Chapter 5
The Role of the Pharmaceutical Industry

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Box 5.1: Learning objectives for chapter 5

By the end of this chapter you should be able to:

· Describe the origins and development of the pharmaceutical industry.
· Explain the structure of the industry.
· List the principal partner organizations for the pharmaceutical industry.
· Describe the principal activities of the industry.
· Explain the role of the industry in medicine research and development.
· Explain the difference between primary and secondary manufacturing.
· List the key markets of the pharmaceutical industry.
· Explain the major implications of the globalisation of the pharmaceutical industry for developing countries.

5.1 Introduction

In this chapter we turn to the development of modern pharmaceuticals and to their production. As we saw in chapter one, for most of human history traditional medicines were the only forms of medicines available. The major developments in therapeutics came about only in the second half of the twentieth century. The main funders of research and development into new medicines and other health products have been governments, through public research laboratories and universities, and pharmaceutical manufacturers in industrialized countries. Recent decades have seen an enormous expansion of the pharmaceutical sector, and a consolidation into a relatively small number of very large transnational corporations (TNCs).

Today, the global pharmaceutical industry finds itself at the centre of debates about not only the availability and affordability of pharmaceuticals in developing countries but also the costs of medicines in developed countries. This chapter provides a basic introduction to the industry, and locates it within the broad context of international health. In doing so it explores six main themes: the origins and development of the pharmaceutical industry; the structure of the pharmaceutical industry; the pharmaceutical industry’s partners; the principal activities of the industry;
the markets for the industry’s products; and the role of the pharmaceutical industry in international health.

5.2 The origins and development of the pharmaceutical industry

As a manufacturing sector the pharmaceutical industry today is still very young. Its modern history spans only the last fifty years or so from the end of the Second World War. Yet pharmaceutical manufacturing has much earlier beginnings, and these origins have been different in different countries. In the United Kingdom, for example, a number of the businesses of apothecaries and chemists and druggists had, by 1870, already developed into manufacturing firms, typically for the large-scale production of chemicals and extracts of natural substances.

5.2.1 Foundations in the chemical industry

Mergers and acquisitions were taking place in the chemical industry long before the twentieth century, and today’s pharmaceutical companies can often be traced back to these. For example, a flurry of activity followed the discovery of chlorine by Scheele in 1774. Numerous facilities for the manufacture of chlorinated lime were established, such as the Saint Rollox Chemical works in Glasgow founded by Charles Tennant in 1797. This facility became the United Alkali Company, which grew to become one of the four great companies which merged in 1926 to form Imperial Chemical Industries Limited (ICI). After the Second World War ICI established a pharmaceuticals division that split off in the 1980s as a separate company, Zeneca. In the early 1990s Zeneca merged with Astra, to form what became the fourth largest pharmaceutical company in the world, AstraZeneca.

There was another important strand in the development of the modern pharmaceutical industry, and that was the aniline dye industry. The industrial revolution had been powered by the carbonization of hard coal, which produced coal gas and coke but left coal tar behind. It did not take long to discover that coal tar was a rich source of dyes, and that these could be turned into almost any colour by relatively simple chemical modification. The first aniline dye was made by accident in 1856 by an English chemist, William Perkin, as he was trying to synthesise the anti-malarial agent quinine. Companies including Bayer, Hoechst, Ciba and Geigy all began business by manufacturing a range of products, including dyes and pharmaceuticals, from coal tar.

5.2.2 The therapeutic revolution

By the early twentieth century there were already in existence a substantial number of quite large pharmaceutical companies, with a diversity of origins in a variety of countries, mainly in Europe and America. Discoveries in the early decades of the