Assessing Completeness of CSv2 SSF Data Items in Louisiana

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Assessing Completeness of CSv2 SSF Data Items in Louisiana

- Background
- Purpose/Objective
- Methods
- Results
- Implications/Next steps
Collaborative Stage Version 2 (CSv2)

Background:

- Why collecting CSv2 Site Specific factors (SFFs)?
- The clinical community needs additional information such as lab results and tumor biomarkers that:
  - play a role in clinical decision-making process and clinical outcomes
  - Influence clinical practice
Collaborative Stage Version 2 (CSv2)

Background:

- CSv2 makes TNM more clinically relevant by including non-anatomic information, e.g. PSA & Gleason score for prostate cancer
- SSFs in CSv2 include numerous prognostic/predictive factors that important for individualized medicine
- The changes reflect the theme and focus of AACR, NCI, CDC, AJCC/ACoS. AACR 2011 Report stated that innovative cancer research and scientific & technological breakthroughs should lead to improved patient care
However, the collection of these new additional data items requires enormous resources.

Their availability and completeness have not been systematically evaluated at the population level.
Assessing Completeness of CSv2 SSF Data Items

Objective:

- To assess the completeness (or “missingness”) of CSv2 Site-Specific Factors (SSFs) for selected common cancers in a population-based cancer registry
Assessing Completeness of CSv2 SSF Data Items

Methods:

- Louisiana
- 2010 cases (about 96% completeness)
- Cancer sites evaluated
  - Breast
  - Prostate
  - Colon
  - Lung
  - Melanoma of skin
Assessing Completeness of CSv2 SSF Data Items

Methods:

- Common cancers, many SSFs (e.g. 19 for breast) and included in SEER Reliability Studies and Data Availability Assessment

Exclude:
- Death Certificate Only (DCO) cases
- Autopsy cases
- In situ cases
- Certain histologies that do not use CS schema
% Unknown of SSFs in CS v. 2: Breast Cancer
Louisiana 2010

- SSF1: ER Assay
- SSF2: PR Assay
- SSF3: IHC Reg LNs
- SSF4: IHC Reg LNs
- SSF5: Nottingham or BR Score/Grade
- SSF6: HER2: IHC Value
- SSF7: HER2: IHC Value
- SSF8: HER2: FISH Value
- SSF9: HER2: FISH Value
- SSF10: HER2: CISH Value
- SSF11: HER2: CISH Value
- SSF12: HER2: OTHER/Unk Test
- SSF13: HER2: OTHER/Unk Test
- SSF14: HER2: Summary Result
- SSF15: HER2: Summary Result
- SSF16: ER, PR, HER2 combo
- SSF17: Multigene Sig Method
- SSF18: Multigene Sig Results
Wide variation of % unknown among site specific factors (SSFs), ranging from 7% (ER, PR) to 97% (CISH test for HER/2)

In general SSFs related to staging, (TNM, summary stage, anatomic stage/prognostic groups) or lab tests for standard of care (ER, PR, HER/2-IHC) are most complete (<20% missing)

Newer lab tests and molecular studies have most missing information (87-97%)

Can summary HER/2 replace all other HER/2 SSFs?
% Unknown of SSFs in CS v. 2: Prostate Cancer Louisiana 2010

*Prostatectomy/Autopsy performed
% Unknown of SSFs in CS v. 2: Prostate Cancer Louisiana 2010

Anatomic Stage/prognostic group

Stage

Extent of Tumor
(Research interest)

SSF 3: CS Ext-Path
SSF 1: PSA Value
SSF 2: PSA Interpretation
SSF 8: Gleason's Score Biopsy/TURP
SSF 10: Gleason's Score Prostatectomy/Autopsy
SSF 11: Gleason's 3rd Pattern Prostatectomy/Autopsy
SSF 7: Gleason's 1st & 2nd Pattern Biopsy/TURP
*Prostatectomy/Autopsy performed

*SSF 9: Gleason's 1st & 2nd Pattern Prostatectomy/Autopsy

SSF 12: # Cores Pos
SSF 13: # Cores Examined
CSv2 SSF Completeness Summary: Prostate Cancer

