J CLIN ONCOL. 2016; 7 (suppl): ABSTR 28

Poster Presentation at 2016 ASCO Quality Symposium

A new digital classification schema to detect treatment variances and enable value based payment reforms.

Authors: Andrew Pecora, Eric V Schultz, Kelly Choi, William Kea, Augie Smith, Cindy Kim, Matthew Axelrod, Teresa Fletcher, Matthew Love, Ruth Pe Benito, Samira Daswani, Sukhi Kaur, Kathyrn Tanenbaum, James Schaffer, Ali Hasan, Dilip Raj, Kumar Bharath Prabhu, Kiran Suryadevara, Ryan Callahan, Stuart L. Goldberg; COTA, New York, NY

Background:
Value based payment reforms which improve the outcome to cost ratio (paying for outcomes not for services) require detailed information on both elements. Although the digitalization of medicine via the EHR may facilitate data collection, the imprecise ICD9 and ICD10 schemas hinder analysis (eg: all breast cancers are ICD9 174.9). A more precise classification schema that accounts for biologic variances to allow analysis (and reduction) of treatment variances is needed.

Methods:
We have developed a digital classification (COTA Nodal Address) based on known clinically relevant prognostic variables. (eg: breast cancer variables include stage, tumor size, hormone status, her2 neu status, etc.). The digital classification also accounts for therapy status (neoadjuvant vs adjuvant, etc.) and line (1st or 2nd treatment, etc.).

Results:
Using breast cancer as an example, there are > 2975 unique CNA phenotypes that encompass prognostic and treatment status variables. However, in a series of 1204 patients in a community setting only 114 CNAs have been utilized, suggesting biologic disequilibrium. Two phenotypes accounted for the top 25% of cases, 6 for the top 50% and 16 for the top 75%. Early stage, small tumor, hormone receptor positive were most common. The CNA classification uncovered treatment variances among patients with similar phenotypes. In an ongoing episodes of care payment program, young breast cancer patients with early stage, good performance status, hormone positive, her2 neu

negative, very small tumors (with similar extended attributes) received varying adjuvant treatment strategies (hormone alone 46% , non-anthracycline 35%, anthracycline chemotherapy 4%, observation 1%).

Conclusions:

Unlike ICD9/10 systems, a digital classification schema that precisely segregates cancers into unique cohorts based on complete biologic characteristics can rapidly identify behavioral variances at scale that drive differences in outcomes and costs. Using the breast cancer model, we have noted demographic disequilibrium in cancer presentations (potentially a factor of both biology and screening practices) and major variances in treatment strategies (with impact on outcomes/ costs).