Q1: What are the appropriate survival statistics to perform cross site comparison?

A1: There is unfortunately no one "right" approach. Each registry has to choose their strategy based on the data they have available, and the specific research question they are hoping to answer. If one doesn’t have access to or confidence in cause-of-death data, one might choose relative survival. Alternatively, if one doesn’t have access to or confidence in age-/sex-/ethnicity-/ and calendar time-specific life tables, one might choose cause-specific survival. The validity of the assumptions inherent to either method will vary by cancer site. For example, the assumption in relative survival that the expected mortality of lung cancer patients had they not been diagnosed with lung cancer is that of someone in the general population of the same age-, sex-, and ethnicity may not be met because individuals with lung cancer are much more likely to have smoked (and therefore have a shorter life expectancy overall) than members of the general population. For more information on the extent of bias that may be introduced see: Blakely T, Soeberg M, Carter K, Costilla R, Atkinson J, Sarfati D. Bias in relative survival methods when using incorrect life-tables: Lung and bladder cancer by smoking status and ethnicity in New Zealand. International Journal of Cancer. 2012 Apr 25;131(6):E974–82.

Q2: To select the appropriate approach to do survival analysis should we take into account the type of primary cancer or how lethal it could be? There are primary sites with very low survival times (less than 5 years) and others with longer survival times. Which approach would be better?

A2: When deciding on an approach for a survival analysis (Relative or cause-specific? Cohort or period?), the considerations mentioned above are important for all cancers, whether they have excellent or poor survival. However, for highly fatal cancers, there is one important decision that needs to be made before you start your life table calculations. This is the width of the time intervals at which the survival estimates are going to be calculated. In the examples in the webinar, survival was calculated at 6 month intervals. For fatal cancers, you probably want to calculate survival at monthly intervals, or maybe even in weeks.

Q3: About what Chris Johnson mentioned at the beginning of this course; he said that a linkage with other databases is considered "active" follow up. Is that correct, or did I misunderstood the analogy?

A3: The language on types of follow-up can be confusing. Historically, one way to differentiate the types of follow-up activities was according to which involved direct contact with the patient, the patient’s family, or the patient’s physician, in order to encourage contact between the patient and the health provider. These were “active” follow-up activities. Passive methods were everything else, and focused on indirect verification of vital status through computerized linkages with administrative databases. Today, “active” follow-up has sometimes taken on the meaning of any follow-up that extends the date of last contact for alive patients, whether through contact or linkages. For the purpose of calculating survival statistics, it may be more meaningful today to differentiate between “reported alive” (registry
extends the date of last contact for alive patients through contact or linkages) and “presumed alive”
(registry ascertains deaths only, and persons not known to be deceased are presumed to be alive as of
the last date for which death ascertainment is complete).

Q4: Is SEER*Stat using the US life tables?

A4: Yes SEER*Stat uses US life tables. We will also make state available after we correct old ages.

Q5: Question for Nadia - What about chemotherapy-induced pneumonia and other causes of death that
derive from cancer? Doesn’t this complicate cause-specific survival?

A5: When we looked at a tabulation of underlying cause of death for patients in the SEER areas, we
observed very few deaths due to adverse events (pneumonia or any other conditions). This we think is
due to the fact that according to death clearance procedure an underlying cause of death is assigned to
the condition for which the drug is being administered as opposed to the condition itself. So, for your
particular example the underlying cause of death would be assigned to cancer, not pneumonia- this is
provided that the death certificate is filled out correctly.

Q6: What is the most appropriate situation to use the period method, and how many years of data
should you include in a period analysis for the best results?

A6: It is most appropriate to use the period method when you are interested in the most up-to-date
measure of survival, and the survival rate has changed over time (e.g. due to changes in treatment or
stage distribution). Regarding the number of years of data you should include in a period analysis, this
will be a balance of having the most recent data and having enough cases for statistical stability and so
will depend on your annual caseload.

Q7: In determining if the default national life table used in SEER*Stat is appropriate for our own state if
we are using our own state-specific registry data in SEER*Stat: What if there is a large difference in
mortality rates between our state and the US national average? Should we be concerned if the national
life table is going to under- or over-estimate our state survival?

A7: If there is a large difference in mortality rates between your state and the US national average, then
using US life tables for relative survival may produce biased results. It may be prudent to wait for state
life tables, which NCI and others are currently working on. The NAACCR listserv will be notified when the
state life tables are available.

Q8: If we want to calculate survival for American Indians/Alaska Natives, should we plan on using cause-
specific survival since life tables do not include this race category?

A8: CDC’s Division of Cancer Prevention and Control sponsored a supplemental issue of the American
Journal of Public Health about the leading causes of death among American Indian/Alaska Native
(AI/AN) populations (June 2014). One of the articles estimated complete period life tables for the non-
Hispanic American Indian and Alaska Native (AI/AN) population residing in Contract Health Service
Delivery Area (CHSDA) counties of the U.S. for the period 2007-2009. You may wish to calculate relative survival using these life tables and cause-specific survival, and compare the results.

The reference is: