Topic	Author(s)
Evolution in Cancer Definition and Classification (Stage)	Hannah Weir, CDC (hbw4@cdc.gov) And Research and Data Use Steering Committee

Definition/Abstract

Stage information serves multiple purposes. The clinical community uses stage: 1) to develop treatment plans; 2) to estimate the probability a cancer patient will survival a given time period (say 5 years) from the time of their diagnosis; and 3) to assign patients to treatment arms in clinical trials.

The cancer surveillance community primarily uses anatomic (or extent of disease stage): 1) to evaluate the impact of cancer control activities (such as screening) to diagnosis patients at an earlier stage; 2) to assist in the interpretation of trends and disparities in incidence, mortality and survival data; 3) performance measure of the health care system; and 4) to compare stage and concordant treatment (patterns of care) within the population.

Background

The International Union Against Cancer (UICC) first proposed stage in the 1940's and defined it according to the anatomical extent of disease (TNM) that a patient presented with at the time of their diagnosis.

Beginning with 2018 diagnosis year, CDC is requiring NPCR funded cancer registries to:

- collect and report clinical and pathologic TNM and select site-specific factors;
- manually code AJCC 8th anatomic stage, clinical TNM stage, and pathologic TNM stage; and
- manually code SEER summary stage (SS) 2018

NCI is requiring SEER funded cancer registries to:

- collect and report Extent of Disease (EOD) stage and selected site specific factors
- algorithmically derive SS2018and combined stage using the required extent of disease (EOD) staging system
- AJCC pTNM and cTNM will be accepted when available

Rationale/Vision

Stage data, as collected and reported by population-based (central) cancer registries, should:

- contain a minimum set of data elements specific to a cancer site/histology that can be collected on (or nearly) all cancer patients in a defined population,
- be reliable and valid,

- be consistent over time so as to monitor trends and facilitate the interpretation of surveillance data and evaluate the impact of cancer control activities at the population level.
- capture detailed input data rather than just the result ("stage II") for scalable and longitudinal uses.

Challenges/Resolutions

- The American Joint Commission on Cancer (AJCC) has recently introduced an enhanced "anatomic stage" for select cancers which combines TNM and additional prognostic factors (e.g., tumor characteristics and site-specific factors) which are believed to influence patient outcome.
- The International Union Against Cancer (UICC) recommends the collection of prognostic factors separately from anatomic stage, such that anatomic stage and PF can be reported separately or combined as needed to meet the needs of both the clinical and cancer surveillance communities.
- UICC and AJCC have agreed that "stage" should refer to anatomic EOD stage alone
- Many prognostic factors may not be available in the medical record in a timely manner if at all. Laboratories may report directly to the physician's office.
- Laboratory tests may not be valid or reliable because testing may not be standardized or calibrated within or between labs.
- Guidance is needed on when a registrar should stage a cancer. *Is there at time limit - 6 months or until time of first definitive treatment? To what extend should the registrar seek PF before assigning stage?*
- The workload on both hospital and central cancer registry registrars is expected to increase because: 1) they will be required to manually stage all cancers multiple times (anatomic, clinical, pathologic); 2) because the number of cancer patients is expected to greatly increase (growth and aging of the population) and 3) because they are expected to have broad working knowledge for manually staging all types of cancers (AJCC will not accept derived clinical, pathologic or anatomic stage).

References

- AJCC Cancer Staging System, 8th Edition
- UICC TNM classification of Malignant Tumors, 8th Edition