

Fast-Track Cities

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Fast Track Cities to end the HIV epidemic

REPORT

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Executive summary

“The forestructures or guiding images of the future are not the property of an individual, but cohere within patterns of relatedness in the form of dialogue... Through dialogue, new knowledge and new images of possibility are constantly being made available.”

David Cooperrider and Suresh Srivastva.

There is broad recognition in the international and national community that the commitments made by the Presidents of the City Councils of many cities around the world under the Paris Declaration of 2014 represent a decisive contribution to achieving the objectives of the “Fast Track Cities to end the HIV epidemic”.

The Fast Track Cities initiative to end the HIV epidemic, launched by the Paris Declaration in 2014 on the World AIDS Day, is a global partnership network of cities with four main entities: International Association of Providers of AIDS Care (IAPAC), Joint United Nations Program on HIV/AIDS (UNAIDS), United Nations Human Settlements Program (UN-HABITAT) and the city of Paris - among other local, national and international technical partners, who are responsible for its implementation.

On May 29, 2017, Lisbon, Oporto and Cascais signed the Paris Declaration through the Presidents of their respective City Councils, placing the three cities on the fast track path to end the HIV epidemic.

By signing the declaration, these cities are committed to meeting the 90-90-90 targets by 2020, according to which 90% of people living with HIV are knowledgeable

about their diagnosis, 90% of those diagnosed are on antiretroviral therapy and 90% of patients undergoing treatment have sustained suppressed viral load. In addition, the three cities will aim to remove barriers to services on HIV prevention, care and treatment to eliminate stigma and discrimination; in complementarity with government agencies, civil society, academia and people infected and affected by HIV.

This document, produced by the working group designated by order No. 5216/2017, seeks to summarize the guidelines for the three cities that have joined the initiative and serve as a basis for other Portuguese cities that may join in the future.

As Europe is one of the most urbanized continents in the world, the HIV epidemic is more significant in large urban centers and Lisbon, Oporto and Cascais are no exception. These three cities concentrate a high and growing proportion of people living with HIV and other sexually transmitted infections (STI), tuberculosis, viral hepatitis, among others.

The administrative frontiers of cities no longer reflect the physical, social, economic, cultural or environmental reality of urban

development, and innovative and flexible forms of governance are needed which include the participation of informed citizens and relevant partners, according to the specificity and needs of each municipality or parish.

In Portugal, sexual transmission of HIV, particularly heterosexual transmission, is the dominant route of spread of this virus, although the expansion of transmission among men who have sex with men and among other at-risk populations should receive special attention, according to geospatial and local epidemiological distribution of the most vulnerable populations.

The high frequency of late diagnoses and the complexity of the response, as a result of the intersection of multiple health determinants, point to a syndemic view of the HIV pandemic. In this regard, dialogue and constructive collaboration between municipal authorities, public health authorities, pharmacies and other relevant partners such as patients and their families, community-based and religious organizations and other associations representing different social groups, economic, ethnic and cultural are central to the effectiveness and adequacy of the objectives and goals to be achieved.

A syndemic view of the HIV pandemic allows you to focus your approach through three interdependent processes. The first consists on extending local successful experiences, such as strengthening the screening of these infections among the most

vulnerable populations, in cooperation with community-based organizations, through integrated and innovative strategies including the implementation and operation of pre- and post-exposure prophylaxis. The second one consists in resizing the different types of social interventions and diagnosis in urban environment, through the application of the strategies mentioned above. The third is based on the promotion of stable and coherent cooperation through agents and organizations with different geographical interventions, taking a City-Community-Health-Pharmacy axis.

In this model, the significant and comprehensive involvement of the various partners and the Ministry of Health is the catalyst to add value and robustness to the actions and contribute to the innovation of the national initiatives already included in the Strategic Directions of the National Program of HIV, AIDS and Tuberculosis, with the common goal achieve the 90-90-90 goals.

Science is clear. The elimination of HIV to levels that are not a public health problem is a feasible goal. Understanding the interactions between politics, ideas and different interests in each of the cities is essential to generate knowledge, identify barriers and tailor and prioritize local strategies.

Improving health literacy and delivering HIV and STI prevention messages that include promoting condom use continue to be priorities, in this age of unquestionable value of pre-exposure prophylaxis and post-

exposure prophylaxis, while combined prevention programs HIV and other STIs.

It is also necessary to develop new metric approaches, to correct and improve the interoperability of SI.VIDA, the e-system used to store clinical files of HIV patients, to create access levels that simultaneously allow a transparent management of information and safeguard individual rights of data reservation, make it more user friendly, simple and accessible for users and improve the aspects of epidemiological surveillance, adjusting them according to the requirements of the goals that the cities propose to achieve.

Regarding the population infected by HIV, it is necessary to reduce the gap between the diagnosed and those who, being infected, are unaware of their condition in relation to this infection, through accelerated programs of diagnosis and referral to health care.

Improving and streamlining procedures for access to health care for the most vulnerable populations, particularly undocumented immigrants, prisoners, people who have sex for money, national citizens without records in the National Health Service, among others, and to combine prevention, diagnosis and treatment to the specific needs of these groups is essential to slow the silent spread of this epidemic, with a central concern, eliminating discrimination and stigma, leaving no one behind and ensuring respect for human rights.

In addition to the aforementioned needs, the Fast Track Cities initiative to end the HIV epidemic proposes a set of mandatory monitoring indicators for all cities adhering to the program that are posted on the city dashboard on the *Fast track cities* website. The choice of key indicators should be discussed within the Municipality, involving all relevant partners, including IAPAC, taking into account national targets and strategies.

According to the Paris Declaration, the definition of the organization and governance model for the "Fast Track Cities to end the HIV epidemic" project should be led by the Presidents of the City Councils in liaison with local and national health authorities and in close partnership with civil society organizations and social solidarity institutions. Only then will it be possible to design architecture and organizational structure according to the needs, geospatial distribution and concrete realities of each region and to develop more effective intervention strategies.

I. Cities, Health and Community - triangulation of efforts on the Fast Track Cities to ending the HIV epidemic: framing, definition and discussion of concepts.

Portugal: Cities on the fast track to ending the HIV epidemic.

The Political Declaration on the Human Immunodeficiency Virus (HIV) and AIDS adopted by all members present at the United Nations General Assembly High-Level Meeting on AIDS Elimination in June 2016 called on all countries for an accelerated response to the HIV/AIDS epidemic in 2030. This Declaration, as an integral part of the 2030 Sustainable Development Agenda, affirms the need to step up efforts to achieve the broad goals of diagnosis, prevention, treatment, follow-up and support of people infected with HIV within a framework of protection of the human rights and dignity of people at risk of and affected by HIV and AIDS. (Eleanor Gouws, The role of cities in ending AIDS epidemic, The Quarterly update on epidemiology from South African Center for Epidemiological Modeling Approach and Analysis (SACEMA); 2017.

The "Fast Track Cities to end the HIV epidemic" initiative, launched in Paris in 2014 on World AIDS Day through the Paris Declaration, is a global partnership network of cities with a high HIV burden with four main entities: the International Association of AIDS Carers (IAPAC), the Joint United

Nations Program on HIV/AIDS (UNAIDS), the United Nations Special Program for Housing and Sustainable Urban Development (UN-HABITAT) and the city of Paris - and with other local, national and international technical partners responsible for its implementation. (Fast Track Cities, Technical Implementation Strategy, January 2016, updated April 2017).

On May 29, 2017, in Lisbon, for the first time, three Portuguese cities, simultaneously - Cascais, Lisbon and Oporto - signed, through the Presidents of the respective Municipalities, the Paris Declaration, placing these three cities in the fast track to end the HIV epidemic.

