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STRENGTHENING THE RESILIENCE OF HEALTH SYSTEMS IN AFRICA: THE GERMAN REFERENCE FRAMEWORK

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Strengthening the resilience of health systems in Africa: The German Reference Framework

Summary:

In the field of health, important results have been achieved on the African continent as shown by recent data in terms of life expectancy and the availability of treatment for the major causes of morbidity. In spite of this, the recent episode of the Ebola epidemic, which required the mobilization of substantial human and financial resources, but above all international aid, shows that health systems remain vulnerable to major shocks.

The current context of the Covid-19 pandemic points to the fact that many countries, particularly those on the African continent, do not seem to be prepared to absorb shocks of such magnitude. It is therefore necessary to see to what extent SDGs can be improved to take into account the pressing need to build the resilience of health systems. In this respect, Germany stands out in Europe and worldwide for its performance in managing the current Covid-19 pandemic. Within this framework, and based on data relating to the German health system, a number of proposals have been put forward for an SDG-3 that more explicitly targets the resilience of health systems across the countries of the African continent. Among other things, the aim is to increase per capita health expenditure to at least 10% of GDP per capita in the medium term, and to strengthen the ratio of hospital beds and health technicians per inhabitant by 2030. The African continent could also capitalize on the high penetration of mobile phones to resort to digital technology in order to close the gap in access to specialist medical consultations.

Introduction:

Human development indicators have improved significantly in the developing world, as they have in the rest of the world, thanks to advances and widespread access to health care. Despite the fact that the African continent has not been able to achieve the famous Millennium Development Goals (MDGs), the data show highly encouraging developments, especially in the health sector.

According to Easterly (2008), the much-claimed failure of Africa, which is the only region in the world with the least progress on the MDGs, is far from being the case. The main problem lies in the intrinsic formulation of these goals; for example, Goal 4, which aimed to halve child mortality, based on the level of this variable in 1990, by 2015, ultimately masks the continent's significant achievements in the area of health.

Indeed, on the basis of a retrospective empirical analysis, Easterly (2008)¹ shows that the higher the initial level of mortality, the lower the probability of reducing the level of mortality by two thirds over a period of 25 years.

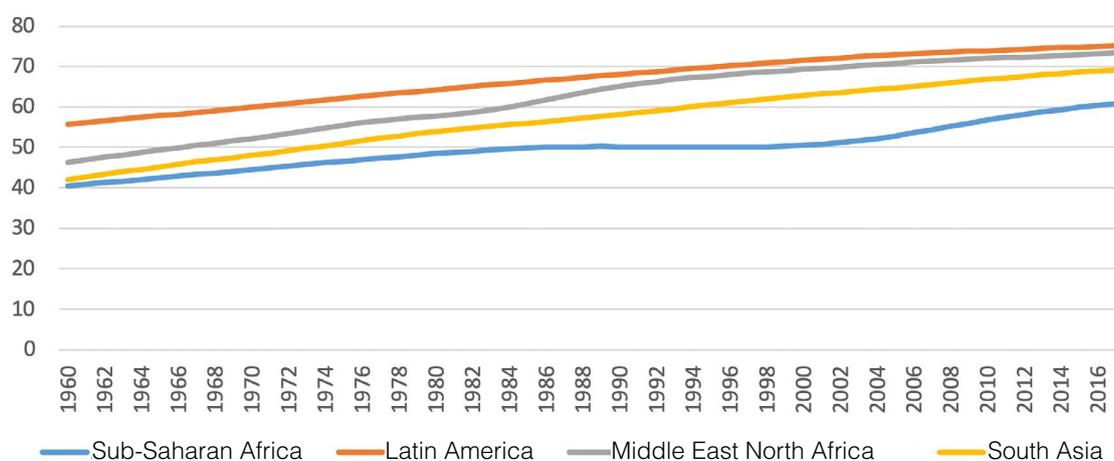
1.Easterly, W., 2008. How the Millennium Development Goals Are Unfair to Africa? World Development, Vol.37, No.1, pp. 26 – 35

The Sustainable Development Goals (SDGs), which replaced the MDGs from 2015 onwards, also give an important place to health. In what follows, a critical analysis of these SDGs, particularly SDG3, will focus on three main elements. A first section will provide an overview of the health situation in Africa. A second section will look at the German health system, whose performance in the context of this Covid-19 epidemic seems to stand out in Europe and elsewhere. In the light of the two previous analyses, ideas are presented on how to take better account of resilience in the formulation of SDG3.

The health sector on the African continent: Undeniable achievements

Life expectancy at birth, which is the most common indicator for measuring the performance and effectiveness of health systems in countries, has been steadily increasing everywhere, especially in Africa for nearly 60 years. Between 2000 and 2017, Africa gained almost 10 years, with life expectancy now around 60.8 years². This performance, rarely seen since independence, is attributable to progress in child survival, the fight against malaria and the decline in the lethality of HIV/AIDS (WHO, 2016³ & WB 2019⁴).

