TECHNICAL NOTES
for the Cancer Surgery Volume Report

August 2021

Pennsylvania Health Care Cost Containment Council
Report Period: State Fiscal Year 2020
July 1, 2019 – June 30, 2020 Data

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Technical Notes
Cancer Surgery Volume Report

METHODOLOGY

This document serves as a supplement to the PHC4 *Cancer Surgery Volume Report*, which presents information about the number of cancer-related surgeries performed at Pennsylvania hospitals. Included within this set of technical notes are descriptions of the criteria and definitions (codes) used for case selection and report display.

Study period

The report includes data from state fiscal year 2020: July 1, 2019 through June 30, 2020.

Measure reported: number of cancer surgeries

The primary measure displayed in this report is the number of cancer-related surgeries performed on adult patients (age 18 years and older) at individual hospitals in Pennsylvania. Hospital surgical volume is reported separately for eleven types of cancers including bladder, brain, breast, colon, esophageal, liver, lung, pancreatic, prostate, rectal, and stomach cancer. Statewide totals are also provided.

Selection of cancers for this report

The eleven cancers included in this report were chosen because of strong evidence in the scientific literature* showing a relationship between patient outcomes and hospital volume for these cancer surgeries specifically.

Data collection and verification

The data for the *Cancer Surgery Volume Report*, obtained from the UB-04 (Uniform Billing) form, was submitted electronically to the Pennsylvania Health Care Cost Containment Council by Pennsylvania general acute care (GAC) and specialty GAC hospitals. Federal hospitals were not included. The data included demographic information, hospital charges, and diagnosis and procedure codes (ICD-10-CM/PCS and CPT-4).

Facilities submitted data to the Council on a quarterly basis (within 90 days from the last day of each quarter). Upon receipt of the data, verification was performed to assure data were submitted in a readable format, and extensive quality assurance checks were completed. Error reports for UB-04 data were then generated and returned to each facility with an opportunity to correct any problems. Data accuracy and completeness were ultimately the responsibility of each individual hospital.

Study populations and inclusion criteria

All records meeting the definition criteria listed in Appendix Table A were included in the volume counts. The study populations for each of the eleven cancer surgery categories included all unique, usable adult (age 18 years and older) inpatient discharge records (and outpatient records for breast cancer surgeries) from all Pennsylvania GAC and specialty GAC hospitals operational during the study period (exceptions are noted in Appendix Tables A and B). Individual patients who underwent more than one type of cancer surgery during their hospitalization were counted in each respective cancer category.

Special note regarding COVID-19

The onset of COVID-19 in 2020 affected overall hospital utilization, including the number of cancer surgeries performed. Among the eleven cancer surgeries included in this report, hospital surgical volume decreased in nine categories (two categories showed increases) from state fiscal year (FY) 2019 (July 2018 through June 2019) to FY 2020 (July 2019 through June 2020). Overall, the total volume of surgeries for these eleven cancer categories decreased by 3.5%.

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* Described in detail by the California HealthCare Foundation. 2015. "Safety in Numbers: Cancer Surgeries in California Hospitals." Available at https://www.chcf.org/wp-content/uploads/2017/12/PDF-SafetyCancerSurgeriesHospitals.pdf

Cancer	FY 2019 Total Volume	FY 2020 Total Volume	Percent Change FY 2019 to FY 2020
Bladder	1,153	1,056	-8.4%
Brain	1,277	1,296	+1.5%
Breast*	12,092	11,867	-1.9%
Colon	3,604	3,389	-6.0%
Esophagus	343	335	-2.3%
Liver	549	528	-3.8%
Lung	2,374	2,298	-3.2%
Pancreas	505	519	+2.8%
Prostate	3,035	2,800	-7.7%
Rectum	966	904	-6.4%
Stomach	309	296	-4.2%
Total	**26,207**	**25,288**	**-3.5%**

* Breast cancer counts include surgeries performed in inpatient and outpatient settings. From FY 2019 to FY 2020, the inpatient volume decreased from 1,787 to 1,589 (-11.1%) and the outpatient volume decreased from 10,305 to 10,278 (-0.3%).

APPENDIX

TABLE A

Definitions for Cancer Surgeries

Requirements for including a record in the report:
- Record was from a GAC or SGAC hospital
- Time period: July 1, 2019 through June 30, 2020
- Patient age was 18 years or older
- Code requirements*
  - Record was <u>not</u> in Major Diagnostic Category 14 – Pregnancy, Childbirth and the Puerperium
  - Record was <u>not</u> in Major Diagnostic Category 15 – Newborns and Other Neonates with Conditions
  - Record had at least one ICD-10-CM diagnosis code <u>and</u> at least one ICD-10-PCS procedure code (or CPT-4 code for outpatient breast cancer surgeries), in any code position, for a specific cancer surgery category, as outlined below.

