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Generic are today one of the most important instruments to increase access to medicines in Brazil. Absolutely secure and effective, as they are submitted to rigid quality tests, and substantially cheaper than the innovator drugs, the generics brought a new reality to consumers in the Country.

Thousands of Brazilians that didn’t have a way to afford medical treatments, due to the economic conditions, have found in generics a viable alternative to follow the recommended prescriptions. The fact can be verified by the real growth of the consumption of some of the most prescribed active pharmaceutical ingredients since the introduction of generics in the local market, in 2000.

The Brazilian case repeats the success of generics all over the world. Since they were introduced in the United States of America, in the 60s, with the purpose of offering cheaper therapeutic alternatives, especially for patients with low incomes, generics have been established as a key element in health public policies in several countries.

The Brazilian model is inspired in this well succeeded international experience. Nations like the USA and Canada, whose health programs are references worldwide, have given the essential elements to format the Brazilian generics regulation which created this new and dynamic category of drugs in the local market.
What are generics?
Generics are copies of innovator drugs that had their patents expired. In Brazil, the regulation for generics was created in 1999, with the publication of law 9787.

The production of generics complies with strict standards of quality control. According to the law, they only can be sold to the consumer after pharmaceutical equivalence and bioequivalence tests (these ones performed in humans).

Due to these tests, Brazilian generics are interchangeable. In other words, they can substitute innovator drugs listed in the medical prescription. According to the legislation, the exchange can be performed by the pharmacist, with absolute security to the user.

The technical criteria required to register generic drugs in Brazil are similar to the ones adopted by regulatory organisms of countries like the USA (FDA), Canada (Health Canada) and the European Union (EMEA), among other reference centers of public health in the world.

In order to be easily recognized by the consumers, generics are the only drugs identified by a yellow strip with the letter “G” in blue on the packages and the only to have the inscription “Generic Drug”— Law 9787/99.

In Brazil, besides the generics, there are two other categories of drugs: the innovator (or reference) products and the similar products.

Innovator drugs are medicines with original molecules as active ingredients, based on researches and clinical tests in humans. They are also called reference drugs and have patented protection established according to the rules of each country. Marketed under trade marks, the innovator/reference drugs are the basis for generics and also for similar products.

Similar drugs, though they are also copies of drugs with expired patents, are essentially different from generics. They are not submitted to the tests that are required for generics and consequently are not interchangeable. In other words, they cannot substitute innovator/reference drugs prescribed by doctors and can only be sold under specific medical prescription. And, differently from generics, similars have to be marketed under brand names.
Generics in the world
The beginning of the generic industry dates back to the 60s, by an initiative of the USA government. But it was in 1984 that the USA established the rules that would be adopted internationally to register this type of drug.

The model for the production of generics in the USA was established based on The Drug Price Competition and Patent Term Restoration Act (Hatch-Waxman), a legislative act of 1984 that structured the necessary parameters to consolidate the generic market. At that time, FDA created a simplified process for registration of generic drugs (ANDA — Abbreviated New Drug Application), based on the evidence of quality of the industrial processes and the bioequivalence of generics compared to the corresponding innovator/reference drugs.

After Hatch-Waxman, bioequivalence became scientifically accepted as proof of the efficacy and safety of generic drugs. The pharmaceutical industry then gained competitiveness, offering generics with FDA’s stamp of approval and benefiting the population with the offer of safety and effective drugs in large scale.

The purpose of the American government with the introduction of generic drugs was to find out a legal alternative to reduce costs of health treatments and to increase the access of the population to medicines. As they are copies of products with expired patents and do not have to invest heavily on research and development, generics get to be significantly cheaper than their branded counterparts.

International experience shows that the best results for generics have been registered in countries with consistent governmental initiatives to explain to the physicians the effectiveness and reliability of generics. Those initiatives lead to increasing generic prescription.

Market studies conducted by IMS Health, a research institute that audits the performance of the pharmaceutical industry all over the world, have demonstrated that, in the American market, a generic drug gains, in average, from 65% to 80% of the medical prescriptions after five weeks of its launching.

Statistics from the same institute reveal that the world’s generic market increases about 20% a year — while the pharmaceutical industry of innovator drug products registers an average increase of 8%. This growth made generic drugs achieve US$ 35 billions in worldwide sales in one year.

In countries like USA, Germany and England generics detain more than 60% of the market in volume. In the USA, where generics are already well consolidated, their participation mounts to 60% in volume.
Generics in Brazil
The generics program, created in Brazil in 1999 with the publication of law 9787, occurred three years after the Country introduced a patent law. After eleven years from the creation of law 9787, there were more than 17,000 generic presentations registered, representing the main therapeutic classes.

Absolutely secure and effective — and also cheaper than their innovator counterparts - generics have brought a new reality to Brazilian consumers, especially concerning quality.

The Brazilian legislation of generic drugs was based on the most advanced laws, like the ones from the USA (FDA) and Canada (Health Canada), where generics are consolidated and have gained a significant part of the market as well as the confidence of consumers and physicians.

