COMMUNITY PAPER

City Diagnoses: Creating a healthy future for city dwellers

A Community Paper of the Global Health Hub Germany Community on Global Urban Health

Background of this Paper

The Global Urban Health Community focuses on the urban determinants of health. Recognizing cities as opportunity spaces with substantial potential to improve human health and wellbeing, our vision is to transform urban spaces into sustainable, health-promoting environments. A central recommendation of our first policy brief on urban health was the need for "City Diagnoses" – spatially disaggregated assessments identifying context-specific intervention opportunities within individual urban settings.

This community paper is the result of a lecture series conducted in 2024. The series pursued two primary objectives: (i) identifying instruments and initiatives that that capture small-scale, integrative, and participatory health-relevant data in urban contexts, and (ii) synthesizing practical insights regarding the implementation of diverse diagnostic tools and initiatives, including challenges, opportunities, and lessons learned.

Authors

About the authors
This community paper reflects the outcomes of the discussions in the Hub Community and the insights gained during a lecture series. Written contributions to the community paper were made by: Timo Falkenberg and Dennis Schmiege (Co-Community Managers) and members of the core working group (in alphabetical order): Beate Bokhof, Carsten Butsch, Klaus Geiselhart, Boris Kauhl, Anne Kis and Julita Skodra.

Key messages

- City Diagnoses are comprehensive processes that aims to shape pathways to healthier urban futures.
- Establishing a salutogenic perspective, City Diagnoses go beyond disease monitoring and include an assessment of health resources and local prevention reporting.
- Guided by the principle of Health in all Policies, City Diagnoses are envisaged as a cross-cutting process. As they focus on both health outcomes and determinants they need to be based on data from different sectors.
- City Diagnoses have to be conducted as an intersectoral and participatory process, including especially the most vulnerable and often hard to reach communities.

How to use and read this document

Just like City Diagnoses themselves, this document is designed in a modular way. The brief main document (Page 1 to 3) provides an overview of City Diagnoses and mentions important dimensions to consider when creating or conducting such assessments. Further information on each of these dimensions is provided by green in-document links. At the end of each additional section a link will bring you Back to main text. These sections include: “The political nature of City Diagnoses”, “Community participation”, “Spatial dimensions of health”, “Selecting indicators”, “Collecting data”, “Integration of quantitative and qualitative data”, “Visualizing and analyzing data”. Each of these sections is located after the main document and is reachable by the in-document links as well as by scrolling to the respective page. We advise to first read the main document and then explore the additional sections for further information and examples. Specific terms are defined in the glossary and are marked in *italic* throughout the document.

In this document we are not using academic references with a reference list at the end of the document, instead we are providing blue links to important external sources. These links lead to documents of international organizations, national, regional or municipal governing bodies, or specific academic publications that provide background information on the particular topic. Please note that these links lead to external webpages that are outside of the control of the authors, the accuracy of links was last verified on 13.08.2025.

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City Diagnoses: Creating a healthy future for city dwellers

Urbanisation is an ongoing global megatrend. Cities as the predominant living environment of humanity and complex socio-ecological systems have a key role in transformation towards a sustainable and healthy future. In our policy brief on urban health, we have outlined that, due to their dynamic development, in spite of many risks, cities are spaces of opportunity for different healthy futures. Every city is unique and *City Diagnoses* analyses cities for their very specific health-related conditions (see Infobox).

Infobox. Usage of the term "City Diagnosis"

The term "City Diagnosis" functions in the literature both as a metaphorical framework for understanding urban vitality, e.g., Zhao et al. (2024), metaphorically liken cities to living organisms, and as a concrete planning tool, e.g., Wardekker et al. (2020) and Ehmayer-Rosinak (2017), defining it as the application of diagnostic tools to inform policy and promote resilience, such as the World Bank's CityStrength Diagnostic.

Creating a healthy future for city dwellers requires a comprehensive and deep understanding of the local health situation. Here, *City Diagnoses* are understood as comprehensive processes, from the conceptual planning to implementation. Building on existing approaches and tools, this community paper aims to expand the understanding of City Diagnoses by incorporating salutogenic and place-based approaches to structure pathways to healthier urban futures. By developing a shared vision of a healthy future for the specific local context, priorities can be set and concrete actions developed to improve and promote urban public health in individual neighbourhoods. City Diagnoses are based on several key aspects and integrate different components across four domains (see Figure 1), which will be outlined in the following.

