The urban burden of disease estimation for policy-making: project update

Sasha Khomenko, PhD
4th June 2025

This project has received funding from the European Union's, Horizon Europe Framework Programme (HORIZON) under GA No 101094639 - THE URBAN BURDEN OF DISEASE ESTIMATION FOR POLICY MAKING (UBDPolicy)

THE URBAN BURDEN OF DISEASE ESTIMATION FOR POLICY MAKING

Assessing Health Impacts, Costs, and Benefits of:

In 1,000 European cities

Cities in Depth: Case Studies

- Barcelona
- Basel
- Bradford
- Brussels
- Copenhagen
- Manchester
- Munich
- Sofia
- Utrecht
- Warsaw

UBDPolicy aims to:

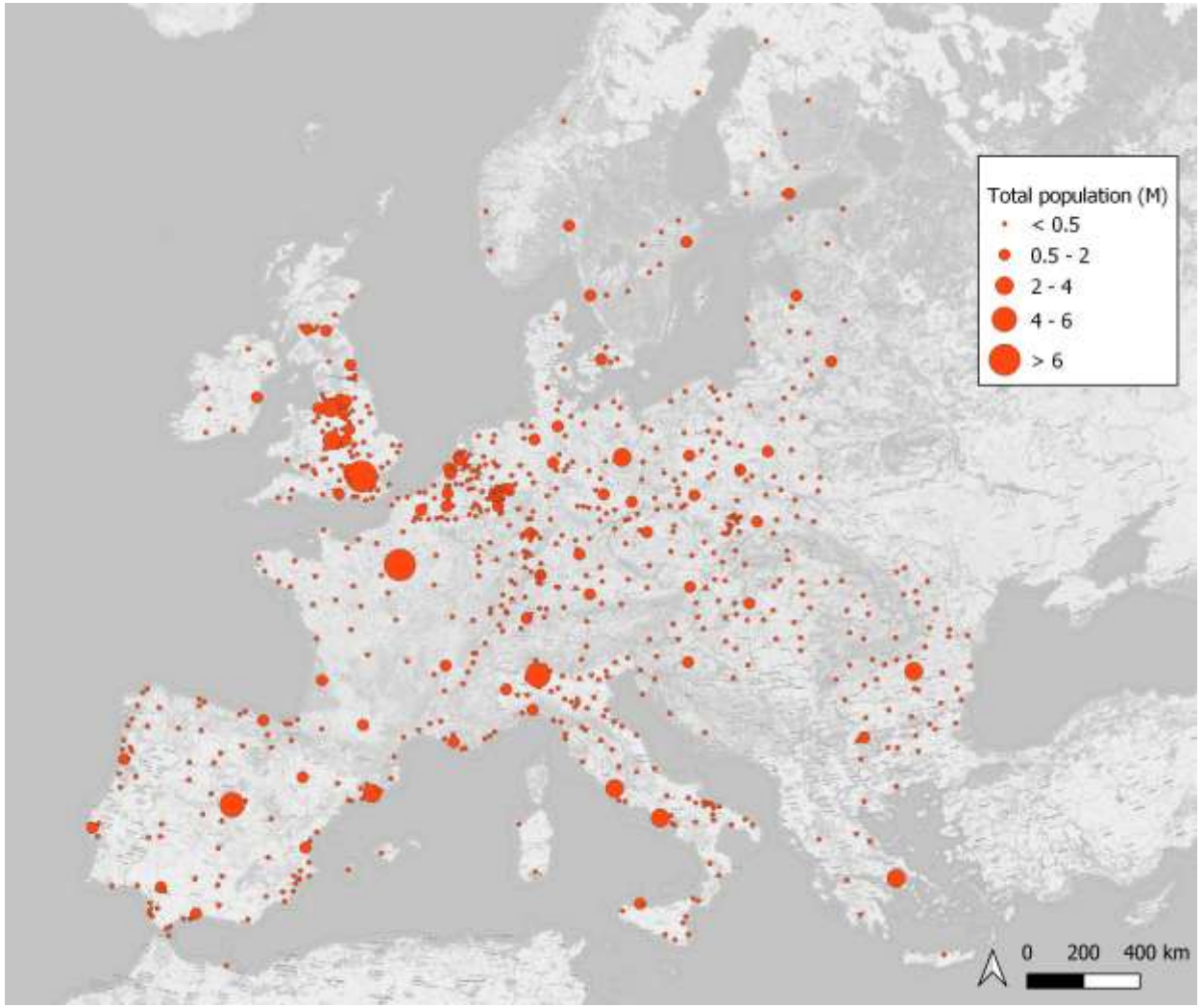
- Improve the estimation of health and well-being impacts and socio-economic costs and/or benefits of major urban environmental stressors
- Advance methodological approaches
- Provide good practices for urban areas to help strengthen evidence-based policy-making at city, national, and EU levels
- Effectively contribute to the development of new and existing urban planning, transport planning, and environmental policies, plans, and initiatives.

Our current work

825 European cities, based on Urban Audit 2021

Health Impact Assessment (HIA) for 2015, 2018, 2021 and 2024 focused on air pollution, noise, green space and heat

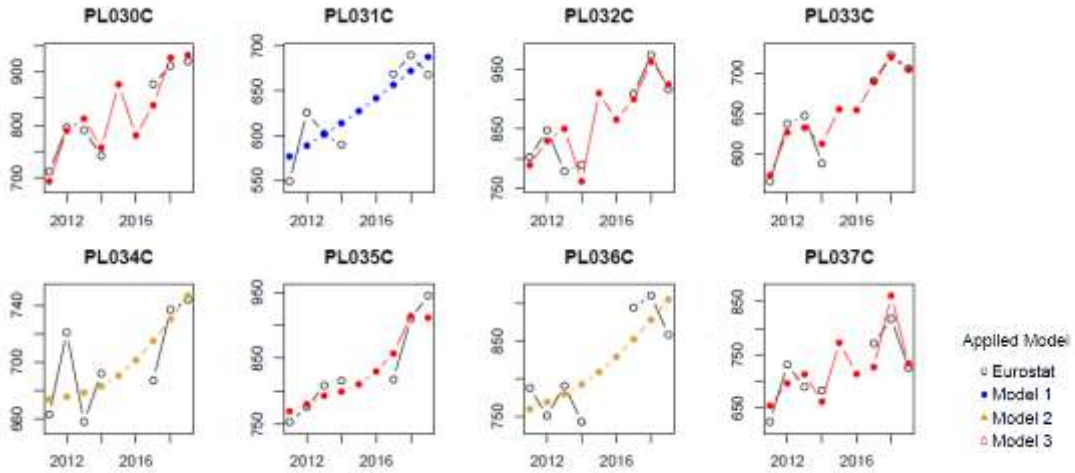
Data collection and analyses done on a fine **100m grid cell** resolution

