

A vision for integrating environment and health data

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[@GeographySarah](#) [@GroundsWellCon](#)



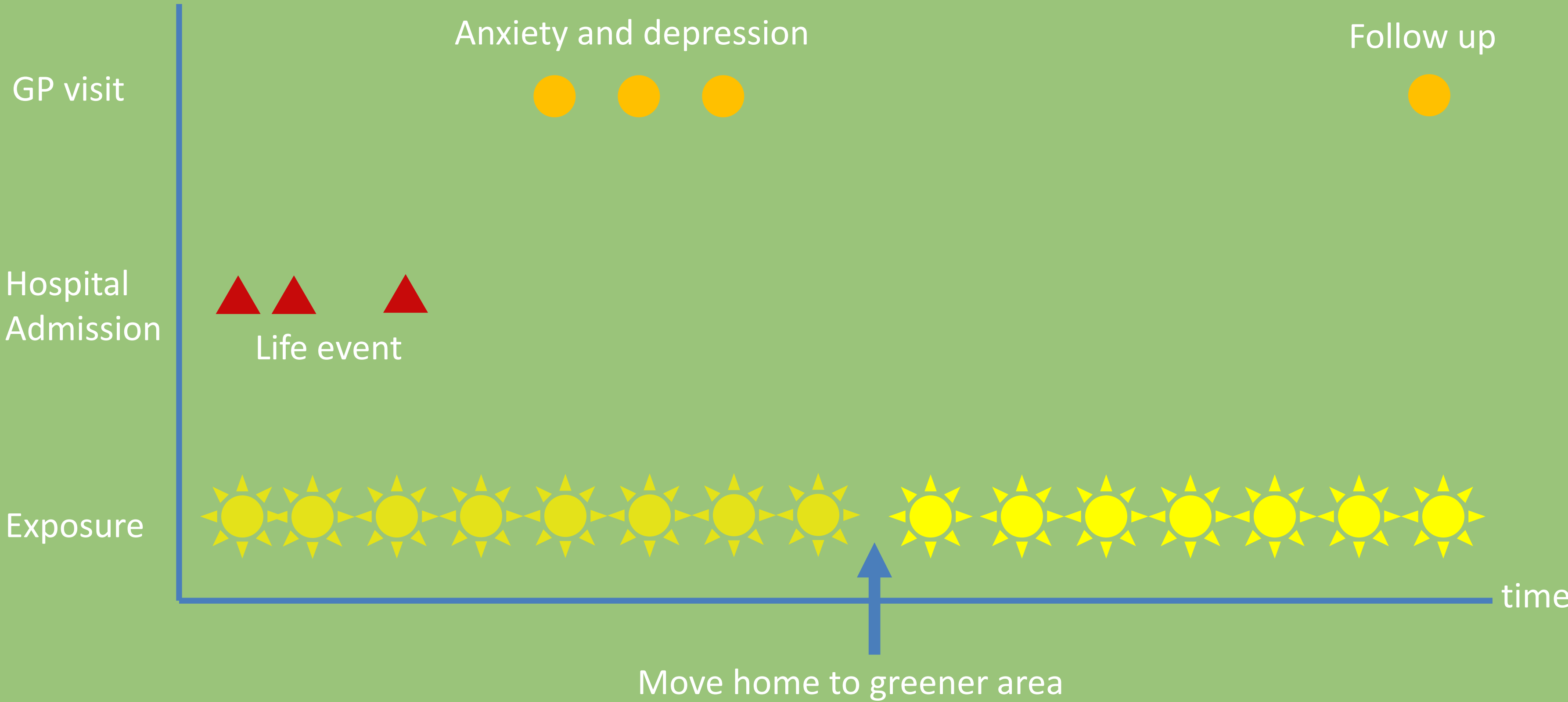
Multisectoral data linkage



- Health, education, charities, environment data
- Household data linkage
- Build up a 'picture' for many individuals. Patient/person journeys
- Secure data environment; trusted researchers AND de-identified data (anonymised)