By signing the Paris Declaration, the Presidents of the City Councils of the cities of Cascais, Lisbon and Oporto undertake a commitment to reach the 90-90-90 targets by 2020, according to which 90% of people living with HIV are knowledgeable about their diagnosis, 90% of those diagnosed are on antiretroviral therapy and 90% of those on treatment have a sustained viral load (e.g., viral load values below the quantification threshold). In addition, the three cities will define local strategies to remove barriers to HIV prevention, diagnosis, care and

treatment services, and to eliminate discrimination in complementarity with government agencies, civil society, academia and people affected by HIV.

The expression of national and international commitment was evident at the signing of the Paris Declaration in Lisbon. The Minister of Health, Adalberto Campos Fernandes, reaffirmed *the government's commitment to the highest level of response to HIV and stressed that the 90-90-90 goals provide a new impetus for combating this infection.* The Deputy Secretary of State for Health and Health, Fernando Araújo, said that *this was a historic day because, once again, Portugal demonstrated that working together - the government, city council presidents, national health institutions, social and private sectors and civil society - it will be possible to build a better, HIV-free and non-discriminatory country.* Luiz Loures, Deputy Executive Director of the UNAIDS Program, mentioned that *Portugal is an example of a successful response to AIDS, putting patients' needs first. Its success rests on strong political leadership, inclusive legislation that protects people from discrimination and a very active civil society.* Luís Mendão, President of the Group of Activists in Treatments, emphasized that *Portugal is once again an important example of public health policies for human rights, removing, in 2017, all barriers to access for prevention, diagnosis and treatment of HIV infection, tuberculosis, viral hepatitis and sexually transmitted infections in undocumented migrants.* (<http://www.unaids.org> Cascais, Lisbon and Oporto sign the Paris Declaration

on ending the AIDS epidemic in cities/UNAIDS).

Creative incubator - three cities, three visions, three distinct realities for a common goal: to eliminate the HIV epidemic.

The city: the urban health equation

In the field of HIV infection and associated co-morbidities (transmissible and non-communicable), we experience a paradoxical combination of uncertainties and opportunities (Lancet 2017; 373: 2181-2182) in which epidemiology, complexity of needs, health determinants of the population and the mutual interactions of these factors require clarity in the definitions of the concepts, comprehensiveness, adequacy and integration of responses that must be sustained by robust scientific evidence and solid consensus among the main actors. (Lancet 2017, 389: 667-70).

According to the most recent estimates, in 2015 Portugal had a total population of 10.3 million inhabitants, a decline of about 1.6% compared to the last census in 2011. It should be noted that the population Portugal tends to migrate to the metropolitan areas of Lisbon and Oporto and to the coastal regions, the interior of the country being reduced to a population that is mostly aged, a situation

that poses specific problems to the health system in the coming years (Portugal: Health System Review. Health Systems in Transition 2017; 19 (2): 1-184).

During the 1990s, Portugal was the destination of legal and illegal immigrants from Brazil and Central and Eastern Europe, as well as the traditional immigration of Portuguese-speaking African countries.

According to the estimates from 2015, legal immigrants represent 3.8% of the population residing in Portugal, concentrating mainly on the capital and coastal cities: Lisbon houses 44.6%, Faro 15% and Setúbal 9.5%.

In 2015, 40.4% of immigrants with legal status in Portugal came from Europe, mainly Ukraine (23.0%), and Romania (19.7%), 24.4% from Africa, of which 91.3% came from Portuguese-speaking African Countries (PALOP), 23.4% of the Americas, of which 89.7% came from Brazil and 11.7% from Asia, of which 46.3% came from China (Portugal: Health System Review. Systems in Transition 2017; 19 (2): 1-184). Although of varying relative proportions, the countries of origin of the immigrants living in Portugal mentioned above have high rates of endemicity of HIV infection, tuberculosis, viral hepatitis and sexually transmitted infections.

Surprisingly, there is no common definition of 'city' or even 'urban', and the European Union has no explicit political competence for urban development. The various definitions of "city" refer to an

administrative unit or a certain population density. Sometimes the distinction is made in Anglo-Saxon language between the smaller cities, designated *town* (they house between 10,000 and 50,000 inhabitants) and the larger cities, designated *cities* (with more than 50,000 inhabitants).

However, from a socio-epidemiological and public health perspective, the importance of small and medium-sized cities cannot be underestimated in the management processes of the spread of current communicable diseases, including HIV infection, and in the programmatic anticipation of (re)-emergency of new diseases.

City also refers to two distinct realities: the *de jure* city - the administrative city - and the *de facto* city - the widest socio-economic cluster. The city *de jure* corresponds, to a large extent, to the historic city with its borders clearly delimited for trade and defense and a well-defined city center. The city *de facto* corresponds to the physical or socio-economic realities that are approached or through a morphological definition or a functional definition. For analytical purposes, the European Commission and the OECD have developed a definition of a city based on the density and minimum number of inhabitants. (European Commission - Directorate for Regional Policy. *Cities of tomorrow. Challenges, visions ways forward*. October 2011).

An urban morphological area (UMA) represents the continuity of an urbanized zone with a defined density level. A

functional urban area (FUA) can be described by its labor market basin and by the mobility patterns of those who move daily to employment and include the city's wider urban system and nearby villages/regions that are highly dependent, economically and socially, of a major urban center. For example, the administrative city of Lisbon has a population of 530.000 people, while its UMA population is 4.4 times larger, ie 2.32 million and its FUA is about five times larger than its administrative city - 2.59 million compared to 530.000 people.

FUA can be monocentric or polycentric (e.g. corresponding to strongly linked city or clustered networks with no dominant center). Neither morphological nor functional urban areas are stable entities: as the urban landscape and economic patterns evolve, patterns of densification and mobility evolve as well (European Commission – Directorate for Regional Policy. Cities of tomorrow. Challenges, visions, ways forward. October 2011), providing unique dynamics and specificities in the spatial and human distribution and risk of spread of communicable diseases, including HIV infection and other sexually transmitted infections (STI), pulmonary tuberculosis, viral hepatitis, influenza, only to name a few.

According to the report "Cities of tomorrow. Challenges, visions, ways forward" and in a public health perspective, we will use the term "city" to define urban agglomerations in general, as well as the administrative units that govern them. From the political and public health point of view, it is essential to understand the territorial scale

of health issues that can cover a neighborhood/parish, administrative city, functional urban areas or even wider extensions.

Under this assumption, and taking into account the need to achieve community-based health outcomes in Portugal, the urban dimension of HIV infection (and other communicable diseases), when presenting local symptoms, often requires a broader territorial solution, concerted and integrated.

Similarly to major European cities that are signatories to the "Fast Track Cities to end the HIV epidemic", socially and economically complex and fragmented, the main challenges facing Lisbon, Oporto and Cascais are neither easy nor simple.

To devise operational methodologies to accelerate the rapid and effective expansion of strategies to achieve the 90-90-90 goals, based on geographic and human heterogeneity and the spatial distribution of the most vulnerable communities in each of the three cities in a that social cohesion, job creation, the degradation of the center of these cities and youth unemployment seem to resist orthodox solutions, is an interdisciplinary exercise of great demand, objectivity and rigor.

A better understanding of these determinants, in different urban realities, will allow the development of more adequate and multifaceted indicators capable of measuring the most qualitative aspects of urban social and economic life and correlating them with the specific variables to reach the goals 90-

90-90. Available indicators are not sufficiently developed to correctly measure social progress and to correlate them with and as determinants in the spread and control of HIV and other communicable diseases of relevant epidemiological importance.

However, new and stricter indicators will only have implications for the progress and sustainability of the results achieved if cities develop or strengthen investments and skills that simultaneously ensure effective internal communication on the results achieved in order to achieve the defined goals, and external communication, making the technical information intelligible and accessible to the partners involved and the community.

The urban way of life is both part of the problem and part of the solution. As a consequence of the high population density, gender diversity, ethnic multiplicity and heterogeneous spatial distribution, together with eminently urban phenomena (migration, unemployment, overcrowding, poverty, socioeconomic inequalities and self-segregation of groups at greater risk), these cities, particularly Lisbon and Oporto, have a high and growing proportion of people living with HIV and other STI, tuberculosis, viral hepatitis, among others.

