

Proposal to estimate the required resources for healthcare

María Gilma Arroyave-Loaiza, BA in Economics, M in Social Medicine,^(1,2)
 Edgar C Jarillo-Soto, M in Social Medicine, PhD in Sociology,⁽³⁾ Oliva López-Arellano, M in Social Medicine, PhD in Sc PH,^(2,3)
 Consuelo Estephani Arellano-Navarro, Ger, M in Health Systems Administration,⁽²⁾
 Victoria Ixshel Delgado-Campos, M in Social Medicine, PhD in Humanities and Social Sciences.⁽²⁾

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Abstract

Objective. To present a proposal to estimate healthcare resource requirements for the population with no social security in Mexico City and the domestic projection, including access and coverage. **Materials and methods.** The gross domestic product percentage for healthcare is calculated using the Medical-Technical Baseline Cost (MTBC) or the Medical Economic Card (MEC) standard according to diagnosis and care treatment for the population with no social security, thus projecting the prospective resource requirements. **Results.** There is a shortfall of resources for 2024; the prospective per capita for the first level of healthcare is \$3 813 and the historical one is \$1 933; and the corresponding values for the second level are \$4 430 and \$3 861. The %GDP-healthcare for Mexico City in 2024 exhibits a 42% difference between the historical and prospective categories. The shortfall of resources for the three levels of healthcare in the entire country is 19%. **Conclusions.** The prospective budget makes it possible to calculate healthcare resource requirements with a higher degree of certainty and graduality.

Keywords: health expenditure per capita; health care costs; healthcare financing

Resumen

Objetivo. Presentar una propuesta para estimar los recursos necesarios para la atención a la salud de la población sin seguridad social de la Ciudad de México (CDMX) y proyección nacional, con acceso y cobertura. **Material y métodos.** Se calcula el porcentaje del producto interno bruto en salud a partir del costo médico-técnico de referencia (CMTR) o estándar de la Cédula médico-económica (CME) según diagnóstico y tratamiento de atención para la población sin seguridad social; se proyectan los recursos prospectivos necesarios. **Resultados.** Faltan recursos para 2024. El per cápita prospectivo del primer nivel de atención es \$3 813 y el histórico \$1 933, y los valores correspondientes del segundo nivel son \$4 430 y \$3 861. El %PIB-salud de la CDMX en 2024 presenta 42% de diferencia entre el histórico y prospectivo. Los recursos faltantes para los tres niveles de atención en todo el país es 19%. **Conclusión.** Con el presupuesto prospectivo se calculan los recursos necesarios para la atención a la salud con mayor certeza y gradualidad.

Palabras clave: gasto per cápita en salud; costos de la atención en salud; financiamiento en salud

The amount of historical resources or healthcare expenditure of healthcare systems is known, and it is insufficient for Mexico, as well as for other middle and low-income countries. The aforementioned amount is the numerator of the percentage indicator corre-

sponding to the gross domestic product in healthcare (%GDP-healthcare). The challenge lies in developing a methodology to estimate the prospective value of this numerator, *i.e.*, the amount of resources allocated to healthcare. This step is essential to calculate the shortfall

(1) Facultad de Contaduría y Administración, Universidad Nacional Autónoma de México. Mexico City, Mexico.

(2) Secretaría de Salud de la Ciudad de México. Mexico City, Mexico.

(3) Universidad Autónoma Metropolitana-Xochimilco. Mexico City, Mexico.

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Corresponding author: Oliva López Arellano. Universidad Autónoma Metropolitana-Xochimilco.

Calzada del Hueso 1100, col. Villa Quietud. 04960 Alcaldía Coyoacán, Mexico City, Mexico.

email: oli@correo.xoc.uam.mx

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of resources and it sustains the prospective per capita for healthcare.

International analysis on historical healthcare expenditure use the %GDP-healthcare, which indicates in the denominator all the final goods and services produced in a country during a specific year, while the nominator corresponds to all the resources allocated to healthcare. The greatest limitation of the historical %GDP-healthcare lies in the inertia of its numerator, which does not permit determining its sufficiency, let alone its resource shortfalls. The challenge consists in calculating it with data from the scientific and technological developments generally applied to healthcare services, and to estimate the corresponding resources needed for healthcare. This is the purpose proposed in this study, since healthcare resource requirements derive from the state of knowledge applied to operate within the framework of ethics and from the human rights perspective, as well as political priorities, demographic and epidemiological characteristics, access, coverage, quality, care model and organizational forms of the healthcare systems.