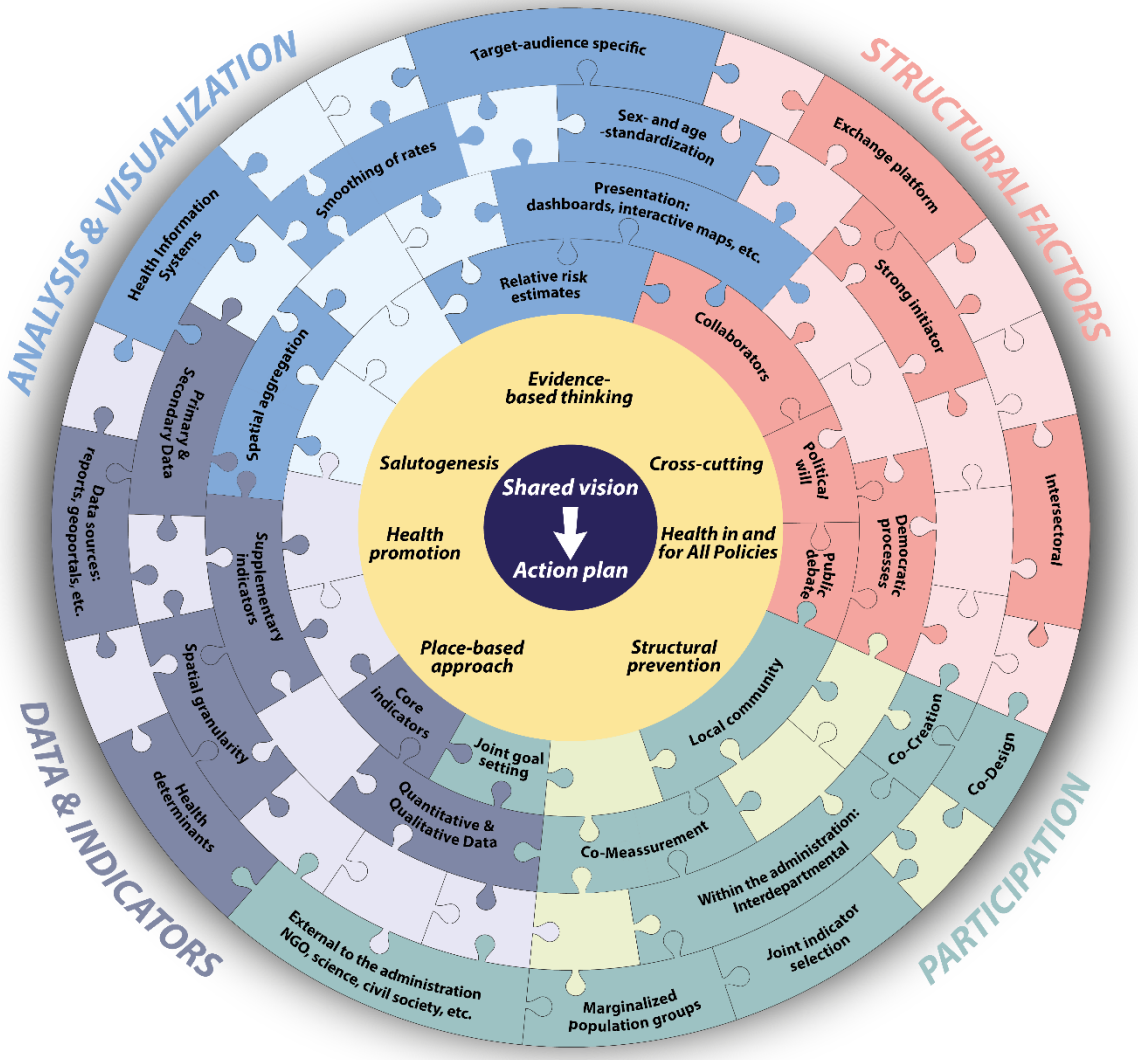

Figure 1. Key aspects and components of City Diagnoses (Conceptualization: Global Urban Health Community; graphic transposition: Pedro Garcia Lopez)

City Diagnoses adopt a salutogenic and place-based approach

Health is a basic human right. While the World Health Organisation (WHO) defines health as state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity, it is still mainly understood as simply the opposite of disease. As a result, established *health monitoring and reporting systems* often focus on specific disease outcomes. Moving beyond this *pathogenic approach*, City Diagnoses are primarily based on a ***salutogenic understanding of health***, emphasizing factors that ***promote human health and wellbeing and capabilities within communities***, and applies this approach from the individual level to the neighbourhood level. Yet, *disease monitoring and prevention* remain an integral part of City Diagnoses while the focus of attention is shifted to resources for better health.

Health is a dynamic process shaped by people's daily interactions with their physical, social and psychological environment. Health and wellbeing are not only determined

by individual factors such as age, gender or lifestyle, but are also influenced by social, economic and cultural conditions, in addition to other factors in the natural and built environment (see policy brief on urban health). City Diagnoses thus aim to ***identify relevant determinants in terms of social, economic, commercial and environmental health resources and threats***. The focus is therefore not only on health risks or challenges in urban areas, but also on health opportunities. In addition to highlighting opportunities for structural prevention, City Diagnoses also help to identify and promote existing health assets in neighbourhoods.

Health opportunities and challenges are typically unevenly distributed within cities, down to small-scale differences between and within neighbourhoods, resulting in spatial *health disparities*. An individual's location plays a crucial role for health, as the surrounding environment shapes both health outcomes and behaviours. Recognising this **spatial dimension of health**, City Diagnoses take a ***place-based approach*** that emphasizes tackling health disparities by tailoring interventions to the specific social, economic, ecological and environmental conditions of a community. Thus City Diagnoses ***emphasise structural prevention***, in addition to individual *behavioural interventions*. In this way, they aim at monitoring progress and directing resources to the communities where impact is largest.

Implementing City Diagnoses: challenges, political will, participation and collaboration

City Diagnoses not only focus on local health reporting but also on **local prevention reporting**. The aim of *prevention reporting* is to map health influences at the community-level, including the social environment and relevant networks. Prevention reporting provides data for the development of local, (sub-)national and regional prevention strategies and supports the establishment of local structures and thus the relevant actors on the ground. Both local health- and prevention reporting must always address **ethical issues**, such as who decides which target groups should receive which preventive measures, or issues of potential stigmatization through the reporting.

To develop and strengthen prevention-focused data systems and reporting mechanisms, several challenges need to be addressed:

- Fragmented data and limited accessibility: Existing reporting tools are scattered across multiple platforms and systems, making it difficult to obtain a comprehensive overview. Data visualization is often technical and inaccessible, presented in formats that require specialized knowledge to interpret;
- Lack of prevention-sensitive indicators: Most health indicators measure disease outcomes rather than upstream prevention activities, resulting in a reactive rather than proactive approach;
- Inconsistent intervention mapping: Documentation of prevention interventions varies between regions, and there is no standardized framework for categorizing and comparing interventions;

- Limited implementation of Health in All Policies (HiAP) strategy and whole of government approach at the federal, state and local levels: Health determinants span multiple sectors – e.g., education, housing, transportation, environment, employment, and urban planning. However, these sectors typically operate in silos, with separate budgets, priorities, and data systems and only limited coordination across ministries and governance levels.

There is also a need for closer cooperation between the various stakeholders, e.g. local health authorities, environmental agencies and research institutions, in the fields of data generation and analysis. A high degree of sensitivity to the possibilities and limitations of, for instance, data access (FAIR principles), use of artificial intelligence and interpretation is imperative.

Applying this broader perspective on the determinants of health and wellbeing highlights the **political nature** of City Diagnoses. In the political arena, positions on the importance of health tend to be heterogeneous and controversial. In-depth knowledge of the complexities of comprehensive health promotion is often limited. It is important that the administrative staff responsible for urban planning and development is equipped with knowledge on health promotion and structural prevention as a task for shaping the general living conditions. For a better quality of life *intersectoral collaborations* are required. However, these may be opposed by powerful interests for political reasons or for all kinds of vested interests, e.g. profit maximisation. City Diagnoses therefore require a strong political will and commitment and must be developed in a ***political and, above all, democratic environment***, using scientific evidence, public debate and **community participation**. In addition, **community participation** and the involvement of other stakeholders, e.g., local government and commercial actors, are a prerequisite for developing a shared vision of and fostering joint commitment for a healthy city.

