

***Urban health equity assessment  
and response tool project (Urban  
HEART)***

***Socioeconomic determinants and  
health status of people living in  
Ariana, Tunisia***

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# Executive summary

The Urban Health Equity Assessment and Response Tool (Urban HEART) has been designed to help different authorities examine intercity and intracity health inequities. Urban HEART methodology is based on collecting information relevant to health equity in five domains and then analysing the data to find differences in key indicators in different parts of the same city. The gaps in access to the required socioeconomic services can then be shared with local policy-makers and city planners for future planning and identifying appropriate interventions.

Using Urban HEART successfully depends on the commitment of the local authorities who contribute to the various determinants of health, such as access to health services, safe water and sanitation, urban transportation, road safety, food safety, etc. Thus, a comprehensive study of these determinants at the local level is required to determine health and social problems at the grass-roots level and to adopt a multisectoral approach to respond to health inequities. The implementation of Urban HEART requires evidence in five key domains:

- health (infant mortality rate, life expectancy, prevalence of chronic diseases)
- physical environment and infrastructure
- social and human development
- economic
- governance.

A project entitled “Towards healthy urbanization in Ariana” was initiated by the Ministry of Public Health in 2009, with technical support from WHO. The survey results, along with data collected from the National Institute of Statistics, the local authority and the regional public health department, provide sufficient information to highlight health and social gaps within the community.

According to the available health and social indicators, the population of Ariana has access to safe drinking water and improved sanitation, has full immunization coverage and the city has no slum areas. Given this information, the local city planners concluded that they needed to have other indicators relevant to the underlying causes of health inequities to choose the appropriate interventions. To identify the best indicators, the local team responsible for Urban HEART analysed the degree of socioeconomic and sanitary development in Ariana.

This report presents the main activities and results of Urban HEART in Ariana. The Urban HEART Ariana approach is based on the following:

- comprehensive understanding of the characteristics of Ariana
- assessment of health equity in Ariana
- detecting all forms of health inequities and providing a response to health inequities.

# Introduction

Tunisia is a country of 264 municipalities. The country is facing rapid urbanization due to progressive demographic growth and interregional migration. Urbanization in Tunisia has contributed to many socioeconomic and environmental problems, including unemployment, poverty, health inequity, social exclusion, insecurity, road injuries, food safety, environmental pollution and lack of access to safe water supply and sanitation.

Strategic policies and development interventions have improved access to public services such as drinking water, electricity, sanitation, education and primary health care services at the national and local level in the city of Ariana. However, attempts to improve health status and health equity still face many social and environmental challenges. Health status in urban areas is characterized by a high prevalence of chronic diseases and unhealthy lifestyle habits such as lack of physical exercise, smoking and poor nutrition.

These health challenges need to be examined to provide policy-makers with evidence of the existence of health inequality in urban settings. Reducing health inequality is a complex task given the various health determinants, such as social, environmental and economic factors.

Joint action is needed to reduce the high prevalence of chronic diseases and risk factors and to improve environmental conditions, reduce work-related and road traffic injuries and strengthen community and government cooperation.

## **Characteristics of Ariana**

Ariana is situated in the north-eastern coast of Tunisia and is the capital city of Ariana governorate. It is the sixth most populated city in Tunisia with 500 000 inhabitants in 2010.

Ariana is characterized by a higher population density than the surrounding areas. In 2009, the population of Ariana was estimated to be 109 500, which is 1% of the total Tunisian population (Box 1). There were 30 942 households.

**Box 1. Characteristics of the city of Ariana**

Main city of Ariana governorate

Area: 1846.5 hectares

Population: 109 500 inhabitants (1 July 2009)

Density: 4239 inhabitants/km<sup>2</sup>

Geographic location: northern suburbs of the capital Tunis, approximately 8 km

Code area: 2080

There are four districts in Ariana (Appendix 1):

- Ariana Ville or Médina
- Ariana Superior
- Ennasr 1 and 2
- El Menzeh 5, 6, 7 and 8.

The inhabitants of Ariana are unequally distributed in the four districts, resulting in a community with health inequities.

The sustained urbanization in Ariana has generated:

- an absence of agricultural activities
- underequipped public services
- a high unemployment rate
- overcrowding and traffic congestion
- a high level of pollution, as indicated by the national network for monitoring air quality, the National Agency of Environment Protection.

The Healthy City Programme was initiated in Tunisia in 2007, involving a multisectoral team including representatives from:

- the health sector (the National Institute of Public Health and the Regional Directorate of Public Health Ariana);
- the municipality of Ariana;
- WHO Regional Office for the Eastern Mediterranean.

Several activities have been launched, including an awareness campaign and prevention and strengthening of primary health care services to promote public health and reduce health inequities. The municipality and the Regional Directorate of Public Health have played a central role in the coordination of the various partner and stakeholders.

## **Objectives of the study**

The overall objective of the study is to improve knowledge on the determinants of health in the city of Ariana by assessing health inequities in different parts of the city and between the city and the national level and developing an appropriate response to reduce health inequity.

The household survey aims to:

- assess socioeconomic characteristics of the households
- assess housing and living conditions of families
- estimate prevalence of chronic diseases (diabetes, hypertension, high cholesterol)
- estimate use of ambulatory and hospital services
- estimate health care expenditure.

The survey also examines some aspects at the individual level:

- knowledge of risk factors of chronic diseases
- attitudes and behaviour related to chronic disease (e.g. physical activity, nutrition, obesity, smoking, use of alcohol)
- assessment of quality of care provided to patients with chronic diseases
- results of clinical examinations for chronic diseases.

# Measuring health inequities in Ariana using Urban HEART indicators

## Selection of indicators

According to the Urban Health Equity Assessment and Response Tool (Urban HEART), (1) indicators are categorized into five major domains. The indicators are grouped within a general scheme specifying the comparative aspect of inequality between different districts and areas (Table 1). The data for Ariana were collected from different sources:

- the census or the registry of deaths
- longitudinal or cross-sectional studies
- official reports and administrative documents.

It was agreed that the data should have the following characteristics.

- Data should have a high level of reliability, transparency and completeness.
- Wherever possible, they should come from existing information systems, records and reports.
- Disaggregated data should be collected, analysed and reported for subgroups of the population by sex, age, education level and income.
- Different sources of information, including local, national and international, should be examined.

