

The market for cancer treatment is expanding as sufferers of the disease grow in number. GlobalData's **Balasubramanyam Nistla** examines the main players, key drugs and how generics will change the face of the industry.

THE FUTURE OF ONCOLOGY

Cancers are a group of diseases characterised by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by external factors (tobacco, chemicals, radiation and infectious organisms) and internal factors (inherited mutations, hormones, immune conditions and random mutations). These causal factors may act together or in sequence to initiate or promote carcinogenesis. Ten years or more often pass between exposure to external factors and detectable cancer. Depending on the stage of the disease, cancer can be treated by surgery, radiation, chemotherapy, hormone therapy, biological therapy and targeted therapy.

The research and development of oncology therapeutics is mainly driven by substantial investments and commercial considerations rather than public health priorities as private investment is much higher than the public investment. The investment on research and development of cancer drugs comes from public (government and charities) and private (private equities and others) entities. It has been estimated that on average pharmaceutical companies spend between \$6.5 billion and \$8 billion per year on cancer research.

The oncology pipeline is the richest in terms of numbers with more than 2,000 molecules under development. There

Contributor profile



Balasubramanyam Nistla is an analyst working with GlobalData. He has over two years of experience in the healthcare industry and has been tracking major pharmaceutical companies since then. He is a graduate from BITS, Pilani, one of the reputed undergraduate schools in India, with B.Pharm (Hons) degree.

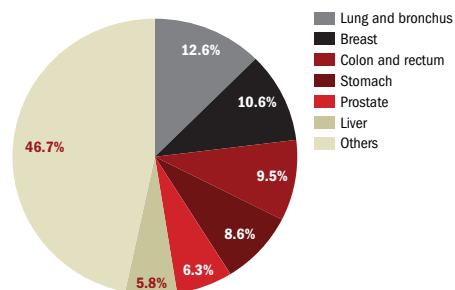
are more than 80 molecules in late-stage development, which are expected to break into the market over the next seven years. However, approximately 40% of these molecules are termed as 'me too' products – copycats of the established and successful blockbuster drugs. As a result, by 2015, many of the cancer indications are expected to get crowded by the launch of these 80 molecules.

Epidemiology

The World Health Organization (WHO) projected global cancer deaths to increase from 7.9 million in 2007 to 11.5 million in 2030, indicating a growth rate of approximately 45% between 2007 and 2030. Over the same time period, the number of new cancer cases is expected to grow from 11.3 million in 2007 to 15.5 million in 2030. In 2007, the highest number of new cancer cases was registered for

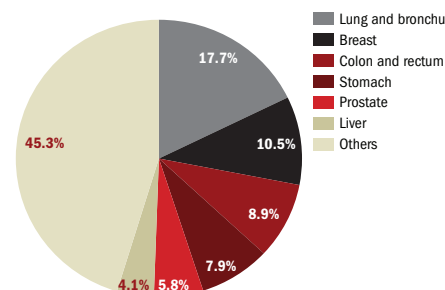
lung cancer, followed by breast cancer and colorectal cancer. In males, lung and bronchus cancer was the most common with an incidence population of 1,108,731 followed by prostate cancer 782,647 and stomach cancer 691,432. In females, breast cancer was the most common with an incidence population of 1,301,867 followed by cervix uteri 555,094 and colorectal cancer 536,662.

Figure 1. Global cancer incidence by tumour type 2007



Source: American Cancer Society

Figure 2. Global cancer mortality by tumour type 2007



Source: American Cancer Society

In an attempt to contain the mortality rate of this disease, WHO developed a strategy in 2005, 'Cancer Control: Knowledge into Action – WHO Guide for Effective Programs', a series of six modules aimed at supporting member states to develop strategies to improve prevention, treatment and care of cancer patients. However, global cancer incidence rates are still rising, with developing countries accounting for the major share. In contrast, incidence and mortality rates in the US are declining, according to statistics released by the American Cancer Society (ACS). ACS stated that cancer-related mortality rates have declined over the past 15 years. Nevertheless, in 2006, cancer still remained one of the leading causes of death next to cardiovascular diseases.

In 2007, the highest number of deaths (1,351,034) was recorded in lung cancer followed by stomach cancer and liver cancer. In males, the highest number of deaths took place among lung and bronchus cancer patients (974,624) followed by stomach cancer (511,549) and liver cancer (474,215). In females, the most deaths were recorded among breast cancer patients (464,854) followed by lung cancer (376,410) and cervix uteri (309,808).

