Community pharmacies and pharmacists in Brazil: A missed opportunity

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Abstract
The Brazilian National Health System (BR-NHS) is one of the largest public health systems in the world. In 2019 Brazil had 114,352 community pharmacies (76.8% private owned), that represent the first point of access to healthcare in Brazil due to their wide distribution. Unfortunately, from the government’s point of view, the main expected activity of private and public community pharmacies is related to dispensing medicines and other health products. Public community pharmacies can be part of a healthcare center or be in a separate location, sometimes without the presence of a pharmacist. Pharmacists working in these separated locations do not have access to patients’ medical records, and they have difficulty in accessing other members of the patient care team. Pharmacists working in public pharmacies located in healthcare centers may have access to patients’ medical records, but pharmacy activities are frequently under other professional’s supervision (e.g., nurses). Private pharmacies are usually open 24/7 with the presence of a pharmacist for 8 hours on business days. Private community pharmacies have a very limited integration in the BR-NHS and pharmacists are the third largest healthcare workforce in Brazil with more than 221,000 registered in the Brazilian Federal Pharmacist Association (CFF - Conselho Federal de Farmácia). A University degree in pharmacy is the only requirement to entry into the profession, without any proficiency exam for maintenance or career progression. The Brazilian pharmacist’s annual income is ranked as the 2nd better-paid profession with an annual average income of € 5502.37 (in 2020). Description of clinical activities for pharmacies by the CFF increased in the recent years, however there is still a long way to effectively implement them into practice.

Keywords
Pharmacies; Primary Health Care; Delivery of Health Care, Integrated; Ambulatory Care; Community Health Services; Pharmacists; Community Pharmacy Services; Professional Practice; Brazil

BRAZILIAN NATIONAL HEALTH SYSTEM

Brazil is the fifth largest country in the world covering 47% of South America, with an area of 8.5 million square kilometers and is divided into five administrative regions. Brazil has an estimated population of 212.5 million people in 2020 with 88% of Brazilians living in urban areas. Population growth is decreasing as the fertility rate is reducing to only 1.7 live births per woman in 2020, compared to 6.1 in 1955. Brazil ranks 75th globally in life expectancy at 76.6 years of age. Low life expectancy for males is related to “deaths for external causes” among teenagers and young adults. Brazil ranks 28th infant mortality rate with 11.0 infant deaths per 1,000 live births and ranks 24th in deaths of children under 5 years old: 13.0 per 1,000 live births. Similarly to other countries, the country suffers from a high burden of non-communicable diseases, accounting for 91% of deaths. In 2019, the main causes of death were circulatory diseases (26.8%), cancer (17.4%), respiratory diseases (12.0%), and external causes (10.5%).

The Brazilian National Health System (BR-NHS) has a large public health system with universal healthcare coverage. The organization and development of the healthcare system is a relatively recent, starting in 1990. The BR-NHS was created through the Federal Constitution and the Federal Law 8080/1990. The system is based on the principles of universality, equity, and comprehensiveness for health care. The system aims to provide all the population with access to high-quality health services in any place and for any health condition (Table 1). Approximately 54% of health expenditure occur in the private sector, which serves only 25% of the population. Thus, the majority of the poor have difficulty accessing health care, although it is free and universal, reinforcing inequity in access to health care.

The health system is divided into public and private however private providers do provide services to the public sector with government remuneration and at no cost to the patient (see Figure 1). The private sector is authorized, regulated, and supervised by the BR-NHS with similar rules to those for the public sector.

Public community pharmacies exist both in isolated location and as part of a multiprofessional health center. When in isolated locations, public community pharmacies are more likely to have a pharmacist (for 8 hours on working days). However, in most cases, these pharmacists are not formally considered as part of the multiprofessional care team, and they have access only to the patients’ prescriptions, and cannot consult or write in the patients’ medical records. Public community pharmacies located at healthcare centers, are often under the supervision of a health professional who is not a pharmacist (usually a pharmacist assistant).
Table 1. Brazilian National Health System organization. 