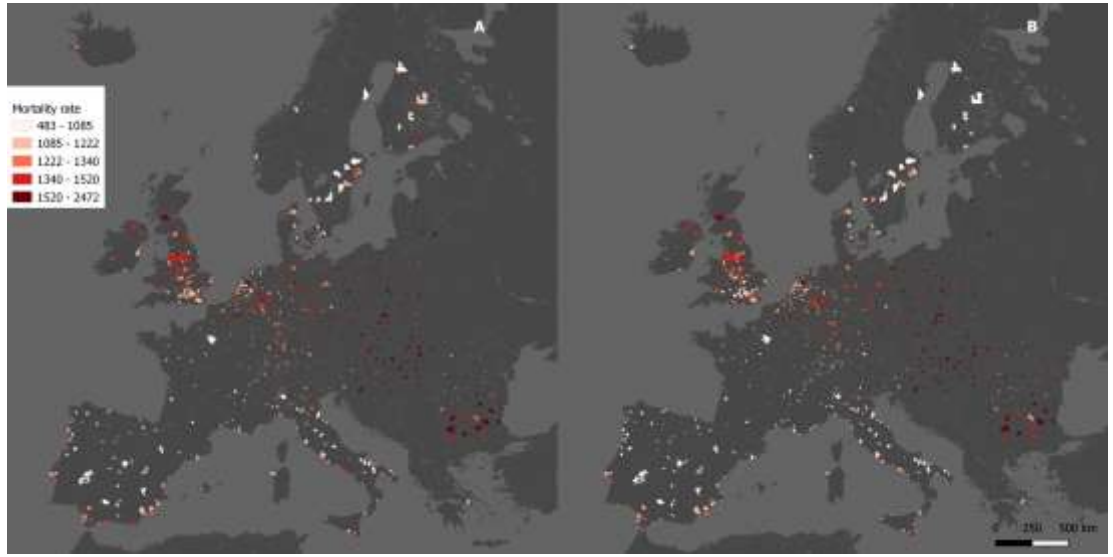


Preliminary results

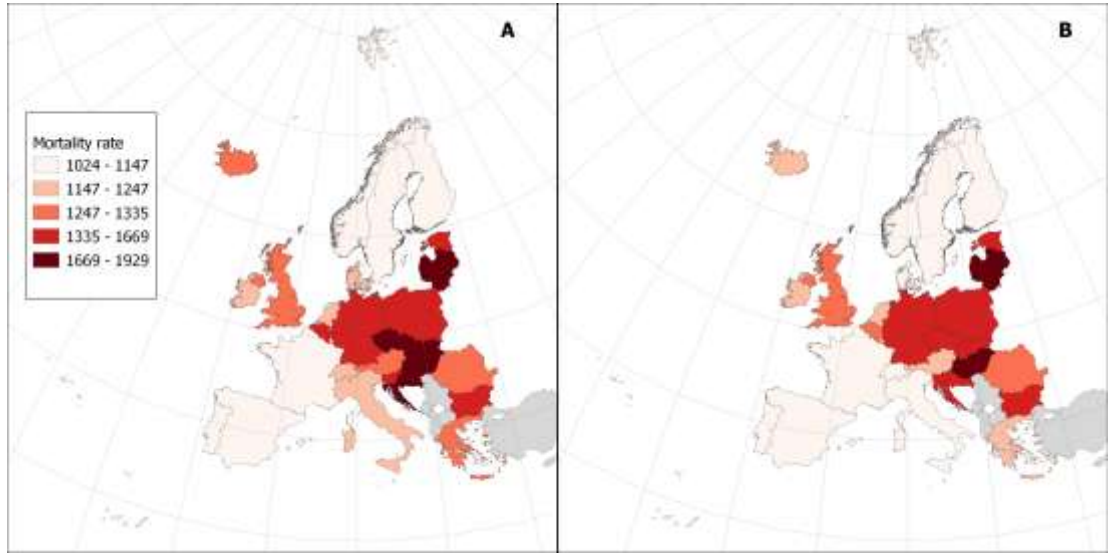
❖ Improved estimation of baseline health data by estimating city-level age- and sex-specific mortality rates

❖**Mixed-effect models** filled for missing city-level population and mortality data





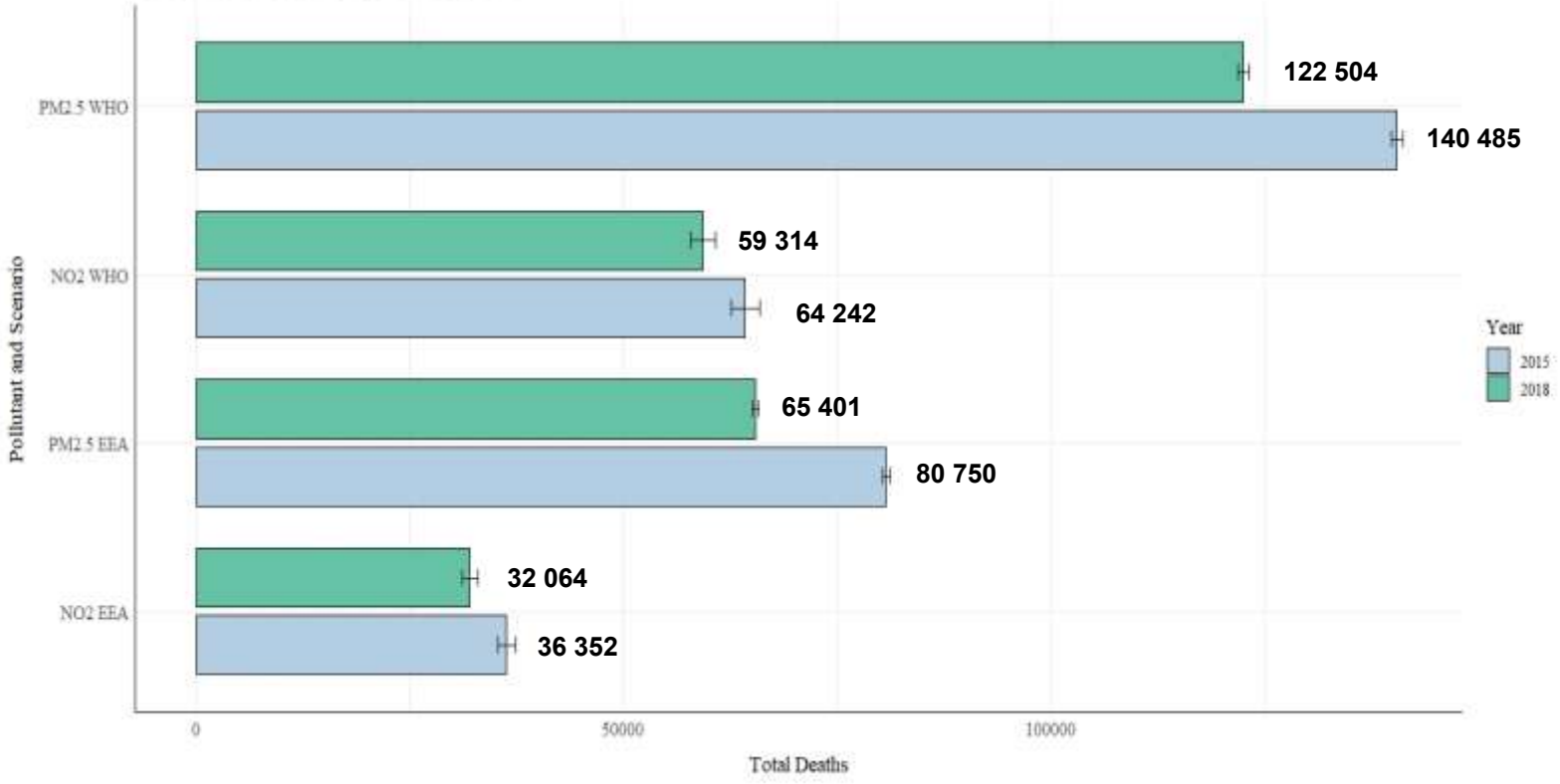
Natural cause age-standardised mortality rate for 825 cities. A) 2015 B) 2018



National-level age-standardised natural-cause mortality rates for 29 countries. A) 2015. B) 2018.

Preliminary results

Single-exposure total burden



$PM_{2.5}$ WHO:
↓17,981 deaths

NO_2 WHO:
↓ 4,928 deaths

$PM_{2.5}$ EU:
↓15,349 deaths

NO_2 EU:
↓4,288 deaths

Assessing Health Impacts, Costs, and Benefits of:

Cities in Depth: Case Studies

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- Utrecht
- Warsaw

Case studies activities:

- Stakeholder and policy mapping
- Health Impact Assessment (HIA)
- Cost-Benefit Analyses (CBA)

- Activities performed are city-dependent:
  - Not all of them will necessarily be performed for all the case studies
  - Depend on:
    - The available data for each city and intervention
    - The measures/policy scenarios that have been implemented or that are planned for each city
- The selection of interventions in each city will depend on:
  - The consultation to the stakeholders, municipalities, etc.
  - The data available for the HIA and for the CBA.

