Application to the Missouri Health Facilities Review Committee

Project: Replace a CT Scanner, # 5732 HS
Certificate of Need Program

EQUIPMENT REPLACEMENT APPLICATION
- Expedited review if equipment to be replaced was CON-approved.
- Full review if equipment to be replaced was not CON-approved.

<table>
<thead>
<tr>
<th>Project Name: Replace a CT Scanner</th>
<th>Project No: 5732 HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Description: CoxHealth proposes to replace a CT scanner located in the Martin Center on the campus of Cox South.</td>
<td></td>
</tr>
</tbody>
</table>

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**Divider I. Application Summary:**

- 4 ✓ 1. Applicant Identification and Certification (Form MO 580-1861).
- 5 ✓ 2. Representative Registration (Form MO 580-1869).
- 8 ✓ 3. Proposed Project Budget (Form MO 580-1863) and detail sheet with documentation of costs.

**Divider II. Proposal Description:**

- 10 ✓ 1. Provide a complete detailed project description.
- 11 ✓ 2. Provide a listing with itemized costs of the medical equipment to be acquired.
- 12 ✓ 3. Provide bid quotes for the proposed equipment.

**Divider III. Community Need Criteria and Standards:**

- 30 ✓ 1. Describe the financial rationale for the proposed replacement equipment.
- 30 ✓ 2. Document if the existing equipment has exceeded its useful life.
- 30 ✓ 3. Describe the effect the replacement unit would have on quality of care.
- 30 ✓ 4. Document if the existing equipment is in constant need of repair.
- 30 ✓ 5. Document if the lease on the current equipment has expired.
- 31 ✓ 6. Describe the technological advances provided by the new unit.
- 31 ✓ 7. Describe how patient satisfaction would be improved.
- 31 ✓ 8. Describe how patient outcomes would be improved.
- 32 ✓ 9. Describe what impact the new unit would have on utilization.
- 32 ✓ 10. Describe any new capabilities that the new unit would provide.
- 32 ✓ 11. By what percent will this replacement increase patient charges?

*(If replacement equipment was not previously approved, also complete Divider IV below.)*

**Divider IV. Financial Feasibility Review Criteria and Standards:**

- 33, 34 ✓ 1. Document that sufficient financing is available by providing a letter from a financial institution or an auditor’s statement indicating that sufficient funds are available.
- 33, 35 ✓ 2. Provide Service-Specific Revenues and Expenses (Form MO 580-1865) projected through three full years beyond project completion.
- 33 ✓ 3. Document how patient charges are derived.
- 33, 38 ✓ 4. Document responsiveness to the needs of the medically indigent.
Divider I. Application Summary:

1. **Applicant Identification and Certification (Form MO 580-1861).**
   See attached form (1)

2. **Representative Registration (Form MO 580-1869).**
   See attached representative registration forms (3)

Matthew Turner, System Director of Radiology, CoxHealth
Jackie Muenks, BS, RT(R)(MR), Manager Radiology, CoxHealth
Christopher D. Breite, FACHE, MHA, BS, Health Care Planner, CoxHealth
Certificate of Need Program

APPLICANT IDENTIFICATION AND CERTIFICATION

The information provided must match the Letter of Intent for this project, without exception.

1. Project Location  (Attach additional pages as necessary to identify multiple project sites.)
Title of Proposed Project
Replace a CT Scanner
Project Address (Street/City/State/Zip Code)
3901 S. Fremont Ave.
Springfield, MO 65804

2. Applicant Identification  (Information must agree with previously submitted Letter of Intent.)
List All Owner(s):  (List corporate entity.)
Lester E. Cox Medical Centers
Address (Street/City/State/Zip Code)
1423 N. Jefferson Ave, Springfield, MO 65802
Telephone Number
417-269-3000

List All Operator(s):  (List entity to be licensed or certified.)
Lester E. Cox Medical Centers
Address (Street/City/State/Zip Code)
1423 N. Jefferson Ave, Springfield, MO 65802
Telephone Number
417-269-3000

3. Ownership  (Check applicable category.)
☑ Nonprofit Corporation  ☐ Individual  ☐ City  ☐ District
☐ Partnership  ☐ Corporation  ☐ County  ☐ Other

4. Certification
In submitting this project application, the applicant understands that:

(A) The review will be made as to the community need for the proposed beds or equipment in this application;
(B) In determining community need, the Missouri Health Facilities Review Committee (Committee) will consider all similar beds or equipment within the service area;
(C) The issuance of a Certificate of Need (CON) by the Committee depends on conformance with its Rules and CON statute;
(D) A CON shall be subject to forfeiture for failure to incur an expenditure on any approved project six (6) months after the date of issuance, unless obligated or extended by the Committee for an additional six (6) months;
(E) Notification will be provided to the CON Program staff if and when the project is abandoned; and
(F) A CON, if issued, may not be transferred, relocated, or modified except with the consent of the Committee.

We certify the information and date in this application as accurate to the best of our knowledge and belief by our representative’s signature below:

5. Authorized Contact Person  (Attach a Contact Person Correction Form if different from the Letter of Intent.)
Name of Contact Person
Christopher D. Breite, FACHE, MHA
Title
Health Care Planner
Telephone Number
417-269-7684
Fax Number
417-269-3104
E-mail Address
chris.breite@coxhealth.com
Signature of Contact Person

Date of Signature
10/14/19
**Certificate of Need Program**

**REPRESENTATIVE REGISTRATION**

(A registration form must be completed for each project presented.)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Number</th>
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<tbody>
<tr>
<td>Replace a CT Scanner</td>
<td>5732 HS</td>
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(Please type or print legibly.)

<table>
<thead>
<tr>
<th>Name of Representative</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew Turner, RT (R)(N)(CT), CNMT, BHS, MBA, CRA</td>
<td>System Director, Radiology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Firm/Corporation/Association of Representative (may be different from below, e.g., law firm, consultant, other)</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lester E. Cox Medical Centers</td>
<td>417-269-4072</td>
</tr>
</tbody>
</table>

Address (Street/City/State/Zip Code)

3801 S. National Ave, Springfield, MO 65807

Who’s interests are being represented?
(If more than one, submit a separate Representative Registration Form for each.)

<table>
<thead>
<tr>
<th>Name of Individual/Agency/Corporation/Organization being Represented</th>
<th>Telephone Number</th>
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<tr>
<td>Lester E. Cox Medical Centers</td>
<td>417-269-3000</td>
</tr>
</tbody>
</table>

Address (Street/City/State/Zip Code)

1423 N. Jefferson Ave, Springfield, MO 65802

Check one. Do you: Support Oppose Neutral

Relationship to Project: None Employee Legal Counsel Consultant Lobbyist Other (explain):

Other Information: ________________________________ ________________________________

I attest that to the best of my belief and knowledge the testimony and information presented by me is truthful, represents factual information, and is in compliance with §197.326.1 RSMo which says: Any person who is paid either as part of his normal employment or as a lobbyist to support or oppose any project before the health facilities review committee shall register as a lobbyist pursuant to chapter 105 RSMo, and shall also register with the staff of the health facilities review committee for every project in which such person has an interest and indicate whether such person supports or opposes the named project. The registration shall also include the names and addresses of any person, firm, corporation or association that the person registering represents in relation to the named project. Any person violating the provisions of this subsection shall be subject to the penalties specified in §105.478, RSMo.

Original Signature: Matthew Turner

Date: 10.16.19

MO 580-1869 (11/01)
# Certificate of Need Program

## REPRESENTATIVE REGISTRATION

(A registration form must be completed for each project presented.)

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<th>Name of Representative</th>
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<tr>
<td>Jackie Muenks, B.S., R. T.(R)(MR)</td>
<td>Manager, Radiology</td>
</tr>
</tbody>
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<table>
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<tr>
<th>Telephone Number</th>
</tr>
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<tbody>
<tr>
<td>417-269-0512</td>
</tr>
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</table>

Who's interests are being represented?  
(if more than one, submit a separate Representative Registration Form for each.)

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Check one. Do you:  
☐ Support  
☐ Oppose  
☐ Neutral

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<tr>
<th>Relationship to Project:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Employee</td>
</tr>
</tbody>
</table>
| ☐ None  
| ☐ Legal Counsel  
| ☐ Consultant  
| ☐ Lobbyist  
| ☐ Other (explain): |

Other Information:

__________________________________________________________________________

__________________________________________________________________________

I attest that to the best of my belief and knowledge the testimony and information presented by me is truthful, represents factual information, and is in compliance with §197.326.1 RSMo which says: Any person who is paid either as part of his normal employment or as a lobbyist to support or oppose any project before the health facilities review committee shall register as a lobbyist pursuant to chapter 105 RSMo, and shall also register with the staff of the health facilities review committee for every project in which such person has an interest and indicate whether such person supports or opposes the named project. The registration shall also include the names and addresses of any person, firm, corporation or association that the person registering represents in relation to the named project. Any person violating the provisions of this subsection shall be subject to the penalties specified in §105.478, RSMo.

Original Signature:  
[Signature]

Date: 10-16-19
## Certificate of Need Program

### REPRESENTATIVE REGISTRATION

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<td>Christopher D. Breite, FACHE, MHA</td>
<td>Health Care Planner</td>
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<tr>
<td>Lester E. Cox Medical Centers</td>
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</tbody>
</table>

Check one. Do you:  
☑ Support  
☐ Oppose  
☐ Neutral  

Relationship to Project:  
□ None  
☑ Employee  
□ Legal Counsel  
□ Consultant  
□ Lobbyist  
□ Other (explain): ...

I attest that to the best of my belief and knowledge the testimony and information presented by me is truthful, represents factual information, and is in compliance with §197.326.1 RSMo which says: Any person who is paid either as part of his normal employment or as a lobbyist to support or oppose any project before the health facilities review committee shall register as a lobbyist pursuant to chapter 105 RSMo, and shall also register with the staff of the health facilities review committee for every project in which such person has an interest and indicate whether such person supports or opposes the named project. The registration shall also include the names and addresses of any person, firm, corporation or association that the person registering represents in relation to the named project. Any person violating the provisions of this subsection shall be subject to the penalties specified in §105.478, RSMo.