Market overview

In 2008, the cancer therapeutics market in the 'top seven geographies' was estimated at \$49.6 billion, indicating a year-on-year growth rate of approximately 13.3%. The market is forecast to grow at a CAGR of 9% between 2008 and 2015 to record a sales value of around \$90.8 billion. The growth for the next seven years has been forecast at such a moderate value because of financial constraints of payers, restrictive pricing and reimbursement policies, expected shrinkage of new blockbuster drugs and patent expiration of more than five oncology drugs with annual sales exceeding \$1 billion. However, drivers including increased used of target therapies such as Herceptin, first-time innovations coming to the market and longer treatment periods for a growing number of patients have contributed to the positive growth of the market. Increased popularity of HPV vaccines Gardasil and Cervarix also fuelled the growth of the market. Furthermore, growth in the market was driven by the rising incidence rates due to the ageing population and evolution of new cancer segments.

Roche/Genentech, Novartis and Sanofi-Aventis control the market

Roche strengthened its hold on the cancer market through the acquisition of Genentech in 2009. Its key products include MabThera, Avastin, Herceptin and Tarceva. Avastin, Rituxan and Herceptin are expected to gain more market share. More than 450 clinical trials are being conducted on Avastin with an approximate target population of 40,000 in over 30 different tumour types. The results of key trials such as AVANT, BETH, AVAGHAST and BERNIE are due to be released and are expected to yield high positive results.

The company is conducting more than 130 clinical studies with Tarceva at earlier stages of lung cancer. Tarceva is being tested in combination with other treatments such as Avastin to evaluate life-extending benefits for patients with non-small cell lung cancer. Studies are also being conducted on Xeloda and Herceptin to extend their usage to various other cancer segments. Roche is also building up a strong pipeline in oncology, with approximately 13 new molecules in pipeline. In 2008 Rituxan, the company's leading oncology drug, recorded sales worth \$5.5 billion with a growth rate of 19% over 2007. In the same year, Avastin generated sales worth \$4.8 billion. By 2015, Avastin is forecast to lead the cancer market with estimated sales of \$9.5 billion by 2015. Xeloda, the first therapy approved by the US Food and Drug Administration for the treatment of metastatic breast cancer and colorectal cancer, generated revenues of \$1.1 billion. Rituxan is expected to go off patent by 2015. However, it may not affect the company's market share in oncology as the company owns other key cancer drugs to withstand its position.

Novartis has seven oncology drugs in the market. In 2008, they generated revenues of \$7.9 billion, positioning the company as the third-largest operating in the oncology market. Its blockbuster brands, Gleevec, Zometa, Femara and

Figure 3. Cancer therapeutics market, global revenue forecasts (\$ billion) 2000–2015

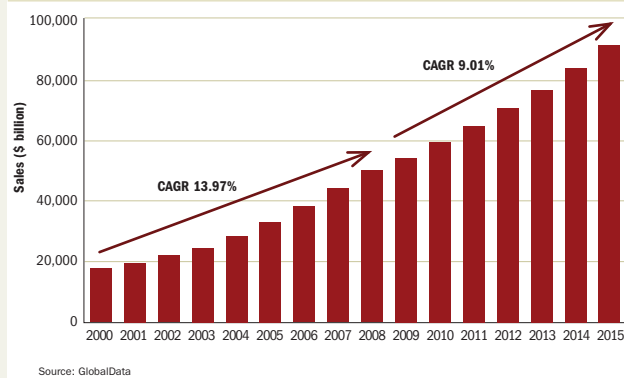
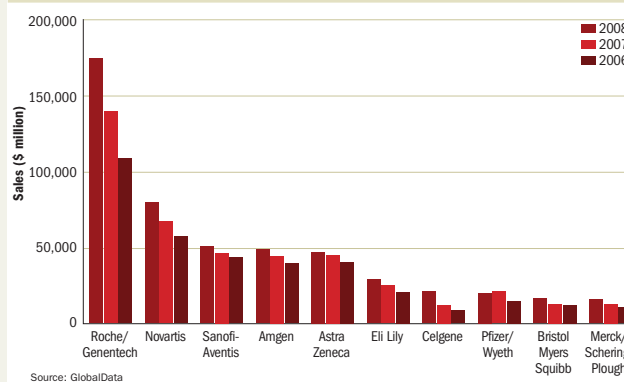
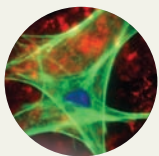


Figure 4. Top ten companies in global cancer therapeutics market 2008 (by sales value)





Sandostatin, are listed under ‘more than one billion dollar’ products. The company’s future growth in the market is very optimistic. It has seven new chemical entities (NCE) in late-stage development and all these molecules are expected to hit the market within the next three years. Similar to the other major companies operating in this therapeutic class, Novartis too is conducting research on follow-on indications for its existing brands in the market. Zometa is indicated for intravenous bisphosphonate therapy for patients with cancer that has spread to the bones. Clinical trials have indicated that addition of Zometa to hormone therapy is effective in reducing the risk of recurrence or death in premenopausal women suffering from early-stage breast cancer.