Figure 1: Life expectancy at birth in Africa and elsewhere



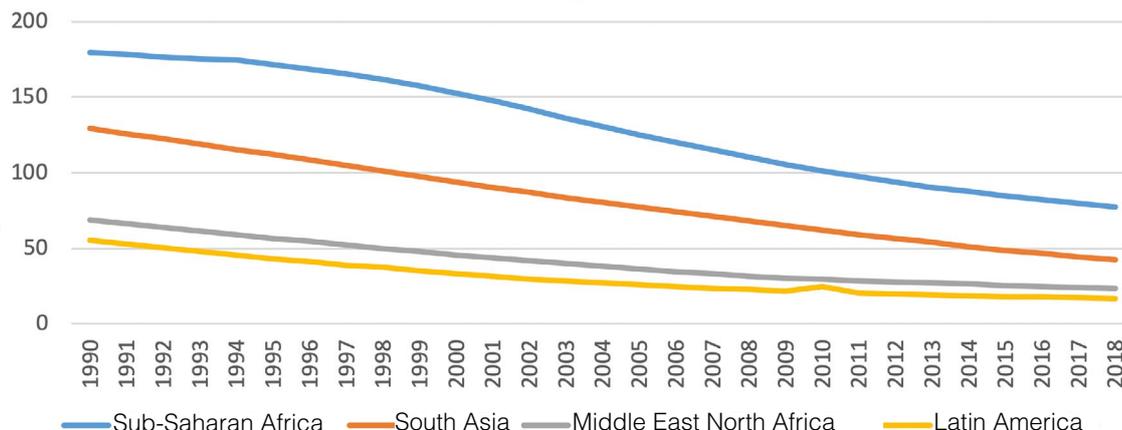
Sources: WDI, World Bank.

2. To obtain Healthy life expectancy (HALE), an average factor of 13% should be applied to life expectancy at birth for the African region. This gives a level of about 53 years that an inhabitant of the continent can expect to live in good health (in World Health Statistics WHO, 2015).

3. World Health Organization, 2016. Monitoring Health for the SDGs. World Health Statistics.

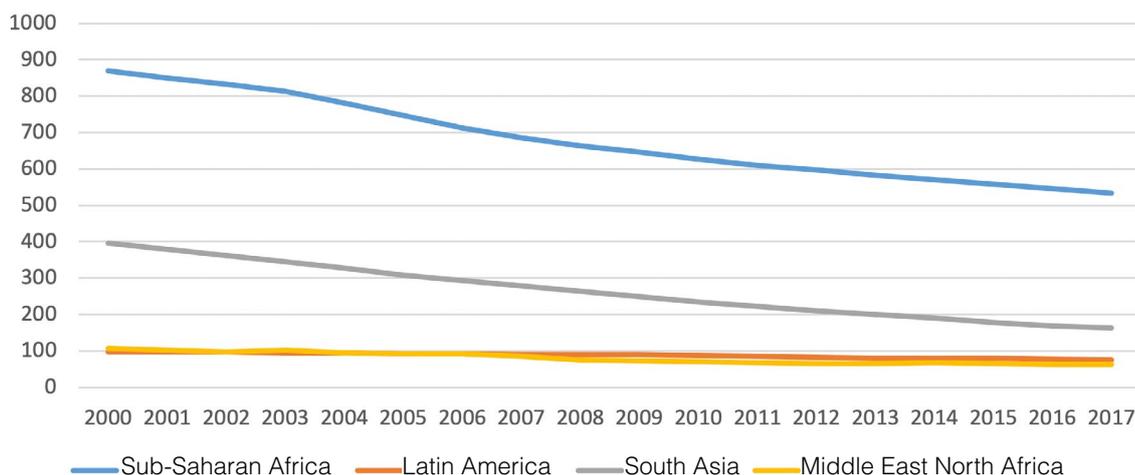
4. World Bank Group. 2019. World Development Indicators database.

Figure 2: Infant and child mortality (per 1000) in Africa and elsewhere



Source: WDI, World Bank

Figure 3: Maternal mortality (per 100,000) in Africa and elsewhere



Source: WDI, World Bank

Infant and child mortality and maternal survival (the mortality rate dropped from 849 to 534 per 100,000 births between 2000 and 2017) show that the African region has seen continuous improvement in these indicators and in the health system in general (Figures 2 & 3).

In terms of major epidemics, the developments are also notable. For HIV/AIDS, for example, the prevalence rate (as a percentage of the population aged 15-49) has dropped from 4.9% in the early 2000s to 3.9% in 2018. Prevention efforts and the availability of antiretrovirals have also been remarkable (only 1.9% had access to treatment in 2004, while more than 63% are now provided with antiretrovirals). With regard to tuberculosis, it has been virtually eradicated with treatment success rates of over 83% (as a percentage of newly infected people). The incidence of malaria has also decreased from 313.7‰ to 209‰ between 2000 and 2017.

Overall, this brief overview shows that significant progress has been made by health

systems, particularly in terms of access to treatment despite, of course, disparities between countries.

The Ebola virus warning

In addition to these "known" epidemics (and pandemics), at the end of 2013, there was an outbreak of Ebola fever in West Africa, a region long spared by this highly contagious viral infection with case-fatality rates ranging from 30 to 90%. Between 2013 and 2016, this epidemic has been a major challenge for the health systems of West African States, with nearly 28,000 cases reported for about 11,000 deaths. More recently, an epidemic has occurred in the Great Lakes region of the continent, with approximately 3457 reported cases and 2276 confirmed deaths. The various episodes of the Ebola crisis have highlighted the fragility of health systems in the countries of the continent (mainly in the West and in the Great Lakes region). This fragility stems from the fact that health systems remain vulnerable to severe shocks, or what could be called "health disasters" (see below).