Due to its strategic importance, there is an ongoing work being done by national and international agencies to determine the level of resources required to meet healthcare needs, mainly for populations with no access to social security.^{1,2} The World Health Organization (WHO)³ reports an increase in real terms of 6% in healthcare expenditure in 2020. In that same year, global health care expenditure reached nine trillion United States dollar (USD), an equivalent of 10.8% of the world's GDP. Likewise, the World Bank⁴ places the %GDP-healthcare at values that range from 2.08% in the Republic of the Congo up to 16.77% in the United States. It also reports the %GDP-healthcare and the health per capita percentage, respectively, for the following regions of the world: North America 16.32%, an equivalent of 10 317.57 USD; Organization for Economic Cooperation and Development (OECD) members, 12.53%, an equivalent of 4 955.69 USD; Latin America (high-income countries excluded) 7.88%, an equivalent of 643.14 USD; Arab world 5.09%, an equivalent of 378.39 USD and Sub-Saharan Africa (high-income countries excluded) 4.98%, an equivalent of 78.8 USD. The global percentage is 9.83%, an equivalent of 1 115.01 USD.

The OECD⁵ reports for 2022 a growth in healthcare expenditure of around 6% for a group of twenty OECD countries. Also between 1990 and 2000, an increase in the %GDP-healthcare could be observed in OECD countries. Following the economic crisis of 2008, the %GDP-healthcare remained stable and in 2019, the %GDP-healthcare was located at around 8%. As of the Covid-19 pandemic, the healthcare expenditure tended

to increase and economic activity to shrink, affecting the relationship between healthcare expenditure and GDP, even in a health system focused on a primary healthcare model and with an increase in out-of-pocket expenditure.⁶

The OECD highlights that healthcare expenditure in the United States, with a 16%GDP-healthcare is the world's highest, followed by Germany (11.7%) and a group of ten high-income countries reporting more than 10%. Holding the fourth place, 12 countries among them Brazil and South Africa, show values of between 8 and 10% GDP-healthcare. Central and Eastern European countries, Colombia and Costa Rica hold the fifth place with 6 and 8% of their GDP. Finally, with an expenditure below 6% GDP-healthcare are Mexico, Turkey, the People's Republic of China and India.⁷ From these asymmetries no advisable value arises, thus showing a persistence in the uncertainty with regards to the resources needed for healthcare, in addition to the healthcare model and other social welfare indicators that affect the amount of resources.^{8,9}

The usefulness of the historical %GDP- healthcare in the increase of public health expenditure is recognized. Moreover, there exists an underlying idea that the current levels of public health expenditure are insufficient, even though a higher level of healthcare expenditure does not necessarily guarantee better healthcare results as is the case of the United States of America, a country which has the highest expenditure and a mainly private healthcare system, and that of Canada, which has both a public healthcare system, as well as a high expenditure.^{10,11} There is general agreement that the %GDP-healthcare is an outstanding indicator in healthcare policy and that current resources could be used more productively.¹²

The greatest weakness of the historical %GDP-healthcare is found in the numerator because its value emanates from historical and inertial expenditure and carries over failures in terms of access, coverage and quality. Furthermore, it is characterized by a lack of standardized practices in treatments and weak medical and technological evaluations for processes and inputs. All of this means that the challenge of determining more accurately the amount of resources needed for healthcare still persists.