**Table 1. Demographic indicators for Ariana districts and the city and governorate of Ariana, 2009**

Indicators	Ariana Ville	Ariana Superior	Ennasr	EI Menzeh	Municipality of Ariana	Governorate of Ariana	National
Population	36 527	23 793	32 659	16 521	109 500	491 515	10 489 118
Male	18 360	11 959	16 416	8 304	55 039	251 806	5 232 503
Female	18 167	11 834	16 243	8 217	54 461	239 709	5 256 615
No. of households	9 717	6 340	9 896	4 989	30 942	120 700	2 407 200
No. of houses	11 099	7 162	12 231	5 692	36 184	139 047	2 754 090

Source: National Institute of Statistics. (4)

A technical advisory committee was established to guide the selection of the most appropriate indicators within the context of Ariana, validate the choice of indicators and technically support the research study. The technical committee was mostly composed of key personnel from the municipality of Ariana and the Regional Department of Public Health (Table 2). It should be noted that other stakeholders were involved during the final stage of the project.

The team agreed on the following sources of information:

- Towards Healthy Urbanization in Ariana Survey 2009; (2)
- Labour Force Survey 2009, National Institute of Statistics, Ministry of Economy; (3)
- documents and administrative reports of the National Institute of Statistics, the National Institute of Public Health, and the Regional Department of Public Health, Ariana;
- reports and information from Ariana.

**Table 2. Composition of the technical committee**

Regional Department of Public Health	5 physicians
	2 paediatricians
	1 nutritionist
	3 dietitians
	1 geriatrician
Municipality of Ariana	1 architect
	1 veterinary
Regional Department of Secondary Education	1 schoolteacher
WHO Country Office, Tunisia	1 physician
National Institute of Statistic	1 statistical engineer
National Institute of Public Health	2 epidemiologists
Higher education	1 health economist

## Results of the household survey

The sample covered 1200 households (3000 individuals). The four districts of the city of Ariana were represented as follows: Ariana Ville (36%), Ariana Superior (18%), Ennasr (18%) and El Menzeh (28%). The surveyed population was relatively young,

with a high proportion in the age group 25–34 years. The proportions of male and female respondents were 39% and 61%, respectively (Table 3).

**Table 3. Distribution of the sample population by age and sex**

Age (years)	No. of males (%)	No. of females (%)	Total no. (%)
18–24	59 (14)	90 (9.8)	149 (11.1)
25–34	86 (20.4)	196 (21.4)	282 (21.0)
35–44	69 (16.4)	203 (22.1)	272 (20.3)
45–54	60 (14.2)	168 (18.3)	228 (17.0)
55–64	52 (12.3)	173 (18.8)	225 (16.8)
>65	96 (22.7)	88 (9.6)	184 (13.7)
Total	422 (100.0)	918 (100.0)	1340 (100.0)

Source: *Towards healthy Ariana survey 2009. (2)*

**Table 4. Distribution of population by district, education, socioeconomic index and income**

Indicator	Ariana Ville	Ariana Superior	EI Menzeh	Ennasr	Ariana
<b>Education level</b>					
Illiterate	15.7	7.4	2.4	2.1	8.1
Primary	23.2	14.8	8.3	6.3	14.5
College	4.3	2.5	1.1	0.8	2.5
Secondary	31.9	32.8	39.8	36.0	35.0
Higher	24.8	42.6	48.4	54.8	40.0
<b>Socioeconomic index</b>					
Low	26.1	23.8	7.2	6.7	16.9
Medium	22.8	13.9	27.8	28.0	23.5
Good	20.1	26.6	33.2	37.2	28.0
Higher	31.1	35.7	31.8	28.0	31.6
<b>Income (Tunisian dinar)</b>					
<500	32.1	26.1	6.0	4.9	21.6
500–1000	30.8	30.9	16.5	9.9	25.3
≥1000	37.2	43.0	77.5	85.2	53.1
Total	36.0	18.2	27.9	17.8	100.0

Source: *Towards healthy Ariana survey 2009. (2)*

Table 4 shows the distribution of the population by district, education, socioeconomic index and income. Regarding level of education, 75% of all Ariana respondents have a high school education or higher, 14.5% have a primary education and 8.1% are illiterate, i.e. individuals declaring no education and expressing an

inability to read and write. The percentage of illiteracy in Ariana Ville is high (15.7%) compared with other districts. The percentage of the population with a higher education is high in Ennasr (54.8%) compared with Ariana Ville (24.8%).

Socioeconomic index was calculated to highlight the difference between groups in the population. This index regroups variables related to household living conditions (type of housing, size of households, ownership of car, computer, etc.). The index is distributed over four socioeconomic levels (low, medium, good and high) and shows large disparities between districts of Ariana. For example, the proportion of households with a lower socioeconomic index is higher in Ariana Ville and Ariana Superior (26.1% and 23.8%, respectively) than in El Menzeh and Ennasr (7.2% and 6.7%, respectively).

The survey results can help detect health equity and identify appropriate interventions for each district and subgroup. The survey provides information on prevalence of risk factors for cardiovascular diseases, socioeconomic characteristics (income, socioeconomic index), attitudes and behaviour of patients with chronic diseases, and anthropometric measures and blood pressure.

#### *Inequities in risk factors*

The results stratified by districts show that the population appears to be particularly exposed to the various risk factors for cardiovascular disease, with a higher prevalence for diabetes, hypertension and obesity in Ariana Ville and a higher smoking prevalence in Ennasr and El Menzeh.

- For the first time in Tunisia, prevalence of hypertension is higher in men than women. However, obesity is more prevalent in women.
- Cigarette smoking remains higher among men (the same result was obtained in 2005 [5]) but there is a higher prevalence of smoking among women compared with the previous survey. Moreover, the age group 18–25 years is most at risk from smoking. The study showed that there is no relation between socioeconomic status, income and the prevalence of smoking. However, educational level is related to smoking among women: the higher the educational level the higher the prevalence of smoking in women.
- The combination of more than three risk factors (diabetes, hypertension and tobacco use) is an indicator of high risk of cardiovascular disease. The study revealed that this indicator is very high in 67.9% of the population, especially in the district of Ariana Ville and Ariana Superior.

With regard to protective factors, according to the Ariana' survey 2009 (2), the consumption of five portions of fruits, vegetables and the regular practice of physical activity remains low.

