Summary

Epidemiologists often say that diseases are multifactorial, but it is not at all clear what this means. In one sense, everything is multifactorial, so the claim is trivially true; therefore this cannot be what is meant. In this chapter we seek to understand the true significance of multifactorial thinking as a reaction to the *monocausal model of disease*, a conceptual innovation of the nineteenth century. We seek to explore the effect of multifactorial thinking about disease on medicine in general, as well as epidemiology. The effects are not entirely positive. The monocausal model is not well suited to the diseases that are of greatest interest to modern epidemiology, but it had virtues nonetheless, which have been jettisoned along with the numerical restriction on the number of causes (of a certain sort) that a disease may have. We therefore explore the prospects for developing another model of disease that allows multiple causes and yet preserves the idea that diseases ought to share some common aetiology and ought to be classified according to their shared causes. This *contrastive model of disease* chimes with the explanatory theme of previous chapters, since it imposes on diseases the requirement that they admit of a common explanation.1

Epidemiology and the scope of medicine

Some philosophers have supposed that the notion of disease is nothing other than that of absence of health and vice versa (Boorse 1977, 542). It does not take much inquiry into the concept of disease, historical or contemporary, to see that this is mistaken. Disease, we shall see, is a certain *kind* of ill health. Fundamentally, the problem we address in this
chapter is that epidemiological methods do not respect this fact: they are not confined to any particular kind of ill health, and this exerts an expansive pressure on medicine and raises a troubling conceptual question about the nature of disease.

In principle, epidemiology can assess associations in a population between any two variables whose values can be empirically detected. Within these incredibly broad limits, the only restriction on epidemiological inquiry that is ever explicitly discussed is its disciplinary concern with improving population health. As a consequence, epidemiology can but exert an expansive force on the domain of medical interest and the domain of public health policy.

This force takes two forms. Epidemiology identifies new causes of disease and so encourages the medical profession and health policymakers to attend to these causes, even when they fall outside what would traditionally have been regarded as their concern. This is particularly noticeable in the increased emphasis in medical practice and health policy on prevention of disease in healthy patients. For example, arrangements exist in some jurisdictions for general practitioners to prescribe exercise at local authority gyms. It is also noticeable in the political engagement of medical bodies – for example, in debates around the regulation of food packaging and advertising. Doctors no longer concern themselves solely with healing injury and curing disease. Health policy has always concerned itself with basic hygiene and nutrition, of course, as well as access to medical care. What is changing is the idea that there is some basic level to which health policy can or ought to confine itself. Some epidemiologists and some economists have argued explicitly that socioeconomic status affects health even when basic levels are met (Marmot 2006a, 2006b; Wilkinson and Pickett 2009). But even setting that contested claim aside, there is no denying that the general evidence amassed by modern epidemiology as a whole is that determinants of health are not confined to hygiene, basic nutrition, and the provision of medical care.

Thus epidemiology exerts an expansive force on the scope of medicine and health policy by forcing them to consider kinds of causes that they would not otherwise have considered. Epidemiology exerts its expansive force in a second way, too, by suggesting new kinds of diseases. The clearest example is obesity, which has long been regarded as a personal matter rather than a medical condition. However, the term “obesity epidemic” is well lodged in some public health circles. Obesity is a factor in the leading causes of death in the developed world and interestingly