10.1 Environmental medicine, occupational medicine

10.1 Environmental medicine, occupational medicine, and poisoning—

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The environment, both the occupational and the wider environ- ment, can affect health in many ways, both adversely and benefi- cially. While to date many of these effects have been well understood, most specifically for the work environment, the importance of the wider environment as a cause of ill health has been less well studied on the basis that there is not much one can do about general expos- ures, such as the weather, or specific events, such as volcanic erup- tions, apart from deal with the direct effects. However, increasing awareness of the importance of the environment on health, such as exposure to air pollution (both indoor and outdoor) and the short, medium, and long-term effects of climate change, has resulted in better understanding of interventions that can improve health, or at least abrogate deleterious effects. Many environmental exposures are complex, often involving a range of potential agents. This has proved a real problem when trying to identify specific components that cause ill health, say in polluted air. Knowledge of these components would help in the design of interventions aimed at specific causal factors, ra- ther than going for a blanket reduction in air pollution as a whole. This optimal approach has been helped by an improving ability to measure population exposure to particular environmental agents, leading to the establishment of much more refined popu- lation or individual dose response relationships that are crucial in understanding the efficacy of any interventions. In the future, im- proved technology will allow personal—rather than population— exposure measurement of a wide range of exposures, allowing population-based studies to determine exactly how important in-

dividual exposures are in conditions where multiple causal agents may be implicated. Climate change is another area where these sorts of problems occur, but is compounded by the fact that estimates of the effects of climate change on health are based on forward projections from known existing causal links between environmental influences and health. These projections largely assume that these associations are linear, hence they are open to some uncertainty when considering quantification of the health burden, but the likely impacts are at least broadly agreed, even if the quantification is uncertain. These are summarized in Box 10.1.1 and cover a wide area, ranging from the impacts of temperature change itself through to changes in vector- based disease geography. Management of many of these situations are covered elsewhere in this textbook, if not in this section itself. However, it needs to be understood that the physician has an ad- visory and exemplary role with respect to climate change and health by personal actions (e.g. walking or using a bike rather than a car where possible), and by putting pressure on governments to sign up to and implement recommendations of International Climate Change agreements. 10.1 Environmental medicine, occupational medicine, and poisoning—Introduction Jon G. Ayres Box 10.1.1 How this section is divided This section is divided into three broad areas: 1 Environment and health—incorporating such major issues as air pollution and climate change. 2 Work and health—both the well-recognized effects of work on health (e.g. back pain, stress, and so on) and the less well-recognized, but equally important effects of health on work. 3 Poisoning—there are many types of poison, natural and man-made, to which we can become exposed, either intentionally or accidentally. Included are the adverse effects of medications and treatments. The subject matter discussed in this section of the textbook often overlaps with that in other sections, hence several key areas are flagged here but also covered elsewhere (e.g. occupational lung disease).

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