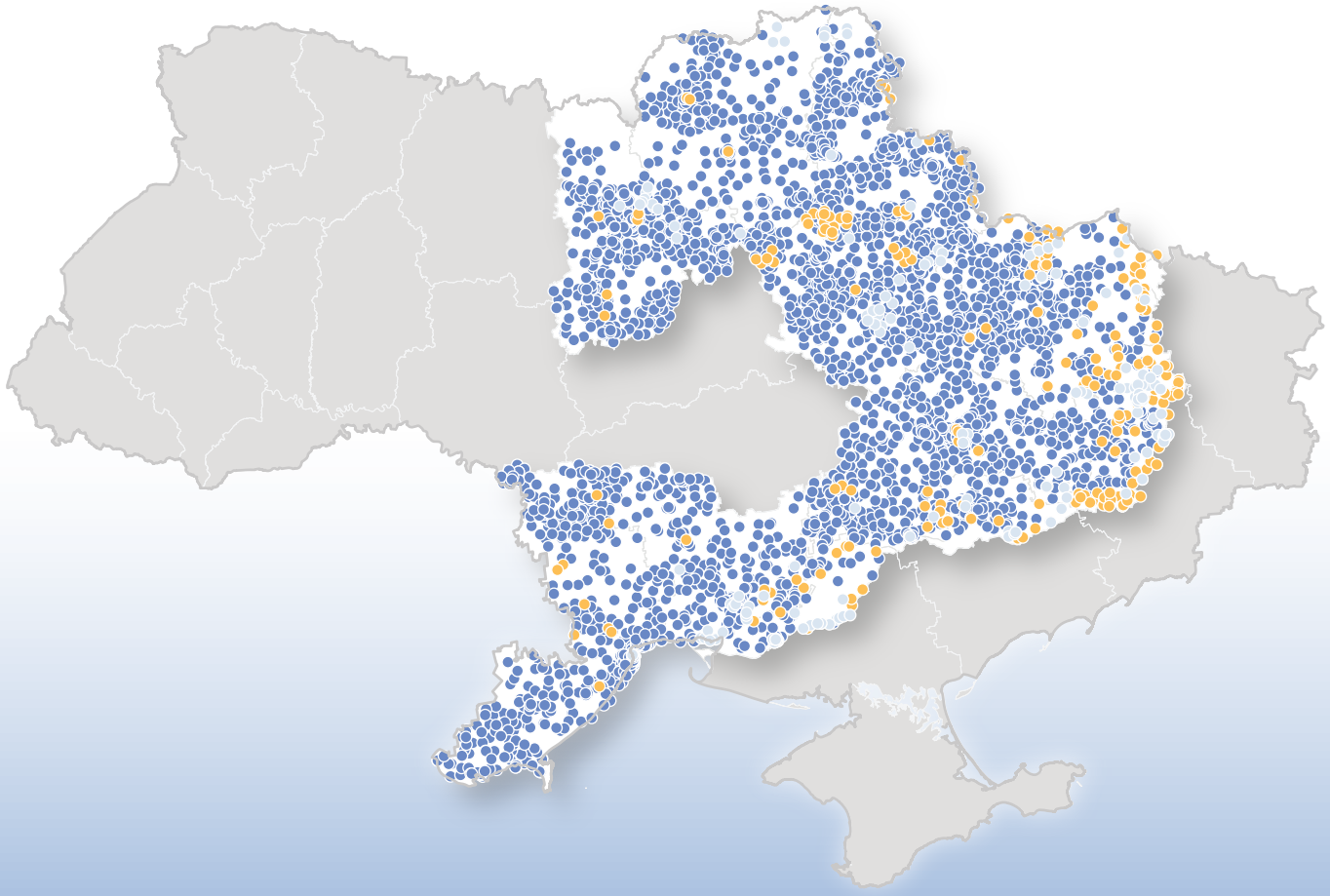
HeRAMS Ukraine

Accessibility to essential health services in priority oblasts



Description of modelling results

HeRAMS Ukraine Accessibility to essential health services in priority oblasts

Description of modelling results

World Health Organization

HeRAMS Health Resources and Services Availability Monitoring System

GeoHealth INSTITUTE OF GLOBAL HEALTH & INSTITUTE FOR ENVIRONMENTAL SCIENCES

UNIVERSITÉ DE GENÈVE

ACRONYMS

DEM	Digital Elevation Model
HeRAMS	Health Resource Availability and Service Monitoring System
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OSM	OpenStreetMap
SRTM	Shuttle Radar Topography Mission
UNFPA	United Nations Population Fund
WHO	World Health Organization

DISCLAIMER

Disruptions to health systems can impede provision of and access to essential health services. Communities' vulnerability to increased morbidity and mortality substantially increases when a lack of reliable information prevents sound decision-making, especially in rapidly changing environments that require continued assessment. The Health Resources and Services Availability Monitoring System (HeRAMS) aims to provide decision-makers and health stakeholders at large with vital and up-to-date information on the availability of essential health resources and services, help them identify gaps and determine priorities for intervention.

HeRAMS draws on the wealth of experience and knowledge gathered by the World Health Organization (WHO) and health sector actors, including nongovernmental organizations, donors, academic institutions and other technical bodies. It builds on a collaborative approach involving health service providers at large and integrating what is methodologically sound and feasible in highly constrained, low-resourced and rapidly changing environments such as humanitarian emergencies. Rapidly deployable and scalable to support emergency response and fragile states, HeRAMS can also be expanded to - or directly implemented as - an essential component of routine health information systems. Its modularity and scalability make it an essential component of emergency preparedness and response, health systems strengthening, universal health coverage and the humanitarian development nexus.

It is important to note that the deployment of HeRAMS is ongoing, including data verification and validation. Hence, this analysis is not final and was produced solely for the purpose of informing operations.

The designations employed and the presentation of the material in this report do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Caution must be taken when interpreting the results presented in this report. Differences between information products published by WHO, national public health authorities, and other sources using different inclusion criteria and different data cut-off times are to be expected. While steps are taken to ensure accuracy and reliability, all data are subject to continuous verification and change.

To gain a more comprehensive understanding on the current and historical context, previously published HeRAMS reports available on the WHO HeRAMS initiative website[1,2] (https://www.who.int/initiatives/herams). For additional information, please contact herams@who.int.

1 **HeRAMS Ukraine Status update report: May-October 2023**, https://www.who.int/publications/m/item/herams-ukraine-status-update-report-may-to-october-2023-en.

2 **HeRAMS Ukraine Baseline Report 2023:** Operational status of the health system, November 2022 - May 2023, https://www.who.int/publications/m/item/herams-ukraine-baseline-report-2023-operational-status-of-the-health-system-nov-2022-may-2023-en.

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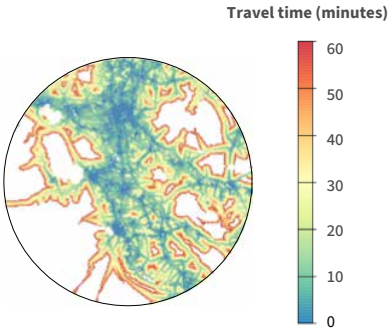
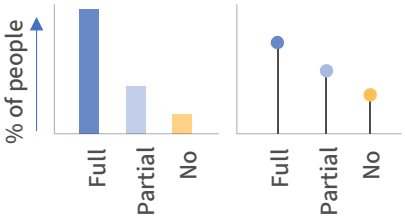
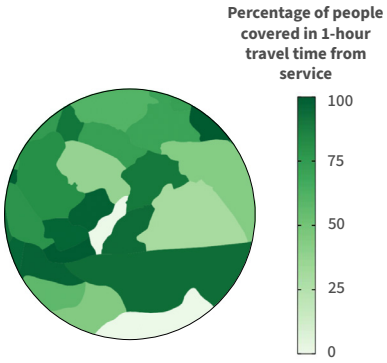
Accessibility map provides an overview of travel time (in minutes) to the nearest health facility offering a specific service. The maximum threshold is set at one hour travel. Regions in white indicate areas where travel time exceeds one hour to the nearest available facility.



Bar charts show the percentage of people with access to facilities within one hour travel time. Full access represents the percentage of people covered by a facility where the service is fully available within one hour travel time. Partial access represents the percentage of people covered by a health facility where the service is only partially available. No access represents the percentage of people who are either not covered by a facility within the maximum travel time or covered by a facility that does not provide the service. The bar charts are further broken down by region.



Population coverage statistics map shows what percentage of people in a specific area can reach the nearest functional health service within a specific travel time. It provides this information at different administrative levels (like region, province, district) and potentially at different travel time limits (such as 1-hour).