Code definition by cancer surgery category:

Bladder

Diagnosis: C670, C671, C672, C673, C674, C675, C676, C677, C678, C679, D090

Procedure: 0TBB0ZZ, 0TBB3ZZ, 0TBB4ZZ, 0TBB7ZZ, 0TBB8ZZ, 0TBC0ZZ, 0TBC3ZZ, 0TBC4ZZ, 0TBC7ZZ, 0TBC8ZZ, 0TTB0ZZ, 0TTB4ZZ, 0TTB7ZZ, 0TTB8ZZ, 0TTC0ZZ, 0TTC4ZZ, 0TTC7ZZ, 0TTC8ZZ

Brain

Diagnosis: C710, C711, C712, C713, C714, C715, C716, C717, C718, C719, C7931

Procedure: 00500ZZ, 00503ZZ, 00504ZZ, 00570ZZ, 00573ZZ, 00574ZZ, 005B0ZZ, 005B3ZZ, 005B4ZZ, 005C0ZZ, 005C3ZZ, 005C4ZZ, 005D0ZZ, 005D3ZZ, 005D4ZZ, 00B00ZZ, 00B03ZZ, 00B04ZZ, 00B60ZZ, 00B63ZZ, 00B64ZZ, 00B70ZZ, 00B73ZZ, 00B74ZZ, 00BB0ZZ, 00BB3ZZ, 00BB4ZZ, 00BC0ZZ, 00BC3ZZ, 00BC4ZZ, 00BD0ZZ, 00BD3ZZ, 00BD4ZZ, 00T70ZZ, 00T73ZZ, 00T74ZZ

Breast

Diagnosis: C50011, C50012, C50019, C50021, C50022, C50029, C50111, C50112, C50119, C50121, C50122, C50129, C50211, C50212, C50219, C50221, C50222, C50229, C50311, C50312, C50319, C50321, C50322, C50329, C50411, C50412, C50419, C50421, C50422, C50429, C50511, C50512, C50519, C50521, C50522, C50529, C50611, C50612, C50619, C50621, C50622, C50629, C50811, C50812, C50819, C50821, C50822, C50829, C50911, C50912, C50919, C50921, C50922, C50929, D0500, D0501, D0502, D0510, D0511, D0512, D0580, D0581, D0582, D0590, D0591, D0592

Procedure (inpatient, ICD-10-PCS): 0HBT0ZZ, 0HBT3ZZ, 0HBT7ZZ, 0HBT8ZZ, 0HBTXZZ[1], 0HBU0ZZ, 0HBU3ZZ, 0HBU7ZZ, 0HBU8ZZ, 0HBUXZZ[1], 0HBV0ZZ, 0HBV3ZZ, 0HBV7ZZ, 0HBV8ZZ, 0HBVXZZ[1], 0HTT0ZZ, 0HTU0ZZ, 0HTV0ZZ

Procedure (outpatient, CPT-4): 19125, 19301, 19302, 19303, 19304[2], 19305, 19306, 19307

Colon

Diagnosis: C180, C181, C182, C183, C184, C185, C186, C187, C188, C189, C49A4, C7A021, C7A022, C7A023, C7A024, C7A025, D010

Procedure: 0DBE0ZZ, 0DBE3ZZ, 0DBE4ZZ, 0DBE7ZZ, 0DBE8ZZ, 0DBF0ZZ, 0DBF3ZZ, 0DBF4ZZ, 0DBF7ZZ, 0DBF8ZZ, 0DBG0ZZ, 0DBG3ZZ, 0DBG4ZZ, 0DBG7ZZ, 0DBG8ZZ, 0DBH0ZZ, 0DBH3ZZ, 0DBH4ZZ, 0DBH7ZZ, 0DBH8ZZ, 0DBK0ZZ, 0DBK3ZZ, 0DBK4ZZ, 0DBK7ZZ, 0DBK8ZZ, 0DBL0ZZ, 0DBL3ZZ, 0DBL4ZZ, 0DBL7ZZ, 0DBL8ZZ, 0DBM0ZZ, 0DBM3ZZ, 0DBM4ZZ, 0DBM7ZZ, 0DBM8ZZ, 0DBN0ZZ, 0DBN3ZZ, 0DBN4ZZ, 0DBN7ZZ, 0DBN8ZZ, 0DTE0ZZ, 0DTE4ZZ, 0DTE7ZZ, 0DTE8ZZ, 0DTF0ZZ, 0DTF4ZZ, 0DTF7ZZ, 0DTF8ZZ, 0DTG0ZZ, 0DTG4ZZ, 0DTG7ZZ, 0DTG8ZZ, 0DTGFZZ, 0DTH0ZZ, 0DTH4ZZ, 0DTH7ZZ, 0DTH8ZZ, 0DTK0ZZ, 0DTK4ZZ, 0DTK7ZZ, 0DTK8ZZ, 0DTL0ZZ, 0DTL4ZZ, 0DTL7ZZ, 0DTL8ZZ, 0DTLFZZ, 0DTM0ZZ, 0DTM4ZZ, 0DTM7ZZ, 0DTM8ZZ, 0DTMFZZ, 0DTN0ZZ, 0DTN4ZZ, 0DTN7ZZ, 0DTN8ZZ, 0DTNFZZ

