

LETTER TO THE EDITOR: CONTEMPORARY EPIDEMIOLOGY AND SPEECH-LANGUAGE-HEARING SCIENCES

Carta ao editor: epidemiologia contemporânea e fonoaudiologia

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To the Editors

Researchers interested in the theme “The Frontiers of Contemporary Epidemiology: from scientific knowledge to action” gathered at the Ninth Brazilian Congress of Epidemiology in Vitoria, ES. In this brief text, we will share some of the main issues addressed there, considering their potential to promote new pathways in research and, thus, constitute a field of scientific interest for Speech, Language and Hearing Sciences.

The use of social networking and media. The Secretary of Health Surveillance at the Ministry of Health, Jarbas Barbosa, demonstrated the potential use of new tools, such as social networking and media¹, presenting a recent and innovative experience of dengue surveillance in Brazil. Monitoring the term “dengue” on Twitter, alongside parameters for the spatial and temporal distribution analysis of tweets, enabled the identification of where, when and the intensity of the occurrence of new cases of the disease, anticipating initial growth curves and their later decline obtained through notifications. The speed and accessibility of this type of information has strengthened the search for other potential uses with different objectives, strategies² and applications to other themes. **Speech, Language and Hearing Sciences.** For the Speech, Language and Hearing Sciences, social networking and media may be useful, for example: in assessing the impact and reach of campaigns, such as World

Voice Day; in analysing communication activities amongst adolescents, investigating new language patterns; in assessing the use of new modes of social interaction by deaf and hard-of-hearing people³; in finding out how mothers exchange information about the speech and language development of their children⁴; amongst others applications.

The Big Data era. According to Laura Rodrigues from the London School of Hygiene and Tropical Medicine, in a few years’ time, conducting research on a million individuals will be routine. “Mega data” is a consequence of the current magnitude and speed of data production and integration between different systems. One example is in the linkage of all the databases in a country’s health network, updated in real time. The speaker reinforced the potential for Brazil in view of its current Information Systems. This presents an unprecedented opportunity, since by using Big Data knowledge production becomes fast and accurate and involves an important cost reduction⁵. Researchers with a wide range of interests may use these databases and the statistical power conferred on studies will enable the testing of hypotheses that have thus far presented challenges to science. **Speech, Language and Hearing Sciences.** Subjects from the field of Speech, Language and Hearing Sciences have begun to be addressed by studies using large-scale databases, such as the those regarding prevalence of hearing loss and tinnitus⁶ and the relationship between speech-in-noise perception and cognition⁷, both of which were investigated through the UK Biobank database, the result of a project that monitored the health of 500 thousand United Kingdom residents, which may be accessed by a range of researchers. Countries that maintain Information Systems have data available for knowledge production. Recently,

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for example, data from the National Health Interview Survey (NHIS) provided information about the prevalence of voice and swallowing problems amongst children in the United States⁸. In Brazil, the Health Informatics Department of the Unified Health System (DATASUS) at the Ministry of Health made available a range of databases with direct and indirect applicability for information production in the Speech, Language and Hearing Sciences. These include the Outpatient Information System (SIA-SUS) and the National Registry of Health Facilities (CNES), which, alongside demographic data from the Brazilian Institute of Geography and Statistics (IBGE), were used to analyse the evolution of speech, language and hearing care in SUS between 2000 and 2010⁹. Another example refers to the estimated coverage of newborn hearing screening for SUS users in Brazil¹⁰, which used data from the Live Births Information System (SINASC), the SIA-SUS, the Interagency Health Information Network (RIPSA) and the Beneficiary Information System (SIB) of the National Agency of Supplementary Health (ANS). Data available through SINASC refers to births and includes information regarding cleft lip and palate; the CNES contains data which can support the diagnosis of the local network of speech-language-hearing professionals operating in SUS; and the SIA-SUS includes the speech, language and hearing procedures registered for SUS invoicing. The data reference area is the national territory and data may be analysed by geographical unit and time period. Amongst other data sources of interest to the field of Speech, Language and Hearing are the Primary Care Information System (SIAB) and the National Programme for Access and Quality Improvement in Primary Care (PMAQ), which provide information about primary care and the Family Health Support Centres (NASF)¹¹. Other data sources include the Information System for Notifiable Diseases (SINAN); the Telephone-based Surveillance of Risk and Protective Factors for Chronic Non-communicable Diseases (VIGITEL); and the National Survey of School Health (PeNSE).

Urban Health. The relationship between the housing environments, understood as all the physical and social attributes of a neighbourhood,

and health was addressed by Waleska Caiaffa (UFMG) and Simone Santos (FioCruz, RJ). This rapidly growing topic included discussions about urban health, concepts and analysis methods and focused on how to measure these attributes¹². This encompasses questionnaires in population surveys about resident perceptions, the systematic social observation technique (which assesses attributes through direct observations of the environment), and the available geoprocessing techniques and computational tools¹³, such as Google Earth and Google Street View, both of which are recognized as feasible, low cost and reliable¹⁴. Increased knowledge about urban health strengthens its links with public policy. **Speech, Language and Hearing Sciences.** Within the field of Speech, Language and Hearing these tools may be used to evaluate the relationships between environmental conditions and individual characteristics. For example, the use of noise direct measurement or noise perception in urban centres and its relationship with health effects¹⁵, or with learning in the school environment. Another possible application is for improved understanding of the social determinants of health, investigating the relationship between the neighbourhood features and corresponding living conditions and the occurrence of speech, language and hearing problems. Further, macro indicators may be used, such as the Human Development Index and the Gini Index to analyse the spatial distribution of healthcare services and networks, such as the Disabled Person's Healthcare Network.

The themes addressed here demonstrate the possibilities of using contemporary, practical, available and low-cost tools, which may be incorporated into research in the field of Speech, Language and Hearing. The use of social networking and media; research using large-scale databases, valuing the secondary data already available in the country, such as that on the DATASUS website (<http://datasus.saude.gov.br/>); and the use of web tools to measure the environment are all potential strategies for the development of new front lines for knowledge production in our area.

DESCRITORES: Epidemiologia; Rede Social; Sistemas de Informação em Saúde; Metodologias Computacionais; Fonoaudiologia

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