Score

with the best sports coverage in Connecticut.

Journal Inquirer

PUBLIC NOTICE

LIQUOR PERMIT
NOTICEOF
APPLICATION

his is to give notice that I, arjinder M. Singh, 38 ustin Drive, Tolland, CT 6084-2423 Have filed an pplication placarded 7/08/2012 With the Dept. Consumer Protection r a Package Store Liquor ermit for the sale Of alcoolic liquor on the premes at 352 Middle Turnpike est, Manchester, CT 6040-3824 The business ill be owned by H T & T .C. Entertainment will nsist of: None emonstrance/objections ust be filed by: 8/18/2012

Harjinder M. Singh
07/08/2012
ournal Inquirer
uly 9, 2012
uly 16, 2012

OTICE

ICE
T FOR PROPOSAL

CT will receive sealed Services' office, Lincoln or the following:
RFP FIRE DEPARTMENT TWARE;
RFP FIRE DEPARTMENT

VI. -FURNISH WINDSOR SERVICES BUILDING
on the Town webpage at svce/default.htm. The ployer and requires an af- contractors and vendors with the Town, as per Fed-

PUBLIC NOTICE

PUBLIC NOTICE

The applicant Northeast Regional Radiation Oncology Network, Inc. (hereafter referred to as (NRRON)) is applying for a Certificate of Need (CON) pursuant to section 19a-638 of the general statues.

Description of the scope and nature of the project: NRRON is applying for a CON to purchase and operate a CT Simulator which will be located at the Johnson Memorial Cancer Center location in Enfield. The CT Simulator will benefit patients by allowing them to complete all of their radiation oncology simulation and treatment planning in one convenient location.

The CT Simulator will be located at 142 Hazard Avenue, Enfield, CT. The total capital expenditure for the project is expected to be approximately $800,000.

Journal Inquirer
July 9, 2012
July 10, 2012
July 11, 2012

PUBLIC NOTICE

Town of Somers
OFFICE OF TAX COLLECTOR
Donna F. Doyker
P.O. Box 235
Somers, CT 06071

The FIRST half of real estate taxes and individual motor vehicle taxes over $250.00, as well as your entire Personal Property tax on the Grand List of 2011 becomes due and payable to the town of Somers on July 1, 2012. Taxes not paid in person, online or postmarked by Wednesday August 1st 2012, will be considered delinquent and interest will be charged at the rate of 1.5% per month (18% per year) beginning July 1, 2012. There is a minimum interest charge of $2.00 on any unpaid balance.

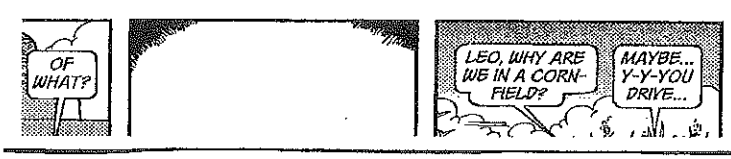
Methods of payment are as follows:

1.) In person: cash, check or money order made out to Tax Collector, Somers. Our hours are: Mon. through Wed. 8:30 to 4:30, Th. 8:30 to 7, Fri. 8:30 to 1:00.
2.) By mail: Tax Collector, Town of Somers, P. O. Box 235, Somers, CT 06071.
3.) On-line payments. (NEW! USER FRIENDLY SYSTEM) Go to our Town web site, www.somersct.gov. Register to pay with your debit card from your savings or checking account at the cost of only 50 cents per bill. Typically, payments made with your Credit Card will be charged a 3% convenience fee by your Credit Card Company. You will be able to access your account on-line at any time. You will receive an email when your payment has been posted to your account and you can then print out a receipt for yourself. Delinquent Motor Vehicle taxes CANNOT be paid on line and must be paid with cash or a Money Order to receive a release for the DMV. Information on our website is up to date so interest IS included.

You can always call us with questions at: (860)763-8210 or (860)763-8209. Our fax number is (860)763-8228. The Assessor's phone # is: (860)763-8203.

Donna Doyker
Collector of Taxes

Journal Inquirer
July 9, 2012
July 26, 2012



CROSSWORD

by Thomas Joseph

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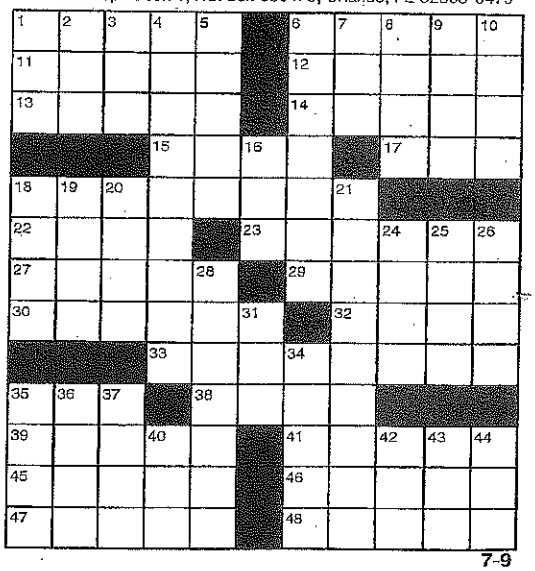
Saturday's answer

ACROSS
1 Florida city
6 Rascal
11 African lilies
12 Wanderer
13 Settle, as a debt
14 Basketball star Patrick
15 Ballet leap
17 Ruby of film
18 Zealots
22 Baldwin of "30 Rock"
23 Manufacturers
27 Share in a business
29 Playful sprite
30 Tribe symbols
32 Green stone
33 No-win situations?
35 Flying mammal
38 DEA agent
39 Astonish
41 Ohio city
45 Scout's job
46 Paris river
47 Nose, slangily
48 Got up

DOWN
1 Road goo
2 Pub product
3 Custodian's tool
4 Sailor's coat
5 Up to the present
6 Patella
7 Right away
8 In the thick of
9 Wind indicator
10 Border
16 Director Burton
18 Speedy
19 Singing voice
20 Orderly
21 Slopes attire
24 Test
25 Carnival attraction
26 Beholds
28 Famous
31 Yacht spot
34 Lawn growth
35 Cell feature
36 Prayer ender
37 Folded food
40 Menagerie
42 Carnival city
43 Music's Yoko
44 Homer's neighbor

NEW CROSSWORD BOOK! Send $4.75 (check/m.o.) to Thomas Joseph Book 1, P.O. Box 536475, Orlando, FL 32853-6475



7-9

7-9 CRYPTOQUOTE

URVLJW NGSF JPLWDHGFR CG CAPPC CDP "JPAR" LR JGC SJKLVP URVLJW NGSF XGXVPF RYUJLPK CG HSN WFGXPFLPR.

motive
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Services
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y Brand
owned Inventory

Sale
/ Vehicles
ks Wanted

Antiques
l Vehicles
s
Trucks

it or Lease

D PARTS & ESSORIES

Yamaha VMAX 1985 -2007 silver 60-881-6311.

glass cap sliding down racks, fits 860-490-9049.

COVER & PRI- 90's Dark Beige. 91-9292.

MA PARTS 1997 Chris 860-463-

E SHIFT Lite t. all cars Ameri- . 860-881-6311.

k fits Altimas or flat trunk, fiber- . 860-377-9834.

Pro fits full size hatch 16" deep 0-432-4210.

RS: 72 Dodge ped doors hood . 860-742-9880.

AUTOS FOR SALE

Roll the Dice of 'their' Cars!

o with the Bet ne from:

ry's Repair Year Warranty onfidence!

e Rd (Rt 83) T 06066 -1790 om/larryssales

3 3.0 Quattro, N! 115k, B24 eld St Auto 860-

RO SS 2002 of 3,000, LS1 d, T tops, SLP much to list

730 AUTOS FOR SALE

Chevy Van 98 V8 fully loaded w/ toolboxes & ladder rack $3000. Call Mike @ 860-983-7970.

CHRYSLER CIRRUS 2000 4dr AT, All power. 62K #B41. Asking $3,995. Call Enfield St. Auto 860-490-1883.

Chrysler LHF 2001 58k miles leather int., 6 cyl, ac, at, loaded, brown $3995. 860-623-1800

CHRYSLER PT CRUISER 02 #71 AT, PS, A/C, alloys 90k, SUPER CLEAN! $4,950. Call The Car Place 860-763-3273.

CHRYSLER SEBRING CONVERTIBLE 2005 Touring. 60,000 miles, Leather, 6 cylinder Excellent condition. $6,500 or BO 860-386-6521.

CHRYSLER T&C 2003, PL/PW V6 1 Owner CLEAN! 98k B26 $5,988. Call Enfield Auto Sales 860-490-1883.

DODGE GRAND CARAVAN SPORT 2003, power seat & more. Alloys, 97K, NICE FAMILY VAN! #A1. $5,995. Call Dan's Auto 860-291-0473.

DODGE NEON 00 #16 AT, PS, A/C, 60K, Nice Clean Car! $4,250. Call The Car Place 860-763-3273.

FORD ESCORT 99 #71 AT PS A/C 79K, **EXC COND!** $3,450. Call The Car Place 860-763-3273.

FORD TAURUS WAGON 00 #17F, 7 pass, **LOADED!** Great Shape, 113K $3,850. Call The Car Place 860-763-3273.

HONDA CIVIC 1996 4dr, AT, A/C, 135k, #B20 $3,988. Call Enfield Auto Sales 860-490-1883.

HYUNDAI SANTA FE 2002 Blue & Silver 2 tone finish. Alloys, leather 97K, MUST SEE! #A5. $6,950. Call Dan's Auto 860-291-0473.

HYUNDAI TIBURON '98 #11C 5 spd, alloys, 70K, cool looking car! $2950, Call The Car Place 860-763-3273.

MERCURY SABLE 2002 LTR, Roof, clean. 105K #B42. Asking $3,995, call Enfield St. Auto 860-490-1883.

MERCURY SABLE LS 05 #11C, LOADED! 108k, MINT! $4,950. Call The Car Place. 860-763-3273.

MUSTANG GT CONVERTIBLE 95 Red & Tan, Leather, A/C, Cruise, 5.0 liter, 5 spd, MINT! 20,600 miles. $12,000 860-292-6608. WebPhoto: 1119858

PONTIAC BONNEVILLE SE 96 #18 LOADED! Alloys leather, 127K, extra clean. $3,450. Call The Car Place 860-763-3273.