Original Signature: [Signature]  
Date: 10/16/19
Divider I. Applicant Summary:

3. Proposed Project Budget (Form MO 580-1863) and detail sheet with documentation of costs.

   a. See attached Proposed Project Budget form (1)

   b. Proposed Project Budget detail sheet

      i. Line 2: Renovation Costs – Renovation costs provided by engineering department. This includes estimated costs to expand the CT scanner room due to the size of CT scanner. The costs are only those related to making the CT scanner functional and include the lead lined door, frame and hardware, electrical work to the scanner, cutting the concrete slab so the scanner can fit, and room shielding. These costs are itemized in Divide II.

      ii. Line 6: Major Medical Equipment – Major Medical Equipment amount taken from the budgetary quote by the vendor. The quote is provided in Divider II.

      iii. Line 16: Other Methods – Operating funds will be used to purchase the equipment and renovation services needed to complete the project.
## Certificate of Need Program

### PROPOSED PROJECT BUDGET

<table>
<thead>
<tr>
<th>Description</th>
<th>Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COSTS:</strong></td>
<td></td>
</tr>
<tr>
<td>1. New Construction Costs ***</td>
<td>$0</td>
</tr>
<tr>
<td>2. Renovation Costs ***</td>
<td>$54,500</td>
</tr>
<tr>
<td><strong>3. Subtotal Construction Costs (#1 plus #2)</strong>*</td>
<td>$54,500</td>
</tr>
<tr>
<td>4. Architectural/Engineering Fees</td>
<td>$0</td>
</tr>
<tr>
<td>5. Other Equipment (not in construction contract)</td>
<td>$0</td>
</tr>
<tr>
<td>6. Major Medical Equipment</td>
<td>$1,700,000</td>
</tr>
<tr>
<td>7. Land Acquisition Costs ***</td>
<td>$0</td>
</tr>
<tr>
<td>8. Consultants’ Fees/Legal Fees ***</td>
<td>$0</td>
</tr>
<tr>
<td>9. Interest During Construction (net of interest earned) ***</td>
<td>$0</td>
</tr>
<tr>
<td>10. Other Costs ***</td>
<td>$0</td>
</tr>
<tr>
<td><strong>11. Subtotal Non-Construction Costs</strong> (sum of #4 through #10)</td>
<td>$1,700,000</td>
</tr>
<tr>
<td><strong>12. Total Project Development Costs</strong> (#3 plus #11)</td>
<td>$1,754,500 **</td>
</tr>
</tbody>
</table>

**FINANCING:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Unrestricted Funds</td>
<td>$0</td>
</tr>
<tr>
<td>14. Bonds</td>
<td>$0</td>
</tr>
<tr>
<td>15. Loans</td>
<td>$0</td>
</tr>
<tr>
<td>16. Other Methods (specify)</td>
<td>$1,754,500</td>
</tr>
<tr>
<td><strong>17. Total Project Financing</strong> (sum of #13 through #16)</td>
<td>$1,754,500 **</td>
</tr>
</tbody>
</table>

18. New Construction Total Square Footage | 0  
19. New Construction Costs Per Square Foot ***** | $0  
20. Renovated Space Total Square Footage | 491  
21. Renovated Space Costs Per Square Foot ***** | $111  

* Attach additional page(s) detailing how each line item was determined, including all methods and assumptions used. Provide documentation of all major costs.

** These amounts should be the same.

*** Capitalizable items to be recognized as capital expenditures after project completion.

**** Include as Other Costs the following: other costs of financing; the value of existing lands, buildings and equipment not previously used for health care services, such as a renovated house converted to residential care, determined by original cost, fair market value, or appraised value; or the fair market value of any leased equipment or building, or the cost of beds to be purchased.

***** Divide new construction costs by total new construction square footage.

****** Divide renovation costs by total renovation square footage.
Divider II. Proposal Description:

1. Provide complete and detailed project description.

This CON application proposes CoxHealth’s acquisition of a GE Revolution CT to replace a GE 16-Slice Lightspeed CT system at the Martin Center on the Cox South campus. The proposed replacement application requests approval to replace a CT scanner that did not receive CON approval because it was purchased under the $1 million CON threshold.

The system being replaced is a previously owned, fifteen year old CT that has outdated detector technology. The age of the equipment limits new software updates and advancements. Also, the 16-slice CT has had over 17 downtimes over the past twelve months making it unreliable to manage current volume. The current scanner has high utilization at over 4300 exams a year with over 95% utilization rate during current hours of operation.

The current volumes for Cardiac CT have increased by 40% mostly related to TAVR procedures. This type of imaging necessitates the need to have a high end CT scanner in order to provide increased sensitivity when measuring heart valves for TAVR Procedures being performed at CoxHealth by the cardiologist. The GE CT Revolution will provide accuracy of those measurements when imaging the heart by allowing heart imaging in a single heartbeat even in patients having irregular heartbeats that many of the TAVR patients experience. The proposed CT will also aid in the development of other structural heart imaging, pre-ablation imaging needs and future expansion with Mitraclip procedures.

The proposed GE Revolution CT scanner addresses several other quality issues by reducing metal artifacts, HD Reconstruction, lowering radiation dose exposure, increased detector coverage, 80 cm bore, and a table weight limit of 500 pounds. Finally, the ability to update software will allow more advanced imaging techniques in cardiac, neurology, musculoskeletal, and body imaging.
2. **Provide a listing with itemized costs of the medical equipment to be acquired.**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door, Frame, and Hardware</td>
<td>$4,500.00</td>
</tr>
<tr>
<td>Electrical</td>
<td>$35,000.00</td>
</tr>
<tr>
<td>Concrete slab cutting</td>
<td>$10,000.00</td>
</tr>
<tr>
<td>Shielding</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>CT Scanner</td>
<td>$1,700,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,754,500.00</strong></td>
</tr>
</tbody>
</table>

3. **Provide bid quotes for the proposed equipment.**

See attached quote from GE
Cox Medical Center South
3801 S National Ave
Springfield, MO 65807-5210

This Agreement (as defined below) is by and between the Customer and the GE Healthcare business ("GE Healthcare"), each as identified below for the sale and purchase of the Products and/or Services identified in this Quotation, together with any applicable schedules referred to herein ("Quotation"). “Agreement” is this Quotation and either: (i) the Governing Agreement identified below; or (ii) if no Governing Agreement is identified, the GE Healthcare Terms and Conditions and Warranties that apply to the Products and/or Services identified in this Quotation. In the event of conflict, the Quotation supersedes.

GE Healthcare can withdraw this Quotation at any time before Customer: (i) signs and returns this Quotation or (ii) provides evidence of Quotation acceptance satisfactory to GE Healthcare (“Quotation Acceptance”). On Quotation Acceptance, this Agreement is the complete and final agreement of the parties relating to the Products and/or Services identified in this Quotation. There is no reliance on any terms other than those expressly stated or incorporated by reference in this Agreement and, except as permitted in this Agreement, no attempt to modify will be binding unless agreed to in writing by the parties. Modifications may result in additional fees and cannot be made without GE Healthcare’s prior written consent.

Handwritten or electronic modifications on this Agreement (except an indication of the form of payment, Customer purchase order number and signatures on the signature blocks below) are void.

**INDICATE FORM OF PAYMENT:**

(If there is potential to finance with a lease transaction, by GE HEF otherwise, select lease)

- Cash*
- Lease
- GE HEF Loan
- Other (Please provide name of finance company: ____________________________)

*Selecting “Cash” or not identifying GE HEF as the finance company declines the option for GE HEF financing.

The parties have caused this Agreement to be executed by their authorized representative as of the last signature date below.

Cox Medical Center South

**Signature:** ____________________________

**Print Name:** ____________________________

**Title:** ____________________________

**Date:** ____________________________

Purchase Order Number, if applicable

GE Precision Healthcare LLC, a GE Healthcare business

**Signature:** Todd Overton

**Title:** Imaging Account Manager

**Date:** September 13, 2019
To Accept This Quotation

Please sign and return this quotation together with your Purchase Order to:

Name: Todd Overton
Email: todd.overton@ge.com
Phone: (314) 954-9556
Fax:

Payment Instructions

Please remit payment for invoices associated with this quotation to:

GE Precision Healthcare LLC
P.O. Box 96483
Chicago, IL 60693
FEIN: 83-0849145

Cox Medical Center South

Addresses:

Bill To: COXHEALTH MEDICAL CENTER SOUTH
ACCOUNTS PAYABLE, 3801 SOUTH NATIONAL AVE, SPRINGFIELD, MO, 65807

Ship To: COXHEALTH MEDICAL CENTER SOUTH
COX MEDICAL CENTER SOUTH, 3801 S NATIONAL AVE, SPRINGFIELD, MO, 65807-5210

To Accept This Quotation

- Please sign the quote and any included attachments (where requested).
- If requested, please indicate your form of payment.
- If you include a purchase order, please make sure it references the following information:
  - The correct Quote number and Version number above
  - The correct Remit To information as indicated in “Payment Instructions” above
  - Your correct SHIP TO and BILL TO site name and address
  - The correct Total Price as indicated above

Upon submission of a purchase order in response to this quotation, GE Healthcare requests the following to evidence agreement to contract terms: Signature page on quote filled out with signature and P.O. number **** OR**** Verbiage on the purchase order must state one of the following:

(i) Per the terms of Quotation # _____, (ii) Per the terms of GPO #_________; (iii) Per the terms of MPA# _____; or (iv) Per the terms of SAA # ______.

Include applicable quote/agreement number with the reference on the purchase order. In addition, Source of Funds (choice of Cash/Third Party Load or GE HFS Lease Loan or Third Party Lease through ______), must be indicated, which may be done on the Quote Signature Page (for signed quotes), or the Purchase Order (where quotes are not signed) or via a separate written source of funds statement (if provided by GE Healthcare).
This CONFIDENTIAL offer may not be shared with any third parties, buying evaluation groups or anyone not directly employed by customer. This offer is being extended in relation to a national show-site agreement, research partnership, or other non-standard transaction. If required for publishing, GE will happily provide a list price quote.

Revolution CT EX configuration is a breakthrough that delivers high-definition image quality and unique clinical capabilities through the convergence of coverage, spatial resolution, temporal resolution and dose performance – all in one. Until now, CT users have had to compromise between systems that could only provide a sub-set of these capabilities.

Revolution CT delivers industry leading technical specifications for a premium CT system, including:

- HD reconstruction, 3D Collimator, and focal aligned detectors provide high-definition image quality, while overcoming the challenges of typical wide detector systems such as cone beam artifacts, HU uniformity, scatter and beam hardening artifacts.
- ASiR-V provides integrated advanced iterative reconstruction technology that reduces noise and reduces low-signal streak artifact at very low signal levels. This technology is designed to deliver reduced noise levels, improved low contrast detectability and may enable a reduction in dose for all clinical applications. In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice.
- The single energy metal artifact reduction solution for Revolution CT is Smart MAR. It uses an automated, three-stage projection-based process. Smart MAR is designed to reveal anatomic details obscured by metal artifacts by reducing photon starvation, beam hardening and streak artifacts caused by metal in the body, such as hip implants, surgical clips, endovascular coils, and dental fillings. Smart MAR requires one single kV scan and can be enabled in secondary reconstructions, making the metal artifact reduction workflow fast and efficient.

A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

Clinical Highlights

(To achieve the full benefits described below, an AW workstation or server with post processing tools may be required. Please consult with your GE sales representative)

Cardiovascular

- One-Beat, High definition, motion free coronary images at any heart
- Whole heart coverage at 160 mm allowing temporal and contrast uniformity across the whole volume.
- Smart Phase: Analyzes the motion of the coronaries throughout the volume to auto-select the best cardiac phase with the least motion.
- SnapShot(TM) Freeze temporal enhanced acquisition: A Intelligent motion correction acquisition technique that is designed to provide a 6x reduction of motion-blur while maintaining high spatial resolution and is demonstrated in cardiac phantom testing. The reduction in motion artifacts is comparable to a 0.058s equivalent gantry rotation speed with effective temporal resolution of 29 msec, as demonstrated in mathematical phantom testing.
- Arrhythmia management: The system can monitor and alert the user to these situations and also recommend turning on a challenging patient mode. This mode avoids scanning during an irregular beat and can further rescan during the next regular beat using the same contrast bolus.
- Best-in-class spatial resolution at 18.2lp/cm in z-direction and 14.8lp/cm in X-Y direction (measured at 2% MTF).

This spatial resolution provides clear images to help the physician with tasks such as accurately quantifying stenosis in coronary and other vascular structures.

- One-Beat, comprehensive cardiac assessment allows for acquiring motion free coronaries, rest or stress perfusion and functional data in a single beat, giving you a comprehensive assessment and potentially reducing the need for additional imaging tests. Integrated beam hardening reduction capabilities allows for accurate perfusion assessment. The ability to perform stress perfusion with motion free CCTA in a single exam can potentially reduce unnecessary dose by not requiring a rest perfusion exam in case no defects are found in the stress perfusion.
- Whole organ dynamic perfusion: This allows perfusion acquisition of the heart or other organs and tissues with uniform contrast
along with integrated beam hardening reduction. The scanner also allows for a flexible aperture size and sampling rate during dynamic perfusion acquisitions. Revolution CT also allows for the ability to acquire a prospectively gated dynamic perfusion acquisition of the whole heart using up to 16 cm of coverage.