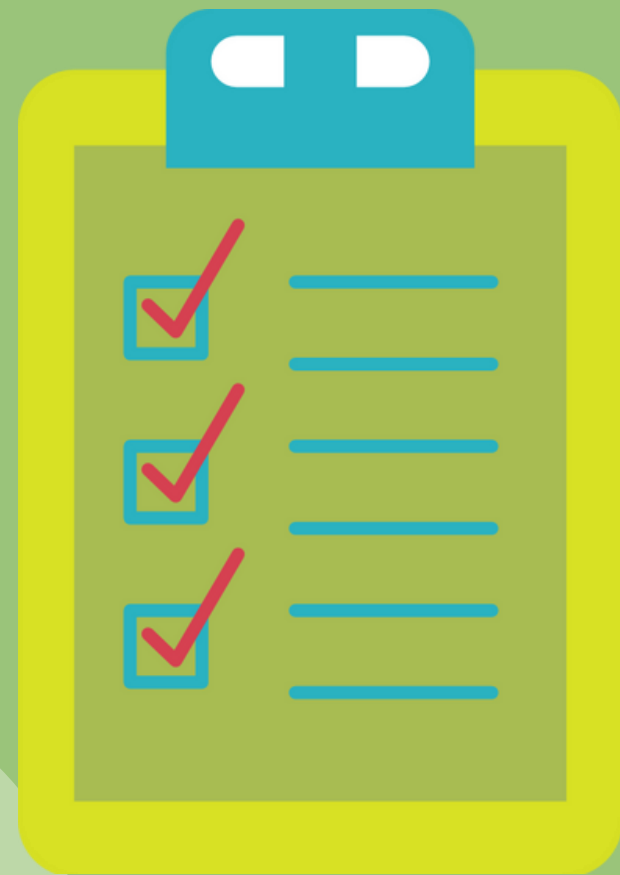
A patient journey

"Health conditions are formed outside of the health system"



Household linkage

Residential Anonymised Linking Fields (RALFs)



Ecological fallacy (Lower Super Output Areas)



Migration and gentrification



Long term follow up – cardio, resp, housing quality



Population replacement; gentrification

Rodgers et al. 2012 Protecting health data privacy while using residence-based environment and demographic data. Health and Place. DOI: 10.1016/j.healthplace.2011.09.006

Rodgers et al. 2018 Emergency hospital admissions associated with a non-randomized housing intervention meeting national housing quality standards: a longitudinal data linkage study, Journal of Epidemiology and Community Health DOI:10.1136/jech-2017-21370

Environmental epidemiology



- Environmental exposures at the home address
- Followed by health outcome – monthly temporal scale
- Routinely – no additional data collection
- Retrospectively (as long as environment/exposure data)

NIHR Public Health Research programme: PHR - 16/07/07

Green-blue space exposure changes and impact on individual-level wellbeing and mental health: a population-wide record-linked natural experiment

