CDW 6.0 Release Notes

Release 6.0 of the Health Sciences South Carolina (HSSC) Clinical Data Warehouse (CDW) was moved to production on December 31, 2015. The release includes a refresh of CDW data for all sites as well as two new data types: laboratory results and vital values.

The scope of this release included:

- Bringing all existing site data up to Sept 30, 2015
- Adding in Lab result data across all sites up to Sept 30, 2015
- Adding PH Med Orders and Med Admins up to Sept 30, 2015
- Adding PH Parkridge data as part of Palmetto Health
- ICD-10 implementation for diagnoses and procedures
- Adding incremental loads of data to CDW which will enable daily refreshes of the data warehouse
- Creating the base infrastructure for the Carolinas Collaborative and PCORI CDMv3
- Secure Researcher Workspace (Phase I)

Note: The scope of this release did not include updates to the i2b2 data marts. Updating i2b2 is the focus of the next HSSC release.

Fixes

- Corrected bug that led to some diagnosis and procedure codes being null
- Corrected bug that prevented correct identification of diagnosis code system (i.e. ICD-9-CM or ICD-10) and diagnosis date, when available

Existing Issues

- Urban-Rural codes are assigned to each county by the U.S. Office of Management and Budget. HSSC assigns Urban-Rural codes based on corresponding patient ZIP codes, which are more frequently populated than county in CDW. This increases the number of patients that have Urban-Rural codes in CDW but reduces accuracy for the relatively small number of patients with ZIP codes that correspond to more than one county.
    - 83 ZIP codes with more than one distinct urban-rural code value expose us to this issue. Less than 6.5% of patient records (253,374) may have inaccurate urban-rural code values.

Things to Consider

- For this release, the acquired laboratory results were based on a List of Targeted Lab Values (p. 5). These labs were identified in site data and are mapped to LOINC codes in CDW. However, CDW does contain additional lab results from sites, which may or may not be mapped to LOINC. If you require a lab value, not included in the table below, please let us know and we will work with you to identify whether the lab result is available in CDW.

This release includes the following historical data in CDW:

Data Type	GHS	MUSC	PH	SRHS[1]
Patients	1995 - 9/2015	1993 - 9/2015[2]	2001 - 9/2015	1/2011 - 9/2015
Encounters	1/2007 - 9/2015	1/2007 - 9/2015[2]	1/2007- 9/2015	1/2011 - 9/2015
Diagnoses	1/2007 - 9/2015	1/2007 - 9/2015[2]	1/2007 - 9/2015	1/2011 - 9/2015
Procedures	1/2007 - 9/2015	1/2007 - 9/2015[2]	1/2007 - 9/2015	1/2011 - 9/2015
Medication Orders	1/2012 - 9/2015	1/2010 - 9/2015[2]	1/2011 - 9/2015	2/2011 - 9/2015
Medication Administrations	1/2012 - 9/2015	1/2010 - 9/2015[2,3]	1/2011 - 9/2015	-[4]
Lab Results	1/2013 - 9/2015	1/2013 - 9/2015[5] Currently Loading	4/2015 - 9/2015[6]	1/2013 - 9/2015[1]
Vitals (Height/Weight)	-	4/21/2008 - 9/19/2015	-	1/1/2011 - 9/8/2015
Vitals (Smoking Status)	-	4/4/2012 - 6/30/2014	-	-

[1] *SRHS missing historical data feeds from 8/16/2013 to 7/9/2014*

[2] *MUSC data extracts ended on 9/19/2015*

[3] *MUSC Med Admin Data is loaded into HTB. This data will be loaded into CDW during January*

[4] *SRHS Med Administration data is scheduled to be loaded after release 6*

[5] *MUSC Lab Data is currently loading into HTB and CDW. This data will be fully loaded during January*

[6] *PH did not turn on the Lab feed until 3/31/2015*

Note: The table above presents data ranges for data in CDW by institution. It does not reflect the data or time frames currently available in i2b2. Additionally, when filling data requests, some data may be filtered to avoid providing a means to identify a particular institution, if institutions are not already identified as part of the data request.

CDW Summary	Release 6.0	Release 5.2
Total Patients with Clinical Visit Data Available	**2,825,193**	**2,695,234**
Total Patients Received	4,941,367	4,420,633
Total Distinct Patients in MPI (Merged)	3,864,537	3,717,871
Total Patients Received from GHS	1,386,414	1,371,675
Total Patients Received from MUSC	1,679,009	1,318,654
Total Patients Received from PH	1,341,854	1,311,197
Total Patients Received from SRHS	534,090	419,107
Total Visits	**38,679,448**	**37,478,773**
Total Visits from GHS	19,749,745	19,647,740
Total Visits from MUSC	10,368,876	9,414,714
Total Visits from PH	6,229,667	6,147,526
Total Visits from SRHS	2,331,160	2,268,793
Total Visits Without Patients (Exceptions)	661,752	740,581
Total Visits Without Patients GHS	582,026	602,094
Total Visits Without Patients MUSC	12,501	11,568
Total Visits Without Patients PH	62	17,123
Total Visits Without Patients SRHS	67,163	109,796
GHS Emergency Visits	1,361,419	1,346,799
GHS Inpatient Visits	642,942	638,936
GHS Outpatient Visits	17,745,384	17,662,005
GHS Unknown Visit Type (Exception)	0	0
MUSC Emergency Visits	534,378	456,133
MUSC Inpatient Visits	304,767	262,704
MUSC Outpatient Visits	9,529,731	8,695,872
MUSC Unknown Visit Type (Exception)	0	5
PH Emergency Visits	1,241,745	1,228,879
PH Inpatient Visits	475,909	472,221
PH Outpatient Visits	4,511,969	4,446,362
PH Unknown Visit Type (Exception)	44	64
SRHS Emergency Visits	423,221	413,985
SRHS Inpatient Visits	127,142	124,516
SRHS Outpatient Visits	1,779,716	1,729,962
SRHS Unknown Visit Type (Exception)	1081	330
Total Diagnoses	**64,081,951**	**61,090,314**
Total Diagnoses GHS	20,209,284	19,816,797
Total Diagnoses MUSC	22,808,746	20,687,909
Total Diagnoses PH	16,360,137	16,089,207
Total Diagnoses SRHS	4,703,784	4,496,401
Total Procedures	**6,012,495**	**5,839,196**
Total Procedures GHS	1,705,166	1,698,846