| Characteristics                                                                 | Coverage and eligibility/entitlement | Role of the state                                                                 | Emphasis of reforms                                                                 |
|--------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Principles and premises                                                        | Automatic universal coverage system for all citizens. Since the BR-NHS covers all Brazilians, choosing to pay for a health insurance is an individual decision that implies double the possibility of access (public and private) to the health network. It generally aims to improve the available network or reducing the time for access to health care. | Social welfare. Responsible for the funding, management and delivery of health services | Subsidy of supply to guarantee equitable access                                      |
| Funding                                                                        | Publicly funded via tax revenues (general taxes and contributions for social insurance) the federal, state and cities government have distinct rules in funding and provide medicines and care. See Table 4 ‘Peoples Pharmacy of Brazil’, ‘Basic Component’, ‘Specialized Component’ and ‘Strategic Component’ for detailed information. |                                                                                     |                                                                                      |
| Efficiency of system                                                           | Lower operating and administrative costs. Reduced unit costs due to economies of scale. Lower total expenses due to greater regulation of supply.                                                                 |                                                                                     |                                                                                      |
| Design of service system                                                        | Networked, territorialized, PHC-orientated services |                                                                                     |                                                                                      |
| PHC approach                                                                   | Comprehensive                                                                       |                                                                                     |                                                                                      |
| Service provision                                                              | Services are provided mainly by the public sector, but sometimes public services, especially hospital services and diagnostic services, are delivered by the private sector through public-private partnership. |                                                                                     |                                                                                      |
| Integrality and package of services                                            | Integration between individual care and public health actions. Integration of health promotion, prevention and care. Comprehensive care is implicit offering a broad spectrum of health services free of charge, including: preventive services, immunizations, primary health care services, outpatient specialty care, hospital care, maternity care, mental health services, medicines supply, physical therapy, dental care, optometry and other vision care, durable medical equipment (including wheelchairs), hearing aids, home care, organ transplant, oncology services, renal dialysis, blood therapy and any other necessary care. |                                                                                     |                                                                                      |
| Social determinants of health (SDH)                                            | Incorporates the SDH approach. Facilitated possibility of intersectoral action       |                                                                                     |                                                                                      |
| Equity                                                                         | Guaranteed access to, and use of, health services between social groups for equal needs, regardless of ability to pay. |                                                                                     |                                                                                      |

| Service type | Public sector | Private insurance fees per encounter/service | Maximum annual out-of-pocket costs and safety nets |
|--------------|---------------|-----------------------------------------------|-------------------------------------------------|
| PHC visit    | No charge     | No limit and no limit with co-payment depending of insurance type | No limit                                        |
| Specialist consultation | No charge | No limit and no limit with co-payment depending of insurance type | No limit                                        |
| Hospitalization | No charge | No limit and no limit with co-payment depending of insurance type | No limit                                        |
| Prescription drugs supply | No charge, except for ‘Peoples Pharmacy of Brazil 10% of medicines costs | Not covered | - |

nurse), and frequently have no pharmacist in charge. However, pharmacists, when they are part of that pharmacy staff, are generally considered part of the multiprofessional care team with access to consult and annotate the patients' medical (Table 2).7, 8, 11, 13-15

While private community pharmacies can sell any medicine, public pharmacies dispense free of charge only medicines funded by the BR-NHS. Private community pharmacies are the most accessible healthcare setting in the country, however the information about their activities that they provide to municipal, state and federal governments, is limited to the dispensing data of the special controlled medications.8, 12

PUBLIC AND PRIVATE COMMUNITY PHARMACIES’ ORGANIZATION

Public community pharmacies are usually a small room to accommodate 7-day stock supply as well as administrative documents. Generally, public community pharmacies do not have specific locations to perform patient consultations with privacy, but in pharmacies located in healthcare centers pharmacists can use rooms shared with other professionals to ensure privacy. These pharmacies are open 8 hours on business days, sometimes without pharmacist on duty (Table 2).

Private community pharmacies generally have ample space to enable patients’ access to over-the-counter products (self-selection and picking) and counters to dispense prescription medicines. Often, these pharmacies have a room to inject. Occasionally, private pharmacies have a small room to ensure privacy, but very frequently, the injection room is used for these purposes. These pharmacies work 24 hours a day, seven days a week, but they sometimes have a pharmacist only 8 hours in weekdays (Table 2). No restrictive legislation about private pharmacies location or establishment exists, resulting in a concentration of pharmacies in city centers, while low socio-economic areas and rural have insufficient number of pharmacies. In January 2019, 114,352 pharmacies were registered in the BR-NHS, with 77% private community pharmacies and with the distribution throughout the country showing different density patterns relative to the population (Table 3).