Stakeholder workshops

- Science to policy consultation workshops (half-day)
- Conducted for Brussels, Warsaw and Sofia
- **Aim**: Refining research questions to address policy-relevant issues in each city
- **Workshop structure**:
  - Introduction to the UBDPolicy project
  - Existing evidence and possible scenarios for the city
  - **Parallel discussions**:
    - Mapping barriers and opportunities
    - Refining research questions (most impact, health and costing outcomes, inequities and other considerations)

Scenarios to be evaluated

- Green corridors
- Green infrastructure and nature based solutions
- Low emission zones (LEZ)
- Low traffic neighbourhoods (LTN)
- Superblocks
- Sustainable urban mobility plans
- Air quality plans
- Increases in cycling and pedestrian infrastructure
- Congestion charges
- Environmental noise policies
- Wood burning bans

Published work

- **Green corridors intervention in Barcelona, Spain**.

  Iungman T et al. Co-benefits of nature-based solutions: A health impact assessment of the Barcelona Green Corridor (Eixos Verds) plan. Environment International, 2025. https://doi.org/10.1016/j.envint.2025.109313

SCAN ME

- **Transport interventions in Barcelona, Spain** (Urban Mobility Plan).

  Ramos Velásquez A et al. Health impact assessment of urban and transport developments in Barcelona: A case study. Health & Place, 2025, https://doi.org/10.1016/j.healthplace.2024.103406

SCAN ME

- **Baseline burden of disease in Sofia, Bulgaria**.

  Khomenko S et al. Health burden and inequities of urban environmental stressors in Sofia, Bulgaria. Environmental Research, 2025. https://doi.org/10.1016/j.envres.2025.121782

SCAN ME

Thank you! Questions?

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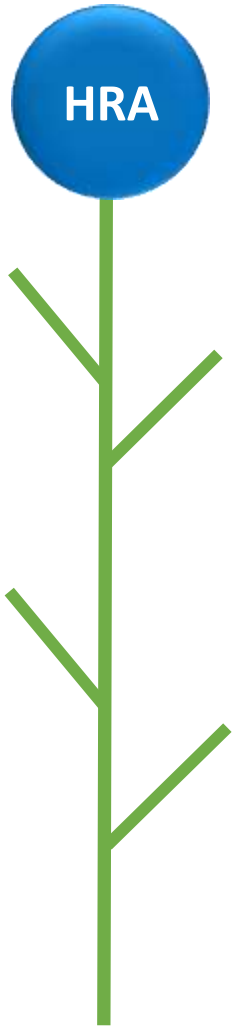
KHS
Libereckého kraje

Current situation of HIA in the Czech Republic

Jana Loosová

Regional Public Health Authority
of the Liberec Region

HRA versus HIA in the Czech Republic

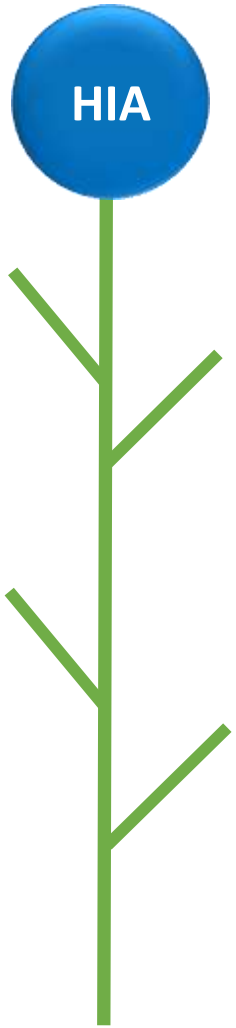


HRA is embedded in Czech legislation (Act No. 258/2000 Coll. on protecting public health)

The HRA process is clearly set, those carrying out HRA need to be licensed

PHA uses HRA to assess negative impacts of various activities, new factories, exemptions from hygienic limits…

PHA is obliged to evaluate the quality of an HRA and, if in doubt, to examine it or directly call for the authorizing authority to revise it.



HIA is a part of SEA (Act No. 100/2001 Coll., according to Act No. 93/2004 Coll.)

The Ministry of Health is an authorized body and issues a certificate (as amended by Decree No. 353/2004 Coll.)

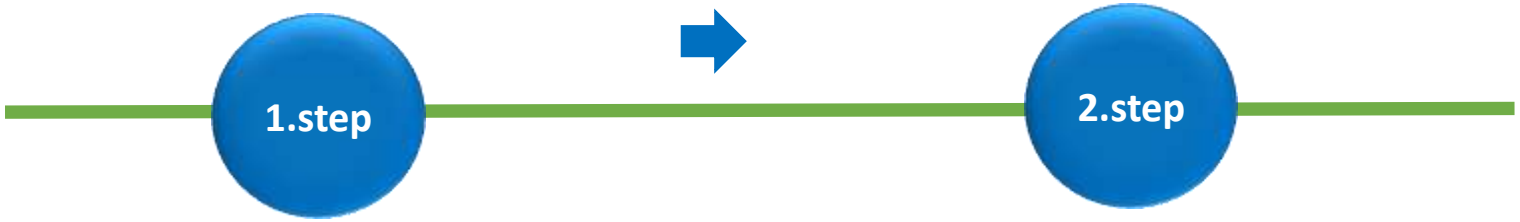
HIA is a part of the oral exam, but only one question (but a member of PHA is in the commission)

Problem with terminology – HIA means HRA – this issue was created in the implementation method HRA – the same terminology for both tools in the Czech language

Implementation of HIA at the region level

Implementation of the HIA in the framework of legislation (regulation) that the Board may issue in a delegated scope. The guarantor and coordinator was the Regional Public Health Authority of Liberec.

Process:



The decision of the Regional Council (No. 660/05/RK) ordered the creation of an HIA implementation methodology -> **implementation of two training sessions, the creation of assessment manuals**

The Council Resolution (No. 1034/06/RK) imposes an obligation on the contracting authorities of the regional documents to carry out Health Assessment (HIA) and compliance assessment with health policy.


Návod pro posuzování koncepcí z hlediska hodnocení vlivů na zdraví a v návaznosti na Zdraví 2020 (popřípadě regionální zdravotní politiku)

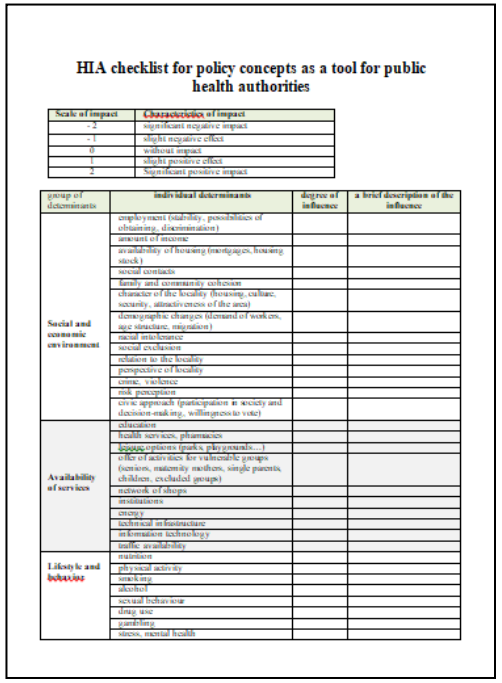
Ing. Jana Kučerová, Ph.D., MUDr. Bohumil Havel

dataplan.info
https://www.dataplan.info › img_upload · Soubor PDF

Návod pro posuzování koncepcí z hlediska hodnocení vliv $ na ...

Dále je nutno zdůraznit, že cílem HIA není jen změnit riziko, ale i zvýšení pozitivních efektů. Širokého spektra koncepcí. HIA navíc umož uje také posoudit i nep ímé dopady na zdraví a ...

