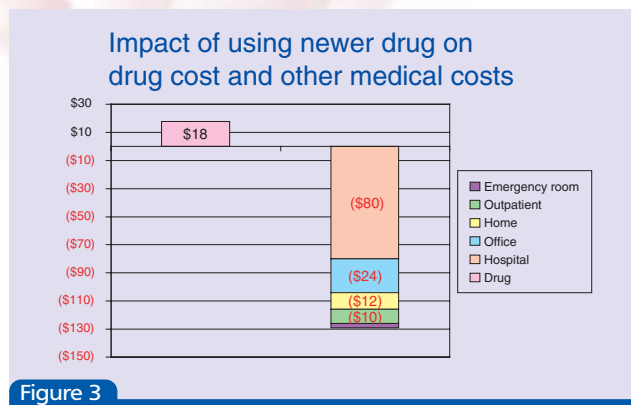


others. The reduction in such costs is estimated at US \$71. Therefore, while the price of the drug alone may be more expensive, it can diminish the overall healthcare cost. This can be linked back to the fact that most new drugs are safer and more efficacious than their older counterparts.

In fact, a recent update of these 2001 findings suggested larger cost reductions: other medical costs are pared down on average by US \$129 (Figure 3).



These results control for confounding factors, both observed (eg, age, sex, race, education, disease duration, number of comorbidities) and unobserved (eg, physician's practice style).

Productivity

In general, illness and disability decrease productivity in two ways. They reduce the size (number of people) and number of hours worked per member of the labour force.

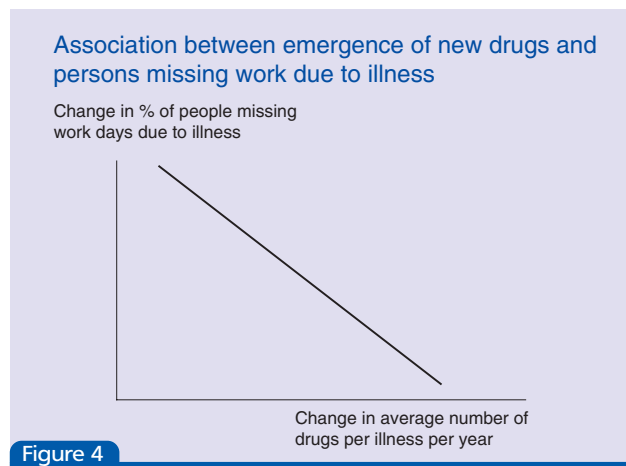
A survey showed that about 15% of Americans aged between 55 and 64 years retire early due to illnesses. Additionally, the average worker misses about 5 days of work every year, again due to illnesses or disability. In 1996, this translated to 8.7 million Americans not working at all – a 6.6% reduction in workforce size – and about a 2% decrease in the working hours of the currently employed. (Professor Lichtenberg based his calculations on *Current Estimates from the National Health Interview Survey [1996]* and *National Center for Health Statistics Vital Health Statistics [1999]*.)

In summary, this means that illness reduces total productivity by 8.6% or a loss of 20 billion work hours per year.

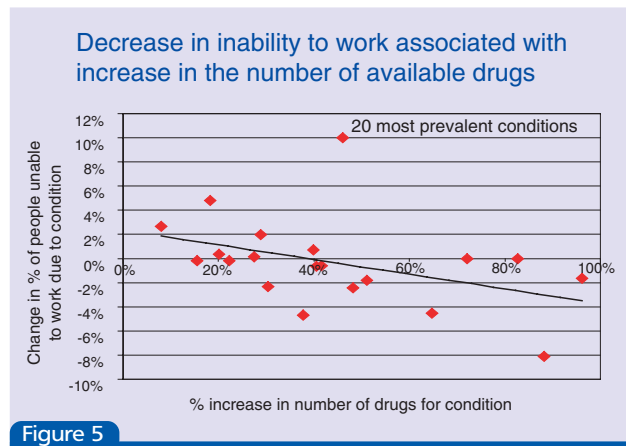
However, the introduction and use of new drugs can diminish such illness-associated reductions in productivity through an increase in the total number of hours worked. This can be established by measuring the change in missed workdays and comparing it against the

average number of prescriptions for each condition per year and the increases in the number of drugs approved for the disease.

