Irish Nationwide Health and Air Quality Linkage (INHALE)

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Introduction

According to WHO, outdoor air pollution is *'**the single biggest environmental health risk**'* accounting for almost three million premature deaths worldwide.

Risk assessment of outdoor air pollution has been performed in many populations worldwide for premature mortality and certain illnesses. These studies highlight the need for *population specific assessment*. The relationship between air pollution and health is influenced by a range of factors;

- underlying population age, health status, and social environment
- exposure levels and sources
- weather patterns and temperature

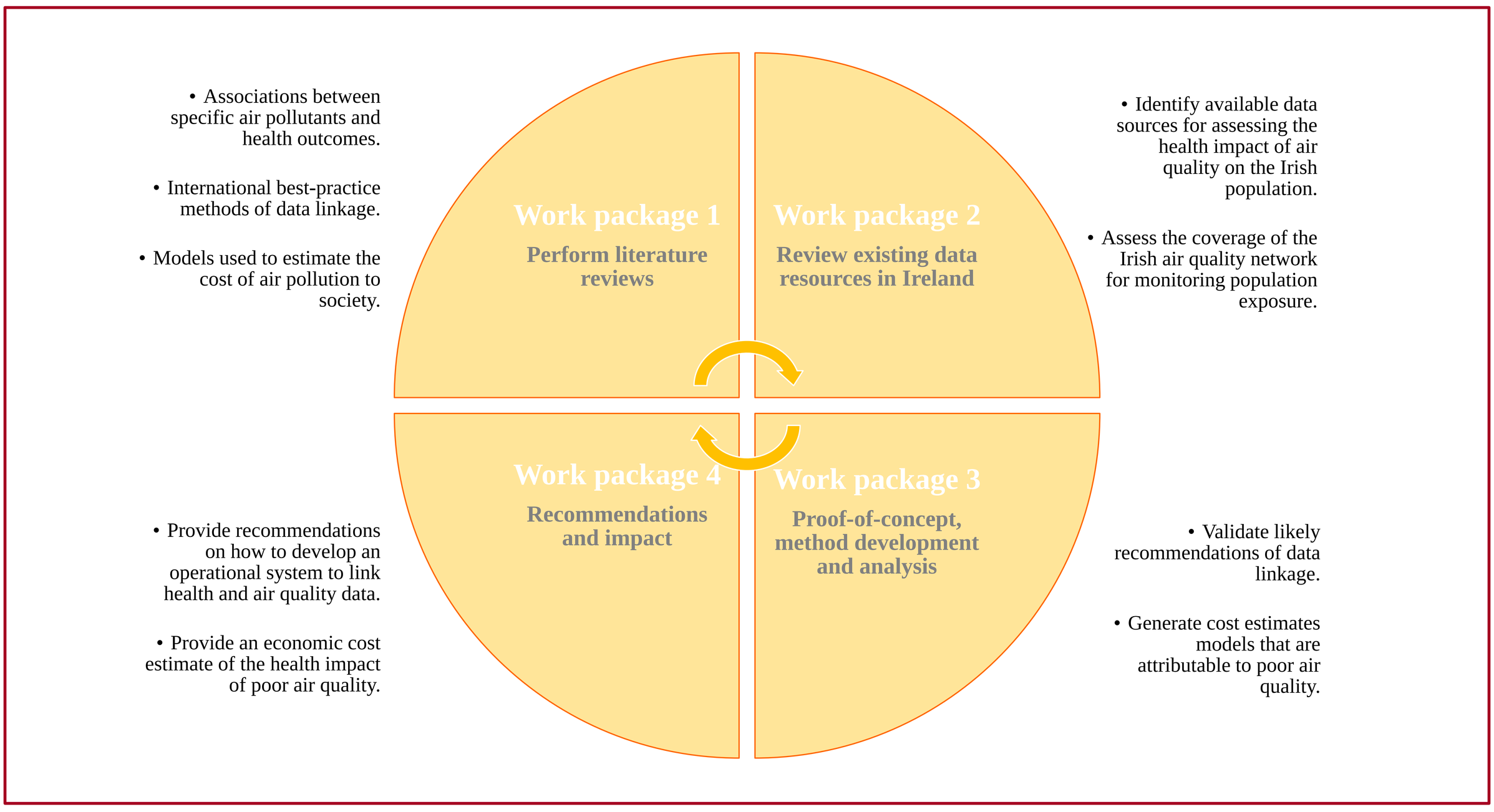
Exposure depends on local emission sources, meteorology and transported air pollution and air quality varies on daily basis. Site-specific and seasonal variations in the physico-chemical characteristics of ambient particular matter pollution and associated health effects may occur. Because of these modifying effects of exposure (and therefore dose) it is imperative to begin to fully evaluate the health, social and economic cost of air pollution specific to Ireland.

Aim

The aim of INHALE is to provide recommendations on how to develop data infrastructure for collecting and collating data from existing air quality monitoring networks, health databases and administrative sources on a continuous basis to enable linking of specific health outcomes to air quality in the long term.

This will enable official population health statistics to be linked to air quality trends and regulatory changes for guidance on environmental policy development and assessment.

INHALE work packages and objectives



Summary project description

In summary, this project will :

1) Evaluate the available data on air quality and health outcomes in Ireland and highlight data gaps.
2) Assess the feasibility of linking data domains without compromising patient confidentiality based on best international practice.
3) Test feasible linkage processes to estimate the health impact of outdoor pollution on selected health outcomes.
4) Prepare recommendations describing the appropriate use of the existing data and systems to collect data that readily merge air quality data with health outcomes.

The range of **health data sources** will include:

- Growing up in Ireland (**GUI**), 2006 and 2008
- The Irish Longitudinal study on Ageing (**TILDA**), 2009-11, 2012/13, 2014/15
- Survey on Lifestyle and Attitude to Nutrition (**SLÁN**), 1998, 2002 and 2007
- **Mitchelstown** Cohort Study and Rescreen, 2010/11 and 2016/17
- Hospital In-Patient Enquiry (**HIPE**)

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