- The scanner is also capable of 4D imaging to acquire morphology and perfusion information from a single exam. This can help assess conditions such as congenital heart disease and visualize blood flow through vascular structures.
- TAVR planning: Dedicated TAVR/TAVI protocols allow for mixed acquisitions of the heart, aorta, and femoral arteries, with ECG-gated axial scans and non-ECG-gated axial or helical scans, using only one injection of contrast media, covering 700 mm of anatomy in less than 10 seconds.
- Calcium Scoring: The system also allows single beat acquisition for cardiac calcium scoring
- Triple RuleOut™: The system allows for robust Triple Rule Out studies with motion free coronaries, PE & aorta evaluation in a single exam. The system can cover the entire thorax anatomy in less than three seconds to provide contrast uniformity at low dose.

Neurology highlights

- Routine non-contrast whole brain scans can be performed in a single rotation without moving the table. VHD reconstruction technology ensures CT number uniformity across the whole brain coverage. Iterative Smart MAR can reduce the beam hardening artefacts at bone / brain interface and posterior fossa region. Enhanced Contrast can achieve excellent grey white matter differentiation.
- Smart Stroke, the stroke-dedicated hardware, software and post-processing solution on Revolution CT, can help physicians to reduce “CT scan-to-report” time and “door-to-treatment” time, thus to save more brain tissue of patient with stroke. (Post processing solutions are optional purchases)
- Whole brain CT perfusion with 70kVp, ASiR-V, smart collimation and variable sampling can acquire temporally uniform dynamic blood flow information to achieve accurate volumetric perfusion values at lower dose.
- Single phase or dynamic 4D whole brain CTA can be acquired within a single exam of whole brain CT perfusion to achieve comprehensive functional and anatomical assessment of the brain.

Body highlights

- Whole organ diagnosis and follow-up of organs such as the liver, kidneys, and pancreas is enabled by dynamic acquisition modes. The scanner can also acquire multiple images at the same location over time to provide a 4D view to assess vascular flow to these organs.
- Fast body scans enabled by multi-volume 16cm acquisition with excellent image quality allows for reduced breath hold times and shallow breathing. Dose is minimized through the ability to select collimations between 5 mm and 160 mm personalized to each patient.
- Low Dose Lung Cancer Screening protocols
- Emergency & Trauma
- The system allows for robust Triple RuleOut™ acquisition for all patients providing One-Beat, high definition, motion free coronaries, PE and aortic dissection in a single exam covering the entire thorax in less than three seconds. ECG gating and mA modulation along with flexible collimation enable low dose acquisition personalized to the patient.
- Flexible scanning modes with 160 mm axial scan, 80 mm helical scan, table speeds as fast as 300 mm/s, and short inter-group scan delay allows for ultra-fast and versatile whole body and multi-group scanning, thus reducing the effect of breathing and other motion during the poly trauma scan.
- Smart Trauma with clinical ID can enable priority for trauma scans, prospective DMPR settings and faster reconstruction throughput.

Pediatrics

- Split second pediatric trauma acquisition of abdomen/pelvis is enabled by wide 160 mm z-coverage, thus reducing the need for sedation and eliminating unnecessary repetition of rescanning young children due to failed sedation, as is the case in 29% of conventional exams, shown in a large trial (British Journal of Anesthesia, 84 (6), 743-8 (2000))
- 70kVc scan mode allows for minimizing dose to pediatric patients while preserving excellent contrast to noise ratio and image quality.

Musculoskeletal Imaging

- The Revolution CT can acquire high definition images of the bone with excellent details. Smart MAR technology can significantly reduce artifacts from metal objects such as screws and plates.
- 4D dynamic imaging mode can acquire kinetic studies to assess joint articulation up to 16cm coverage.

Dual Energy Capability

Revolution CT features protocols which allow easy configuration of back to back Axial or helical scans of the same anatomy my at two different X-ray energies (kVp’s). To further improve registration accuracy patient immobilization may be utilized. The additionally acquired dual energy data can be post-processed on AW Workstation using Add/Sub function to gain additional clinical information.

Key Hardware Components

Gemstone Clarity Detector

The Gemstone Clarity detector features a unique focally aligned layout of the detector sub-modules and a 3D collimator (post
patient) to minimize scatter artifacts, ensure HU uniformity & reduce beam hardening artifacts associated with wide coverage systems. Combined with VHD reconstruction technology, the system delivers excellent image quality at full 160 mm coverage to enable whole organ imaging. The Gemstone Clarity detector also features a revolutionary ultra-low capacitance photo diode with new ASIC technology that redefines electronic noise at the quantum limit to less than 3 photons @ 120 keV (3100 electrons). The detector includes acquisition electronics which allow 4x faster bandwidth and 3x faster trigger rate than previous generations and reduces electronic noise by 25% which may improve image quality and reduce artifacts in low signal conditions as may be encountered in large patients. 3D Collimator Scatter Reduction Technology reduces scatter to primary ratio by more than 50% (R Melnyk, J Boudry, X Liu, and M Adamak, “Anti-scatter grid evaluation for wide- cone CT,” Proc. of SPIE, Vol. 9033, 90332P1-7, 2014) and results in significant improvement in image quality and reduction in beam hardening and metal artifacts. Gemstone Clarity detector specifications:

- Z-Coverage/360 degree rotation: 160 mm
- Number of slices: 512
- Number of detector rows: 256
- Number of detector elements: 212,992 cells with individual electronic/DAS channels
- Sampling rate: Up to 2,496 views per rotation (Up to 8914 Hz)
- Electronic noise: less than 3 photons noise (3100 electrons)
- Effective analog to digital conversion range >2,000,000:1
- Scintillator speed: 0.03us (100 times faster than GOS)
- Afterglow: 0.001% (4 times lower than GOS)
- Radiation damage: 0.03% (20 times less than GOS)
- Scatter to Primary Ratio: <10%
- Detection efficiency: 98% @ 120 kV

Performix HDw tube

The Performix HDw tube is a next generation anode-grounded, metal-ceramic x-ray tube. The tube enables improved spatial resolution via dynamic in-plane focal spot deflection and independent control of the focal spot size in both X and Z-axis which optimizes the focal spot to deliver consistent beam quality across the full 160 mm Z-axis coverage, making it one of the most innovative CT tubes offered today. The design is optimized for exams requiring a large number of scans without tube cooling. It is powered by an onboard high frequency generator capable of ultra-fast kVp switching. Due to the ultrashort exposure times associated with wide coverage scanning, traditional metrics related to tube cooling such as anode heat content & cooling rate lose their relevance. The GE Performix HDw tube includes a standard license that automatically enables the use of tube dependent advanced applications. The use of a third party X-ray tube will require an additional license for the activation of these features. Ultra-fast kV Switching Generator

The new generator features 3x faster rise and fall times for kV switching compared to previous generator. This would allow for more time to be spent at the target energy levels and result in better energy separation between the datasets acquired at different kV levels using fast kV switching.

- Generator maximum peak power: 103 kW
- Tube current range: 10-740 mA with 5 mA increments
- Tube voltage: 70, 80, 100, 120, 140 kV. Automatically selected through kV Assist based on patient body habitus and examination type
- Max x-ray tube assembly heat content: 5.0 MJ (6.8 MHU)
- Max continuous heat dissipation: 3.0 kW
- Focal spot size according to IEC 60336/2005: 1.0 x 0.7mm, 1.6 x 1.2mm, 2.0x1.2mm

Gantry and Slipring

Revolution CT’s gantry platform has been designed from the ground up to support the demands of today’s scanning environment. Exclusive Whisper Drive system technology reduces audible noise during gantry rotation at 0.28s by more than 50% compared to a typical belt driven system thereby increasing the reliability of the system. In addition, the gantry frame features redundant fail-safe mounts for all major components that is designed and tested to stringent standards to ensure safe and reliable operation even at fast rotation speeds.

- Aperture: 80 cm
- Focus-to- detector Distance: 109.7 cm
- Focus-to- isocenter Distance: 62.6 cm
- Scan FOV: 50 cm
- Rotation speeds: 0.28s, 0.35s, 0.5s, 0.6s, 0.7s, 0.8s, 0.9s, 1.0s per 360° acquisition
- Temporal resolution: 140ms cardiac temporal resolution without using SnapShot Freeze. 29ms effective temporal resolution using SnapShot Freeze. (As demonstrated in mathematical phantom testing)(AW workstation or server with CardIQ Xpress 2.0 required to process SnapShot Freeze data)
The Revolution CT scanner desktop allows simultaneous scanning, image reconstruction, display, processing and analysis, as well as networking and archival.

It features the new “Clarity Operator Environment” designed with your everyday needs in mind. The environment allows for more real-time adaptive capabilities thus enabling dramatically improved timing with Smart Prep including automatically transitioning to acquisition in as quickly as 1 second when the set HU threshold is reached. The benefits provided by the new interface include:

- Smart prescription workflow automates scan set up by recommending scan parameters specific to the patient based on scout attenuation and ECG information, in the case of cardiac, to enable consistent image quality & dose performance across scans, irrespective of the technologist expertise level.

- Seamless multi-tasking through ability to have multiple patient sessions open with one active patient for acquisition and the rest for post-acquisition tasks.

- “Plan ahead” task list as part of scan setup automates repetitive tasks such as reconstructions, image transfer, image processing, etc. without requiring technologist intervention.

- Ability to prospectively prescribe multi-planar reconstructions for anatomies such as spine as part of the protocol, thus automating the workflow seamlessly.

- Clear status visibility across all automated patient tasks without any interaction enables you to focus on the primary task at hand.

- Manage your patient flow better with the ability to pre-prepare scan prescription for the next patient while the current patient is getting off the table.

- Quickly select scan protocols through global search, anatomical selection or user specific favorites in the newly designed protocol management system.

- Facilitates protocol consistency by controlling access to changes and simplifying inputs required.

- Integration with AW allows prescribing automatic image processing steps to be performed on the AW / AW Server post acquisition.

- Better dose awareness through clearly visible real-time projected dose indicator for the selected protocol.

Operator console specifications:

- Intel Xeon performance processor: 2.60GHz/8-Core CPU (or equivalent)
- Nvidia high performance GPU (or equivalent)
- 64 GB DDR3 unbuffered ECC (or equivalent)
- 24 inch dual monitors with screen resolution of 1920x1200
- Image data storage up to 700,000 uncompressed DICOM images (512x512)
- Scan data storage of 1 TB (up to 1500 scan files are supported)
- USB 3.0 Port for External Hard Disk Drive Connectivity (scan data storage and image data storage are supported)
- Recon Server Xtream enables recon task parallelism and achieves up to 1.8x faster reconstruction throughput than Recon Server Pro
- Image reconstruction speed up to 65 fps with FBP and up to 25 fps with ASiR-V.

System Software

Smart Flow

Simplified, automated scan prescriptions, personalized to the patient and easy-to-use reference protocols make the Revolution CT fast and efficient in patient set-up, prescription & scanning. The following features further help you streamline your workflow.

Protocol Management System

Protocols can be copied, built and edited intuitively using the Protocol Management System.

- GE Reference Protocol: A set of predefined protocols for adult patients that cannot be modified but can be copied and used. These protocols are factory installed. They have been developed in collaboration with clinical partners to provide users with a convenient and clinical relevant starting point for tailoring your departmental protocols.