PONTIAC FIREBIRD 1995 3.8 AT, A/C, T-top. 107K, Blue, Very Clean. Excellent condition. Asking $4,000. Call 860-966-2095.

PONTIAC GRAND PRIX GT 98, #31, pwr roof, LOADED! 69k, MUST SEE! $4,950. Call The Car Place 860-763-3273.

730 AUTOS FOR SALE

SATURN SL2 1998 4D a/c, newer tires, brakes, battery. 86K. $2,500. 860-749-6545.

SATURN SL1 99 #41 AT, PS, A/C 87K, REAL CLEAN! $2,950. Call The Car Place 860-763-3273.

TOYOTA AVALON XLS 1999 LTR/roof CLEAN! 125k, B25 $4,988. Call Enfield Auto Sales 860-490-1883.

TOYOTA COROLLA 01 #44 AT, PS A/C 115K. **MINT!** MUST SEE! $4,950. Call The Car Place 860-763-3273.

VW BEETLE 04 #44 AT PS A/C PW 116K, **REAL CLEAN BUG!** $5,950. Call The Car Place 860-763-3273.

VW CABRIOLET CONVERTIBLE 2001 5spd, leather, alloys, runs great, SUPER car! #A4 $4,595. Call Dan's Auto 860-291-0473.

VW JETTA 00 #31 AT PS A/C 149k, **MINT!** $3,950. Call The Car Place 860-763-3273.

730 AUTOS FOR SALE

TOYOTA SIENNA CE 2006 FWD, seats 7, Excell. Condit. New brakes. Blue, 95K miles. $9,900. Call 860-872-1719 WebPhoto: 1089825

VW JETTA 03 #17 AT, PS, A/C, pwr roof, PW, 132K, REAL CLEAN! $5,950. Call The Car Place 860-763-3273.

VW JETTA GLS 2002 1.8T 5spd new timing belt, black, sunroof, 17" alloys, **Excellent Car!!** #A32 $6,850. Call Dan's Auto Sales 860-291-0473.

VW PASSAT 99 #21, 5spd, A/C 92K, pwr roof, alloys, CLEAN! $4,950. Call The Car Place 860-763-3273.

730 AUTOS FOR SALE

VW PASSAT GLX 2002 Black finish, Grey leather, 6 cyl, alloys, SHARP car! #A3. $6,950. Call Dan's Auto 860-291-0473.

733 SPORT UTILITY VEHICLES

CHEVY BLAZER 2000 4x4 Leather, Loaded. 130K #B40. Asking $3,495. Call Enfield St. Auto 860-490-1883.

CHEVY TAHOE 05 5.3L pw ps, rs, 82K, 4wd, 6 cd, auto, sun rf, 20 in $15,900. 860-819-8162.

FORD EXPLORER SPORT 2000 blue 118K, pwr windows, locks, CD, clean interior. $1,800 obo 860-559-9392.

FORD EXPLORER SPORT 99 #81 AT, new brakes, tires & exhaust, 161K, great shape! $3,450. Call The Car Place 860-763-3273.

KIA SPORTAGE 99 #12 AT PS A/C P/W 99K **SUPER CLEAN** Economical 4X4 $3,950. Call The Car Place 860-763-3273.

733 SPORT UTILITY VEHICLES

JEEP CHEROKEE SPORT 99 #40C AT LOADED! New brakes, tires, & exhaust, alloys, 161K, MINT! $4,950. Call The Car Place 860-763-3273.

JEEP GRAND CHEROKEE 2001 4.0L 6 cyl, blue, some options, well maintained, auto, 124K, $4,900. Call 860-614-7826.

TOYOTA RAV 4 99 #12, AT, PS, A/C, 140k, new timing belt, water pump & brakes, MINT! $4,950. Call The Car Place 860-763-3273.

735 AUTOS & TRUCKS WANTED

PAYING CASH for Junk cars & trucks call for price. Parker St Auto 860-646-2036

CLASSIFIEDS
small ads big deals
860-646-7767 or 800-237-3606

PUBLIC NOTICE

PUBLIC NOTICE
TOWN OF SOMERS
ZONING COMMISSION

The Somers Zoning Commision voted to deny the following application at its regularly scheduled meeting held on Monday, July 2, 2012:

Application of Driving Range 349 Main Street LLC:

1. Modification to the existing Special Use Permit to include a 16' X 30' cooking shed to service the seasonal accessory tents pursuant to section 214-98, B11 & B17.
2. Modification of existing Special Use Permit to include a pavilion as a location for the sale of alcoholic beverages pursuant to section 214-98, D2.

Dated at Somers, Connecticut this 9th day of July, 2012.

Zoning Commission
Jill Conklin, Chairman

Journal Inquirer
July 10, 2012

PUBLIC NOTICE

The applicant Northeast Regional Radiation Oncology Network, Inc. (hereafter referred to as (NRRON)) is applying for a Certificate of Need (CON) pursuant to section 19a-638 of the general statues.

Description of the scope and nature of the project: NRRON is applying for a CON to purchase and operate a CT Simulator which will be located at the Johnson Memorial Cancer Center location in Enfield. The CT Simulator will benefit patients by allowing them to complete all of their radiation oncology simulation and treatment planning in one convenient location.

The CT Simulator will be located at 142 Hazard Avenue, Enfield, CT. The total capital expenditure for the project is expected to be approximately $800,000.

Journal Inquirer
July 9, 2012
July 10, 2012
July 11, 2012

PUBLIC NOTICE
INVITATION TO BID/REQUEST FOR PROPOSAL

The Town of Manchester, CT will receive sealed bids/proposals in the General Services' office, Lincoln Center Building, 494 Main Street for the following:

AUGUST 2, 2012 @ 4:00 P.M. -RFP FIRE DEPARTMENT RECORDS MANAGEMENT SOFTWARE;
AUGUST 2, 2012 @ 4:00 P.M. -RFP FIRE DEPARTMENT MOBILE SOFTWARE;
AUGUST 17, 2012 @ 11:00 A.M. -FURNISH WINDSOR SASH PAC WINDOWS, YOUTH SERVICES BUILDING

The bid documents are available on the Town webpage at www.townofmanchester.org/Genlsvce/default.htm. The Town is an equal opportunity employer and requires an affirmative action policy for all of its contractors and vendors as a condition of doing business with the Town, as per Federal Order 11246.

Journal Inquirer
July 7, 2012
July 9, 2012
July 10, 2012

CORRECTION
PUBLIC NOTICE

Notice is hereby given in accordance with Chapter 133 of the Town of Manchester Code of Ordinances for a permit application to demolish a building of five hundred (500) total square feet or larger and that is more than fifty (50) years old.

The application for a demolition permit was filed by Aaron Ansaldi, Andrew Ansaldi Company, on July 5, 2012 for the demolition of a building located at 74 (aka 70 and 72 Main Street) Main Street, Manchester, Connecticut 06042, owned by Saint Bridget Church a Corp.

Unless written objections are filed with the Building Official of the Town of Manchester within fifteen (15) working days following publication of this notice, the demolition permit may be issued after the expiration of the 15 - working day period, or if any objection that was properly filed is withdrawn, the permit may be issued forthwith.

Greg R. Smith
Chief Building Official
Journal Inquirer
July 10, 2012

CROSSWORD

by Thomas Joseph

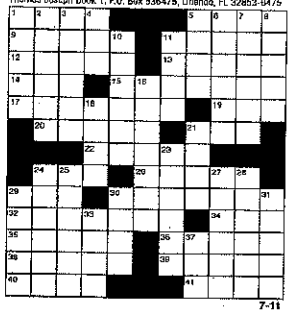
Yesterday's answer

ACROSS

1 Arp's art
5 Trough eaters
9 Undermine
11 Charged
12 Body of law
13 Mumbai's nation
14 IRS employee
15 Following relentlessly
17 Timberland business
19 Lobster eggs
20 Nary a soul
21 Outlaw
22 Heartburn
24 Bowler, for one
26 Puts in order
29 Heir, at times
30 Track workout
32 Greedy activity
34 West of films
35 Decorate
36 Wed in haste
38 Take it easy
39 Ladies of Spain
40 Invasion time
41 Carry

DOWN

1 Model sticker
2 Spanish province
3 "Please stay!"
4 Hubbub
5 Hunger indicator
6 Prime minister Gandhi
7 Draw closer to
8 Play place
10 Finale
11 Diana of "The Avengers"
16 Golfer's cleek
18 Farm animal
21 Slam sound
23 Put a price on
24 Like some jackets
25 Zambia neighbor
27 Geisha garb
28 Be short with
29 Pottery piece
30 Source of bad luck
31 Honking birds
33 Overcast
37 Whole bunch



NEW CROSSWORD BOOK! Send $4.75 (check/m.o.) to Thomas Joseph Book 1, P.O. Box 536475, Orlando, FL 32853-6475

7-11

7-11 CRYPTOQUOTE

Z IKLJTO BJ ZAQZGJ JNZLNAKM QCKO CK CKZLJ CBUJKAD YZAAKM TAM DTL NCK DBLJN NBUK.

— TABHKL QKOMKAA CTAUKJ

Yesterday's Cryptoquote: I AM A GREAT BELIEVER IN FOUND FAMILIES, AND I'M NOT A GREAT BELIEVER IN BLOOD. — JOSS WHEDON

PUBLIC NOTICE

PUBLIC NOTICE
NOTICE OF LAND PATENT

Kevin Saunders has brought forward the land patent and occupies the land located at 329-341 Scantic Road, East Windsor, Crow Park Road, South Windsor, Connecticut.
Recorded at the clerk's office, Published July 11, 18, 25, August 1, 2012
Journal Inquirer
July 11, 2012
July 18, 2012
July 25, 2012
August 1, 2012

PUBLIC NOTICE
ANDOVER INLAND WETLANDS AND WATERCOURSE COMMISSION

The agent to the Commission has issued an administrative approval to Henry N. and Jennifer J. Talmage to construct a driveway crossing two wetland areas at Boston Hill Rd, Andover, CT, also known as Map 27/Block 010/Lot 019 on the Assessor's record. Information on the application can be found in the Andover Building Department.