ROLE OF PHARMACIST AND OF PUBLIC AND PRIVATE PHARMACIES IN THE PROVISION OF HEALTH SERVICES

Federal Law 5,991 of 1973, known as the “Pharmaceutical Trade Law” regulates prescribing rights, pharmaceutical trade, pharmacist activities, and the types of establishments authorized to market medicines and health-related products.16 Pharmaceutical services by public and private community pharmacies, other than dispensing of medicines are not contemplated in this law.16-19
Figure 1. Rule of public and private community pharmacies in BR-NHS.

1 At the federal government level linked to the Secretariat of Primary Health Care.
2 At the federal government level linked to the Secretariat of Specialized Health Care.
3 Small cities usually use hospitals and secondary health care of the hub of cities.
4 At the level of the federal government linked Secretariat for Science, Technology, and Strategic Inputs - Pharmaceutical Management Department.
5 These establishments can provide care for free by the partnership with BR-NHS. In this case, the services are named as procedures performed on an accredited public network and they are free for patients.
Table 2. Characteristics of public and private pharmacies in relation to insertion in the BR-NHS.

| Public community pharmacy (isolated or as part of other health service) | Private community pharmacies |
|------------------------------------------------------------------------|-------------------------------|
| **Pros**                                                              | **Cons**                                                                   |
| Patient access to the internal environment of the pharmacy, in most cases is prohibited | Patient access to the internal environment of the pharmacy, in most cases is prohibited |
| They generally do not have specific locations for the pharmacist to talk to the patient. Mainly in isolated community pharmacies. | They generally do not have specific locations for the pharmacist to talk to the patient. Mainly in isolated community pharmacies. |
|**Isolated public community pharmacy**                                   |**Public community pharmacy as a multiprofessional service sector**         |
|---                                                                      |---                                                                         |
| There is more likely to be a pharmacist at the pharmacy. However, it is still very common for isolated public pharmacies to work without a pharmacist | Always have at least one pharmacist 8 hours during working days. Sometimes, there are pharmacists 24 hours a day. |
| Reduction in the number of pharmacies in the city (less structure to control and financing) | Inspection of professional practice and compliance with health requirements are more intense |
| Lower complexity in medicines management processes between the city’s central medicines supply centre and community pharmacies (usually 7 or 15 days of supply) | The property generally belongs to non-professionals who sometimes interfere with the pharmacists’ technical conduct. |
| Service of secondary importance in the health system that almost always serves several health care units | The greater number of patients linked to the service does not guarantee proportionality in relation to the number of pharmacists or assistants |
| The greater number of patients linked to the service does not guarantee proportionality in relation to the number of pharmacists or assistants | Patients need to travel long distances to get their medicines or to access pharmaceutical services (this can be a problem for those in need or work) |
| Patients need to travel long distances to get their medicines or to access pharmaceutical services (this can be a problem for those in need or work) | The health system does not have information about the services provided in these pharmacies and vice versa |
| The pharmacist is generally not considered as a part of the patient’s health care team and has difficulty communicating with other health professionals | There is no national patient information system or electronic medical record system that communicates prescribers to private community pharmacies. Thus, private pharmacies only access patients’ prescriptions and it is sometimes difficult to prevent fraud. |
| The pharmacist is generally not considered as a part of the patient’s health care team and has difficulty communicating with other health professionals | Pharmacists find it difficult to communicate with prescribers |
| The only room that usually holds 7 days of medicines stock, one or more computers for supply management and dispensing control, and a place to store documents | --- |
| The contact with the patient, which often generates in queues, is made through a window | --- |
| Amplespace with access to over-the-counter products, counter with separation for controlled-sale products. Often, room for injection and dressing. Occasionally, private space for patient care. | --- |
| --- | --- |

