

Alone we can do so little,  
together we can map so  
much

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INTRODUCTION:

- VA Informatics and Computing Infrastructure (VINCI) released its first instance of the VA electronic health record OMOP transformation in 2015, with updates, including mapping improvements, occurring quarterly.
- User requests and frequency of concept occurrence in source data typically dictate VINCI’s focus areas (i.e., clinical domains) for quality control efforts.
- Due to non-standardization of test names across facilities and missing LOINC codes at the source level, mapping VA laboratory tests into the OMOP instance is complex and time consuming.
- The COVID-19 OHDSI Virtual Study-A-Thon (March ) encouraged VINCI to direct mapping efforts to influenza related concepts (Table 1).

METHODS:

- Broad string search of laboratory test name in source data
  - %flu%
  - %influenza%
- Use a combination of laboratory test name, topography, units, and specimen to determine appropriate source to target mapping.
- Manual curation involved three scenarios:
  - Missing LOINC -> LOINC
  - Incorrect LOINC -> Correct LOINC
  - Correct LOINC -> Correct LOINC

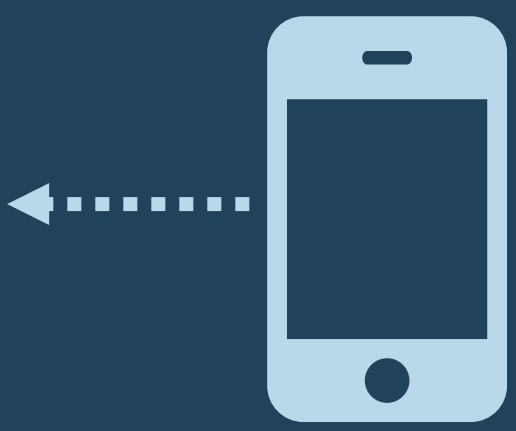
RESULTS:

Source representation and instance counts according to the three LOINC mapping scenarios				
LOINC scenario	Source	%	Instance count	%
1. Missing	5,848	77.2%	265,260	26.9%
2. Incorrect	1,640	21.6%	660,454	66.9%
3. Correct	90	1.2%	61,218	6.2%
Total	7,578	100%	986,932	100%

Incorrect LOINC examples:

- Imprecise:
  - Unspecified specimen: **original**
  - Lower respiratory specimen: **mapped**
- Erroneous
  - Hemophilus influenza A Ag: **original**
  - Influenza A Ag it: **mapped**

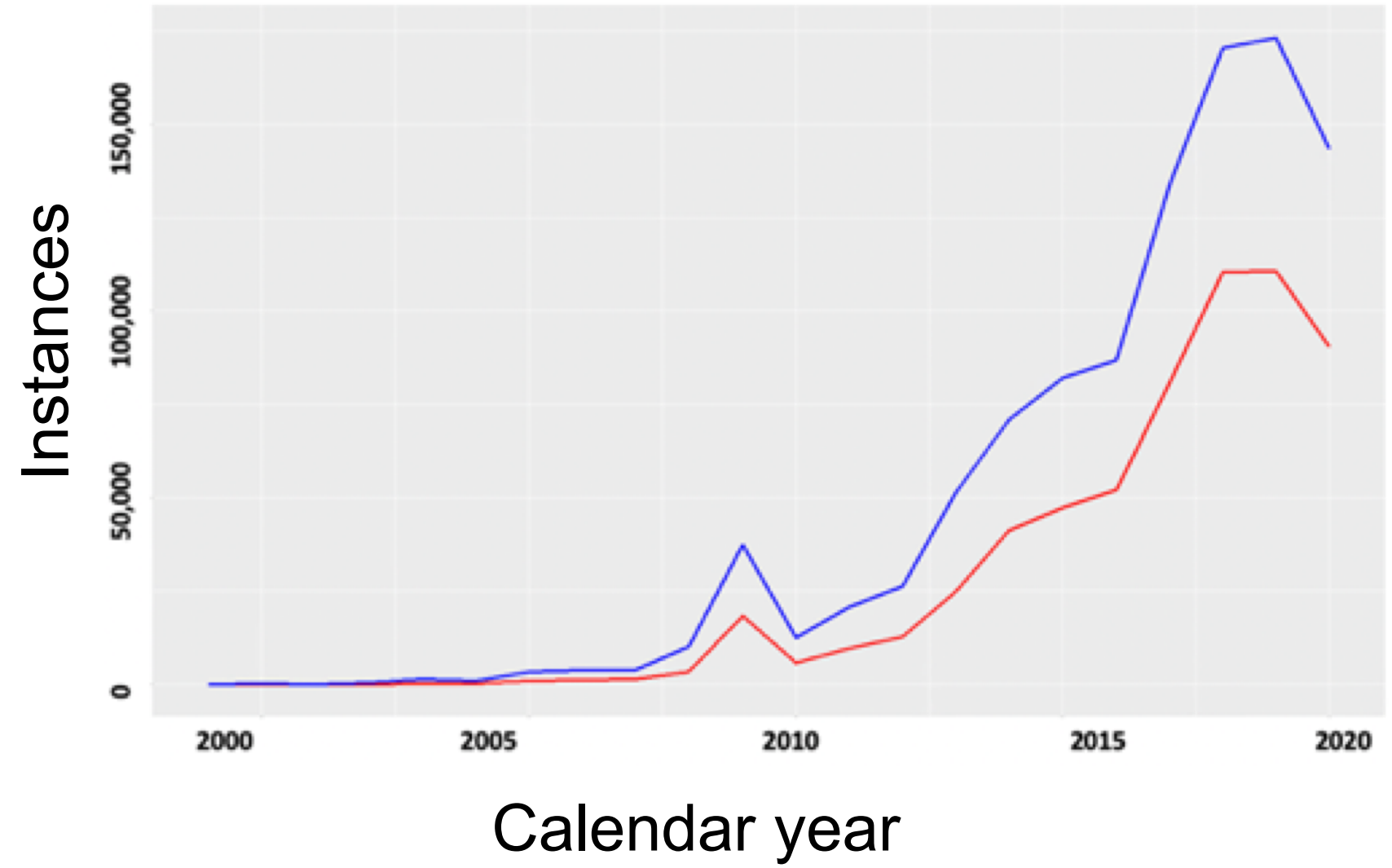
Missing, imprecise, and erroneous  
influenza related LOINC codes are  
not uncommon in VA data.  
Participation in OHDSI collaborative  
events provides practical means to  
make significant improvements to  
a large OMOP instance.



