

CHALLENGES FOR THE INDUSTRY

The fundamentals of the world pharmaceuticals market remain robust, providing the industry with broad potential for driving business growth. Nevertheless, as with any industry, alongside the opportunities, our business environment also presents a number of challenges. The most successful pharmaceutical companies will be those that recognise and manage these challenges appropriately and effectively.

Pressure on costs

As described earlier in this section, the demand for healthcare is growing, driven by increasing and ageing populations, alongside a greater expectation of better health than ever before. The world population has doubled in the last 50 years from three billion to six billion and is expected to reach nine billion by 2050. In most major markets, ageing populations are leading to increased incidence of chronic diseases, such as cancer and diabetes, which require long-term management. Chronic disease is on the increase in middle-income countries too, and is also beginning to have an impact in the least developed countries.

Expenditure on healthcare typically represents between 6% and 15% of a country's gross domestic product (GDP), with developed countries towards the top end of that range and developing and middle-income countries spending less. As a proportion of this, expenditure on medicines developed by the pharmaceutical sector is usually between 10% and 20% of the healthcare budget, and is therefore still less than 2% of GDP in most countries. Nevertheless, the growing demand for healthcare means ever-increasing pressure on the budgets of those who pay for it. Healthcare systems, whether based on public or private funding, have a duty to spend their limited financial resources wisely and cost-containment therefore continues to be a fundamental consideration.

The research-based pharmaceutical industry's challenge is to manage the associated downward pressure on the price of its products, whilst continuing to invest in the discovery, development, manufacturing and marketing of new medicines.

Demonstrating economic benefit

Effective treatments can help to save healthcare costs by reducing the need for more expensive care, such as hospital stays or surgery, and so it is important that we demonstrate the economic as well as the therapeutic value of medicines to those who pay for healthcare. This requires time and money. During development and throughout the life cycle of a medicine, as well as traditional clinical trials designed to establish safety and efficacy, we conduct studies to demonstrate added medical benefits, cost-effectiveness, cost-benefit and medical outcomes (such as survival and quality of life improvements). These research efforts also help to ensure we can target our treatments at those patients who will benefit most.

R&D productivity

Improving R&D productivity continues to be a priority across the industry. At the same time, our regulators are setting increasingly high hurdles for the approval of new medicines. Backed by the application of new technologies and different ways of working – including strategic alliances to broaden the base for disease research and drive further cost efficiencies – the industry is working to maintain a flow of innovation whilst effectively meeting the requirements of our regulators.

Patient safety

Patient safety continues to be a fundamental consideration at all stages of pharmaceutical R&D and beyond. Decisions on acceptable benefit/risk profiles for medicines have the potential to be positively or negatively affected by a number of factors. These include pre-clinical data, pre- and post-marketing clinical data and regulatory decisions reflecting society's concerns and aspirations. Further information can be found on pages 193 to 199 (Risk).

Competition

Our main competitors are other international, research-based pharmaceutical companies that also sell innovative, patent-protected, prescription medicines. In common with other companies, following patent expiry, our products also compete with generic pharmaceuticals – principally on price, since generic manufacturers do not bear the same high costs of R&D that we do. Nor do they typically invest as significantly in safety monitoring or marketing as we do. The industry's intellectual property base is increasingly being challenged by generic companies seeking an early entry into large markets. It is increasingly complex to enforce patent rights and other intellectual capital in certain markets, especially those where practices are in place to encourage broad access to medicines. While there are few established regulatory systems for biosimilars of biological products or vaccines, several countries, including the US, are considering regulatory structures that might allow for an abbreviated marketing approval mechanism akin to the mechanism for generic pharmaceuticals.

Competition also comes from collaborations and partnerships between traditional pharmaceutical companies and smaller biotechnology and vaccine companies. Increasingly, as pharmaceutical companies seek to expand their pipeline, they are able to gain access to promising new product candidates by partnering with these smaller companies that may lack some of the infrastructure for growth that a larger company can provide.