INTRODUCTION

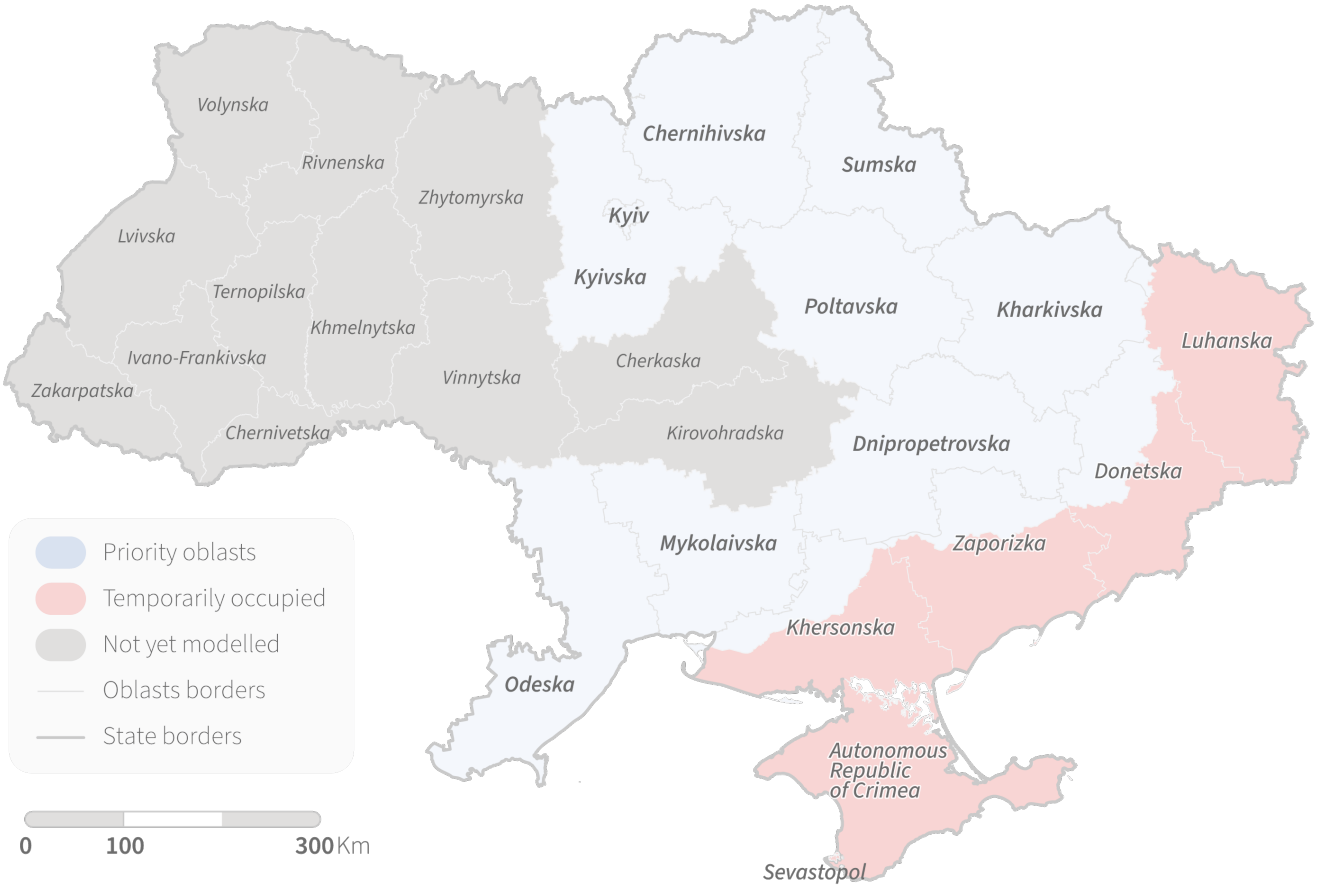
Since the escalation of hostilities in Ukraine on February 24, 2022, the nation has grappled with a surge in health-related challenges. While Ukraine's healthcare system has shown resilience, the persistent conflict has presented significant obstacles to healthcare accessibility and the availability of essential medicines, particularly impacting those living in close proximity to conflict zones and individuals in regions that are temporarily under occupation[1].

Statistics underscore the severity of the issue, with close to 1500 documented attacks on healthcare workers and infrastructure since the onset of the conflict, as verified by human rights and humanitarian organizations. Among these figures, 1292 attacks have impacted health facilities, 214 attacks impacted transport, and 172 attacks have impacted patients and healthcare workers. Moreover, 106 healthcare workers have been injured, and 57 attacks have affected children's hospitals, while 40 have impacted maternal health facilities[2].

In response to this challenging context, the World Health Organization (WHO) has implemented the Health Resources and Services Availability Monitoring System (HeRAMS) in Ukraine, offering a valuable tool for monitoring and facilitating informed decision-making within the healthcare system. HeRAMS has played a pivotal role in mapping and surveying health facilities and services throughout Ukraine, resulting in the mapping of more than 12 000 healthcare facilities[3] and service delivery points. HeRAMS also collects essential information regarding the availability of various health services, contributing to a comprehensive understanding of the healthcare system.

Based on data from HeRAMS, the WHO publishes comprehensive reports that include detailed maps of health facilities, the availability of essential health services, and the challenges hindering their provision in Ukraine. However, the population specific indicators provided are limited to the number of health facilities per 10 000 inhabitants, or the availability of services per 10 000 or 250 000 inhabitants, depending on the level of specialization. These commonly used indicators[4,5], although widespread, fail to consider the actual physical accessibility of health facilities, potentially leading to misleading assessments of healthcare coverage.

To address this limitation and provide a comprehensive perspective, HeRAMS and the University of Geneva have been working together to develop geospatial models that measure the accessibility of health services, using data provided by HeRAMS. This collaboration is aimed at supporting decision-making in different countries. Within this collaborative framework, countries can request various analyses to evaluate how accessible health-care is in different locations, utilizing the comprehensive data from HeRAMS[6]. This report introduces a new set of indicators that focus on the population's access to health services. These indicators aim to guide strategic planning for healthcare in 11 oblasts situated in closest proximity to the conflict's frontlines, specifically Kyivska, Sumska, Chernihivska, Kharkivska, Donetska, Dnipropetrovska, Zaporizka, Khersonska, Mykolaivska, Odeska, and Poltavska, as well as in the Kyiv metropolitan area (Map 1 on page 10). By combining information on service availability, barriers to provision, spatial models of physical accessibility, and gridded population data, we can identify specific services, assess their accessibility, and pinpoint barriers to their delivery accurately.



Map 1. Map of Ukraine and its priority oblasts.

METHODS

Data

The data required for this assessment, particularly for spatial modelling, are as follows: location of health facilities and availability of several selected services, as well as barriers to their delivery; spatial distribution of the population; vector data of administrative boundaries, different types of roads, and rivers; a digital elevation model; and information regarding local transportation modes and travel speeds.

The information regarding the location of health facilities and the availability of health services, as well as information regarding barriers to their delivery, was extracted from the HeRAMS database on January 2, 2024. Only public health facilities are considered in this analysis.

Approximately 93% of the 5432 listed public health facilities are fully functional, and if we include partially functional health facilities, this percentage rises to 96% (Map 2 on page 12). The main potential causes affecting the functionality of health facilities are the lack of security and staff. The most affected oblasts are Donetska and Khersonska where more than 25% of the health facilities are impacted. In addition, according to data from HeRAMS, around 3% of the health facilities are categorized as partially accessible (Map 2 on page 12), mainly due to security issues. The oblast that experiences the greatest impact is Khersonska (32% of the health facilities are impacted). Finally, the barriers limiting service delivery within health facilities are often related to lack of staff.

The gridded population data is sourced from WorldPop[7] and was calculated based on the spatial distribution of the population in 2020, constrained to the presence of buildings, and corrected using the population estimate at the raion level for 2023 from the United Nations Population Fund (UNFPA). The vector data for administrative boundaries were obtained from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), and the roads and watercourses were obtained from OpenStreetMap (OSM). The digital elevation model (DEM) was obtained from the international initiative Shuttle Radar Topography Mission (SRTM)[8].