After significant efforts by the Brazilian Federal Pharmacist Association (CFF) [Conselho Federal de Farmácia] promoting the role of public and private community pharmacies and pharmacists as health services providers and active participants in health care networks (HCN) at PHC, in 2014 the Law 13.021 was enacted. This law, known as the ‘Pharmacy Law’, described pharmacies as service delivery centers. Services such as vaccination, already regulated within the scope of professional duties by the CFF, and others such as functional foods and Cannabis products are now being dispensing by specially accredited private community pharmacies after being approved by regulators. An important number of pharmacists, who
A few public pharmacies initiated some clinical services, such as screenings, health education, management of minor illness, medication reconciliation, or medication review. Government funding for pilot projects aiming the implementation of pharmaceutical services was obtained. The state of Minas Gerais initiated in 2008 the pilot of the Pharmacy Program of Minas (Programa Farmácia de Minas) including 67 cities of up to 10,000 inhabitants and involving pharmacies that serve any component (i.e., basic, specialized and strategic). The objective was to improve the quality of drug dispensing services, as well as to promote the provision of clinical pharmacist services and provided funds to improve in the physical structure of pharmacies, training, and pharmacists’ remuneration. This pilot was successful and is still active as a state government program, serving a large number of cities, now with different population sizes. The economic viability assessment of the “Pharmacia de Minas Program” demonstrated it be to be a useful model of public health service, in line with the BR-NHS principles to guarantee complete and universal health services to citizens. Recently a prospective observational study was published comparing the results with psoriatic arthritis patients of these pharmacies with others Brazilian public community pharmacies. The medication adherence, medication persistence, and clinical outcomes were evaluated at 12 months of follow-up. The results showed for the 197 patients included in the study had medication adherence of 74.6% and persistence of 72.1%. The medication persistence of patients attended by this study was published comparing the results with psoriatic arthritis patients of these pharmacies with others Brazilian public community pharmacies. The medication adherence, medication persistence, and clinical outcomes were evaluated at 12 months of follow-up. The results showed up. The results showed for the 197 patients included in the study had medication adherence of 74.6% and persistence of 72.1%. The medication persistence of patients attended by this program was higher than the overall patients in Brazil, which indicates the importance of pharmaceutical services to provide health care and promote the effectiveness and safety of biological therapies.

Table 3. Brazil and administrative regions characteristics, primary health care system production in 2019 (public community pharmacies) and insertion of Private Community Pharmacy on it

| Information | Brazil | North | Northeast | Southeast | South | Midwest |
|-------------|--------|-------|-----------|-----------|-------|---------|
| Area (km²)  | 8,515,767 | 3,853,676 | 1,554,291 | 924,620 | 576,774 | 1,606,403 |
| Number of states and | - | 7 | 9 | 4 | 3 | 4 |
| Population | 18,430,980 | 57,071,654 | 88,371,433 | 29,975,984 | 16,297,074 |
| Private community pharmacies | | | | | | |
| Number | 87,794 | 6,628 | 21,047 | 37,432 | 14,038 | 8,649 |
| Per capita (per 10,000 inhabitants) | 4.18 | 3.60 | 3.69 | 4.24 | 4.68 | 5.31 |
| Pharmacist number | 221,258 | 13,416 | 33,290 | 109,614 | 42,719 | 22,219 |
| Per capita (per 10,000 inhabitants) | 1.05 | 0.73 | 0.58 | 1.24 | 1.43 | 1.36 |
| Pharmacist annual salary in EUR | Mean (SD) | 5,502 (1,218) | 4,468 (854) | 5,112 (987) | 6,478 (280) | 6,548 (400) | 6,430 (1,223) |
| PHC production | | | | | | |
| Number of approved procedures | 3,759,673,839 | 223,953,823 | 769,923,437 | 1,896,133,871 | 597,869,433 | 271,793,275 |
| Medicines | | | | | | |
| Number | 1,022,200,782 | 17,428,199 | 160,784,629 | 578,919,758 | 196,878,845 | 68,189,351 |
| Proportion (%) | 27.2 | 7.8 | 20.9 | 30.5 | 32.9 | 25.1 |
| Approved value in EUR | | | | | | |
| Medicines | | | | | | |
| Number | 5,326,039,529 | 133,044,871 | 509,987,847 | 966,481,763 | 385,194,150 | 144,875,161 |
| Proportion (%) | 2.3 | 1.9 | 2.1 | 4.7 | 3.7 | 5.0 |
| Federal complement value in EUR | 7,489,716 | 103,907 | 720,597 | 4,134,341 | 2,416,514 | 114,354 |
| Federal complement (%) | 0.21 | 0.05 | 0.08 | 0.25 | 0.43 | 0.05 |

