

Medicines prices are not just about research and development costs

Graham Dukes, of the University of Oslo, Norway, asked whether the prices of medicines really do have to escalate. “There is an assumption that the prices of medicines are escalating and that this is due to the costs of research and development (R&D). However, this is not necessarily so,” he said. He was speaking at a practice symposium, entitled “Thinking the unthinkable”, on 8 September.

“Opinions on whether costs of medicines are continuing to rise vary depending on whom you ask,” he said. In the US, the amount spent on drugs is growing at 12 to 18 per cent a year. This is caused by increasing prices and also by an increase in the quantities used and a shift from low cost older drugs to high cost newer drugs. However, other trends, including increased use of generics, means that drugs can be used at reduced cost, a feature in both developed and developing countries.

Turning his attention to the role of health services providers, he pointed out that they are becoming increasingly astute at negotiating prices to keep the costs of medicines within reasonable limits. They use a variety of approaches to achieve this, he explained, one of which is to calculate the average price for a drug class and persuade prescribers not to prescribe drugs whose price exceeds that average.

According to Dr Dukes, the most successful of all the cost containment schemes is the Australian pharmaceutical benefits scheme, which measures the acceptable price of a

drug in terms of its medical and social value. “This provides an incentive for research in that successful innovation carries a commensurate reward,” he said.

He went on to describe an Australian study which looked at the prices of 150 drugs worldwide. The lowest prices were found in Australia, with similar prices in New Zealand and France. Prices in the UK, Sweden and Canada were 50 per cent higher, while those in the US were 80 to 100 per cent higher. “Only now is the US beginning to get to grips with drug prices — through the health benefit organisations,” he said.

New drugs are likely to be higher priced, and if prescribers can be induced to prescribe them, expenditure will increase, he said. Using hypertension as an example, he explained that most cases can be dealt with by thiazides and beta-blockers developed in the 1950s and 1960s.

“Prescribers often turn to newer drugs which are not necessary for the majority of patients. Expenditure is not just about price but about drug selection, and prescribing costs are falling in some countries.”

Dr Dukes went on to examine to what extent prices are determined by manufacturing and R&D costs. These figures are not easy to obtain, but US figures from 1999 suggest that manufacturing costs reflect 28 per cent of the price, R&D costs 13 per cent of the price with marketing, administration and advertising accounting for 48 per cent of the price, he said. “However, these figures may not be



Graham Dukes: successful innovation carries a commensurate reward

reliable and manufacturing is more likely to represent 10 per cent of the price, but the true costs of R&D are somewhat vague.”

Describing a 1991 study conducted by Tufts University, US, he said that the researchers had calculated the average cost of developing a new drug to be \$114m, a figure

Patients should be involved at all stages of the drug development process

Robert Johnstone, a rheumatoid arthritis patient from the UK, highlighted the importance of the involvement of the patient at all stages in drug development. Having suffered from RA for 50 years, he said that, in his experience, patients have not been sufficiently involved in the past. Speaking on 8 September, he said: “Modern patients want more than relief of symptoms — they want a role in the process. The process of drug development should be made more open to everyone.”

With chronic conditions now accounting for 46 per cent of the global burden of disease, the patient’s view should be taken on board, he argued.

“Patients with such conditions have to take medicines for life, and they need to develop skills in managing pain and the stress associated with their condition. Disabled patients (eg, those in wheelchairs) experience many obstacles and external prejudice in day-to-day living. Negative attitudes become internalised in people’s psychology and there is a need for changed attitudes in society. All patients want a good quality of life, not only in terms of control of their condition, but also socially and psychologically.”

Patients should be involved in decisions on their health care management, he said. This is because health care ultimately affects their lives. Moreover, patients



Robert Johnstone

are experts in their condition, something which the UK has recognised by developing the term “expert patient” and using patients in the research process. Involving the patient also helps to overcome a number of obstacles in the wider context, such as distrust of new medicines and sensational media hype. Patients can also help to work through the political and regulatory barriers, so minimising the time lag between research and launch of the medicine. “The entire research process, including the assessment of results, should involve the patient,” said Mr Johnstone. “These days, well-informed patients understand that no drug will produce miraculous drugs and that no drug is free from side effects. However, fully involving patients in research helps them gain an understanding of the risk benefit ratio both for society and individuals. This also strengthens the lobbying potential with governments and health service decision makers.”

He went on to explain that patient involvement also helps to ensure the most cost-effective way of managing symptoms. Partnership will help to enhance adherence to treatment regimens and will shed light for patients on the roles of medicine, surgery, rehabilitation, complementary therapies and lifestyle decisions for their condition. This will increase patients’ levels of knowledge, confidence and motivation in the management of their disease.

