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DimeRede: development of a methodology for health workforce planning and sizing

DimeRede: desarrollo de una metodología para el dimensionamiento del personal sanitario

DimeRede: desenvolvimento de uma proposta de metodologia para o planejamento e dimensionamento da força de trabalho em saúde

RESUMO

Objetivo: Descrever o desenvolvimento de uma metodologia para o planejamento e dimensionamento da força de trabalho multiprofissional em saúde, integrando os três níveis da Rede de Atenção à Saúde (RAS) do Sistema Único de Saúde (SUS); **Método:** relato de experiência da construção dessa proposta metodológica, realizada entre abril de 2019 e março de 2020, fundamentada nas diretrizes do SUS, na literatura e nas vivências nos projetos do Ministério da Saúde; **Resultado:** apresentação de uma metodologia, denominada DimeRede que, dirigida ao arranjo organizativo das RAS, estima a força de trabalho necessária de acordo com as necessidades locais e regionais, considerando o perfil epidemiológico e os determinantes sociais de saúde e adoecimento identificados em cada estratificação territorial; **Conclusão:** a DimeRede constitui um avanço importante, mostrando-se potente para instrumentalizar políticas de gestão do trabalho. Contudo, sem encerrar os desafios de garantir equipes adequadas para o cuidado multiprofissional conforme as necessidades de saúde da população.

DESCRITORES: Recursos humanos; Gestão em saúde; Regionalização; Dimensionamento de pessoal.

ABSTRACT

Goal: To describe the development of a methodology for planning and sizing of the multi-professional health workforce, by integrating the three levels of the Health Care Network (RAS) of the Unified Health System (SUS). **Methodology:** experience report on the elaboration of this methodological proposal, held between April 2019 and March 2020, based on SUS guidelines, literature and experiences in projects of the Ministry of Health. **Results:** presentation of DimeRede, which, oriented to the organizational arrangement of the RAS, estimates the necessary workforce according to the local and regional needs, taking into consideration the epidemiological profile and social determinants of health and illness identified in each territorial stratification. **Conclusion:** the DimeRede approach constitutes an important advance, proving to be a powerful instrument to implement labor management policies. However, it doesn't end the challenges of ensuring adequate teams for multi-professional care in accordance with the health needs of the population.

DESCRIPTORS: Workforce; Health management; Regional health planning; Personnel downsizing.

RESUMEN

Objetivo: Describir el desarrollo de una metodología para la planificación y dimensionamiento del personal sanitario multiprofesional, integrando los tres niveles de la Red de Atención Médica (RAS) del Sistema Unificado de Salud (SUS); **Método:** informe de la experiencia de la construcción de esta propuesta metodológica, realizada entre abril de 2019 y marzo de 2020, basado en las directrices, literatura y experiencias del SUS en los proyectos del Ministerio de Salud; **Resultado:** presentación de una metodología, llamada DimeRede, que, dirigida a la disposición organizativa del RAS, estima la fuerza de trabajo necesaria de acuerdo con las necesidades regionales locales, considerando el perfil epidemiológico y los determinantes sociales de salud y enfermedad identificados en cada estratificación territorial; **Conclusión:** DimeRede es un avance importante, demostrando ser poderoso para instrumentalizar las políticas de gestión del trabajo. Sin embargo, sin cerrar los retos de garantizar equipos adecuados para la atención multiprofesional de acuerdo con las necesidades de salud de la población.

DESCRIPTORES: Recursos humanos; Gestión de la salud; Regionalización; Reducción de personal.

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INTRODUCTION

For the sustainability of the Unified Health System (SUS - Sistema Único de Saúde), in the perspective of universal and comprehensive care, it is necessary to overcome the systemic fragmentation and the structured model in health actions and services that are planned exclusively based on the existing offer. According to the Ministry of Health (MS - Ministério da Saúde), the organization of the system in Health Care Networks (RAS - Redes de Atenção à Saúde) is the main strategy for changing the health system both from the point of view of the administrative and financial organization, as well as the qualification of the care provided the population.¹

Countries commonly approach health workforce planning from the profile of the services offered, resulting in the dimensioning of standard teams.² These models culminate in inefficient work management because they do not consider issues external to organizations, such as the diversity of territories and the health needs of users.²⁻³ Therefore, factors such as the aging of the population and the characteristics of the population's morbidity and mortality make it essential to dimension the workforce in health that is efficient, effective and oriented to all levels of care.²