Changes in social and value systems, changes in community structures, anonymity and the vitality of urban life are other factors that provide new opportunities and expectations for citizens migrating to the main Portuguese cities, including their

involvement in diverse social networks, some of which promote high-risk behaviors such as paid sex practices, alcohol and illicit substance use, among others.

The seemingly contradictory nature of some of the issues discussed above and the divergences in operational models to achieve the 90-90-90 goals in general and in Portuguese cities in particular, cities that begin this trajectory in the context of "Fast Track Cities to end the HIV epidemic" require a continuous and constructive dialogue between municipal authorities, public health authorities and various partners such as patients and their families, community-based and faith-based organizations and other associations representing different social, economic, ethnic and cultural groups. This dialogue should take into account the territorial scale and the spatial integration of the different problems related to HIV infection and associated co-morbidities, thereby reconciling the temporal management of the different objectives, first by 2020 and then by 2030.

The spatial integration of the phenomena related to some communicable diseases in progress or with new (re)-emergent diseases is achieved through three interdependent processes that combine place-to-person approaches: (i) broadening local successful experiences such as scale expansion of screening for HIV, other STI, tuberculosis and viral hepatitis in the most vulnerable populations, including the population in prisons, in complementarity with community-based organizations, supported by methodologies that generate

dynamic learning-application cycles (Ann Intern 2012, 157: 207-210) (IOM - Institute of Medicine, 2015. *Integrating research and practice: Health system leaders working towards high-value care: Workshop summary*. Washington, DC: The National Academies Press), innovative strategies for social intervention and prevention such as intercultural dialogue, participation in the definition of criteria and circuits for the application and operationalization of HIV pre- and post-exposure prophylaxis, etc.; ii) scaling up of different types of social intervention and screening, in urban environment, for example methodologies to define the appropriate scale and the right moment for the adoption of some of the interventions mentioned above; iii) promotion of stable and coherent cooperation links through negotiations between agents and organizations with different levels of space intervention, for example neighborhoods, parish councils, city, regions. These processes help to overcome sectorial perspectives of urban space by adopting a more holistic vision that promotes collective intelligence and mutual learning between municipalities and between them and the main partners involved, focusing on daily problems in real life.

The role of cities in the successful implementation of the Europe 2020 strategy and the importance of multilevel governance, emphasized by the European Parliament and the Committee of the Regions, reflect the complexity of local management of medical and social phenomena and allow the alignment of the "Fast Track Cities to end the

HIV epidemic", through an efficient and reciprocal articulation of European, national, regional and local policies. In this sense, the European level, through IAPAC, UNAIDS, UN-HABITAT and the city of Paris, acts as a promoter and facilitator of this ambitious project and ensures that the territorial dimension is contemplated in the design of national epidemiological management policies, clinical and social aspects of HIV and AIDS. The principle of subsidiarity, reinforced by the Treaty of Lisbon, means that not only higher levels of governance should be replaced by local levels but also new relations between different levels, e.g. European and local levels, should be cultivated. The particular attention that should be given to the most disadvantaged areas and districts of these cities and of the national territory as a whole, as areas that shelter populations most vulnerable to HIV infection and other associated pathologies, is covered by the Leipzig Charter and the Toledo Declaration (European Commission – Directorate for Regional Policy. *Cities of tomorrow. Challenges, visions, ways forward*. October 2011).

The "Fast Track Cities to end the HIV epidemic" trajectory, as a comprehensive program related to citizen health, is part of the principles of intelligent, inclusive, functionally more flexible and socially innovative local governance, which promotes green and energy efficient cities.

The operational complexity and ambition to reach the 90-90-90 goals advocated by UNAIDS, as a means to end the HIV epidemic in urban space and,

consequently, to prevent its spread throughout the national territory, imply a careful management of tensions during this demanding process. Tensions between competitive or contradictory priorities or objectives; between sectoral interests; between different groups or communities; between different levels of governance; between different territories or areas and between different short, medium and long term visions require cities to become platforms not only of economic, technological or environmental innovation, but above all platforms of social innovation.

We have seen many signs that polarization and segregation are increasing in European cities, including Portugal. The average increase in living standards in recent years has been accompanied not only by increasing signs of economic disparities but also by the pauperization of the poorest. In some urban and peri-urban areas, population groups face the consequences of convergence of important determinants of health, generating or amplifying inequalities and social exclusion: degraded housing, low levels of literacy, unemployment and difficulties or inability to access some services (health, transport, education, social support, information technologies, among others).

In Portuguese cities, as in other major cities in Europe and around the world, social polarization is not limited to issues of the rich and the poor, but also to cultural, social, security and ethnic and gender diversity which are important to monitor regarding socio-behavioral aspects and health.

Information technologies give a new meaning to spaces and people. We are in transition from modern class-based societies to a postmodern, urban, fragmented society that includes groups of people living side by side, often without any interaction. Therefore, more than ever, the reflection and design of innovative urban development models will have to contemplate comprehensive, integrated and balanced responses to such heterogeneous, volatile, ambiguous and sometimes uncertain circumstances of the world in which we live.

In the area of the "Fast Track Cities to end the HIV epidemic" (and other pathologies associated with behavior), the great challenge of the cities of Cascais, Lisbon and Oporto, and other Portuguese cities that will eventually embrace this project lies in the policies to simultaneously achieve the delicate balance between the eradication of poverty, misery and other health determinants already discussed, to achieve the goals 90-90-90 advocated by UNAIDS and to provide resident citizens, those who move a healthy, pluralistic, secure, less stigmatizing and stereotyped environment capable of accommodating and respecting the enormous diversity of lifestyles and demographic profile according to their respective age pyramids.

Health: the public health equation

After overcoming the HIV "exceptionalism" referred to by Ronald Bayer in the mid-1980s (New Engl J Med 1991, 324: 1500-1504, Milbank Q 2016; 94: 126-162), the current 90-90-90 plan, published in 2014, by UNAIDS (UNAIDS, 1990: 90-90-90: An ambitious treatment target to help end AIDS epidemics, Geneva, Switzerland, UNAIDS 2014, 16: 1215-1216), spells out an accelerated time line for end the HIV epidemic under the Sustainable Development Goals, and sets concrete targets for diagnosing and suppressing viral load with antiretroviral treatment. Contrary to the initial efforts of the numerical goals of the global expansion of antiretroviral coverage for low-income countries, the current 90-90-90 campaign is not in itself an end but a means to end the HIV epidemic.

Without distorting the Paris Declaration, the singularity of the model of the Portuguese proposal in this project of "Cities on the fast track to ending the HIV epidemic" lies in the fact that, for the first time, the Ministry of Health, along with the municipalities, as the integrating partner of responses in the city-health-community interface.

In this model, the significant and comprehensive involvement of bilateral and multilateral organizations and the Ministry of Health is the catalyst for adding value and robustness and contributing to the innovation of the national initiatives contemplated in the Strategic Guidelines of

the National Program for HIV/AIDS and Tuberculosis, with the common objective of achieving the 90-90-90 goals.

The frequent use of the terms "elimination", "eradication" and "control", particularly the first two, aiming at the aspirations for 2030, in relation to different communicable diseases with diverse propagation dynamics and natural histories, epidemiological characteristics and multiform clinical expression, it imposes clear knowledge on the meaning of each of the expressions. Only in this way will it be possible, for each disease and in every moment, to construct equilibria between the mobilizing and motivational effect of the objective of eliminating a disease and the risk of excessive promises and expectations.