¹One euro was 6.07 BRL, ²Datusas information, ³CFF information, ⁴Dispensing at public community pharmacies only

felt comfortable providing only dispensing services, lobbied against the implementation of this law. ³¹ Therefore, these regulations are far to be applied in practice. ³²

Public community pharmacies

Since pharmacies main role is around the supply of medicines and other health products, governments and society expect that pharmacists and public and private community pharmacies provide quality medicines in a timely manner to all citizens. A Government document covering the supply/delivery of medications solely covers administrative issues, type of medications and the financial processes associated with this supply (Table 4). ³³–³⁶ These are divided into:

- “Basic Component”, which meets the demands of “Essential Medicines” for primary health care.
- “Strategic Component” which provides funds for the treatment of neglected diseases such as leprosy, tuberculosis, malaria, AIDS, and coagulopathies,
- “Specialized Component”, which involves the high-cost and high-complexity medicines that are dispensed only following their specific National Clinical Protocols and Therapeutic Guidelines.

Although BR-NHS guidelines mentioned the provision of services as a function of community pharmacists, in the “Portfolio of Primary Health Care Services” no billing codes for clinical pharmacist service are described. ³⁷ Interestingly and reflecting the government’s expectation for public community pharmacies performance indicators in Primary Health Care (PHC) are limited to medicines supply (Table 3). No information relating to clinical services was included. ³⁸,³⁹
Table 4. Federally funded pharmacy schemes in Brazil.

| Setting | Medicines or conditions covered | Aim | Funding | Supply | Regulation |
|---------|----------------------------------|-----|---------|--------|------------|
| Public community pharmacies | Public community pharmacies | Medicines for tuberculosis, leprosy, malaria, cholera, schistosomiasis, Chagas disease, leishmaniasis, filariasis, meningitis, trachoma, systemic mycoses, and other diseases arising and perpetuating poverty. Medicines for influenza, hemopoietic diseases, smoking, and nutritional deficiencies are also subsidized. | Assistance to the most prevalent diseases and conditions | Fix amount of money per capita/year invested by the cities (€ 0.39), state (€ 0.39) and federal government (very low MHDI: € 0.99; low MHDI: € 0.98; average MHDI: € 0.98; high MHDI: € 0.97; and very high MHDI: € 0.96). | Medicines and supplies are financed and purchased by the BNHS | States and the Federal District, Health Departments |
| Private community pharmacies | Private community pharmacies | Antihypertensive, antidiabetic, antiasthma, and some others | Subsidizes the most prevalent therapies | Each private community pharmacy | States and the Federal District, Health Departments |

Information on the social security number, the signed prescription. In cases the patient cannot go in person to the accredited pharmacy, a registered letter of attorney will do. The medicines must be prescribed by its reference/brand name or according to the Brazilian Common Denomination of drugs.

Legal notice for pharmacy practice licensing.

Additional information on the prevention, diagnosis, treatment, and control of diseases and conditions of the different lines of care defined in the Brazilian Clinical Protocols and Therapeutic Guidelines.

Group 1: financing under the exclusive responsibility of the Union
Group 2 e 3: medicines under the responsibility of the Health Departments of the States and the Federal District
Group 1A: centralized BNHS acquisition
Group 1B: acquired by the States with the transfer of financial resources from the BNHS as reimbursement
Group 1B: acquired by the States with the transfer of financial resources from the BNHS as reimbursement

All information is available at www.pharmacypractice.org (eISSN: 1886-3655 ISSN: 1885-642X) © the Authors
The first major pilot with federal government funding took place in Paraná state, starting in 2012. This project produced four publications reporting the general characteristics and the process indicators, but without publishing results of the impact on health outcomes. In this project, pharmacists interviewed patients at the ambulatory care department of the main public hospital in Curitiba to improve their knowledge about medication and to identify potential drug-related problems, by using a long structured interview guide. With the completion of the pilot in Curitiba, capital city of Paraná, resources were deployed to train and develop the structure for the consolidation of these services, but no further information nor publications exists. The Paraná pilot project was reproduced, with a slightly different methodology in two other cities; but the publication of the results has not yet been completed.