In Brazil, different ways of dimensioning health workforce needs are used. Some of them, especially the experiences

encouraged or disseminated by the Ministry of Health, signal advances when considering more than one professional category and awakening to the logic of care lines and network organization.⁴ On the other hand, scientific production shows that in the country there is a tendency to plan the workforce through normative methods and more frequently directed specifically to the nursing and hospital teams.^{2,5}

Changing this trend requires a broad look at health regions and networks, posing a challenge to the formation of the RAS with a model of care centered on the population's health needs. Therefore, it is relevant to expand studies and share models and practices for dimensioning the workforce needed to achieve comprehensive health care.⁶

The development of methodologies for dimensioning the workforce is a challenge faced by the Ministry of Labor Management and Health Education (SGTES - Secretaria de Gestão do Trabalho e da Educação na Saúde) of the Ministry of Health in recent years. In this sense, in 2019 it demanded that a group of specialists build a methodology that involved more than one service or level of care.

The objective of this article is to describe this experience of developing a methodology for planning and dimensioning the multiprofessional health workforce, based on the integration of the three levels of the Unified Health System's Health Care Network.

METHOD

It is an account of the experience lived by the authors, as SUS workers and researchers in the field of work management, in the development of a proposed methodology for planning and dimensioning the health workforce, carried out at the request of the Department of Health. Health Work Management (DEGTS - Departamento de Gestão do Trabalho em Saúde) from SGTES/MS.

The actors involved in the process were technicians and managers of DEGTS and the team involved in the activities of the Work Management Governance Project, developed at the time with the objective of implementing dimensioning activities in the first health region in the state of Ceará. In this context, the first author acted as responsible for the construction of the proposal under the coordination of the second, and the others contributed to the discussion, reflections and validation of the methodology.

The methodological study was carried out between April 2019 and March 2020 and comprised four phases: the outline of the objectives; the definition of assumptions; the elaboration of the matrix; and validation.

The objectives were outlined through meetings with DEGTS managers. The request was that the methodology to be built could combine characteristics of methodologies already used by the MS and be applied in more than one type of

service. It could also generate, from secondary data, subsidies for the activities of SGTES and other secretariats of the Ministry of Health in supporting municipal and state managers, as well as in the formulation of public policies for work management.

Thus, it is highlighted that the construction of the methodology did not start from the zero and restricted point. The need for a more comprehensive method was already part of the discussions of this and other groups of professionals and managers who apply and demand scaling methodologies in the daily life of health organizations. For this reason, it was inspired by the experiences described in the literature and the experiences produced in previous projects, financed by SGTES, such as the Dimensioning of Primary Care and the Planning and Sizing of the Workforce of the Urgency and Emergency Network and the Governance of Health Work Management project itself.⁷⁻⁹ Through the non-systematic review of the literature, the SUS regulations and the documents produced in these experiences, in addition to meetings and conversation circles with the actors involved, the assumptions were defined: organizational arrangement of the RAS; comprehensive and regionalized care; multiprofessional care; care model focused on the needs of the population.

The elaboration of the methodology matrix sought to combine elements present in the aforementioned experiences and projects: guiding questions and analysis of the network and territory as a step prior to the dimensioning calculation.⁷⁻⁹ For that, the guiding questions were considered essential for the development of the method according to the objectives and assumptions, and organized in a matrix composed of four stages.

Throughout the period, several presentations of the proposed methodology were made to different groups involved with this theme. Considering the discussions in these spaces, the SUS guidelines and the theoretical foundation, the directions were agreed and the possibilities and specificities of the demand were thoroughly reviewed with the DEGTS managers. The assumptions and methodology matrix were validated through these presentations to the actors involved.

In October 2019, DEGTS approved the assumptions and steps and authorized the follow-up and organization of a pilot project to build an information technology tool that would make it possible to apply the methodology. Subsequently, a document was produced with a detailed description of the proposed methodology and proceeded with the presentation to technicians from other MS departments, related to health care

management, to qualify the discussion on the variables to be used.

RESULTS AND DISCUSSION

A methodology has been developed that aims to generate a quick and consistent estimate of the workforce required for the composition of the RAS, considering all the professional categories involved and integrating the three levels of care. According to the assumptions, the process of constructing the methodology was supported by references to regulations on SUS networks. In view of this, it was agreed to call it DimeRede.

