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Streamlining information for facility planning

The existence of deficiencies in Brazil's public healthcare network is well known. Particularly, the infrastructure of the health sector deserves special attention by providers and managers. In this scenario, it is of utmost importance that the managers of health services pursue an integrated planning strategy that considers the characteristics of the population, the regional demand, the epidemiological profile and the available human and financial resources, among others. These characteristics must be integrated into the investment projects directed to the Health Ministry. There is a necessity to develop mechanisms that assist these managers in decision-making processes.

The System of Support for the Elaboration of Investment Projects in the Healthcare Infrastructure (SomaSUS) is a tool elaborated by the technical team of the Executive Secretariat of the Brazilian Health Ministry, and is designed to assist managers and technicians of health institutions to plan, to evaluate and to elaborate projects of investments. Besides providing a wide database regarding the physical characteristics of the healthcare services, the SomaSUS presents information on respective environments and equipment, their main characteristics and interfaces, and estimates of maintenance costs and price ranges for acquisition.

Available since 2005 at www.saude.gov.br/somasus the SomaSUS came to fill a void in the dissemination of knowledge in the field of health infrastructure, offering an easy-to-use tool which technicians and researchers can use to find information, solve problems and examine further possibilities for their projects.

With more than 8,000 registered users, the SomaSUS is establishing itself as a daily tool for administrators, engineers, architects and other professionals connected to the Brazilian public healthcare network (SUS).

Three forms of research

The system currently allows three forms of research: by function or activity, by type of service, and by equipment.

For example, a search for the activity "Diagnosis and therapy" provides a list of sub-activities, or "functional units". Take, for example, the "Anatomical pathology" functional unit. By clicking on this functional unit, a list with its required and/or suggested rooms or areas appears. There is also the possibility to arrive at this list of areas by searching through a list of possible services, arranged by level of complexity.

For each area in this list, there is a range of information available for the user, such as:

- Suggested workflow.
- Possible layout of the space.
- Suggested list of equipment and furniture.
- Main characteristics and requirements for the infrastructure of rooms.
- Required and desired characteristics of the finishing materials.
- Type of residues and waste produced and the treatment required for these.
- Type of human resources usually found in each space.

All the information is presented in HTML, JPEG and PDF files, making it easy for the user to export it and use it in many different ways in projects and research.

The user can also search through a list of items (equipment and furniture), organised by type, such as medical equipment, laboratory equipment, and infrastructure equipment. By clicking on each item, the user is shown a PDF file with its definition, the main characteristics,

ABSTRACT

The Ministry of Health of Brazil has the task of promoting improvements in the processes of organisation and quality of the public healthcare network (SUS), creating and making available to users some tools for the qualification of projects.

In this context, the SomaSUS – System of Support for the Elaboration of Investment Projects in the Healthcare Infrastructure and the Thematic Area of Healthcare Architecture and Engineering – was created.

The SomaSUS offers, through an uncomplicated interface, a range of information such as: possible types of medical services, based on parameters of the target population; lists of required spaces for each service; workflows of the services; diagrams and layouts of spaces, rooms and areas; basic requirements of infrastructure in each space; interfaces of equipment and furniture with the workspace; types and amounts of equipment and permanent materials, and their minimum engineering specifications; reference costs for equipment and civil works, etc.

The Thematic Area "Healthcare Architecture and Engineering" of the BVS is a website developed in a association between the SomaSUS and the Virtual Library of Health (BVS) technical teams, allowing the users access to texts and technical articles, as well as to information on legislation, norms and other factors for elaboration of projects. Both the SomaSUS (www.saude.gov.br/somasus) and the Thematic Area (www.saude.gov.br/bvs/arqengsaude) are available on the internet and they can be used by any technician or researcher who is interested in investigating the various aspects on the subject of healthcare infrastructure.

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options and specifications, the main interfaces and special needs, etc, as well as information about parameters of population.

Currently, the technical team of the SomaSUS is working on the development of an interactive version of the system in a partnership with the Department of Information Technology of the MS (DATASUS), which will soon make it possible for the user to create customised projects, work in multiple sessions, keep these projects for future reference and even export the data to complete the integration with other systems of the Ministry. The Ministry is also working on a Spanish version of the system, in cooperation with the Panamerican Health Organization, which will broaden the potential user base of the system.

Gathering technical and scientific information

The Thematic Area "Healthcare Architecture and Engineering", available at www.saude.gov.br/bvs/arqengsaude is the first product of a recent partnership between the technical teams of the General Coordination of Documentation and Information (CGDI) and the SomaSUS.

The main objective of this project is to gather the most relevant technical and scientific information about healthcare architecture and engineering, as well as information on legislation, rules, norms and other pertinent factors about the



Figure 1: Main screen of the SomaSUS website.



Figure 2: Option of search by function or activity.

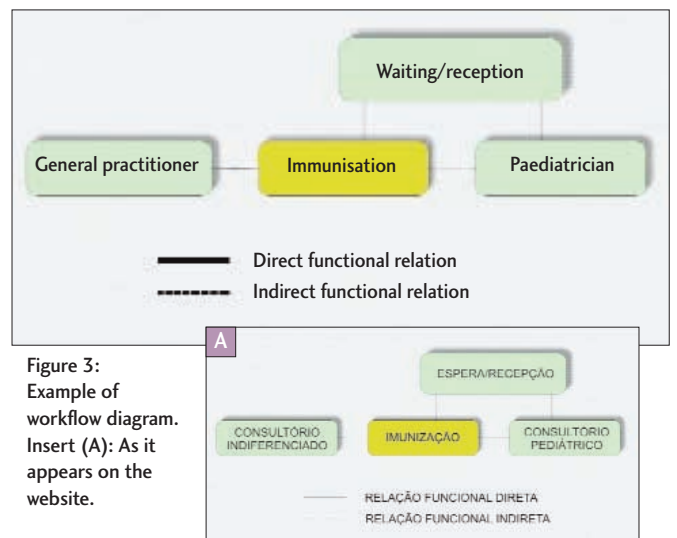


Figure 3: Example of workflow diagram. Insert (A): As it appears on the website.