According to the Workshop that took place in Dahlem in 1997 (Bulletin of WHO 1998; 76 (suppl 2): 22), the definition of "elimination" considers two categories depending on persistence (*e.g. Clostridium tetani*) or not (*e.g. wild poliomyelitis*) of the microbial agent in a specific geographical area: (i) Disease elimination: reduction of the incidence of a disease to a defined geographical area up to zero as a consequence of programmed interventions; it is necessary to ensure continuity of interventions (the model was neonatal tetanus); (ii) Elimination of infection: reduction to zero of the incidence of infection caused by a specific agent in a defined geographical area as a result of scheduled interventions; it is necessary to ensure continuity of measures to prevent re-establishment of transmission (the model

was the declaration of elimination of poliomyelitis in the Americas). While the elimination of the disease is the maximum achievable result for neonatal tetanus, the definition of elimination of the infection contemplates a geographic stage for the global eradication of poliomyelitis. Eradication: a permanent reduction to zero of the incidence of infection caused by a specific agent as a result of scheduled interventions worldwide, and there is no need for continuity of application of the measures (the smallpox model). This definition of eradication implies a state of worldwide perennality and expresses the programmatic and economic advantages of eradication (Disease eradication in the 21st century: implications for global health, edited by SL Cochine and WR Dowdle, Strugmann Forum Report, vol 7, J Lupp series ed Cambridge, MA: MIT press.). Control: reduction of incidence, prevalence, morbidity and mortality to a locally acceptable level, as a consequence of programmed interventions. The maintenance of this situation requires the guarantee of continuity of the measures adopted.

In the case of HIV infection (but also for hepatitis B and C virus infections that have some common pathways of transmission and may therefore coincide with the same person), UNAIDS and WHO accept the non-zero target for the definition elimination of HIV, to levels that are not a public health problem, is an achievable goal. According to some experts, a public health problem is defined as a disease that, as a consequence of its mode of transmission, morbidity or

mortality, requires all attention as a major threat to the health of the community.

If the metric from which HIV infection ceases to be a public health problem is subject to open interpretation, the understanding of when this infection does not represent a public health problem depends entirely on the knowledge and spatial burden on the population at local, regional, country and global levels.

From the perspective of the three Portuguese cities - Cascais, Lisbon and Oporto - on the fast track to ending the HIV epidemic, the available evidence reflects that we are not facing a single HIV epidemic, but a multitude of different epidemics and determinants, whose reciprocal interactions have synergistic and perpetuating effects of HIV transmission at the community level, including within the same city.

As such, the city's vision of eliminating HIV as a public health problem fits and reinforces the syndromic model of the HIV epidemic (and other associated or (re)-emergent diseases). Syndemic or synergetic epidemic is more than a word or a synonymous with comorbidities. The definition of a syndemic is the presence of two or more disease states that interact with each other adversely, adversely affecting the development of each disease, increasing vulnerability, and the effects will be even more severe in situations of inequality (e.g. HIV-use of drugs-violence, or AIDS-hepatitis C-alcoholism-poverty.) (Lancet 2017, 389: 881, Lancet 2017, 389: 888-889).

Contrary to conventional medical approaches, based on comorbidities and multimorbidities, a syndromic view of an urban epidemic makes it possible to better explore the health effects of disease interactions with social, economic, environmental and cultural factors and the determinants that promote the reciprocity of these interactions which contribute to the aggravation of diseases.

In summary, the syndemic model is an opportunity to concertedly accelerate the elimination of HIV as a public health problem through three means: **i)** the syndemic model offers powerful strategies to identify how social, political, and ecological systems create and perpetuate structural vulnerabilities that contribute to the emergence and exacerbation of syndromes; **ii)** the syndemic framework makes it possible to understand how certain people, families and communities (and not others) are relegated to harmful environments, making them vulnerable to syndromes whose social and well-being consequences are concrete; **iii)** Syndemic knowledge of HIV allows to intervene with greater effectiveness and efficiency, both at the level of the policies to be adopted and at the clinical level. Addressing the sources of disease (inequalities) and symptom management (medical care), the syndemic intervention reinforces prevention and care strategies by looking at the full spectrum of syndromic vulnerabilities, rather than individually treating each disorder and ignoring the complex contexts in which it occurs (Lancet 2017, 389: 889-891).

On this basis the motto "know your epidemic, know your answer" (Lancet 2008; 372: 423-426), being an important appeal to the mobilization of the main actors, is no longer sufficient to concretize the most current and sustained responses by the evidence scientific basis. Although Portugal has advanced legislation on the decriminalization of drug use and protection against any form of discrimination against people living with HIV or gender, prevention policies and their messages have not yet come to a sustainable end (e.g. uniform access to HIV prevention measures and other associated infections in deprived populations or populations of undocumented migrants, pre-exposure and post-exposure prophylaxis).

The simultaneous involvement of three cities - Cascais, Lisbon and Oporto - in the "Fast track Cities to end the HIV epidemic" program introduces new dimensions and opportunities to analyze, generate and compare knowledge about the political determinants in each of the cities, on whether and how evidence is used to define and guide local policies and their dialogue with regional and national HIV infection programs (J R Soc Med 2008; 101: 572-573).

Effective co-operation among partners in the same city and between cities is the biggest challenge to broaden and innovate conventional strategies for addressing HIV infection: urban planners, engineers, sociologists, clinicians, pharmacists, other caregivers, educators, civil society, patients, private entities, government and decision-makers will have to agree on priorities,

design strategies for translating and applying scientific evidence for public health in general, and 90-90-90 targets in particular (inspired by in Lancet Public Health 2017; 2: e335).

It is not possible to stop the HIV epidemic only with medical interventions. It is vital to address the underlying social issues that prevent people from accessing medical interventions for HIV infection prevention, diagnosis and treatment, including unequal human rights, stigma and discrimination. When any person is stigmatized or unable to access services as a result of discrimination, the health of the entire community is threatened and epidemic HIV transmission continues to expand rather than contract. (Pepfar Annual report to congress, 2017).

HIV policy literature recognizes that the institutional context plays a key role in explaining policy outcomes, but its predictive power is low by limiting methodologies and robustness of conclusions (J R Soc Med 2008; 101: 572-573). In this sense, political, professional, religious, organizational and social institutions (*e.g.* gender nor sexuality institutions) are powerful determinants of HIV policy in each city and portray the medium and long-term goals of temporal and spatial political adjustments in the 90-90-90 trajectory.

Politics emerge from interactions between institutions (the structures and rules that define how decisions are made), ideas (which include not only the evidence but also the way problems and solutions are structured - often based on values and

experience) and interests (individual groups or individuals who have nothing to gain or lose from change).

Understanding these interactions in each of the cities can provide valuable information and generate specific knowledge on the adequacy of local strategies to prioritize, and identify the policy barriers and opportunities that hinder the adoption and integration of evidence-driven policies aimed at elimination of HIV infection as a public health problem in 2030 in Portugal (J R Soc Med 2008; 101: 572-573).

Literature data suggest that it is possible to double the efficiency of available resources in relation to the number of infections avoided and the number of lives saved (in the Portuguese scenario, the number of early deaths avoided), maximizing the "test-treat-retain/retain" and adopting models of differentiated action, supported by evidence and focused on the diversity and specificity of communities (Pepfar Annual Report to Congress 2017).

In this sense, it is crucial to develop programs and promote research that will enable them to better understand, document and respond to the unique needs of these populations as well as to strengthen the capacity of the most vulnerable populations and civil society organizations as central components in the implementation of actions.

From the perspective of the Fast Track Cities to end the HIV epidemic, strategies geographically and population-oriented are

critical interventions to complement conventional models of intervention in traditional health sectors and are essential to reach the epidemic threshold needed to control the transmission of HIV in the community.

The Metrics: The Biggest Challenge

Eliminating one of the most complex global health crises in modern history, HIV infection, permanently challenges metrics and information systems that generate strategic data to support good decisions and ensure the long-term efficiency and sustainability of actions.

As Peter Piot said in his address at the important "Data driven decision making to control the HIV epidemic - moving beyond 2020" symposium, which took place in Tallinn, Estonia, in October 2016, *challenges for reliable (HIV) data, for its measurement and evaluation will increase.*

The information systems available in Portugal, including the national epidemiological surveillance database for HIV and AIDS, based at the Unit of Reference and Epidemiological Surveillance of the Department of Infectious Diseases of the National Institute of Health Dr. Ricardo Jorge, whose records date back to 1985, the SI.VIDA system and the SINAVE electronic notification program are particularly relevant in this context.