According to the Brazilian law, generic drugs can only be registered after being submitted to bioequivalence tests (that guarantee that generics are absorbed to the same extent and in the same speed, compared to the corresponding innovator/reference drug products) and pharmaceutical equivalence tests (that guarantee the identical composition of a generic and its branded counterpart).

All this caution applied to the registration of generics, and then extended to the production and commercialization, is essential to assure their main property: interchangeability.

The interchangeability consists on the prerogative of generics to substitute the prescribed innovator/reference drugs. As determined on the legislation, this substitution can be recommended by the pharmacist.

In Brazil, the interchangeability of the generics was established by Anvisa through Resolution 391, of August 9, 1999, republished as Resolution RDC 16/2007. It describes the requirements and technical criteria to register generic drugs, including the procedures concerning interchangeability.

Observing all the rigor of the legislation established by Anvisa, we can conclude that the greatest benefit of the Brazilian program for generics was the institution of a category of drugs that allies quality to economy.
Bioequivalence and pharmaceutical equivalence

The quality of generics is guaranteed by the Brazilian legislation, which demands the execution of tests to prove efficacy and safety for granting registration to this type of product in the Country.

To be on the market, all generics must prove their equivalence to the corresponding innovator drugs, not only on the concentration of the active ingredients, but also on the extension and speed of absorption by the human organism. These characteristics, which give generics the prerogative of interchangeability, are demonstrated through pharmaceutical equivalence and bioequivalence tests.
The pharmaceutical equivalence test proves that generics have the same active pharmaceutical ingredient, in the same amount and pharmaceutical dosage form that are found in the innovator/reference drugs and comply with the same physical and physical-chemical specifications concerning quality control.

In the case of products which have a waiver of bioequivalence tests, like parenteral solutions or topic medicines, the pharmaceutical equivalence is sufficient to guarantee interchangeability between generics and their reference counterparts. The exemption of bioequivalence for drugs on these pharmaceutical dosage forms result from the characteristics of such products, which, as they are delivered directly into the bloodstream or do not need systemic absorption for their therapeutic action, allow complete bioavailability of their active pharmaceutical ingredients.

The bioequivalence tests required for generics are performed in healthy volunteers and have three distinct phases:

• **Clinical** — administration of the generic and the reference drug product in distinct moments, with blood or urine samples taken periodically for analysis.

• **Analytical** — quantification of the active pharmaceutical ingredient on the samples using a specific method.

• **Statistical** — calculation of pharmacokinetic parameters and statistical analysis to determine bioequivalence.
The quality of generics

Generics promoted a revolution on the quality and safety for drugs produced in Brazil. Besides the strict process for registration, the legislation for generic drugs establishes controls concerning the steps of production and commercialization.

One of the most important keys to execute this control is the Certification of Good Manufacturing Practices. This certification is a pre-requisite for the registration of generic drugs and must be obtained by pharmaceutical companies, after the inspection on their manufacturing plants in Brazil and other countries. This inspection is performed annually by Anvisa, which verifies if the drugs are produced within quality standards, according to the Good Manufacturing Practices.

The Certification of Good Manufacturing Practices also assures that the product will not present differences between batches and will keep the same quality that it presented at the time of the registration, guaranteeing its main characteristic: interchangeability.

Attentive to the need of continuous management of generics’ quality, Anvisa rigorously evaluates any modifications in the manufacturing process (batch size, raw material suppliers change, nature and quantity of excipients, change of equipments or manufacturing plant), that may eventually lead to a demand for a new bioequivalence test. The post-registration control procedure, adopted by Anvisa in order to continually assure the interchangeability of generic drugs, is based on FDA’s SUPAC (Scale-up and Post-Approval Changes), which sets the criteria for changes in the manufacturing processes contained in the registration dossiers in the USA.
In order to perform the tests required for the registration of generics, Anvisa created the Reblas - Rede Brasileira de Laboratórios Analíticos em Saúde (Brazilian Network of Analytical Laboratories for Health), which is composed of laboratories authorized to perform pharmaceutical equivalence tests. Anvisa also authorizes and accredits bioequivalence centers, checking the compliance with Good Clinical Practices and Good Laboratory Practices. All pharmaceutical equivalence laboratories and bioequivalence centers are thoroughly inspected by Anvisa at least once a year.

Furthermore, Anvisa inspects and accredits foreign bioequivalence centers for testing of generic drugs which are to be imported by pharmaceutical companies in Brazil.

To allow tracking of any batch of generic products, Anvisa requires a monthly report from the pharmaceutical companies, with information on production and distribution. This requirement is another aspect of the market monitoring process for generics.

Besides the severity adopted by Anvisa for registration, a continuous monitoring of marketed generics is performed. The agency, in coordination with INCQS - Instituto Nacional de Controle de Qualidade em Saúde (National Institute for Quality Control in Health), takes samples of generics and their respective innovator products from the market. Such samples are used to repeat the pharmaceutical equivalence tests in the LACENS - Rede de Laboratórios Centrais dos Estados (States Central Laboratories Network), and the results are officially made public by Anvisa. Created in 2000, this Quality Monitoring Program for Generic Drugs in Commercialization is an additional guarantee for doctors and consumers about the efficacy of generics.