In the recent Ebola outbreak in North Kivu, for example, from January to June 2020 alone, the financial needs were estimated at over \$83 million and, since 2015, as much as \$153 million has been mobilized for this outbreak⁵. Those much-needed resources are, of course, a major challenge for most developing countries facing such shocks. The health sector therefore remains a major concern, both for the countries themselves and for development partners. The Ebola epidemic in the Great Lakes region and the Western sub-region, and the means that were required to deal with it, show the need to strengthen the resilience of health systems on the continent and in the rest of the world, as advocated by the Sustainable Development Goals (SDGs).

Sustainable Development Goals

As part of the sustainable development goals (SDGs), SDG3, which replaces the health MDGs (mainly MDGs 4/5 and 6), aims to achieve significant progress in terms of universal health coverage, sustainable health financing in all countries and the management of non-communicable diseases. The SDGs on health, while recalling the important gains achieved (see above), focus on maternal and child health, but also on reproductive health and other infectious diseases, such as tuberculosis, hepatitis B, malaria and HIV. Moreover, the great novelty in these SDGs is that they take into account the "new" causes of mortality known as non-communicable diseases. These include all cardiovascular and respiratory diseases and cancers, often linked to pollution in the living environment and the weakness of prevention systems. Also in the wake of the Paris Declaration on development aid, SDG3 calls for substantial and predictable aid dedicated to the health sectors in countries in order to strengthen the human resources system in quantity and quality.

However, the wording of this SDG inspires a twofold reflection. The first is whether the achievement of these goals is not simply a matter of containing already well-known and

5. Status of contributions in the fight against Ebola https://www.who.int/docs/default-source/documents/emergencies/cfe-allocations-2015-march2020.pdf?sfvrsn=8c3d86f6_2

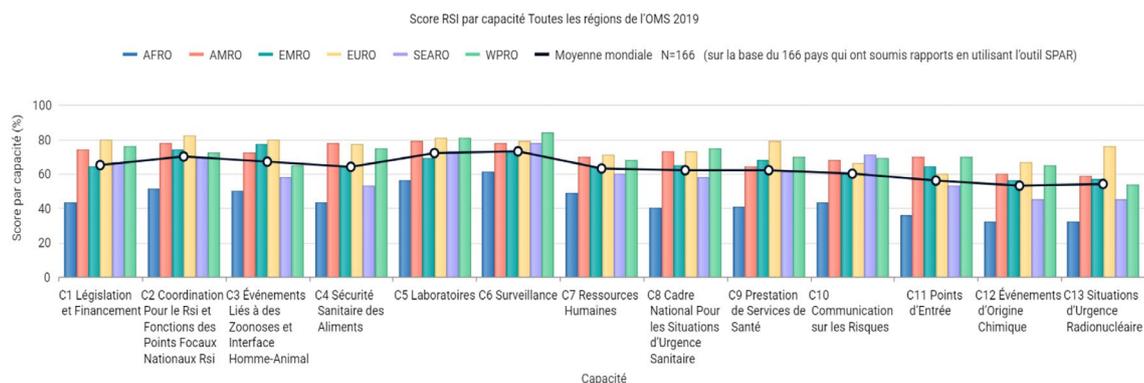
identified health threats rather than making countries' health systems resilient? That is to say, systems that are capable of containing an unanticipated situation of significant magnitude. The second point, then, is to wonder whether the plea for substantial funding is a centripetal force in favour of a system that is both capable of responding to known threats but also capable of responding to possible shocks. These two questions/reflections seem essential, given that the current level of globalization has heightened the likelihood of a pandemic.

Overview of health expenditure levels in the African region

In the African region, overall health system performance - an integrated measure of country capacity to improve access to services, quality of care, community demand for services and resilience to outbreaks - remains weak. Health systems are reaching only 49% of their possible levels of functionality. The main shortcomings relate in particular to access to essential services and the resilience of systems to outbreaks, two dimensions for which the performance index is 0.32. The performance index is 0.32 for both dimensions.

The health security score, measured in relation to the 13 core capacities of the International Health Regulations (IHR), also indicates that only 44% of the required skills are found in the countries of the region (Figure 4). This rate, which is considered to be the lowest of all WHO⁶, points to wide global disparities and underscores the need to concentrate health investments in the African region (WHO 2018).

Figure 4: IHR Score per capacity for all WHO regions 2019



Source : WHO 2019

In Sub-Saharan Africa, as in several other regions of the world, with the notable exception of South Asia, public spending on health increased (albeit slightly) between 2000 and 2017 (Figure 5), from 5.11% to 5.17% of GDP. In the European Union (EU), France and Germany have spending levels close to and above the regional average. So there is some difference with the data on per capita health expenditure (current dollars in purchasing power parity, PPP). Sub-Saharan Africa, which spent an average of \$101 (PPP) per capita in 2000, reaches the \$198 (PPP) threshold in 2016, a significant jump