### *Inequalities in mortality*

Death statistics for 2009 showed that the leading cause of death was cardiovascular disease (27.7%), followed by tumours (14.4%) and respiratory diseases (10.4%). Road traffic accidents represented only 1.4% of death.

The present survey in the Ariana showed a higher prevalence of cardiovascular disease in those over 18 years old. Prevalence of risk factors for cardiovascular disease morbidity and mortality are also high. These results are a useful guide to help implement an approach to cardiovascular disease with respect to social and environmental factors, targeting specific interventions in Ariana.

### *Inequities in utilization of health care services (inpatient and outpatient)*

The main reasons that people seek medical care are respiratory diseases (29.5%), cardiovascular disease (12.1%) and mental illness (2.9%). Rather than the prevalence of risk factors, socioeconomic index was found to be an important determinant of access to health care services. Accordingly, the survey shows the impact of inequities in term of access to health care services per district. The number of visits for hypertension and diabetes is significantly influenced by socioeconomic status and those in low-income groups consult physicians less than those in high-income or middle-income groups. For example, the survey results show that 35% of people of higher socioeconomic status have a consultation to monitor blood pressure once a year, while only 16% of people of lower socioeconomic status had such a consultation.

The high cost of treatment for cardiovascular disease risk factors such as hypertension and diabetes deters lower income groups from consulting a physician. Thus, the average expenditure on hypertension and diabetes is higher with higher socioeconomic index of the population.

In summary, the survey shows that health inequities exist in Ariana. They affect life expectancy, quality of life and healthy behaviour, as well as access to and utilization of health care services. However, health inequities may differ according to location and these trends will be highlighted and clarified by Urban HEART.

# Using Urban HEART matrices to identify health inequities in Ariana

Beyond the simple tracking of health status and socioeconomic characteristics in Ariana, a standard system is needed to find disparities between districts in multiple indicators of health inequities. The Urban HEART matrix was used to detect inequities across the multiple indicators, to enable within-city comparisons.

The Urban HEART matrix for within-city comparisons is a colour-coded chart that clearly shows health inequities: (1)

- red cells indicate a performance that is worse than the national level;
- yellow cells indicate a performance that is equal to or better than the internal benchmark, yet lower than the desired target;
- green cells indicate a performance that is equal to or better than both the national level and the desired target.

However, some indicators have provided good average realities. For such situations, the desired target is obtained mathematically with reference to the national target if this exists. Desired targets related to Millennium Development Goal indicators are fixed using international commitments. For instance, we use the international commitment of reducing the infant mortality rate by 2% if the target has already been achieved at district level. Otherwise, the desired target is based on national political goals or achieved performance in other cities or districts in Tunisia.

When choosing interventions, we should refer to the numerical values of indicators from the districts, and compare with the city, governorate and national averages (Appendix 2).

## Urban HEART matrices results

The five Urban HEART matrices identify health inequities within the districts of Ariana. Results were presented to the technical committee and representative of different sectors in a 2-day workshop held in December 2011. The technical committee and stakeholders discussed the relevance of indicators reported on the Urban HEART matrices with an analysis of health inequities. They also highlighted the missing data. The following results are given by policy domain, indicators and district. The definitions of Urban HEART are used for all indicators, for instance

alcohol outlet density is expressed as the number of alcohol outlets per 100 000 population.

*Health domain*

Table 5 shows health indicators within Ariana.

**Analysis of health indicators**

Table 5 gives an overview of the health domain for each district in 2009, which is useful for the local authority in Ariana. These inequity profiles were produced in partnership with the technical committee. The improvement in infant mortality in the Ariana districts should be noted. The rate of infant mortality in the city of Ariana is less than in the governorate of Ariana and less than the national level in 2009 (Appendix 2).

The indicator of higher risk of mortality is an association of three risk factors (diabetes, hypertension and tobacco). There is a higher risk of mortality in the Ariana population (67.8%), especially in the districts of Ariana Ville and Ariana Superior.

**Table 5. First Urban HEART matrix: indicators of health domain, 2009**

Indicator		Ariana Ville	Ariana Superior	El Menzeh	Ennasr	Ariana
1B	Infant mortality <sup>a</sup>	18.1	17.3	11.5	10.6	15.4
2B	Diabetes (known)	12.6	9.8	5.9	9.9	10.2
	Hypertension	42.0	38.1	23.0	36.1	36.3
3B	Cardiovascular risk factors (3–5 factors)	73.5	73.8	55.6	64.4	67.8
4B	Deaths related to traffic injuries (100 000 inhabitants)	0.0	8.4	3.1	0.0	2.7
1R	Under-five mortality rate	19.6	19.1	12.7	11.7	16.8
2R	Maternal mortality ratio	0.0	0.0	0.0	0.0	0.0
3R	Life expectancy at birth <sup>b</sup>	75.5	75.9	76.4	76.7	76.0
4R Prevalence	A. All cancers	2.3	1.9	0.0	2.3	1.9
	B. Cardiovascular disease	11.6	5.6	13.2	17.3	12.1
	C. Respiratory diseases	29.5	45.8	29.4	16.5	29.5
	F. Mental illness	17.0	0.0	4.4	2.3	2.9

<sup>a</sup> The target is to reduce infant mortality rate by 50% by 2015 (Millennium Development Goal).

<sup>b</sup> The target is to increase life expectancy at birth by 2 years by 2014.

The city of Ariana has better access to safe water and sanitation facilities than other urban or rural populations in Tunisia (Appendix 2). The challenge is to achieve 100% benefit from these public services starting with the districts of Ariana Ville and El Menzeh then Ariana Superior and Ennasr (Table 5). Work-related death and road traffic injuries can be similarly addressed. Preventive measures are required to achieve the specific target in the districts of Ariana Ville, Ennasr and El Menzeh. In Annex 2, the indicator of green space is higher than the governorate and national average but it masks the fact that there is a lack of maintenance and many parks are not in use.

Table 6 summarizes the performance for each indicator in the districts of Ariana.

### Main causes of death

Deaths from cardiovascular disease are more frequent in El Menzeh, Ennasr and Ariana Ville. Deaths from respiratory diseases are more prevalent in Ariana Ville, while tumours are more prevalent in El Menzeh (Table 7).

