Concordance of HIV self-report and EHR data capture in cancer patients

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Background

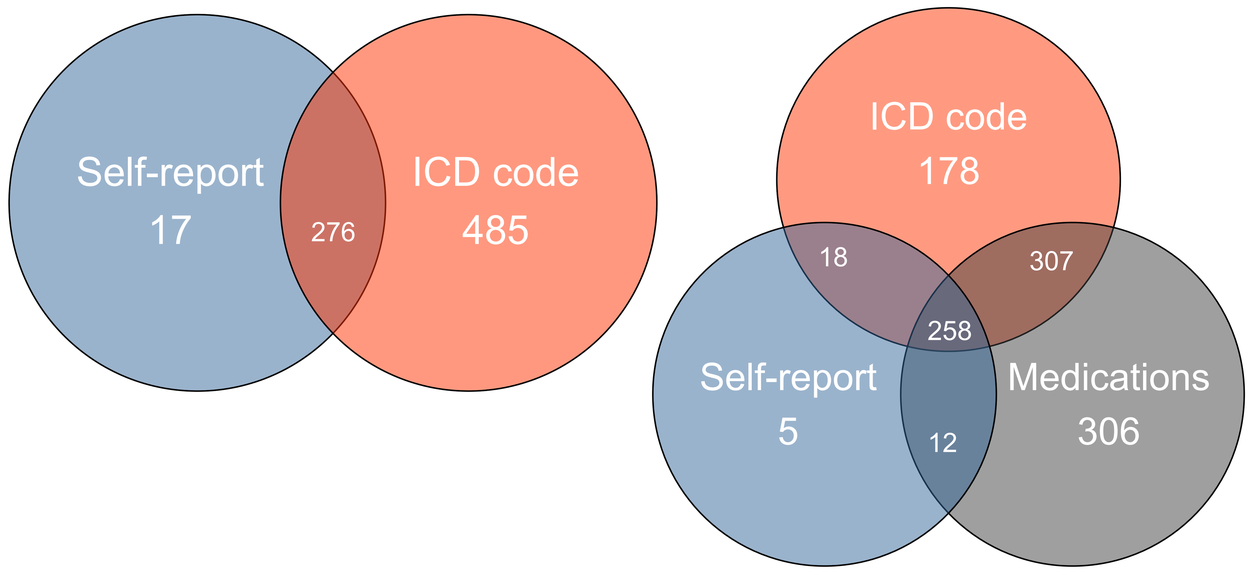
- Although expected to decrease from an estimated 8,150 cases in 2010, by 2030 those diagnosed with both HIV and cancer will total about 6,690.[1]
- Accurate information about HIV status in oncology patients is important because those with underlying HIV infections experience poorer cancer-specific outcomes than the general oncology population, including higher relapse and mortality rates. [2-3]
- Both the CDC and current NCCN Clinical Practice Guidelines in Oncology recommend screening all patients for HIV unless they opt-out.[4]
- Despite this recommendation, the rate of HIV screening in cancer clinics is less than 20%.[5]
- **Thus, we explored various sources for determining HIV diagnosis at a large, NCI-designated comprehensive cancer center, with a particular focus on patient self-report of HIV.**

Method

- Using the institution's Health Research Information system, we extracted HIV data from the electronic health record (EHR) from January 2009 - February 10, 2020.
- HIV diagnosis was determined via the following sources:
  1) **Self-report** on the electronic new patient questionnaire of either an HIV/AIDS diagnosis or use of HIV prophylaxis pills (PrEP) or antiretroviral therapy (ART)
  2) **ICD 9/10** diagnosis code affirming HIV diagnosis (of 26 possible ICD codes) in the EHR
  3) Evidence of administration of at least one **HIV medication** (ART) regimen in the EHR (of 40 possible medications)
- We used descriptive statistics (frequencies, percentages) to identify:
  - Source of identifying HIV diagnosis (self-report, ICD, medication)
  - Concordance of HIV diagnosis across each source
  - Characteristics of those who do and do not self-report HIV diagnosis, including:
    - Gender
    - Age
    - Race/ethnicity
    - Primary cancer site

Results

- A total of 778 persons living with HIV were identified through at least one of the three data sources.
- 293 (38%) self-reported HIV diagnosis. The remaining 62% (n = 485) failed to disclose and were identified through ICD code or medications only. Only 258 (33%) were identified through all 3 metrics.
- The overall percentage of those who self-reported HIV diagnosis is highest in those who are white, male, and over 50 years old. Black women self-reported HIV at a higher rate than White women.
- In men, for those who self-reported HIV diagnosis, the most prevalent primary cancer site was anal cancer (35%). In women, for those who self-reported HIV, the most prevalent primary cancer site was breast cancer (24%), although a higher proportion of women with breast cancer did *not* self-report HIV (64%) than those who did (36%).
- Large proportions of both men (73%) and women (90%) with blood/bone marrow cancer did *not* self-report their HIV diagnosis.
- Similarly, large proportions of men (81%) and women (86%) with non-Hodgkin lymphoma did *not* self-report their HIV diagnosis.



Note: Total N = 778; Self-report n = 293; ICD n =761; Medications n = 883

Results

	Total	No HIV Self-Report		HIV Self-Report	
N	778	485		293	
		n	%	n	%
Gender					
Male	574	335	69.07	239	81.57
Female	203	149	30.72	54	18.43
Race/Ethnicity					
White, NH	493	290	59.79	203	69.28
Black, NH	164	106	21.83	58	19.80
Hispanic	50	35	7.22	15	5.12
Other	71	54	11.13	17	5.80
Age					
≤50	178	112	23.09	66	22.53
>50	599	372	76.70	227	77.47

Conclusions

- Most (62%) did not disclose their HIV diagnosis on the standard electronic new patient intake questionnaire. Thus, initial consultations in the cancer setting may fail to consider HIV in treatment planning and oncology care.
- Notably, only 33% of patients were identified through all three metrics, indicating lack of concordance regarding diagnosis in the EHR. This highlights the potential for oncology care team members to be uninformed of clinically relevant information, potentially leading to inadequate care for an already vulnerable population.
- HIV diagnosis self-report varies by patient factors, most notably cancer site.
- ICD 9/10 code may be the most reliable metric for identifying persons living with HIV.
  - Correct ICD code may depend on factors such as continuity of care and accurate use of diagnosis codes.
- Medications may not be as accurate of a metric because some medications that treat HIV can also be used to treat other severe viral infections (e.g. Tenofovir for Hepatitis B infection).
- In future work, billing code could also be a useful metric for identifying HIV diagnosis.