6. The highest rate is 75% in the European region.

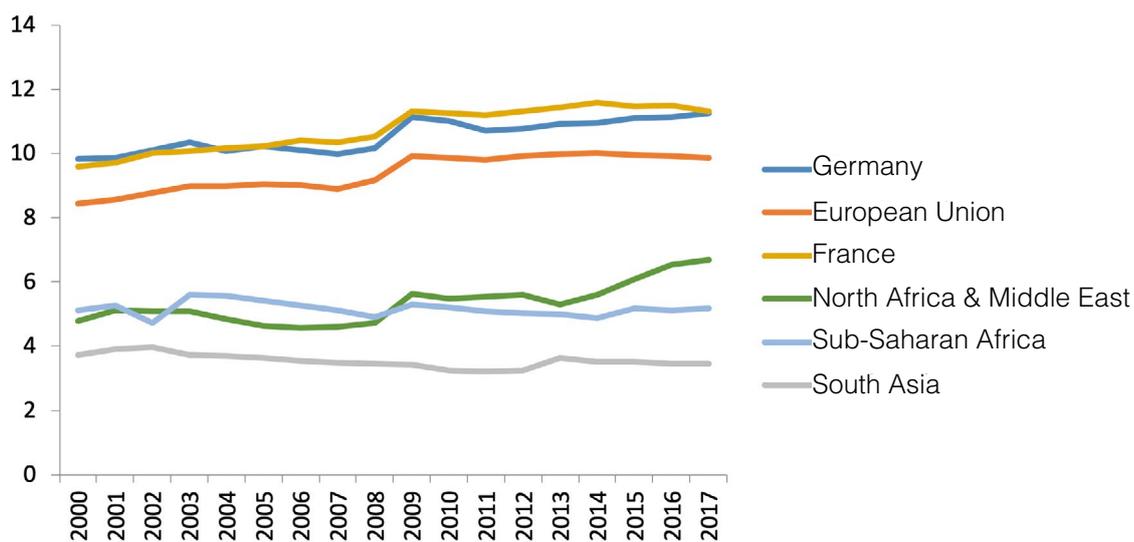
of nearly 96%. But if we consider Germany as a reference (figure 6), it transpires that the health needs of the populations are far from the resilience threshold (see below).

As a result, these quite disparate levels of per capita health spending naturally translate into significant gaps in the provision of care. The data are striking and show, for example, that in Germany there is a supply of about 132 nurses (per 10,000 inhabitants), whereas this figure falls to 11 for the sub-Saharan Africa region.

It is necessary to question these gaps to see what this would imply in the logic of SDGs, i.e. development goals now common to all humanity because nowadays we are committed to a pluralist approach to development. Secondly, are these gaps that we are observing a reasonable source of concern and fragility for African populations or is it just a simple corollary of the income level of the country with the highest indicators?

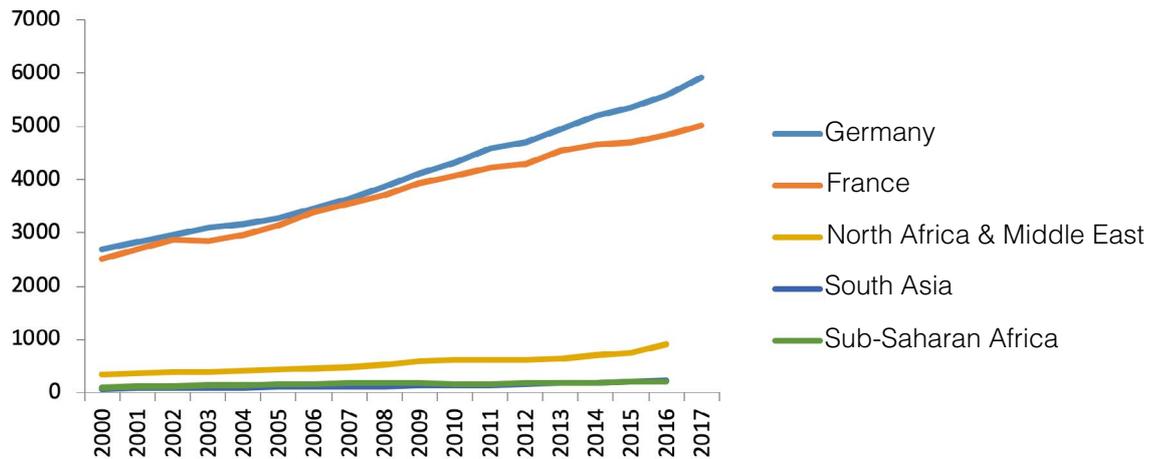
For this reason, the following will provide a brief overview of the situation in the German health sector through the lens of the Covid-19 pandemic.

Figure 5: Current expenditure on health (% of GDP)



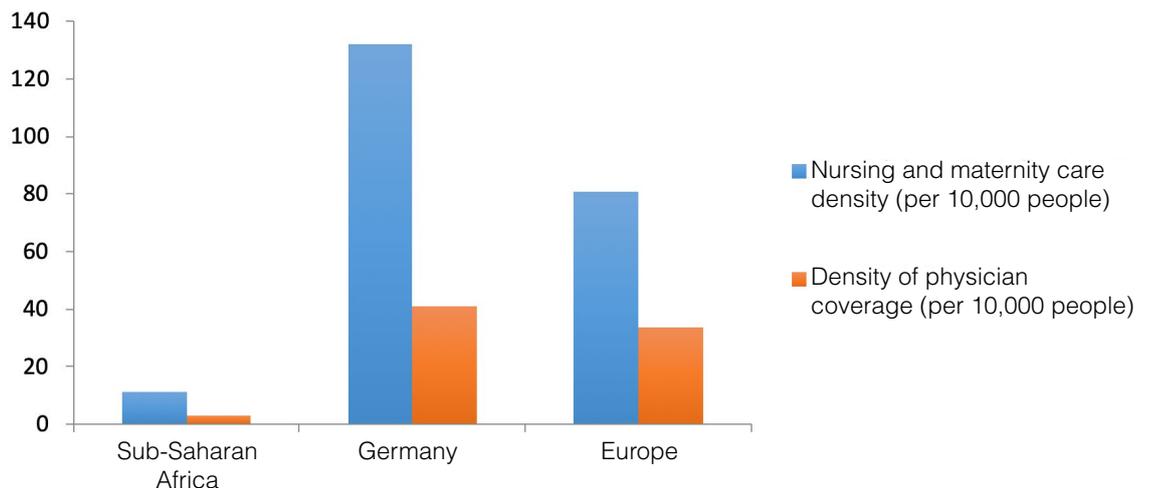
Sources : WDI & WHO

Figure 6: Per capita health expenditure (in PPP dollars)