Materials and methods

The focus of this study lies on a proposal to calculate healthcare resource requirements. To this effect, the level of the prospective expenditure is calculated –i.e. the one that is effectively required or the one that ought to be. Its value corresponds to the numerator of the

prospective %GDP-healthcare. This calculation is based on the Medical Technical Baseline Cost (MTBC) or the Medical Economic Card (MEC) standard of diseases and their treatment, obtained from Diagnosis Related Groups (DRGs) and Ambulatory Care Related Groups (ACRGs).¹³ The MTBC is determined by disease and treatment as indicated by the standard times and inputs that take into consideration the optimum efficiency of services. Such efficiency occurs when, within the established thresholds, the following can be observed a) the working time is fully applied to work; b) the equipment and facilities function without interruptions; and c) drugs, medical and healing materials, laboratory tests, imaging studies, blood bank tests and products, pathology and other inputs are provided in a timely manner and in the necessary amounts and characteristics. Due to its characteristics, the MTBC contains a reasoned application of the state of knowledge to collective and individual treatments –both ambulatory and in-hospital treatments. It also includes health decisions on access, coverage and quality, as well as the definition of efficient forms of organization in the delivery of services.

In this methodology, the MTBC is weighted by the observed frequency of diseases that were treated, and thus establishes the total level of prospective resources. This amount corresponds to the numerator of the prospective-%GDP. In contrast, the numerator of the historical-%GDP originates from inertial and insufficient historical budgets. Healthcare resource shortfalls correspond to the difference between these two numerators.

Using the historical budget,^{14,15} the historical per capita (2019-2022) is calculated in Mexican pesos (MXN) and US dollars for Mexico City's population with no access to social security. The prospective per capita for 2019-2024 is then obtained from the prospective resources that are drawn from the MTBC of the MEC. The 2019-2021 Mexico City %GDP-healthcare¹⁶ is then drawn from these per capita values, and for 2022-2024 what is taken into consideration is the average variation of the observed years. These GDP values constitute the denominator of a division that has as its numerator the total historical healthcare expenditure of first and second levels, which results in the percentage of the historical healthcare public expenditure (2019-2024). For that same period, the prospective healthcare expenditure for the first and second levels is divided by the Mexico City GDP to obtain the prospective %GDP-healthcare.

Total population estimates for Mexico (2019-2024) are obtained from the National Population Council (Conapo, in Spanish).¹⁷ The data to calculate the popu-

lation with no access to social security for the period 2019-2021 was obtained from the Ministry of Health¹⁸ of the Government of Mexico and from the Ministry of Health of Mexico City (SSCDMX, in Spanish).

To extrapolate the results obtained in Mexico City (2019-2024) to the entire country, the prospective third level per capita is included. The entire population of Mexico, including the one with no access to social security, is taken into consideration, as well as the total historical public expenditure of first, second and third level healthcare for the entire population and Mexico's GDP. Prospective expenditure for the entire population is calculated by multiplying the total prospective per capita for each year by its respective population.

For the entire Mexican population, the difference between total historical public expenditure of first, second and third levels and the corresponding prospective expenditure is established; the results show the resource shortfalls for healthcare in Mexico. This contribution strengthens the certainty of the decision-making process for healthcare planning and budgeting. For the years of the period under consideration, the relationship between total historical public healthcare expenditure of first, second and third healthcare levels for the entire population and the GDP of Mexico is established, thus obtaining the corresponding historical %GDP-healthcare. Then, in the same manner for the entire Mexican population, a relationship is established between the prospective expenditure of first, second and third level healthcare and the same value for the GDP of Mexico, resulting in the prospective %GDP-healthcare. Then, the relationship between the prospective expenditure of first, second and third level healthcare, exclusively for the Mexican population with no access to social security, is established, and the total amount of resources effectively necessary for the population in question is obtained. Next, the prospective %GDP-healthcare of the first, second and third levels is obtained by dividing prospective expenditure by Mexico's GDP. Finally, with the prospective expenditure only for first and second level healthcare for the entire Mexican population without access to social security and its relation to the GDP of Mexico its prospective %GDP-healthcare is obtained.

This methodology is extrapolated to the following three scenarios: a) three levels of healthcare for the entire Mexican population; b) the same three levels for all the population with no access to social security; and c) only the first and second healthcare levels for all the Mexican population with no access to social security, to support the rationale behind the graduality of financial decisions.