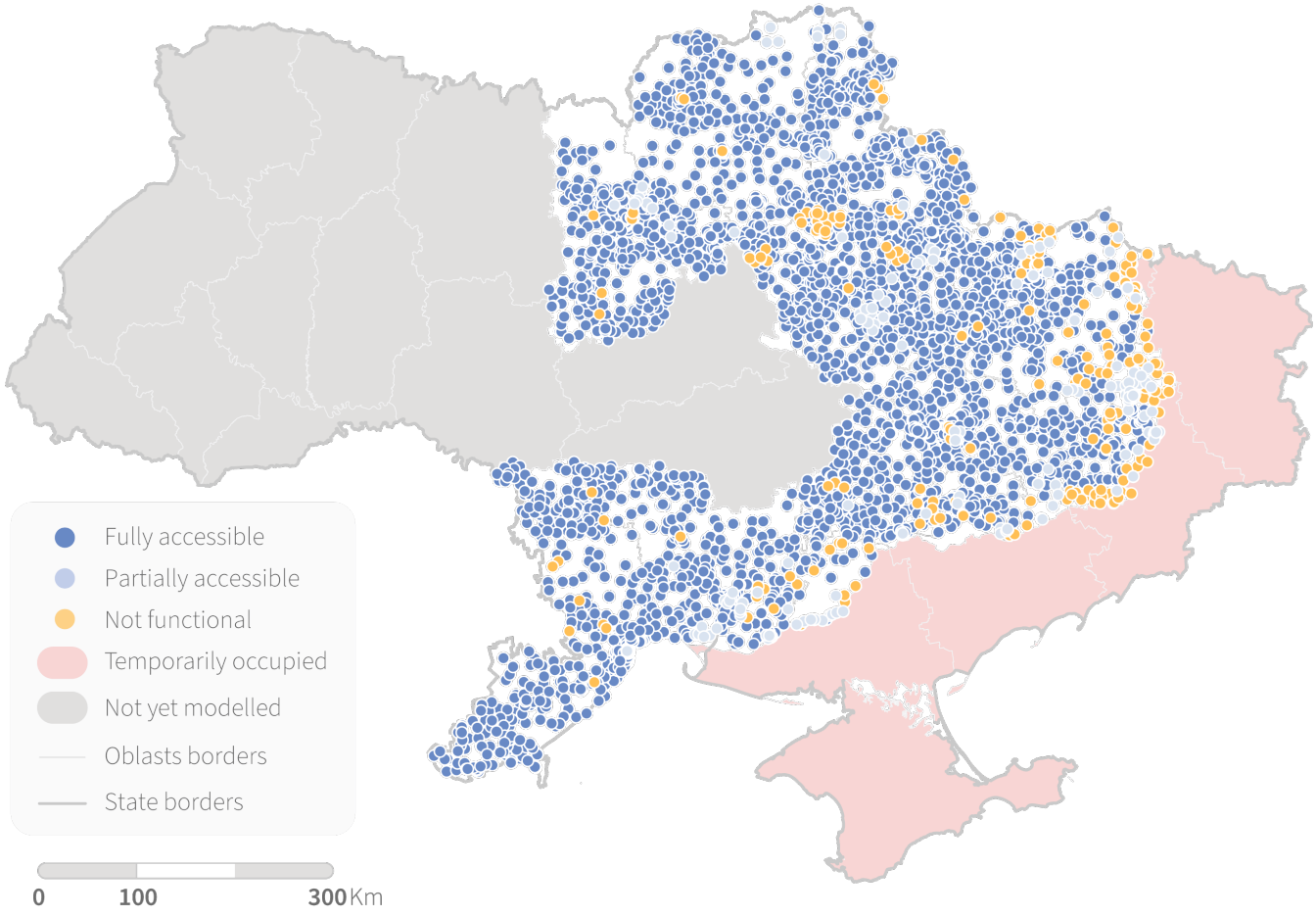
It should be duly noted that the frontline was accounted for as non-crossable barrier, meaning that the population of temporarily occupied areas cannot cross to get services at not occupied areas and vice versa. Temporarily occupied areas were therefore excluded from the analysis.

Two travel scenarios (i.e., motorised and walking-only; Table 1 and 2) were considered, both set by the WHO country team and accounted for the official maximum allowed speed for the different road types. While we acknowledge that rail transportation also plays a significant role in population mobility, we opted not to incorporate this due to the inherent complexities in the modelling of train transportation. Considering our timeframe, we found motorised transportation and train times to be broadly similar, rendering the incorporation of train transportation into the model unnecessary at this stage. We believe that this methodological choice does not significantly compromise the validity of our model. Nonetheless, we do recognize that future research could benefit from exploring train transportation in greater detail.

Modelling

For spatial modelling, we used the open-source software AccessMod[9], an official tool of the WHO and developed by the University of Geneva. It allows for the modelling of physical accessibility of the population to health facilities based on transportation modes and travel speeds within a specific geographic region.

The modelling of physical accessibility is based on travel time rather than distance. This approach provides a more realistic estimation by taking into account factors that facilitate movement, such as the road network and the means of transportation used and travel speeds on the network. Despite AccessMod's capability of modeling off-road movements - a feature especially useful in regions where transportation isn't strictly roadbound, we restricted our analysis to the road network in Ukraine. This is premised on the assumption that individuals in Ukraine are less likely to rely on off-road means of travel.



Map 2. Locations of public health facilities in the 11 priority oblasts in Ukraine and the Kyiv metropolitan area.

Note: Health facilities reported as non-functioning are deemed unable to provide essential health services resulting in reporting ending before assessing accessibility of these health facilities. To underscore the impact of non-functioning health facilities on overall service availability and accessibility, these facilities are displayed in a distinct color on the map.

Additionally, it is important to highlight that closed and fully damaged health facilities are excluded from the analysis, as they are inherently unable to contribute to the provision of essential health services.

Under the scope of this analysis, three main indicators were calculated, taking into account both service availability and physical accessibility. These indicators refer to the number and location of people with no access, partial access, and full access to the service. Two maximum travel times were defined beforehand: 30 and 60 minutes. A person is considered to have no access to the service when the travel time to the nearest health facility exceeds the maximum time or when the accessible facilities within the defined time frame do not provide the service. People are considered to have partial access when the service is only partially available in the accessible health facilities. Finally, people are considered to have full access to the service when there is at least one accessible health facility where the service is fully available. It should be noted that administrative boundaries of each district do not act as physical barriers, and the model assumes that the population can travel from one district to another to access healthcare. The same approach was used to assess the accessibility to health facilities that are functional, based on their level of functionality (i.e, fully, partially, or not functioning), before analysing each service separately.

A subsequent quantitative assessment of the causes of non-accessibility is conducted by analysing the data for each population pixel that lacks access to the service. When the maximum travel time is not exceeded, the reasons for the service's unavailability within the assigned health facility of the pixel are examined using the HeRAMS database. These reasons can include the service not being planned or the presence of barriers within the health facility, such as lack of training, medical supplies, medical equipment, staff, or financial resources. Thus, for a defined travel time, we can quantify the absolute and relative impact of each cause (travel time, service not planned, other barriers) on service accessibility, based on the number of affected individuals. It should be noted that since the percentage of people physically unable to access health facilities is constant for all services, it is the availability of these services within the health facilities that determines the relative impact of physical accessibility (travel time) on coverage. Finally, the percentage of the population that theoretically has access to the service but may potentially face non-physical barriers (e.g., insecurity) is also quantified.

Table 1. Motorised travel scenario

Category	Speed (km/h)	Mode
Access to road network	20	MOTORISED
Trunk	110	MOTORISED
Trunk link	110	MOTORISED
Primary	90	MOTORISED
Primary link	90	MOTORISED
Motorway	90	MOTORISED
Motorway link	90	MOTORISED
Secondary	90	MOTORISED
Secondary link	90	MOTORISED
Tertiary	90	MOTORISED
Tertiary link	90	MOTORISED
Residential	20	MOTORISED
Living street	20	MOTORISED
Service	20	MOTORISED
Track	4	WALKING
Pedestrian	4	WALKING
Path	4	WALKING
Footway	4	WALKING
Bridleway	4	WALKING
Cycleway	13	BICYCLING
Steps	4	WALKING
Unclassified	50	MOTORISED