Source : WDI

Figure 7: Supply of nursing and obstetric care in Africa and elsewhere



Source: World Health Statistics (WHO)

Resilience of the German healthcare system to Covid-19

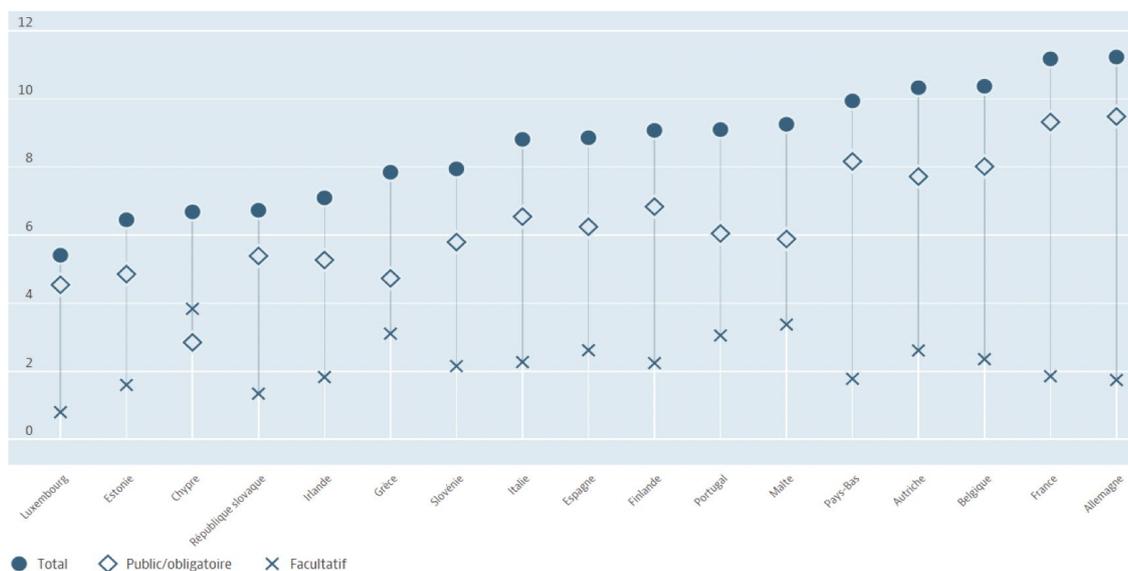
Europe is one of the global epicentres deeply affected by the pandemic. The situation is particularly dramatic in terms of deaths. 13 of the 15 most affected countries in the world are European countries. The death toll continues to rise daily at a fast rate, mainly in countries where health systems are at the end of their capacity.

Although the 2019 Global Health Security Index (GHSI), developed by Johns Hopkins University, has indicated that several countries on the European continent are better prepared to cope with this pandemic, current statistics show the opposite. Spain, Italy, Germany and France are the countries most affected by Covid-19. The number of cases of contamination in these countries has exceeded the 800,000 threshold (as of 7 May 2020), despite the lockdown measures taken.

In these times, the emergency implies a strong health intervention to save human lives. However, with the increase in cases of contamination, many health systems are succumbing to their failures. Only those that have invested sufficiently and effectively in health care are able to hold out and appear more resilient to Covid-19. This is the case in Germany. Indeed, although this country is strongly affected by the pandemic, its case-fatality rate (4.3%) remains very low, compared to Italy where the rate is 13.8%, Spain 10.1% and France 14.8%. Several experts are trying to explain this rate. While some argue that Germany has adopted a policy of systemic screening (500,000 tests per week), others believe that this rate is due to the spread of the disease among a relatively young and healthy population. However, one of the most striking realities that can strongly explain this low rate is the resilience of the German health system and the effectiveness of health investments.

Germany is among the countries that allocate a considerable proportion of their budgets to health financing. In 2018, 11.2% of GDP was spent on health, the highest share in the Eurozone along with France. In comparison with some countries, Belgium is in second place with a share of around 10.8% of GDP, Spain 8.9%, while Italy has a rate of 8.8%. This high level of spending is also reflected in per capita health expenditure, which stands at USD 5463 (dollars in purchasing power parity), a relatively high level compared with France (USD 4965), Italy and Spain (Figure 8)⁷.

Figure 8 : Dépenses de santé en (%) du PIB dans la Zone Euro



Source: OECD Statistics 2018

A substantial share of health expenditure is allocated to staff remuneration. The country has around 4.3 doctors per 1000 inhabitants. However, this density remains high compared to France and Belgium where there are about 3 doctors per 1000 inhabitants. As regards the number of nurses, Germany is also at the top of the list with a density of around 12.9 per 1000 residents. The country also has a large bedding capacity (8 hospital beds per 1000 inhabitants) and has 28,000 intensive care beds with respiratory

7. World Health Organization, 2018. Health Status in the WHO African Region: Analysis of the health situation, health services and health systems in the context of sustainable development goals.