Results

In the historical and prospective per capita for the first and second levels and the sum of the two, it can be observed that the prospective per capita is higher than the historical one for the period 2019-2024. The greatest amount of resource shortfalls per capita corresponds to the first level of care, so much so that the historical per capita for the year 2024 would equal 1 933 MXN and the prospective one would equal 3 813 MXN, which is almost twice that of the historical one. The second level presents the lowest amount of resource shortfalls per capita, equivalent to 569 MXN, a value resulting from the difference between the historical amount of 3 861 MXN and the prospective one of 4 430 MXN (table I).¹⁹⁻²⁵

With regards to the total amount of resource shortfalls for the first level of the population with no social security in Mexico City, a scenario is calculated to include a 100% coverage, with the use of a health card. For those in the second level, current care services and the use of the hospital network were considered. However, the expectation is that there will be marginal changes derived from optimizing the use of the installed capacity. Figure I¹⁹⁻²⁴ shows the disparity between the first and second level of care and the persistent resource shortfalls between both levels.

Table II^{19-24,26} shows a growing trend in historical and prospective health resources for the population with no access to social security in Mexico City for the period 2019-2024. However, the annual variations of prospective resources are more consistent and predictable, so a stabilization of the range of growth for these resources is expected in the long term. On the other hand, for historical resources, aside from being insufficient, the trend of annual variations is uncertain. Also noteworthy, due to its impact on decision-making, is the level of resource shortfalls as a GDP percentage for the population with

no access to social security in Mexico City, as shown by the difference between the historical %GDP-healthcare of 0.60 and the prospective %GDP-healthcare of 0.85 in 2024.

On the other hand, the calculations for the entire country when applying the same methodology and the entire population of Mexico, the total public health expenditure and the domestic GDP, taking into account the historical and the prospective historical %GDP-healthcare (table III),^{17,27-8} show that for the 2019-2024 period the historical GDP has a percentage ranging from 2.76 and 3.25%, while the prospective GDP ranges between 3.63 and 3.87%, which reveals the amount of resource shortfall. When comparing the 2.83% of the average historical healthcare budget for the period 2000-2018, we find an average of 3.14% increase in the amount of healthcare resources for the 2019-2024 period.

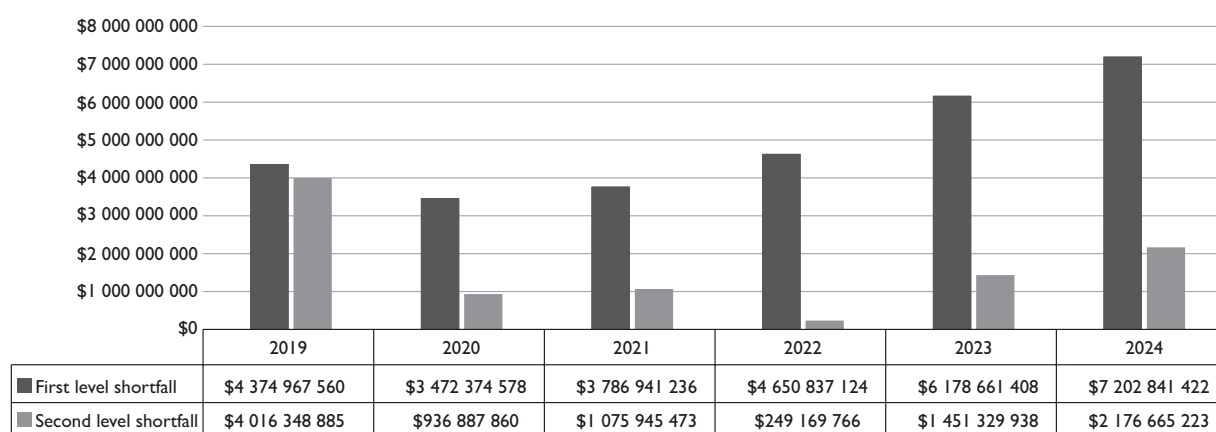
Per capita determination for all of Mexico's population, based on the MEC and MTBC indicates that there is a higher per capita requirement for the second level with a range that goes from 3 745 MXN in 2019 to 4 430 MXN in 2024. It is closely followed by the first level whose values fluctuate between 2 664 MXN and 3 813 MXN for those same years. Contrary to common assumption, the third level has the lowest per capita expenditure, with ranges of between 597 MXN and 871 MXN for the years under consideration, even when its healthcare requirements have a higher unitary cost. The above is explained by the lower demographic demand of health care requiring the use of highly complex facilities and resources. This indicates that society, as a whole will receive more benefits than costs from a public health system which includes third level care.