Chief investigator: Professor Sarah Rodgers

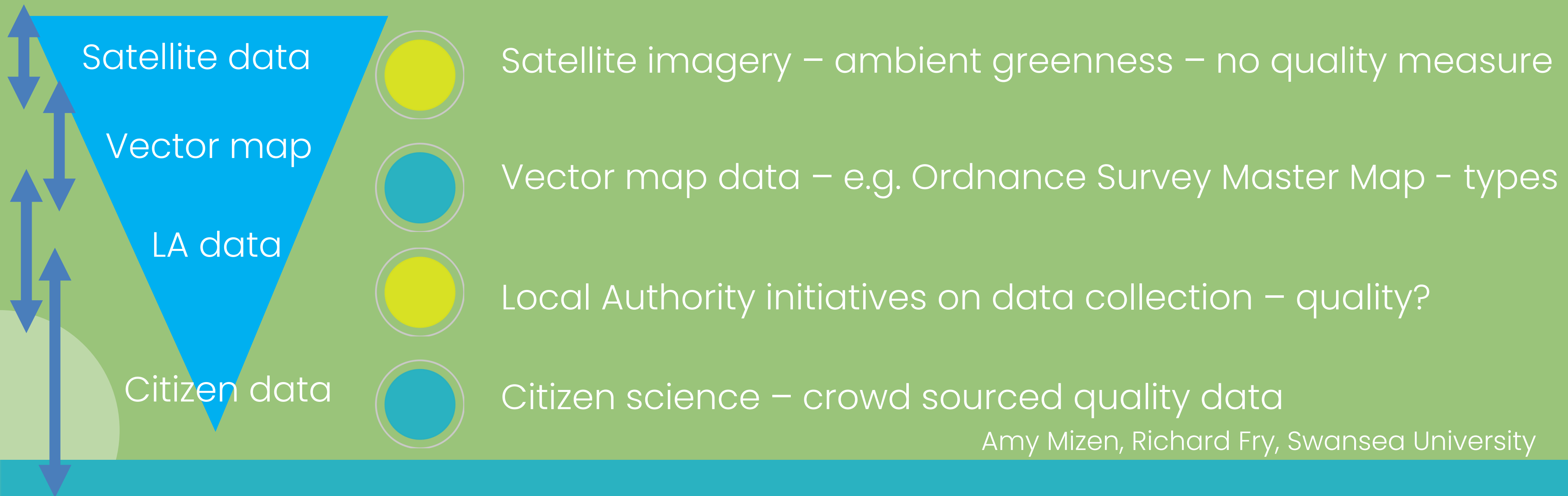
Contractor: University of Liverpool

Co-investigators: Dr Benedict Wheeler, Dr James White, Dr Mathew White, Dr Rebecca Lovell, Dr Richard Fry, Professor Alan Watkins, Professor Gareth Stratton, Professor Mark Nieuwenhuijsen, Professor Ronan Lyons. Researchers: Dr Jo Gattrell (University of Exeter), Dr Amy Mizen, Dr Dan Thompson (Swansea University)

Choice of environmental data?



Little choice when working at scale (both temporal and spatial)



Inform vector map data providers that we need consistent temporal updates

Give precise directions to multiple data collectors, including database and metadata definitions, to encourage production of standardized data collections

Beyond observational epidemiology?

-  Survey data
-  Intervention data
-  Citizen science data (ecological momentary assessment)
-  Trials / non-randomized studies

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GROUNDSWELL

TRANSFORMING OUR CITIES FROM THE GROUND UP

<https://ukprp.org/what-we-fund/groundswell/>
[@GroundsWellCon](https://twitter.com/GroundsWellCon)



With co-investigators from nine universities;



Prof Ruth Hunter
Systems
Belfast

Prof Sarah Rodgers
Data
Liverpool

Prof Ruth Jepson
Co-production
Edinburgh



And partners from Government, industry and the third sector including;

NIHR | Applied Research Collaboration
North West Coast



TIMELINE



“

OUR VISION IS FOR A **COMMUNITY AND DATA-LED** SYSTEMS TRANSFORMATION OF HOW TO PLAN, CREATE, MAINTAIN AND PROMOTE USE OF THE NETWORKS OF URBAN GREEN AND BLUE SPACES.



These spaces, shaped by and for the benefit of everyone, should make a significant contribution to **reducing the levels of and inequalities in**, non-communicable diseases.