In conclusion, Mr Johnstone said that involving patients is a win-win situation, not only for patients, who are better informed to manage their condition, but also for industry, which becomes increasingly efficient. It will also lead to more efficient allocation of healthcare resources, he added.

which had increased to \$800m by 2001. Other estimates have suggested R&D costs for a new drug to vary between \$100m and \$200m. "This raises questions about the figures used. Research is not cheap, but there has to be doubt about the high figures calculated by Tufts," said Dr Duker.

Turning to the question of the innovative quality of drugs coming on to the market, Dr Duker said that in 2000 only nine new innovative drugs had appeared in the US. The rest were either semi-innovative or non-innovative (eg, "me-too" drugs). Many innovative drugs appeared in some therapeutic areas (eg, erectile dysfunction), but not in others (eg, tuberculosis and malaria).

Another measure of the quality of innovation is the pattern of drug withdrawals. Of 13 drugs recently withdrawn from the US market, not one was found to have left a therapeutic gap, he said.

He went on to point out that innovative drugs are increasingly coming not from the

pharmaceutical industry, but from the national institutes and small "biotech" companies. Taxol, for example, officially came from Bristol-Myers Squibb, but it was the US National Cancer Institute that did the research work. However, national institutes are not so good at developing a drug molecule for market, he said. The problem with products from small biotech companies is that the prices are astronomical. For example, the cost of tissue-type plasminogen activator is \$2,000 per patient. This creates problems for a US hospital which may have a maximum of \$4,000 to treat a patient.

In conclusion, Dr Duker said there was a need for more openness in the world — that sharing information on successes and failures would help to promote good drug prices. "Containment of drug costs is not unthinkable, but there is a need for change in the way that drugs are developed, marketed and advertised. Finding ways of financing drugs which need to be financed is important."



Orphan and neglected diseases account for 90pc of global burden but get only 10pc of global R&D

Leslie Benet, director general of the Institute for OneWorld Health, US, discussed the development of medicines for neglected and orphan diseases. Highlighting the so-called 10/90 gap, he said that only 10 per cent of global health R&D is devoted to conditions that account for 90 per cent of the global disease burden.

Speaking on 8 September, he reminded the congress of the health problems in developing countries, which include lack of access to essential medicines, malnutrition and poor immune function. Huge numbers of people live with serious infection, he said. Malaria affects 273 million people worldwide, schistosomiasis affects 200 million, lymphatic filariasis 90 million, and leishmaniasis, a rapidly increasing disease, affects 14 million people. "Seventeen per cent of the world's population lives on less than \$1 a day while 42 per cent live on less than \$2 a day. All of these factors have worsened following the end of colonialism and military occupation," he said.

Going on to point out that diseases of the poor do not attract R&D investment, he said that of the 1,393 new drugs approved between 1975 and 1990, just 13 (1 per cent) were for tropical diseases. "This problem is an opportunity in that dozens of potential new medicines for neglected diseases exist. However, they are shelved for the lack of a viable market," he said. "Industry has no mandate to bring drugs for neglected diseases to market because it exists primarily to keep shareholders happy. It has the money, the capacity for research and development, and the ability to get regulatory approval for new



Leslie Benet: adequate funding exists if we do our jobs well

drugs, but profit is its *raison d'être*. Academia, on the other hand, which is not so motivated by profit, has the research capacity, but is limited by funds and the ability to bring a drug to market," he added. "Since no type of organisation has had the capacity and motivation to bring drugs for neglected diseases to market, a new business model is needed."

He told participants about the Institute for OneWorld Health, which was established in 1998 to fill this gap. An institute of pharmaceutical scientists, it is a non-profit pharmaceutical company, which identifies promising drug candidates in late stage R&D. It completes ap-

propriate animal and human studies, secures quality manufacturing and obtains regulatory approval in disease endemic countries.

Highlighting the achievements of OneWorld Health to date, Dr Benet said that it has funded diarrhoea and malaria programmes and this year has just brought its first new drug to market in India and Bangladesh. Funding is being sought for research into malaria in pregnancy, an area that the public sector does not want to touch, he said. "Companies cannot study safety and efficacy of new drugs in pregnancy because of legal liability." In partnership with the University of California, OneWorld Health is also working on a biotech approach to engineer new genetically modified bacteria to make anti-malarial drugs, such as artemisinin, affordable for all. Paromomycin, a safe, effective and affordable drug offering a life-long cure for leishmaniasis, is currently in phase III clinical trials. Discontinued in the first world, this antibiotic is set to be an effective new cure for a fatal disease, he said.

He explained that OneWorld Health does not compete with the pharmaceutical industry and does not duplicate available resources. "Industry and academia are willing to share numerous drug candidates. Focusing on drug development not research, it can be the bridge between industry and the public sector, creating a scenario where everyone wins. With the capability to have a major impact in the world, its goal is to fulfil the promise of medicine for the developing world. We are trying to think the unthinkable. Adequate funding exists if we do our jobs well. We believe that we will succeed," Dr Benet declared.