HIA checklist for Public Health Authorities

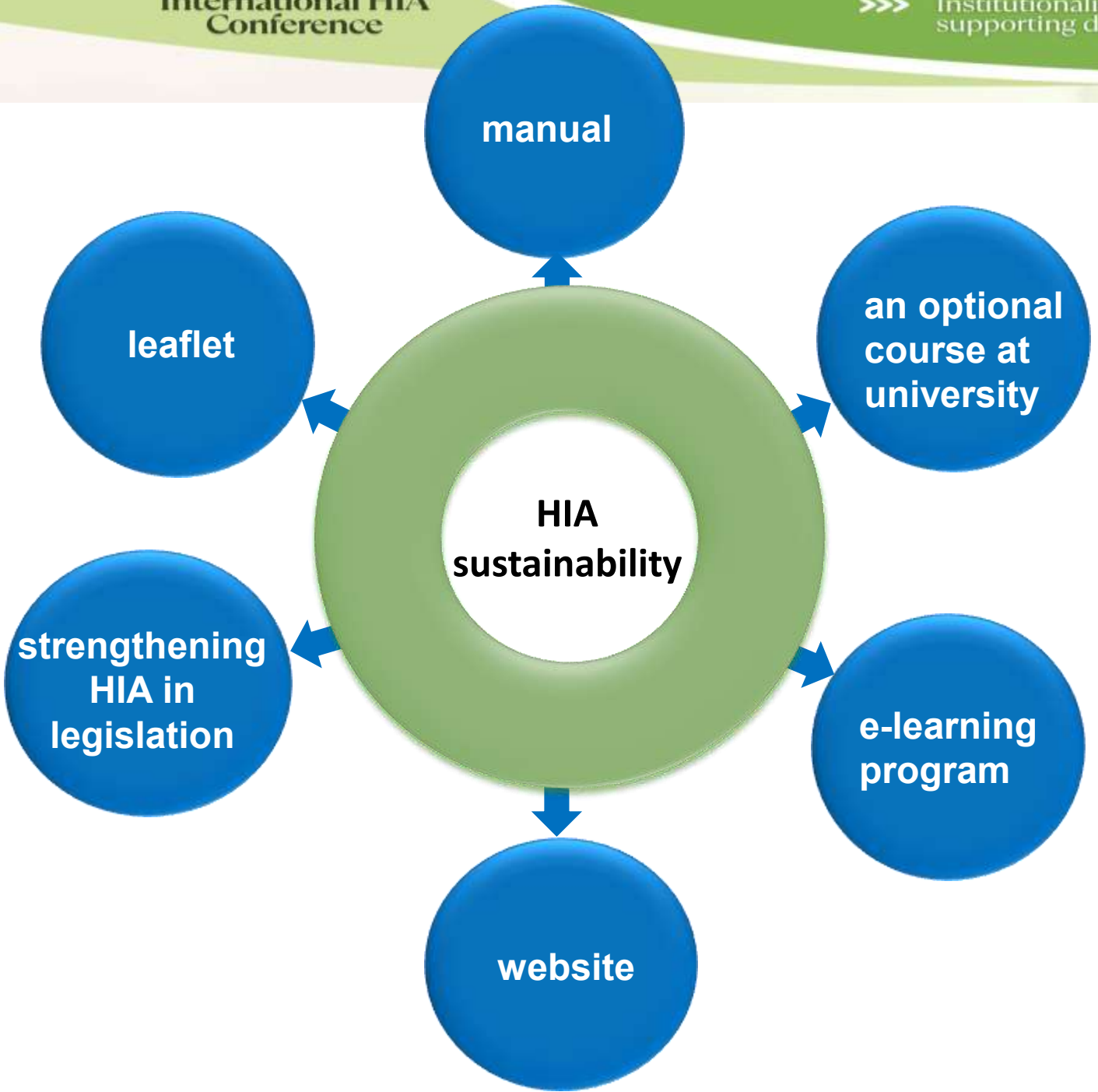


HIA checklist for policy concepts as a tool for public health authorities

Scale of impact	Characteristics of impact
- 2	significant negative impact
- 1	slight negative effect
0	without impact
1	slight positive effect
2	Significant positive impact

group of determinants	individual determinants	degree of influence	a brief description of the influence
Social and economic environment	employment (stability, possibilities of obtaining, discrimination)		
	amount of income		
	availability of housing (mortgages, housing stock)		
	social contacts		
	family and community cohesion		
	character of the locality (housing, culture, security, attractiveness of the area)		
	demographic changes (demand of workers, age structure, migration)		
	racial intolerance		
	social exclusion		
	relation to the locality		
	perspective of locality		
	crime, violence		
	risk perception		
	civic approach (participation in society and decision-making, willingness to vote)		
Availability of services	education		
	health services, pharmacies		
	leisure options (parks, playgrounds,...)		
	offer of activities for vulnerable groups (seniors, maternity mothers, single parents, children, excluded groups)		
	network of shops		
	institutions		
	energy		
	technical infrastructure		
	information technology		
	traffic availability		
Lifestyle and behaviour	nutrition		
	physical activity		
	smoking		
	alcohol		
	sexual behaviour		
	drug use		
	gambling		
	stress, mental health		

- you will not forget to evaluate any important negative or positive health impact
- a record from the HIA evaluation is created
- set up a better level of quality in HIA
- useful summary for the communication in the public health with other state administration bodies, municipalities and the public
- improving HIA knowledge



Next steps

We need

- a review of materials supporting HIA and a single place where they will be available
- higher demand for HIA from politicians and PHA
- building a new generation of people with HIA knowledge

Strengthening Capacity in Health Impact Assessment (HIA): A Data-Driven Approach for Policy Development

Angela Paja – Finance and Administration Manager, Expertise France

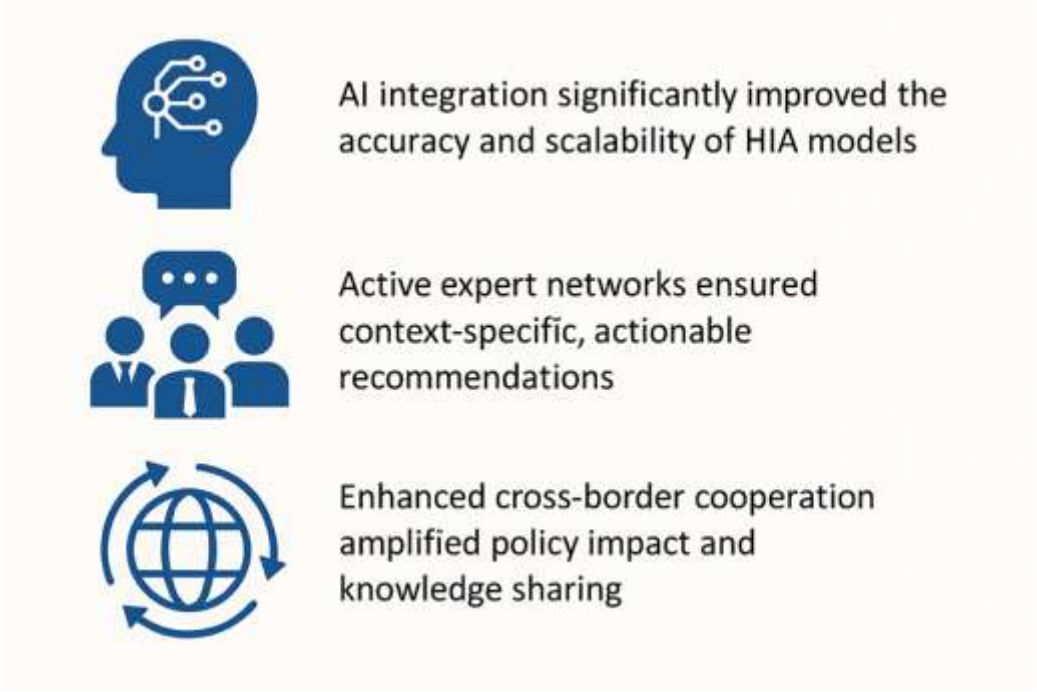
Background

Health Impact Assessment (HIA) is essential for evidence-based policy development. However, many existing frameworks lack integration with modern digital tools. Both WHO and OECD have highlighted the need for cross-sector and international collaboration.