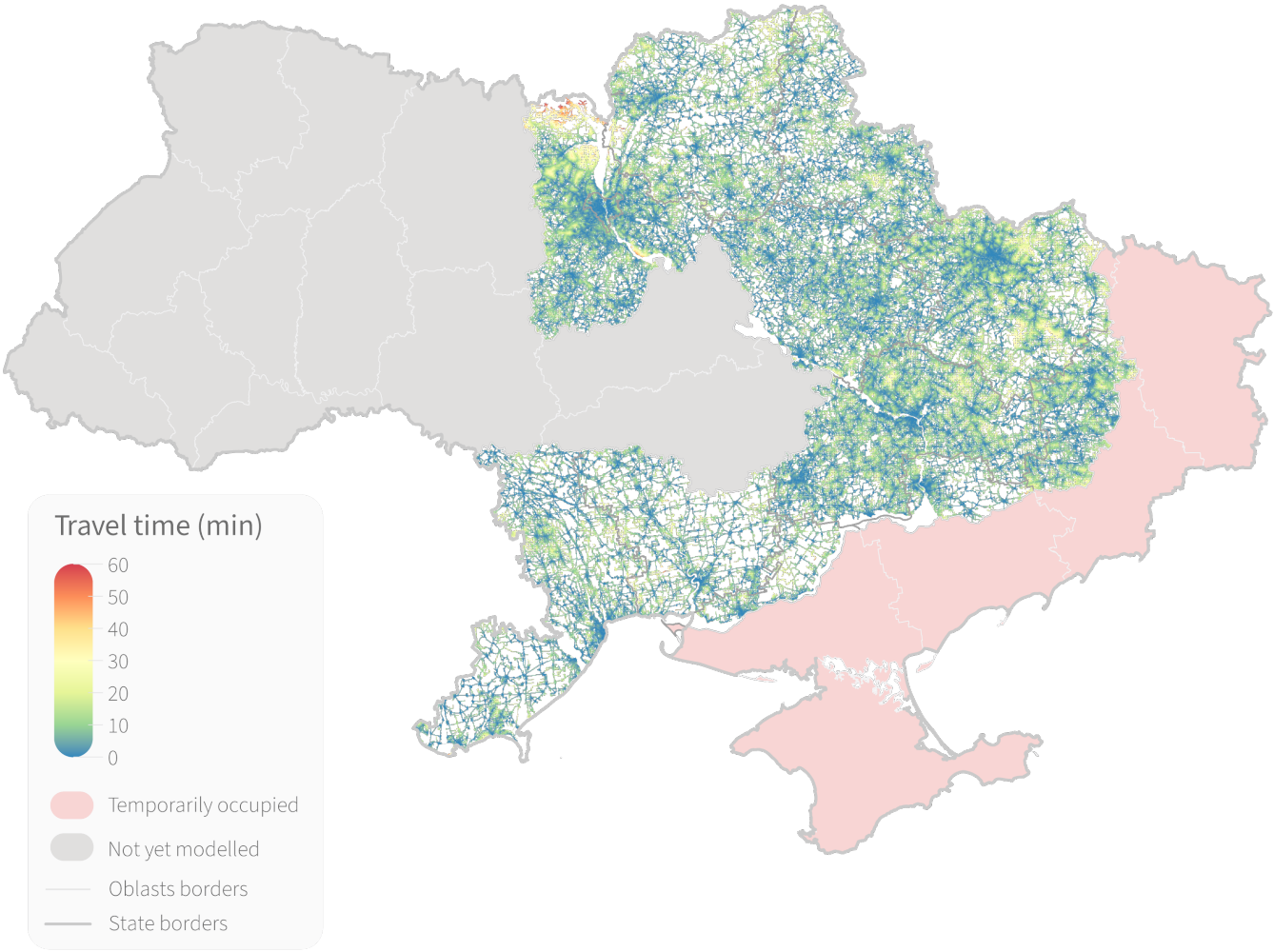
Table 2. Walking-only travel scenario

Category	Speed (km/h)	Mode
Access to road network	4	WALKING
Trunk	4	WALKING
Trunk link	4	WALKING
Primary	4	WALKING
Primary link	4	WALKING
Motorway	4	WALKING
Motorway link	4	WALKING
Secondary	4	WALKING
Secondary link	4	WALKING
Tertiary	4	WALKING
Tertiary link	4	WALKING
Residential	4	WALKING
Living street	4	WALKING
Service	4	WALKING
Track	4	WALKING
Pedestrian	4	WALKING
Path	4	WALKING
Footway	4	WALKING
Bridleway	4	WALKING
Cycleway	4	WALKING
Steps	4	WALKING
Unclassified	4	WALKING

RESULTS

Access to health facilities - motorised scenario

The accessibility map (Map 3) shows us the travel time to the nearest facility that is at least partially functioning by motorized transport at the overall speed for road network 90 km/h and 20 km/h in residential areas.



Map 3. Accessibility map to the nearest healthcare facility that is at least partially functional considering a maximum travel time of 60 minutes (motorised scenario). Areas in white on the map indicate locations that exceed the 60-minute travel time threshold; consequently, the population residing in these areas are assumed to lack physical access.

If we consider a maximum travel time of 30 minutes, our results show that 39 367 (< 1%) people have no access to a fully functional health facility (Figure 1 on page 16). The number of people who cannot even access an existing and open health facility is relatively low (< 1/10 000). In Khersonska, due to massive infrastructural damage incurred in military action paired with the consequences of flood caused by destruction of the Kakhovka Dam, 14% of the population lacks access to functional healthcare facilities (Figure 2; Table 3). Map 4 and Figure 2 on page 17 show the population coverage by administrative unit. It should be noted that over 20% of the population who potentially has access (partially or completely) to a functional health facility may face non-physical barriers in the oblasts of Khersonska (51%), and Donetska (26%), primarily due to security reasons.

Table 3. Number of people per oblast based on the level of access to a functional health facility for a maximum travel time

Oblast	Full access	%	Partial access	%	No access	%
Chernihivska	896 715	100%	-	-	56	0%
Dnipropetrovska	3 224 699	100%	-	-	7	0%
Donetska	490 706	100%	1	0%	99	0%
Kharkivska	1 795 343	100%	239	0%	56	0%
Khersonska	227 655	85.7%	182	0.1%	37 593	14.2%
Kyiv	3 528 470	100%	-	-	48	0%
Kyivska	2 711 683	100%	-	-	777	0%
Mykolaivska	642 815	100%	10	0%	164	0%
Odeska	2 143 947	100%	-	-	100	0%
Poltavska	1 411 196	100%	-	-	2	0%
Sumska	857 805	100%	-	-	25	0%
Zaporizka	796 809	99.9%	462	0.1%	440	0.1%

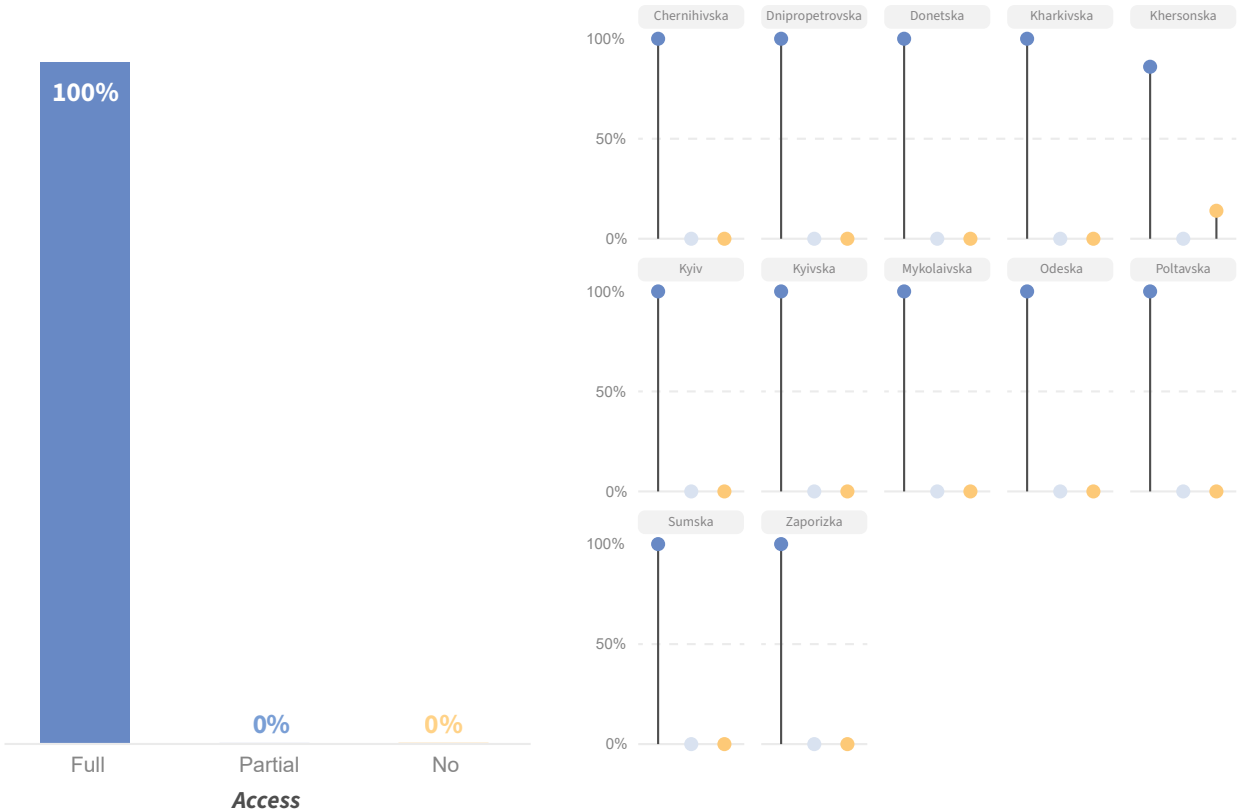
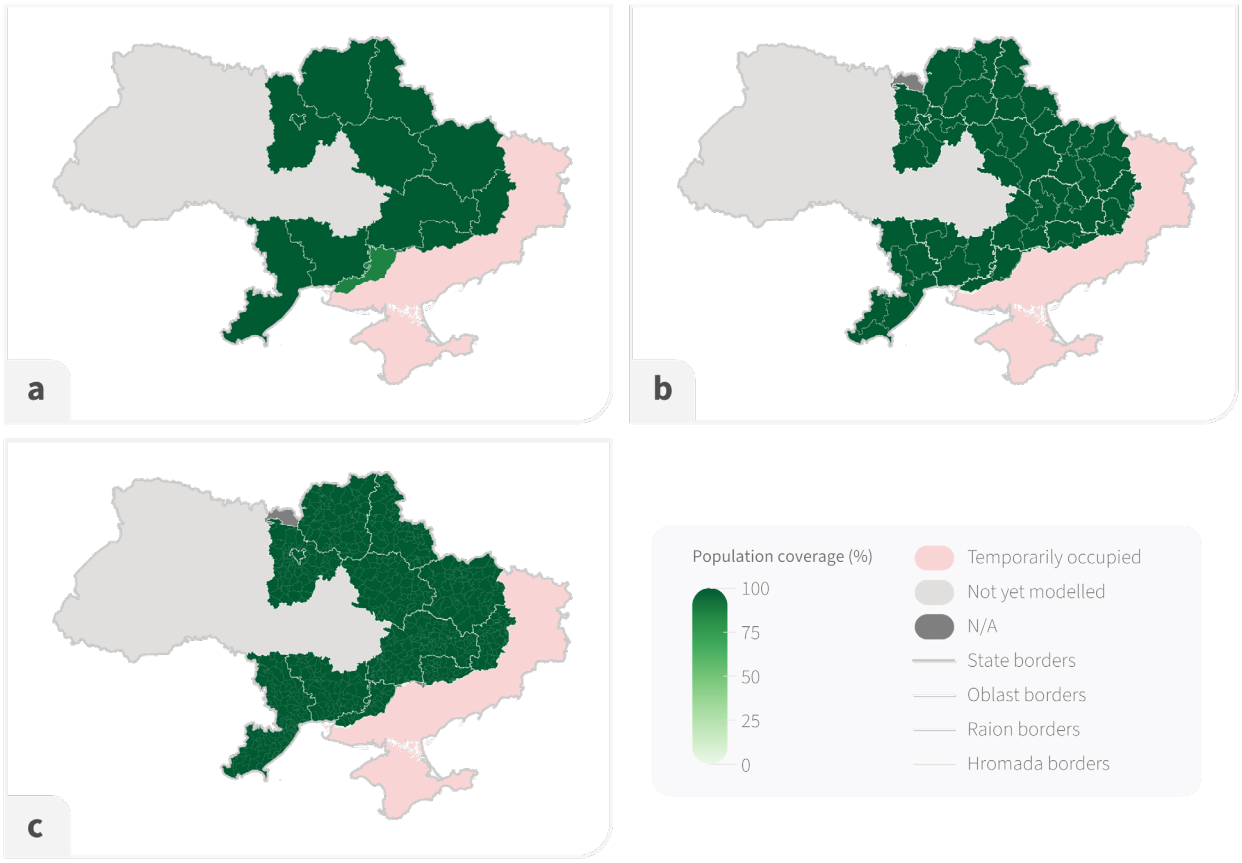


Figure 1. Percentage of the population based on the access level to a functional health facility for a maximum travel time of 30 minutes (motorised scenario).