In 2008, the oncology segment generated sales worth \$7.9 billion, a growth rate of 18.8% compared to 2007. Gleevec, Novartis’ leading brand, recorded a sales value of \$3.7 billion indicating year-on-year growth rate of 20.3% over 2007. Zometa, which is indicated for various cancers, was the second leading brand with sales generation of \$1.4 billion. The company’s sales are forecast to grow until 2011 with the launch of key drugs such as Afinitor (2009) and success of new drugs such as Tassigna. The sales of the company are expected to decline from 2012 because of the patent expirations of key brands Zometa and Femara.

Sanofi-Aventis is the third-largest company operating in the oncology segment. It has two brands, Eloxatin and Taxotere, under its oncology product portfolio. The company’s focus is to offset the loss it will witness from the patent expiry of its blockbuster brand Taxotere. Sanofi-Aventis has six new molecules in late-stage pipeline. Many of these molecules are indicated for niche segments such as adjuvant and adjunctive therapies. Other molecules are indicated for large sectors such as metastatic breast cancer and prostate cancer. The company’s next promising drug is expected to be BSI-201, indicated for patients diagnosed with triple negative breast cancer.

In 2008, the company’s oncology segment revenue was recorded at \$4.9 billion indicating year-on-year growth rate of 7% over the previous year. Taxotere, the company’s leading oncology brand generated sales worth \$3 billion while Eloxatin, which accounted for 40% of the company’s oncology sales, generated sales worth \$2 billion. However, by 2015, oncology sales are forecasted to decline at a CAGR of 12.8% and generate sales worth \$1.9 billion by 2015. The significant decline can be attributed to the patent expiry of Taxotere in 2010.

Rituxan, Neulasta, Avastin and Herceptin to continue dominance

In 2008, the top 20 cancer therapy brands in the seven major markets contributed approximately 85% to global cancer therapy brand sales. With the industry growth rate estimated at a CAGR of 9% until 2013, the top 20 brands are expected to account for 80% of the total global sales.

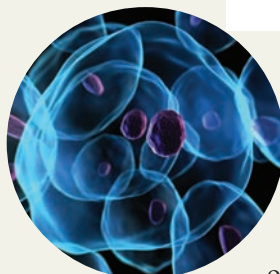


Figure 5. Top ten therapies in global cancer therapeutics market 2008 (by sales value)

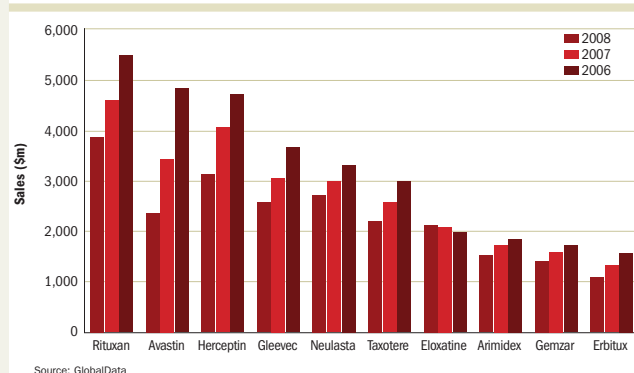
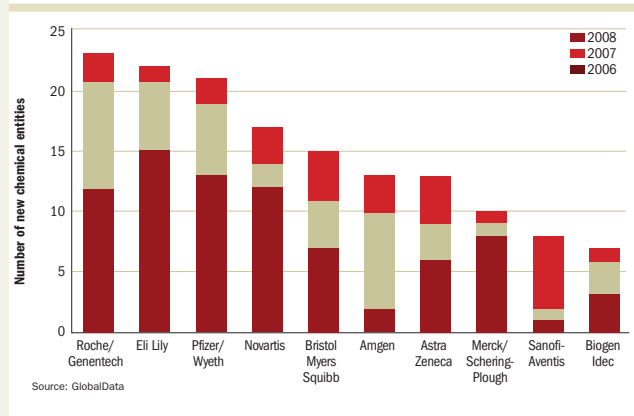


Figure 6. Oncology R&D pipeline of the top ten companies 2009



Targeted therapies are expected to dominate the top 20 cancer brands leader board, accounting for 12 of the top 20 brands in the seven major markets in 2013. Avastin is forecast to become the leading cancer therapy brand, facilitated by further indication expansion and high physician familiarity. Genentech/Roche is the dominant force in the market with an oncology portfolio including the three leading cancer therapy brands (Rituxan, Avastin and Herceptin). The merged entity is set to continue its dominance, with Rituxan, Avastin and Herceptin forecast to remain the top three brands by 2017, achieving aggregate sales of over \$23 billion.

Monoclonal antibodies rule the oncology market. They feature in four out of the top ten oncology products list in 2008; the three leading drugs, Rituxan, Avastin and Herceptin are all monoclonal antibodies. By 2015, monoclonal antibodies are expected to feature in at least half of the top ten products.

