identify symptom patterns
- Quality check data sets
- Identify confounding factors

Compare data for the site to equivalent non-CSG areas. Use ABS, State health agency, PBS/MBS, socioeconomic indicators

Communicate findings and seek feedback

Plan further assessment
 Define scope, resources required & timeline. Appoint project team/s

Further Assessment

In-depth Exposure and Risk Assessment

This phase develops detailed exposure maps targeting priority chemicals/stressors identified during screening:

- Measure exposure through environmental or bio-monitoring
- Model spatial distribution of stressors; validate models with monitoring data
- Assess availability, reliability and relevance of health based guidance values (HBGVs)
- Compare exposure maps to robust guideline values
- Initiate a program to collect data and environmental/bio samples and retain in a publicly available repository/archive

Communicate findings and seek feedback

Health Outcome Assessment

The aim of this phase is to undertake a full health outcome assessment:

- Use suitable epidemiological and other approaches (e.g. cluster, longitudinal, cross sectional or case control study(s)) to measure incidence or prevalence of health effects and compare to patterns of exposure established in the in-depth assessment
- Initiate a systematic program to collect longitudinal health data and retain in a publicly available repository/archive

Communicate findings and seek feedback

Further Assessment

In-depth Assessment of Sources of Social Stress

Identify underlying sources or contributors to social stress and initiatives for mitigating stressors

Needs Assessment

Identify social stress status & needs: Collect further quantitative data as required, e.g. key health & population statistics

Map existing services: Involve community, industry & service providers to characterise existing activities and services and their limitations, e.g. through interviews. Collate key data about services offered in the area, e.g. from GPs, allied health, hospitals, NGOs and other community providers

Identify initiatives: Canvas stakeholders to identify measures to increase wellbeing and barriers to such initiatives: 'Options Analysis'

Synthesize insights into a picture of current and emerging mental health needs, service opportunities, and service bottlenecks/constraints.

Identify action priorities

Communicate findings and seek feedback

Mitigation Strategies

Identify mitigation opportunities: Assess strategies to minimise impact, e.g. changing industry practices

Involve stakeholders: Formulate & obtain commitment to proposed mitigation actions

Monitor: Identify agreed measures to monitor stress.

Recommendations

Make decisions to reach a set of **final recommendations** for acting on the screening and/or health assessment's findings:

- Develop a draft set of concise and action-orientated recommendations, including for ongoing monitoring of the site after completion of the project and implementation of the recommendations
- Develop audience-specific communication products to disseminate fully interpreted results and draft recommendations to the wider stakeholder group and public for feedback
- Write a final recommendation report for implementation and action

Recommendations

Make decisions to reach a set of **final recommendations** and report findings to project governance bodies. Develop audience-specific communication to share fully interpreted results and draft recommendations to government, industry, community, and service providers for feedback.

Recommendations would be around, for example:

- Provision** of mental health support, financial support, childcare, other relevant services
- Finding** people/ families in need via identified criteria – e.g., via social service agencies, police, GPs, financial institutions
- Modifying** behaviours, activities, equipment by industry to mitigate causes of social stress

CHEMICAL & PHYSICAL STRESSORS

SOCIAL STRESSORS

Integrate outcomes from exposure and health assessments

Develop coordinated mitigation and intervention strategy

Stage Gate 2

Objective: To support increased resilience in the community and mitigate stressors