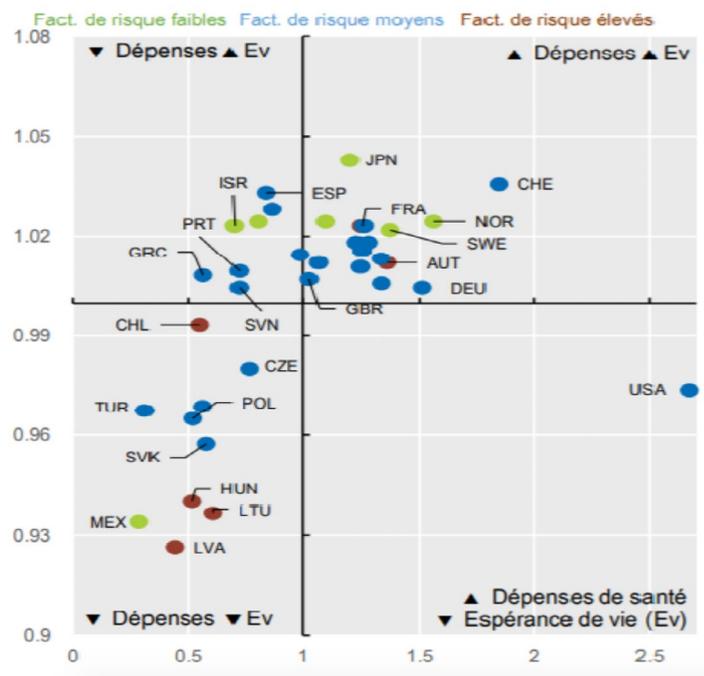
assistance. With this capacity, Germany is particularly well equipped to deal with the pandemic compared to its European neighbours.

Table 1: Health resources per 1000 inhabitants

	Health expenditure per inhabitant	Doctors (per 1000 people)	Nurses and midwives (per 1000 people)
Germany	5463.3	4.2	13.2
France	4782.3	3.2	9.7
Italy	3427.3	4.0	6.0
Spain	3259.8	4.1	5.5
Belgium	4667.9	3.3	11.1

Source: OECD Data 2018, or last year available

Figure 9: Correlation between health expenditure and life expectancy at birth



Source: Health at a glance 2019-OECD

There is a positive relationship between increased health expenditure and improved health outcomes of populations (Grossman⁸ 1972, Jamison et al 2016)⁹. The quadrant graph shows the extent to which countries that spend more on health have higher life

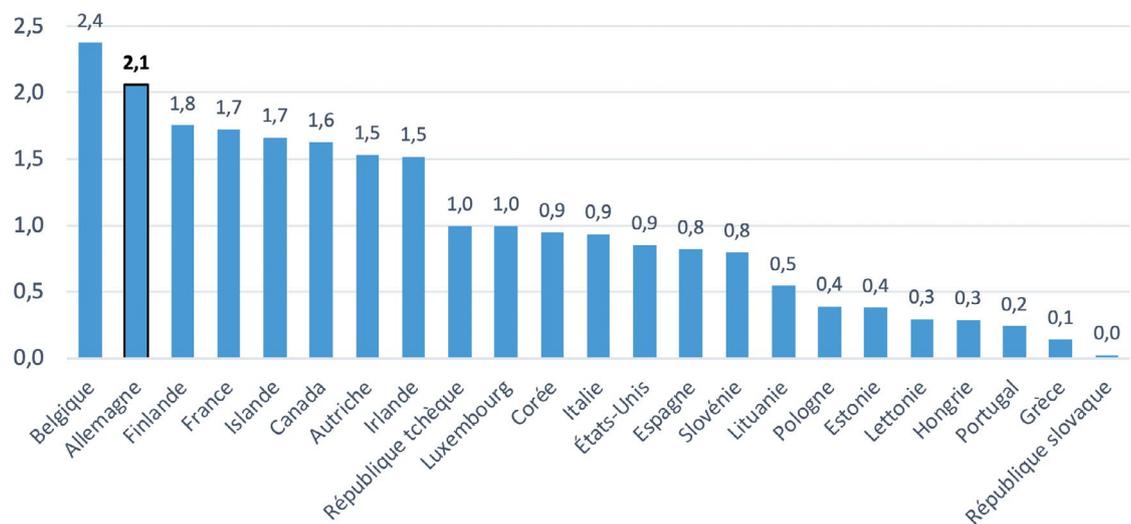
8. Grossman M. (1972). On the Concept of Health Capital and the Demand for Health. The Journal of Political Economy, Vol. 80, No. 2 (March. – Apr. 1972), 223-255

9. Jamison et al (2016). Investing in Health: The Economic Case. Report of the WISH Investing in Health Forum 2016

expectancy at birth. Among the 36 countries of the Organization for Economic Co-operation and Development (OECD), 17 have above-average health expenditure and life expectancy (upper right quadrant¹⁰), which can be explained by the efficiency with which their health systems operate. In Germany, this means a life expectancy of 81.1 years¹¹ with 21% of the population aged 65 and above.

This large proportion of the elderly population has not been a source of high lethality of Covid-19. This can of course be explained by the effort that Germany is making to care for its elderly. The country spends 2.1% of GDP on long-term care expenditure. This represents a significant share compared to other countries, notably France (1.7%), Italy (0.9%) and Spain (0.8%).