GROUNDWELL SCOPE



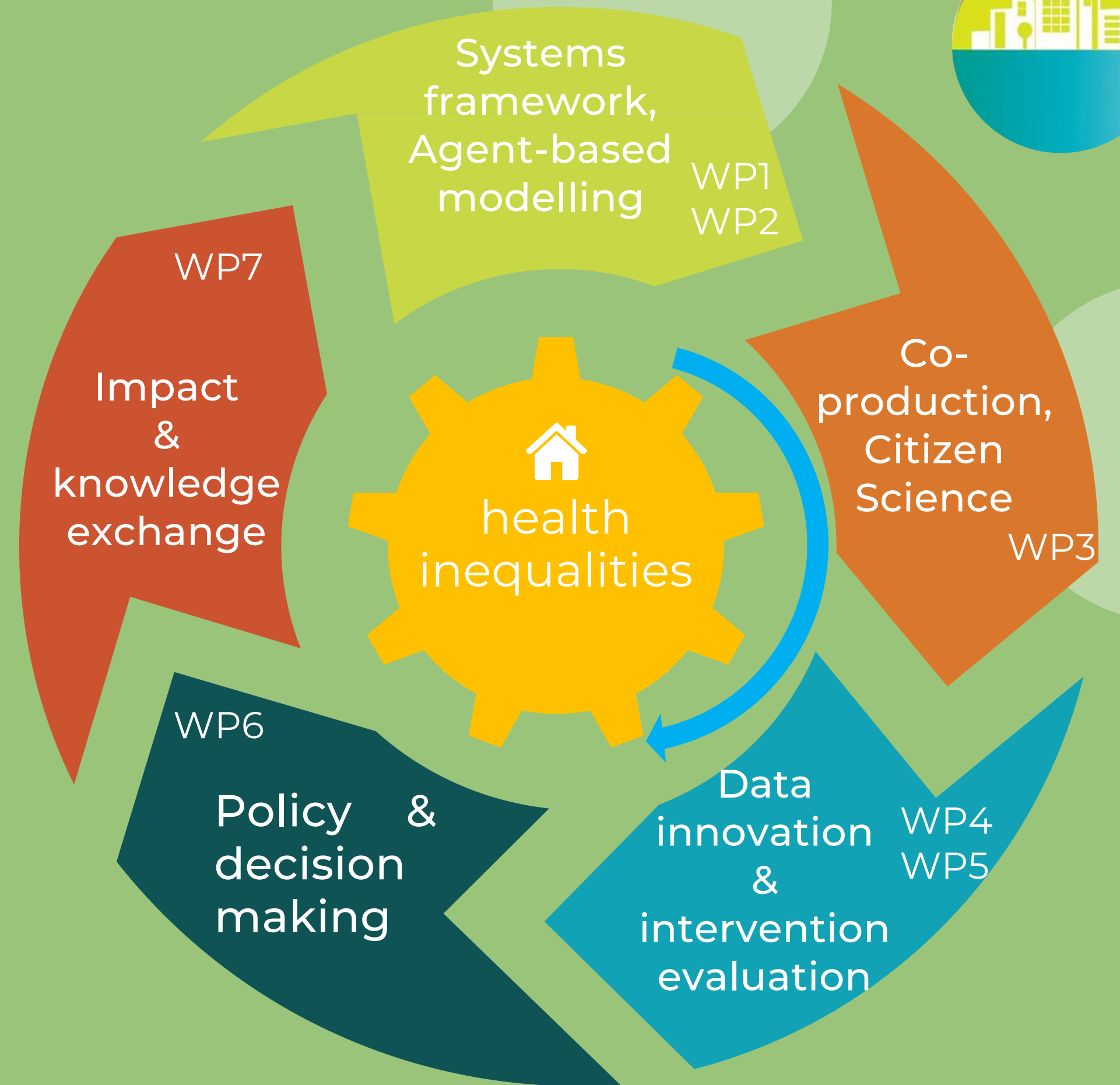
Establish important baseline health and environment factors



Layering co-produced existing data and interventions (e.g. to encourage use of local parks by people who do not ordinarily use them)






Assessing the impact on health and wellbeing.



Summary



-  Individual and household data – powerful time-space evidence
-  Nested co-produced policy, behavioural interventions & citizen science data
-  Test what works for whom with public and policy colleagues to reduce health inequalities

THANK YOU!



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And all the GroundsWell Consortium team

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And the Green Blue Spaces Study team:

<https://www.journalslibrary.nihr.ac.uk/programmes/phr/160707/>

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