The four stages of the proposed methodology, named in Chart 1, are complementary to each other and aim together to plan and dimension the health workforce, understanding the organization of the RAS based on the health needs of the population and the characteristics of the territory.

The Situational Diagnosis aims to support the planning of the health workforce, organizing the data found in national databases to identify the characteristics of each municipality, the living and health conditions of the people living in the territory, the establishments, the production and the workforce available at the three levels of care. Therefore, it takes into account the assumption that com-

Chart 1. Stages and main guiding questions of the DimeRede methodology.

<p>DIAGNÓSTICO SITUACIONAL</p> <p>Quais são as características desse território? A qual região de saúde ele pertence? Como vivem, adoecem e morrem os usuários integrantes dessa população? Quais estabelecimentos de saúde estão disponíveis? Quais serviços ofertam? Com qual força de trabalho contam atualmente?</p>
<p>ESTIMATIVA DE AÇÕES E SERVIÇOS PÚBLICOS DE SAÚDE</p> <p>Quais são os serviços e ações de saúde que devem ser ofertados neste território? Onde eles devem estar distribuídos conforme a regionalização estabelecida e políticas públicas vigentes? Qual a quantidade estimada de acordo com as necessidades de saúde da população?</p>
<p>DIMENSIONAMENTO DA FORÇA DE TRABALHO</p> <p>Quais as categorias profissionais que devem compor as equipes de saúde que ofertarão os serviços estimados para essa RAS? Quantas horas de trabalho são necessárias para atender as necessidades de saúde dessa população? Quantos trabalhadores de saúde esse conjunto de horas representam?</p>
<p>ANÁLISE COMPARATIVA</p> <p>Comparando os resultados do diagnóstico situacional com as estimativas de serviços, ações e força de trabalho necessárias para compor a RAS, há suficiência? Em quais territórios temos insuficiências? A força de trabalho está distribuída adequadamente?</p>

Source: Prepared by the authors.

prehensive care begins and is completed in the HCN and health planning must be carried out in a regionalized manner, based on the needs of the municipalities.¹⁰ For this reason, it exclusively uses the information and indicators with data available in the municipal aggregate, such as: number of inhabitants; population estimate by age and sex; GDP per capita; percentage of the population in extreme poverty; homeless population; percentage of the population with health insurance; sanitary sewage; hospitalizations for conditions sensitive to primary care; coverage of the Family Health Strategy; number of establishments by level of care; number of registered professionals, among others.

The choice of secondary data, in addition to enabling greater validity for the comparison between the studied territories, guarantees the same sources and enables savings in time and resources that would be necessary for the collection of primary data. At the same time, there is indirect involvement of users (respondents to population surveys) and workers and managers (responsible for the production of data in the health system). As well as taking advantage of the potential for using systematized information such as that of the Brazilian Institute of Geography and Statistics (IBGE) and the SUS Department of Informatics (Data-SUS) for health planning.

The organization of the RAS requires the definition of the Health Region, as well as its geographical limits, the population and the establishment of the list of actions and services that will be offered in it.¹ Consequently, in addition to the organization in the geographic and federative space (municipality and Federation unit), the method considers these definitions of Health Regions and Macro-regions, established in tripartite agreements and whose records are available in national databases, to organize the syntheses of information according to the scales of coverage of the RAS and classify the territories.

The need to differentiate the territo-

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ries according to the conditions of each one, in addition to regionalization in health, was widely discussed, with a consensus that geographic spaces in the same health region may have a discrepancy from other factors that influence the capacity of the health sector. Ways of stratification were investigated through non-systematic literature review and the search for oral and written reports of experiences and definition of health regions in Brazilian states.

The tool that met expectations was the one published by researchers who, recognizing that territories are in different stages of organization and development due to their historical, cultural and environmental diversities, developed, validated a method that stratifies Brazilian municipalities into homogeneous groups by through population size and a set of indicators that, correlated, influence health management conditions. It stratifies municipalities into three population sizes (large, medium and small) and, when considering the results of the sums of indicators that point to demographic characteristics (demographic density and urbanization rate), the purchasing power of the population (percentage in extreme poverty and coverage health plan) and the financing capacity of the municipality (GDP per capita), classifies small and medium-sized companies in favorable or unfavorable conditions for management.¹¹

It was decided to use this validated form of stratification of the municipalities according to the conditions for management, adding the classifications related to the scope of health services and a subdivision for large municipalities. Therefore, the territories are stratified into eleven types at DimeRede, as detailed in Chart 2. It is worth noting that the health territory in which the RAS is organized demands to demarcate the set of actions and services that will guarantee accessibility and operational sustainability, beyond geographical and population definitions.¹

The syntheses produced in this

stage are used in the classifications, calculations and comparisons of the following stages.