Guided by the principle of HiAP, City Diagnoses are envisaged as a ***cross-cutting process***. For example, intersectoral collaboration between various departments beyond the health sector is required to implement structural interventions to improve urban public health. For effective operationalization, City Diagnoses need a clear objective, which may vary in focus and complexity depending on the specific target group. City Diagnoses are not a one-size-fits-all approach. While certain considerations, such as *evidence-based thinking*, should be universal, the design and implementation need to be ***adapted to local conditions***. They are closely linked to local needs, objectives and the resources (financial, human, spatial and environmental capital, etc.) of the implementing community. The organisation of this process has to fit the institutional and cultural settings, which may even vary on a neighbourhood level.

City Diagnoses are initiated by local stakeholders, from urban planning, health departments and/or politicians. The process usually starts with interdepartmental cooperation within the city administration to establish integrated administrative action. In order to obtain the means and the mandate for implementation, the local parliament needs to be involved. It is advisable to build a consortium of promoters,

for example through local health conferences, where informed policy recommendations can be developed in consultation with civil society. Building alliances within local political structures is also helpful to drive adoption.

Data-driven City Diagnoses: comprehensive assessment and targeted action

As City Diagnoses focus on both health outcomes and determinants, it is necessary to consult **various data from different sectors** (e.g. health, environment, socio-economic differentiation, health system, etc.) to get a comprehensive picture of the urban communities' health challenges and opportunities. Integrating these data sources into an *urban health information system* can form a foundation for continuous City Diagnoses. **Quantitative and qualitative data** have complementary uses in City Diagnoses, with a particular benefit when both types of data are compared, e.g. to analyse the "objective" and "subjective" health burden, or to complement *quantitative* with *qualitative data* in the absence of the former.

City Diagnoses have to be based on a variety of indicators. An **intersectoral and participatory selection process** is important to develop a set of indicators that best represent the health potential, status and determinants of the urban population. After a careful selection of **core and complementary indicators**, certain technical aspects of **data visualization and analysis**, such as sex- and age-standardization or smoothing of rates, should be taken into account, since visual representations can otherwise be misleading and result in stigmatization. In addition, the type of visualization and its dissemination needs to be appropriate for the target-audience, e.g. different requirements need to be met when the general population should have access to the results of the City Diagnoses compared to their sole usage within a city administration.

The analysis of quantitative and qualitative data leads to a systematic inventory of health opportunities and challenges at sub-city level, supporting local stakeholders in identifying the greatest health potential and most pressing health issues in their urban region. These insights can be used to prioritise interventions and support decision-making processes for health-promoting urban planning and development.

The political nature of City Diagnoses

Why City Diagnoses are eminent political

Public health is political. Its political, more so democratic nature, is particularly evident when it comes to addressing the social determinants of health, which affect disease prevention, the conditions and structures for health promotion and the joint development of general (healthy) living conditions. Powerful interests often oppose such measures for political reasons or for all sorts of vested interests, e.g. profit maximisation. City Diagnoses therefore need to be established in a political and, above all, democratic environment, using scientific evidence, public debate and public involvement. Given the current zeitgeist this task seems increasingly difficult, but exchange on health could also enable constructive dialogues across societal groups.

How to start with City Diagnoses

Initiating City Diagnoses can be a challenge, depending on the political and administrative structures in place. Health departments would be the most logical actor to take the initiative, but they are rarely equipped to provide more than basic services and, together with statistical departments, publish only basic health reports. These are often based mainly on disease incidence and cover state and federal levels. A more integrated approach is needed for City Diagnoses. The process starts with interdepartmental cooperation within city administrations to establish *integrated administrative action*. It is advisable to form a consortium of promoters, such as via local health conferences, where policy recommendations can be developed in collaboration with civil society. As public health is political, it is imperative to involve politicians and other decision-makers to legitimize the process and improve the likelihood of recommendations being adopted.

City council need to be involved in order to provide permission and the necessary funding. This is especially necessary when a salutogenic perspective is consequently applied, as it goes beyond the legal obligation of disease monitoring. A health promoting perspective addresses social, economic and environmental health resources and threats (social determinants of health) for structural prevention and health promotion. In Germany, for example, a proposal to extend the competencies of health departments in this regard must be submitted to the city council. Such proposals can be submitted by various stakeholders, including citizens and politicians, and are very often prepared by the city administration.

Urban politics

In the political arena, positions on the importance of health in urban development tend to be heterogeneous and potentially conflictual. Few politicians may have in-depth knowledge of the complexities of comprehensive health promotion. In common understanding health policy addresses provision of health infrastructure, the promotion of health literacy and primary prevention. However, the importance of structural prevention as the task of shaping living conditions for a better quality

of life, based on health determinants, is underdeveloped. This salutogenic understanding and consequently the changing role of the city administration is crucial for the integration and implementation of health into policy.

City administration

The administration proposes measures of urban development for the city council to decide on. Accordingly, an informed administration will take integrated administrative action to design quality measures. Educating administrative staff about the links between health and the urban environment is therefore crucial. The health-related argumentation of the administration can be decisive for political majorities. Clearly, city administrations need to be well equipped, qualified and able to communicate at an appropriate level to take on the task of structural prevention. As urban development requires longer time horizons, city administrations need long-term political support for strategies once they have been politically decided.

Structural Determinants of Health:

"… refer to the interplay between the socioeconomic and political context and structural mechanisms generating social stratification whereby populations are stratified according to income, education, occupation, gender, race and ethnicity, and other factors, and the resulting socioeconomic position of individuals. These socioeconomic positions in turn shape specific determinants of health status … Thus, structural determinants of health encompass the mechanisms, structures, systems and forces that shape the distribution of intermediary determinants of health."
(WHO, 2024: p. 90)

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Community participation

Beyond Tokenism: Meaningful Community Engagement

The inclusion of communities in City Diagnoses and the subsequent interventions is imperative for three reasons: 1) the communities are "experts of their own lives": they know best the needs within their group; 2) interventions will not work, if they are not supported by the target population, hence citizens must be involved right from the beginning of the process of diagnosing their quarter; 3) communities bring in much more pluralistic understandings of "health", which will enrich the process of diagnosing the city. A meaningful participation that goes beyond tokenism is one of the core elements in developing Healthy Cities, and one of the key principles for implementing the New Leipzig Charter. However, cities' governance structures may contain elements that, depending on hierarchies, political structures and processes, can hinder or promote participation and may require changes.