**Table 6. Health inequities profile by health domain in Ariana districts**

Indicator	Worse performance internal benchmark <sup>a</sup>	Worse performance external benchmark <sup>b</sup>
Infant mortality	Ariana Ville/Ariana Superior	–
Prevalence of diabetes	Ariana Ville	El Menzeh
Arterial hypertension	Ariana Ville/Ariana Superior	El Menzeh
Higher risk of cardiovascular disease	Ariana Ville/Ariana Superior	–
Traffic road mortality	Ariana Superior/Ennasr	–
Under-five mortality	Ariana Ville/Ariana Superior	Ennasr
Life expectancy at birth	Ariana Ville/Ariana Superior	Ennasr/El Menzeh
All cancers	Ariana Ville/El Menzeh	Ennasr
Cardiovascular disease	Ennasr/El Menzeh	–
Respiratory diseases	Ariana Superior	Ariana Ville/Ennasr
Mental illness	Ariana Ville/Ennasr	–

<sup>a</sup> Internal benchmark for each indicator is the national or city average. See *Urban HEART user guide*. (1)

<sup>b</sup> External benchmark for each indicator is the national or desired target

**Table 7. Main causes of death within Ariana districts and at national level**

Main cause of death	Ariana Ville	Ariana Superior	El Menzeh	Ennasr	Municipality of Ariana	National
Cardiovascular diseases	32.8	35.7	61.5	40.9	46.8	41.6
Malignant tumours (all sites combined)	15.5	25.0	7.7	22.7	63.0	24.3
Respiratory diseases	15.5	0.0	7.7	9.1	29.0	23.9
Road traffic accidents	0.0	3.6	0.0	0.0	–	–
Mental disorders	0.0	0.0	0.0	0.0	2.7	1.5
AIDS	0.0	1.0	0.0	0.0	0.0	0.1

*Physical environment and infrastructure domain*

Tables 8 and 9 show physical environment and infrastructure indicators within Ariana.

**Analysis of environment and physical infrastructure indicators**

Table 8 shows that evidence of health inequities in the cities of Ariana Superior and El Menzeh are highlighted for work-related death accidents as well as work-related injuries. Given this high-risk profile, the benefits of a work-related driving safety programme could be significant and include the reduction of death and injury and all their related personal, social and economic costs.

**Table 8. Indicators of second Urban HEART matrix: indicators of physical environment and infrastructure, 2009**

Indicator	Ariana Ville	Ariana Superior	El Menzeh	Ennasr	Ariana
1B Access to safe water	99.5	99.6	99.6	99.5	99.6
2B Access to improved sanitation	99.3	99.6	99.6	99.5	99.6
1R Households served by municipality solid waste management system	100.0	100.0	100.0	100.0	100.0
Work-related death accidents (per 100 000 exposed workers)	0.0	9.0	6.6	0.0	3.9
Work-related injuries (per 100 000 exposed workers)	53.0	99.4	111.9	104.1	88.4
1Op Alcohol outlets (density per 100 000 inhabitants)	2.7	0.0	0.0	6.1	1.8
2Op Access to green spaces	6.5	2.8	5.4	6.3	4.9

**Table 9. Health inequities profiles by the physical environment and infrastructure domain in Ariana**

Indicator	Worse performance internal benchmark	Worse performance external benchmark
Access to safe water	Ariana Ville/El Menzeh	Ariana Superior/Ennasr
Access to improved sanitation	Ariana Ville/El Menzeh	Ariana Superior/Ennasr
Work-related death	Ariana Superior/Ennasr	–
Work-related injuries	Ariana Superior/Ennasr/El Menzeh	–
Alcohol outlets	Ariana Ville/El Menzeh	–
Access to green spaces	Ariana Superior	Ariana Ville/Ennasr/El Menzeh

Awareness of alcohol outlets is also raised for the cities of Ariana Ville and Ennasr.

The extent of green space, such as parks, is highlighted for Ariana Superior. Residents of Ariana Superior will have less access to green space as the districts grow, unless measures are taken to maintain access in future urban development. Systematic planning to best arrange urban green space and urban development is needed in the near future to deal with the benefits to biodiversity, human well-being and economic output.

#### *Social and human development domain*

Table 10 shows health inequities related to social and human development within Ariana. Compared with other districts, Ariana Ville has more health inequities in primary education, overweight and physical activities and less in terms of tobacco smoking and literacy.

**Table 10. Third Urban HEART matrix: indicators of social and human development, 2009**

Indicator	Ariana Ville	Ariana Superior	El Menzeh	Ennasr	Ariana
1B Completion of primary education	96.0	97.0	98.0	98.0	97.0
4B Prevalence of tobacco smoking	20.7	27.5	28.5	28.9	25.6
1R Literacy rate (over 10 years)	9.0	8.5	5.5	5.2	7.6
3R Overweight and obesity (body mass index $\geq 30$ )	30.1	31.3	17.6	16.7	24.4
6R Physical activity	54.5	58.2	61.1	57.2	57.1

## Analysis of social and human development indicators

Health inequities in urban settings affect all citizens, especially when health expenditure is a real burden. Out-of-pocket expenditure is high in Tunisia (43% of total health expenditure in 2008). This is confirmed for households living in the districts of Ariana, as shown in terms of the ratio of health expenditure to total expenditure (Table 10). A summary of district performance for each indicator is given in Table 11.

Table 12 shows economic indicators within Ariana.

**Table 11. Health inequities profiles by the domain of social and human development within Ariana**

Indicator	Worse performance internal benchmark	Worse performance external benchmark
Completion of primary education	Ariana Ville	Ariana Superior/Ennasr/EI Menzeh
Prevalence of tobacco smoking	Ariana Superior/Ennasr/EI Menzeh	–
Literacy (over 10 years)	Ariana Ville	Ariana Superior
Overweight and obesity (body mass index $\geq 30$ )	Ariana Ville/Ariana Superior	–
Physical activity	Ariana Superior/Ennasr/EI Menzeh	–

**Table 12. Fourth Urban HEART matrix: economic indicators, 2009**

Indicator	Ariana Ville	Ariana Superior	EI Menzeh	Ennasr	Ariana
1B Unemployment rate	7.7	7.6	5.0	4.6	6.6
1R Extreme poverty	1.2	1.0	0.9	0.8	1.0
Share health expenditure to total households expenditure	11.3	9.4	8.4	8.2	9.3
Indicator of catastrophic health expenditures	45.0	29.0	5.0	21.0	22.0
% of people with social health insurance	81.6	56.3	92.9	86.6	80.3
2R Women in workforce	37.5	39.1	40.0	41.0	39.2

*Economic domain***Analysis of economic indicators**

Table 13 shows the role of economic factors in the health status of the population of Ariana. Using measures of unemployment, poverty, health expenditure and health insurance, the districts of Ariana Ville and Ariana Superior have a higher level of socioeconomic problems (unemployment and poverty) and a higher level of exposure to catastrophic health expenditure.