EXPERTISE FRANCE
GROUPE AFD

Methods

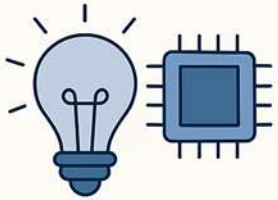
Engage international experts to implement global best practices.
Promote cross-sector collaboration for comprehensive analysis.
Apply AI-powered tools to enhance decision-making accuracy.
Modernize traditional methodologies to align with current technologies.



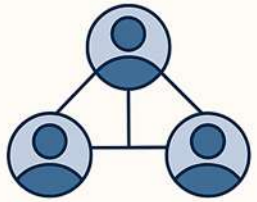
Results

AI enhances the precision and scalability of HIA processes.
Expert networks strengthen the relevance of recommendations.
Cross-border cooperation amplifies the impact of assessments.

Health Impact Assessmentt must embrace modern, data-informed methods to remain relevant.



Technological innovation is critical for timely and evidence-based public health decisions.

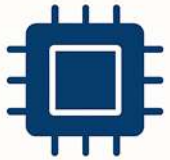


Future efforts should focus on capacity building, digital transformation, and stronger multisectoral partnerships.

Conclusion

HIA must evolve by integrating data-driven and technology-enhanced approaches. Modernization ensures more accurate assessments of public health impacts. Capacity building, digital innovation, and strategic partnerships are essential next steps

HIA must evolve with data-driven, tech-enhanced methods



Modernization ensures accurate assessment of public health impacts

Capacity building, digital innovation, and partnerships are key next steps

HIA AND SPATIAL PLANNING IN SLOVAKIA: EXPERIENCES, CHALLENGES AND OPPORTUNITIES FOR HEALTHIER CITIES

Pekarčíková, J. [1)], **Letanovský, P.** [1)], **Nemčovská E.** [2]

[1)] Trnava University, Faculty of Health Care and Social Work, Trnava, Slovakia
[2)] City of Trnava, Trnava, Slovakia

This presentation was prepared with the support of the project "Creation of an Interactive Educational Online Platform to Support Teaching of the HIA Methodology" (Project no. 013TTU-4/2025), funded by KEGA – the Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic.

1. Introduction – Why Integrate Health into Spatial Planning?

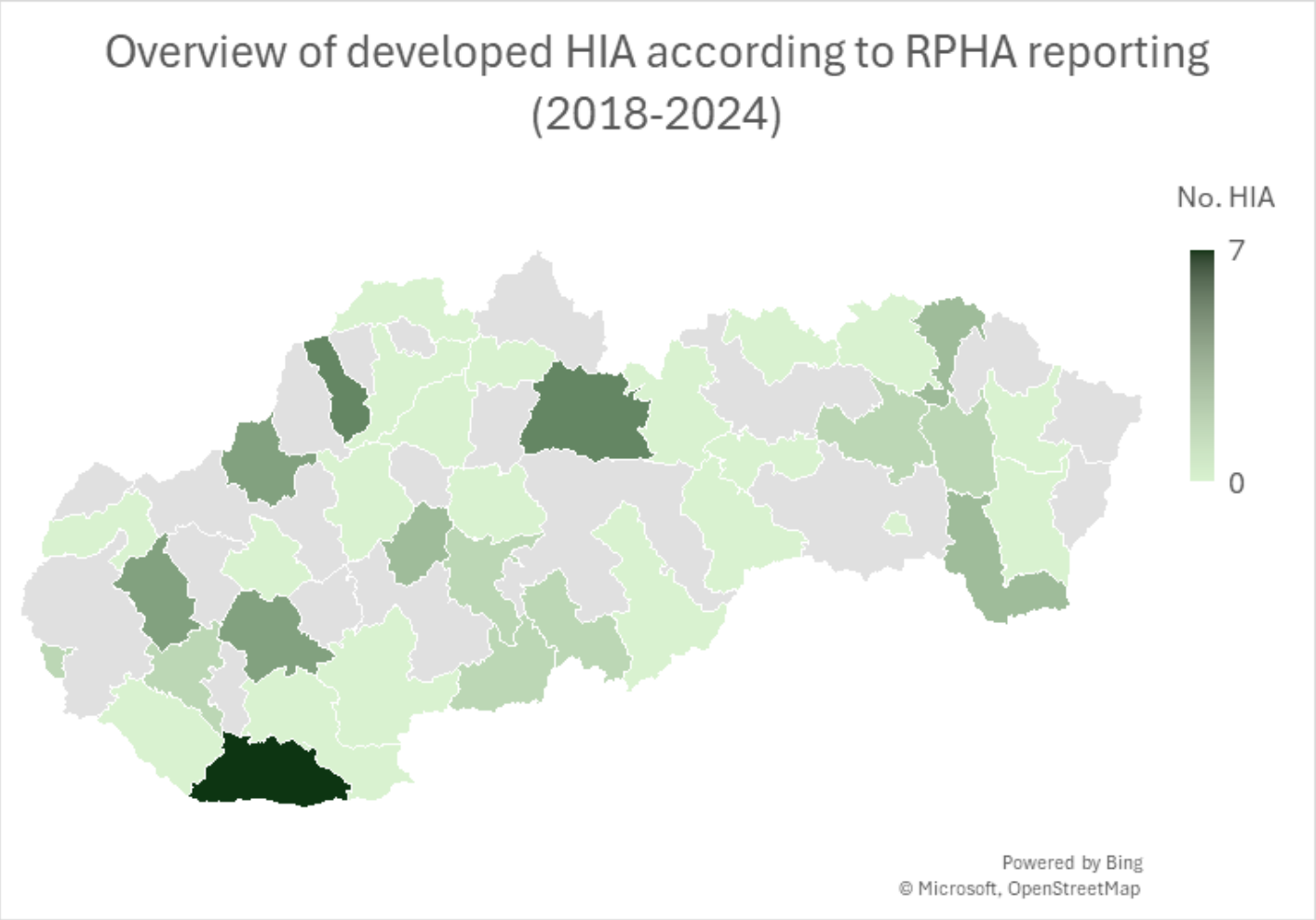
Spatial planning has a major impact on public health – influencing air quality, access to public transport, green spaces, physical activity, and social cohesion.
Although HIA is enshrined in legislation (including Decree No. 233/2014 Coll.), barriers persist in practice – in particular, insufficient knowledge of HIA, lack of capacity and limited use in decision-making processes.
HIA is often perceived as an administrative obstacle, not as a tool for improving the quality of proposals and promoting health.