Inclusive participation to reduce health inequities

Participation of all population groups especially the vulnerable and hard-to-reach population groups is essential to reduce health inequities. Vulnerable population groups very often live in neighbourhoods with high exposures to multiple health risks and little opportunity to move to another neighbourhood. Yet, their sense of belonging is often ambivalent: While they identify with certain aspects of the neighbourhood (e.g. social connections), their aspirations may well aim for leaving problematized quarters.

This may be a barrier for motivating these groups to participate in collaborative City Diagnoses since they consider their stay temporary. Other barriers might be: (perceived) social distance to health experts, lack of time, self-conception of little agency, experiences of marginalisation etc.. Therefore, it is important to find new ways to engage with communities in developing City Diagnoses. Cash or in-kind incentives could also compensate the time and effort invested in the community participation. However, it is important to determine what amounts, forms, and methods of compensation (e.g. child care, homework assistance, elderly support and other services) might be most appropriate for specific groups.

The participatory process in City Diagnoses

Community participation in City Diagnoses can contribute to setting the goals and to selecting indicators. The levels of participation may vary depending on the role and representativeness of the community, the intensity of engagement and influence on decision-making. The Participation Pyramid shows different levels of participation from the perspective of the institution organising the participation process and from the perspective of residents participating in that process.

Participatory process in City Diagnoses may comprise of the following steps:

1. *Create (formal) spaces for participation*
   - to stimulate engagement and acknowledge contribution
2. *Identify and engage all population groups*
   - to assure an inclusive process with vulnerable and hard-to-reach groups, equal participation
3. *Analyse the Status Quo – assessing needs*
   - to frame collectively the problem and set priorities
4. *Co-create the City Diagnosis plan*
   - to raise awareness and integrate local experience
5. *Co-measure environmental aspects*
   - to increase ownership and readiness to participate by using e.g. DIY sensors
6. *Collaborative monitoring and decision-making (interventions)*
   - to empower communities to monitor and shape their environment, and make better choices

The first three steps represent the preliminary phase of the participatory process (at level of informing and consultation). The final step would be to evaluate the participatory process and determine the following: 1) Whether there was a good access for all participants, including vulnerable populations; 2) What the barriers to participation were; 3) Whether the information flow and discussions were independent of different knowledge bases and language skills; 4) Whether the design of participation enabled influence on decision-making. Community participation is a process that demands considerable time and resources, often requiring the involvement of translators and the adaption of formats to specific cultural contexts. However, this is the only way to integrate the community's perspective into the City Diagnoses.

Community participation in City Diagnoses:

- Can contribute to setting the goals and selecting indicators according to local needs
- May play an important role in reducing health inequities by meaningfully involving the most vulnerable and hard-to-reach population groups
- May reach different levels of participation and support local monitoring
- Requires evaluation of the participatory process

Examples of participative methods:

PhotoVoice

Photovoice is an engagement process that gives people with limited power due to circumstances such as poverty, language barriers, race, class, ethnicity, gender or culture the opportunity to participate in community discussions. Using video and/or photographs to capture aspects of their environment and experiences enables people to share their opinions, discuss local issues and reach policymakers.

StadtRaumMonitor

The StadtRaumMonitor allows people to evaluate their own environment. The tool can be used at different scales: city, district or neighbourhood. It provides discussion questions to facilitate and promote the exchange about one's own living environment. The focus is on how the local community perceives their living conditions, in order to complement quantitative data from health and social reporting. Participants evaluate the relevant areas of their living environment that have an impact on health, such as natural areas, housing, transport or services. Throughout the process, they can identify deficits and potential improvements, as well as to make concrete suggestions.
Further explanatory documents (in German) can be found here and here

How Healthy Is My Street?

This free web-based tool enables community members to assess their streets subjectively – "how does it feel?" – and objectively – 'how does it perform?" – against ten Indicators of how healthy their environment is. While standing on their chosen street, they can use their mobile phone to assess their street against these indicators, add notes and photos to their scores, and produce a PDF report to share with others, e.g. local decision makers.

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Spatial dimension of health

Health always has a spatial dimension. Where a person lives matters for his or her health, because health outcomes and behaviours are influenced by the spatial context. For example, access to health care can vary depending on whether someone lives in a rural or urban area or even within cities. In addition, the (uneven) distribution of health-promoting spaces, e.g. urban green and blue spaces or locations with fresh and affordable produce, and environmental stressors, such as noise or air pollution, within cities can have a considerable impact on health outcomes and behaviours. It is a question of *environmental justice* whether people with low incomes or otherwise marginalised population groups are disproportionally affected by low building standards and low environmental qualities.

Analysing these influencing factors requires **data from multiple sources**, ideally at *high spatial granularity*, in order to derive targeted public health interventions. However, data on health outcomes and behaviours are often not readily available at smaller spatial scales such as the neighbourhood level. They are also rarely integrated with other data sources on potential determinants of health, such as social, economic or environmental data, or with additional sources, e.g., health insurance records and similar data.

The implementation of City Diagnoses involves a number of considerations:

- Health outcomes and behaviours are influenced by their spatial context;
- Greater consideration of the salutogenic approach to health can benefit from a spatial data collection by broadening the focus to include stressors and generalized resistance resources;
- Health stressors and *generalized resistance resources* are often unevenly distributed within cities and between communities, leading to spatial health inequities;
- The spatial granularity required for City Diagnoses depends on its specific objectives, including carefully balancing benefits against privacy/data protection and risk of stigmatization and dual use;
- Lack of availability, accessibility and integration of anonymous small-scale data on health outcomes, behaviours and determinants can hinder implementation.

Further information / examples

- CSDH: Closing the gap in a generation: health equity through action on the social determinants of health
- GHHG Policy Brief Urban Health
- BARHII framework for health equity
- Environmental Justice Maps in Berlin

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Selecting indicators

Collaborative selection process

City Diagnoses require a variety of indicators as a basis for evidence-based urban health policy tools and interventions. An intersectoral and collaborative selection process is important to develop a set of indicators that can best capture, measure, describe and/or compare population health within and across communities in urban areas. These indicators can be used to identify specific urban health challenges and to monitor the interactions and effects of urban and public health interventions. City Diagnoses as salutogenic approach covers diverse areas, such as: the health status of communities; the determinants of health in communities; and the potentials for healthy urban development – accordingly, different types of indicators are required.

Indicator: health outcomes

Traditionally, indicators of health outcomes (infant mortality, life expectancy, DALYs etc.) have been used to assess and compare the health status of communities. Such indicators of health outcomes are important for understanding which diseases need to be tackled in a particular community, and what support and treatment structures would be most beneficial to the community.