Considering the purpose of eliminating HIV transmission, as a public health problem, and the central role these systems play in decision support, it is necessary that the evolution of some of the systems occur in the sense of developing interfaces capable of communicating effectively with other sources of health information systems, including clinical registries, epidemiological surveillance systems, pharmacies, laboratories, vital records platforms, migration registers, among others, through sophisticated approaches that enable the unique identification of information for each patient and a more granular analysis of the information needed for timely and adequate monitoring of the 90-90-90 targets.

It is necessary to develop more systematic approaches and metrics to measure stigma and use this information to mitigate its consequences on the quality of life and longevity of people infected with HIV. According to the World Health Organization (WHO), fear of stigma and discrimination is reported to be the main reason people are inhibited from being tested for HIV, to make their diagnosis known, and to seek timely health care.

Investing and realigning systems for collecting and systematizing information, according to HIV transmission dynamics and deaths, with the current requirements of goals 90-90-90, as a means for cities to enter the fast track to end epidemic remains a major obstacle to the rigorous knowledge of the magnitude of the epidemic in Portugal and a limiting factor of the robustness of the data obtained through modeling exercises.

Correct and improve the interoperability of SI.VIDA (the e-system used to store clinical files of HIV patients), making it more user friendly and simple, correcting local asymmetries in the computer park, adjusting its architecture to allow for a secure extension of access to information not only to the Ministry of Health, but also to the key partners involved, will help to foster record-keeping at the local level and to develop a culture of use of the evidence available at the institution or local level to trigger and sustain good decisions. As was mentioned at the symposium in Tallinn, Estonia, *good data generates good decisions and good decisions produce good information.*

This is one of the areas where multilateral support, including IAPAC, will play a key role in the design and harmonization of information collection methodologies to generate strategic indicators needed to achieve the 90-90-90 targets and the sustainability of this program.

Only then will it be possible to ascertain, with rigor, the clinical results of those who remain loyal to health care, those who abandoned follow-up, those who stopped treatment or those who died. Programs that allow the use of data to improve patient experience will be an important driver in reducing the proportion of people who, being infected with HIV, remain undiagnosed, are not receiving treatment or experience suboptimal clinical outcomes. (MeSH Consortium. Data driven decision making to control the HIV epidemic - moving beyond 2020. Tallinn, Estonia - October 2016. Scientific symposium report).

Surveillance, on the other hand, is the main basis for responding to epidemics and outbreaks not only of infectious diseases, but also for understanding the global challenge of noncommunicable diseases, and is therefore a decisive instrument for the success of the Sustainable Development Goals.

The dimension of surveillance from the perspective of cities on the fast track to ending the HIV epidemic is to bring timely and appropriate sharing of results between citizens and decision makers closer together. One of the most relevant implications of surveillance at the urban/periurban level is to reduce inequalities, making visible the needs of the most vulnerable populations in suffering, particularly when this suffering is unequal, unfair and avoidable (adapted from Lancet 2017, 2: e348-e349).

In these circumstances surveillance may justifiably require names or other individual and spatial identification factors to ensure the accuracy and usefulness of surveillance systems and it is therefore essential to strengthen/create effective oversight and transparency mechanisms that ensure the integrity of surveillance systems and that ethical and individual data protection are reflected in the policy and practice of surveillance activities (adapted from Lancet 2017, 2: e348-e349).

II. Elimination of HIV transmission in Cascais, Lisbon and Oporto

90-90-90: the dialectic between operationalization and epidemiological and scientific evidence

The simplicity and intuitive ease of concepts 90-90-90 and the cascade of treatment, while an intellectual base and philosophy of work and not just a motto, encompasses methodological, operational and sustainability complexities that it is important not to underestimate.

While sustainability is a long-term endeavor, the socio-behavioral dynamics that generate and perpetuate the approximately 1100-1200 new diagnoses per year in more vulnerable groups in Portugal means that achieving and maintaining control of the epidemic in cities Lisbon and Oporto, requires success in the short-term (2020-2025) actions and long-term vision to consolidate results and reach the stage of elimination of HIV transmission as a public health problem in 2030-2035.

According to the National Program for HIV/AIDS and Tuberculosis Infection, of the 56.001 cumulatively reported cases of HIV infection, there are 11.020 deaths at the base of the Reference and Epidemiological Surveillance Unit of the Department of

Illnesses of the National Institute of Health Dr. Ricardo Jorge, lacking the record of reassessment and validation deaths (National Program for HIV, AIDS and Tuberculosis, 2017, Ministry of Health, Directorate General of Health). For the purposes of the work plan and even better information, we will assume that, currently, in Portugal, about 44.981 people infected with HIV live (HIV/AIDS: the situation in Portugal on December 31, 2016. Document no. 148).

The expression of the current, almost universal, coverage of antiretroviral therapy in patients diagnosed with HIV infection is shown in the records found in SIVIDA, in which 91.3% of the 34.391 patients registered in this database are receiving antiretroviral treatment. The viral suppression rate in 90% of patients under treatment is 88.2% (National Program for HIV, AIDS and Tuberculosis, 2017, Ministry of Health, Directorate-General for Health + referral of recommendations therapies).

Despite these favorable indicators of individual effectiveness of antiretroviral therapy and the prevention measures adopted, the number of new HIV infection diagnoses in Portugal has remained constant around 1100-1200 new cases per year in recent years, suggesting sustained transmission of the epidemic.

These facts reinforce that, in the absence of curative therapy or an HIV vaccine, any strategy aimed at eliminating this virus, as a public health problem, will depend heavily on the sustained ability to halt HIV transmission through combined prevention and treatment interventions.

According to the geospatial distribution of the diagnosed patients, 52.6% of the cumulative total of reported cases resided, at the time of notification, in the Lisbon metropolitan area, defined in the nomenclature of Territorial Units for Statistical Purposes (NUTS) as NUT II, PT 17, which includes Cascais, and the North region, NUTS II, PT 11 North, participates with 24.9% of the total cases reported at national level. (HIV/AIDS infection: the situation in Portugal at 31 December 2016. Document No. 148)

The analysis of the information on the 1030 new cases of HIV infection diagnosed

between January 1 and December 31, 2016, whose notifications reached the National Institute of Health until June 30, 2017, found that 51.2% were in the NUTS II region PT 17, *ie* is the metropolitan area of Lisbon, including Cascais, corresponding to a rate of 18.6 cases/105 inhabitants and 23.1% in the NUTS II North region, PT11, North region, equivalent to a rate of 6.6 cases/105 inhabitants.

With regards to the population living in national territory estimated for 2016, the analysis of the percentage distribution of the population in Lisbon, Cascais and Oporto, described in table 1, reveals that 27.4% of the national population resides in the metropolitan area of Lisbon, including Cascais, and 16.7% resides in the Oporto metropolitan area. The population analysis is based on the population analysis of each of the three municipalities, the municipality of Lisbon represents 4.9%, the municipality of Cascais represents 2.0% and the municipality

Geographical level	Population		New HIV diagnosis (2016*)	
	n	%	n	no/10 ⁵ inh
PORTUGAL	10 309 573	100%	1030	10,0
Metropolitan area of Lisbon	2 812 349	27,4%	529	18,6
Municipality of Lisbon	504 964	4,9%	154	30,5
Municipality of Cascais	210 889	2,0%	44	20,9
Metropolitan area of Oporto	1 719 021	16,7%	151	8,8
Municipality of Oporto	214 119	2,1%	38	17,7

Source: INSA/DGS Notified cases until **30/06/2017**.

of Oporto represents 2.1% of the national population and concentrate about two thirds of the total number of people living with HIV.

