Preface

Cancer staging plays a pivotal role in the battle on cancer. It forms the basis for understanding the changes in population cancer incidence, extent of disease at initial presentation, and the overall impact of improvements in cancer treatment. Staging forms the base for defining groups for inclusion in clinical trials. Most importantly, staging provides those with cancer and their physicians the critical benchmark for defining prognosis and the likelihood of overcoming the cancer and for determining the best treatment approach for their cases.

Refining these standards to provide the best possible staging system is a never-ending process. Toward this end, the American Joint Committee on Cancer (AJCC) has led these efforts in the USA since 1959. A collaborative effort between the AJCC and the International Union for Cancer Control (UICC) maintains the system that is used worldwide. This system classifies the extent of disease based mostly on anatomic information on the extent of the primary tumor, regional lymph nodes, and distant metastases. This classification was developed in the 1940s by Pierre Denoix of France and formalized by the UICC in the 1950s with the formation of the Committee on Clinical Stage Classification and Applied Statistics. The AJCC was founded in 1959 to complement this work. The AJCC published its first cancer staging manual in 1977. Since the 1980s, the work of the UICC and AJCC has been coordinated, resulting in the simultaneous publication of the *TNM Classification of Malignant Tumours* by the UICC and the *AJCC Cancer Staging Manual*. The revision cycle is 6–8 years, a time frame that provides for accommodation of advances in cancer care while allowing cancer registry systems to maintain stable operations.

The work of the AJCC is made possible by the dedicated volunteer effort of hundreds, and perhaps thousands, of committed health professionals including physicians, nurses, population scientists, statisticians, cancer registrars, supporting staff, and others. These volunteers, representing all relevant disciplines, are organized into disease teams chaired by leading clinicians. These teams make recommendations for change in the staging system based on available evidence supplemented with expert consensus. Supporting these teams is a panel of expert statisticians who provide critical support in evaluation of existing data and in analysis of new data when this is available.

The level of data supporting the staging systems varies among disease sites. For some diseases, particularly less common cancers, there are few outcome data available. These staging systems are based on what limited data are available, supplemented by expert consensus. Though potentially imperfect, these disease schemas are critical to allow the collection of standardized data to support clinical care and for future evaluation and refinement of the staging system.

Increasingly, the disease teams of the AJCC and UICC use existing data sets or establish the necessary collaborations to develop new large data
sets to provide high-level evidence to support changes in the staging system. Examples of this include the work in melanoma that led to changes in the sixth edition and their refinement in this seventh edition, use of the National Cancer Data Base and Surveillance Epidemiology and End Results (SEER) data base for evaluation of the colorectal staging system, and the use of existing data sets from the USA, Europe, and Asia in gastric cancer. In addition, groups have been established to collect very large international data sets to refine staging. In addition to the melanoma collaborative, the best examples in refining staging for the seventh edition are the collaborative group of the International Association for the Study of Lung Cancer (IASLC) and the Worldwide Esophageal Cancer Collaborative (WECC).

A major challenge to TNM staging is the rapid evolution of understanding in cancer biology and the availability of biologic factors that predict cancer outcome and response to treatment with better accuracy than purely anatomically based staging. This has led some cancer experts to conclude that TNM is obsolete. Although such statements are misguided, the reality is that the anatomic extent of disease only tells part of the story for many cancer patients.

The question of including nonanatomic prognostic factors in staging has led to intense debate about the purpose and structure of staging. Beginning with the sixth edition of the *AJCC Cancer Staging Manual*, there was judicious addition of nonanatomic factors to the classifications that modified stage groups. This shift away from purely anatomic information has been extended in the current edition. Relevant markers that are of such importance that they are required for clinicians to make clear treatment decisions have been included in groupings. Examples include the mitotic rate in staging gastrointestinal stromal tumors and prostate-specific antigen and Gleason score in staging prostate cancer. In the future, the discovery of new markers will make it necessary to include these markers in staging and will likely require the development of new strategies beyond the current grouping systems.

That said, it must also be clearly stated that it is critical to maintain the anatomic base to cancer staging. Anatomic extent of disease remains the key prognostic factor in most diseases. In addition, it is necessary to have clear links to past data to assess trends in cancer incidence and the impact of advances in screening and treatment and to be able to apply stage and compare stage worldwide in situations where new nonanatomic factors are not or cannot be collected. Therefore, the staging algorithms in this edition of the *AJCC Cancer Staging Manual* using nonanatomic factors only use them as modifiers of anatomic groupings. These factors are not used to define the T, N, and M components, which remain purely anatomic. Where they are used to define groupings, there is always a convention for assigning a group without the nonanatomic factor. These conventions have been established and defined in collaboration with the UICC.

The work for the seventh edition of the *AJCC Cancer Staging Manual* began immediately on publication of the sixth edition. Under the leadership of the Prognostic Factors Task Force of the UICC, an ongoing review of literature relevant to staging was performed and updated annually. A new data collection system that allows capture of nonanatomic information in conjunction with anatomic staging data was developed and
implemented in the USA. A number of working groups continued data collection and analysis with the plan to advise AJCC Task Forces. The AJCC provided a competitive grant program to support work to lead to staging revision. An enhanced statistical task force was empanelled. Finally, in 2006, the disease task forces were convened to review available evidence and recommend changes to TNM. After review by the UICC, the changes reflected in this manual were adopted for application to cases diagnosed on or after January 1, 2010.

This work involved many professionals in all fields in the clinical oncology, cancer registry, population surveillance, and statistical communities. It is hard to single out individuals, but certain people were central to this effort. Irvin Fleming, to whom we dedicate this Manual, showed the leadership and the vision over a decade ago that led to the development of the Collaborative Stage Data Collection System. Frederick Greene, as senior editor of the sixth edition, paved the way for this work, developed the extremely popular and useful AJCC Cancer Staging Atlas, and did the legwork to enhance the collaboration between the UICC and AJCC. The work of our publisher Springer provided the resources to support this work and the patience needed as the Task Forces and editors finished their work. The many cancer registrars and the Collaborative Stage Version 2 Work Group who worked on the disease teams kept us all properly focused. And the AJCC staff, most notably Donna Gress, Karen Pollitt, and Connie Bura provided the glue and the sweat to keep us all together.

We believe that this, the seventh edition of the AJCC Cancer Staging Manual, and the electronic and print products built on this manual, will provide strong support to patients and physicians alike as they face the battle with cancer, and we hope that it provides the concepts and the foundation for the future of cancer staging as we move to the era of personalized molecular oncology.

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