- % with unknown values vary among site specific factors but to a less extent

- SSFs related to stage and anatomic stage/ prognostic group such as PSA and Gleason patterns and score (from biopsy and prostatectomy) are very complete (4%-14% unknown)

- # of core biopsies exam and # of core positive, about 40-50% missing

- Gleason’s tertiary pattern – missing in about 90%, even among those with prostatectomy/autopsy performed. Do we really need to collect?
% Unknown of SSFs in CS v. 2: Colon Cancer
Louisiana 2010

- SSF 1: CEA
- SSF 3: CEA Value
- SSF 2: Clinical reg LNs
- SSF 4: Tumor Deposits
- SSF 6: CRM
- SSF 8: Perineural Invasion
- SSF 9: KRAS-Stage IV

Tumor Marker

Treatment
In general have higher % unknown, even for SSFs that has been collecting since CSv1

- CEA: >40% missing in both value & interpretation

Most SSFs related to stage (clinical regional LN and tumor deposits) are more complete

Circumferential resection margin (CRM), a new SSF considered as a sig predictor for loco-regional recurrence is missing in close to 50% of cases

KRAS – recommended by ASCO for testing in Stage IV colorectal cancer for consideration of anti-EGFR therapy is missing in 94% of all colon cancer cases and 86% of Stage IV colon cancer patients
% Unknown of SSFs in CS v. 2: Skin Melanoma Louisiana 2010

- SSF 1: Thickness
- SSF 2: Ulceration
- SSF 3: Clinical LN Mets
- SSF 4: LDH
- SSF 5: LDH Value
- SSF 6: LDH Upper Limits

Stage

Prognosis
Completeness falls into 2 groups

SSFs related to stage
- low % unknown (about 10%)
- Exception: mitotic count/rate, a powerful adverse prognostic factor, with 43% unknown

All 3 SSFs related to serum lactate dehydrogenase (LDH)
- have over 95% unknown
- Do we have to collect them?
% Unknown of SSFs in CS v. 2: Lung Cancer
Louisiana 2010

- SSF 1: Separate Tumor Nodules - Ipsilateral Lung
- SSF 2: Visceral Pleural Invasion (PL)/Elastic Layer

Unknown percentages:
- SSF 1: 10%
- SSF 2: 70%
CSv2 SSF Completeness Summary: Lung cancer

- Separate tumor nodules in ipsilateral lung (SSF 1)
  - 9% unknown

- Visceral pleural invasion (SSF 2)
  - 70% unknown
Assessing Completeness by Hospital Type

- Hospital/Facility type:
  - Teaching hospitals
  - Community Hospitals-Comprehensive CP
  - Community Hospitals
  - Public Hospitals
  - Others (surgical centers, physicians)

- In general teaching and community hospitals with comprehensive cancer programs are less likely to have unknown or missing values for SSFs

- Preliminary data show public hospitals are more likely to have unknown or missing values for SSFs

- Differences: true variation or due to incomplete reporting
Summary

- Large variations in % unknown among CSv2 SSFs in Louisiana
- SSFs related to stage of disease (TNM, summary stage etc) have the smallest unknown rate
- SSFs on lab results that are standards of care (ER, PR, PSA, HER/2) are more complete
- Newer and more expensive lab tests (FISH, molecular) are more likely to be missing
- In general, lab interpretation is more complete than lab value
- Completeness of SSFs may be related to type of hospital
Next Steps:

- More in-depth assessment on completeness of CSv2 SSFs by facility type, demographic variable
- Determine appropriate denominators
- Consider conditioned Collection
  - Collect KRAS only for Stage IV colorectal cancer
  - Collect Isolated Tumor Cells only for LN-negative breast cancer
- **Eliminate and simplify (EASY) SSFs**
  - Eliminate Gleason’s third pattern
  - Collect only HER2 summary and HER2 method instead of the current 8 SSFs
  - Derive ER, PR, HER/2 combination