Health Outcome Indicators (based on WHO Global Health Observatory)

Incidence rate – the number of new cases of a specific disease expressed per 1,000 population in a given period

Prevalence rate – the number of people with a specific disease in a given period expressed per 1,000 population

Mortality rate – the number of deaths in a specific period expressed per 100,000 population

Infant mortality –the number of deaths of infants under one year of age per 1,000 live births in a specific time period.

Life expectancy – the average number of years a person is expected to live, based on current mortality patterns.

Disability Adjusted Life Years (DALYs) – measures the overall burden of disease by combining the burden of non-lethal diseases and disease-specific mortality. DALYs are the sum of years lived with disease or disability (YLD) and years of life lost due to premature mortality (YLL). One DALYs is equivalent to one year of healthy life lost.

Indicator: health expenditure

The use of health expenditure indicators can also provide insight into the prevalence of disease by obtaining data from health insurance schemes. Information on spending on health promotion and prevention in different neighbourhoods or districts can reveal social inequalities and mismatches between the disease burden of a particular community and the available budget for health promotion and prevention. However, these traditional health indicators are not sufficient for comprehensive City Diagnoses, as they do not reveal the underlying causal factors.

Indicator: health determinants

City Diagnoses require indicators of health determinants. These include social, economic, ecological and physical environments, and individual characteristics and behaviours, as well as structural determinants. Demographic and socio-economic profiles of communities are basic indicators of the social determinants of health and disease. Although indicators of individual behaviour, such as tobacco, alcohol and drug use, diet and physical activity, are important, it is essential to understand that such health behaviours are often driven by structural factors (access to education, leisure, health services; housing, physical environment, employment, income, social status). Indicators of structural determinants are therefore of greatest value in City Diagnoses, as they are central to addressing the forces and systems that can perpetuate inequity, which are often reflected in the physical and socio-economic environments. For example, the availability of fresh food as opposed to the abundance of fast food outlets can be an indicator of the local food environment ("food deserts"). The availability and adequacy of medical facilities and pharmacies, the availability and quality of urban green and blue spaces, recreational facilities and community centres or clubs and associations can also indicate impacts on physical, social and mental health. Many other indicators may be relevant, so an appropriate selection of indicators, in consultation with different disciplines, sectors and the **local community**, is an important step of City Diagnoses.

The specific aim determines the selection process

The specific aim of a City Diagnosis will vary between cities and their neighbourhoods, over time and between actors. If a specific neighbourhood or community is diagnosed in depth, the indicators will be different from a citywide analysis that aims to compare its neighbourhoods or one that aims to compare between cities. Conducting a single City Diagnosis has different requirements and depth compared to setting up a (preferable) long-term diagnosis and monitoring system. The frequency of the assessments (e.g. annual, biennial or once a decade), and the available financial and human resources also affect the selection of indicators. It is therefore essential to agree on the objective of the specific City Diagnoses before starting the process of selecting indicators. The involvement of a cross-sectoral stakeholder group, including the local population (see **Community Participation**) should be considered. Involving local politicians and intersectoral

stakeholders from the start of the City Diagnosis is likely to increase their sense of ownership and thus their willingness to contribute throughout the process.

The selection of indicators should follow an iterative approach:

- Jointly define the scope of the City Diagnosis
- Collecting all relevant indicators, including indicators on health outcomes, health expenditure and health determinants. The first collection should not be limited to readily available indicators, but should aim to capture the best indicators.
- The indicators are discussed and categorized by the stakeholder group. These categories are variable and can be set according to the needs of the individual City Diagnosis, but should include aspects such as relevance and feasibility.
- The list of indicators is reviewed and some indicators may be adjusted to improve feasibility.
- The indicators are prioritized and grouped into “core indicators” and “supplementary indicators”.

Core indicators are those that are essential to achieve the objective of the City Diagnosis. They are often also indicators that are readily available and can be used to compare neighborhoods, districts or even cities.

Supplementary indicators are indicators that can provide further insights that are either not needed in all neighborhoods or only needed in specific cases. They often require specific data collection or the establishment of new reporting mechanisms.

The establishment of core and supplementary indicators can also help to provide a basis for comparison, while allowing more targeted diagnosis in specific neighborhoods or districts.

Practice Example:

Indicators for the District Profile (Ministry of Social Welfare, Health and Integration of Baden-Wuerttemberg)

A standardized methodological framework – the district profile – was developed to improve comparability and to harmonize health planning activities at district level in the federal state of Baden-Württemberg (Germany). The district profile consists of the modules basic indicators and stakeholder and network analysis. In order to develop the basic indicators module as a common base, the health authority of the federal state of Baden-Wuerttemberg initiated a process consisting of expert consultations and stakeholder workshops. First, indicators were collected for the different thematic areas: health status, health promotion and prevention, medical care and nursing, living environmental and contextual factors. A total of 530 indicators were identified. The stakeholder group then rated the importance of each indicator on a four-point scale to determine whether the indicator should be included in the inventory. In the end, 172 indicators received high scores and were included in the next step. Using the ZWERG-Criteria each indicator was assessed for: central importance, cost-effectiveness, simplicity, timeliness, accuracy (validity) and data availability at district level. For each indicator, the data source was researched and data availability confirmed. The indicators were then grouped into core and developing indicators. The selection was reviewed, updated and improved in an iterative process.

By the end of 2025, the overview of basic indicators on district level will be available to the public here

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Collecting data

For comprehensive City Diagnoses, municipalities and federal states need access to data from different policy areas and departments relating to health and the social, economic and environmental determinants of health. A large number of survey instruments (e.g. KomBus, Healthy Streets, StadtRaumMonitor, Umweltgerechtigkeitsatlas) and data are already available due to the increasing digitalization of public administration and regular reporting.

Data sources

For environmental data (e.g. access to urban green and blue spaces, noise or air pollution) and socio-economic data (e.g. educational attainments and unemployment rate), municipal data and geoportals (e.g. Geoportal Hamburg or Geoportal Berlin) are promising sources of a wide variety of small-scale *geodata* sets for integrated health and prevention reporting and policies. Small-scale health data are usually more difficult to obtain for data protection reasons, but may be available from the health authorities, health insurance providers, or in the case of Germany from the Associations of Statutory Health Insurance Physicians (Kassenärztliche Vereinigungen). In general, all these datasets can be complemented by **participatory surveys** (e.g. KomBus, Healthy Streets, StadtRaumMonitor), open data (e.g. Open Street Map) for **further analyses**.