John Valentin
Wetlands Agent
July 9, 2012

Journal Inquirer
July 11, 2012

PUBLIC NOTICE

PUBLIC INFORMATION MEETING

Skinner Road School Grant Awarded by the Safe Routes to School Infrastructure Program

The Town of Vernon will present an overview of the improvements on and around the Skinner Road School property which are included in this grant application

Wednesday, August 1, 2012 at 6:00 p.m.
at the Council Chambers
Third Floor of the Town Hall
14 Park Place
Vernon, Connecticut

Residents, commuters, business owners and other individuals are encouraged to take advantage of this opportunity to discuss this project

Please join us on August 1, 2012

TOWN OF VERNON, CT

Journal Inquirer
July 11, 2012

546 FURNITURE

SOFA & recliner 7' brown, clean. Rocker recliner, good cond. $100. both. 860-875-5922.

SOFA: & two chairs, tan. Excellent cond. $350. 860-684-3734.

546 FURNITURE

STANDS 2 accent stands. Natural varnish wood 12x13x20. Asking $25. Call 860-412-3831.

TABLE coffee/end tables mahogany. $45 860-644-7324

TRUNDLE BED: Pine white wash w/ mate night stand, desk, dresser. $450. 860-742-2363.

PUBLIC NOTICE

PUBLIC NOTICE
TOWN OF TOLLAND, CT
PLANNING & ZONING COMMISSION

At their meeting on Monday, July 9, 2012 the Planning & Zoning Commission took the following action:

1. **P&Z App. #826 – Tolland Planning & Zoning Commission** – Approved revisions to the Zoning Regulations and Zoning Map for Neighborhood Commercial Zones. Effective August 1, 2012

2. **P&Z App. #441 – Burgundy Hills Quarry** – Approved a request for waiver of Annual Map submission for Burgundy Hills Quarry. Location: Old Post and Mountain Spring Roads.

John Hughes
Secretary
Journal Inquirer
July 11, 2012

PUBLIC NOTICE

The applicant Northeast Regional Radiation Oncology Network, Inc. (hereafter referred to as (NRRON)) is applying for a Certificate of Need (CON) pursuant to section 19a-638 of the general statutes.

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Journal Inquirer
July 9, 2012
July 10, 2012
July 11, 2012

360 HEALTH

AIR PURIFIER Hunter HEPA model 3540 w/ operating manual. $25. 860-648-1974.

EXERCISE BIKE: Nordic Track SL 728 Exc cond. $100. 860-742-2363.

TREADMILL: Horizon Club Series CST3 exc cond. $100. 860-742-2363.

362 HEATING & AIR CONDITIONING

A/C: GE 8000 BTU Energy Star unit in box never used. Bought $186. Sell $130. 860-748-7185

A/C: Gibson 6,000 BTU's good condition $100. 860-871-7329.

366 INDUSTRIAL EQUIPMENT

WORK BENCH: 11x4 wooden heavy duty industrial. $200. 860-684-3734.

382 LAWN & GARDEN

Bolens Tractor Model 1668, 1996, 48" mower deck blades, attachments $3,000 830-643-1194

Craftsman Lawn Tractor 20hp auto/trans, used twice 46" bagger $650 860-646-6290

FIREPLACE: Self standing outdoor metal 36" base 5 foot chimneys $80. 860-490-6333.

GLASS TABLE: With 6 chairs. $75.00 Call 860-742-2363.

LAWN MOWER: Lawn Boy 5 hp self prop mag. $120. 860-872-3858.

LAWN SWEEPER: Excellent condition. $80. Call 860-742-7981.

LAWN TRACTOR: Craftsman 17hp Hydro 42 in cut VG cond. $450. 860-872-9024.

MOWER: Honda 20 in electric mower like new very clean. $90. 860-298-4365.

OUTDOOR FURN: 5 plastic chairs, 2 side tables. $20. Call 860-742-2363.

PERENNIALS 80 plant flowers in pot, variety. Asking $1, call 860-528-2455.

PERENNIALS Plants, Hosta, Sedum, Stella Dora, Coral Bell, Primroses. $1. 860-528-2455.

RECEIVED
AUG - 1 2012
OFFICE OF
HEALTH CARE ACCESS

Application Checklist

Instructions:

1. **Please check each box below, as appropriate; and**
2. **The completed checklist *must* be submitted as the first page of the CON application.**

☒ **Attached is the CON application filing fee in the form of a certified, cashier or business check made out to the "Treasurer State of Connecticut" in the amount of $500.**

For OHCA Use Only:

Docket No.: 12-31778 **Check No.:** 350555
OHCA Verified by: SD **Date:** 8/2/12

☒ **Attached is evidence demonstrating that public notice has been published in a suitable newspaper that relates to the location of the proposal, 3 days in a row, at least 20 days prior to the submission of the CON application to OHCA. (*OHCA requests that the Applicant fax a courtesy copy to OHCA (860) 418-7053, at the time of the publication)***

☒ **Attached is a paginated hard copy of the CON application including a completed affidavit, signed and notarized by the appropriate individuals.**

☒ **Attached are completed Financial Attachments I and II.**

☒ **Submission includes one (1) original and four (4) hard copies with each set placed in 3-ring binders.**

Note: A CON application may be filed with OHCA electronically through email, if the total number of pages submitted is 50 pages or less. In this case, the CON Application must be emailed to the following email addresses: steven.lazarus@ct.gov and leslie.greer@ct.gov.

Important: For CON applications(less than 50 pages) filed electronically through email, the singed affidavit and the check in the amount of $500 must be delivered to OHCA in hardcopy.

☐ **The following have been submitted on a CD**

1. **A scanned copy of each submission in its entirety, including all attachments in Adobe (.pdf) format.**
2. **An electronic copy of the documents in MS Word and MS Excel as appropriate.**

AFFIDAVIT

Applicant: Northeast Regional Radiation Oncology Network

Project Title: Acquisition of a CT Simulator for Radiation Oncology Patients

I, Donna Handley _____, Chairman of the Board of Directors of
(Name) *(Position – CEO or CFO)*

Northeast Regional Radiation Oncology Network being duly sworn, depose and state that the information submitted in this Certificate of Need Application is accurate and correct to the best of my knowledge.

Donna M. Handley July 25, 2012
Signature Date

Subscribed and sworn to before me on the 25th of July, 2012

_____

Notary Public/Commissioner of Superior Court

My commission expires: Michelle Kane

MICHELLE L. KANE
NOTARY PUBLIC - CONNECTICUT
My Commission Expires
November 30, 2016

State of Connecticut
Office of Health Care Access
Certificate of Need Application

Instructions: Please complete all sections of the Certificate of Need ("CON") application. If any section or question is not relevant to your project, a response of "Not Applicable" may be deemed an acceptable answer. If there is more than one applicant, identify the name and all contact information for each applicant. OHCA will assign a Docket Number to the CON application once the application is received by OHCA.

Docket Number:

	Petitioner
Full Legal Name	Northeast Regional Radiation Oncology Network, Inc.
Doing Business As	Community CancerCare
Name of Parent Corporation	Hartford Hospital Johnson Memorial Medical Center Manchester Memorial Hospital Rockville General Hospital
Petitioner's Mailing Address, if Post Office (PO) Box, include a street mailing address for Certified Mail	142 Hazard Ave, First Floor Enfield, Ct. 06082
What is the Petitioner's Status: P for profit and NP for Nonprofit	NP
Contact Person at Facility, including Title/Position: This Individual at the facility will be the Petitioner's Designee to receive all correspondence in this matter.	Kristoffer Popovitch Administrative Director of Cancer Services
Contact Person's Mailing Address, if PO Box, include a street mailing address for Certified Mail	142 Hazard Ave, First Floor Enfield, Ct. 06082

Contact Person's Telephone Number	860-533-4002
Contact Person's Fax Number	860-533-4011
Contact Person's e-mail Address	kpopovitch@nrron.org

Project Town: **Enfield, CT**

Project Name: Acquisition of a CT Simulator for Radiation Oncology Patients

Statute Reference: Section 19a-638, C.G.S.

Estimated Total Capital Expenditure: $800,000

Project Description: Acquisition of Equipment

a. Please provide a narrative detailing the proposal.

Response:

Northeast Regional Radiation Oncology Network, dba, Community CancerCare is a regional not for profit joint venture of Hartford Hospital, Johnson Memorial Hospital, Rockville General Hospital and Manchester Memorial Hospital. Through collaboration with referring physicians, Community CancerCare participates in seamless multidisciplinary cancer care by providing the highest standard of radiation oncology care. Currently we operate one (1) linear accelerator at our 142 Hazard Avenue location. This location is the Johnson Memorial Cancer Center complex. The proposed CT simulator would be located at the 142 Hazard Avenue location as part of the comprehensive cancer services of the Johnson Memorial Cancer Center adjacent to the Karen Davis Kryznowek Infusion Center. Space for the proposed CT Simulator and existing radiation therapy services is leased from the building owner, Johnson Memorial Medical Corporation.

Northeast Regional Radiation Oncology Network is seeking to purchase through the petitioner's equity a CT simulator to allow this network to have the full complement of radiation treatment planning capabilities necessary for radiation therapy procedures at the 142 Hazard Avenue location. Having the simulator at 142 Hazard Avenue will increase the quality of the treatment planning process, decrease the time a patient spends in this process and significantly increase the overall patient experience. In addition the CT simulator will increase patient access and comply with the requirement of onsite physician supervision during treatment.

b. Provide letters that have been received in support of the proposal.

Response: Please: Please see attachment A.

c. Provide the Manufacturer, Model, Number of slices/tesla strength of the proposed scanner (as appropriate to each piece of equipment).

Response:

Equipment Type	Name	Model	Number of Units	Cost per unit
CT simulator	Phillips	Brilliance Big Bore	1	658,185

Note: Provide copy of the vendor contract or quotation for the medical equipment.

Please see **Attachment B** for a copy of the vendor quote for the proposed CT simulator.

d. List each of the Applicant's sites and the imaging modalities and other services currently offered by location.

Response: Community CancerCare has two sites: 100 Haynes Street, Manchester, CT and 142 Hazard Avenue, Enfield, CT. Neither location currently has any equipment classified as medical imaging equipment. Both sites provide radiation oncology services for patients diagnosed with cancer.