**Table 13. Health inequities profiles by the economic domain within Ariana**

Indicator	Worse performance internal benchmark	Worse performance external benchmark
Unemployment rate	Ariana Ville/Ariana Superior	Ennasr/EI Menzeh
Extreme poverty	Arianna Ville/Ariana Superior	Ennasr/EI Menzeh
Proportion of health expenditures/total household expenditures	Arianna Ville/Ariana Superior	Ennasr/EI Menzeh
Catastrophic health expenditure	Arianna Ville/Ariana Superior	EI Menzeh
Social health insurance	Ariana Superior	Arianna Ville
Women in the workforce	Arianna Ville	Ariana Superior/Ennasr

*Governance domain*

Table 14 shows governance indicators within Ariana.

**Table 14. Urban HEART matrix: governance indicators, 2009**

Indicator	Ariana Ville	Ariana Superior	EI Menzeh	Ennasr	Ariana
1B Government spending on health	39.6	41.8	9.8	8.8	31.7
2R Insurance coverage (complementary)	2.4	1.6	8.2	7.1	5.0
1Op Government spending on education	33.5	21.6	29.9	15.1	21.0

## Analysis of governance indicators

The management of relationships between the various stakeholders in health, including individuals, households, communities, governments, nongovernmental organizations, financing entities and health insurance companies, can be an intrinsic aspect of governance. In particular, it can involve the quality of health services, their financing and access to them.

In selecting indicators for measuring governance in health, a premium should be placed on their usefulness and relevance. Governance indicators should generally not be used in isolation when designing policy responses to health inequities. However, the indicators in Table 15 highlight a worse performance in all districts of Ariana.

## Matching health inequities by subgroups

Urban HEART goes further than assessment and guides users in identifying health inequities by subgroups of citizens using the same indicators. Government and local authorities should be able to identify which categories of citizens are affected by health inequities and the reasons for this. For this purpose, we provide disaggregated data by socioeconomic characteristics (gender, age groups, education level and income quintile).

Prevalence of diabetes and hypertension is higher in males than females (Table 16). Males aged over 45 years, with lower income and education level are the most affected by hypertension. Individual with the lowest income present the higher prevalence of diabetes.

Prevalence of risk factors (obesity and tobacco consumption) is high in Ariana (Table 17). Tobacco consumption is more prevalent in males than females; however, obesity is higher in females than males. Women aged over 35 years have a higher risk of obesity than men. In addition, illiterate and primary educated individuals are more obese and consume less tobacco than those with secondary and higher education.

**Table 15. Health inequities profiles by the governance domain, Arianna**

Indicator	Worse performance internal benchmark	Worse performance external benchmark
Government spending on health	–	Ennasr/EI Menzeh
Complementary insurance coverage	Ariana Ville/Ariana Superior	Ennasr/EI Menzeh
Government spending on education	EI Menzeh	–

**Table 16. Prevalence of diabetes, hypertension by sex, age, education and quintile-income**

Characteristic		Chronic disease	
		Diabetes	Hypertension
Sex	Male	12.9	41.3
	Female	8.9	33.9
Age group (years)	18–24	0.7	9.5
	25–34	1.4	13.1
	35–44	3.3	18.0
	45–54	10.5	41.2
	55–64	20.4	64.9
	65+	28.3	79.3
Education	Illiterate	24.5	66.0
	Primary	13.9	49.5
	Secondary	11.2	37.6
	Higher	5.0	24.3
Income quintile	Q1 (<450)	15.3	42.0
	Q2 (450–800)	9.9	42.3
	Q3 (800–1200)	12.0	37.3
	Q4 (1200–2000)	5.5	35.5
	Q5 (≥2000)	11.5	25.5

**Table 17. Prevalence of risk factors (obesity and tobacco consumption) by sex, age group, education and income quintile**

Characteristic		Risk factor	
		Obesity (%)	Tobacco (%)
Sex	Male	17.2	46.0
	Female	27.7	16.2
Age group (years)	18–24	5.5	36.5
	25–34	12.9	26.1
	35–44	28.6	28.7
	45–54	30.7	27.6
	55–64	38.2	19.6
	65+	25.7	16.3
Education	Illiterate	44.8	8.5
	Primary	39.4	23.7
	Secondary	24.7	27.3
	Higher	14.2	28.2
Income quintile	Q1 (<450)	33.6	26.0
	Q2 (450–800)	34.8	21.1
	Q3 (800–1200)	25.3	22.0
	Q4 (1200–2000)	19.2	25.1
	Q5 (≥2000)	21.2	29.9

Source: *Towards healthy Ariana survey 2009. (2)*

The association of more than three risk factors (diabetes, hypertension, obesity, tobacco, low physical activity and low consumption of vegetables and fruits) is high (67.8%) in the overall Ariana population and especially in the districts of Ariana Ville and Ariana Superior. Table 18 highlights the distribution of risk factors of the population according to socioeconomic status. Women are more exposed to risk factors than men. By age group, those older than 35 years are more exposed to risk factors.

## Health inequities in Ariana

### *Trends in Urban HEART indicators: example of poverty*

The United Nations Development Programme report *Tunisia national report on Millennium Development Goals* published in 2004 (6) lists the following Millennium Development Goals:

- Goal 1: eradicate extreme poverty and hunger.
- Goal 2: achieve universal primary education.
- Goal 3: promote gender equality and empower women.

