

Research:

The following journal provides information about the Diabetes threshold (which we used for validating the values present for HB1AC)

<http://diabetes.diabetesjournals.org/content/diabetes/early/2012/08/08/db12-0103.full.pdf>

The following article was referred to when the team was understanding the importance of bringing the data from CHCs and combining that with the data present in the Clinics (EHR)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3883432/>

The following article published in AMIA just a couple of months ago, talks about how unstructured data can be integrated into the FHIR based type system. This was referred to while we were designing how to combine the information coming from the FHIR server and the CHC.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5961797/>

Research areas:

- 1) Since the data collected by CHCs are typically not in a standard format, there is a need to interpret this data and convert into a standard format like FHIR. Developing a generic logic that can automatically (to whatever extent) understand the values and interpret them. For e.g. In the BP measurement of systole and Diastole - the logic could be written in such a way that it can derive which columns are providing Systole and Diastole values by looking at the distribution of the values. For e.g. if the values in the column are such that the minimum value is 100 and maximum is 160, then it is Systolic. Similarly if the value is between 50 and 100, then that column corresponds to Diastolic. Etc.
A lot of research has gone into this - The following publication talks about challenges in getting data from Rural health care
<https://pdfs.semanticscholar.org/3f9e/9d8cb8a695558390dac8fa2269248eb99aa4.pdf>
- 2) The other area is in cleaning the data. This publication provides a number of challenges faced in cleaning the public health data <https://www.mdpi.com/2071-1050/9/7/1106/pdf>
- 3) The article published by Rex L et.al in NIH site describes the challenges related to EHR itself. One of the aspects they talk about is integration of CHC data with the EHR
<https://www.nih.gov/sites/default/files/research-training/initiatives/pmi/opportunities-challenges-electronic-health-records.pdf>