In 2024, the trend of the total historical and prospective expenditures for all three levels of care results in a difference of between 1 012 698 MXN and 1 205 872 MXN, respectively. This represents 193 billion MXN, which is 19% higher for the prospective expenditure. With regards

Table I
HISTORICAL AND PROSPECTIVE FIRST AND SECOND LEVEL PER CAPITA FOR CDMX POPULATION WITH NO ACCESS TO SOCIAL SECURITY. MEXICO, 2019-2024

Year	First level ¹⁹				Second level ²⁰⁻²⁴				Total historical per capita (MXN)	Total historical per capita (US Dlls.)*	Total prospective per capita (MXN)	Total prospective per capita (US Dlls)*
	Historical per capita (MXN)	Historical per capita (US Dlls.)*	Prospective per capita (MXN)	Prospective per capita (US Dlls.)*	Historical per capita (MXN)	Historical per capita (US Dlls.)*	Prospective per capita (MXN)	Prospective per capita (US Dlls.)*				
2019	1 545	80	2 664	138	2 718	141	3 745	194	4 263	221	6 408	333
2020	1 876	87	2 767	129	2 916	136	3 157	147	4 792	223	5 923	276
2021	1 980	98	2 955	146	3 126	154	3 403	168	5 106	252	6 359	314
2022	1 974	98	3 177	158	3 603	179	3 667	182	5 577	277	6 844	340
2023	1 853	104	3 459	195	3 627	204	4 004	225	5 480	309	7 463	420
2024	1 933	109	3 813	215	3 861	218	4 430	250	5 794	327	8 243	465

* The exchange rate for each year is calculated based on the annual average according to Banco de México databases.²⁵
USD: United States dollars; MXN: Mexican pesos



Note: Data in Mexican pesos (MXN)

FIGURE I. SHORTFALLS FOR FIRST¹⁹ AND SECOND LEVEL²⁰⁻²⁴ FOR THE POPULATION WITH NO ACCESS TO SOCIAL SECURITY. MEXICO CITY, 2019 -2024

**Table II
HISTORICAL AND PROSPECTIVE EXPENDITURE ON HEALTHCARE FOR THE POPULATION WITH NO ACCESS TO SOCIAL SECURITY AND ITS PERCENTAGE RATIO IN THE 2019-2024. MEXICO CITY GDP**

Year	Mexico City GDP ²⁶ \$	Total historical first and second level expenditure ¹⁹⁻²⁴ \$	Total prospective first and second level expenditure ¹⁹⁻²⁴ \$	Percentage of total historical expenditure and Mexico City GDP, first and second level	Percentage of total prospective expenditure and Mexico City GDP, first and second level
2019	3 693 372 595 000	16 681 113 430	25 072 429 875	0.45	0.68
2020	3 472 435 063 000	18 679 462 647	23 088 725 085	0.54	0.66
2021	3 701 685 838 000	19 822 518 419	24 685 405 128	0.54	0.67
2022*	3 705 842 459 500	21 557 435 930	26 457 442 820	0.58	0.71
2023 [‡]	3 709 999 081 000	21 090 871 635	28 720 862 981	0.57	0.77
2024 [§]	3 714 155 702 500	22 193 311 186	31 572 817 831	0.60	0.85

GDP: gross domestic product

Note: Data in Mexican pesos (MXN)

* For the year 2022, the average variation of the years 2019, 2020, 2021 is applied.

‡ For the year 2023, the average variation for the years 2019, 2020, 2021 and 2022 is applied.

§ For the year 2024, the average variation for the years 2019, 2020, 2021, 2022 and 2023 is applied.

to the dilemma of whether to establish the expenditure to provide universal services exclusively for first and second levels of care, or for all three levels, the results of this study suggest that there are more benefits when granting all three levels of care. This can be seen in the 0.2 difference between the 2.10 GDP percentage for the three levels and the 1.90 GDP percentage obtained when providing exclusively the first and second levels of care.

