informatics, is now reserved for those applied research and practice topics that focus on disease and the role of physicians. As was previously discussed, the term “medical informatics” is no longer used to refer to the discipline as a whole.

Closely tied to clinical informatics is public health informatics (Fig. 1.19), where similar methods are generalized for application to populations of patients rather than to single individuals (see Chap. 16). Thus clinical informatics and public health informatics share many of the same methods and techniques. Two other large areas of application overlap in some ways with clinical informatics and public health informatics. These include imaging informatics (and the set of issues developed around both radiology and other image management and image analysis domains such as pathology, dermatology, and molecular visualization—see Chaps. 9 and 20). Finally, there is the burgeoning area of bioinformatics, which at the molecular and cellular levels is offering challenges that draw on many of the same informatics methods as well (see Chap. 24).

As is shown in Fig. 1.21, there is a spectrum as one moves from left to right across these BMI application domains. In bioinformatics, workers deal with molecular and cellular processes in the application of informatics methods. At the next level, workers focus on tissues and organs, which tend to be the emphasis of imaging informatics work (also called structural informatics at some institutions). Progressing to clinical informatics, the focus is on individual patients, and finally to public health, where researchers address problems of populations and of society. The core science of biomedical informatics has important contributions to make across that entire spectrum, and many informatics methods are broadly applicable across the same range of domains.

Note from Fig. 1.19 that biomedical informatics and bioinformatics are not synonyms and it is incorrect to refer to the scientific discipline as bioinformatics, which is, rather, an important area of application of BMI methods and concepts. Similarly, the term health informatics, which refers to applied research and practice in clinical and public-health informatics, is also not an appropriate name for the core discipline, since BMI is applicable to basic human biology as well as to health.

We acknowledge that the four major areas of application shown in Fig. 1.19 have “fuzzy” boundaries, but it is convenient to distinguish them and to define areas of overlap. The central core of biomedical informatics includes the methods and techniques applied in the processes of capturing, managing, analyzing, and presenting biomedical data and information. In this manner, biomedical informatics overlaps and varies with the biomedical sciences, medical practice, and public health, but it always remains the core discipline.

Fig. 1.21 Building on the concepts of Fig. 1.19, this diagram demonstrates the breadth of the biomedical informatics field. The relationship between biomedical informatics as a core scientific discipline and its diverse array of application domains that span biological science, imaging, clinical practice, public health, and others not illustrated (see text). Note that “health informatics” is the term used to refer to applied research and practice in clinical and public health informatics. It is not a synonym for the underlying discipline, which is “biomedical informatics.”