Geoportals: A geoportal is a platform that provides access to spatial data from federal, state and local governments and their agencies. It allows users to search, visualize and download geographical data on specific topics such as the environment (e.g. noise mapping, parks, urban heat islands), mobility (e.g. bus stops, street network), socio-economic data (e.g. age structure at district level) and other points or areas of interest (e.g. health care facilities, playgrounds).

Indices and standards

Indices that can distil the high complexity of individual indicators and their relationship to health and health promotion into a single measure could be helpful in maintaining an overview.

With regard to socio-economic data, it would be useful to calculate and present an index of social deprivation rather than using individual indicators such as the unemployment rate, income or educational attainment. The methodology could be based on the German Index of Multiple Deprivation. Freely available city data or, where available, data from geoportals could be used as a data base. Some cities, such as Hamburg or Berlin, have already calculated their own small-scale social index as part of their social monitoring. Environmental data based on index approaches such as the walkability/bikeability index (e.g. ILS) or the air quality index (e.g. Luftqualitätsindex Berlin) are internationally recognised. However, there is no standard methodology for selecting and weighting the individual indicators – in

contrast to existing standards and benchmarks that already guide planning in the respective departments (e.g. guidance values green coverage or health care supply level).

Spatial aggregation

In order to implement health-related data in a geoportal and make them usable for small-scale analysis, data must be geocoded at the address level and aggregated to an appropriate administrative unit, such as a statistical ward. The different levels of granularity and data quality should be adjusted according to applicable scientific standards (in the German context, examples include Leitlinie für Gute Epidemiologische Praxis and Gute Praxis Sekundäranalysen), and these adjustments should be transparently documented. Close cooperation with public health insurance is required to define how the health-related data can be aggregated to an administrative unit while respecting data protection.

The goal: Integrated Health Information Systems

The German National Prevention Strategy focuses on health promotion and prevention throughout the country and across all providers. A number of municipal and integrated digital health information systems have already been established or are in the process of being set up as part of the Pact for Public Health. Both approaches should be implemented nationwide in the interests of health equity.

There are a number of considerations for data collection:

- A large number of survey instruments and small-scale (spatial) data relevant for City Diagnoses are already available via geoportals and close collaboration between various policy departments makes the access easier.
- Health-related data may be available through health authorities, health insurance providers or, in case of Germany, the Associations of Statutory Health Insurance Physicians, and are subject to strict data protection rules. Limitations with regard to their meaningfulness should also be addressed. Obtaining small-scale data requires close and time-intense coordination.
- Indices can help to accentuate key messages, and spatial aggregation is a relevant process for harmonising different data sets – calculation and interpretation must be carried out in a transparent manner.

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Integration of quantitative and qualitative data

Strengths and limitations of different data types

Data are the basis for informed public health decision-making. In order to get a comprehensive picture of your city's local health advantages and disadvantages, City Diagnoses require the **collection**, **analysis** and interpretation of different types of data. This includes both quantitative, i.e. numerical values that measure quantities and can be analysed statistically, and qualitative data, i.e. non-numerical information describing qualities, practices, actor relations, power structures or understandings. Quantitative data tend to be more objective and structured, enabling generalizations and comparisons between groups or different variables. However, they can oversimplify complex phenomena and are sometimes not readily available. Qualitative data, on the other hand, can provide an in-depth understanding of motivations and behaviours, capturing cultural, social and personal contexts. However, as they are rarely routinely available, individual data collection is typically required, which is time-consuming and costly.

Different but complementing use cases

In the context of City Diagnoses, both types of data have their specific use cases that can complement each other. For example, quantitative data can be used to provide a more 'objective' picture of local health stressors, such as environmental conditions like heat or air quality, or health resources, such as the number of health facilities or supermarkets offering fresh food in a particular neighbourhood. Qualitative findings that provide the perspectives of communities or stakeholders could accompany and complement such surveys (see Textbox). Drawing comparisons between the data generated (e.g. 'objective' vs. 'perceived' health burden) could reveal valuable insights. In addition, qualitative data could be used as a first approximation of the local health situation or pressing health issues in the absence of quantitative data, as they may not be readily available. Moreover, qualitative surveys, following quantitative data collections, may provide deeper, purposeful subject- and target group-specific insights. Approaches to integrate participatory epidemiology into City Diagnoses are a promising way to bridge the gap between description and action and help involve target groups in collecting and interpreting data (e.g. GBE Munich).

Triangulation needed for comprehensive picture

As City Diagnoses focus on both health outcomes and determinants, it may be necessary to integrate quantitative and qualitative data from different sources to get a comprehensive picture of the local health situation. Such a triangulation requires **cross-sectoral and interdepartmental collaboration**, cooperation with

science and requires logical efforts to combine data sets that haven been generated with different rationales.

The triangulation of quantitative and qualitative data for City Diagnoses comprises the following considerations:

- Focusing on both outcomes and determinants in City Diagnoses requires the integration of several data sources to get a comprehensive picture of the local health situation.
- Both quantitative and qualitative data have different but complementing use cases in City Diagnoses, with a particular benefit when comparing both types of data ('objective' vs. 'perceived').
- Enhancing data analysis by incorporating qualitative insights alongside quantitative data — not just when numerical data is unavailable. A detailed qualitative description of health challenges affecting specific population groups within a given neighbourhood can provide a deeper understanding.

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Visualizing and analysing data

Mapping health resources and risks, as well as health status and diseases, is essential for planning healthy cities, as it helps to highlight areas of high or low risk and provides a first indication of health disparities within a geographical area. Spatial epidemiological methods, including disease mapping, are used not only to produce disease maps, but also to analyse which population is most at risk in a given area and to identify possible additional contributing environmental factors. This is important because it facilitates the planning of healthcare and prevention strategies that are tailored to the local needs of the population.

Assuming that disease data are available at least at the level of postcodes or, in the best case, at even smaller levels such as neighbourhoods or blocks, several approaches need to be considered.

Sex- and age-standardization

Chronic diseases such as type 2 Diabetes, ischaemic heart disease, various types of cancer and others are more prevalent in older people. A disease map showing the raw (unadjusted) rate of disease risk would mostly reflect the distribution of the older population and would not tell us much about whether residents in some areas are unhealthier than others. To show whether disease risk is higher in certain areas, disease maps need to be adjusted for the uneven distribution of different sex and age groups. This is called sex- and age-standardization. In essence, a sex- and age-adjusted disease map shows the risk of disease, if all neighbourhoods had the same age distribution (e.g. the proportion of people aged over 65 would be the same in all neighbourhoods). This approach helps to identify areas where the population is actually unhealthier, regardless of the underlying age and gender distribution. Sex- and age-standardization becomes even more important when assessing time trends in disease risk because the effect of ageing must be taken into account.