- Recently Scanned Protocols: A copy of the last 90 protocols reside exactly as they were used for review purposes only. These protocols can also be copied and used within into your departmental protocols.

- Anatomical Selector: Use the Anatomical Selector area to select a specific anatomical region to show only protocols related to that region.

- Favorites: A user can add to a list of favorite protocols commonly used by your site.

Clinical ID
Clinical ID is designed to streamline the clinical application specific workflow from protocol setup to reconstruction prioritization and automated reformatted views for timely diagnostic decisions.

AutoVoice™
Auto Voice provides recorded breathing instructions for the patient. Consistent breathing instructions assist with more precise timing during an exam. Auto Voice also provides a pre-message in the SmartPrep feature. The system also comes equipped with microphones at the console and gantry for communicating with the patient. The system has three, pre-recorded messages in ten selectable languages that cannot be deleted. You can also record up to 17 additional messages for each language. Default language options include: Chinese, English (Female), English (Male), French, German, Italian, Korean, Japanese, Spanish (European), Spanish (Latin America).

Smart Patient Centering
The smart patient centering feature helps to detect suboptimal centering prior to the diagnostic scan. When scout is acquired, the system will assess patient centering. If the patient is off-centered greater than 2 cm, the system will display the table height location and an up or down arrow to indicate the elevation needed to reach that height.

SmartStart (TM)
- Gantry-mounted start scan button and countdown display,
- Facilitates single-technologist operation by allowing start of scan at the gantry, with a visual reminder of time until X-ray initiation

SmartPrep™ with Dynamic Transition
Enables real-time monitoring of IV contrast and a user-selectable mode to dynamically transition to the diagnostic scan phase when a user entered Enhancement Threshold is reached in the Transition ROI.

Trauma Patient entry
Allows patient scans and image display/analysis without entering patient data before scanning.

Prospective Exam Split
Prospective Exam Split allows operator to specify how to split images from a scan into separate requested procedures/ accession numbers in protocol management. This capability is especially useful in cases of full body trauma or for chest, abdomen and pelvis exams. Prospective Exam Split works with primary, secondary and reformatted images.

Smart DMPR
Smart DMPR can automatically generate reformatted views with prospectively set window width and window level and automatically transferring these image datasets to the designated PACS destination for fast review and diagnosis.

Digital Tilt
The system has preset protocols that can be selected prospectively, which allows images to be reconstructed at a specified tilt angle. This capability, combined with organ dose modulation and tilted head holder accessory for the patient allows for reducing the dose to sensitive organs such as the eyes while also reducing dental artifacts.

Enhanced Xtream Injector (Requires a compatible Bayer or Nemoto Injector system)
The Enhanced Xtream Injector provides synchronization of the start of the scan and the start of the contrast injector using the start scan button on the Scan Control Interface or the gantry controls. The Enhanced Xtream Injector also allows setting of the contrast injector parameters within the CT scan protocol and creation of an Injector Report at End Exam of what was delivered by the injector. The system and injector are operated independently after the start scan button is pressed on the system.

System Software
Volume High Definition Reconstruction
The system features state of the art image reconstruction technology designed to mitigate cone beam artifacts associated with wide coverage systems. In addition, the algorithm preserves temporal uniformity and provides excellent image quality at full 160 mm coverage. It further reduces variation in iodinated contrast HU uniformity across the full 160 mm Z coverage, typically caused due to heel effect. In addition, Smart MAR technology utilizes material physics learnings from GSI incorporated in single energy acquisition. In conjunction with the 3D Collimator, this reduces beam hardening artifacts due to iron, bone, metal & other dense objects.

Iterative Reconstruction: ASiR-V
Integrated advanced iterative reconstruction technology (ASiR-V) reduces noise, even at very low signal levels. The ASiR-V algorithm focuses primarily on the modeling of the system noise statistics, objects, and physics and de-emphasizes the modeling of the system optics. The most time-consuming portion of the IR process is the modeling of the system optics. By excluding the most time-consuming component, system optics, and focusing on the other terms during the IR process, significant image quality improvement can be achieved without paying a large penalty in reconstruction speed. The advanced system noise model includes the modeling of the data acquisition system (photon noise and electronic noise) as well as noise characteristics of the reconstructed images. The photon noise model includes characterization of the photon statistics as it propagates through the imaging chain. The modeling of the reconstructed image noise includes characterization of the scanned object, using information obtained from extensive phantom and clinical data. This technology is designed to deliver reduced noise levels, improved low contrast detectability and may enable up to 82% reduction in dose when compared to FBP for all clinical applications.

Smart Dose technologies
Automatic Exposure Control (AEC)
AEC is a versatile and powerful tool designed to tailor the scanner’s radiation output to each patient based on the patient’s size, age, shape and attenuation and the user’s requested level of image noise/quality criterion. AEC technology uses estimated patient attenuation values to adjust the mA dynamically in order to achieve the requested level of image noise/quality criterion.

3D Dose Modulation Utilizing SmartmA

Volumetric knowledge prior to scanning allows you to personalize protocols and optimize dose for every patient, large and small. During the scan, real-time, 3D dose modulation helps deliver consistent image quality because it automatically accounts for the changing dimensions of your patient’s anatomy. In addition, the system provides guidance to assist in centering the patient to maximize the benefit of mA modulation.

Organ Dose Modulation

Organ Dose Modulation (ODM) builds on the SmartmA feature to enable even further patient dose reduction. By reducing the mA exposure profile as a function of the X-ray tube angle, radiosensitive organs towards the anterior surface of the patient, such as the eyes, breasts and thorax, can benefit from enhanced dose reduction while the overall image noise is still maintained.

kV Assist

kV Assist makes it easy to select optimal kV settings for the patient being scanned. It recommends tube voltage and current to achieve the lowest dose while meeting desired image quality goals.

70 kV Scanning

70 kVp scan mode enables low dose pediatric and small patient scans

CG Modulated mA

For cardiac applications, prospective ECG dose modulation automatically adjusts the mA to minimize the patient’s exposure to X-rays – reducing mA, and thus dose, near the beginning and end of each prescribed phase range. Up to 3 phase ranges are selected within a heart cycle with different mA levels. The peak mA for the first phase range is automatically determined based on noise index set by the user. The user can also select the relative mA level for an optional second or third phase range, set as a percent of the mA level of the first phase range. This provides clear images and allows you to reduce dose yet provides motion free, high quality images for functional and anatomical analysis within a heart cycle

Color Coding for Kids

Based on the Broselow-Luten Pediatric System, the Color Coding for Kids was developed to help operator to select the correct pediatric CT protocol. The system divides the protocols into nine color zones based on height and weight, and incrementally increases scan technique as the patient’s size increases. This arrangement of protocols assists you in reducing the variations in pediatric protocol selection. If the patient weight is unavailable, a Broselow-Luten Tape can also be used to obtain the weight based on the length.

Smart Dose technologies

- Smart Track: Advanced hardware and software for X-ray beam tracking minimizes patient dose.
- Smart Beam: Optimizes X-ray beam filtration independently for body, head, and cardiac applications.
- Soft Shutter: This capability reduces the over-beaming dose in helical scans by using an advanced reconstruction algorithm for helical scans that makes better use of acquired data through intelligent view weighting and back projection.
- Dose Check: Provides the user with tools to help them manage CT dose in clinical practice and is based on the standard XR-25-2010 published by The Association of Electrical and Medical Imaging Equipment Manufacturers Association (NEMA). Dose Check provides the following:
  - Checking against a Notification Value if the estimated dose for the scan is above your site established value
  - Checking against an Alert Value where the user needs specific authority to continue the scan at the current estimated dose without changing the scan parameters if the estimated dose exceeds the alert value
  - The ability to define Alert Values for Adult and Pediatric with age threshold
  - Audit Logging and Review capabilities
  - Protocol Change Control capabilities provided by robust protocol management interface

DoseWatch Explore is an introductory dose management software application that provides you secure access, via any PC with internet access, to dose and protocol data from this system. An InSite connection to the system and completion of the registration process is required to use the DoseWatch Explore application. For US and Canadian Customers, this quotation includes access to the DoseWatch Explore application for a period of time concurrent with the system warranty.

- Dose Computation, Display & Reporting: CTDIvol (CTDI volume), DLP (Dose Length Product), and Dose Efficiency computation and display during scan prescription provide dose information to the operator. Dose Reporting saves the CTDIvol, DLP, and phantom type in a DICOM Structured Dose Report and a secondary screen capture. Series and cumulative exam values are saved. Saved values can be networked or archived.

DICOM Interchange

DICOM Interchange allows the saving of any image from the database, along with a PC viewer using Internet Explorer, to a CD-R or DVD-R with-out marking the exam/series or image as archived for exam transfer between stations that are not networked or pass along to referring physicians or patients. For detailed information, please reference DICOM conformance statement.

- DICOM Storage Service Class
- Service Class User (SCU) for image send
Image Networking
Exams can be selected and moved between the Revolution CT and any imaging system supporting the DICOM protocol for network send, receive and pull/query. Image transfer time using DICOM protocols is > 16fps on a 1000baseT network.

Warranty: The published Company warranty in effect on the date of shipment shall apply. The Company reserves the right to make changes. All specifications are subject to change. Regulatory Compliance: This product is designed to comply with applicable standards under the Radiation Control for Health and Safety Act of 1968. Laser alignment devices contained within this product are appropriately labeled according to the requirements of the Center for Devices and Radiological Health.
This product complies with the performance standards of 21 CFR, sub-chapter J, and the applicable IEC 60601-1 series.
This product complies with NEMA Standard XR29-2013 / MITA Smart Dose Standard.
See the Pre-Installation manual for details of the siting requirements for GE Revolution CT.

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The NG2000V standard patient table has been exclusively designed for GEHC Ultra-premium CT systems.

The patient table features:
- Maximal metal free horizontal scannable range: 2000 mm
- Maximal table load: 227 kg / 500 lbs
- Maximal horizontal travel speed: 300 mm/s (standard) (437.5 mm/s optional with HyperDrive)
- Horizontal positioning accuracy +/- 0.25 mm from any direction
- Motor-driven table height adjustment from min. 550 mm to max. 1030 mm
- Maximal vertical travel speed: 40 mm/s
- 10x more stiffness design to meet AAPM TG66 guideline specification.
- Integrated ECG module with waveform and configuration through the gantry display
- Workflow hub area with a see-through tray to give you the most flexibility in placing scanning related supplies, etc. without limiting visibility to the integrated ECG inputs.
- IV Pole integrated at the foot-end of the table helps to prevent IV lines from becoming crossed and tangled and helps keep lines in place during patient table travel.
- The X-strong foot switch cover, capable of supporting 612 kg / 1350 lbs load, has been specially designed to support physicians or technologies to stand atop of it to implement diagnostic and/or treatment procedures to patients.

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<td>Upgrade kit for Integrated IVY Cardiac Monitor</td>
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This upgrade kit includes wrist strap and supporting cables. The kit has been designed to improve the performance of Integrated IVY Cardiac Monitor (for Revolution CT).

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Perf 4D Neuro-OC

CT Perfusion 4D Neuro Package is an image analysis software package that allows the evaluation of dynamic CT data following an injection of a compact bolus of contrast material, generating information with regards to changes in image intensity over time. The software provides a quick and reliable assessment of the type and extent of cerebral perfusion disturbances by providing qualitative and quantitative information on various perfusion related parameters, which may be related to acute stroke, brain tumor angiogenesis and treatment thereof.