**Table 18. Risk factors by sex and age group**

Characteristic		Less than three risk factors <sup>a</sup>	Three or more risk factors	Total
		No. (%)	No. (%)	No. (%)
Gender	Female	99 (23.5%)	322 (76.5%)	421 (100.0%)
	Male	332 (36.1%)	587 (63.9%)	919 (100.0%)
	Total	431 (32.2%)	909 (67.8%)	1340 (100.0%)
Age group (years)	<25	77 (52.0%)	71 (48.0%)	148 (100.0%)
	25–34	132 (46.6%)	151 (53.4%)	283 (100.0%)
	35–44	98 (36.0%)	174 (64.0%)	272 (100.0%)
	45–54	46 (20.2%)	182 (79.8%)	228 (100.0%)
	55–64	47 (20.9%)	178 (79.1%)	225 (100.0%)
	65–74	20 (15.0%)	113 (85.0%)	133 (100.0%)
	75+	11 (21.6%)	40 (78.4%)	51 (100%)
	Total	431 (32.2%)	909 (67.8%)	1340 (100%)

<sup>a</sup>Risk factors are diabetes, hypertension, obesity, tobacco, low physical activity and low consumption of vegetables and fruits.

Source: *Towards healthy Ariana survey 2009*. (2)

- Goal 4: reduce child mortality rates.
- Goal 5: improve maternal health.
- Goal 6: combat HIV/AIDS, malaria and other diseases.
- Goal 7: ensure environmental sustainability.
- Goal 8: develop a global partnership for development.

In Tunisia, the poverty rate in urban areas was 11.8% in 1980 but decreased to 7.3% in 1990 and to 1.9% in 2005. Table 19 shows that since 1985, absolute poverty (extreme poverty) is higher in urban areas than rural areas. According to the last national household's survey (8), the poverty rate in Ariana is less than the poverty rate in urban areas nationally.

**Table 19. Poverty rate in rural and urban areas of Tunisia, the governorate of Ariana and Ariana city**

Area	1980	1985	1990	1995	2000	2005
Tunisia	12.9	7.7	6.7	6.2	4.2	3.8
Urban areas	11.8	8.4	7.3	7.1	4.9	1.9
Rural areas	14.1	7.0	5.7	4.9	2.9	–
Governorate of Ariana	–	–	–	–	–	1.4
City of Ariana	–	–	–	–	–	1.0
Ariana Ville	–	–	–	–	–	1.2
Ariana Superior	–	–	–	–	–	1.0
Ennasr	–	–	–	–	–	0.9
El Menzeh	–	–	–	–	–	0.8

Source: National Institute of Statistics (3, 7), United Nations Development Programme (6), Ben Romdhane et al. (9), Arfa & Achouri (10).

# Response to Urban HEART: priorities in fighting health inequities in Ariana districts

The Urban HEART matrices provide a way to discover and overcome the urban health inequities detected in poor performance cities. Priorities should be identified not only in health but also in various determinants of health. Given the matrices, there are a variety of ways of identifying priorities. In this regard, Urban HEART urges users to prioritize the issues based on the results of assessment and to involve stakeholders in analysing the matrices and identifying priorities. In addition, it provides strategy packages to help stakeholders choose the best-practice interventions.

There are five strategy packages of interventions: (1)

- Strategy A: incorporate health into urban planning and development.
- Strategy B: emphasize and strengthen the role of urban primary health care.
- Strategy C: strengthen the focus on health equity in urban settings.
- Strategy D: put health equity at the top of the local government agenda.
- Strategy E: pursue a national agenda.

The objective of this report is to highlight health inequities within the city of Ariana, which is partially achieved by the urban heart matrix results. Interventions to address health inequities should be defined with the cooperation and initiative of stakeholders (representative of Ariana, local health departments, local nongovernmental organizations, citizens). We propose some interventions that can be implemented to reduce health inequities in the poorly performing districts in Ariana.

## *Health policy domain*

In the city of Ariana, as well as throughout Tunisia, there is a high prevalence of chronic diseases, including diabetes, hypertension and cardiovascular disease. Cardiovascular disease is the leading cause of death in Tunisia. Chronic disease risk factors are rapidly increasing with the high prevalence of hypertension and diabetes among adults. Ariana's health care system is under pressure due to the growing burden of chronic diseases. Environmental and behavioural changes, such as unhealthy dietary habits, lack of physical activity, and stress of urbanization and

work conditions, have contributed to the increased prevalence and burden of chronic diseases.

At the Ariana city level, the capacity of the local health care services should be enhanced by developing chronic disease prevention strategies, community-based prevention programmes and health monitoring. Capacity-building is required in the fields of planning, implementing and evaluating community-based activities for chronic disease prevention and control, risk factor prevention and healthy lifestyle promotion.

Key stakeholders should work together to:

- encourage healthy lifestyle behavioural changes among community members;
- improve health education and disseminate health messages using mass media, social marketing, etc.;
- advocate for policy, environmental and economic changes;
- provide training in the development of local chronic disease prevention strategies and health monitoring.

From the Urban HEART matrices, two preventable risk factors, tobacco use and physical inactivity, contribute to the development of major chronic diseases. Multisectoral interventions are urgent to reduce these behavioural risk factors at the community level.

#### *Environment and physical infrastructure domain*

Work-related and road traffic accident fatalities and injuries remain a public health challenge in Ariana, despite their lower prevalence in the city compared with the national average. Preventive actions must be launched in collaboration with all local sectors, community members and civil society organizations.

Some districts of Ariana have more work-related fatalities and injuries than others. Local authorities should identify deaths and injuries by industry, occupation and place of work to determine the more dangerous sites.

Regarding road traffic fatalities and injuries, more attention should be given to highlighting the most common causes and identifying specific actions to make the city's roads safer. The role of the municipality, local police and other sectors responsible for road safety is crucial.

### *Social and human development domain*

Despite the historical experience of tobacco control and public health interventions, the use of tobacco remains very high within Ariana. Tobacco control programmes should be included in the local agenda by:

- maintaining the progress made with tobacco control policies and enforcing the existing law;
- informing the public and policy-makers about the health risks and economic burden of tobacco use;
- implementing communication strategies to educate consumers and support behavioural change among smokers;
- physicians taking action against smoking;
- implementing an intervention programme to optimize smoking cessation and ban smoking in public places.

### *Economic domain*

The population of the four Ariana districts reported a high ratio of health expenditure to household expenditure and catastrophic health expenditure was also high. Higher out-of-pocket payments for health care contribute to catastrophic health expenditure. The matrix shows higher incidence of health expenditure across households in most Ariana districts.