Smoothing of disease rates

While having disease data at very fine geographic scales is usually preferable to coarse geographic areas, the presentation of sex- and age-adjusted disease risk is subject to random noise, making it difficult to detect spatial patterns. This is because the underlying population in each geographic area varies greatly, making disease rates very unstable if not adjusted for the uneven population size. To adjust for uneven population size and to make spatial patterns visible, disease risk is smoothed. There are several methods, of which the Besag-York-Mollie model is the most widely used. This model weighs the risk of disease in an area by the disease risk in neighbouring areas, and then shrinks the risk towards the overall mean.

Visual representation of disease risk

The presentation of incidence or prevalence rates, for example expressed as a percentage or per 100,000 inhabitants, using sequential colour palettes is very common in spatial epidemiology. However, interpretation can be difficult, as the

question “Is this a high amount?” often arises. In this context, divergent colour palettes showing relative risk, i.e. deviation from the mean, are easier to understand, as areas of above-average risk are easier to locate. This type of visualization is most commonly applied to maps for different cancers. The figure below shows an example map of sex- and age-adjusted smoothed risk for lung cancer.

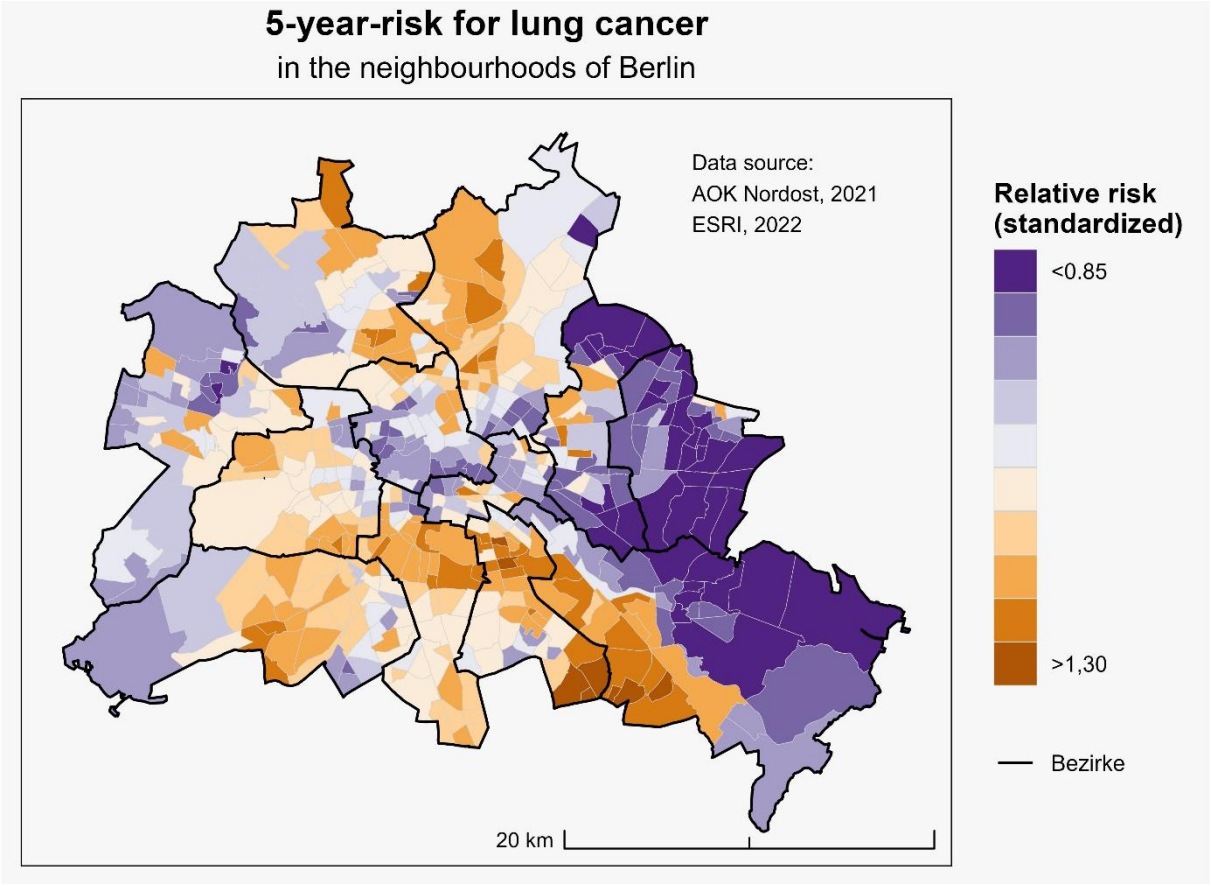

Figure. Sex- and age-adjusted, smoothed risk for lung cancer in Berlin. Areas in purple indicate a below average risk, areas in brown indicate an above average risk.

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Glossary

Behavioural Prevention
Behavioral prevention attempts to alter individual health related lifestyle factors. It aims at reducing harmful behaviors such as smoking and promotes healthy diets or active exercise.

Disease Prevention
Describes measures to prevent the occurrence of disease by promoting the uptake of vaccinations and screening and reducing the occurrence of risk factors. (WHO, 2021)

Environmental justice
People on low incomes or otherwise marginalised population groups often have poorer housing and living conditions. This is often accompanied by high levels of pollution and risk exposure, which can jeopardise health. This is also referred to as multiple stress.

Evidence-based thinking
"a systematic and transparent approach that applies structured and replicable methods to identify, appraise, and make use of evidence" (WHO, 2022)

Generalized Resistance Resources
Refers to the resources of a person, a group, or a community that facilitate the individual's abilities to cope effectively with stressors. According to Antonovsky (1979, 1987), such resources include: (1) material resources, (2) knowledge and intelligence, (3) ego identity, (4) coping strategies, (5) social support, (6) commitment and cohesion with one's cultural roots, (7) cultural stability, (8) ritualistic activities, (9) religion and philosophy, (10) preventive health orientation, (11) genetic and constitutional GRRs, and (12) individuals' state of mind. (Idan et al., 2022)

Geodata
Are data of various types (e.g. environmental, socioeconomic, or health) that are linked to specific geographic locations (i.e. coordinates) that are stored in a format that allows processing in a geographic information system (GIS). (ESRI, n.d.)

