Author's response to reviews

Title: Use of Electronic Health Record Data to Identify Skin and Soft Tissue Infections in Primary Care Settings: A Validation Study

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Author's response to reviews: see over
Dear Prof. Orsi,

We would like to thank the reviewers for their insightful critique on our manuscript. Attached are our summarized responses to each of the reviewers’ comments. Please contact me if you have any further questions or concerns.

Sincerely,

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RESPONSE TO REVIEWER COMMENTS

Inserted below are the critiques provided by the two reviewers followed by a summary of our response to each point.

Referee 1

MER
In the results section, I presume the authors mean 54.5% were female, not 545%

This correction has been made.

DR
I might expand a little more in the discussion in terms of how this informs researchers in the future. Since mis-coded patients (patients who had SSTI but did not have an appropriate ICD9 code) were not identified, such a search strategy will detect what are presumably straightforward patients mostly with a single diagnosis for their visit. However, such a homogeneous population would be very useful for internal process improvement and quality initiatives as well as mid-grade observational studies since the patients identified won’t represent the totality of those with SSTI.

We agree with the reviewer’s interpretation of the implications of this study. To highlight these implications, we have modified the Conclusion paragraph as follows:

“This study demonstrates that algorithms which use ICD-9 codes to detect SSTIs can achieve a high PPV in ambulatory primary care settings. While the number of SSTI cases that would not be detected by this approach was unmeasured, the ICD-9 based SSTI identification method would likely capture, at a minimum, those patients with a single diagnosis for their visit. Thus, these diagnosis codes may be useful in facilitating internal process improvement and quality initiatives as well as future studies exploring both the epidemiology and outcomes associated with SSTIs.”

Referee 2

This manuscript describes material of interest to the readership of BMC Infectious Diseases. It attempts to validate that ICD-9 codes garnered from the electronic medical record are useful in verifying the presence of skin and soft tissue infections (SSTIs). The authors verify that the ICD-9 codes for SSTIs do actually represent cellulitis/abscess. Thus in the future abstracters of data from the electronic medical record can be assured that they are truly capturing SSTIs based on the pertinent ICD-9 codes.

After completing my review of the paper, I think that it deserves publication provided that the authors undertake the suggested revisions. Specifically and most important, the authors should include details of the number of patients that fit their inclusion criteria: ICD-9 SSTI codes, CPT codes for incision and drainage based on each of the codes listed in the methods section as well the number of patients satisfying their third criterion of a positive wound or tissue culture. These data could be included in Table 2.

This information has been added to Table 2 as requested by the reviewer.

Specific changes that should also be addressed are as follows:

1) The first paragraph of the “Background” section is superfluous and should be deleted.
The paragraph has been deleted as requested.

2) In the first paragraph of P. 6, the term PPV should be spelled out whereas in the second paragraph on this page the abbreviation PPV should be used.
   This correction has been made.

3) On P. 7, the inclusion criteria should be explained more explicitly including the codes that are listed in the Results section.
   The following clarification has been added to the Results section to more explicitly describe the inclusion criteria:
   “Patient encounters were included if any of the following criteria were present in the EHR: an SSTI ICD-9 diagnosis code [erysipelas: 035; carbuncle and furuncle: 680.x; cellulitis and abscess: 681.0, 681.00, 681.01, 681.10, 681.9, 682.x; acute lymphadenitis: 683.x; impetigo: 684.x; other local infections of skin and subcutaneous tissue: 686.x; other specified diseases of hair and hair follicles: 704.8], Current Procedural Terminology (CPT) code for incision and drainage (IND) [10060/1, 10080/1, 10120/1, 10140, 10160, 10180], or a positive wound or tissue microbiology culture.”

4) In the first paragraph of the Results section on P. 9, the percentage of females is incorrect and probably should read 54.5%.
   This correction has been made.

5) As mentioned above, the number of patients satisfying each of the eligibility criteria should be listed. Ideally these data could be shown in Table 2.
   This information has been added to Table 2 as requested.

6) In the Discussion section, no limitations of the data are listed. Could the authors have missed some cases such as diabetic foot infections, infected ulcers or surgical wound infections?
   The limitations of our study are discussed in the third paragraph of the Discussion section. This study did not seek to validate identification methods for diabetic foot infections, infected ulcers or surgical wound infections, as the study did not include patients with ICD-9 codes for these specific infection types. This has been clarified in paragraph 3 of the Discussion through the addition of the following statement:
   “Our study also did not address more complicated/severe infections such as diabetic foot infections, infected pressure ulcers, or surgical site infections.”

7) Is Table 1 really necessary?
   The authors believe that Table 1 lends clarity to the different algorithms used in our evaluation; however, we defer to the editor whether or not to retain the table.