Map 4. Population coverage (%) by administrative unit (a: oblast; b: raion; c: hromada) of functional facilities for a maximum travel time of 30 minutes (motorised scenario).

Figure 2. Population coverage by oblast in a) percentage and b) absolute values of functional facilities for a maximum travel time of 30 minutes (motorised scenario). Oblasts are arranged in descending order of population coverage (%).

If we consider a maximum travel time of 60 minutes, our results show that 38 526 (< 1%) people have no access to a fully functional health facility (Figure 3 on page 18), meaning that despite of overall resilience of health system and wide network of health service delivery units, some population remains deprived of any health services, even accounting on access to motorized transportation. In Khersonska, due to massive infrastructural damage incurred in military action paired with the consequences of flood caused by destruction of the Kakhovka Dam, 14% of the population lacks access to functional healthcare facilities (Figure 3; Table 4). Map 5 and Figure 4 on page 19 show the population coverage by administrative unit. It should be noted that over 20% of the population who potentially has access (partially or completely) to a functional health facility may face non-physical barriers in the oblasts of Khersonska (51%), and Donetska (26%), once again, primarily due to security reasons.

Table 4. Number of people per oblast based on the level of access to a functional health facility for a maximum travel time

Oblast	Full access	%	Partial access	%	No access	%
Chernihivska	896 770	100%	-	-	1	0%
Dnipropetrovska	3 224 699	100%	-	-	7	0%
Donetska	490 753	100%	-	-	52	0%
Kharkivska	1 795 638	100%	-	-	-	-
Khersonska	227 837	85.8%	-	-	37 593	14.2%
Kyiv	3 528 470	100%	-	-	48	0%
Kyivska	2 712 156	100%	-	-	304	0%
Mykolaivska	642 980	100%	-	-	9	0%
Odeska	2 143 976	100%	-	-	71	0%
Poltavska	1 411 196	100%	-	-	2	0%
Sumska	857 830	100%	-	-	-	-
Zaporizka	797 273	99.9%	-	-	438	0.1%

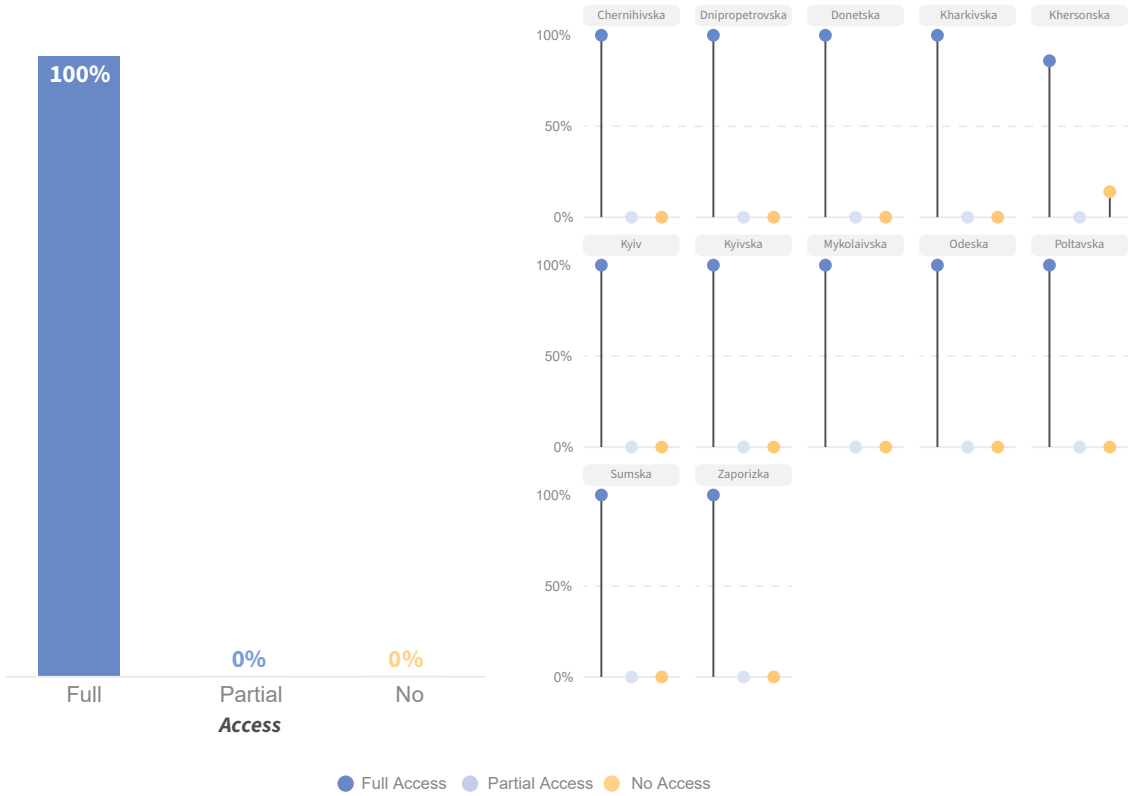
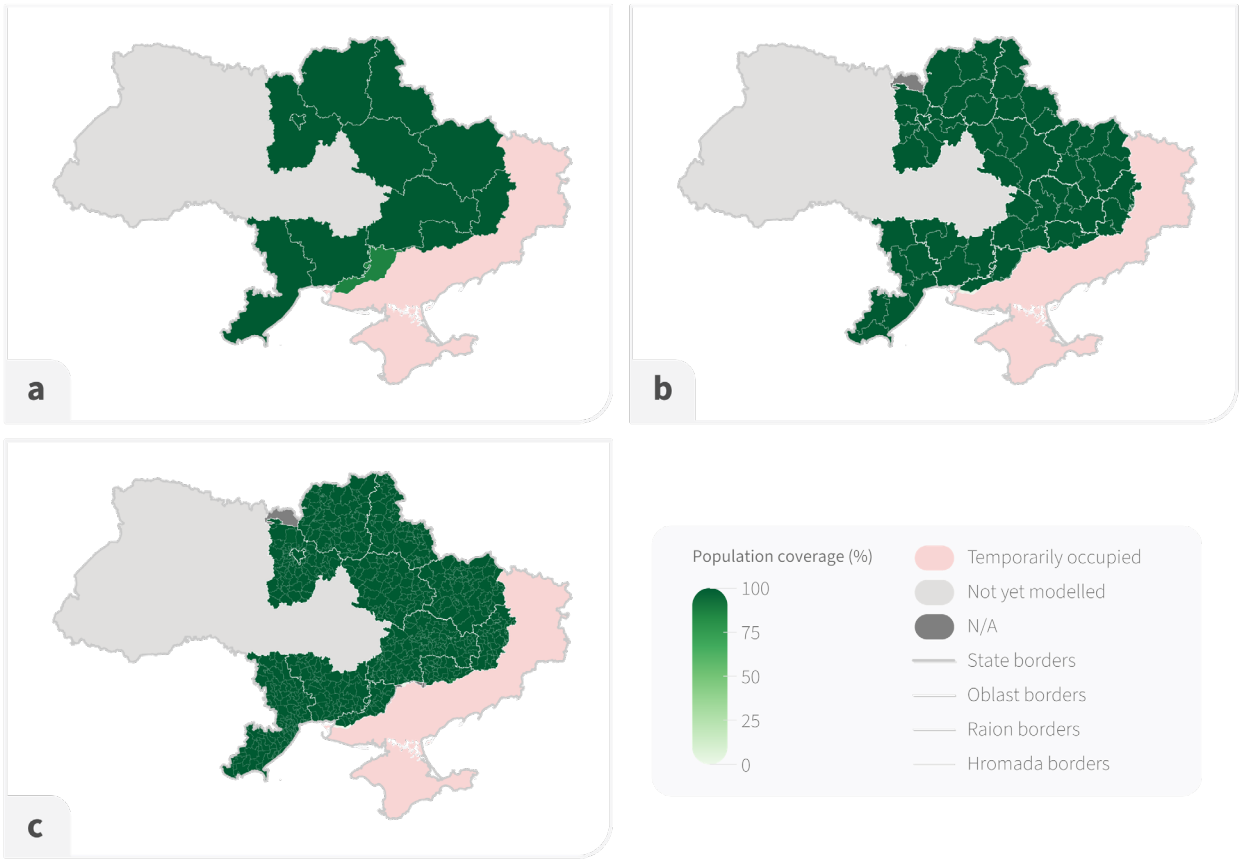


Figure 3. Percentage of the population based on the access level to a functional health facility for a maximum travel time of 60 minutes (motorised scenario).