2. Clear Public Need

a. Explain why there is a clear public need for the proposed equipment. Provide evidence that demonstrates this need.

Response:

Currently, CT simulations are performed at Johnson Memorial Hospital Ambulatory Surgery Center medical imaging department on a diagnostic CT unit not designed for radiation therapy simulation, making the process challenging and difficult for our patients. To accommodate this substandard situation, CT simulation exams are first planned as a virtual procedure in a separate room away from the diagnostic CT unit where immobilization devices are fabricated specific to the patients needs. Once fabricated the patient must then travel to the diagnostic CT area of Johnson Memorial Ambulatory Surgery Center and begin the treatment planning session. Once complete the patient and the fabricated immobilization device must then travel from surgery center area to 142 Hazard Ave to complete the process. The patient usually has to disrobe at each point of care.

Quality of care is a concern with our current workflow. Because the patient's radiation treatment is planned in 3 locations there is an increased likelihood the patient's position will vary, adding unnecessary uncertainty to the focused delivery of the radiation therapy treatment. CT simulation is an essential precursor to radiation therapy, whereby immobilization devices are created and the simulation image is performed all at once on the CT simulator table designed for this purpose. In addition, the radiation therapy departments must comply with providing onsite physician supervision during treatment. This cannot be accomplished, maintaining the current busy patient schedule without delaying treatment for other patients.

The billing process would be assumed by Northeast Regional Radiation Oncology Network and decrease the confusion that is often caused by the patients in receiving two bills from two separate facilities since two separate entities are currently providing

service for the patient for the same treatment, (Northeast Regional Radiation Oncology Network and Manchester Memorial Hospital).

b. Provide the utilization of existing health care facilities and health care services in the Applicant's service area.

Response: Current patient CT Simulations are completed at Johnson Memorial Surgery Center.

c. Complete **Table 1** for each piece of equipment of the type proposed currently operated by the Applicant at each of the Applicant's sites.

Response: Currently Northeast Regional Radiation Oncology Network will begin to operates a CT simulator at the Manchester location by September 1 2012 (CON 11-31709 docket) . Currently, CT simulations are performed off-site at Johnson Memorial Surgery Center. In seeking to purchase a Philips Brilliance Big Bore 16 slice CT simulator NRRON seeks to provide standard of care across all sites. This unit will operate 5 days a week (Monday-Friday) 7am -4pm. The number of CT simulations we expect to perform are 144 (please see table 2a)

Table 1: Existing Equipment Operated by the Applicant

Provider Name Street Address Town, Zip Code	**Description of Service ***	**Hours/Days of Operation ****	**Utilization *****
NA	NA	NA	NA

* Include equipment strength (e.g. slices, tesla strength), whether the unit is open or closed (for MRI)
** Days of the week unit is operational, and start and end time for each day; and
*** Number of scans/exams performed on each unit for the most recent 12-month period (identify period).

d. Provide the following regarding the proposal's location:

i. The rationale for locating the proposed equipment at the proposed site;

Response: By having a dedicated CT Simulator within the Cancer Center, patients will only need to use one facility for their radiation oncology care and will allow the highest quality of radiation treatment planning. The dedicated unit will also increase access and allow greater scheduling flexibility not currently available from the mixed use CT within Johnson Memorial Surgery Center.

ii. The population to be served, including specific evidence such as incidence, prevalence, or other demographic data that demonstrates need;

Response: No Change from existing conditions

iii. How and where the proposed patient population is currently being served;

Response: No change is expected. Current patients are being served at the Enfield Campus location; this CON will decrease the number of steps and improve the quality of the radiation planning process.

iv. All existing providers (name, address) of the proposed service in the towns listed above and in nearby towns.

Response: No other providers.

v. The effect of the proposal on existing providers; and

Response: See Attachment I - column B

e. Explain why the proposal will not result in an unnecessary duplication of existing or approved health care services.

Response: Adding CT Simulator services to the 142 Hazard Avenue location will increase the overall quality of the radiation oncology treatment planning process, be a convenience to patients, families and staff. It will also allow all radiation oncology services to be located within one facility simplifying the overall patient experience. With the addition of the CT Simulator at the 142 Hazard Avenue location, it will no longer be necessary for CT simulations to be performed at Johnson Memorial Surgery Center thereby avoiding any unnecessary duplication in services.

3. Actual and Projected Volume

a. Complete the following tables for the past three fiscal years ("FY"), current fiscal year ("CFY"), and first three projected FYs of the proposal, for each of the Applicant's existing and proposed pieces of equipment (of the type proposed, at the proposed location only). In Table 2a, report the units of service by piece of equipment, and in Table 2b, report the units of service by type of exam (e.g. if specializing in orthopedic, neurosurgery, or if there are scans that can be performed on the proposed scanner that the Applicant is unable to perform on its existing scanners).

Table 2a: Historical, Current, and Projected Volume, by Equipment Unit

	Actual Volume (Last 3 Completed FYs)			CFY Volume*	Projected Volume (First 3 Full Operational FYs)**		
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JSC CT	126	124	129	140			
Big Bore					144	148	153
Total	126	124	129	140	144	148	153

- Fiscal Year is Oct-Sept.
- Services are for OP patients
- FY2012 was annualized based on data over the first 6 months of the fiscal year.

* For periods greater than 6 months, report annualized volume, identifying the number of actual months covered and the method of annualizing. For periods less than six months, report actual volume and identify the period covered.
** If the first year of the proposal is only a partial year, provide the first partial year and then the first three full FYs. Add columns as necessary.
*** Identify each scanner separately and add lines as necessary. Also break out inpatient/outpatient/ED volumes if applicable.
**** Fill in years. In a footnote, identify the period covered by the Applicant's FY (e.g. July 1-June 30, calendar year, etc.).

Table 2b: Historical, Current, and Projected Volume, by Type of Scan/Exam

	Actual Volume (Last 3 Completed FYs)			CFY Volume*	Projected Volume (First 3 Full Operational FYs)**		
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CT Simulation	126	124	129	140	144	148	153
Total	**126**	**124**	**129**	**140**	**144**	**148**	**153**

* For periods greater than 6 months, report annualized volume, identifying the number of actual months covered and the method of annualizing. For periods less than six months, report actual volume and identify the period covered.
** If the first year of the proposal is only a partial year, provide the first partial year and then the first three full FYs. Add columns as necessary.
*** Identify each type of scan/exam (e.g. orthopedic, neurosurgery or if there are scans/exams that can be performed on the proposed piece of equipment that the Applicant is unable to perform on its existing equipment) and add lines as necessary.
**** Fill in years. In a footnote, identify the period covered by the Applicant's FY (e.g. July 1-June 30, calendar year, etc.).

Response: There is only one type of exam, so table 2A and 2B are identical.

b. Provide a breakdown, by town, of the volumes provided in Table 2a for the most recently completed full FY.

Response: Please see attachment C - Patient by zip code

c. Describe existing referral patterns in the area to be served by the proposal.

Response: Referrals are from physicians that refer to Community Cancer Care based on the preference of the patient. The decision to utilize Community Cancer Care is based largely on proximity. Due to the fact that radiation treatment is a treatment that is repeated on average of 30-40 times, patients choose a location that is easiest for them to travel to during the course of the day. Physicians recognizing this need for their patients refer to Community Cancer Care for patients who live in a geographically local area to Enfield, Ct.

d. Explain how the existing referral patterns will be affected by the proposal.

Response: No impact is anticipated, this is a quality and patient satisfaction initiative.

e. Explain any increases and/or decreases in volume seen in the tables above.

Response: We are anticipating a growth percentage of 3% each year. Growth is independent of the acquisition of the dedicated CT Simulator.

f. Provide a detailed explanation of all assumptions used in the derivation/ calculation of the projected volume by scanner and scan type.

Response: Assumptions are based on the following methodology: Growth index/percentage outlined by the United States census report, accessibility of treatment schedule with the proposed purchased linear accelerator and prior historical data NRRON estimates a 3% growth each year.

g. Provide a copy of any articles, studies, or reports that support the need to acquire the proposed scanner, along with a brief explanation regarding the relevance of the selected articles.

Response: See attachment D - British Journal of Radiology (2006) 79, - The journal article discusses the components for achieving standard of care for radiation oncology treatment planning and the role of a dedicated CT Simulator.

4. Quality Measures

a. Submit a list of all key professional, administrative, clinical, and direct service personnel related to the proposal. Attach a copy of their Curriculum Vitae.

Response:

(1) Kristoffer J. Popovitch, Administrative Director of Cancer Services
(2) Dr. Stephen Hauser, Medical Director
(3) Michelle L. Kane, Operations Manager
(4) Margaret V. Lane, RT. (T.) Chief Technologist

Please see attachment E - Resumes

b. Explain how the proposal contributes to the quality of health care delivery in the region.

Response: As stated above, the overall quality of the radiation treatment planning process will be increased by utilizing a dedicated unit specifically designed for radiation treatment planning. The overall patient experience will also be significantly increased by reducing the number of locations/steps the patient must endure from 3 to 1 for their radiation treatment planning. Lastly, having a dedicated CT Simulator within the Cancer Center will allow the referring radiation oncologist to be present during the CT Simulation. Currently the distance between the Cancer Center and the existing mixed use CT scanner within Johnson Memorial Surgery Center makes physician presence very difficult.

5. Organizational and Financial Information

a. Identify the Applicant's ownership type(s) (e.g. Corporation, PC, LLC, etc.).

Response: The applicant is a corporation

b. Does the Applicant have non-profit status?
☒ Yes (Provide documentation) ☐ No

c. Provide a copy of the State of Connecticut, Department of Public Health license(s) currently held by the Applicant and indicate any additional licensure categories being sought in relation to the proposal.

Response: please see attachment F – DPH License. No additional licensure categories are being sought related to the proposal.

d. Financial Statements

i. If the Applicant is a Connecticut hospital: Pursuant to Section 19a-644, C.G.S., each hospital licensed by the Department of Public Health is required to file with OHCA copies of the hospital's audited financial statements. If the hospital has filed its most recently completed fiscal year audited financial statements, the hospital may reference that filing for this proposal.

ii. If the Applicant is not a Connecticut hospital (other health care facilities): Audited financial statements for the most recently completed fiscal year. If audited financial statements do not exist, in lieu of audited financial statements, provide other financial documentation (e.g. unaudited balance sheet, statement of operations, tax return, or other set of books.)