The planning and organization of Public Health Actions and Services (ASPS - Ações e Serviços Públicos de Saúde) that are part of a regionalized and hierarchical network in the SUS must happen in an upward way, considering the diversity in the process of implementation of the RAS existing in the country, the regional interest, the responsibilities of the entities for these actions and services, the health plans approved by the health councils and the decisions agreed upon by the Bipartite Intergovernmental Commissions.¹² Recognizing that this complex ASPS planning cannot be carried out or calculated centrally with secondary data, this step is limited to estimating the set of actions and services that would be agreed upon in the territories if all common national guidelines and policies were taken into account.

We call this set of procedures and

interventions for Estimating Public Health Actions and Services (EASPS - Estimativa de Ações e Serviços Públicos de Saúde), in which it is proposed that each territorial classification corresponds to a grouping of necessary actions and services, taking into account the perspective that the RAS modeling it is carried out from the analysis of the health situation of the territories and is based on sufficiency, proposed in a matrix by level of care (Chart 2).^{1,12} Subsequently, the necessary actions are verified for the sets described above and the necessary quantity for each territory is dimensioned in view of the clinical guidelines and the target population, according to SUS parameters, according to the demographic and epidemiological profiles identified in the Situational Diagnosis.

The definition and availability of national and regionalized parameters to guide the planning and programming of health actions and services, the commitment to the implementation of a health

care model that meets the agreed policies and the health needs of the Brazilian population are guidelines for the processes of Regionalization, Integrated Regional Planning and Governance of Health Care Networks that must be observed by all SUS managers.^{1,10, 13} Therefore, this step depends on research, interpretation and systematization of the guiding documents of the Ministry of Health and the Tripartite and Bipartite Interagency Commissions, in addition to regulations and SUS principles, to provide the indicators and parameters to compose each set. This process, as well as health needs, is dynamic and, therefore, its variables must be constantly reviewed and periodically updated.

The dimensioning of the health workforce is the step that refers to the calculation of the number of workers needed per se. It is the moment when the parameters are applied, according to the data and results of the previous steps, depending on the composition and scope of

Quadro 2. Representação da estratificação dos territórios sanitários e estimativa de ações e serviços públicos de saúde (EASPS) conforme as diretrizes de organização da RAS.

ESTRATIFICAÇÃO	EASPS	
Unidade da Federação	Conjunto A	Atenção Terciária
Macrorregião de Saúde	Conjunto B	
Região de Saúde	Conjunto C	Atenção Secundária
Município de Grande Acima de 500 mil habitantes	Conjunto D	Atenção Primária
Município de Grande <500 mil Acima de 100 mil habitantes	Conjunto E	
Município de Médio Favorável 25 a 100 mil habitantes e influentes favoráveis para gestão	Conjunto F	
Município de Médio Regular 25 a 100 mil habitantes e influentes regulares para gestão	Conjunto G	
Município de Médio Desfavorável 25 a 100 mil habitantes e influentes desfavoráveis para gestão	Conjunto H	
Município de Pequeno Favorável Até 25 mil habitantes e influentes favoráveis para gestão	Conjunto I	
Município de Pequeno Regular Até 25 mil habitantes e influentes regulares para gestão	Conjunto J	
Município de Pequeno Desfavorável Até 25 mil habitantes e influentes desfavoráveis para gestão	Conjunto K	

Fonte: Elaborado pelas autoras.

planned practices for the team and for each professional category that will compose it.¹⁴ It should be noted that this process is complex, especially in view of the urgency of articulating the needs of different public spheres that share responsibilities, and requires an expanded view on health.⁶

The fragmentation of health services and practices is also expressed by the fragility of work management, the precariousness of bonds and the insufficient number of professionals. Therefore, the search for solutions to the population's health problems requires multiprofessional teams, work valorization, in addition to shared practices of expanded clinic.¹ Thus, DimeRede considers all the professional categories that make up the team and from the EASPS, calculating how many hours of work would be needed to serve the population of each territorial stratum. This result in hours is transformed into equivalent professionals according to a standard workload.^{8,14}