Still according to table 1 and restricting to Lisbon, Cascais and Oporto the evaluation of the 1030 new cases of HIV infection diagnosed in Portugal in the year 2016 reveals that 51.4% were diagnosed in the metropolitan area of Lisbon, including Cascais, corresponding to a rate of 18.6/105 inhabitants and 12.0% in the metropolitan area of Oporto, corresponding to a rate of 8.8/105 inhabitants. Particularly analyzing the level of each municipality, the rates of new diagnoses become even more significant, ranging from 30.5/105 inhabitants to the city of Lisbon, 20.9/105 for the municipality of Cascais and 17.7/105 inhabitants for the municipality of Oporto.

Although the dominant transmission of HIV in Portugal is heterosexual, as shown in table 2, the global assessment of the information obfuscates some local/regional discrepancies on the preponderance of some categories of HIV transmission that should be highlighted: Reporting to us data on cases diagnosed in 2016, the practice of unprotected sex among men (MSM) was the most frequent route of HIV transmission in Lisbon, accounting for 65.0% of the total number of new diagnoses reported, with equally high values in Oporto 55.3%, following the national trend.

Table 2: Characteristics of HIV infections diagnosed in 2016*

	PORTUGAL	Lisbon	Cascais	Oporto
	N (%)	N (%)	N (%)	N (%)
Category of transmission				
MSM	366 (35.6%)	100 (65.0%)	13 (29.6%)	21 (55.3%)
PUD	29 (2.8%)	2 (1.3%)	0 (...)	1 (2.6%)
HETERO	586 (57.1%)	48 (31.2%)	31 (70.5%)	12 (31.6%)
Men (born in Portugal)	196 (19.0%)	9 (5.8%)	6 (13.6%)	12 (31.6%)
Women (born in Portugal)	137 (13.3%)	12 (7.8%)	8 (18.2%)	5 (13.1%)
Men (not born in Portugal)	102 (9.9%)	11 (7.1%)	11 (25.0%)	1 (2.6%)
Women (not born in Portugal)	120 (11.7%)	13 (8.4%)	6 (13.6%)	0 (...)
Clinical status when diagnosed				
Late diagnosis (CD4 < 350/mm ³ or AIDS-defining disease)	454 (55.0%)	46 (41.4%)	26 (63.4%)	15 (48.4%)
Advanced disease (CD4 < 200/ mm ³).	291 (35.3%)	27 (24.3%)	17 (41.5%)	12 (38.7%)
*Cases notified until 06/30/2017				
Source: INSA/DGS				

It should be noted that since 2005 there has been a gradual and progressive increase in the number of new cases of HIV transmission in the MSM transmission category which, as of 2011, accounted for

more than 40% of the new cases reported annually in men. In 2015 and 2016, the "homo/bisexual" transmission category participated with 50.0% of the notified cases of new diagnoses, being in that year the most frequent cause of HIV infection in men at the national level (HIV/AIDS infection: the situation in Portugal December 31, 2016. Document No. 148).

Although HIV transmission associated with injecting drug use has declined at a national level to as low as 2.8% of the 1030 new cases diagnosed in 2016, this is one of the groups, along with heterosexuals, that participates with a high proportion of patients seeking health care late (e.g. with CD4+ T cell counts <350/mm³ at the time of diagnosis) or at advanced stage of disease (CD4+ T cell counts <200/mm³).

According to the 2015 report of the Intervention Service on Addiction Behaviors and Dependencies (SICAD), the study on "Addictive Behavior at 18: Survey of Youth Participants on National Defense Day", conducted in 2015, the prevalence of consumption of any drug were 31% throughout life, 24% in the last 12 months and 15% in the last 30 days. *Cannabis* has emerged with prevalence very close to that of any other drug.

However, the population in prisons had a prevalence of drug use higher than that registered in the general population: 69% of inmates reported in *INCAMP2014* - National Survey on Addictive Behavior in Prisons, that they had consumed any drug during their lifetime and 30 % during the current

seclusion. As in previous studies, *cannabis* was the illicit substance that recorded the highest prevalence of drug use ever in life (56%), current incarceration (28%), and in the last 12 months in the current incarceration (24%). About 14% of inmates report having already injected drugs at some time in their lives, 4% during the current incarceration, and less than 1% in the last 30 days in the current incarceration. Among the substances with the most consumption injected during the current imprisonment are cocaine, heroin and anabolic steroids (Annual Report, 2015, The situation of the country in the field of drugs and drug addiction Executive summary. SICAD).

According to the above evidence, it can be assumed that there are still very high prevalence of pockets of drug use in which hepatitis C and B, tuberculosis and other multimorbidities, associated or not with HIV infection, constitute a serious public health problem, which need to be monitored more closely and more effectively in relation to the continuity and sustainability of primary prevention and risk/harm reduction strategies, both in relation to the surveillance of new patterns and individual and group habits of consumption of illicit drugs, and of alcohol.

In Portugal, information on the burden of HIV infection in migrant populations is fragmented, incomplete and rapidly changing and therefore difficult to assess accurately. However, by making an approximation of the origin, through the information referring to the cases diagnosed in 2016 and grouping it according to the geographical regions

according to the requirements of the European surveillance system TESSy, it is verified that of the 978 new diagnoses in which this information was reported (95.2% of total notifications), the country of birth indicated at the time of diagnosis was Portugal in 68.4% of cases, and other countries in 31.6%. Of these, 62.4% were from sub-Saharan African countries, particularly Portuguese-speaking African countries, 22.7% from Latin America. This information, related to the cases diagnosed in individuals from countries other than Portugal, seems to follow the trend verified in the last decade, according to data regularly provided by the Unit of Reference and Epidemiological Surveillance of the Department of Illnesses of the National Institute of Health Doctor Ricardo Jorge.

Law no. 29/2012 of August 09, 2012, published in the *Diário da República*, 1st series, no. 154, of August 9, 2012, gives immigrants the same access rights to the health system that Portuguese citizens enjoy, guaranteeing a wider health coverage than in several countries of the European area.

Nevertheless, there are troubling echoes from civil society organizations and others about barriers to access to health care that these communities face. In addition to language problems, cultural differences, financial problems, the limitations of services also explain some of the barriers to accessing these communities to health care. Particularly with regard to immigrants without legal status, the primary health care information systems of the National Health Service do not allow the referral of these

citizens to other levels of health or more differentiated prescriptions (Portugal: Health System Review. *Health Systems in Transition* 2017; 19 (2): 1-184), delaying therapeutic interventions that, in the case of HIV infection and other associated pathologies, have relevant impacts on patients' quality of life and longevity and on silent propagation of infection in the community.

Finally, the late diagnosis rate of HIV infection in Portugal is one of the obstacles to achieving each of the three components of the 90-90-90 targets, which should be carefully monitored and responses tailored to the regional or local specificities of each population target.

As previously mentioned, more than half of the patients (53.6%) are diagnosed late. National registries suggest some factors that reduce or nullify the effect of antiretroviral treatment as a means of preventing HIV transmission in the community. Although not quantified, among the main factors are people who, knowing their diagnosis of HIV infection, have abandoned medical follow-up and antiretroviral therapy (retention rate or fidelity to health care), reduced number of diagnoses of infection (e.g. STI) that amplify the risk of HIV acquisition and transmission, the length of time between diagnosis of HIV infection and initiation of antiretroviral therapy, and barriers to access to specialized care of specific populations such as immigrants, especially those without legal status, homeless population and ethnic minority populations, including people of gypsy ethnicity and others.

Particularities of the urban HIV epidemic in Portugal: the main pillars of intervention

Based on the national information gathered from several sources mentioned in previous chapters and on the discussion of some of the data from the cities of Cascais, Lisbon and Oporto, it is plausible to admit that each of the three cities in the 90-90-90 has a expressive HIV epidemic.

Using the national and county average incidence for the period 2011-2016, reported for cases of HIV infection reported up to June 30, 2017, to calculate the incidence rate ratio (IRR) by county, the average incidence rate in Lisbon is 3.6 times higher than the national average, with Oporto being 2.0 times higher and Cascais 1.8 times higher than the national average incidence, as is illustrated in table 3.