Health Determinants
"The range of individual, personal, social, economic and environmental factors that determine the healthy life expectancy of individuals and populations" (WHO, 2021)

Health Disparities
"Are largely preventable health differences that adversely affect populations who experience greater challenges to optimal health and are closely linked with intergenerational social, economic, and/or environmental disadvantages … Health disparities also can be observed in health care access, quality, and utilization, and within the delivery of clinical care." (NIMHD, 2025)

Health Monitoring and Reporting System
Ongoing systematic collection, analysis and interpretation of health-related data essential to the planning, implementation and evaluation of public health practice (Rosenkötter et al., 2015)

Health Promotion
Represents a comprehensive social and political process of enabling people to increase control over the determinants of health and thereby improve their health (WHO, 2021)

(High) Spatial Granularity
A concept used in Geographic Information Systems (GIS) to refer to the level of resolution of data. High granularity means that data is available at high accuracy on fine scale (e.g. address-specific).

Integrated Administrative Action

This concept is intended to help the administration, municipal council and the local communities to prioritize and efficiently implement current and future development tasks – for example in the areas of mobility, vacancies, local supply, social cohesion and climate protection. Departments of the city administration work together across their respective areas of responsibility. This helps to mainstream cross-cutting issues such as health or sustainability in a municipality.

Intersectoral Collaboration
Entails multiple sectors working together to understand and solve complex issues.

Pathogenic Understanding
Focus on diseases; the factors and mechanisms that lead to disease emergence and transmission. Grounded in biomedical health models that focus on identifying causalities between exposure (to pathogens and pollutants) and diseases.

Prevention Reporting
Prevention reporting serves the data-based needs assessment of health promotion and prevention and the monitoring of health promotion and prevention measures with regard to their dissemination and evaluation.

Quantitative Data
“Are data represented numerically, including anything that can be counted, measured, or given a numerical value. Quantitative data can be classified in different ways, including categorical data that contain categories or groups (like countries), discrete data that can be counted in whole numbers (like the number of students in a class), and continuous data that is a value in a range (like height or temperature)” (NNLM, n.d.).

Qualitative Data
“Are data representing information and concepts that are not represented by numbers. They are often gathered from interviews and focus groups, personal diaries and lab notebooks, maps, photographs, and other printed materials or observations” (NNLM, n.d.).

Salutogenic Understanding
Places the focus on health; factors that build resilience to stressors and coping mechanisms, promote wellbeing and maintain good health. Deviates from the dichotomy of health and disease as two distinct categories and rather views health as a continuous scale between the two poles: “health-ease” and “dis-ease”. (WHO, 2021)

Structural Prevention
Structural prevention focuses on addressing the living conditions of populations, rather than treating incidences of disease. It involves interventions in social and economic systems, polices and structures to create long-term and sustainable improvements. Essentially, structural prevention addresses the social determinants of health.

Urban Health Information System
Urban Health Information System aims to collect, document, and exchange data at the municipal level to enable health system managers and health workers to make evidence-based decisions and improve health outcomes.

Program of the lecture series 2024

Date	Speaker	Institution	Title
08.05	Lucy Saunders	Healthy Streets	What is required for our street environments to enable us to be healthy
15.05	Giselle Sebag	International Society for Urban Health (ISUH)	Local Solutions, Global Insights: Diagnosing Cities for Healthier Futures Across the Americas & the World
22.05.	Louise Kielgast	Gehl Architects ApS	Neighbourhoods for health and well-being
29.05.	Christina Plantz	Bundeszentrale für gesundheitliche Aufklärung (BZgA)	Der StadtRaumMonitor - ein Beteiligungsinstrument für die gesundheitsförderliche Stadt- und Gemeindeentwicklung
05.06.*	Beate Bokhof	Öffentlicher Gesundheitsdienst, Stadt Hamm / Gesunde Städte-Netzwerk Deutschland	Kommunale Gesundheitsförderung - 'StadtRaumMonitor' und 'Walkability' im Gesunde Städte-Netzwerk Deutschland
12.06.	Sara Specht	Ministerium für Soziales, Gesundheit und Integration Baden-Württemberg	Das Kreisprofil als Methodenset zur Erfassung der gesundheitlichen Lage in den Stadt- und Landkreisen Baden-Württembergs
19.06.*	Jeffrey Butler	TU Dresden, Co-Sprecher DGSMP "Gesundheits-berichterstattung"	Kleinräumige Gesundheitsberichterstattung in der Kommune – Wie man die Problemlage für Entscheidungsträger sichtbar macht
26.06	Gabriele Bolte	Universität Bremen	Integriertes Monitoring für eine gesundheitsfördernde Stadtentwicklung
03.07.	Jutta Grohmann	Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR)	Flächendeckende Indikatoren zur Raum- und Stadtentwicklung des BBSR im Kontext von Gesundheit
10.07.	Lisa Zierenberg	Senatsverwaltung für Mobilität, Verkehr, Klimaschutz und Umwelt, Berlin	Die Umweltgerechte Stadt – Umweltgerechtigkeit im Land Berlin
17.07.	Doris Wohlrab	Landeshauptstadt München, Gesundheitsreferat (GSR)	Kleinräumige Gesundheitsberichterstattung in München - Grundlage für differenzierte Planungen versus Gefahr der Stigmatisierung am Beispiel des Coronavirus-Infektionsgeschehens
24.07.	Kathrin Heinrich / Kristina Hoffmann	Stadt Mannheim, FB Jugendamt und Gesundheitsamt / Universitätsmedizin Mannheim	Das Quartierbarometer – ein partizipativer Ansatz zur Entwicklung eines Indikatorsystems auf Stadtteilebene

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About the Global Health Hub Germany

The Global Health Hub Germany offers all individuals and institutions active in the field of global health the opportunity to connect in an independent network across eight different stakeholder groups: International organisations, youth, politics, foundations, think tanks, business, science, and civil society. The members of the Hub work together on current issues of global health. The interdisciplinary exchange generates themes, issues and solutions that the Hub brings to policymakers to support informed policy-making and advance in global health. Founded in 2019, the Hub now has around 2,000 members. For more information: www.globalhealthhub.de .

About the Hub Communities

The Hub Communities are working groups led by the members of the Global Health Hub Germany themselves. They meet regularly to exchange ideas, share expertise and work together on global health issues. If you would like to join a Hub Community or learn more about their work, contact Katrin Lea Würfel, Head of Community Management: katrin.wuerfel@globalhealthhub.de .

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