Figure 10: Long-term health care expenditure in (%) of GDP



Source: OECD data 2017

One of the specific features of this long term health care is its proximity. Germany attaches crucial importance to home support policy. 11.5% of its long-term care recipients are cared for at home. This measure better meets their health needs and contributes to improving their sense of independence and disability-free living. Compared with other countries, Spain has a percentage of care provision of around 7.8%, while France has a rate of 6%.

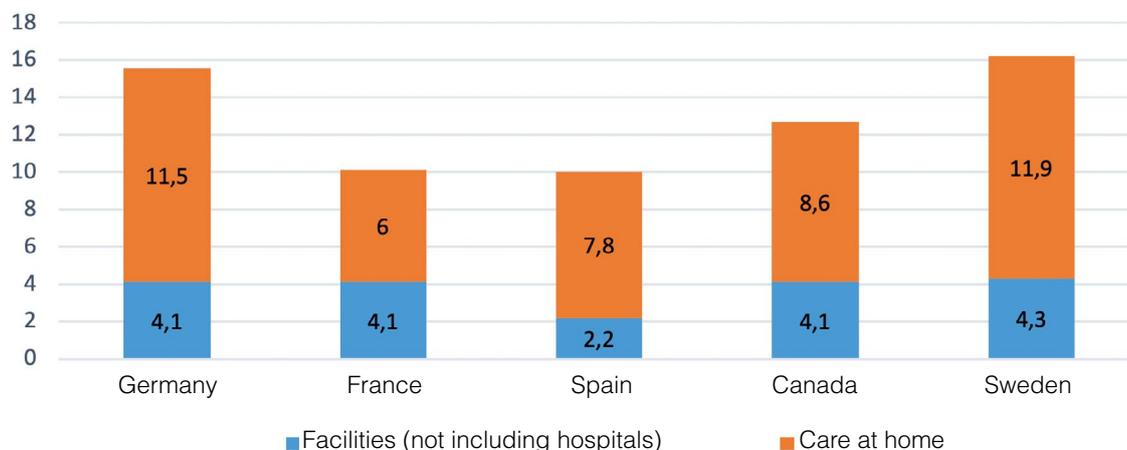
In terms of medical coverage, long-term dependency insurance is also in place to cover this population in the event of a health disaster. Since 2002, the number of beneficiaries has steadily increased. Between 2016 and 2017, the number of beneficiaries increased by 20 per cent. This increase can be explained in particular by the affiliation of 500,000 people to the dependency insurance system with the creation of level 1 (minor losses of autonomy and dependency capacity) by the 2016 reform¹².

10. OECD (2019). Health at a glance: ORCD indicators, OECD Editions, Paris, <https://doi.org/10.1787/5f5b6833-f>

11. OECD 2017

12. High Council for Family, Children and Age (2019). Policies to support the autonomy of elderly people: some international comparisons

Figure 11: Share of long-term care recipients aged 65 and over at home and in care facilities



Source: OECD data 2018, or last year available

This overview of the situation in a few European countries clearly points to a German exception. As mentioned above, several explanatory factors are suggested, but mainly the quality of health expenditure and an efficient information system¹³.

Beyond the achievements obtained, the resilience of the health systems must be at the heart of the regional breakdown of the SDGs and in the choice/definition of their measurement indicators.

Health in the SDGs: Building resilience indicators

SDG-3, like the other 16 goals, is composed of a series of sub-goals (or targets) with one or more dedicated indicators. It is then composed of thirteen targets with a set of 27 indicators to monitor progress and performance. Most of the goals seek to reach levels of maternal and infant and child mortality, the level of access to contraceptive treatment, the incidence of infectious diseases and other epidemics (tuberculosis, malaria, HIV, hepatitis B). A second set of targets concerns mortality due to accidental causes (mortality due to road accidents) and mortality due to poor environmental quality (air quality). In the remainder of this list, targets 3.8 and 3.D.1 seem to take into account the resilience of health systems.

Target 3.8 promotes universal health coverage to address the impact of financial and poverty risks on people's access to basic treatment. A number of countries have made significant progress in this direction, such as Senegal, where the "universal health coverage" programme has been effective since 2013 and the Programme Sesame dedicated to health care for the elderly¹⁴.

Target 3.D aims to strengthen the capacity to identify, early warn and manage health risks, nationally and internationally. The IHR provide a framework for coordinating efforts

13. <https://www.weforum.org/agenda/2020/04/it-was-the-saltshaker-how-germany-meticulously-traced-its-coronavirus-outbreak/>

14. Ka, O. & al., 2016. Sesame Plan in Senegal: Limits of a free model. *Public Health*, Vol. 28, No.1, pp. 91 – 101.

among countries to contain the risks being addressed under Target 3.D. The IHR is an agreement among 196 countries to coordinate the fight for global health, now elevated to the status of a global public good. Under the IHR, twelve courses of action have been identified to monitor the state of coordination and preparedness of the health system in the event of major threats¹⁵. During the Ebola outbreak in 2014, the IHR enabled a relatively rapid response from the World Health Organization (WHO) and partner countries, including material support (more than 1.2 million protection kits for medical staff delivered in West Africa with the dispatch of around 50 logisticians to support local teams).

Compared to the other targets under ODD-3, sub-goals 3.8 and 3.D attempt to provide a measurement of health system resilience. This is especially true for target 3.D, which includes under Indicator 3.D.1 actions such as (for a complete list of possible avenues for action, see WHO 2014):

- Provide support to countries to upgrade the logistics and operational chain;
- Monitoring and evaluation of national health system capacity;
- Preparation in the management of mass gatherings;
- Management of health risks in the context of international passenger movements.