The key perfusion parameters that CT Perfusion, 4D Neuro Package generates are:
- Regional Blood Volume (BV; ml/100g)
- Regional Blood Flow (BF; ml/min/100g)
- Regional Mean Transit Time (rMTT;s)
- Capillary Permeability Surface Area Product (PS)
- Time of Arrival (IRF T0)
- Transit Time to IRF Peak (Tmax;sec)

The user now has the ability to visualize all the information in true volumetric form. Additional elements of Perfusion 4D include Smart Map, a new algorithm that improves the image quality of the functional maps in the presence of noise.

Perfusion 4D also includes a new streamlined workflow for Tissue Classification. Tissue Classification may aid the clinician in determining the status of the tissue based on blood volume and one of blood flow, mean transit time, or Tmax.

Productivity is enhanced through the protocol driven design of the user interface. An example of this is the Brain Stroke Protocol (Automatic) that completes the processing with one touch reducing the time required to process the exam and to enhance repeatability.

System requirements: VolumeViewer on the Console - B7870JA

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Neuro MultiPhase CTA Protocols

- Neuro Multiphase CTA protocols is the group of CT acquisition protocols for multiphase CT angiography, an imaging tool that provides three time-resolved images of pial arterial filling in the whole brain, that can be used to predict clinical outcomes in patients with acute ischemic stroke.
- Neuro Multiphase CTA Protocols is the purchasable option of Revolution CT 2016 summer release.

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HyperDrive on GE ultra-premium CT systems

HyperDrive is an unmatched high pitch scan mode on GE ultra-premium CT systems that combined wide coverage acquisition with high pitch helical techniques to achieve speeds up to 437 mm/s with uncompromised 50 cm field of view and image quality. This additional scan mode is especially beneficial in trauma or pediatrics environments.

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Enhanced Xtream Integrated Injector Interface Kit - Class IV
Coronal Head Holder.

The CT workspace is an ergonomic working environment specifically designed for use with the GE Healthcare imaging systems. The sleek table design enables the efficient use of space while enhancing clinical workflow and technologist comfort.

The workspace provides a minimalist footprint to improve patient visibility and giving the user easier access to patients in the imaging suite.

It can also help reduce noise and heat with remote location options of the console. It is 51.2” long x 35.25” wide x 33.5” in height and weighs 122.8 lbs. 1300mm long x 895mm wide x 850mm in height and weighs 55.8kg

Chair for CT scanner

Un-interruptible power supply provides power to CT console allowing the user to power down system in the event of source power loss; thus preventing the loss of scan data previously acquired before source power loss.

This UPS also:
• Provides continuous protection to all of the system’s major electronics subsystems
• Protects the tube from power outages because it continues to provide power for tube cooling.
• Minimizes system restart time by continuing to power the thermal control of the DAS and detector.
• Provides enhanced ease of patient removal from the system by keeping the table powered.

This is compatible with the RevolutionHD, Revolution CT, Discovery CT 750HD and LightSpeed VCT systems.

This option provides lung screening reference protocols that are tailored to the CT system, patient size (small, average large), and the most current recommendations from a wide range of professional medical and governmental organizations. Now, qualified GE Healthcare CT scanners with this option are formally indicated for, and can be confidently used by physicians for low dose CT lung cancer screening of identified high-risk patient populations. These protocols deliver low dose, short scan times, and clear and sharp images for the detection of small lung nodules. Early detection from an annual lung screening with low dose CT in high-risk individuals can prevent a substantial number of lung cancer-related deaths.
All new GE 64-slice and greater CT scanners, and virtually all of the 16-slice CT scanners that GE Healthcare sells are qualified for this screening option. This solution is also available to thousands of qualified GE CT scanners currently in use, increasing access to the quality scanners that satisfy both patient and physician needs. The new protocols, do include the choice for the user to be able to utilize GE Healthcare’s industry-leading technologies such as ASiRTM, ASiR-VTM and VeoTM that are designed to reduce image noise, which is undesirable for physicians looking for small nodules.


i) The following GE Healthcare CT scanners are qualified to receive the new low dose CT Lung Cancer Screening Option: LightSpeed 16, BrightSpeed Elite, LightSpeed Pro16, Optima CT540, Discovery CT590 RT, Optima CT580, Optima CT580 W, Optima CT590 RT, LightSpeed Xtra, LightSpeed RT16, LightSpeed VCT, LightSpeed VCT XT, LightSpeed VCT XTe, LightSpeed VCT Select, Optima CT660, Revolution EVO, Discovery CT750 HD, Revolution HD, Revolution CT, Revolution Frontier.


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<td>Standard Service License</td>
</tr>
</tbody>
</table>

GE Healthcare has reclassified its service tools, diagnostics and documentation into various classes (please refer to the Service Licensing Notification statement at the beginning of this Quotation). The Standard License provides access to service tools used to perform basic level service on the Equipment and is included at no charge for the warranty period.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>1.00</td>
<td>E8007WG</td>
<td>CTM-400 Cardiac Trigger Module</td>
</tr>
</tbody>
</table>

CTM-400 Cardiac Trigger Module with enhanced Tall-T Wave Rejection is a sophisticated Computer Tomography (CT) gating module that synchronizes a patient’s ECG and Respiration signals to remove motion artifacts when generating cardiac images. Completely integrated with GE Healthcare CT scanners and installed directly into the gantry table with bridge and tray assembly included. It communicates with the CT system via a standard serial communications link and requires less than 5 watts from a +8 to +24V medical grade power supply. Three simultaneous ECG vectors, a respiration waveform, an ECG trigger and a respiration trigger are sent to the CT system. Includes AHA Color lead wires and patient cables.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>1.00</td>
<td>E8016DA</td>
<td>Table Slicker for CT Revolution systems - NG, 2000 and 1700 Tables</td>
</tr>
</tbody>
</table>

The GEHC Revolution CT and Revolution Apex table slicker is specifically designed to maximize contaminant protection. Manufactured to be used in conjunction with the table restraining belts, this slicker adds versatility to your CT procedures. Latex free, it is strongly suggested that the slicker is cleaned with a water/bleach solution prior to every procedure.

Features:
- Table gray cushion sealed in vinyl slicker Dimension 2403 x 788
- Table extender gray cushion sealed in vinyl slicker Dimension 406 x 788
- Cover for catheter bag hanger
- Increase system uptime by protecting table from spills and particulate contaminants
- Easy to install and comfortable for patients
- Will not interfere with normal operation of CT table
- Clear PVC plastic facilitates faster cleanup of blood and fluids
- Prevents contaminant build up in hard to clean areas
• Thermosealed seams and flaps
• Recommended for trauma centers and sites concerned about exposure to blood and fluid-borne disease

Line | Qty. | Catalog |
--- | --- | --- |
19 | 1.00 | E8016DC | Foot Slicker for CT Revolution

The GEHC Revolution CT Foot Switch slicker is specifically designed to maximize contaminant protection. Latex free, it is strongly suggested that the slicker is cleaned with a water/bleach solution prior to every procedure.

Line | Qty. | Catalog |
--- | --- | --- |
20 | 1.00 | E4502BG | UL Main Disconnect Panel 380-480V 50/60Hz 175A for CT Rev2.0

The MDP (Main Disconnect Panel) and UPS Control Panels serve as the main facility power disconnect source installed ahead of the Revolution CT system. On systems where the optional partial system UPS is included in the system, the panel provides NEC mandated UPS emergency power-off control function via a UPS control cable included with the UPS. The MDP saves time, installation labor, and valuable mounting space by consolidating the main circuit breaker, control power source and required indicator lights into a compact factory manufactured panel.

Applications
For general installations of GE Revolution Apex™.

Designed for reliability and easy installation
• The MDP saves time, installation labor, and valuable mounting space by consolidating the main circuit breaker, the feeder overcurrent devices, magnetic contactors and UPS emergency power-off into one compact panel
• The system provides stock availability of otherwise special-order devices, saving time and installation costs
• Reduces installation time and cost by eliminating delays in obtaining individually enclosed components and by eliminating on site assembly
• UPS emergency power-off functions are included for future, partial system UPS addition
• Disconnects system power on first loss of incoming power, preventing damage to system components
• Provides a standardized platform for UPS or other future GE engineered modifications or upgrades

Built for investment protection
• UL, cUL listed
• Supplied with low voltage, cover mounted Push to Stop, Twist to Restore pushbutton and long life LED pilot lights
• Provides overcurrent and short circuit protection
• Suitable for use on systems with 25,000A of short circuit current. It is the installer’s responsibility to verify that the available short circuit current is 25,000A or less for compliance to all electrical codes.
• An optional partial system UPS provides clean uninterrupted power to the system computer, maintaining system integrity during power loss while also providing a solution to power quality problems.
• Emergency-off disconnects power to both the PDU and optional partial system UPS output, per National Electric Code
• Main power disconnect operating handle can be padlocked in the Off position for servicing safety and OSHA lock out/tag out
• The door has provisions for padlocking
• Enclosure door is interlocked with On / Off disconnect handle to prevent unauthorized access if disconnect is in the On position
• Factory wired and tested
• Panel disconnect provides OSHA lockout / tag out provisions
• The main disconnect panel may be used as a stand-alone main disconnect, with the optional GE partial system UPS or with a GE full system UPS

Remote EPO (Emergency Power Off)
Includes two normally closed contact blocks attached to the back of the emergency off push button. Two are included with each MDP.

NOTES:
• Customer is responsible for arranging for installation with a qualified party
• ITEM IS NON-RETURNABLE AND NON-REFUNDABLE
This training program is designed for a customer representative to attend a system training course held near Milwaukee, Wisconsin at the GE Healthcare Institute. Courses must be scheduled through appropriate GEHC systems. The course includes tuition only. Separate packages may be purchased for travel options.

This training must be scheduled and completed within 12 months after purchase

This training program is designed for customers purchasing a GEHC CT system to include Revolution, Frontier, or HD. GEHC will work with the designated Customer contact to agree upon a reasonable training schedule for a pre-defined group of core technologists that will leverage blended content delivery and may include a combination of onsite days and virtual offerings, to include TiP Virtual Assist, the GEHC Answerline, and available on-demand courses ("Virtual Inclusions"). This blended curriculum with multiple delivery platforms promotes learner retention and allows for an efficient and effective skill development.

This program may contain:
- Onsite training (generally 20 days)
- Virtual Inclusions may include:
  o Remote instructor-led training: Instructor leads a remote training session one-on-one or in a group, typically for 1 hour
  o Answerline Support: Access to GEHC experts for clinical, non-emergency applications assistance via phone or by using the iLinq button on the imaging console
  o Tip Virtual Assist: Direct interactive access to a GEHC expert for enhanced support.
  o On Demand courses: On healthcare learning system. Self-paced courses and webinars (CE and non-CE).

Onsite training days will be mutually agreed upon, but generally will not exceed 25 days. Onsite training will be provided from 8am-5pm local time Monday-Friday. Virtual Offerings are unlimited. This training program has a term of six (6) months commencing on Acceptance, where all onsite training must be scheduled and completed within six (6) months of Acceptance, and all Virtual Inclusions also expire at the end of such six (6) month period. Additional onsite days may be available for purchase separately.

All GEHC "Training" terms and conditions apply. Given the unique nature of this program, if this program is purchased as part of a purchase under a Governing Agreement, including any Master Purchase Agreement, Group Purchasing Organization Agreement, or Strategic Alliance Agreement, this program shall take precedence over any conflicting training deliverables set forth therein.
with the subscription.