Goal of the presentation:

- to describe the current situation and propose a possible solution
- to propose specific steps for improvement

2. HIA in Practice – Current Experiences from Slovakia

- Public interest in participation in planning processes is growing, which promotes transparency and better responsiveness to community needs.
- HIA reports and analyses are available in some cities and municipalities.
- HIA is increasingly being linked to existing environmental frameworks such as EIA (Environmental Impact Assessment) and SEA (Strategic Assessment).
- Data from 2018-2024 (RPHA pilot analysis): A total of 38 HIA reports developed in the given period
- Most of them were created on request within the framework of SEA or EIA processes



No. RPHA	36 RPHA - Location	No. HIA
19	Banská Bystrica, Bardejov, Čadca, Dolný Kubín, Dunajská Streda, Košice, Levice, Martin, Michalovce, Nové zámky, Poprad, Prievidza, Rímavská Sobota, Rožňava, Senica, Spišská Nová Ves, Stará Ľubovňa, Topoľčany, Žilina	**0**
8	Bratislava, Galanta, Humenné, Lučenec, Prešov, Veľký Krtíš, Vranov nad Topľou, Zvolen	**1**
3	Svidník, Trebišov, Žiar nad Hronom	**2**
3	Nitra, Trenčín, Trnava	**3**
2	Liptovský Mikuláš, Považská Bystrica	**4**
1	Komárno	**7**
	TOTAL	**38**

They cover a wide range of activities – from small residential complexes to strategic industrial projects: residential construction and urban development projects Industrial and manufacturing projects, agriculture and food (agricultural farms, fertilizer handling), eEnvironment and recreation (change of purpose of areas into recreational zones), transport and technical infrastructure, environmental and health risks HIA reports on planned changes in industrial and environmentally sensitive zones

The Public Health Agency of the Slovakia establishes commissions for the examination of professional competence and issues certificates in the field of public health for the:

- qualitative and quantitative investigation of environmental and working environment factors for the purpose of assessing their possible impact on health assessment of impacts on PH assessment of health risks from the environment
- taking samples from the environment and from the working environment

REGISTER OF PROFESSIONALLY COMPETENT PERSONS FOR THE ASSESSMENT

	HIA	Environmental health risks		for sampling of the environment and the working environment for the purpose of qualitative and quantitative assessment of environmental and working environment factors
2023	**1**	0	2023	2
2022	**1**	0	2022	1
2021	**1**	0	2021	0
2020	**1**	0	2020	1
2019	**1**	0	2019	2
2018	**1**	0	2018	9
2017	**1**	0	2017	10
2016	**1**	2	2016	8
2015	**1**	1	2015	6
2014	**5**	0	2014	3
2013	**3**	1	2013	8
2012	**2**	5	2012	3
2011	**7**	0	2011	5
2010	**6**	3	2010	7
2006-2009	**0**	12	2005-2009	51

Key Challenges in Implementing HIA

- Lack of standardized methodologies and reliable data.
- Limited technical and human capacities.
- Inadequate institutional support and coordination.
- Low awareness and understanding of HIA among planners, urban designers, policymakers, and local authorities.

Opportunities for Advancing HIA in Slovakia

- Increasing focus on sustainable urban development, climate resilience, and the “Health in All Policies” framework.
- Possibility to better integrate HIA into existing spatial planning and decision-making processes.
- Lessons and inspiration drawn from successful HIA practices in European countries such as Ireland, the Netherlands, the UK, Spain, and Germany.

Recommendations and Next Steps

- Develop national HIA guidelines tailored to spatial planning.
- Build capacity through training for planners and public officials.
- Improve data infrastructure to ensure accessibility and quality of health and environmental information.
- Foster greater public participation in spatial planning processes.
- Support integration of HIA through legislation and strategic policy documents.

Supporting health impact assessment of European policies

Institutionalising HIA in Europe for better supporting decision-making processes (4 June 2025)

Francisco Rodriguez Rasero

Disease Prevention unit, JOINT RESEARCH CENTRE (JRC) ISPRA – EUROPEAN COMMISSION

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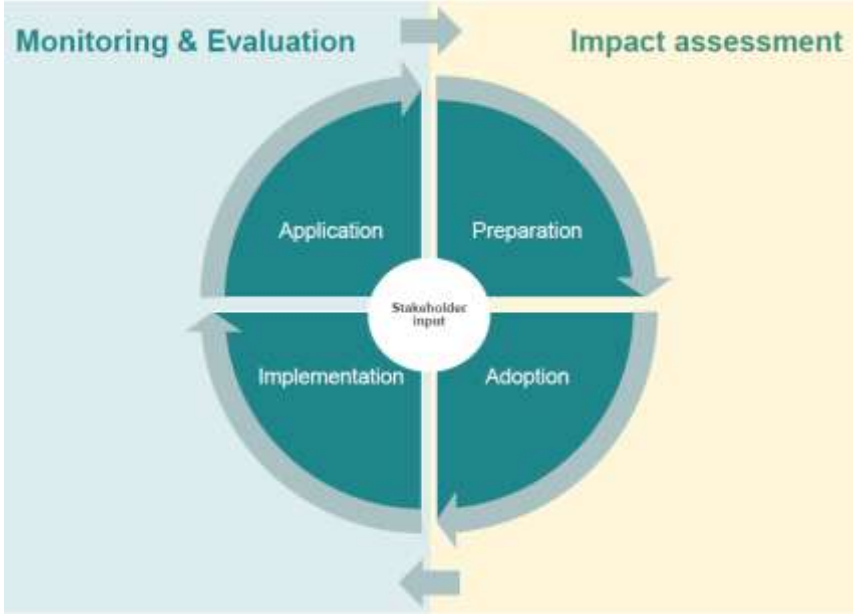
The EU policy cycle and health impacts

"A high level of human health protection shall be ensured in the definition and implementation of all Union policies and activities" (Article 168 TFEU)



The EU Policy cycle (Chinchio et al., 2025)

- TOOL #29. Fundamental rights, including the promotion of equality
- TOOL #30. Employment, working conditions, income distribution, social protection, and inclusion
- TOOL #32. Health impacts
- TOOL #33. Consumers
- TOOL #34. Territorial impacts
- TOOL #36. Environmental impacts

Identifying impacts in evaluations, fitness checks and impact assessments in the 'Better regulation' toolbox (EC, 2023)

Health in EC impacts assessments

Quality analysis of European Commission impact assessments

Developments during the 2019-2024 term

Assessment of impacts

- To justify which impacts are analysed and to what extent.
- To (explicitly) indicate why potentially relevant impacts are not assessed.

Quality analysis of EC impact assessments (European *Parliamentary* Research Service, 2025)

Type of impact	2023		2022	
Economic	50	100%	61	87%
Social	41	82%	46	66%
Health and safety	8	16%	10	14%
Public health	9	18%	17	24%
Consumers' protection	14	28%	12	17%
Equality	8	16%	9	13%
Environmental	29	58%	29	41%
Climate	24	48%	16	23%
Natural resources (air, water, etc.)	18	36%	19	27%
Total	50	100%	70	100%

Types of impacts assessed in IAs in scrutinised impact assessments (RSB Annual Report, 2024)

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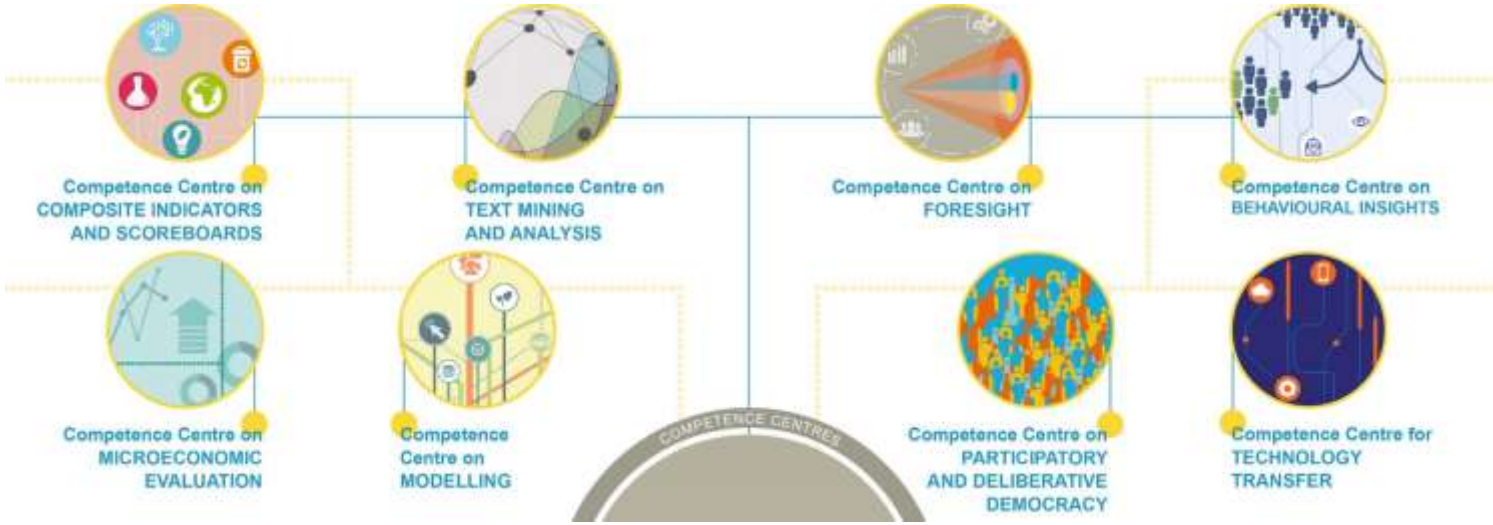
The JRC provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society.