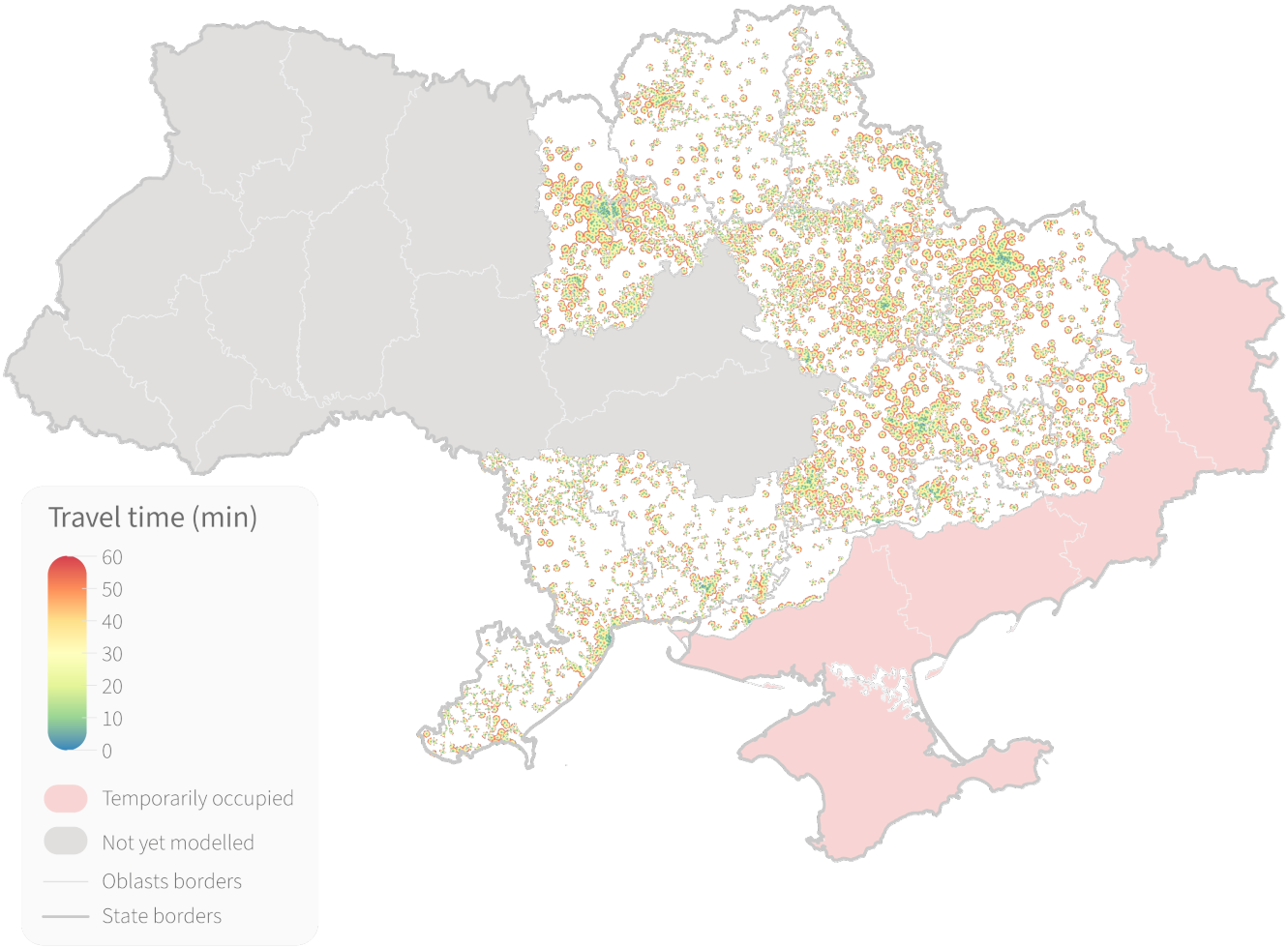


Map 5. Population coverage (%) by administrative unit (a: oblast; b: raion; c: hromada) of functional facilities for a maximum travel time of 60 minutes (motorised scenario).

Figure 4. Population coverage by oblast in a) percentage and b) absolute values of functional facilities for a maximum travel time of 60 minutes (motorised scenario). Oblasts are arranged in descending order of population coverage (%).

Access to health facilities - walking scenario

The accessibility map (Map 6) shows us the travel time to the nearest facility that is at least partially functioning walking at a speed of 4 km/h.



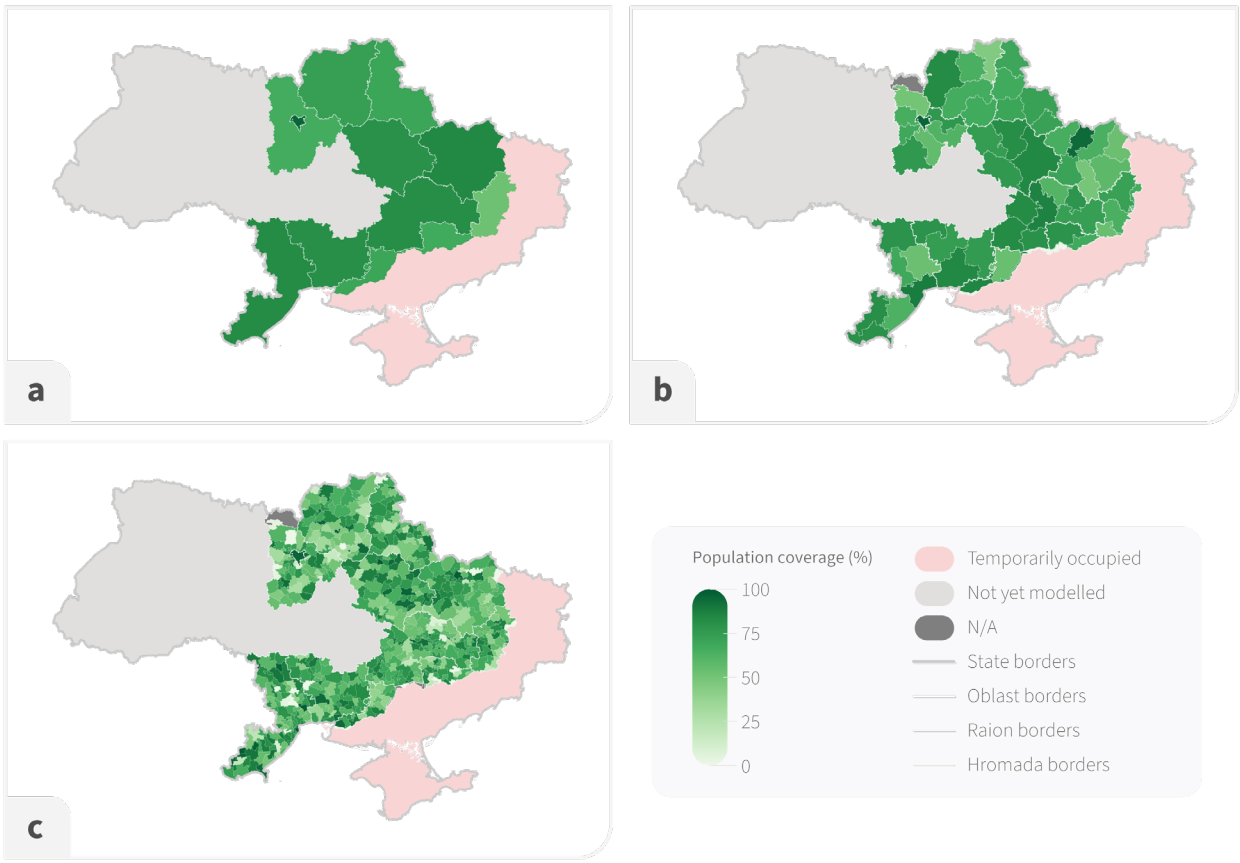
Map 6. Accessibility map to the nearest healthcare facility that is at least partially functional considering a maximum travel time of 60 minutes (motorised scenario). Areas in white on the map indicate locations that exceed the 60-minute travel time threshold; consequently, the population residing in these areas are assumed to lack physical access.

If we consider a maximum travel time of 30 minutes, our results show that 3 741 427 (20%) people have no access to a fully functional health facility (Figure 5 on page 21). The number of people who cannot even access an existing and open health facility amounts to 403 205 (2.15%). There are seven oblasts where more than 20% of the population lacks access to functional healthcare facilities (Donetska: 48%; Kyivska: 34%; Zaporizka: 33%; Sumska: 30%; Khersonska: 30%; Chernihivska: 27%; Poltavska: 20%) (Figure 5; Table 5). Map 7 and Figure 6 on page 22 show the population coverage by administrative unit. It should be noted that over 10% of the population who potentially has access (partially or completely) to a functional health facility may face non-physical barriers in the oblasts of Khersonska (32%), Donetska (24%), and Zaporizka (11%), primarily due to security reasons.