As long as Customer has paid all currently due fees associated with Smart Subscription, GE Healthcare will provide, unless otherwise indicated and at no additional charge: (i) updates and/or upgrades to the Software when and if available and only if they are provided at no additional charge to all GE Healthcare customers with a subscription agreement for the Software; and (ii) support for Software-related issues that: (a) materially and adversely interfere with Customer’s use of the Software and (b) result from a failure of the Software to materially conform to the Documentation. Support does not include the following, which will incur an additional charge: (1) updates or upgrades that are offered for an additional charge to all GE Healthcare customers with a support agreement; (2) fixes for issues that do not materially affect the Software; (3) training beyond that described in this Quotation; (4) interface modifications; (5) data migration or data conversion; (6) additional services; and (7) separately billable hardware, software or services.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>1.00</td>
<td>B7931BA</td>
</tr>
</tbody>
</table>

The Smart Subscription implementation includes (but is not limited to) the following major activities: installation and other activities to enable the work.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>1.00</td>
<td>B7931AJ</td>
</tr>
</tbody>
</table>

The Reconstruction Package, included with Smart Subscription Base Edition, provides continuous access to the latest commercially available reconstruction software capabilities. These technologies allow users to lower dose considerably compared to filtered back-projection (FBP) reconstruction (the standard reconstruction algorithm) while continuing to deliver high-quality diagnostic images.

GE Healthcare reserves the right to determine which applications are included with each package.

1 The amount of dose reduction achievable is dependent on each clinical scenario.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>1.00</td>
<td>B7931AK</td>
</tr>
</tbody>
</table>

The Image Quality Package, included with Smart Subscription Base Edition, provides continuous access to the latest commercially available image quality improvement and artifact reduction application software package, including features such as Smart MAR reconstruction technology that helps reduce artifacts from photon starvation and beam hardening caused by metal in the body, such as hip implants.

GE Healthcare reserves the right to determine which applications are included with each package.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>1.00</td>
<td>B7931AH</td>
</tr>
</tbody>
</table>

At GE Healthcare CT, we believe great care happens by design. Smart Subscription’s design, started with a broad vision: to help you deliver the best patient care, not just today but for the life of your CT investment.

We understand your challenges: declining reimbursements, increased workloads, shortage of radiologists, workflow challenges, aging fleets and lack of capital funds. In response, we designed Smart Subscription, a subscription service that provides convenient and continuous access to the latest commercially available software for your CT scanners for one simple annual subscription. Smart Subscription Core is the platform that enables the deployment of the applications, this platform is not sold to the end user. As part of implementing the Smart Subscription solution on your site, GE Healthcare may provide additional hardware (e.g., a
server) to enable functionality. If hardware is provided by GE Healthcare to implement Smart Subscription, you are responsible for its safety keeping while on your site and for removing any data on it before returning the hardware to GE Healthcare.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
</tr>
</thead>
</table>
| 28   | 1.00 | B7931AW  | Smart Subscription Access Kit CT660 P3.5

This kit provides access to Smart Subscription Core for your Optima CT660 P3.5 scanner and is included with your subscription.

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>Catalog</th>
</tr>
</thead>
</table>
| 29   | 1.00 | B7931AX  | Smart Subscription Access Kit CT660 P2.5

This kit provides access to Smart Subscription Core for your Optima CT660 P2.5 scanner and is included with your subscription.

Total Quote Subtotal: $1,700,000.00

Total Quote Net Selling Price: $1,700,000.00
Optional Items

Please initial by net price in terms you wish to purchase

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Qty.</th>
<th>Description</th>
<th>Net Price</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7919FW</td>
<td>1.00</td>
<td>GSI Xstream on Revolution CT</td>
<td>$120,810.00</td>
<td>______</td>
</tr>
</tbody>
</table>

GSI Xstream is the first volume spectral CT technology with integrated and simplified workflow you can make part of your daily practice.

GSI Xstream utilizes ultrafast kVp switching x-ray source (0.252 msec switching between two different energy levels of X-rays from view to view during a single rotation) and ultra-fast response Gemstone Clarity Detector to acquire almost perfectly registered volumetric dual energy CT data. The data is then processed through projection domain material decomposition algorithms to generate material density maps (MD), monochromatic images (MC) and virtual unenhanced images (VUE). This data can be utilized to identify material specific differences in attenuation in terms of Water, Iodine, Calcium, Uric Acid, Fat and Hydroxyapatite (HAP) basis-pair images, allowing monochromatic and material representations. Metal Artifact Reduction (MAR) algorithms can also be applied to all GSI images to reduce artifacts due to the presence of metal.

GSI Xstream can provide:

- Nearly perfect temporal and spatial registration to avoid mis-registration artifacts due to motion in dual energy CT (0.252 ms)
- Advanced material differentiation, classification and quantification
- Optimization of contrast-to-noise ratio (CNR) by using monochromatic images
- Reduction in artifacts due to beam hardening and metal.
- Volume GSI Acquisition across 80 mm collimation with 50 cm FOV
- 245mm/s GSI scan speed with 1.5:1 pitch
- Dose neutral with ASiR-V integration
- Integrated with GE’s Smart Technology suite of workflow tools: GSI Assist and Clinical ID standardize and automate protocol selection, including direct transfer to PACS
- Parallel processing of GSI images with Recon Server Xstream for improved workflow
- 10 Native GSI recons: keV, VUE, MD: Iodine, MD: Water, MD: Calcium, MD: Fat, MD: Uric Acid, MD: HAP, GSI MAR, 140kVp with automatic network to PACS and AW GSI viewer when needed.
GPO Agreement Reference Information

Customer: Cox Medical Center South
Contract Number: Novation Vizient Supply LLC
Billing Terms: 80% delivery / 20% Installation
Payment Terms: NET 30
Shipping Terms: FOB DESTINATION

Offer subject to the Terms and Conditions of the applicable Group Purchasing Agreements currently in effect between GE Healthcare and Novation Vizient Supply LLC

This product offering is made per the terms and conditions of Vizient /GE Healthcare GPO Agreements as follows:

Imaging:

Ultrasound:
XR0431-Ultrasound

Vizient: Please login to the Vizient Marketplace Website. If you require assistance or are experiencing issues, please contact Vizient for support:
Email: Connect@VizientInc.com and Phone: 866-600-0618.
Divider III. Community Need Criteria and Standards:

1. **Describe the financial rationale for the proposed replacement equipment.**

   The Martin Center is an outpatient facility dedicated to diagnostic imaging on the Cox South campus. An option for CT scanner that offers advancement in Cardiac CT imaging is needed for patients being treated at Cox Health in Cardiology. In addition CoxHealth needs to be able to maintain current outpatient volumes and revenues at the Martin Center by replacing a 15 year old 16-slice CT scanner that is starting to have increased performance issues.

   Revenues generated from the unit are adequate to cover the cost of purchase, installation, and maintenance over the 5 year useful life of the equipment.

2. **Document if the existing equipment has exceeded its useful life.**

   The fifteen year old CT is past the CMS End of Life Recommendations. Support for software and hardware advancements are not available.

3. **Describe the effect the replacement unit would have on quality of care.**

   The proposed CT unit will provide increased sensitivity and detector speed to adequately evaluate the heart structures and valve measurements for TAVR procedures and other cardiac services. Without these capabilities patients are at risk for a failed TAVR procedure to include valve misalignment, peravalvular leak or annular rupture during or after the TAVR procedure.

   In addition, the GE CT Revolution offers a reduction in radiation dose by as much as 80% in many exams for patients of all ages as well as reduction in intravascular CT contrast for many exams. The GE CT Revolution also allows us to reduce patient scan times with of the faster rotation speeds of the CT detectors.

4. **Document if existing equipment is in constant need of repair.**

   Repairs to the current CT unit have become more frequent as it ages. The time required to find replacement parts has also increased, which increases the length of time the system is down. The high volumes of scans being performed on the CT are also adding to the increased wear and tear on the system.

5. **Document if the lease on the current equipment has expired.**

   The current CT has not been under an equipment lease arrangement.
6. Describe the technological advances provided by the new unit.

The proposed unit has a wide 80cm bore design and a 500 pound table capacity to accommodate bariatric patients.

The following is a list of technological advances:

a. Advanced neurological and spine capabilities, such as imaging the whole brain in a single rotation without moving the table and whole brain CT perfusion
b. Advanced vascular applications for diagnosis of vascular disease – CT Angio head/neck in a single exam using a single contrast bolus
c. Advanced cardiac applications including whole heart coverage, 1-beat cardiac assessment, TAVR planning, Calcium Scoring
d. Advanced Musculoskeletal imaging with high definition bone detail
e. Advanced Body/Oncology applications that will reduce the need for breath holds(motion) as well as abilities to assess vascular flow to organs
f. Larger detector coverage for imaging organs
g. Radiation Dose Reduction
h. Advances in software and computer technology over the past 10 years
i. Reduced patient scan times with increased detector speed
j. Metal Artifact reduction

7. Describe how patient satisfaction would be improved.

The proposed CT scanner will be located in the Martin Center on the Cox South campus. The Martin Center is dedicated to outpatient diagnostic imaging. This facility provides imaging technology for patients who are not required to be in the hospital on an inpatient basis. Without this replacement, current cardiology services would be limited given current limitations in heart imaging. In addition, the current increased downtime would necessitate shifting patients to the inpatient CT systems. Keeping outpatients cared for in the Martin Center is a patient satisfier. Also, the new unit is designed with acoustic reduction technology for quieter exams and a faster detector speed to reduce patient scan times.

8. Describe how patient outcomes would be improved.

The GE Revolution CT will provide a scan with a higher confidence level, which could result in faster diagnosis. In some cases, this means a more timely treatment, such as surgery; in others, a more accurate diagnosis may help a patient avoid surgery altogether. Additionally, the accompanying software provides advanced software applications for neuroscience, cardiac, musculoskeletal, vascular and body imaging. These applications provide for better imaging for areas that require a CT exam over current capabilities. The GE Revolution CT gantry design allows for faster detector speed that improves the ability to image the heart in a single heartbeat and faster scan times. This eliminates the need for repeat imaging of the patient because of motion that can cause poor images during the exam.
9. **Describe what impact the new unit would have on utilization.**

   There is no expectation of direct impact on utilization from the new unit.

10. **Describe any new capabilities that the new unit would provide.**

    New capabilities include CT cardiac imaging, rapid and precise TAVI planning, Calcium Scoring, metal artifact reduction for patients with major dental work and orthopedic implants, and high definition bone imaging.

11. **By what percent will this replacement increase patient charges?**

    Due to it being a replacement for an existing CT Scanner there is no expectation that the acquisition will increase patient charges.
Divider IV. Financial Feasibility Review Criteria and Standards

1. **Document that sufficient financing is available by providing a letter from a financial institution or an auditor’s statement indicating that sufficient funds are available.**

   See letter from Commerce Bank from J. Duke Harshberger, Vice President, Commerce Trust Company. The letter address multiple projects and greatly exceeds the proposed project budget.

2. **Provide Service-Specific Revenues and Expenses (Form MO 580-1865) projected through three full years beyond project completion.**

   See Service-Specific Revenues and Expense Form attached.
   
   a. Utilization amounts are patient encounters.
   
   b. Indicate how the average charge / procedure was calculated: Using historical data as a baseline (Total Charges divided by Encounters) to determine per charge amount. Applied the charge per encounter rate with growth assumption based on previous yearly growth layered into the number of future encounters.
   
   c. Indicate how overhead was calculated: overhead was allocated using the same method required by the Medicare cost report calculations.

3. **Document how patient charges were derived.**

   Patient charges are derived by accumulating all the cost of services, including staff and supplies, utilized during the course of a patient’s CT Scanner visit.

4. **Document responsiveness to the needs of the medically indigent.**

   CoxHealth’s policy and procedure for financial assistance was established for the benefit of its patients. This policy assures that financial assistance programs are available to the most vulnerable in our community and Guarantors who are unable to pay for medically necessary services rendered.

   See the attached CoxHealth policy for financial assistance.

   CoxHealth Enterprise’s most recent Community Impact report demonstrates a commitment to the southwest Missouri community. In fiscal year 2018, CoxHealth’s total community benefit was over $200 million.

<table>
<thead>
<tr>
<th>FY18 Community Benefit</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare, Medicaid and Uninsured Subsidies</td>
<td>$194,895,277</td>
</tr>
<tr>
<td>Community Outreach Services and Community Building Activities</td>
<td>$305,689</td>
</tr>
<tr>
<td>Health Professionals Education and Research</td>
<td>$3,370,795</td>
</tr>
<tr>
<td>Unrestricted Foundation Grants, Financial Contributions and In-Kind Donations</td>
<td>$2,188,228</td>
</tr>
<tr>
<td>Total Community Benefit</td>
<td>$200,759,990</td>
</tr>
</tbody>
</table>
October 14, 2019

Ms. Alison Dorge, Program Coordinator  
Missouri Certificate of Need Program  
3418 Knipp Drive, Suite F  
P. O. Box 570  
Jefferson City, MO 65102

RE: CoxHealth  
Certificate of Need

Dear Ms. Dorge:

The purpose of this communication is to advise you that CoxHealth has maintained a banking relationship with Commerce Bank for many years and has consistently maintained liquidity and capital reserves sufficient to support a capital and construction expenditure of $1.9 million dollars.

Please do not hesitate to give me a call at 417.837.5264 if you have any questions or if I can be of additional assistance.

Sincerely,

J. Duke Harshberger  
Vice President  
Commerce Trust Company

Cc: Jake McWay, CFO CoxHealth
# SERVICE-SPECIFIC REVENUES AND EXPENSES

**Project Title:** Replace a CT Scanner  
**Project #:** 5732 HS

## Historical Financial Data for Latest Three Full Years plus Projections Through Three Full Years Beyond Project Completion

<table>
<thead>
<tr>
<th>Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amount of Utilization:</strong> *</td>
<td>3,832</td>
<td>4,065</td>
<td>4,127</td>
</tr>
</tbody>
</table>

## Revenue:

<table>
<thead>
<tr>
<th>Revenue:</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Charge**</td>
<td>$4,879</td>
<td>$4,766</td>
<td>$4,831</td>
</tr>
<tr>
<td>Gross Revenue</td>
<td>$18,695,140</td>
<td>$19,372,977</td>
<td>$19,939,270</td>
</tr>
<tr>
<td>Revenue Deductions</td>
<td>15,739,700</td>
<td>16,586,370</td>
<td>17,125,627</td>
</tr>
<tr>
<td>Operating Revenue</td>
<td>2,955,440</td>
<td>2,786,607</td>
<td>2,813,643</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**TOTAL REVENUE** | $2,955,440 | $2,786,607 | $2,813,643 |

## Expenses:

### Direct Expenses

<table>
<thead>
<tr>
<th>Expenses</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>317,489</td>
<td>335,257</td>
<td>324,551</td>
</tr>
<tr>
<td>Fees</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Supplies</td>
<td>195,919</td>
<td>206,883</td>
<td>200,277</td>
</tr>
<tr>
<td>Other</td>
<td>47,105</td>
<td>49,741</td>
<td>96,009</td>
</tr>
</tbody>
</table>

**TOTAL DIRECT** | $560,513 | $591,881 | $620,836 |

### Indirect Expenses

<table>
<thead>
<tr>
<th>Expenses</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>25,369</td>
<td>26,788</td>
<td>25,933</td>
</tr>
<tr>
<td>Interest***</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rent/Lease</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Overhead****</td>
<td>953,133</td>
<td>1,079,968</td>
<td>1,131,981</td>
</tr>
</tbody>
</table>

**TOTAL INDIRECT** | $978,502 | $1,106,756 | $1,157,914 |

**TOTAL EXPENSES** | $1,539,015 | $1,698,637 | $1,778,750 |

**NET INCOME (LOSS):** | $1,416,425 | $1,087,970 | $1,034,893 |

---

*Utilization will be measured in “patient days” for licensed beds, “procedures” for equipment, or other appropriate units of measure specific to the service affected.

**Indicate how the average charge/procedure was calculated.

***Only on long term debt, not construction.

****Indicate how overhead was calculated.
**Certificate of Need Program**

**SERVICE-SPECIFIC REVENUES AND EXPENSES**

**Historical Financial Data for Latest Three Years plus Projections Through Three Years Beyond Project Completion**

(Use an individual form for each affected service with a sufficient number of copies of this form to cover entire period, and fill in the years in the appropriate blanks.)

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
</tr>
</thead>
</table>

### Amount of Utilization:* 4,334

### Revenue:

**Average Charge** $4,976

| Gross Revenue | $21,564,294 |
| Revenue Deductions | 18,609,969 |
| Operating Revenue | 2,954,325 |
| Other Revenue | 0 |

**TOTAL REVENUE** $2,954,325

### Expenses:

**Direct Expense**

| Salaries | 379,997 |
| Fees | 234,491 |
| Supplies | 8,523 |
| Other |  |

**TOTAL DIRECT** $623,011

**Indirect Expense**

| Depreciation | 293,538 |
| Interest*** | 0 |
| Overhead**** | 1,227,393 |

**TOTAL INDIRECT** $1,520,932

**TOTAL EXPENSE** $2,143,942

### NET INCOME (LOSS): $810,382

* Utilization will be measured in “patient days” for licensed beds, “procedures” for equipment, or other appropriate units of measure specific to the service affected.

** Indicate how the average charge/procedure was calculated.

*** Only on long term debt, not construction.

**** Indicate how overhead was calculated.
# Certificate of Need Program

## SERVICE-SPECIFIC REVENUES AND EXPENSES

**Project Title:** Replace a CT Scanner  
**Project #:** 5732 HS

### Historical Financial Data for Latest Three Full Years plus Projections Through Three Full Years Beyond Project Completion

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount of Utilization:*</th>
<th>Revenue:*</th>
<th>Expenses:</th>
<th>NET INCOME (LOSS):</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2021</td>
<td>4,551</td>
<td>$23,321,782</td>
<td>$411,991</td>
<td>$3,102,041</td>
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<tr>
<td>2022</td>
<td>4,779</td>
<td>$25,222,511</td>
<td>446,678</td>
<td>$3,257,142</td>
</tr>
<tr>
<td>2023</td>
<td>5,018</td>
<td>$27,278,149</td>
<td>484,282</td>
<td>$3,420,000</td>
</tr>
</tbody>
</table>

### Revenue:

- **Average Charge:**
  - 2021: $5,125
  - 2022: $5,278
  - 2023: $5,436

  - **Gross Revenue:**
    - 2021: $23,321,782
    - 2022: $25,222,511
    - 2023: $27,278,149

  - **Revenue Deductions:**
    - 2021: $20,219,741
    - 2022: $21,965,369
    - 2023: $23,858,149

  - **Operating Revenue:**
    - 2021: $3,102,041
    - 2022: $3,257,142
    - 2023: $3,420,000

  - **Other Revenue:**
    - 2021: 0
    - 2022: 0
    - 2023: 0

  - **TOTAL REVENUE:**
    - 2021: $3,102,041
    - 2022: $3,257,142
    - 2023: $3,420,000

### Expenses:

- **Direct Expenses:**
  - **Salaries:**
    - 2021: 411,991
    - 2022: 446,678
    - 2023: 484,282

  - **Fees:**
    - 2021: 0
    - 2022: 0
    - 2023: 0

  - **Supplies:**
    - 2021: 254,235
    - 2022: 275,640
    - 2023: 298,845

  - **Other:**
    - 2021: 61,126
    - 2022: 66,272
    - 2023: 71,851

  - **TOTAL DIRECT:**
    - 2021: $727,352
    - 2022: $788,590
    - 2023: $854,979

- **Indirect Expenses:**
  - **Depreciation:**
    - 2021: 383,820
    - 2022: 386,591
    - 2023: 389,596

  - **Interest***:
    - 2021: 0
    - 2022: 0
    - 2023: 0

  - **Rent/Lease:**
    - 2021: 0
    - 2022: 0
    - 2023: 0

  - **Overhead****:
    - 2021: 1,330,735
    - 2022: 1,442,819
    - 2023: 1,564,212

  - **TOTAL INDIRECT:**
    - 2021: $1,714,555
    - 2022: $1,829,411
    - 2023: $1,953,808

  - **TOTAL EXPENSES:**
    - 2021: $2,441,907
    - 2022: $2,618,000
    - 2023: $2,808,787

### NET INCOME (LOSS):

- 2021: $660,133
- 2022: $639,141
- 2023: $611,213

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*Utilization will be measured in “patient days” for licensed beds, “procedures” for equipment, or other appropriate units of measure specific to the service affected.

**Indicate how the average charge/procedure was calculated.

***Only on long term debt, not construction.

****Indicate how overhead was calculated.
CoxHealth

CORPORATE POLICY/Finance

TITLE: Financial Assistance Policy Procedure

SUBMITTED BY: Charlotte Hale, System Director, Admission

APPROVED BY: Jake McWay, Sr. VP & Chief Financial Officer

PURPOSE

CoxHealth is committed to providing exceptional health care services to all persons in need, regardless of their ability to pay. Through its Financial Assistance Policy (FAP), CoxHealth is able to further its charitable purpose and to serve the most vulnerable in its community by providing care without charge or at significantly reduced rates.

Policy

The purpose of CoxHealth’s FAP is intended solely for the benefit of Indigent patients and any acceptable Guarantors for debts incurred due to Emergency Services and Medically Necessary Services. The FAP is not to be construed to benefit third parties such as insurance companies or others who are obligated for a patient’s health care expenses. The FAP is also meant to comply with Section 501(r) of the Internal Revenue Code and the regulations promulgated thereunder and shall be interpreted and applied in accordance with such regulations. The FAP has been adopted by the governing body of CoxHealth in accordance with the regulations under Section 501(r).

This internal Department Procedure (“Procedure”) sets forth the categories of Financial Assistance available at CoxHealth, the process for applying for Financial Assistance and how CoxHealth determines eligibility for Financial Assistance. CoxHealth may in its sole discretion revise the procedures set forth in this Procedure.

SCOPE

The FAP and this Procedure apply to all CoxHealth hospitals and physician clinics set forth on Schedule 3 of the FAP (collectively “CoxHealth”).

DEFINITIONS

Financial Assistance
1. “CoxHealth Financial Assistance Income and Discount Schedule” (“Discount Schedule”) sets forth the discounts available to Indigent patients and Uninsured patients (See Schedule 2 of the FAP). The Discount Schedule will be updated at least annually with sixty (60) days of publication of the updated Federal Poverty Guidelines.

2. “Emergency Services” means care provided by a hospital for emergency medical conditions as defined in CoxHealth’s Emergency Medical Treatment and Active Labor Act (EMTALA) Policy.

3. “Family Income” means a family’s annual income as determined by calculating the following sources of income for all qualifying household members: wages, salaries, tips, unemployment compensation, workers’ compensation, Social Security, Supplemental Security Income, public assistance, veterans’ payments, survivor benefits, pension or retirement income, dividends and interests, rent and royalties, alimony, child support, legal judgments, matured certificates of deposit, mutual funds, bonds or other easily convertible investments that can be cashed without penalty, cash, bank accounts and money market accounts, and other income, such as income from trust funds, charitable foundations, etc. Income is determined on a before tax basis. Items that are not considered in determining income include non-cash benefits (such as food stamps and housing subsidies) and capital gains and losses.

4. “Federal Health Care Program” means any health care program operated or financed at least in part by the federal, state, or local government, including but not limited to Medicare, Medicaid, SCHIP, Healthcare Exchange Insurance, and Tricare (CHAMPUS).

5. “Federal Poverty Guidelines” means those guidelines issued by the United States Department of Health and Human Services from time to time that describe poverty levels in the United States based on a person or family’s household income. The Federal Poverty Guidelines (“FPL”) are adjusted according to inflation and published in the Federal Register. For the purposes of this Procedure, the most current guidelines will be utilized.

6. “Financial Assistance” is the provision of health care services offered at a discount to individuals who meet CoxHealth’s established Financial Assistance criteria.

7. “Guarantor” means the patient him/herself, parent or guardian, or other person who guarantees the payment of a debt incurred by the patient receiving Emergency Services or Medically Necessary Services at CoxHealth. Guarantor also includes any community or communal-living funds or assets that are available to satisfy all or a portion of a debt incurred by the patient.

8. “Indigent” is defined as an Uninsured patient 1) whose Family Income falls at or below 300% of the FPL (not to exceed $100,000) (See Schedule 2 of the FAP) or 2) who is eligible for/enrolled in Medicaid.

9. “Insured” means an individual who has third-party coverage by a commercial insurer, an ERISA plan, a Federal Health Care Program, Worker’s Compensation, Medical Savings Accounts or other coverage for all or part of his or her medical bills.

10. “Medical Hardship” means persons who may or may not have insurance who have suffered a catastrophic medical event and have incurred medical expenses which would threaten the household financial viability. Qualifying for a Medical Hardship does not require qualification as Indigent. Generally, persons with a Medical Hardship qualify
for reductions in their obligations to pay for Emergency Services and Medically Necessary Services rendered. Medical Hardship Financial Assistance considers the patient’s ability to pay without liquidating assets critical to living or earning a living, such as home, car personal belongings, etc. All patients, whether insured or not, are eligible to be considered for Medical Hardship Assistance.

11. “Medically Necessary Services” are services or supplies needed for the diagnosis or treatment of a patient’s medical condition and are not used primarily for convenience and are not considered an experimental or an excessive form of treatment. If there is any question as to whether a service is a Medically Necessary Service, the ordering physician is responsible for making that determination.

12. “Service Area” means the geographic area served by CoxHealth. This area has been defined to include the following counties in southwest Missouri: Barry, Cedar, Christian, Dade, Dallas, Douglas, Greene, Hickory, Howell, Jasper, Laclede, Lawrence, Newton, Ozark, Polk, Pulaski, Stone, Taney, Texas, Webster, and Wright. The following counties in northwest Arkansas are also included: Baxter, Boone and Carroll.

13. “Uninsured” means a patient who is not Insured and who otherwise has no third-party assistance available to meet or assist with his/her payment obligations.

**TYPES OF FINANCIAL ASSISTANCE**

1. **Indigent Discount** - An Indigent patient will receive the applicable discounts set forth on the Discount Schedule. For purposes of clarification, the Indigent Discount applies to patients receiving hospital or clinic services whose Family Income is at or below 300% FPL (not to exceed $100,000) and also applies to patients who are enrolled in/eligible for Medicaid.

2. **Uninsured Discount** - Any Uninsured patient that does not qualify for the Indigent Discount or does not participate in the Financial Assistance application process and receives care at a CoxHealth hospital shall not be charged more than the amounts generally billed (“AGB”) for the applicable hospital facility providing service (See Schedule 1 of the FAP). For purposes of clarification, the Self-Pay Discount applies to Uninsured patients receiving hospital services only (no clinic services are eligible) whose Family Income exceeds 300% FPL (or $100,000).

**PROCEDURE**

A. **Eligibility**

1. Eligibility determinations will be made based on CoxHealth’s Financial Assistance Policy and an assessment of a patient’s financial need.

2. Patients who qualify for Financial Assistance shall be identified as soon as possible, either before or after care is provided.

3. Generally, a patient is eligible for Financial Assistance if he:
   
   o receives Emergency Services or Medically Necessary Services;
   
   o resides in the Service Area;
o completes a Financial Assistance application within two hundred forty (240) days after receiving an initial bill; and
o is, or is deemed to be, Indigent, or
o is Uninsured but not Indigent.

B. Dissemination of Eligibility Information
1. Patients who appear to be Uninsured, and, those Uninsured who indicate their inability to pay for Emergency Services or Medically Necessary Services shall receive:
   a. A packet of information that describes the Financial Assistance available and relevant procedures, including an application for Financial Assistance, and/or,
   b. Financial counseling, including an application for Financial Assistance.
2. Notification regarding CoxHealth’s Financial Assistance shall also be disseminated, free of charge, by CoxHealth through various means, including those set forth in the FAP.
3. In order to allow CoxHealth to properly determine Financial Assistance eligibility, documents provided to patients by CoxHealth shall be translated into numerous languages spoken by the population serviced by CoxHealth, and translation assistance will be provided as needed.
4. Referral of patients for Financial Assistance may be made by any member of the CoxHealth staff or medical staff, including physicians, nurses, financial counselors, social workers, case managers, chaplains, and religious sponsors.
5. A request for Financial Assistance may be made by the patient or a family member, close friend, or associate of the patient, subject to applicable privacy laws.

C. Eligibility Methodology
≠ To be eligible for Financial Assistance, Guarantors must demonstrate that they reside within the CoxHealth Service Area.
   o Guarantors residing outside of the Service Area may be eligible for Financial Assistance for Emergency Services as well as Medically Necessary Services, but in the case of Medically Necessary Services, only as determined by CoxHealth in its sole discretion.
≠ All available financial resources shall be evaluated before a determination regarding Financial Assistance is made.
   o CoxHealth shall consider the financial resources of the patient, as well as other persons having legal responsibility to provide for the patient (e.g. parent of a minor, spouse).
≠ The patient/Guarantor shall be required to provide information sufficient for CoxHealth to determine whether he or she is eligible for benefits available from Federal Health Care Programs.
≠ If in the course of evaluating the patient’s financial circumstances it is determined by CoxHealth that the patient may qualify for Federal Health Care Programs, financial counseling will be provided to assist patients in applying for available coverage.
Financial Assistance will be denied to patients/Guarantors who do not cooperate fully in applying for available coverage.

≠ If a patient has a claim (or potential claim) against a third party from which the hospital's bill may be paid, the hospital will defer its Financial Assistance determination pending disposition of the third party claim.

≠ Patients who are eligible for/enrolled in Medicaid who receive Emergency Services or Medically Necessary Services that are not covered by Medicaid are automatically eligible for Financial Assistance.

≠ Medicaid patients are not required to complete the application process for these services because verification of Medicaid eligibility confirms their eligibility for Financial Assistance based on the income guidelines.

≠ Copies of documents to substantiate residence in the Service Area and income levels and assets shall be provided by the patient/Guarantor (See Schedule 5 of the FAP) Documents that are altered will not be accepted.

≠ Failure to cooperate with the application requirements may result in ineligibility for Financial Assistance.

≠ Charges for any elective or cosmetic procedures or services are not eligible for Financial Assistance.

≠ All information obtained from patients and Guarantors shall be treated as confidential to the extent required by the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

≠ Eligibility for Financial Assistance expires at the earlier of the following events:
  o Six (6) months from the date of Financial Assistance determination; or
  o Change in the Guarantor’s financial circumstances (i.e., ability to pay, eligibility to participate in Federal Health Care Programs that would otherwise affect Guarantor’s ability to receive Financial Assistance or the amount of Financial Assistance granted).

D. Determination Review and Re-Determination

≠ Determination Review:

  o Patients/Guarantors shall be notified in writing when CoxHealth makes a determination concerning Financial Assistance.

  o Determinations of Financial Assistance eligibility will usually be made within ten (10) to fifteen (15) days, but not more than thirty (30) days from receipt of the completed Financial Assistance application, unless the application is incomplete.

  o If an incomplete application is received by CoxHealth the patient is sent a correspondence from a financial counselor which confirms the application was received and additional documentation is required in order to determine if the patient is eligible.

    ≠ If the information is not supplied by the patient within thirty (30) days, the patient may be denied Financial Assistance.

    ≠ The patient/Guarantor may reapply for Financial Assistance for future Emergency Services and Medically Necessary Services.
In the event CoxHealth determines that a patient is ineligible for Financial Assistance or the patient is dissatisfied with the amount of discount, the patient may appeal that decision in writing to the System Director of Admissions and Preadmission Services or the Patient Financial Services Director within thirty (30) days following receipt of the bill for which financial assistance has been requested.

≠ Failure to so appeal will result in the decision becoming final.
≠ The determination of the System Director of Admissions and Preadmission Services or the Patient Financial Services Director shall not be subject to further appeal.

≠ Re-Determination:

o Patients/Guarantors must submit new or updated documentation every six (6) months.

o Any material change in the patient’s/Guarantor’s income or ability to pay will warrant a re-determination of the Financial Assistance award.

≠ Redeterminations can increase or decrease the amount of Financial Assistance previously awarded. Such redeterminations may take place at any time, including each six (6) month review of determination or upon notification of material change in the patient’s/Guarantor’s income or ability to pay.

E. Billing and Collection

a. Billing: Once eligibility for Financial Assistance is approved, CoxHealth will apply the applicable discount described in the Discount Schedule. Any balance due by the Guarantor will be reviewed to ensure it is less than the applicable AGB percentage. If the balance due is more than the AGB allowable amount, an additional discount will be applied to the balance to reduce it so that it does not exceed the applicable AGB.

b. Actions in the event of non-payment: If a bill is outstanding one hundred twenty (120) days or more, CoxHealth will take action as set forth in its Collection Policy (See Schedule 6 of the FAP).

F. Record Keeping

CoxHealth will maintain copies of all applications and the associated working documents in the patient’s billing file in order to meet all internal and external compliance requirements. Such documentation may include a copy of determination letters from Medicaid (where applicable) or notice of ineligibility from a certified application counselor, financial counselor, or eligibility vendor; copies of paycheck stubs; financial records such as tax returns or other documents demonstrating financial need and all correspondence between CoxHealth and the Guarantor pertaining to the Guarantor’s debt.

G. Regulatory Requirements

In implementing the FAP and this Procedure, CoxHealth shall comply with all applicable federal, state, and local laws, rules, and regulations.
A. OTHER ASSISTANCE NOT INCLUDED IN THE FAP

1. Medical Hardship
   The CoxHealth Senior VP and Chief Financial Officer, Director of Admissions and Central Access, and Director of Patient Financial Services have the authority to evaluate information related to patient accounts that do not clearly qualify under Financial Assistance eligibility criteria to determine whether a discount is appropriate under the circumstances.

   CoxHealth shall make a decision about a patient/guarantor’s Medical Hardship by reviewing the Financial Assistance application, including accompanying financial documentation, in addition to other relevant documentation that supports the Medical Hardship of the patient. The following are examples of such documentation:
   - Copies of all patient/guarantor medical bills;
   - Information related to patient/guarantor drug costs;
   - Information demonstrating multiple instances of high-dollar patient medical liabilities; and
   - Other evidence of high-dollar amounts related to health care costs, such as documentation that an HSA that has been fully expended.

2. Commerce Loan
   Any Uninsured patient with a balance equal to or greater than Five Hundred Dollars ($500.00) may obtain an interest-free loan from Commerce Bank. Additional information is available from financial assistance counselors.

3. Clinic Uninsured Discount
   If an Uninsured patient receives clinic services at Ferrell Duncan Clinic, Springfield Neurological or CoxHealth Regional Services and does not qualify for the Indigent Discount, a discount may be available. Additional information is available from financial assistance counselors.