Mounting competition with new molecules

The oncology pipeline is looking promising. According to Global Data statistics, approximately 90 molecules are in late-stage development (Phase III and filed for regulatory approval) and approximately 50% of these are targeted

therapies. The majority of companies involved in cancer research are developing new molecules targeted for a niche cancer segment. Many molecules under research fall under the category of targeted therapies, such as small molecule receptor inhibitors and neutralising antibodies of one or more of the VEGF, EGFR, TKI and HER2 proteins. Most target therapies either prevent cancerous cell growth or reproduction or both while others target apoptosis, otherwise called programmed cell death.

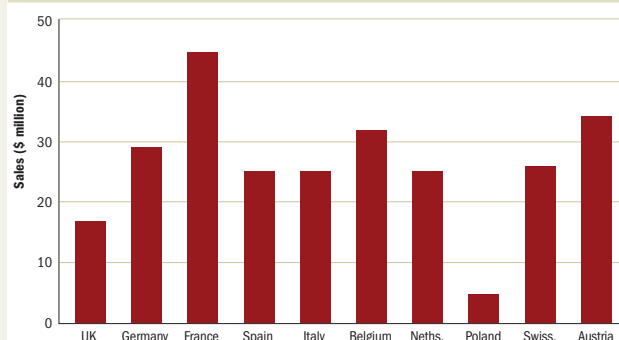
Similarly, target therapies in haematological indications such as leukaemia either boost the immune system or selectively target cancerous cells. The prices of the targeted therapies such as Herceptin have been set high and are rising. The high pricing policy can be attributed to the risks involved in researching and developing these compounds. Though these targeted therapies are priced higher than their existing competitors, many of them are only slightly modified compounds in comparison to established precursor drugs. As a result, the high prices set for them are not justifiable. In the US, uptake on new products is already slowing. Physicians and payers are requiring evidence of drug efficacy, and a positive cost vs benefit ratio before making the move to adopt newer therapies in areas where treatments already exist.

As the choice of treatment grows and research extends the range of indications, new molecules will find it harder to succeed.

The cancer market is getting crowded due to the growing influx of new molecules. With up to 55 new chemical entities entering the oncology market in the next five years, the potential for overlapping indications and mechanisms of action may further reduce the volume opportunities for these products. As the choice of treatment grows and research extends the range of cancer indications that therapies can address, new molecules will find it much harder to succeed. This is a relatively new phenomenon and is expected to alter the economics of the business. Physicians are also becoming more selective in their therapy decisions and drugs that have been proved to be more effective than their competitors are preferred.

Without significant increases in survival, the volume opportunity for new products will be diminished and divided. As a result, there will be pressure to push up prices in order to maintain revenue opportunities. Nevertheless, the probability of success with this strategy is expected to go down since products which expand beyond their initial niche indication will have to prove the value for money, since payers will have the means to compare and prioritise treatment options. Therefore, it is advisable for companies to reengineer their strategies and expectations for the upcoming launches in this market.

Figure 7. Oncology drug spending in major European countries



Source: GlobalData

Spending

With rising prices of cancer drugs and increasing incidence rates of various cancers, spending on cancer drugs has risen faster than spending in many other areas of healthcare. In 2007, expenditure on cancer drugs accounted for 10–20% of spending on cancer care and about 5% of total drugs expenditure. With the leverage that comes from having treatment choices and the pressure that comes from escalating total costs, payers are seeking control on drugs' use and their prices.

The UK's Department of Health stated that the country spends about \$112 per person on cancer care each year. In comparison, France and Germany spend more than \$177 per person. As per the records of the National Institutes of Health, in the US, direct medical costs for cancer care were about \$295 per person.

In the US, Medicare spending on cancer drugs has surged in the past few years. The Medicare Part B is primarily dominated by cancer drugs. In 2007, Medicare paid \$2.4 billion for cancer drugs (New York Times, 1/27). Private insurers, who 'typically follow Medicare's coverage guidance', spent nearly \$45 billion annually on cancer drugs. To provide patients with access to cheaper and alternate treatment options, Medicare changed its policy in 2008. In this policy, Medicare expanded coverage of drugs with off-label uses to treat cancer patients. This new policy is expected to encourage patients, who could not undergo treatment due to high drug prices, to undergo treatment at affordable prices. **WPF**

GlobalData

GlobalData provides industry-leading decision tools, metrics and analysis for executives in the medical industry. Subscribers to its Premium Desktop Services receive access to unique databases, news and opinions, and research reports, all of which are fully integrated with innovative desktop tools for easy search, browse and data access. GlobalData's Report Store features thousands of high-quality research reports across a broad range of industries. www.globaldata.com