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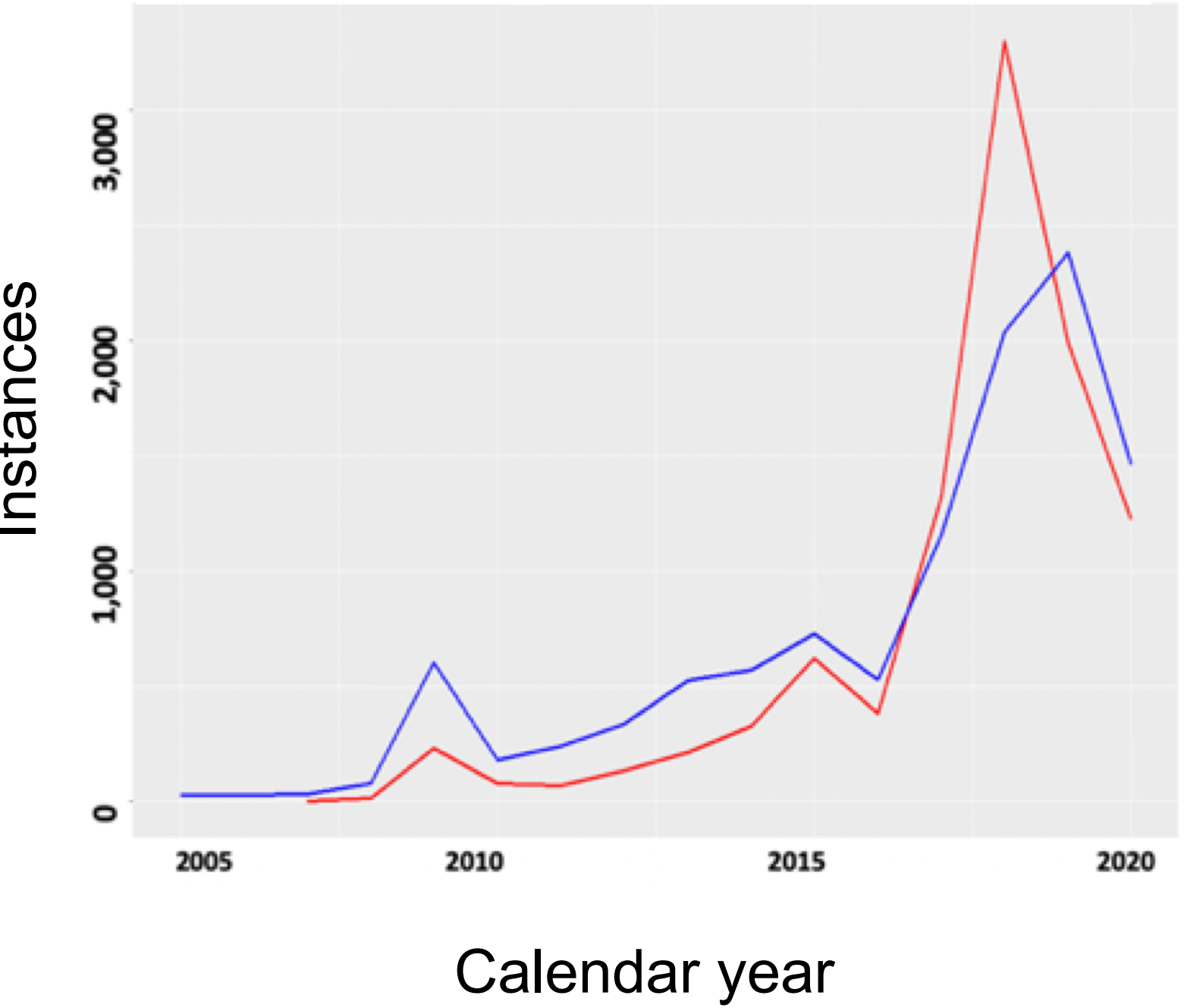
Because the majority of influenza laboratory test names were not accompanied by any LOINC code in VA source data (i.e., would be unmapped in OMOP unless populated), as expected manual data curation resulted in more mapped influenza patient instances overall (blue vs. red line Figure 1).

Figure 1. Original (red) and annotated (blue) patient level instances of all influenza related LOINC codes



However, because the majority of influenza instances (patient level data) were represented by an incorrect LOINC in VA source data, the impact of manual curation on each LOINC was less predictable (Figure 2).

Figure 2. Original (red) and annotated (blue) patient level instances of LOINC 44563-5



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