Reputation and responsibility

Stakeholder expectations of the industry regarding corporate responsibility continue to vary from country to country. Nevertheless, a global business means global visibility and there are a number of issues relating to our business that have the potential to impact reputation anywhere in the world. These include access to medicines, patient safety (exacerbated by some high-profile withdrawals of marketed medicines in recent years), transparency of information, sales and marketing practices, research ethics, human rights and labour practices. These issues must be managed appropriately, and emerging issues successfully identified and managed, to ensure a continued licence to operate from society.

BUSINESS ENVIRONMENT CONTINUED

Regulatory approvals process and continuing product regulation

The pharmaceutical industry is one of the most regulated of all industries and the number and impact of these regulations continue to grow. The process of developing a new pharmaceutical or biological product, from discovery to marketing approval, can typically take between eight and 12 years. Through all stages of drug development and post-marketing surveillance, safety, efficacy, quality and patient risk management continue to be a priority focus, both for the industry and for our regulators. Regulatory drug review and approval is a complex and time consuming process, typically taking between six months and two years. In recent years, regulatory processes have become subject to more conditions including patient risk management plans, patient registries, post-marketing requirements, and conditional and limited approvals.

In addition to safety and efficacy, pre-approval regulation covers every aspect of the product including the chemical composition, manufacturing, quality controls, handling, packaging, labelling, distribution, promotion and marketing.

After a product has been approved and launched, all aspects relating to its safety, efficacy and quality must continue to meet regulatory requirements. Strict procedures must be in place to appropriately monitor, evaluate and report potential adverse reactions. Where drug-related adverse reactions occur or it is judged that they may occur, changes may be required to the prescribing advice and to the product approval. Depending on the country, fines and other penalties may be imposed for failure to adhere to the conditions attached to the approval. This may include product recalls or a requirement that letters be sent to prescribers and other medical practitioners. In extreme cases, the approval may be revoked, resulting in withdrawal of the product from sale. Marketing and promotional activities are also tightly controlled by regulations and self-regulating codes of ethical marketing practices.

The manufacturing processes for chemical products, and even more so for biological products and vaccines, can be very complex and must be conducted under rigorous standards of quality. Manufacturing plants and processes are subject to periodic inspections by regulators to ensure that manufacturers are complying with prescribed standards of operation. Regulators have the power to require, if they believe action is warranted, changes and improvements, to halt production and impose conditions that must be satisfied before production can resume. Regulatory standards also evolve over time as the industry develops new manufacturing techniques, so a process that may have been acceptable at one time may subsequently require changes.

We participate in various industry associations and other external organisations on a global basis, and engage with regulatory authorities in many different parts of the world about proposed new regulations, standards and processes that are aimed at improving the regulatory approval process or addressing the impact of new technology. Regulators welcome this dialogue with industry and, in many instances, actively seek manufacturers' views, for example, the European Medicines Agency's similar 'Pipeline' project and the 'Critical Path Initiative' of the US Food and Drug Administration (FDA), which seek to modernise the scientific process through which a drug is transformed from a proof of concept discovery into a medical product.

Price regulation

Prescription medicines are subject to government controls on price and reimbursement, which operate in most countries in which we sell our products. This often presents a complex matrix of different pricing systems across countries, which, combined with the ambitions in most markets to limit pharmaceutical expenditure, puts pressure on drug prices and volumes. This may be further complicated by currency fluctuations within regions. As downward pressure on pricing and price differentials between countries increases, cross-border movement of products is also rising. The principal aspects of price regulation in the US, the EU and Japan are described in the Sales and Marketing section on page 31.

**WE BELIEVE THAT
ASTRAZENECA HAS
THE RIGHT STRATEGY
AND THE RESOURCES,
SKILLS AND CAPABILITIES
WE NEED TO MANAGE THE
CHALLENGES AND MAKE
THE MOST OF THE
OPPORTUNITIES OF OUR
BUSINESS ENVIRONMENT TO
DRIVE CONTINUED SUCCESS
AND DELIVER ENDURING
SHAREHOLDER VALUE.**