Discussion

The methodology proposed in this study to calculate - on a medical and technical basis - the necessary resources and to determine the difference between available resources with historical projection and the shortfalls

in health systems takes the discussion to a completely new sphere and goes far beyond inertial calculations by providing accurate information, in absolute and per capita values regarding the amount of resource shortfalls in first and second level healthcare for the population with no access to social security in Mexico City and the country. The benchmarks obtained using this methodology reinforce the certainty of correcting shortfalls through attainable budgetary decisions that go beyond the average expectation of the budget assigned to healthcare, as a ratio of the GDP, or by dividing the population of the country to establish a per capita GDP.

The prospective %GDP as the numerator value, based on medical-technical baseline costs of treatments according to type and magnitude of demand at the

Table III
PERCENTAGE OF HISTORICAL AND PROSPECTIVE GDP-HEALTHCARE - FIRST, SECOND AND THIRD LEVEL, MEXICO, 2019 - 2024

Year	Prospective per capita			Total population ^{1,2,*} e	Population with no access to social security ^{1,2} f	Total historical public expenditure on healthcare (first, second and third levels) for the entire population ^{2,3} g	GDP Mexico ^{2,3} h	Prospective expenditure on healthcare (first, second and third level) for the entire population i	% GDP-healthcare -first, second and third level - for the entire population of Mexico j=(g/h) %	Prospective expenditure on healthcare (first, second and third level) for population with no access to social security l	% prospective GDP-healthcare (first, second and third level) for population with no access to social security m=(l/h) %	Prospective expenditure on healthcare (first and second level) for population with no access to social security n	% prospective GDP-healthcare, first and second level, for population with no access to social security o=(n/h) %
	First level a	Second level b	Third level c										
2019	2 664	3 745	597	126 577 691	69 081 826	673 826 890 600	24 445 735 084 000	886 665 815 219	2.76	483 912 236 692	1.98	442 687 465 402	1.81
2020	2 767	3 157	619	127 792 286	69 640 573	805 259 687 520	23 430 377 458 000	836 026 818 784	3.44	455 593 905 750	1.94	412 511 915 461	1.76
2021	2 955	3 403	678	128 972 439	70 178 098	809 375 522 410	25 803 508 117 000	907 578 307 209	3.14	493 842 869 685	1.91	446 234 061 023	1.73
2022	3 177	3 667	728	130 118 356	70 726 234	877 149 838 315	28 463 840 619 000	985 268 569 169	3.08	535 545 771 696	1.88	484 061 176 994	1.70
2023	3 459	4 004	791	131 230 255	71 274 370	944 924 154 220	29 803 209 130 667	1 083 218 048 489	3.17	588 322 288 779	1.97	531 926 014 559	1.78
2024	3 813	4 430	871	132 308 276	71 822 506	1 012 698 470 125	31 142 577 642 333	1 205 872 461 918	3.25	654 598 372 451	2.10	592 032 783 711	1.90

GDP: gross domestic product

Note: Data in Mexican pesos (MXN)

* 2022 values are calculated based on average population variations for the period 2019, 2020 and 2021.

2023 values are calculated based on average population variations for the period 2019, 2020, 2021 and 2022.

2024 values are calculated based on average population variations for the period 2019, 2020, 2021, 2022 and 2023.

+ 2022 values are calculated based on average variations of populations with no access to social security in Mexico for the period 2019-2021.

2023 values are calculated based on average variations of populations with no access to social security in Mexico for the period 2019-2022.

2024 values are calculated based on average variations of populations with no access to social security in Mexico for the period 2019-2023.

§ 2023 GDP values are calculated based on the average variation of Mexico's GDP for the period 2019, 2020, 2021 and 2022.

2024 GDP values are calculated based on the average variation of Mexico's GDP for the period 2019, 2020, 2021, 2022 and 2023.

2019-2024 To obtain the ratio of the %GDP-healthcare, we divided Mexico's historical healthcare expenditure by Mexico's GDP for the years 2019, 2020, 2021, 2022, 2023 and 2024.