Table 3: Calculations based on cases of HIV infection reported as of 04/30/2017.

County of residence	Mean incidence per county (2011-2015) Number of cases per 10 ⁵ inhabitants	Incidence rate ratio (IRR)
Lisbon	47.0	3.6
Amadora	38.7	3.0
Sintra	28.3	2.2
Faro	26.1	2.0
Oporto	25.6	2.0
Góis	24.7	1.9
Loures	24.4	1.9
Portimão	24.1	1.8
Cascais	23.9	1.8
Setúbal	23.0	1.8
Almada	21.0	1.6
Albufeira	19.9	1.5
Aveiro	19.8	1.5
Oeiras	19.7	1.5
Sever do Vouga	19.5	1.5
Estarreja	19.5	1.5
Alcoutim	19.2	1.5

In the urban environment, HIV infection tends to manifest itself as an **epidemic concentrated** not only in **geographical terms**, but also by **category of transmission**.

Of all the new diagnoses reported in 2016, in Lisbon, Cascais and Oporto, 65.0%, 29.6% and 55.3%, respectively, occurred in MSM. Knowledge of the geospatial distribution of the most at-risk populations, the determinants and circumstances that provide patterns of exposure to HIV, and the available care delivery equipment will allow for a more appropriate, effective and targeted intervention for the specific needs and outcomes of each target population.

In Portugal, **sexual transmission**, particularly, **heterosexual** transmission of HIV is the dominant route of propagation of this virus. HIV transmission is the result of a meeting between an infected and an uninfected person, each with different perceptions of risk, disease representations, fears and concerns, and different and specific prevention needs. To this extent, intervention strategies that seek to indiscriminately cover the entire population are inefficient in terms of information, community literacy and outcomes.

The high frequency of **late diagnosis**, documented in Portugal, the almost insignificant rate of diagnosis of early or recent HIV infection, and the long interval between diagnosis and initiation of antiretroviral therapy compromise the effectiveness of antiretroviral treatment as a prevention tool (15th Infeciology Update

Meeting 2017, Oporto, Poster and Oral Communication no. 53).

Despite the trend towards a significant reduction in **HIV transmission among intravenous drug users**, this population has a significant burden of simultaneous infection with hepatitis C and B viruses, requiring specific approaches to monitoring the dynamics of illicit substance use, of the patterns of demand for care, including strengthening of harm reduction, adherence and retention strategies in therapeutic programs.

Finally, it is necessary to investigate and collect information with better quality and robustness in relation to some of the most vulnerable populations, especially the migrant population, because they come mainly from countries with high rates of HIV transmission; other ethnic minorities such as the Roma population; and other population groups, including prisoners, the homeless population, the transgender population, men and women engaged in paid sex, which may be niches of concentrated epidemics, scarcely accessible to the conventional approach.

According to the aforementioned findings, the two main pillars of intervention to reach the 90-90-90 goals in the most relevant cities of the country including Cascais, Lisbon and Oporto are: i) **reduce the incidence of HIV infection in the non-infected population** with a focus on reducing the proportion of those who are **unaware of being infected**; and (ii) improving follow-up circuits and the clinical prognosis of **HIV-infected**

people through the early diagnosis and rapid institution of antiretroviral therapy.

Interventions under the "Fast Track Cities to end the HIV epidemic" are not intended to replace existing national programs for the prevention, diagnosis and treatment of HIV infection and associated pathologies. The value that the cities involved in this project adds is the projection of actions to maximize overall health gains and the level of HIV infection control in urban settings in particular in complementarity with the regional and national programs.

From the perspective of social management of HIV infection, cities offer a unique opportunity to reduce inequalities and promote the social integration of marginalized populations. Local policies can address needs with more resilience and better adapt to changing priorities (The Cities Report 2014, UNAIDS).

The success of reducing the rate of HIV acquisition and transmission at the individual and community level depends on the design of well-defined local strategies supported by good quality information and generating robust and innovative scientific evidence to support good decisions, particularly in areas where national information is scarce, fragmented or non-existent for the intended goals.

In turn, the effective multidisciplinary and interdisciplinary involvement of all partners involved in the HIV-related disease management chain is crucial, a comprehensive platform that includes

prevention, medical care, support from community-based and community-based organizations, peer monitoring and research in its most diverse, socio-anthropological, epidemiological, operational, economic, clinical, and development of responses based on community interventions.

If modeling exercises that estimate the number of people who are unaware of being infected with HIV in Portugal reveal important discrepancies, depending on the modeling tools used (Lancet HIV 2016, 3: e361-e387. Euro Surveill 2016;21(48): pi30417), we do not currently have estimates reported at the level of the cities with the highest HIV infection burden.

Taking into account the 90-90-90 goals, it is important to clarify and consensualize the modeling methodologies that the country will adopt for the calculation of national and regional estimates, so as to be able to implement or adjust the metrics for the monitoring of this project in the short and medium-long term.

With regards to reducing the **incidence of HIV infection in the population** and improving the follow-up and clinical prognosis of **people infected with HIV**, only the integrated, articulated and comprehensive promotion of combined prevention and treatment interventions will enable programs designed to the different populations, at different times and according to epidemiology and different lifestyles, including sexual.

According to available national epidemiological information already discussed, in the **general non-HIV infected population**, including those at high risk of contracting this infection, short-term goals should include non-dogmatic prevention programs that address all options supported by evidence education: health education through school programs that explore and address issues related to risk perception, including risk behaviors for sexual and reproductive health, adapted to different age groups; peer education or community leaders to address communities that are less accessible by conventional means; the use of new information technologies to raise awareness, improve literacy and disseminate HIV and STI prevention messages, and mobilize the community and families to appropriate and improve this project, contributing to the elimination of HIV and AIDS infection as a problem of public health in Portugal in 2030.

The high ratio of the average local incidence rate to the average national incidence rate in the cities of Lisbon, Cascais and Oporto, between 2011 and 2016, and considering that more than half of the new diagnoses of HIV infection in men, in 2015 and 2016, occurred in MSM (HIV/AIDS infection: the situation in Portugal on December 31, 2016. Document No. 148), the adoption of daily or intermittent **pre-exposure prophylaxis (PrEP)** in high-risk subpopulations of MSM is one of the most robust preventive strategies which was demonstrated by several controlled studies, of which PROUD and ANRS-Ipergay stand

out, with effectiveness rates of 86% in controlled environments. (Lancet 2015;387:53-60. N J Med 2015; 373: 2237-2246).

Taking into account the universe and the diversity of populations in the cities of Cascais, Lisbon and Oporto, the opportunity to investigate the accessibility, acceptability, adherence, and feasibility of PrEP in Portugal and to generate information to support future decisions in this area, should be the target of the greatest attention of all the partners involved in this project.

At the same time, the awareness and training of health professionals not only in relation to PrEP, but also to post-exposure prophylaxis (PPE) and the creation of circuits and more comprehensive follow-up structures to facilitate streamlining of procedures and monitoring these powerful preventive interventions and the early diagnosis of other STIs will allow for the profitability and evaluation of gains not only in terms of HIV infections avoided, but also in STIs that have been diagnosed and treated early in accordance with the epidemiological framework of each city or region.

The promotion of the **use of condoms**, in the PrEP era, retains all its relevance and timeliness. Unlike PrEP, condoms remain the only method that covers protection not only against HIV but also against most STI. It is essential to ensure accessibility and low cost to ensure their use by those who choose this protective device, as well as to investigate the acceptability and motivations of condom use (or not) in environments where the

provision of prevention means is diverse. More attractive condom promotion strategies from a sexual and reproductive health perspective will inform community decisions and choices (Towards an AIDS free Paris, February 2016).