In 2019, the Pharmacy Department of Paraná State government initiated a large-scale pharmacists’ service implementation plan focused on the Specialized Component (high-cost and high complexity medicines). This program aims to merge the technological resources, mainly IT, and the district pharmacy team human resources to create a series of data-driven pharmacist services, e.g., new medicines service, medication review, medication follow-up, intensive pharmacovigilance. As a first output of the project, coverage of rheumatoid arthritis treatment has been demonstrated to be inadequate, requiring additional state funding. District pharmacists were also responsible for the patient education and the logistic control of original-to-biosimilar switch in rheumatoid arthritis biological treatments, ensuring the compliance with international safety recommendations and avoiding medication wastage.

The CFF published a report to encourage the dissemination of good pharmacist practices in the BR-NHS. In 2019, a total of 13 “Successful experiences in the BR-NHS” [Experiências exitosas no SUS] implemented by public pharmacies were identified. The main problem of these experiences is that they were isolated initiatives without a systematic common support or methodologies. There are prospects for strengthening integration of pharmacists in the patient care team, which has been stimulated by the recent institutional and regulatory transformations, not fully implemented yet.

Private community pharmacies

The relationship of private community pharmacies with BR-NHS is limited to dispensing a limited list of medicines through a program called ‘Peoples Pharmacy of Brazil’ [Farmácia Popular do Brasil]. In this program, medicines for hypertension, diabetes, asthma are dispensed, to any patient with a prescription, with the government reimbursing covering 90% of the medicine price. Although the Peoples Pharmacy Program is available across the country, problems of access to medicines after commercial business hours still exist. The rationale of this program was based on a study performed in 2013, that reported that the proportion of people who received at least one of the prescribed medicines in the public health service was only 33.2%. The study showed that, on average, 40% of the drugs prescribed in primary care were not available when they were needed in public pharmacies.

Brazil does not have a fully implemented national system that compiled data about prescriptions, dispensing or other pharmaceutical services from private community pharmacies, other than the Peoples Pharmacy Program dispensing. This means that information about the services is unknown to the government or civil society.

In 2019, the largest private community pharmacy chain, with more than 80,000 private community pharmacies reported that 2,978 pharmacies of their pharmacies had private consultation rooms used to provide clinical care. More than 3 million consultations have been carried out by 7,789 clinical pharmacists with a 39% increase rate in the past two years. The most frequent pharmaceutical services performed were clinical assessment of patients and point-of-care tests (41.15%), followed by injectable medication administration (26.83%). Young adults seek services to help them with weight control more often and children seek services for vaccination. No data about the out-of-pocket cost of these services or the overall amount of revenue obtained with these services have been published.

Health workforce and pharmacists

All the healthcare professionals in Brazil once completing their university degrees are considered able to practice after registering within the CFF. After the first registration, no re-register or re-certification processes are required to maintain the practice. Pharmacy is the third-largest health workforce with 42,243 pharmacists registered on BR-NHS as pharmacists (including pathologists). These pharmacists worked in 101,478 different settings mostly in public or private pharmacies (89.1%). The Pharmacists are in the 16th position in the national salary ranking and the 2nd for health professionals. The Brazilian per capita annual salary is about EUR2,700, with large differences among the five Brazilian regions. Pharmacy technicians do not officially exist in Brazil. All actions performed by pharmacy auxiliary staff are under the responsibility of the pharmacist responsible for that pharmacy. A movement to establish an allied degree in pharmacy exists after recognizing that technicians are an important part of the pharmacy workforce and their skills are needed to assist the pharmacist.

FUTURE DIRECTIONS

Despite the many attempts to expand clinical pharmacy services, it is worrying that the public and private community pharmacies are not considered part of HCNs of the BR-NHS. Also, governments only expect from pharmacies the supply of medicines to the population.

A joint effort from CFF, Universities and pharmacy departments of State governments should be done to improve clinical pharmacy education, to obtain more funds to support pharmacy practice research, and to improve regulations that facilitate the implementation of clinical pharmacy services in Brazil.

Finally, work has to be done to convince stakeholders about the need for the reorganization of the BR-NHS to
review the conceptual framework of the organization of “Health Care Networks”, including community pharmacies in a more prevalent position than just as network supporter.12,13

CONFLICT OF INTEREST

All authors declare no conflicts of interest in this paper.

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None.

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