### *Governance domain*

The higher prevalence of chronic diseases demands improving access to primary health care and health education. Benefit entitlement depends on the capacity of social health insurance or health assistance to provide sufficient and adequate coverage. Consequently, it influences the share of prepaid financial resources versus out-of-pocket payments. Prepayment can be enhanced by state subsidies for health when social contribution is limited. In the context of Ariana, improving people's access to health care services, especially for vulnerable groups with higher prevalence of chronic diseases, should be a basic objective of urban health policy.

# Conclusion

Urban HEART is a tool that measures performance in poor or vulnerable populations across health and sociocultural indicators. It was used in situational assessment and monitoring for planning purposes in four districts of the city of Ariana.

The objective of this report is to highlight health inequities within Ariana. These are partially obtained by the Urban HEART matrix results. There are others indicators that can identify other types of health inequities in Ariana (e.g. air pollution, domestic violence and informal employment). The response to fight health inequities should be defined with the cooperation and initiative of stakeholders (representative of the municipality of Ariana, local health department, local nongovernmental organizations, citizens). Using our results, an attempt was made to highlight the main interventions derived from the matrix. The results show:

- There is excellent progress in the infant mortality rate in Ennasr (11.5%) and in El Menzeh (10.6%) compared with the others districts. In total, the infant mortality rate in the city of Ariana is lower than the national average in Tunisia (see Appendix 2).
- In the city of Ariana, there is a high prevalence of cardiovascular disease. The risk factors for cardiovascular disease and mortality are in the same direction, highlighting the burden of these diseases.
- Mortality from cardiovascular disease is high in El Menzeh, Ennasr and Ariana Ville. Deaths from respiratory diseases are more prevalent in Ariana Ville, while tumours are more prevalent in El Menzeh.
- Risk factors such as diabetes, hypertension and tobacco use are high in the Ariana population (67.8%), especially in the districts of Ariana Ville and Ariana Superior.
- The Ariana population has better access to safe water, improved sanitation and fewer work-related death and injuries than other urban or rural populations in Tunisia. The challenge is to achieve 100% benefit of these public services, starting with the districts of Ariana Ville and El Menzeh, then Ariana Superior and Ennasr.
- The indicator of green space in Ariana is better than the governorate and national averages but there is a lack of maintenance of many parks and some parks are not in use.

- Ariana Ville is concerned with health inequities in terms of primary education, overweight and physical activities.
- Prevalence of tobacco smoking is higher in the districts of Ariana Superior (27.5%), El Menzeh (28.5%) and Ennasr (28.9%) than the average prevalence in Ariana (25.6%).
- Direct health expenditure is a real burden for households in Ariana.

The municipality (local authority) alone has the capacity to look at the entirety of a given area and identify gaps in services, unmet need and health equity. It should then:

- Support and coordinate all activities of the healthy project in Ariana.
- Enhance its capacity in identifying gaps in health inequities by developing a city information system (collecting routine data). Some indicators of health inequities in Ariana are not reported in the Urban HEART matrix due to lack of data, for example data on air pollution and informal employment are not available, especially at district level. Another limitation is related to the reliability and validity of the national data.
- Provide technical and financial support to stakeholders for measuring health inequities, identifying priorities and implementing interventions in Ariana.
- Share experience by providing technical assistance for other municipalities to implement Urban HEART.

# References

1. *Urban HEART: urban health equity assessment and response tool*. Kobe, World Health Organization Centre for Health Development, 2010 ([http://www.who.int/kobe\\_centre/measuring/urbanheart/en/index.html](http://www.who.int/kobe_centre/measuring/urbanheart/en/index.html), accessed April 2012).
2. *Towards healthy urbanization in Ariana survey 2009*.
3. *Labour force survey 2009*. National Institute of Statistics, Ministry of Economy.
4. National Institute of Statistics (<http://www.ins.nat.tn>, accessed 3–8 October 2011).
5. Ben Romdhane H, Skhiri H, Bougatef S et al. Surveillance des maladies cardiovasculaires en Tunisie: méthodologie et principaux résultats [in French]. *Tunisie Médicale*, 2005, 1:8–12.
6. *Tunisia national report on Millennium Development Goals*. United Nations Development Programme, 2004 (<http://planipolis.iiep.unesco.org/upload/Tunisia/Tunisia%20MDG%20Report.pdf>, accessed November 2011).
7. *National survey of budget, consumption and standards of living in Tunisia*. Tunisia, National Institute of Statistics, 2005.
8. Municipality website (<http://www.commune-ariana.gov.tn>, accessed 20 October 2011).
9. Ben Romdhane H, Bougatef S. *Enquête pour une urbanisation saine Ariana*. Institut National de la Santé Publique, 2009.
10. Arfa C, Achouri H. Tunisia: good practice in expanding health coverage: lessons from reforms in a country in transition. In: Gottret P, Schieber GJ, Waters HR, eds. *Good practice in health financing: lessons from reforms in low and middle-income countries*. Washington DC, World Bank, 2008, 385–437.

## Appendix 1. The four districts of Ariana

	<b>Ariana Ville</b>	<b>Ariana Superior</b>	<b>El Menzeh</b>	<b>Ennasr</b>
Creation date	24 December 1987	24 December 1987	30 September 1982	16 April 2004
Opening date	15 April 1988	7 April 1988	10 March 1983	1 September 2004
Land area	578 hectares	852 hectares	891 hectares	262 hectares
Zones	Ariana Ville	Ariana Superior	El Menzeh 5	Nasr 1
	La Nouvelle Ariana	Nouvelle Ariana	El Menzeh 6	Nasr 2
	Côté droit de la ville de l'Ariana	Borj Turki	El Menzeh 7	
	Cité Populaire			
	Côté droit	Riadh El Andalouss	El Menzeh 8	
	Cité Ennozha	Côté gauche de la ville de l'Ariana		
	Cité El Mostakbel	Cité populaire du côté gauche		
	Cité Avicenne	El Mahrzia		
	Borj El Baccouche			
	Cité Ennour			
	Cité Ettaamir			
	Route de Raoued			
	Route de Bizerte			
	Côté droit Cité El Yasmina			

Source: Municipality website (<http://www.commune-ariana.gov.tn>). (8)