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infrastructure of the healthcare network. The objective is to make the information readily available to professionals and researchers.

After its full implementation, it is expected that the most important sources of information in the field of healthcare infrastructure will come together in this Thematic Area to build a collaborative network, with the participation of both public and private institutions, research and development agencies, and non-governmental organisations.

The initial version of the Thematic Area, released in June 2008, received contributions from some of the main research institutions in the field, such as the Federal Universities of Bahia and Rio de Janeiro, as well as the National Sanitary Surveillance Agency – ANVISA.

The Area also provides easy access to the libraries of the BIREME network, directories such as LILACS (Latin American and Caribbean Health Sciences Literature) and LIS (localiser of healthcare information), as well as to the SciELO (scientific electronic library online) among other sources.

The website of the Thematic Area is currently organised in sub-areas covering strategic information, calendar of events, technical advice on specific subjects, access to full text of legislation, articles, and texts and books on various subjects related to healthcare infrastructure, architecture, engineering and biomedical engineering.

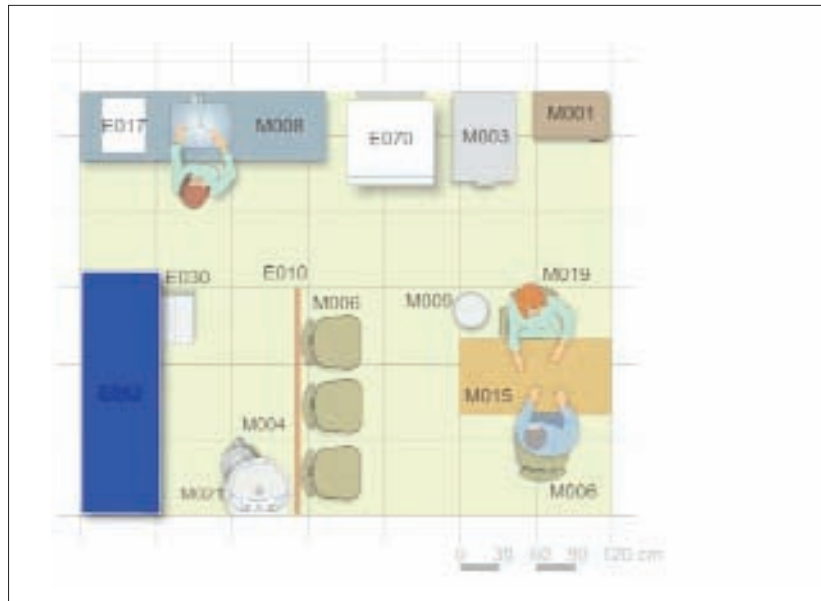


Figure 4: Example of layout.

SOMASUS PAT13 - Laboratório de bioquímica

Atividades

- 2.1.3 - Fazer análise e procedimentos laboratoriais de substâncias no reator biológico com finalidade diagnóstica e de pesquisa
- 2.1.2 - Fazer o preparo de reagentes/enzimas
- 4.1.2 - Fazer a desinfecção do material analisado a ser descartado
- 4.1.6 - Fazer a lavagem e preparo do material utilizado
- 4.1.7 - Limpar todo o material utilizado

Características do Espaço Físico

Área mínima: 14,00 m² para um laboratório "quilo" 4,00 m² para um laboratório específico (ex. hematólogo).

Área média: 20,26

Área máxima: Um código de área local

Plano: Liso (sem fendas), resistente ao desgaste, impermeável, à prova de fogo, impermeável e resistente aos produtos de limpeza, descontaminação e de desinfecção e uso de desinfetantes.

Paredes: Superfícies lisas e uniformes de fácil higienização e resistentes aos produtos de limpeza, descontaminação e de desinfecção e uso de desinfetantes.

Teto: Contínuo, sendo proibido o uso de forros suspensos, de fácil higienização e resistentes aos produtos de limpeza, descontaminação e desinfecção.

Piso: Resistente com material lizo.

Banheiro: Um por sala de trabalho. Os materiais sólidos devem proporcionar condições de higiene com resistentes à água, impermeáveis e antiderrapantes.

Condições Ambientais

Temperatura geral: Ver condições de conforto

Umidade relativa: Ver condições de conforto

Nível de iluminação: 750 a 300 lux geral - 200 a 750 lux média de trabalho

Área mínima de ventilação/iluminação natural: Ver código de área local

Quanto ao ruído de transmissão de vibração: Área (ver item 1)

Infra-estrutura Necessária

Instalações elétricas e eletrônicas: Carga elétrica

Instalações hidráulicas e fluído-mecânicas: Sem necessitar de especiais

Instalações de climatização: Climatizar

Instalações de proteção contra descarga elétrica: Instalação elétrica

Instalações de prevenção e combate a incêndio: Ver código de área local

Instalações elétricas de emergência: Sistema de energia elétrica - gerar 02 circuitos = 10

Serviços necessários: Emissão construção

Requisitos Especiais:

Tipos: Resíduo infeccioso - químico e perfuro cortante

Necessário Humanos:

Suporte: Um Descontaminador

Fonte:

Figure 5: Example of a file showing the main requirements for a space.



Figure 6: Main page of the Thematic Area.



Figure 7: Page of publications in the Thematic Area.