Esophagus

Diagnosis: C153, C154, C155, C158, C159, C160, C49A1, D001

Procedure: 0DB10ZZ, 0DB13ZZ, 0DB14ZZ, 0DB17ZZ, 0DB18ZZ, 0DB20ZZ, 0DB23ZZ, 0DB24ZZ, 0DB27ZZ, 0DB28ZZ, 0DB30ZZ, 0DB33ZZ, 0DB34ZZ, 0DB37ZZ, 0DB38ZZ, 0DB40ZZ, 0DB43ZZ, 0DB44ZZ, 0DB47ZZ, 0DB48ZZ, 0DB50ZZ, 0DB53ZZ, 0DB54ZZ, 0DB57ZZ, 0DB58ZZ, 0DT10ZZ, 0DT14ZZ, 0DT17ZZ, 0DT18ZZ, 0DT20ZZ, 0DT24ZZ, 0DT27ZZ, 0DT28ZZ, 0DT30ZZ, 0DT34ZZ, 0DT37ZZ, 0DT38ZZ, 0DT40ZZ, 0DT44ZZ, 0DT47ZZ, 0DT48ZZ, 0DT50ZZ, 0DT54ZZ, 0DT57ZZ, 0DT58ZZ

Liver

Diagnosis: C220, C221, C222, C223, C224, C227, C228, C229, C240, C241, C248, C787, C7B02, D015

Procedure: 0FB00ZZ, 0FB03ZZ, 0FB04ZZ, 0FB10ZZ, 0FB13ZZ, 0FB14ZZ, 0FB20ZZ, 0FB23ZZ, 0FB24ZZ, 0FT00ZZ, 0FT10ZZ, 0FT14ZZ, 0FT20ZZ, 0FT24ZZ

Lung

Diagnosis: C3410, C3411, C3412, C342, C3430, C3431, C3432, C3480, C3481, C3482, C3490, C3491, C3492, C7A090, D0220, D0221, D0222

Procedure: 0B5C0ZZ, 0B5C3ZZ, 0B5C4ZZ, 0B5C7ZZ, 0B5C8ZZ, 0B5D0ZZ, 0B5D3ZZ, 0B5D4ZZ, 0B5D7ZZ, 0B5D8ZZ, 0B5F0ZZ, 0B5F3ZZ, 0B5F4ZZ, 0B5F7ZZ, 0B5F8ZZ, 0B5G0ZZ, 0B5G3ZZ, 0B5G4ZZ, 0B5G7ZZ, 0B5G8ZZ, 0B5H0ZZ, 0B5H3ZZ, 0B5H4ZZ, 0B5H7ZZ, 0B5H8ZZ, 0B5J0ZZ, 0B5J3ZZ, 0B5J4ZZ, 0B5J7ZZ, 0B5J8ZZ, 0B5K0ZZ, 0B5K3ZZ, 0B5K4ZZ, 0B5K7ZZ, 0B5K8ZZ, 0B5L0ZZ, 0B5L3ZZ, 0B5L4ZZ, 0B5L7ZZ, 0B5L8ZZ, 0B5M0ZZ, 0B5M3ZZ, 0B5M4ZZ, 0B5M7ZZ, 0B5M8ZZ, 0BB30ZZ, 0BB33ZZ, 0BB34ZZ, 0BB37ZZ, 0BB38ZZ, 0BB40ZZ, 0BB43ZZ, 0BB44ZZ, 0BB47ZZ, 0BB48ZZ, 0BB50ZZ, 0BB53ZZ, 0BB54ZZ, 0BB57ZZ, 0BB58ZZ, 0BB60ZZ, 0BB63ZZ, 0BB64ZZ, 0BB67ZZ, 0BB68ZZ, 0BB70ZZ, 0BB73ZZ, 0BB74ZZ, 0BB77ZZ, 0BB78ZZ, 0BB80ZZ, 0BB83ZZ, 0BB84ZZ, 0BB87ZZ, 0BB88ZZ, 0BB90ZZ, 0BB93ZZ, 0BB94ZZ, 0BB97ZZ, 0BB98ZZ, 0BBB0ZZ, 0BBB3ZZ, 0BBB4ZZ, 0BBB7ZZ, 0BBB8ZZ, 0BBC0ZZ, 0BBC3ZZ, 0BBC4ZZ, 0BBC7ZZ, 0BBC8ZZ, 0BBD0ZZ, 0BBD3ZZ, 0BBD4ZZ, 0BBD7ZZ, 0BBD8ZZ, 0BBF0ZZ, 0BBF3ZZ, 0BBF4ZZ, 0BBF7ZZ, 0BBF8ZZ, 0BBG0ZZ, 0BBG3ZZ, 0BBG4ZZ, 0BBG7ZZ, 0BBG8ZZ, 0BBH0ZZ, 0BBH3ZZ, 0BBH4ZZ, 0BBH7ZZ, 0BBH8ZZ, 0BBJ0ZZ, 0BBJ3ZZ, 0BBJ4ZZ, 0BBJ7ZZ, 0BBJ8ZZ, 0BBK0ZZ, 0BBK3ZZ, 0BBK4ZZ, 0BBK7ZZ, 0BBK8ZZ, 0BBL0ZZ, 0BBL3ZZ, 0BBL4ZZ, 0BBL7ZZ, 0BBL8ZZ, 0BBM0ZZ, 0BBM3ZZ, 0BBM4ZZ, 0BBM7ZZ, 0BBM8ZZ, 0BT30ZZ, 0BT34ZZ, 0BT40ZZ, 0BT44ZZ, 0BT50ZZ, 0BT54ZZ, 0BT60ZZ, 0BT64ZZ, 0BT70ZZ, 0BT74ZZ, 0BT80ZZ, 0BT84ZZ, 0BT90ZZ, 0BT94ZZ, 0BTB0ZZ, 0BTB4ZZ, 0BTC0ZZ, 0BTC4ZZ, 0BTD0ZZ, 0BTD4ZZ, 0BTF0ZZ, 0BTF4ZZ, 0BTG0ZZ, 0BTG4ZZ, 0BTH0ZZ, 0BTH4ZZ, 0BTJ0ZZ, 0BTJ4ZZ, 0BTK0ZZ, 0BTK4ZZ, 0BTL0ZZ, 0BTL4ZZ, 0BTM0ZZ, 0BTM4ZZ