Professor Lichtenberg showed that the greater the change in the average number of prescriptions written between 1996 and 1998, the greater the reduction in the proportion of patients missing work due to illness. In other words, diseases that can be treated by many new drugs tend to be conditions associated with an above-average decline in the ability to work (Figure 4).



Correspondingly, an increase in the number of drugs available is associated with a decrease in the inability to work. (Figure 5).



Conclusion

The evidence above demonstrates that new drugs increase longevity by 3 weeks yearly at highly favourable cost-benefit ratios. Newer drugs reduce overall healthcare expenditure by at least four times as much as it increases drug costs. In addition, innovative medicines confer greater productivity in the labour force.



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Welcome to Pharmafocus, the newsletter of Singapore Association of Pharmaceutical Industries (SAPI).

Pharmafocus replaces 'SAPI News' as our key communication medium. The new look and design reflect the industry dynamism and renewed focus of SAPI as the voice of all R&D based pharmaceutical companies. Pharmafocus will be distributed to industry members and key stakeholders such as medical associations, allied professional and governmental bodies, and it will communicate SAPI's positions on healthcare related issues affecting the industry. The awareness generated by Pharmafocus will contribute to an improved public image and enhanced credibility of the industry as an indispensable partner in healthcare providence.

We trust that Pharmafocus will be a useful information source for you.
Enjoy the pages ahead!

Pharmafocus editor

ANNOUNCEMENT - New Board of Directors (2004/2005)

SAPI is pleased to announce its new Board of Directors. Congratulations to the board members on their appointments!

President:	Ms Annie Chin	Managing Director	Merck Sharp & Dohme
Vice-Presidents:	Ms Linda Seah Mr John R Latham	Managing Director Managing Director	Novartis Pfizer
Directors:	Mr Takara Kitaguchi Mr Jason Humphries Mr Sameer Savkur Mr Samuel Poux-Guillaume Mr Jorge Bartolome Mrs Tan Shew Leng Ms Florence Leong Dr David Kandela Mr Giuseppe Leo	Marketing Co. President General Manager Country Manager Country Manager Managing Director General Manager General Manager Regional Gen. Manager Chief Executive	AstraZeneca Bristol-Myers Squibb Eli Lilly Lab Fournier GlaxoSmithKline Rx GlaxoSmithKline CHC Sanofi-Synthelabo Servier Zuellig Pharma

Second SAPI Colloquium: The Value of Innovative Medicines

"Innovation is the driving force behind pharmaceutical research and development and the government's efforts in establishing Singapore as a biomedical hub in the region," commented Ms Annie Chin, President of SAPI, at the Second SAPI Colloquium and Dinner on November 4, 2003 at the Shangri-La Hotel, Singapore.

"Indeed, pharmaceutical innovation and new drugs are key factors influencing reductions in hospitalisation and the need for additional interventions, as well as improvements in quality of life and health. The role of medical innovation cannot be trivialised. We now live in a time of unprecedented progress, when advances in knowledge about the human genome, pathways of disease and new research tools promise even further advances in medical treatments," said Ms Chin in her opening address.

But the promise of new discoveries is entwined with a complex business environment. How can the pharmaceutical industry work to enhance discovery and at the same time, preserve intellectual property rights and ensure recognition and appreciation of medical innovation?

Medicines currently account for about 9% of total healthcare costs in Singapore. Overall healthcare spending has become a concern, and tough questions are being asked about the roles and responsibilities of pharmaceutical companies.

