Indicator specification:

GroundsWell collection of geographical and population health indicators

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Unique Property Reference Number (UPRN) indicator: Flood risk (UPRN_1_1)

Version: 1.00
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Overview

Indicator title

Unique Property Reference Number (UPRN) indicator: Flood risk (UPRN_1_1)

Indicator family name

Unique Property Reference Number

Descriptor Plain English description

This indicator covers three main flooding risks in the UK: fluvial (rivers and streams), coastal and surface water.

Technical description

A couple of datasets maintained by the Environment Agency relating to flooding risk mitigation were overlapped to each UPRN in the geography of interest (NHS Cheshire and Merseyside ICB region), which resulted in 5 different binary categories. Each category indicates whether a particular UPRN is at risk of flooding at various levels:

- Surface flood
- Rivers & sea flood – for various risk levels
    - Very low
    - Low
    - Medium
    - High

Unique Identifier

UPRN_1_1

Construction

Data sources

The following open data sources were used as inputs in the creation of these methods:

- Unique Property Reference Numbers (UPRN) were accessed using the Ordnance Survey Open UPRN product. UPRNs are unique identifiers for all unique properties across Great Britain. The dataset was the latest available at the time of access and refers to all UPRNs as of April 2024. We further use a Office for National Statistic's lookup table linked to each UPRN to subset only UPRNs that fall within the Local Authorities of Cheshire and Merseyside. These data were downloaded on 4th June 2024.

- Surface water flooding risk areas were defined using the Environment Agency's 'blue square map' resource. The data are generated as part of Environment Agency's legal duties under the flood risk regulations. They identify 1x1km gridded cells that define areas at risk of surface flooding under 1 in 100 and 1 in 1000 high rainfall events. The resource is generated for the whole of England. Data for the whole of England were downloaded on 7th June 2024 and represent the latest version of the dataset (last updated 14th June 2024).
- Areas at risk of flooding from rivers and seas were defined using the Environment Agency's 'Risk of Flooding from Rivers and Seas' resource. The resource is the main national level (England only) resource for flood risk mapping. It is a 50x50m gridded cell definition of flooding risk from rivers and seas, defining cells on a scale from *very low* to *high* based on the number and quality of flood defences in each cell. More information about the methodology can be viewed here. Data were downloaded on 10th June 2024. The resource asks one to download data by defining a bounding box and therefore multiple manual requests were undertaken to download the Cheshire and Merseyside region. Following a formal request to the Environment Agency, they later supplied the national level dataset. The resource was paused so that it could be improved and last updated on 6th December 2023 (new version due end of 2024). We will update our indicator once the latest version is available.

While our data here only refers to the Cheshire and Merseyside Integrated Care Board region (defined here as the Local Authorities: Chester and Cheshire East, Cheshire West, Halton, Knowsley, Liverpool, Sefton, St. Helens, Warrington and Wirral), the data and methods can easily be adapted for any other region or nation.

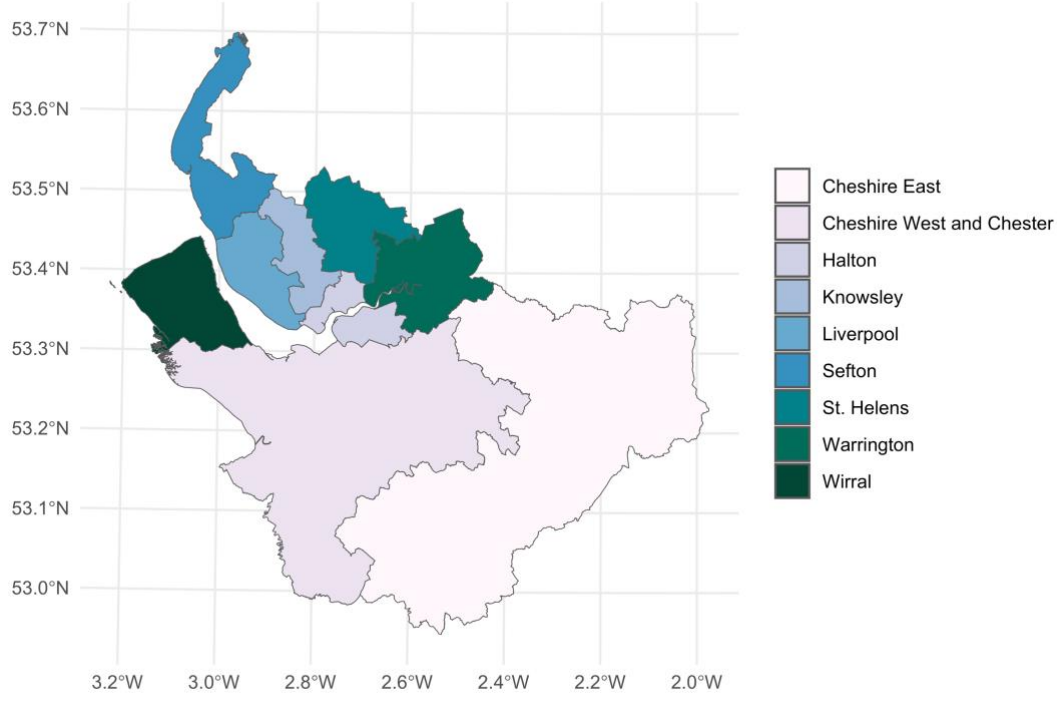

Figure 1. NHS Cheshire and Merseyside ICB region

Presentation

Breakdowns

Time period

Cross sectional based on the Ordnance Survey Open UPRN product v2024.04.

Demographic

Not applicable

Geographic

Unique Property Reference Number (UPRN) level

Disclosure control

Not applicable. Whilst UPRNs can be used to identify unique properties, on their own they cannot be used to identify a particular individual.

Outputs:

UPRN_1_1_flood_risk.csv

Column name	Description
UPRN	Unique Property Reference Number as per the Ordnance Survey Open UPRN product v2024.04.
surface_flood_risk	is the UPRN located in an area at risk of surface flooding as defined by the Environment Agency's blue map resource (0 = no, 1 = yes)
rivers_sea_flood_risk_high	is the UPRN located within a 'high' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).
rivers_sea_flood_risk_medium	is the UPRN located within a 'medium' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).
rivers_sea_flood_risk_low	is the UPRN located within a 'low' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).

rivers_sea_flood_risk_very_low	is the UPRN located within a 'very low' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).

UPRN_1_1_flood_risk_with_coords.csv

Column name	Description
UPRN	Unique Property Reference Number as per the Ordnance Survey Open UPRN product v2024.04.
surface_flood_risk	is the UPRN located in an area at risk of surface flooding as defined by the Environment Agency's blue map resource (0 = no, 1 = yes)
rivers_sea_flood_risk_high	is the UPRN located within a 'high' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).
rivers_sea_flood_risk_medium	is the UPRN located within a 'medium' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).
rivers_sea_flood_risk_low	is the UPRN located within a 'low' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).
rivers_sea_flood_risk_very_low	is the UPRN located within a 'very low' flood risk area as defined by the Environment Agency's risk of flooding from rivers and seas' resource (0 = no, 1 = yes).
latitude	latitude of the UPRN, given in decimal degrees, where N is positive and S is negative.
longitude	longitude of the UPRN, given in decimal degrees, where E is positive and W is negative.

Revision history

Version	Date	Summary of changes
1.00		First release