A Revised SAS Macro for Computing the Charlson Score
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Purpose
The ICD-9 and CPT-4 codes used to create Charlson scores have changed over time. This project assessed if revising the codes in the NCI adaptation of the Charlson Index changes our estimate of the prevalence of comorbid conditions in cancer patients.

NCCI Comorbidity Index
SAS Macros developed by the NCCI to estimate the burden of comorbid illness in cancer patients from SEER-Medicare data.

Methods
Define Study Population
• Medicare Parts A & B coverage, No HMO enrollment.
• Age 66.
• Exclude death certificate or autopsy diagnosis.
• First diagnosis of cancer.
• Cancers with malignant behavior.

Identify comorbidities
• Each patient’s claims were reviewed for 1 year prior to diagnosis.
• Medicare data included: Hospital (Medpar), Outpatient facility, physician supplier (carrier).
• ICD-9-CM diagnosis. ICD-9-CM procedure, and CPT procedure codes were used to identify comorbid conditions.

Compare Condition Frequencies and Prevalence Rates
• Original NCCI index, remove CPT codes, proposed code changes.
• All cancers, cancer subgroups: lung, colorectal, prostate, breast.
• Diagnosis year.

Conclusions
• Excluding CPT codes has minimal effect on disease ascertainment.
• Adding of ICD-9 diagnostic and procedure codes increases disease ascertainment.
• Proposed changes have greatest impact on PVD and dementia conditions.
• Retirement of old codes increases the gap in ascertainment rates over time (not shown).
• Slight variation in results by cancer site (not shown).

References

Appendix
Example calculations
Moderate/severe liver disease, “revised with CPT”
Prevalence 105 / 97371 = 0.0011
0.0011*100 = 0.11%
Percent Change (105 – 92) / 92 = 0.1413
0.1413*100 = 14.13%

For more information about SEER, visit http://seer.cancer.gov/
For more information about the Surveillance Research Program, visit http://surveillance.cancer.gov/