At the Second SAPI Colloquium, regional, international and local experts sought to answer these questions from the perspective of the government, the industry and health economics. The highlights of the discussions appear below.





THE COSTS AND RISKS IN PHARMACEUTICAL R&D



Shannon Hertzfeld
Senior Vice President
International Division, PhRMA, US

The US pharmaceutical industry has much to be proud of. In 2002, it contributed US \$32 billion to R&D – higher than what was spent by any other sector. The R&D monies invested as a proportion of sales was greater than that spent by IBM, Boeing and Microsoft, with solid results to show for it. At the end of 2002, the pharmaceutical pipeline contained more than 1,000 medicines. But the challenges and science remain the same.

Out of every 15,000 molecules investigated, only three will become approved drugs for human consumption and just one will make a profit. That is why incurred drug costs now exceed US \$800 million.

In the US, however, the American population is falling in love with the idea of pharmaceutical price controls and parallel trading. Healthcare policy and industrial policy are inextricably linked. These forces are coming together in the context of legislation for prescription drug coverage for seniors. Done right, it is a boon for the elderly population, their caretakers and the pharmaceutical industry. But done wrong, it can disrupt the balance away from those free market conditions upon which the pharmaceutical industry depends.

The key to maintaining this balance is to remind policymakers just how valuable the US pharmaceutical industry is. Pharmaceutical companies are a high-tech cornerstone of the US economy and their innovative products are an essential element of modern public health. Health workers and the economy support each other. Those who portray healthcare cost control as a zero sum game do so only for short-term political gains – it is not a pathway for long-term sustainable economic development.



INNOVATION: THE REAL HOPE TO REDUCING HEALTHCARE COSTS



Dudley Schleier
President
Pfizer, Asia Pacific

The pharmaceutical industry has contributed to a significant part of the transformation of the Singaporean economy, through investments and job contributions. However, many countries in Asia are now implementing market-oriented reforms – taking the opportunity to revise healthcare systems that are currently improving the wellbeing of their citizens, and also contributing to the productivity and growth of their economy. These governments are striving to restrain

healthcare spending within the artificial boundaries of a particular percentage of their countries' gross domestic product, but these efforts often fail because of flaws in the underlying healthcare system. The innovative financing of healthcare in Asia should be encouraged.

The public and the government commonly associate any increase in healthcare spending with a “healthcare crisis.” This concept must be discarded. Societies today are spending far more on computer technologies than they did 15 years ago, and yet no one is complaining about a “computer crisis.” It is false to assume that innovation is the enemy of cost. In fact, innovation is our only real hope for reducing healthcare costs by lowering the true cost of diseases, according to Mr Schleier.

Ageing populations, new diseases and other factors have placed an enormous strain on the healthcare systems of some countries. But at the same time, new technological fields, such as genomics, promise opportunities and discoveries – and when that time arrives, wealth will become inevitable. The recognition of the value of innovative medicines is an integral part of such progress.

NEW DRUGS: HEALTH AND ECONOMIC IMPACTS



Frank Lichtenberg, PhD
 Courtney C Brown Professor of Business,
 Columbia University, US
 Research Associate, National Bureau of
 Economic Research, US

entities that were already available, such as generic drugs, did not appear to increase longevity.

Life expectancy also increased by about 2 years in the countries studied between

1986 and 2000, and the findings indicate 0.8 years of this increase – 40% – was due to new drugs (Figure 2). On average, the annual increase in life expectancy of the entire population attributable to new medications was 0.056 years, or 3 weeks. This translates into a highly favourable cost-benefit ratio.

Is disease mortality inversely related to the number of drugs available? Does the use of newer drugs reduce hospitalisation and other non-drug costs, as well as enhance the working ability of people with medical conditions? According to Professor Lichtenberg's health economics research, the answer is yes. Findings in this area have shown that the introduction of innovative drugs can confer important benefits to society by extending longevity, lowering medical expenditures and increasing productivity. More importantly, such advantages can exceed the cost of the new medicines by a substantial margin in empirical terms.

Longevity

According to data from the US Centers for Disease Control and Prevention, the age-adjusted breast cancer mortality rate climbed gradually between 1979 and the mid-1980s, levelled off and then declined sharply in the mid-1990s.

This decline can be attributed to many factors, one of which may be the recent increase in new breast cancer drugs introduced. While only two new drugs were approved between 1979 and 1985, drug development accelerated from 1987 to 1996, during which eight new medications were launched. The real explosion occurred after 1995, when 12 new drugs were introduced within a period of 4 years. This drug approval trend correlates closely with the declining pattern of breast cancer mortality (Figure 1).

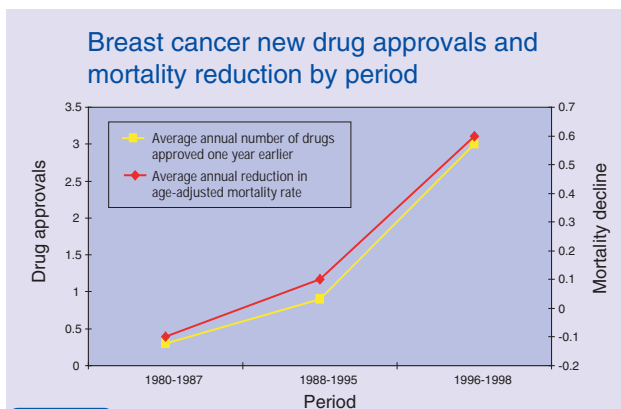


Figure 1

Results from a recent longitudinal study comparing the mortality rates of 11 broad disease categories between 52 countries showed that the launches of new chemical entities are associated with a strong positive impact on survival. Interestingly, re-launches of older chemical

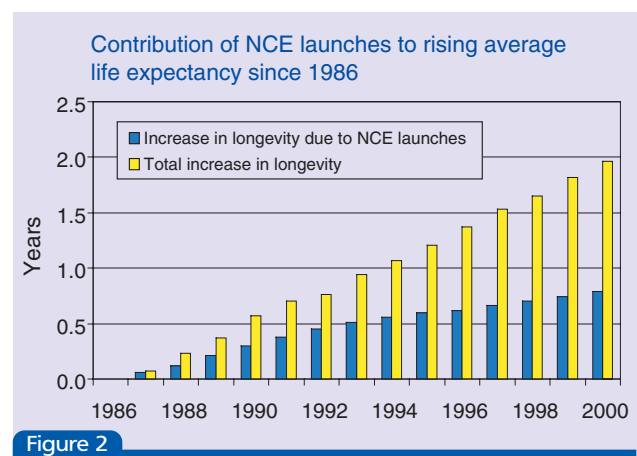


Figure 2

NCE = new chemical entity

Pharmaceutical spending per capita in member countries of the Organisation for Economic Cooperation and Development averaged US \$250 in 1997. Based on this estimate, the cost per life year gained from new drug launches works out to about US \$4,500 (pharmaceutical spending per capita US \$250 will increase average life expectancy by 0.056 years). In other words, it costs US \$4,500 to extend life by one year. This is a figure lower than what many people are willing to pay to extend their lives.

Medical expenditures

Innovative medicine can reduce medical expenditures. In fact, the newer a drug is, the greater the reduction observed in hospitalisations, total medical costs and lost workdays associated with that drug.

In a study published in *Health Affairs* in 2001 comparing the total medical expenditures of people using new drugs to those using older alternatives, the reduction in medical spending associated with a new drug was almost four times greater than its additional cost.

For instance, if a 15-year-old drug was replaced with one approved 5 years ago by the US Food and Drug Administration, the drug cost alone goes up by an average of US \$18. However, this increase is accompanied by a fall in the use and costs of medical services, such as hospital stays, home healthcare, outpatient visits and