Response: please see attachment G

e. Submit a final version of all capital expenditures/costs as follows:

Table 3: Proposed Capital Expenditures/Costs

Medical Equipment Purchase	$658,185
Imaging Equipment Purchase	
Non-Medical Equipment Purchase	$62,200
Land/Building Purchase *	
Construction/Renovation **	$100,000
Other Non-Construction (Specify)	
Total Capital Expenditure (TCE)	$820,385
Medical Equipment Lease (Fair Market Value) ***	$
Imaging Equipment Lease (Fair Market Value) ***	
Non-Medical Equipment Lease (Fair Market Value) ***	
Fair Market Value of Space ***	
Total Capital Cost (TCC)	$820,385
Total Project Cost (TCE + TCC)	$
Capitalized Financing Costs (Informational Purpose Only)	
Total Capital Expenditure with Cap. Fin. Costs	$

* If the proposal involves a land/building purchase, attach a real estate property appraisal including the amount; the useful life of the building; and a schedule of depreciation.

** If the proposal involves construction/renovations, attach a description of the proposed building work, including the gross square feet; existing and proposed floor plans; commencement date for the construction/ renovation; completion date of the construction/renovation; and commencement of operations date.

*** If the proposal involves a capital or operating equipment lease and/or purchase, attach a vendor quote or invoice; schedule of depreciation; useful life of the equipment; and anticipated residual value at the end of the lease or loan term.

f. List all funding or financing sources for the proposal and the dollar amount of each. Provide applicable details such as interest rate; term; monthly payment; pledges and funds received to date; letter of interest or approval from a lending institution.

Response: The funding of this project will come from NRRON operations.

g. Demonstrate how this proposal will affect the financial strength of the state's health care system.

Response: Acquisition of the CT Simulator will positively impact the financial strength of the health care system in the local area by enhancing the quality of care delivered and improving the efficiency of care delivery. The improved operational efficiencies attained will help to reduce operating costs associated with the current process.

6. Patient Population Mix: Current and Projected

a. Provide the current and projected patient population mix (based on the number of patients, not based on revenue) with the CON proposal for the proposed program.

Table 4: Patient Population

	Current FY 2012**	**Year 1 FY 2013**	**Year 2 FY 2014**	**Year 3 FY 2015**
Medicare*		65	66	67
Medicaid*		3	3	4
CHAMPUS & TriCare		2	2	1
Total Government		**70**	**71**	**72**
Commercial Insurers*		72	75	78
Uninsured		2	2	3
Workers Compensation		0	0	0
Total Non-Government		**74**	**77**	**81**
Total Payer Mix		**144**	**148**	**153**

* Includes managed care activity.
** New programs may leave the "current" column blank.
*** Fill in years. Ensure the period covered by this table corresponds to the period covered in the projections provided.

b. Provide the basis for/assumptions used to project the patient population mix.

Response: Patient case mix is based on actual historical data. Current year is 6months annualized

7. **Financial Attachments I & II**

a. Provide a summary of revenue, expense, and volume statistics, without the CON project, incremental to the CON project, and with the CON project. **Complete Financial Attachment I.** (Note that the actual results for the fiscal year reported in the first column must agree with the Applicant's audited financial statements.) The projections must include the first three full fiscal years of the project.

Response: See attachments **H, I, J** - Financial Attachments I, II and their accompanied notes for 7a-f.

b. Provide a three year projection of incremental revenue, expense, and volume statistics attributable to the proposal by payer. **Complete Financial Attachment II.** The projections must include the first three full fiscal years of the project.

c. Provide the assumptions utilized in developing **both Financial Attachments I and II** (e.g., full-time equivalents, volume statistics, other expenses, revenue and expense % increases, project commencement of operation date, etc.).

d. Provide documentation or the basis to support the proposed rates for each of the FYs as reported in Financial Attachment II. Provide a copy of the rate schedule for the proposed service(s).

e. Provide the minimum number of units required to show an incremental gain from operations for each fiscal year.

Response: Their will not be an incremental gain. The acquisition of a dedicated CT simulator is focused on improving the overall quality of radiation treatment planning and the overall patient experience.

f. Explain any projected incremental losses from operations contained in the financial projections that result from the implementation and operation of the CON proposal.

Response: NRRON recognizes there will be a reduction of overall NET revenue due to purchasing and performing CT simulations within cancer center. Our stated goal is to improve upon our existing patient focused environment of care. The dedicated CT Simulator will result in an increase in access/appointments and allow for long term growth of the Enfield program.

g. Describe how this proposal is cost effective.

Response: In closing this CON is focused on improving the overall quality of radiation treatment planning and the overall patient experience.

The overall accuracy of the planning process will be improved by use of a dedicated CT-simulator and allow full 3D treatment planning. The patient will also only need to visit one location for treatment planning, verses having to go to 3 locations currently.

Attachment - A

jmmc

Johnson Memorial Medical Center

Health care. The way it should be.

May 30, 2012

Office of Health Care Access
410 Capitol Ave. MS #13HCA
Hartford, CT 06134

Dear State of Connecticut Office of Health Care Access:

Northeast Regional Radiation Oncology Network, dba, Community Cancer care, is a free standing, not-for profit, radiation oncology joint venture of which Johnson Memorial Hospital owns twenty-five percent (25%). We work collaboratively with our partners to provide comprehensive oncology care to the patients who live and work in Enfield and its surrounding communities.

Johnson Memorial Hospital supports Community Cancer Care in purchasing a dedicated CT simulator. This purchase will improve the quality of care of the center and make the treatment planning process for radiation therapy less burdensome to the patient and their families.

I respectfully request that you approve this proposal.

Sincerely,

David R. Morgan
President & CEO

Hartford Hospital

Helen & Harry Gray Cancer Center

May 10, 2012

Office of Health Care Access
410 Capitol Ave. MS #13HCA
Hartford, CT 06134

Dear State of Connecticut Office of Health Care Access,

Northeast Regional Radiation Oncology Network, dba, Community Cancer care, is a free standing, not-for profit, radiation oncology joint venture of which Hartford Hospital owns twenty-five percent (25%). We work collaboratively with our partners to provide comprehensive oncology care to the patients who live and work in Enfield and its surrounding communities.

Hartford Hospital supports Community Cancer Care in purchasing a dedicated CT simulator. This purchase will improve the quality of care of the center and make the treatment planning process for radiation therapy less burdensome to the patient and their families.

I respectfully request that you approve this proposal.

Sincerely,

Donna Handley
Vice President Cancer Program
Hartford Hospital

ECHN℠
Eastern Connecticut Health Network

Peter J. Karl | President and CEO
71 Haynes Street
Manchester, CT 06040
t 860.533.3458
f 860.533.3437
www.echn.org

May 18, 2012

Office of Health Care Access
410 Capitol Ave. MS #13HCA
Hartford, CT 06134

Dear State of Connecticut Office of Health Care Access,

Northeast Regional Radiation Oncology Network, dba, Community Cancer care, is a free standing, not-for profit, radiation oncology joint venture of which Manchester Memorial and Rockville General Hospitals (ECHN) each own twenty-five percent (25%). We work collaboratively with our partners to provide comprehensive oncology care to the patients who live and work in Enfield and its surrounding communities.

Manchester Memorial and Rockville General Hospital support Community Cancer Care in purchasing a dedicated CT simulator. This purchase will improve the quality of care of the center and make the treatment planning process for radiation therapy less burdensome to the patient and their families.

I respectfully request that you approve this proposal.

Sincerely,

Peter J. Karl

Attachment - B

PHILIPS MEDICAL SYSTEMS N.A.
22100 Bothell Everett Highway
P.O. Box 3003
Bothell, Washington 98041-3003
Tel: (800) 722-7900

PHILIPS

Quotation #: 1-RZLVKT	**Rev:** 5	**Effective From:** 16-Mar-11	**To:** 30-Apr-11

Presented To:

NORTHEAST REGIONAL ONCOLOGY NETWORK-
COMMUNITY CANCERCARE
100 HAYNES STREET
MANCHESTER, CT 06040

Tel:

Alternate Address:

Presented By:

Jane Aldieri
Account Manager
Tel: (888) 345-8002 x2482
Fax: (914) 570-2396

Randal Herring
Regional Manager
Tel: (800) 833-3316
Fax:

Date Printed: 18-Mar-11

Submit Orders To:

22100 BOTHELL EVERETT HWY
BOTHELL WA 98021
Tel:
Fax:(425) 458-0390

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Quote Solution Summary

Line #	Product	Qty	Price
	100017 Brilliance CT Big Bore Oncology Systems	1	$609,568.00
		Equipment Total:	$609,568.00

Solution Summary Detail

Product	Qty	Each	Monthly	Price
100017 Brilliance CT Big Bore Oncology Systems	1	$609,568.00		$609,568.00

Buying Group: **NO CONTRACT** **Contract #:** **NONE**

Addt'l Terms:

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Payment Terms: 10% With Signed Acceptance of the Quotation, 70% Upon Delivery of Major Components, 20% Due When the Product is Available for First Patient Use, Net due 10 days from receipt of invoice

Quote Summary

100017 Brilliance CT Big Bore Oncology Systems

Qty	Product
1	**NNAC148 Brilliance CT, Big Bore Oncology Scanner**
1	NCTA485 Keyboard Language - English
1	**NCTB391 LAP DORADO 3 Red (Wall)**
1	NCTA082 30-min Console UPS
1	989605200521 Teal 100kVA Isotran Plus
1	**NCTC930 Oncology Workflow & Image Quality Enhancement Pkg**
2	989801292078 Full Travel Package for OffSite Training
1	NNAC227 Workflow and IQ Clinical Entitlemet Pkg

100017 Brilliance CT Big Bore Oncology Systems

System Type: New
Freight Terms: FOB Destination
Warranty Terms: Part numbers beginning with two (2) asterisks (**) are covered by a System 12 Months Warranty. All other part numbers are third (3rd) party items.
Special Notations: Contingencies must be removed 120 days before scheduled shipment to assure delivery on specified date. Any rigging costs are the responsibility of the Purchaser.
Additional Terms:

Line #	Part #	Description	Qty	Each	Price
1	**NNAC148	**Brilliance CT, Big Bore Oncology Scanner**	1	$518,008.16	$518,008.16

Brilliance CT systems are powered not only by intelligent technologies inside, but also by stunning advances in how people can interact with the systems from the outside. Both are critical in handling the large amounts of data provided by multi-slice imaging - and in helping achieve a sustainable competitive advantage.