Table 5. Number of people per oblast based on the level of access to a functional health facility for a maximum travel time of 30 minutes (walking scenario).

Oblast	Full access	%	Partial access	%	No access	%
Chernihivska	656 368	73.2%	-	-	240 403	26.8%
Dnipropetrovska	2 642 722	82%	7 187	0.2%	574 798	17.8%
Donetska	175 305	35.7%	79 609	16.2%	235 890	48.1%
Kharkivska	1 470 370	81.9%	46 707	2.6%	278 561	15.5%
Khersonska	125 525	47.3%	61 159	23%	78 746	29.7%
Kyiv	3 390 049	96.1%	-	-	138 469	3.9%
Kyivska	1 778 448	65.6%	18 537	0.7%	915 474	33.8%
Mykolaivska	510 301	79.4%	9 703	1.5%	122 984	19.1%
Odeska	1 784 252	83.2%	3 031	0.1%	356 764	16.6%
Poltavska	1 127 302	79.9%	1 553	0.1%	282 343	20.0%
Sumska	601 451	70.1%	1 466	0.2%	254 913	29.7%
Zaporizka	474 379	59.5%	61 252	7.7%	262 081	32.9%

Figure 5. Percentage of the population based on the access level to a functional health facility for a maximum travel time of 30 minutes (walking scenario).



Map 7. Population coverage (%) by administrative unit (a: oblast; b: raion; c: hromada) of functional facilities for a maximum travel time of 60 minutes (motorised scenario).

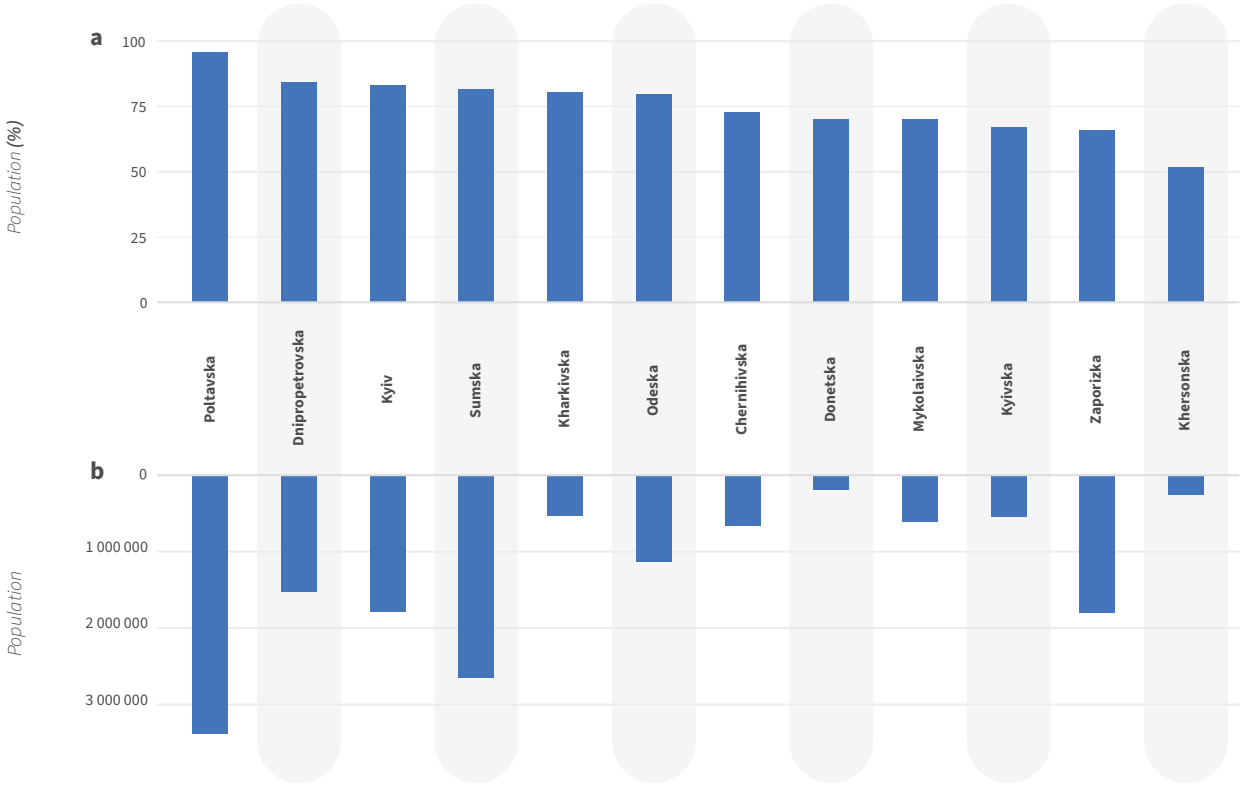


Figure 6. Population coverage by oblast in a) percentage and b) absolute values of functional facilities for a maximum travel time of 30 minutes (walking scenario). Oblasts are arranged in descending order of population coverage (%).

If we consider a maximum travel time of 60 minutes, our results show that 1 716 170 (9%) people have no access to a fully functional health facility (Figure 7 on page 23). The number of people who cannot even access an existing and open health facility amounts to 413 733 (2.2%). There are two oblasts where more than 20% of the population lacks access to functional healthcare facilities (Donetska: 37%; Khersonska: 22%) (Figure 7; Table 6). Map 8 and Figure 8 on page 24 show the population coverage by administrative unit. It should be noted that over 20% of the population who potentially has access (partially or completely) to a functional health facility may face non-physical barriers in the oblasts of Khersonska (33%), and Donetska (20%), once again, primarily due to security reasons.

Table 6. Number of people per oblast based on the level of access to a functional health facility for a maximum travel time of 60 minutes (walking scenario).

Oblast	Full access	%	Partial access	%	No access	%
Chernihivska	759 706	84.7%	-	-	137 065	15.3%
Dnipropetrovska	3 037 503	94.2%	5 441	0.2%	181 762	5.6%
Donetska	229 614	46.8%	80 909	16.5%	180 282	36.7%
Kharkivska	1 618 867	90.2%	61 208	3.4%	115 563	6.4%
Khersonska	137 412	51.8%	70 938	26.7%	57 080	21.5%
Kyiv	3 522 810	99.8%	-	-	5 708	0.2%
Kyivska	2 260 440	83.3%	14 111	0.5%	437 909	16.1%
Mykolaivska	582 957	90.7%	9 874	1.5%	50 158	7.8%
Odeska	1 967 159	91.7%	3 746	0.2%	173 141	8.1%
Poltavska	1 294 596	91.7%	1 800	0.1%	114 801	8.1%
Sumska	746 561	87%	1 771	0.2%	109 498	12.8%
Zaporizka	580 611	72.8%	63 897	8%	153 203	19.2%