## Appendix 2. Urban HEART matrix with numerical values

### Indicators of health domain, 2009

Indicator		Value						
		AV	AS	EN	EL	UCA	GA	National
1B	Infant mortality <sup>a</sup>	18.1	17.3	11.5	10.6	15.4	18.9	17.8
2B	Diabetes (known)	12.6	9.8	5.9	9.9	10.2	13.6	9.8
	Hypertension	42.0	38.1	23.0	36.1	36.3	41.0	36.7
3B	Tuberculosis (incidence for 100 000)	–	–	–	–	–	27.0	24.0
	Higher risk factors of cardiovascular disease (3–5 factors)	73.5	73.8	55.6	64.4	67.8	–	–
4B	Deaths related to road traffic accidents (per 100 000 population)	0.0	8.4	3.1	0.0	2.7	3.1	13.2
1R	Under-five mortality rate	19.6	19.1	12.7	11.7	16.8	20.8	20.2
2R	Maternal mortality rate	0.0	0.0	0.0	0.0	0.0	44.1	44.8
3R	Life expectancy at birth <sup>b</sup>	75.5	75.9	76.4	76.7	76.0	75.9	74.5
4R Prevalence	A. All cancers	2.3	1.9	0.0	2.3	1.9	–	–
	B. Cardiovascular disease	11.6	5.6	13.2	17.3	12.1	–	–
	C. Respiratory diseases	29.5	45.8	29.4	16.5	29.5		
	D. HIV/AIDS	–	–	–	–	–		
	E. Homicide rate	–	–	–	–	–		
	F. Mental illness	17.0	0.0	4.4	2.3	2.9		

<sup>a</sup>The desired target is to reduce infant mortality rate by 50% by 2015 (Millennium Development Goals).

<sup>b</sup>The target is to increase life expectancy at birth by 2 years by 2014.

AS, Ariana Superior; Ariana Ville, El Menzeh, EN, Ennasr; GA, governorate of Ariana; UCA, city of Ariana.

## Main causes of death within Ariana and nationally, 2009

Main causes of death	Ariana Ville	Ariana Superior	EL Menzeh	Ennasr	Ariana	Governorate of Ariana	National
Cardiovascular disease	32.8	35.7	61.5	40.9	46.8	27.6	41.6
Malignant tumours (all sites combined)	15.5	25.0	7.7	22.7	63.0	14.3	24.3
Respiratory diseases	15.5	0.0	7.7	9.1	29.0	10.4	23.9
Road traffic accidents	0.0	3.6	0.0	0.0	–	1.4	–
Mental disorders	0.0	0.0	0.0	0.0	2.7	0.4	1.5
AIDS	0.0	1.0	0.0	0.0	0.0	0.4	0.1

## Indicators of physical environment and infrastructure domain, 2009

Indicator	Value						
	Ariana Ville	Ariana Superior	El Menzeh	Ennasr	Ariana	Governorate of Ariana	National
1B Access to safe water	99.5	99.6	99.6	99.5	99.6	98.0	97.5
2B Access to improved sanitation	99.3	99.6	99.6	99.5	99.6	88.7	83.3
1R Households served by municipality solid waste management system	100.0	100.0	100.0	100.0	100.0	100.0	–
2R Solid fuel	–	–	–	–	–	–	–
Work-related fatal accidents (per 100 000 exposed workers)	0.0	9.0	6.6	0.0	3.9	3.5	4.8
Work-related injuries (per 100 000 exposed workers)	53.0	99.4	111.9	104.1	88.4	60.4	549.6
1Op Alcohol outlets (density per 100 000 inhabitants)	2.7	0.0	0.0	6.1	1.8	1.6	3.0
2Op Green space	6.50	2.80	5.40	6.30	4.90	1.50	0.01

## Indicators of human and social development domain, 2009

Indicator	Value							
	Ariana Ville	Ariana Superior	EnEI Menzeh	Ennasr	Ariana	Governorate of Ariana	National	
1B	Completion of primary education	96.0	97.0	98.0	98.0	97.0	95.0	94.9
2B	Skilled birth attendance	–	–	–	–	–	–	96.5
3B	Infants vaccinated	–	–	–	–	–	–	–
4B	Prevalence of tobacco smoking	20.7	27.5	28.5	28.9	25.6	25.0	25.1
1R	Literacy (over 10 years)	9.0	8.5	5.5	5.2	7.6	11.9	20.2
2R	Underweight children	–	–	–	–	–	–	–
3R	Overweight and obesity (body mass index $\geq 30$ )	30.1	31.3	17.6	16.7	24.4	18.3	10.9
4R	Breastfeeding	–	–	–	–	–	–	–
5R	Teenage pregnancy	–	–	–	–	–	–	–
6R	Physical activity	54.5	58.2	61.1	57.2	57.1	–	–
1Op	Domestic violence	–	–	–	–	–	–	–
1Op	Low birthweight	–	–	–	–	–	–	3.4 (2007)

## Indicators of economic domain, 2009

Indicator	Value						
	Ariana Ville	Ariana Superior	EI Menzeh	Ennasr	Ariana	Governorate of Ariana	National
1B Unemployment rate	7.7	7.6	5.0	4.6	6.6	11.7	14.2
1R Extreme poverty	1.2	1.0	0.9	0.8	1.0	1.4	3.8
Share health expenditure/total household expenditure	11.4	9.4	8.4	8.2	9.3	–	6.0 (2005)
Catastrophic health expenditure	45.0	29.0	5.0	21.0	22.0	DNA	DNA
Social health insurance (NFSI)	81.6	56.3	92.9	86.6	80.3	78.5	68.0
2R Women in workforce	37.5	39.1	40.0	41.0	39.2	30.8	28.0
3R Secure tenure	NA	NA	NA	NA	NA	NA	NA
1Op Slum population	NA	NA	NA	NA	NA	NA	NA
1Op Informal employment	DNA	DNA	DNA	DNA	DNA	DNA	–

DNA, data not available; NFSI, national Fund of Social Insurance.

## Indicators of governance domain, 2009

Indicator	Value						
	Ariana Ville	Ariana Superior	EI Menzeh	Ennasr	Ariana	Governorate of Ariana	National
1B Government spending on health (%)	39.5	47.1	10.2	3.2	25.0	–	6.2
1R Voter participation	–	–	–	–	–	–	–
2R Insurance coverage (complementary)	2.4	1.6	2.2	3.1	2.3	11.9	14.3
1Op Government spending on education (%)	7.2	4.6	6.4	3.2	5.3	100.0	19.4