In order to increase the rate and percentage of diagnosis of HIV infection in the country in general and in the three cities that signed the Paris Declaration in particular, it is urgent to promote and maximize the provision of two diagnostic strategies. The first, based on the **physician's initiative**, in which GPs play a key role. Cost-effectiveness modeling analyzes reveal that screening for HIV infection in primary health care is cost-effective in the medium term, and in areas with a high incidence ($\geq 0.2\%$), screening should be proposed to all adults as a routine examination (Lancet HIV 2017; 4: e465-e474). The second strategy is the **client's initiative** and supported by Centers for HIV Counseling and Early Detection, other institutions of the National Health Service, and more recently, community-based structures in which various civil society organizations participate. The inclusion of the pharmacy network in screening initiatives can provide an opportunity to broaden access and reduce inequities, as seen in experiences in other countries and areas of intervention (for example Syringe Exchange). Other screening modalities, such as self-diagnosis, need to be regulated, although they are subject to analysis and discussion between some of the country's competent regulatory authorities and the European regulatory authorities.

The results of the Community Screening Network presented in 2016 unequivocally demonstrate that in Portugal it is possible to promote excellent community-based research, helping to strengthen the active role of the community in supporting policy-making and to provide evidence to inform decision-makers about the conception and the provision of services to the community (Community Screening Network: results, 2016, Publisher Institute of Public Health, University of Oporto).

According to the specificities of local or regional communities it is possible to develop and investigate other screening strategies to address the epidemiological, clinical and social consequences resulting from the inexpressive number of diagnoses of acute or recent infections and the high number of new late diagnoses of HIV infection expressed in the notifications.

In relation to the **HIV infected population**, it is essential to narrow the gap between those diagnosed and those who are infected and are unaware of the stage of HIV infection through accelerated diagnostic and referral programs. Investigating and assessing the barriers to adoption of the "test-treat-retain/retain" strategy in health professionals and patients will improve the efficiency of immediate implementation of antiretroviral therapy, accelerating improvement of clinical prognosis and reduction of transmission of HIV in the community as a result of rapid viral suppression. At the same time, improving literacy on the meaning of laboratory results and clinical evolution, the importance of

adherence to antiretroviral therapy and fidelization/retention to health care are essential means of health promotion and awareness of safe behaviors in the population infected by HIV.

Adherence to the Fast Track Cities initiative to end HIV epidemic

The strategic and technical framework for applying for the cities initiative on the fast track to end the HIV epidemic is set out in the document *Fast Track Cities, Technical Implementation Strategy, January 2016 (updated April 2017)* (www.iapac.org/cities).

Any Portuguese city that shows an interest in accelerating local responses to HIV control can sign the Paris Declaration, thus contributing to the national commitment to eliminate HIV infection as a public health problem in 2030.

The fast track cities initiative to end the HIV epidemic includes a large network of cities with a high HIV burden worldwide, which are recruited on the basis of four criteria: **i) HIV burden** expressed through prevalence and proportion of the infection rate in relation to the national average. In the case of Portugal, the table on page 26 of this document allows the identification and prioritization of some cities; **ii) Political support** expressed by the commitment and

leadership at the level of the Presidents of the respective City Councils; **iii) Robust technical team** capable of managing the day-to-day of the integrated implementation of this project at city level; **iv) Pioneering cities** as urban models for the response to AIDS (*Fast Track Cities, Technical Implementation Strategy, January 2016, updated April 2017*).

The baseline indicators and process indicators that serve as a listing of concrete variables that cities need to monitor the progress of actions to achieve the 90-90-90 targets and zero discrimination and stigma are included in the portal www.fast-trackcities.org.

The timeline for joining the fast track cities project to end the HIV epidemic is summarized in four points: i) **Stage 1:** signing of the Paris Declaration; ii) **Stage 2:** achieving the 90-90-90 targets by 2020 and eliminating discrimination and stigma. Among the indicators of success, cities should agree and harmonize their metrics with the indicators recommended by the National Program for HIV, AIDS and Tuberculosis. As an example, some indicators are adopted by countries that are the fast-track network of cities to end the HIV epidemic: <5 AIDS cases per 1000 people living with HIV, <5% mother-to-child transmission; iii) **Stage 3:** eliminate AIDS as a public health threat by 2030, with indicators of eliminating AIDS mortality ie <5 AIDS-related deaths per 1000 people living with HIV and demonstrating the impact of stigma mitigation and discrimination (stigma rating of people living with HIV); iv) **Stage 4:** control of the urban HIV epidemic, the main objective of this project, with the

number of new HIV infections expected to be lower than the number of AIDS-related deaths.

The success of such an ambitious and multifaceted program, which will last at least until 2030, requires a good marketing and communication strategy, capable of mobilizing the community around the 90-90-90 goals and simultaneously anticipating difficulties and find innovative responses to information fatigue, a phenomenon already identified in other pandemic situations, of which the latest influenza pandemic was an example.

The success of such an ambitious and multifaceted program, which will last at least until 2030, requires a good marketing and communication strategy, capable of mobilizing the community around the 90-90-90 goals and simultaneously anticipating difficulties and find innovative responses to information fatigue, a phenomenon already identified in other pandemic situations, of which the latest influenza pandemic was an example.

Finally, Order 5216/2017 defines the main partners and reflects a strategic combination of experiences, competencies, complementarities and action capacities of the various appointed entities, led by the Presidents of the City Councils, to develop concerted and integrated actions to achieve the goal of to end AIDS in 2030, under the Sustainable Development Objectives.

Opportunities and recommendations

HIV infection and AIDS are one of the most complex public health crises in contemporary history, challenging conventional wisdom to achieve and sustainably sustain the goals 90-90-90 advocated by UNAIDS well beyond 2030.

In this sense, the Municipal and Local Health Plans must contemplate actions that complement the response to the initiative "Fast Track Cities to end the HIV epidemic", in consultation with the various National, Regional and Local Entities in the areas of Health, Education and Social Action, including Community Based Organizations and patients, as well as other representatives of Civil Society.

The implementation of the activities to be carried out in this context should take into account the priority areas of action, according to the local magnitude and specificity of the HIV epidemic (populations-space-time), with the definition of responsibilities of and between the various Partner Entities, taking into account their attributions and available resources.

In order to support the municipalities' commitment to the "Fast Track Cities to end the HIV epidemic", it is recommended that a structure/body is set up to monitor the initiative, identify opportunities and barriers to its implementation, dissemination of good experiences from other cities and monitoring

and evaluation of the results in relation to the 90-90-90 goals of each municipality.

This commitment represents an opportunity to conjugate and articulate the wills and efforts of the various sectors involved in reaching the goals 90-90-90, as a means of integrated approach to the HIV epidemic in Portugal, as a public health problem, enabling its phased extension to other satellite comorbidities, including sexually transmitted infections (STI), viral hepatitis and tuberculosis.

With a view of preventing the transmission of HIV infection and other STIs, this initiative is an opportunity to develop holistic approach to the health of the general population and the most vulnerable, particularly at the normative level, of early diagnosis, timely referral, treatment and prevention.

The need to revisit and update some Clinical Guideline Standards was identified, including those related to the screening and diagnosis of HIV infection.

Another opportunity will be the development of joint work with the Education sector, in order to promote reciprocal training among health and education professionals, with a view to improving the literacy of the school population through age-appropriate

educational materials and resources and new technologies.

In the continuity of national strategies aimed at reducing the number of new infections through screening, with a particular focus on populations at higher risk, HIV status as a chronic disease presents new challenges.

The aging of the infected population, the migrations and movements of millions of people with a wide diversity of complex health needs, and the financial and economic uncertainties related to the financing of projects of this magnitude are factors capable of generating imbalances in the stability and sustainability of some goals to be achieved in the medium to long term.

The communication strategy within each group, between cities, with national and international partners and with the general public should be the subject of careful analysis with communication experts. The definition of communication models should take into account the target audiences, the coherence and robustness of the messages, their effectiveness and the measurability of their impacts.

Only a communication strategy that considers the latest technologies will allow to monitor the determinants that condition the spread of HIV and other STI in the long term; key examples of how risk perception, disease representations and transmission dynamics can change so fast in the course of the history of these affections.