2019-2024 To obtain the ratio of GDP-health percentage, we divided Mexico's prospective healthcare expenditure by Mexico's GDP for the years 2019, 2020, 2021, 2022, 2023 and 2024.

three levels of healthcare for the resources actually required, especially for the population with no access to social security, is a way to overcome the current uncertainty by establishing a magnitude with scopes, thresholds and a vision of sustainability²⁹ that warrants financial resources in balance with the income and proportional distribution of public budgets in the countries. Such a benchmark makes it possible to estimate excesses and deficiencies with greater certitude by taking into consideration the demand and care provided, and not only the calculation of per capita GDP. For instance, with this methodology, the values obtained are 6 542 MXN for 2020 and 7 572 MXN for 2022, in contrast with data provided by *México Evalúa.org*,³⁰ which established a value of 845 MXN in 2020 and a value of 816 MXN in 2022, an eight times average difference. To establish a correlation between the expenditures already made with respect to what is needed indicates the gap that must be bridged or the budgetary redirecting required to address the needs expressed in the demand already met.

Calculations confirm the priority of investment for the first level of healthcare, in line with what has been repeatedly formulated by international agencies,³¹ as well as in the national health policy proposal of the Health Care Model for Wellness.³² At this level, prospective per capita values are higher regarding the third healthcare level, but the size of health problems taken care of also represents a greater amount. Still, there is a greater advantage in the cost-benefit ratio for the provision of comprehensive and integrated health services at the three levels of healthcare without excluding coverage of diagnoses for the entire population with no access to social security. For example, exclusively third level per capita for 2024 is 871 MXN, while for the first level it is 3 813 MXN and for the second level it is 4 430 MXN. The differential cost of the various levels of healthcare acquires its greatest benefit due to the magnitudes of demand and the problem-solving capacity of each. Global calculations using this methodology establish that the resource shortfalls to serve the entire Mexican population without excluding diagnosis at the three healthcare levels in 2024 represent 193 173 991 793 MXN (10 731 888 432 USD). Such amount of resources can be gradually achieved over a ten-year period using progressive fiscal resources, and indicates the degree of sustainability of Mexico's healthcare system.

The results of this study currently place healthcare resources for the entire population of Mexico at 3.87% of the GDP in 2024 and at 2.10% exclusively for the population with no access to social security. Both values include all diagnoses at the three levels of healthcare,

an indicator that is much lower than the 6% obtained in international historical comparisons.³³ Even in low and middle income countries, this ratio includes the convenience of implementing other concurrent actions as has already been noted⁶ to optimize the use of resources, especially if the calculation differentiates between a market-centered healthcare system or one that is based on a welfare state. Besides increasing public health expenditure, a much deeper reconfiguration is required with additional elements of a greater complexity, especially in the implementation of expenditure solutions, as thoroughly analyzed by Diaz.³⁴

In order to remedy the asymmetries and insufficiencies of healthcare resources noted by PAHO³⁵ and other international entities, this study makes technical contributions to calculate the shortfall of resources in a context where comparable international data is contested as an immovable benchmark, as demonstrated in China.³⁶ It is necessary and reasonable to propose achievable intermediate goals in countries with lower %GDP-healthcare; however no value can be uncritically assumed for this goal irrespective of it having a certain degree of veracity. To achieve better outcomes, deeper analyses are required, as well as the optimization of current resources, regardless of increasing their amount³⁷ because the power of prospective estimates lies in calculating a specific value, notwithstanding the GDP level, without disregarding it as a benchmark that indicates public expenditure in healthcare for comparison purposes.

This methodology presents certain limitations, the first of which is the lack of healthcare requirement records exclusively related to the supply at the second and third levels. The second limitation is the lack of permanent multidisciplinary working groups to carry out costing and MEC processes for DRGs and ACRGs in all public service providers. However, this is not an absolute limitation, given that it might be surmounted in the long run according the healthcare system reconfiguration.

Declaration of conflict of interests. Oliva López Arellano is Mexico City's Minister of Health; María Gilma Arroyave-Loaiza, Consuelo Estephani Arellano-Navarro and Victoria Ixshel Delgado-Campos are also part of Mexico City's Ministry of Health. Edgar C Jarillo-Soto declared not to have conflict of interests.

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