Market Monitoring

Bioequivalence Centers
Available on the shelves of local drugstores since the middle of 2000, generics are advancing regularly in the Brazilian pharmaceutical market. After all, with prices in average 50% lower than the corresponding innovator products, generics created the economic conditions for a significant part of the population to start complying to drug treatments, with efficacy and safety.

11 years from the beginning of their commercialization in Brazil, generic drugs achieved a share of almost 25% of the Brazilian pharmaceutical market. Because of that, estimates point that generics will advance, in a short period, to an even more significant market share. The goal of Pró Genéricos is that generics will participate with 30% of all pharmaceutical products commercialized in the Country until 2015.
Generic drugs are now part of the set of products regularly consumed by thousands of Brazilian families, having allowed wider access to medicinal treatment, especially in the case of chronic diseases.

Since the introduction of generics in the Country, many Brazilians that were not taking any medicines or who had difficulties on continuing their treatment due to economic reasons, found in generics a viable alternative for correct medication.

Data from IMS Health reveal, for example, that since the arrival of the generics to the Brazilian market, the consumption of atenolol, substance used to control hypertension, trebled in the Country. In 2011, the consumption of that substance was 9,9 million units in the local market. But in 2011, the consumption jumped to 26 millions units, with the generics participating with 62% of the volume in the period.

Market researches that analyze the behavior of drugs prices in Brazil show that the difference in treatment costs, comparing patients that use generic drugs against patients that use innovator drugs, was significant, in some cases resulting in savings of about 60%. The wider access to drugs that these savings allow is one of the great improvements brought by generics in Brazil.
Generics and Economic, Industrial and Social Development
Since its introduction in the Country, generics promoted, in a very short period, an industrial movement with no precedents in the Brazilian pharmaceutical sector.

Generic industries invested heavily on the construction and modernization of industrial plants and in technology, which resulted in the enlargement of their productive capacity and in the creation of job positions, raising the Brazilian program for generic to a high position in the world.

In eleven years of commercialization, the companies associated to Pró Genéricos invested more than US$ 354 millions in order to attend to the necessary requirements to get the generic drugs registration.

Also because of generics attractiveness, huge multinational pharmaceutical companies decided to invest in the production and commercialization of such products, significantly enlarging the offer for the population.

The Brazilian program for generic drugs also collaborated for the strengthening of local companies. Nowadays, the main generic industries have national capital and up to 90% of the units of generic drugs commercialized in Brazil are manufactured in the Country. All this happened due to the investments in infrastructure and human resources qualification. Exportation starts to play an important role in the expansion plans of many generic industries and is expected to grow in the next years.

The regulatory rigor also required a massive investment from the generic industries in the improvement of their manufacturing plants, in order to meet Good Manufacturing Practices requirements.

The dynamism of the generic market and the constant expansion of sales are nowadays contributing in a decisive way for the segment to be one of the most important ones in the Brazilian pharmaceutical market.
Pró Genéricos – the association and its role
Founded in January 2001, Pró Genéricos - Associação Brasileira das Indústrias de Medicamentos Genéricos (Brazilian Generic Pharmaceutical Association) is a class association, which congregates the main players in the production and commercialization of generic drugs in the country.

As a non-profit organization, the association has as its main mission to contribute for the improvement of access to medicines in Brazil, through the consolidation and expansion of the generic market.

Together, the companies associated to Pró Genéricos concentrate more than 80% of generic sales in Brazil. Working together with different segments of the society, as well as public and private institutions, Pró Genéricos complements the actions of its associated companies, promoting the public debate on relevant issues concerning healthcare and the development of the pharmaceutical industry in the Country.
Since their introduction in the market, generics have produced consistent results in allowing wider access to medicines in Brazil. In spite of that, access improvement for a more significant part of the population remains as one of the most important challenges of public health in Brazil.

For Pró Genéricos, changes in the current scenario will occur only if we effectively begin to discuss and implement new models of drug access with public and private fundings, similar to the ones adopted in countries like the USA and Canada, in order to attend to the needs of the low income population.

The problem requires structural changes so that medicines can reach the poor, who, today, cannot proceed with their treatments, worsening their health conditions and consequently increasing total costs of the health system.

Another important issue to overcome the challenges of access to medicines is concerned to physicians’ behavior. It is essential that doctors prescribe generic drugs, as a way to allow a treatment that is economically feasible for their patients, as well as guaranteed in terms of efficacy and safety.

The criteria for medicine acquisition in public bids and tenders also integrate the list of challenges of the generic industries in Brazil. The sector believes it is fundamental for the society to have strict quality criteria for the drugs acquired by the public health system, in compliance with the evolution of the Brazilian sanitary legislation.

Besides the price, it is also necessary to include the requirement of bioequivalence and pharmaceutical equivalence tests as criteria for the evaluation in the public tender processes, offering efficacy and safety guarantees for the drugs which will eventually be consumed by the public health system beneficiaries.

Facing such issues is fundamental for the continuous improvement of the pharmaceutical industry role in Brazil and of the access to effective and safe drugs by consumers of all segments of the society.