To illustrate and facilitate the reader's understanding, in Chart 3 we use as an example the dimensioning of the workforce for a fictional Health Region, specifically considering consultations of the prenatal component of the Rede Cegonha, one of the thematic networks of the RAS.¹ Taking into account that the region had 1905 live births in the previous year, based on SUS care parameters, an estimated 2000 pregnant women and, therefore, the need for actions and services in the quantities described in the table.¹⁵

We emphasize that this dimensioning example corresponds to a fragment of the set of EASPS foreseen for this region and that professionals carry out several health interventions, not just individual care, which would be added to these necessary hours of each professional category in order to compose the number equivalent of professionals for comprehensive care to users.

In the case presented, consultations of 30 minutes were considered, however, there is no exact definition of this time in the materials of the Ministry of Health. As well as puerperal and psychosocial consultations, there may be more than one category. However, there is no provision for a static division between professions for shared work.¹⁵

In the construction of the last two steps described, the gaps regarding the minimum standards suggested for certain services were highlighted, as well as the absence or, in some cases, the multiple orientations of workforce and supply parameters recommended for some actions whose policies are published. Thus, it points to the need to seek consensus in SUS inter-managerial committees and participatory bodies, to choose the variables that best apply to this methodology, considering the best evidence and the health care model.

Comparative Analysis is the final step, in which it confronts the results found in the Situational Diagnosis with the results of the EASPS and Workforce Dimensioning steps, checking if there is adequacy or differences between them, producing

syntheses and analyzes according to the levels of attention the stratifications of the territories.

With this, DimeRede identifies the territories, the locoregional needs, the health establishments and the existing workforce through secondary data. It plans and scales the required multi-professional workforce from EASPS. It adds to the normative planning a strategic approach as it proposes to scale the attention that must be paid, according to the current health policies, and not the one that is already offered. It is capable of producing information and analysis that can collaborate for the formulation of public work management policies and decision making in systemic dimensions, being indicated for situations that require the establishment of common references to all or for the combined use of other methodologies according to goals. The next step is the definition and validation of the variables, construction of viability in terms of information technology and application in a pilot project.

CONCLUSION

The proposal of the DimeRede methodology constitutes an advance in the perspective of identifying the needs of the necessary workforce according to the health model that is intended to strengthen and consolidate in SUS, overcoming the logic of reproduction and maintenance of practices with a uni-professional and/or focus who observe

Table 3. Simulation of the dimensioning of the workforce considering part of the EASPS Set defined for a fictitious Health Region.

AÇÕES E SERVIÇOS NECESSÁRIOS (QUANTIDADE)	PROFISSIONAL	NÚMERO HORAS DE TRABALHO NECESSÁRIAS NO ANO	NÚMERO DE PROFISSIONAIS EQUIVALENTES(130H/MÊS)
Consultas odontológicas (2000)	Dentista	1000	0,64
Consultas pré-natal (6000)	Médica	3000	1,92
Consultas de enfermagem (6000)	Enfermeira	3000	1,92
Consultas obstétricas (1500)	Médica Ginecologista e Obstetra	750	0,48

Source: Prepared by the authors.

health services in isolation or from the offers already made. It is potent for instrumentalizing work management policies such as job search, the identification of training needs, the distribution of vacancies in medical and multiprofessional residences, the implementation of career plans and incentives for providing and fixing professionals, according to the needs of each health region.

The learning and reflections raised in the process of constructing the method ensure the relevance and complexity of this approach. Thus, it is worth noting

that the development of a methodology for planning and dimensioning the health workforce based on the formation of the Health Care Network does not end the challenges of ensuring adequate teams for multiprofessional care according to the population's health needs of a given territory since, in its theoretical model, it reveals gaps related to the lack of clarity of guidelines on parameters for some public health actions and services and for certain professional practices and categories. Although the definitions of these important variables

involve other areas of SUS management, crossing inter-managerial agreements and regulations of the professions, the practical success of DimeRede also depends on the resolution of these gaps. It is understood, then, that it is essential to research and agree on parameters of attention and workforce, combining practical experiences and SUS guidelines with scientific criteria, as well as developing information technology tools that support the systematization of the data of each territory and the application of the methodology. ■

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