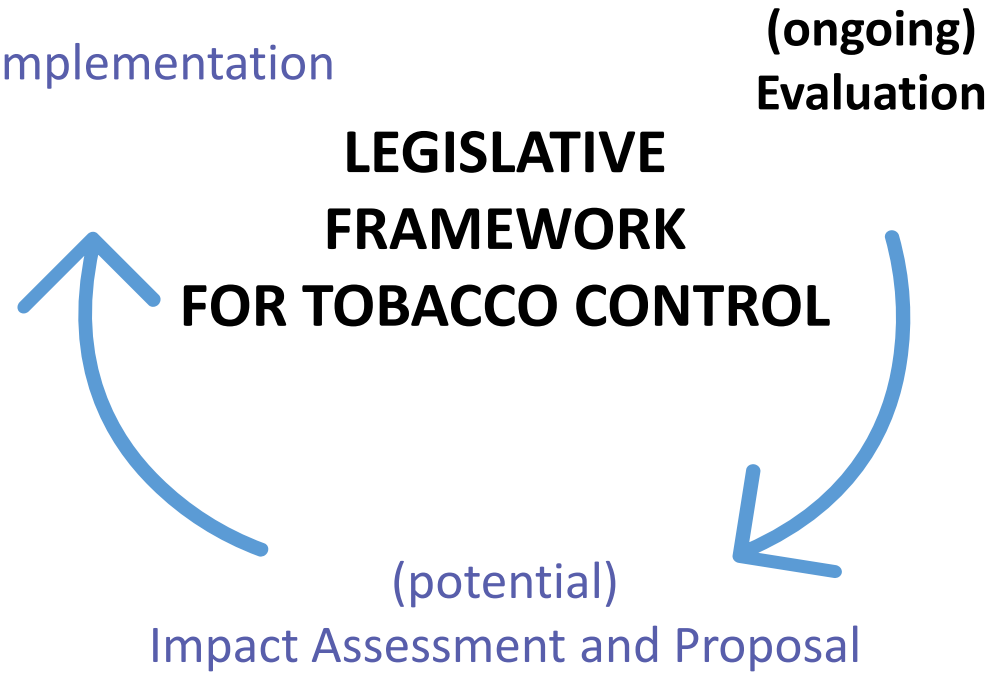
Science for policy

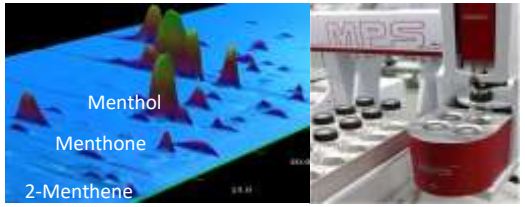
We provide rigorous science for policymakers to help design, implement and evaluate policies, combining scientific excellence with direct policy support

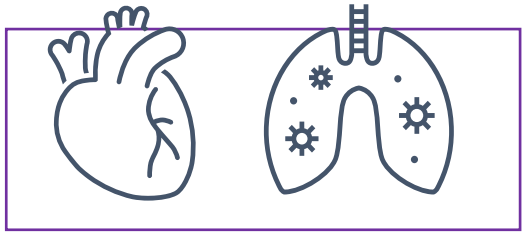


The JRC and health impact assessment

- Experience in supporting health impact assessments and evaluations.
- Professional profiles suitable for working in HIA







Thank you
and keep in touch

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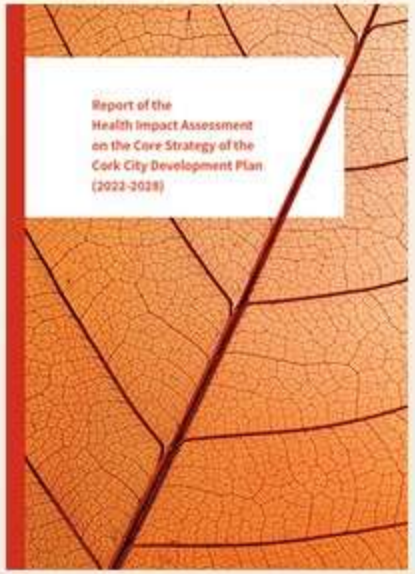


From Plans to Health Equity: Cork City's Pioneering Health Impact Assessment (HIA) Journey

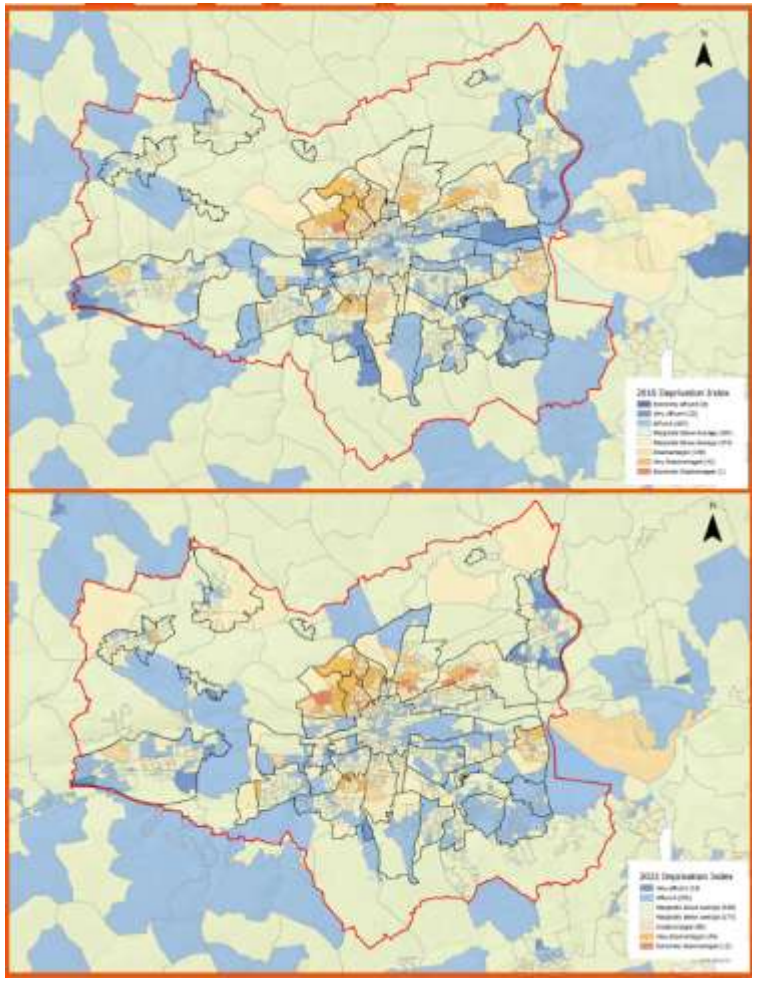
O'Mullane, M., [1] Kenny, T., [1] and Ryan, M. [2]

1. School of Public Health, UCC, Ireland. 2. Department of Economics, University College Cork (UCC), Ireland.

HIA-IM

Context for doing the HIA: Why do a HIA on a strategic development plan?