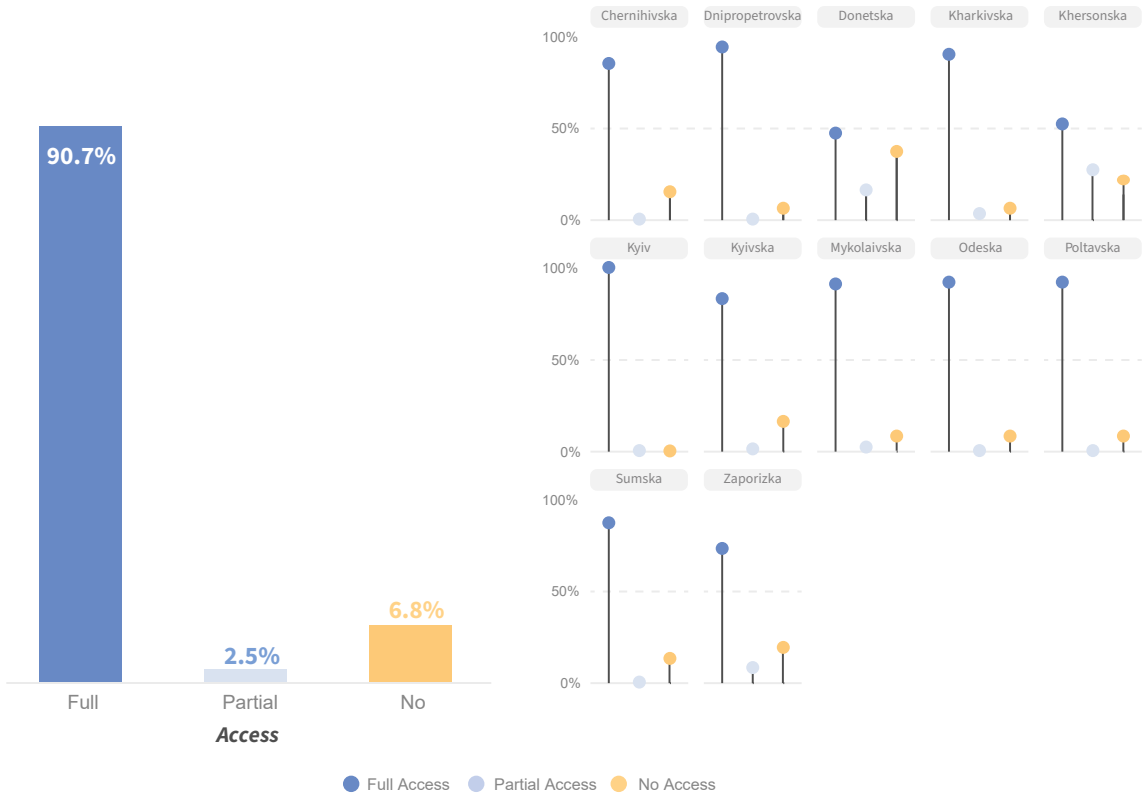
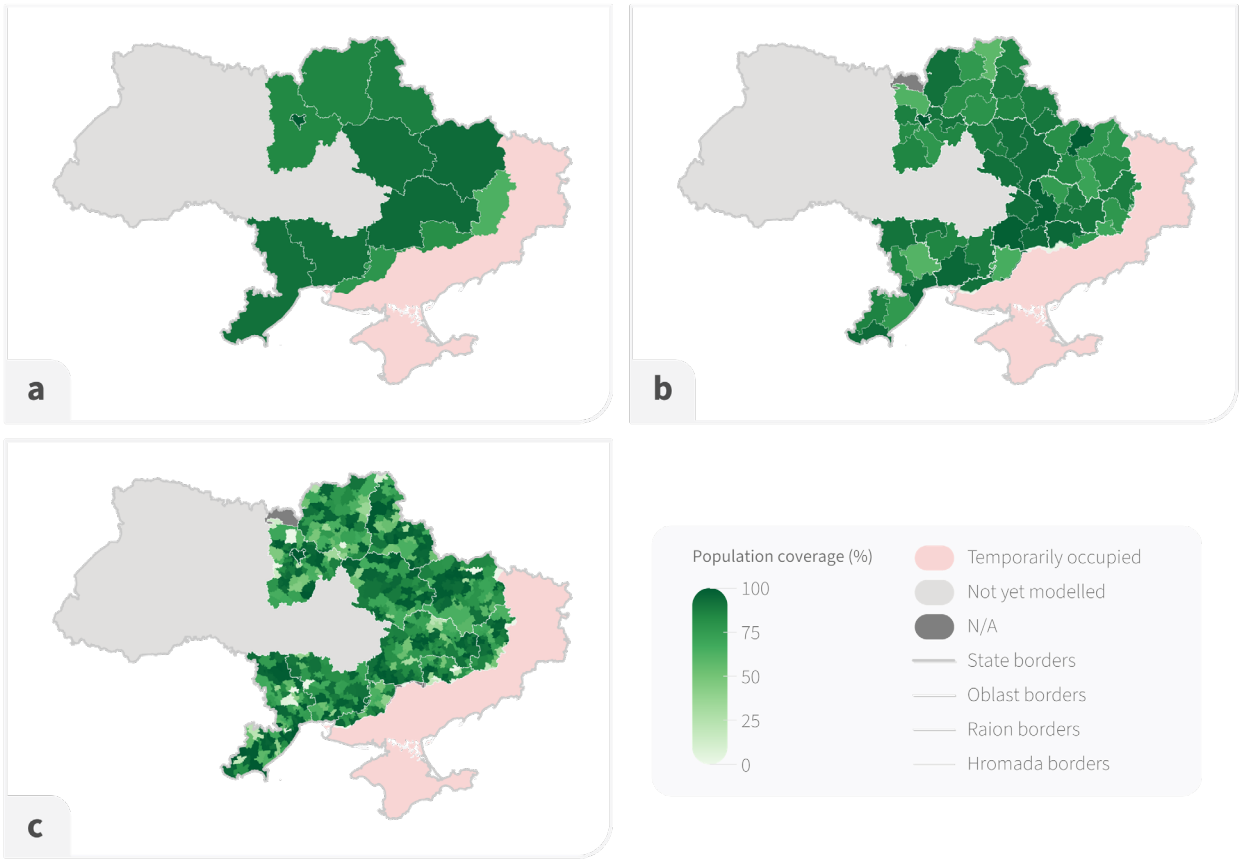


Figure 7. Percentage of the population based on the access level to a functional health facility for a maximum travel time of 30 minutes (walking scenario).



Map 8. Population coverage (%) by administrative unit (a: oblast; b: raion; c: hromada) of functional facilities for a maximum travel time of 60 minutes (motorised scenario).

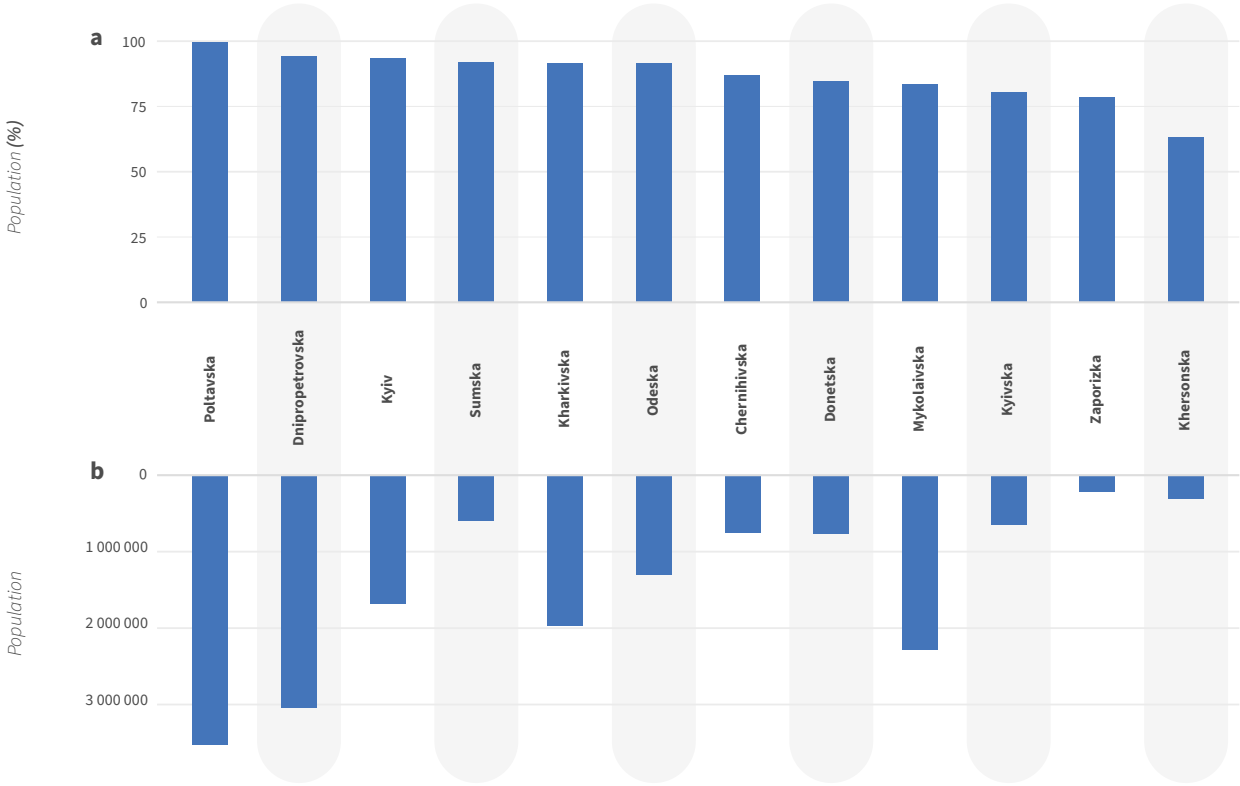


Figure 8. Population coverage by oblast in a) percentage and b) absolute values of functional facilities for a maximum travel time of 30 minutes (walking scenario). Oblasts are arranged in descending order of population coverage (%).

LIMITATIONS AND CONCLUSIONS

Modeling allows us to address a problem by considering multiple factors and guide decision-making in an efficient and rational manner. However, there are various limitations associated with data and assumptions of the model.

- Although the population data has been adjusted according to the corresponding estimate from UNFPA and constrained to the presence of buildings, it should be understood as a model of population distribution with inherent biases rather than an exact measurement. In fact, studies have shown that the choice of population distribution raster has a significant influence on accessibility indicators[10].
- A small portion of the GPS coordinates for the health facilities had to be corrected, but it is not ruled out the possibility that some may still be incorrect. In general, erroneous coordinates have a tendency to underestimate the covered population. In fact, a health facility located within a settlement but randomly displaced outside of it will see its captured population decrease.
- For this analysis, we did not consider the capacity constraints of health facilities. The assumption in our model is that a patient would go to the nearest health facility as long as the service is available, even though the theoretical number of potential patients captured by a health facility may exceed its capacity. Additionally, we did not account for the possible phenomenon of ”by-passing,” whereby patients may not go to the nearest health facility for various reasons (e.g., perceived or actual quality of care, financial barriers).

Despite the potential biases related to the limitations mentioned above, the results presented in this report have allowed us to identify the locations where coverage is deficient in the government-controlled areas of the eastern oblasts, at different scales. Overall, we observed that considering a walking-only travel scenario, the travel time pose a significant problem in Donetska where almost 40% of the population cannot access a health facility within 60 minutes. In Khersonska and Zaporizka this percentages is around 20%.

We would like to emphasize that this analysis reflects the current situation and is not definitive. Therefore, we recommend regularly updating these results based on recent data. It is important to continuously monitor and incorporate new information to ensure the accuracy and relevance of the analysis.

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