In the light of recent developments in the world, with significant changes in the nature of health issues/threats and a decade away from the deadline for SDGs, it seems necessary to reflect on the (re)formulation of SDG-3. The question is whether health systems can deal effectively with a health shock, whether endogenous or exogenous and global (as is the case with Covid-19 in the year 2020). In other words, quantitative targets should be developed to provide information on the resilience of systems and prevent any source of fragility that would pose a significant systemic risk at the country and global level.

The goal of health system resilience finds its relevance in the SDGs for at least two reasons. First, and as mentioned above, SDGs are now part of the new paradigm of the plurality of development. Second, in this globalized world, shocks, which could have been idiosyncratic, are becoming increasingly systemic. In this regard, the German case could serve as a reference framework or, at least, as a starting point for amending the SDGs. Germany's performance in the context of the Covid-19 pandemic stands out on the European continent thanks to its resilience (see above).

SDG-3 could be amended to include some targets aimed at greater efficiency in health spending, but also, and more generally, a system capable of coping with a severe shock.

- **Per capita health expenditure:** Germany spends on average \$5033 (current dollars) per capita on health, while in the developing world this figure rarely exceeds \$250 (current dollars) per capita. The Sub-Saharan Africa region spent an average of \$85.9 per capita. A target under SDG-3 could be to require countries to increase health spending to at least 10% of GDP per capita by 2025 and double this figure by 2030 (of course this proposal could be fine-tuned by future econometric studies).
- **Health technician per inhabitant:** In developing regions, nurses and midwives are

15. World Health Organization, 2014. International Health Regulations Support to Global Outbreak Alert and Response, and Building and Maintaining National Capacities.

often the first (or even the only) contact with users of health services. At this level, countries face two challenges: to secure a sufficient number of staff but also to ensure a fair geographical distribution of human resources. While in Germany there is an average of 13 nurses/midwives (per 1,000 inhabitants), in Africa the figure is 1.03 (per 1,000 inhabitants) and in South Asia 1.73. Countries, especially on the continent, will have to significantly increase this ratio if they are to be able to deal efficiently with the usual health issues but also with outbreaks of epidemics / pandemics. In the example of Senegal, which has 45 departments, this figure should be raised to at least 6 at the national level by 2030, with a geographical distribution proportional to the population density of the departments.

- **Medical specialty:** According to WHO (2009), there was only about one dentist per 1,000 inhabitants in the African region (5 per 1,000 inhabitants in the European region). This significant gap is found in almost all medical specialties and very often populations in remote areas are forced to travel to regional capitals (or even the administrative capital of the country) to hope to meet medical specialists there. This situation is, in part, due to the emigration of a good number of health-care workers to developed countries because of the working and health security conditions they face in their countries of origin. On the other hand, this situation is also linked to the performance of medical students (competitive examinations in the first years of medicine and competitive examinations for access to specialties as well), which determine the number of medical students available in the countries. Developing regions, and particularly the African continent, have a tool that would make it possible to circumvent (at least partially) this constraint: the high penetration of mobile phones. As Signé & al (2020)¹⁶ points out, digital and mobile telephony (with high penetration rates in these countries), which already allow financial integration for a large part of the population, would also be a channel through which the health offer could be improved. For areas remote from regional capitals or departmental capitals, a system of first examination by a specialist practitioner via mobile would allow health technicians (e.g. nurses) to make an initial consultation and provide initial treatment based on the advice of the specialist, when possible. Of course, if situations require it, a face-to-face examination could be arranged.
- **Hospital beds:** Generally speaking, the aim is to increase the capacity and quality of reception in health care facilities. The number of hospital beds is relatively low, 10 (per 1,000 inhabitants) on average in the African region, compared to 63 in the European region. By 2030, countries should agree on a target that translates into a substantial increase in the capacity of health facilities.
- **Role of regional integration organizations - the case of ECOWAS:** The ECOWAS region is fortunate, like some other sub-regions of the continent, to have medical schools that continue to train generations of future practitioners from across the continent. The main challenge is not so much assistance from outside, but rather the coordination and pooling of resources and experience. This coordination can be done within the West African Health Organization (WAHO), on the one hand, and, on the other hand, through the establishment of a staff framework that would bring together the military health services of the fifteen countries as recently suggested by Prof.

16. Signé, L., Khagram, S., Goldstein, J., 2020. Using the Fourth Industrial Revolution to fight COVID-19 around the world. Brookings Institution, Tomorrow's tech policy conversations today.

Moustapha Kassé (Honorary Dean of the Faculty of Economics and Management of the Cheikh Anta Diop University of Dakar)¹⁷.

Conclusion

The Covid-19 crisis provided an opportunity to question both the achievements and weaknesses of the social sectors in developing economies. Beyond the very rapid and effective reactions of political authorities and health professionals, this episode is an opportunity to make a diagnosis of health systems. Significant gains have been made in recent decades (see above), despite some rhetoric. However, the lesson to be learned from the Covid-19 pandemic is that it is essential for countries to significantly strengthen the resilience of their health systems. At this level, mobilization in favour of the SDGs offers an opportunity to unite the international community and national authorities around this objective. The purpose of this paper was to propose avenues for reflection on sub-goals with deadlines. Regardless of the targets and indicators selected, the main dimensions should be the framework: the effectiveness of health expenditure, the quality of the health care supply and the important role of regional integration organizations.

17. Interview of Pr. Moustapha Kassé https://www.youtube.com/watch?v=kHa_u5qdBRc

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