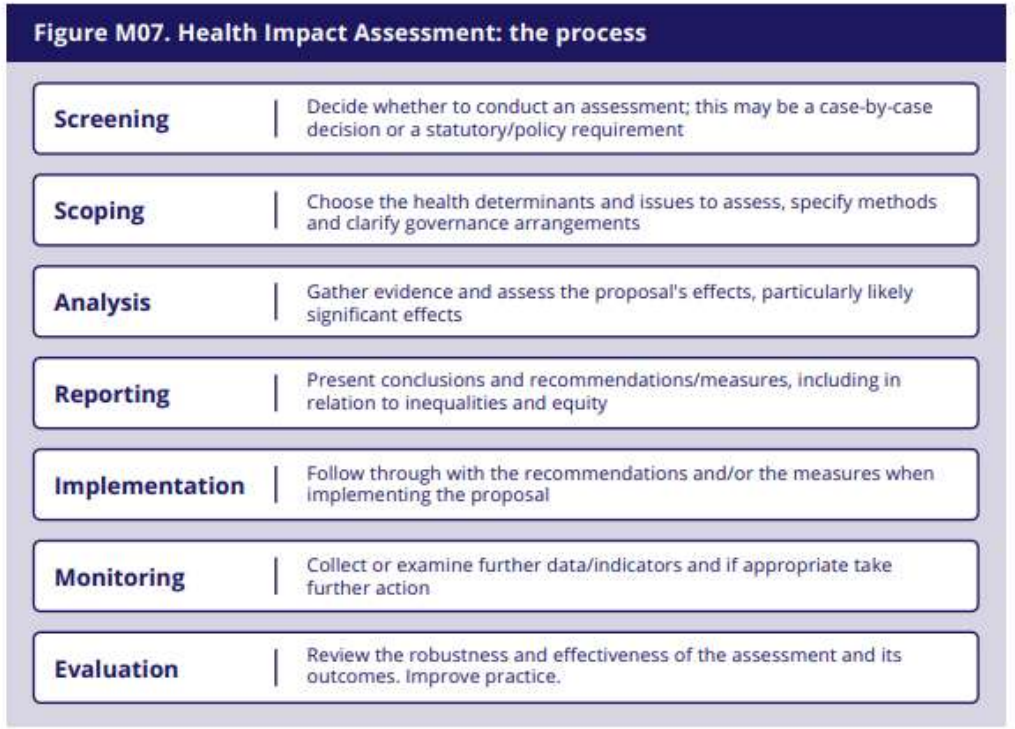
- Context of Cork city
- Cork WHO Healthy Cities Action Plan (2020-2030)
- How we came to do HIA on the CCDP (2022-2028)?
- First HIA on a statutory development plan in Ireland
- Goal of HIA- inform the next Cork City Development Plan (2029-2039)



Maps of Cork City overlayed with Pobal HP Deprivation map for 2016 and 2022 © Pobal/J. Pratschke
From top: 2016 Deprivation Index and 2022 Deprivation Index

Description of the HIA

- **Decision-support HIA** (Harris-Roxas, et al. 2011)
- **Guidance Used:** Institute of Public Health Ireland guidance with HIA practice from Wales & Scotland
- **Structure:** Two-tier governance structure connecting diverse stakeholders.
- **Process:** 8 structured sessions over twelve months.
- **Assessment Focus:** Six determinants essential to equitable urban development: **housing, neighbourhood design, public spaces, active travel, walkability, and workplace accessibility.**
- **Population Groups:** older people, young people, people living on low-income
- **Policy focus:** Core Strategy of the CCDP; 15-minute city objective as a pathway to implement Compact Liveable Growth
- **Methodology:** Participatory methodology included public engagement events and consultation with vulnerable population representatives.
- **Strategic Link:** Explicitly connected Cork's WHO Healthy City Action Plan (2020-2030) with statutory planning processes.



HIA stages as set out in the Institute of Public Health Ireland HIA guidance, Pyper et al. 2021, page 34

Outcomes of the HIA

- Completed the HIA and the research components: September 2023- September 2024 ☺

Results:

•Potential health impacts identified

•Potential positive and negative/unintended health impacts identified across the determinants on the included population groups

Recommendations in the HIA report:

To address the health impacts identified, 11 recommendations:

1. Informing the process of creating future Cork City Development Plans in Cork City Council
2. Community and Stakeholder Engagement in Formulating and Drafting Future Cork City Development Plans
3. HIA and Future Cork City Development Plans
4. Research and Evidence base Development

MEMBERS OF THE HIA TEAM

Steering Group:

Ms Liz Ahern, Mayfield Community Development Project
Dr Martin Davoren, Sexual Health Centre Cork
Ms Deirdre Fitzell, National Environmental Health Service (NEHS), HSE
Ms Gina Johnson, Climate Action Team, Cork City Council
Dr Darren McAdams-O'Connell, Transport and Mobility Forum Cork (TMF)
Mr Stephen Murphy, Social Inclusion, Cork City Council
Mr Kevin O'Connor, Strategic Planning and Heritage, Cork City Council
Dr Mary O'Mahony, Health Services Executive (HSE) (Chair of Steering Group)
Mr Tadhg O'Mahony, Environmental Protection Agency (EPA)
Dr Marie Ryan, Department of Economics, University College Cork
Mr Andrew Sulley, National Environmental Health Service (NEHS), HSE

Working Group

Dr Tara Kenny, School of Public Health, University College Cork
Ms. Kirsty Nash, School of Public Health, University College Cork
Ms Karen O'Mahony, Strategic Planning and Heritage, Cork City Council
Dr Monica O'Mullane, School of Public Health, University College Cork

Using Health Impact Assessment (HIA) to identify the health, well-being and equity impacts of health protection services in Wales

Dr Kathryn Ashton and Prof Liz Green
Wales Health Impact Assessment Support Unit (WHIASU)
Public Health Wales NHS Trust, Wales, United Kingdom

HIA in Wales - WHIASU

- Created in 2004; world leaders in HIA
- Based in the World Health Organization (WHO) Collaborating Centre on 'Investment for Health and Well-being', Policy and International Health Directorate, Public Health Wales
- Provides an all-Wales service
- Provides guidance, training, resources and information in relation to the practice of HIA.

- Support HIA practice in the Health Protection Directorate at Public Health Wales

Home - Wales Health Impact Assessment Support Unit (phwwhocc.co.uk/whiasu)

World Health Organization Collaborating Centre on Investment for Health and Well-being

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WHIASU Wales Health Impact Assessment Support Unit

Case Study 1: Rapid HIA of Safer Inhalation Devices (SIDs) for smoking crack cocaine

- Harm reduction programme for people who use crack cocaine
- Benefits:
  - Reduced respiratory health risks
  - Improved accessibility and engagement with healthcare services
  - Highlighted potential impact on different population groups
  - Reduction in stigma
- Challenges:
  - Strain on services
  - Accessibility barrier

- Key to include individuals with lived experiences

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WHIASU
Wales Health Impact Assessment Support Unit

Case Study 2: Rapid HIA of Lung Cancer Screening Programme in Wales

- Early detection of lung cancer
- Benefits:
  Supports timely intervention and treatment
- Challenges:
  - Socioeconomic and access barriers
  - Health literacy
  - Importance of targeted communication and support

- Informed future development of implementation plan of programme

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WHIASU Wales Health Impact Assessment Support Unit

Conclusions and future opportunities

- HIA ensures health protection services are:
  - **Equitable**
  - **Evidence-based**
  - **Responsive to public needs**

- Case studies demonstrate HIA's impact on service design

- Future steps:
  - Broader integration of HIA across sectors
  - Strengthen **stakeholder engagement** in assessments

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