Pancreas

Diagnosis: C250, C251, C252, C253, C254, C257, C258, C259

Procedure: 0FBG0ZZ, 0FBG3ZZ, 0FBG4ZZ, 0FBG8ZZ, 0FTG0ZZ, 0FTG4ZZ

Prostate

Diagnosis: C61, D075

Procedure: 0VB00ZZ, 0VB03ZZ, 0VB04ZZ, 0VB07ZZ, 0VB08ZZ, 0VT00ZZ, 0VT04ZZ, 0VT07ZZ, 0VT08ZZ

Rectum

Diagnosis: C19, C20, C218, C49A5, C7A026, D011, D012

Procedure: 0DBP0ZZ, 0DBP3ZZ, 0DBP4ZZ, 0DBP7ZZ, 0DBP8ZZ, 0DTP0ZZ, 0DTP4ZZ, 0DTP7ZZ, 0DTP8ZZ

Stomach

Diagnosis: C161, C162, C163, C164, C165, C166, C168, C169, C49A2, C7A092, D002

Procedure: 0DB60Z3, 0DB60ZZ, 0DB63Z3, 0DB63ZZ, 0DB64Z3, 0DB64ZZ, 0DB67Z3, 0DB67ZZ, 0DB68Z3, 0DB68ZZ, 0DB70ZZ, 0DB73ZZ, 0DB74ZZ, 0DB77ZZ, 0DB78ZZ, 0DT60ZZ, 0DT64ZZ, 0DT67ZZ, 0DT68ZZ, 0DT70ZZ, 0DT74ZZ, 0DT77ZZ, 0DT78ZZ

TABLE B
Hospitals Not Reported

Facilities that closed
- Ellwood City
- Hahnemann University
- Sunbury Community

Facilities that merged
- Guthrie Towanda Memorial merged with Robert Packer
- Jeanes merged with Temple University
- St Luke's Sacred Heart merged with St Luke's Bethlehem

Facilities with consolidated data submissions
- Springfield Crozer data is reported under Crozer-Chester beginning April 1, 2020
- Taylor Crozer data is reported under Crozer-Chester beginning April 1, 2020

Children's hospitals
- Children's Hosp Phila
- Shriners Children Phila
- St. Christopher's Children
- UPMC Children's Hosp Pgh

Facilities with no volume

The following facilities had no (N=0) records in all eleven cancer surgery categories within the study period.
- Advanced Surgical
- Bucktail
- Conemaugh Meyersdale
- Conemaugh Miners
- Edgewood Surgical
- Endless Mountains
- Geisinger Jersey Shore
- OSS Orthopaedic
- Penn Highlands Huntingdon
- Physicians Care
- Rothman Ortho Specialty
- Troy Community
- UPMC Kane
- UPMC Muncy
- Washington HS Greene
- Wills Eye