The Brilliance CT Big Bore oncology configuration incorporates the 85 cm large bore and 60 cm true scan field of view as well as the heavy-duty technologies throughout, making this configuration ideal for oncology where patient positioning and accuracy are especially critical. This configuration is also ideal for dual use environments.

Highlights

- 85 cm bore size and 60 cm scan field of view
- 16-slices per revolution for large volumes and thin slices -- exam, after exam.
- Philips MRC X-ray tube with legendary reliability and nearly instantaneous cooling.
- RapidView - The fast reconstruction system keeps pace with acquisition for true real-time imaging.
- DoseWise design delivers optimal dose efficiency, without compromising image quality.
- Brilliance Workspace user environment improves productivity by working the way the user does.
- Logical Guided Flow prompts the user through the scanning and visualization processes.
- ScanTools and ScanTools Pro to optimize productivity, workflow, and diagnostic confidence.

The flexibility of this high performance scanner includes features designed to automate clinical exams, ease through reconstruction and post-processing, and aid in accuracy of diagnoses. Above all, the speed and usability of the Brilliance CT Big Bore oncology configuration positively impacts everyday workflow and increases patient throughput throughout the entire workflow process.

- Patient handling and setup
- Scan and image acquisition
- Dose management
- Reconstruction and display
- Post-processing and communication

Philips has created a comprehensive package of Brilliance CT ScanTools containing advanced components and productivity features that make workflow smooth and easy. From start to finish, they provide everything necessary to streamline routine imaging studies.

Scan Tools Pro is a supplemental set of tools that improve productivity, workflow, and diagnostic confidence even further. Scan Tools Pro includes features like DICOM Modality Worklist, Split Study, Prefetch Study, Automatic Procedure Selection, Bolus Tracking, Spiral Auto Start, Organ ID, CD Writer, and Dual Monitor Configurations.

CT User Environment

Brilliance Workspace

The Brilliance Workspace user environment is flexible and available wherever it is needed. Designed in collaboration between Philips and its customers, it is a powerful set of CT applications that improves productivity by working the way a user does. Users can do all of their planning, scanning, visualization and archiving in a simple, easy-to-use graphical user interface (GUI) that is harmonized across Philips Medical Systems.

Guided Flow

Logical Guided Flow graphical user interface increases productivity through ease-of-use features:

- Features and functions are visible, not hidden.
- Most common operations are shown most prominently.

A top-level workflow bar directs the user along important tasks and provides non-linear movement between functions without losing any current work. This provides the user with maximum flexibility for viewing, performing applications, filming or reporting.

Patient handling and setup

Philips' "Design for Life" approach provides high levels of flexibility for users and comfort for patients. Philips helps improve productivity during patient handling and setup through a variety of features, making patients more comfortable and making technologists' jobs easier.

Gantry

Scan Control Panel

Controls and displays for gantry tilt, patient couch elevation and stroke are located on both sides of the gantry.

Scan Control Box (ScanTools)

Gantry and patient couch controls and displays are located conveniently at the operator's console. Additional functions include emergency stop, intercom, and scan enable/pause buttons.

Gantry Aperture: 850 mm diameter
Gantry Tilt: -30° to +30°; 0.5° increments.

AutoVoice (ScanTools)

A standard set of commands for patient communication: before, during and after scanning.

Multi-lingual AutoVoice (ScanTools)

Commands for patient communication in multiple languages including: English, French, Spanish, Italian, Japanese, Hebrew, Arabic, Russian and Georgian. Also provides the ability to record customized messages - up to 25 seconds per message.

Intercom System: Two-way intercom allows patient monitoring and communication.

Table (Bariatric Patient Support)

The Brilliance Bariatric Patient Support is designed to meet the CT imaging needs of the growing

bariatric (morbidly obese) population. Allowing for patient loads of up to 295kg (650 lbs.), the Bariatric Patient Support provides CT imaging access to a larger patient population than current offerings.

Patient Support Specifications:
Longitudinal motion:
Manual Stroke: 1890 mm
Scannable range: 1750 mm
Speed: 0.5 to 100 mm/sec
Position accuracy: ±0.25 mm
Vertical motion:
Range: 578 to 1028 mm; 1.0 mm inc.
Table load capacity: 295 kg (650 lbs)
Floating tabletop: Carbon-fiber table top with foot pedal and handrail control for easy positioning and quick release.

Brilliance Therapy Tabletop Kit:
A comprehensive patient positioning system, the Brilliance Therapy Tabletop Kit is designed to enhance treatment effectiveness and ensure maximum clinical efficiency. Featuring Indexed Immobilization tm (trademark of Varian Medical Systems Inc), patient setup time is reduced and positioning for subsequent scans and treatment is easily duplicated. The Therapy Tabletop supports immobilization accessories that deliver the precision required for conformal and stereotactic procedures. These accessories significantly enhance positioning accuracy and patient comfort. The indexed surface allows the positioning system to be locked into place according to the treatment plan's specifications.

The kit includes the Therapy Tabletop, Phantom Holder, water level phantom, and laser calibration bar. The Phantom Holder fits over the Therapy Tabletop, allowing the user to run calibrations with the QA phantom while the Therapy Tabletop is still attached.

Scan Planning
The Brilliance Workspace provides intuitive registration and easy entry of patient information and clinical procedure selection, using anatomic graphical display and sample images.

Expert Protocol Planning (ScanTools)
Tailor protocols to meet specific needs via a selection of parameters optimized for certain studies.

Preset Post-processing (ScanTools)
User-defined presets improve workflow, by automatically opening the relevant post-processing applications for a specific type of exam. For example, automatically launching CTA studies in MIP or spine studies in MPR.

Surview Plan
Planning via interactive mouse control of multiple, independent acquisition series of any type on Surview image
Scan length: up to 1500 mm
Scan width: 600 mm
Dual Surview Planning (ScanTools)
Planning patient scans with two surviews provides flexibility in exam planning and execution, and also avoids repeat scans.

Multi Surview Planning (ScanTools)
Requested by radiation oncology users where patient positioning and alignment is critical, Multi

Surview allows user to repeat the AP and LAT surviews until satisfied that their patient is properly aligned on the table top.

Manual Scan
Places slice-by-slice scans under operator control with on-line or off-line reconstruction, background image archiving to local or remote storage devices. At any time, the operator is able to switch from automatic to manual scan and back.

Automatic Scan
Enables automatic execution of pre-planned studies, with concurrent, on-line or off-line reconstruction, background image archiving to local or remote storage devices, without operator intervention.

Productivity Tools
QuickStart (ScanTools)
Brilliance CT scanners have an efficient start-up sequence that allows scanning to begin within five minutes after turning the system on.

QuickSetup (ScanTools)
System utilities such as quality assurance tools and service functions are readily available with a single mouse click.

DICOM® Modality Worklist (ScanTools Pro)
Provides HIS/RIS interface through DICOM Modality Worklist service class; enhances clinical workflow by importing patient demographics and study information from an information management system.

DICOM® MPPS
Provides performed exam information (start/end/info) to HIS/RIS using DICOM MPPS (Modality Performed Procedure Step) service.

Split Study (ScanTools Pro)
Many times multiple orders or accession numbers are generated for a patient's CT scan that require only a single scan acquisition. In these instances Philips' Split Study feature allows the user to virtually split the acquisition so that proper accession numbers are assigned to specific areas of the scan acquisition (i.e. chest slices to the chest accession number, etc.) and billing and tracking is completed accurately and appropriately. By assigning the accession numbers quickly and easily during scan setup, scan information is matched accurately in all subsequent steps (matching, reporting, archiving, billing, etc.). Philips' Split Study reduces error and improves workflow efficiency.

Prefetch Study (ScanTools Pro)
This feature searches the database (PACS) for previous patient studies (CT, MR, CR, RF). After location and selection, these studies are then sent to the background of the configurable destination (e.g., Extended Brilliance Workspace).

Automatic Procedure Selection (ScanTools Pro)
Maps the procedure selection from the HIS-RIS with individual scan protocol(s) from the Brilliance CT scanners, simplifying the
cess. Only the most relevant scan protocol(s) for any requested procedure are shown to the user, ensuring that only the desired scanning procedures are performed. This is especially useful for infrequent users of the CT scanner.

Scan and image acquisition
Reliable, maximized system performance allows clinicians to remain focused on patient care. Brilliance CT is perfectly balanced, combining power and flexibility that maximizes image quality, speed and throughput while lowering patient dose.

System: Rotate-rotate architecture with optimized geometry for low dose imaging.

Generator
The Brilliance generator uses modern, low-voltage slip ring technology to provide a constant high voltage to the CT x-ray tube assembly.

Output capacity: 60 kW
kV selections: 90, 120, 140 kVp
mA selections: 20 to 500 mA

MRC X-ray Tube
The exceptional heat management demands of multislice imaging calls for an exceptional tube. With its patented spiral groove bearing design, Philips' MRC tube dissipates heat as rapidly as it is collected, with an effective heat storage capacity far superior to a conventional ball bearing design.

- Motion-free focal spot guarantees optimized image quality.
- Absolute noiseless design calms patients.
- 2nd generation of MRC tube technology built on proven record of performance and reliability

Equivalent Heat Storage Capacity: 26 MHU
Anode storage capacity: 8.0 MHU
Maximum cooling rate: 1608 kHU/min
Focal spot (IEC): 0.5 mm x 1.0 mm (small)
1.0 mm x 1.0 mm (large)

Dynamic Focal Spot (ScanTools)
Dynamic Focal Spot (DFS) doubles the data sampling density from the detectors in axial and spiral scanning.