Total Procedures MUSC	2,412,325	2,270,751
Total Procedures PH	1,676,050	1,656,189
Total Procedures SRHS	218,954	213,410
Total Medication Orders	**28,912,754**	**15,897,213**
Total Medication Orders GHS	5,106,425	5,033,476
Total Medication Orders MUSC	10,373,270	6,383,478
Total Medication Orders PH	8846218	0
Total Medication Orders SRHS	4,586,841	4,480,259
Total Medication Orders mapped to RxNorm	23,844,956	13,846,532
Percentage Medication Orders Mapped	82.47%	87.10%
Total Medication Admins	**40,778,558**	**22,045,625**
Total Medication Admins GHS	3,907,230	3,851,503
Total Medication Admins MUSC	18,522,605	18,194,122
Total Medication Admins PH	18348723	0
Total Medication Admins SRHS	0	0
Total Medication Admins mapped to RxNorm	37,664,413	21,029,032
Percentage Medication Admins Mapped	92.36%	95.39%
Total Vitals	**2,249,848**	**0**
Total Distinct Patients	355,544	0
Perc. of Eligible* Inpatient Patients with same-visit Height and Weight	66.16%	0
Perc. of Eligible* Inpatient Patients (2015 only) with same-visit Height and Weight	82.24%	0
Perc. of Eligible* Outpatient Patients with same-visit Height and Weight	20.46%	0
Perc. of Eligible* Outpatient Patients (2015 only) with same-visit Height and Weight	38.25%	0
Perc. of Eligible* Emergency Patients with same-visit Height and Weight	7.31%	0
Perc. of Eligible* Emergency Patients (2015 only) with same-visit Height and Weight	23.62%	0
Total Vitals GHS	0	0
Total Vitals MUSC	1,883,030	0
Total Vitals PH	0	0
Total Vitals SRHS	366,760	0
Total Lab Results	**70,247,483**	**0**
Total Lab Results GHS	34,850,553	0
Total Lab Results MUSC	7,900,162	0
Total Lab Results PH	7,933,328	0
Total Lab Results SRHS	19,563,440	0
Total Lab Results Mapped to LOINC	53,335,753	0
Percentage Lab Results Mapped to LOINC	75.93%	0

* Only patients with visits that are within the periods and institutions of Vital data coverage are *Eligible*.

List of Targeted Laboratory Result Values
From a Complete Blood Count (CBC):
White blood count
Hemoglobin
Hematocrit
Platelet count
Red blood count
Mean Cell Volume - MCV
Mean Cell HGB - MCH
Mean Cell HGB Conc - MCHC
Red Cell Distribution - RDW
Mean Platelet volume - MPV
Neutrophils Percentage
Lymphocytes Percentage
Monocytes Percentage
Eosinophils Percentage
Basophil Percentage
From a Comprehensive Metabolic Panel (CMP) (elements can also be found on other panels—all serum):
Sodium
Potassium
Chloride
Bicarbonate
Blood Urea Nitrogen
Creatinine
Blood Glucose
AST (Aspartate Aminotransferase)
ALT (alanine Aminotransferase)
Alkaline Phosphatase
Total bilirubin
Albumin
Total Protein
Calcium
Carbon Dioxide CO2
Lipid Panel:
Cholesterol
High density lipids
Low density lipids
Very low density lipids
Clotting Studies or Coagulation Panel:
INR (International normalized ratio)
PT (Prothrombin Time)
aPTT (Activated Partial Thromboplastin Time)
Urinalysis:
Specific gravity
Urine PH
Red blood cells
White blood cells
Leukocyte esterase
Nitrites

Urine glucose
Ketones
Arterial Blood Gas:
pH
PO2 - Partial Pressure of Oxygen
PCO2 - Partial Pressure of Carbon Dioxide
HCO3 - Bicarbonate
Percentage of Saturation
Other (all these are blood values):
Hemoglobin A1C
Direct bilirubin
Lactate Dehydrogenase
Troponin
Troponin T cardiac (qualitative)
Troponin T cardic (quantitative
Creatine Kinase-Myocardial band
Creatine Kinase Total
Creatine Kinase MB/creatine kinase total
Phosphate
Erythrocyte Sedimentation Rate
C-reactive Protein
Glucose - Bedside, Glucometer, Point of Care
Anion Gap
Est GFR - Caucasian
Est GFR- Non Caucasian
Red Blood Cell Morphology
Platelet Estimate
Lactate level
Protein C level
D-dimer level
Antithrombin level
Procalcitonin level