Detector
Detector design is fundamental to the objective of acquiring high quality images while minimizing patient dose. Unlike single matrix detectors that simply sum elements, Philips designs configuration-specific detectors that minimize the separation between elements to always provide the highest geometric detector efficiency. Direct-to-digital signal conversion with TACH technology reduces dose and improves image quality.
Material: Solid State - GOS
Slip Ring: Optical - 2.5Gbps transfer rate
Slice Collimation: 16 x 0.75mm, 16 x 1.5mm, 8 x 3.0mm, 4 x 4.56mm, 2 x 0.612mm

Image Quality
Spatial Resolution
High mode: 15 lp/cm @ cut-off
Standard mode: 12 lp/cm @ cut-off
Noise: 0.27% measured on Philips system phantom (21.6 cm water equivalent)

Low Contrast Resolution: 4.0 mm @ 0.3% as measured on the 20 cm CATPHAN phantom
Absorption Range: -1024 to +3072 Hounsfield units

Scanning Modes
Spiral Scanning

- Multiple contiguous slices acquired simultaneously with continuous table movement during scans.
- Multiple, bi-directional acquisitions
  Spiral exposure: Up to 120 sec. of uninterrupted spiral scanning
  Spiral pitch: 0.0413 to 1.7 (user selectable)

Axial Scanning

- Multiple-slice scan with up to 16 contiguous slices acquired simultaneously with incremental table movement between scans
- Fused modes for reconstructing partial volume artifacts free thick slices from thin slice acquisition

Scan Times
0.44, 0.5, 0.75, 1, 1.5, 2 seconds for full 360° scans

Test Injection Bolus Timing (ScanTools)
This feature establishes the optimum delay time for contrast injection. By using a test injection, a real-time graph of the enhancement in the selected region of interest is displayed. The delay time is then selected to provide optimal peak contrast enhancement and reduced contrast usage - ideal for CTA.

Bolus Tracking (ScanTools Pro)
This automated injection planning technique permits the user to monitor actual contrast enhancement and initiate scanning at a pre-determined enhancement level. Combine with SAS for full automation and efficacy.

Spiral Auto Start (ScanTools Pro)
Spiral Auto Start integrates the injector with the scanner, allowing the technologist to monitor the contrast injection to check for extravasation, and to initiate and stop the scan (with the pre-determined delay) while in the scan room.

NOTE: Costs to upgrade an approved injector and any cabling is the responsibility of the user. Compatible with following Injectors

Medrad Envision/Stellant, Medrad Vistron, Liebel-Flarsheim, Tyco CT 9000, Medtron CT 2, Nemoto Dual Shot, Tyco OptiVantage DH, E-Z-EM Empower, Swiss Medicare, Ulrich Injectors

Dose Management
Philips' DoseWise philosophy is a set of principles and practices that ensures the best possible outcomes with minimal risk to patients and staff. Brilliance CT systems employ a number of features that help provide extremely high dose efficiency.

DoseRight ACS (Automatic Current Selection) (ScanTools)- Optimizes the dose for each patient based on the planned scan by suggesting the lowest possible mAs settings to maintain constant image quality at low dose throughout the exam.

DoseRight D-DOM (Dynamic Dose Modulation) (ScanTools)- Automatically controls the tube current rotationally, increasing the signal over areas of higher attenuation (lateral) and decreasing signal over area of less attenuation (AP).

DoseRight Z-DOM (Longitudinal Dose Modulation) (ScanTools)- Automatically controls the tube current, adjusting the signal along the length of the scan, increasing the signal over regions of higher attenuation (shoulders, pelvis) and decreasing the signal over regions of less attenuation (neck, legs).

Dose Displays

- Volume CTDI (CTDIvol) (ScanTools)
- Dose Length Product (DLP) (ScanTools)
- Dose Efficiency (ScanTools)

Dedicated Pediatric Protocols (ScanTools)
Developed in collaboration with top children's hospitals, Brilliance age and weight-based infant and pediatric protocols ensure the best clinical results with minimal dose.

Dedicated Oncology Protocols (ScanTools)
Developed in collaboration with top cancer centers, dedicated oncology protocols provide simplicity for the CT sim therapist and ensure optimal clinical results.

Reconstruction and Display
RapidView 4D Reconstruction

RapidView 4D reconstruction is the result of years of advanced research, and was designed to forever remove the bottleneck between CT scan acquisition and image visualization. RapidView 4D provides dramatic improvements in Pulmonary Retrospective 4D imaging workflow by displaying images at breakthrough rates, regardless of acquisition speed or reconstruction parameter. The RapidView 4D system employs true cone beam reconstruction algorithms and Philips-patented back projection hardware to provide the user with the images they desire, along with best-in-class reconstruction speeds, without compromise in image quality.
Reconstruction Rate: Up to 20 images per second

Cone Beam Reconstruction Algorithm- COBRA (ScanTools)
Philips patented Cone Beam Reconstruction Algorithm (COBRA) enables true three-dimensional data acquisition and reconstruction in spiral scanning. This avoids and/or corrects artifacts present in reconstruction by reducing pixel to noise ratio, resulting in superior multislice image quality.

Reconstruction Modes
Concurrent: Axial and spiral modes - image reconstruction concurrent with acquisition
Off-Line (batch): Background image reconstruction of user-defined groups of raw data files with automatic image storage.

Evolving Reconstruction (ScanTools)
Provides real-time 256 x 256 matrix image reconstruction and display in step with spiral acquisition. Images can be modified for window width and level, zoom and pan prior to reconstruction. At the end of the acquisition, all images are updated with the desired viewing settings.

Add Reconstruction (ScanTools)
Enables quick and easy unplanned or modified reconstructions of part or all of the images prospectively or retrospectively planned.

Extended Display Field of View (pending clinical validation)
Enables extrapolated reconstruction for visualization of anatomy out to 70cm. Useful in radiation oncology for avoidance in treatment planning. Also may be useful for evaluating out of field artifacts, contouring skin, and bariatric or off-center scanning. Data outside of 60cm shall not be considered to be of diagnostic quality; CT numbers may not be accurate and image quality may be degraded in this region.

Reconstruction parameters
Any study can be set up to automatically reconstruct using various reconstruction parameters. Exams can be tailored online while planning the scan, or during off-line recon. Up to six different reconstruction assignments are possible for each study. Image reconstruction parameters include image matrix, filters, enhancements, zoom and pan, and archive.

UltraImage (ScanTools)
UltraImage includes proprietary pre- and post-processing hardware and software for enhanced visualization of soft tissue structures. UltraImage significantly improves image quality for the most accurate representation of even the most difficult to image anatomic areas, such as the bone-brain-air interface in neurological exams. The full clinical impact of UltraImage is best appreciated in the brain, long bones, spine, pelvis or shoulder, where subtle, soft tissue structures can be obscured by adjacent high contrast bone.

Adaptive Filtering
Adaptive filters reduce pattern noise (streaks) in non-homogenous bodies, improving overall image quality.

Post-processing and communication
Image Processing (ScanTools)
The interactive image viewer is designed for fast, efficient and simple image review and filming purposes. Images can be handled individually or in user-selected groups.

- Image viewer window: Displays a single image or a selection of images.
- Zoom & Pan: Magnification from 0.8 to 10 times
- Scroll Bar, Leaf and Cine, Invert Image, Image Parameters Display

Organ ID (ScanTools Pro)
Automatically isolates lung images for better viewing, including lung limit detection, zoom and pan setting, lung windowing, image enhancement, and image filming.

Image Graphics (ScanTools)
To help interpret clinical images, a variety of text and graphic aids can be individually positioned and manipulated with the mouse:

- Text annotation
- Cursors for pixel value measurements.
- Regions of Interest (ROI) - elliptical, rectangular, curved or freehand, with instantaneous calculation and display of area, average pixel value and standard deviation. Values of several ROIs may be added or subtracted.

- Lines, grid and scales for distance measurements, curved and freehand lines for measuring any shape.
- Arrows for pointing to features.
- Angle measurements.
- Histogram of pixel values in a user-defined region of interest.
- Profile of the pixel values along any line.
- Grid with adjustable spacing for distance assessment

Window Control (ScanTools)

- Eight user-defined preset windows provide fast and convenient window setting. Mouse-driven fine adjustments of the window center and width enable optimal image viewing
- Highlight Window: paints user-defined range of CT densities in color.
- Double Window: Simultaneous displays two independent CT density ranges on the same image, i.e. thorax slice with lung and mediastinum windows
- Invert Window: Ability to toggle between negative and positive image.

Host Computer
Computer Architecture: Windows XP Dell Precision host computer
Main Memory: 4.0 GB RAM

Display Monitor
Dual Monitor Configuration (ScanTools Pro)
Expands the Brilliance workspace by utilizing two flat panel monitors side-by-side. The left monitor is utilized for scanning operations while the right is used for post-processing activities. These high-resolution, flat panel LCD, color monitors save space and weight when compared to conventional CRT-based monitors.

Post-Processing Analysis Tools
SlabViewer (ScanTools)
MPR- Multiplanar Reformation (ScanTools)
Maximum or Minimum Intensity Projection (MIP) (ScanTools)
3-D SSD Reconstruction (ScanTools)

MasterCut (ScanTools)
With the MasterCut feature, MPR (Multiplanar Reformatting) curved cuts along vascular structures can be defined on Maximum Intensity Projection (MIP) or volume rendered images to display panoramic and cross-sectional views that accurately visualize the vasculature.

RelateSlice (ScanTools)
RelateSlice is a Philips-exclusive tool provided in Volume Rendering, 3-D SSD, MIP, and MPR, that correlates the axial image to a user-selected location on multiplanar views and renderings. RelateSlice makes it easy for a user to compare the axial image to its post-processed presentation, improving the user's productivity and diagnostic confidence.

Masterlook (ScanTools)
An automated real-time image enhancement, or smoothing, that can be defined for up to three independent density ranges, such as lung, soft tissue and bone.

3-D Small Volume Analysis (ScanTools)
3-D Small Volume Analysis permits tumor or nodule characterization with respect to growth rates within the 3-D application. This tool uses automatic segmentation for help in identifying a solitary

nodule or tumor (early staging of lung cancer), and measures volumetric parameters such as nodule volume, long axis, and short axis for follow-up purposes.

Q-CTA - Quantitative CT Measurement Tool Package (ScanTools)
Q-CTA is a tool kit for quantitative measurements of anatomic structures, such as vasculature pathology from 2-D, 3-D or volume-rendered images.

Volume Rendering (ScanTools)
Philips advanced volume rendering 3-D visualization software provides unique simultaneous visualization of vasculature, soft tissue and bone. Unlike conventional 3-D or MIP, volume-rendering visualization offers real time interactive control over opacity and transparency values. This permits viewing through and beyond surrounding structures, such as metallic stents and arterial calcifications, and virtually eliminates the need for organ segmentation.

Image Management and Archiving
Image archiving is organized according to the DICOM 3.0 hierarchical model, in a DICOM 3.0 compliant image format. Loss less image compression/decompression algorithm is used during image storage/retrieval to/from all local archives. Images can be auto-archived to selected archive media.

292 GB Hard Disk: Image Storage Capacity: 512 X 512 Image Matrix = 500,000 typical number of uncompressed images

DVD-RAM
DVD-RAM is an archive solution for storing CT and other modality datasets. It provides an inexpensive, reliable method for high-speed random access recording. DVD-RAM is intended as a storage replacement to the EOD and supports multi-session writing in order to store multiple patients added to the disk at different times. DVD-RAM disks are written with proprietary Philips format and are only readable on Philips EBW (v3.0.1 or higher) and CT scanner units (v2.3 or higher) with DVD-RAM.

4.7 GB DVD: Image Storage Capacity: 512 X 512 Image Matrix = 15,000 typical number of uncompressed images

CD Writer (ScanTools Pro)
A Compact Disk (CD) drive stores DICOM images plus DICOM image viewing software, on very low cost CD media. The CD Writer permits a standard PC with a built-in CD drive to view and perform basic manipulations (zoom, pan, and window level) on the DICOM images stored on the CD. This Brilliance enhancement provides a low cost and flexible alternative for archiving and retrieving images, copies for referring physicians, and to use in presentations and teaching.

- Minimum PC hardware Requirements are a Pentium III 450 MHz with 128 MB RAM main memory and a 20 GB Hard Drive running Microsoft Windows operating systems
- Supported Web Browsers which must be installed in Compact or Full mode include Microsoft Internet Explorer or Netscape installed with ActiveX Plug-in. Macintosh viewing support via the "Virtual PC" application.

CD: Image Storage Capacity: 512 X 512 Image Matrix = 1,200 typical number of uncompressed images

Filming
The Brilliance filming function allows the user to set up and store desired filming parameters. Pre-stored protocols can also include auto-filming. The operator can film immediately after each

image, at the end of a series, or film after the end of a study and review images prior to print. The operator can also automatically film the study at three different windows and incorporate Combine Images functionality to manage large datasets. Basic monochrome and color DICOM Print capability are supported.

Networking/Connectivity

Network Requirements

Network connections should be located within 10 feet of the console. The Brilliance CT supports 10/100/1000Mbps (10/100/1000BaseT) network speeds. For optimal performance, Philips recommends a minimum of 100Mbps network speed (1Gbps preferred)and for the CT network to be segmented from the rest of the hospital network.

DICOM Connectivity

Brilliance Workspace's full implementation of the DICOM 3.0 communications protocol allows connectivity to DICOM 3.0 compliant scanners, workstations, and printers; supports IHE requirements for DICOM Connectivity.

Remark: Customers using the old SPARC II platf orm of the AcQSim Voxel Q need to consider that Brilliance 2.0 will not be compatible. For customers with the UltraSparc platform of the AcQSim Voxel Q, version 5.0.2 or above is needed to maintain connectivity with Brilliance 2.0.

Brilliance Tumor LOC

This Brilliance CT Tumor Localization package meets the clinical requirements of oncology departments where segmentationand localization can be completed directly on the CT display console. The package provides tools to assist in Isocenter localization and simple CT Simulation. In addition to standard studies, these tools are available for respiratory correlated studies, including all phase information. Visualization capabilities within the Tumor LOC package include the generation of Digitally Reconstructed Radiographs (DRR), Digitally Composited Radiographs (DCR), and Multiplanar reformatted images (MPR). Additionally, the package provides the ability to manage different window/level settings to aid in generating the best images possible. Special visualization tools for respiratory correlated scans are also included.

- Segmentation and localization.
- Efficient advanced contouring of external and critical structures in preparation for the radiotherapy treatment planning process.
- Visualization and analysis tools can be utilized to evaluate the treatment volume(s)
- Tools for visualizing and analyzing respiratory correlated datasets (4D)

This Brilliance CT Tumor Localization Package has been specially configured to:

- Provide additional Brilliance Big Bore Scanner display console functionality that allows for increased productivity and improved workflow by minimizing CT simulation time, and enhancing the patient marking process.

Brilliance CT Tumor LOC Basic Software License:
Features and capabilities provided by the Brilliance CT Tumor LOC software include:

Contour-Based Segmentation Package: Consists of drawing and editing tools for drawing contours and maintaining groups of contours used in hand segmenting image data. Tools also exist for interpolation functions for automatic and semi-automatic segmentation. Automated generation of an external contour can be preselected as a user defined preset.

Virtual Fluoroscopy using orthogonal beam divergent DRR's for isocenter and beam border placement.

Interpolate algorithm provides interactive, shape based interpolation. A Smart algorithm fills in any number of irregularly contoured slices, Interpolated contours may be edited, accepted or rejected.

Isocenter Management:
Isocenter menu to support and manage multiple isocenters. Supports the generation of separate isocenters for multiple target volumes or general regions. Marked and final Isocenters are reported and displayed in the Localization package for easy confirmation of a physical simulation session. A record of the simulation session may be printed on a standard printer. If configured, RT Plan can easily be exported to the laser system for a more streamlined marking procedure. Tumor LOC is only compatible with LAP CT-4-3 lasers. DicomConnect plugin from LAP is necessary in order for the automatic transfer of isocenter coordinates to work.

Isocenters and structure sets can be transmitted to a compatible RTP System capable of receiving DICOM RT structure set, plan, and RT Image.

2D Image Analysis: Enables viewing of the data exactly as it was acquired, prior to any interpolation and with no preprocessing.
Markers: Permits the display of a fixed marker (cross hairs, axis or grid) on the screen as an aid in isocenter marking, or image positioning.
Screen Annotation: Allows the operator to toggle selected screen annotations on and off.
Archive: Allows the user to archive a patient study from disk onto selected archive media.
Information: Displays the study's original scan information, including the number of slices in the study, slice thickness, etc. Can be displayed at any time during an analysis.
Control of Window/Level: Allows adjustment to achieve optimal viewing parameters.
Measurement Package: Provides the density value (in Hounsfield units if CT) of a particular point on an image. Computes distances along straight lines.
Pan: Permits the repositioning of any image within a viewport.

Tools to allow visualization of organ motion and to assist physician in determining best treatment are the following:
Import of multiple phase datasets as well as a routine CT
Contour on any phase and apply it to a chosen primary phase
Dynamic DRR/DCR
Dynamic MPR & Axial
Maximum, minimum, and average intensity projection dataset generation

Pulmonary Toolkit for Oncology (Available with version 2.0)
The Pulmonary Toolkit for Oncology includes three different modes of operation and supports two respiratory sensor devices. Pulmonary Viewer is also included.

Prospective Axial enables the user to trigger an axial scan at a particular breath level (threshold). The clinical usefulness in diagnostic radiology is that it minimizes artifacts due to respiratory motion for those patients who are not able to hold their breath during the scan. In radiation oncology, the prospective axial dataset may be used for planning gated treatments. By matching the scan phase with the treatment phase the clinician can be assured of providing the CT simulation plan that delivers the highest tumorcidal dose while maximizing the amount of healthy tissue that is spared.

Prospective Spiral enables the user to visualize the breathing waveform and begin a spiral scan at a desired breath level. This mode is used in conjunction with breath-hold imaging (typically followed by breath-hold gated treatments).

Retrospective Spiral (4D CT) results in the ability to generate multiple phases allowing for visualization of motion during the respiratory cycle. This mode entails acquiring an over-sampled ultra low pitch spiral scan of the thorax or desired area, and correlating it in reconstruction with the patient's breathing. The resulting images can be used to assess motion of the tumor and critical organs, make decisions about gating the radiotherapy delivery, and delineate a target volume that encompasses the entire range of tumor motion.

The Philips Bellows device is a pneumatic mechanism placed around the patient's chest for dynamically observing changes in pressure caused by respiratory motion via a transducer linked to the Brilliance CT scanner.

Another supported respiratory sensor is the Varian RPMTM, for which an interface cable is provided. The Varian RPMTM device itself is not included. The customer should contact their Varian Medical Systems representative to ensure their RPM configuration is correct for the Philips Brilliance CT. RPM 1.6 and 1.7 are compatible.

Pulmonary Viewer is a dedicated software package to aid the clinician in making radiation therapy treatment planning decisions. Pulmonary Viewer provides the ability to visualize one or multiple respiratory phases, analyze and determine extent of motion, and review the patient's respiratory waveform. The comprehensive set of user tools includes cine mode with adjustable speed for visualizing motion over time and interactive slab-MIP tools.

Siting information
Power Requirements

- 200/208/240/380/400/416/480/500 VAC at 100 kVA and 50/60Hz
- Three-phase distribution source

Computer cabinet is included. Computer table and operator's chair are optional.

Clinical Education Program for Brilliance CT Big Bore Oncology Systems:

989801292234: Essentials Off-Site Education: Philips will provide up to two (2) lead simulation therapists, as selected by customer, with in-depth lectures covering basic clinical applications, Philips-specific imaging techniques, protocol optimization and scan parameters. A Brilliance CT "system emulator" is used during the lab sessions to simulate all basic scanning operations without x-ray exposure. Students will graduate from this class with an 80% understanding of the base system functionality. The remaining 20% is covered during the Handover On-Site experience. This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration, geography, and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. This class is a prerequisite to your equipment handover On-Site Education, and should be attended no earlier than two weeks prior to system installation. ASRT CEU credits may be available for each participant that meets the Guidelines provided by Philips during the scheduling process. Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292078 (CT Full Travel Pkg. Off-Site) is purchased with all Off-Site courses.

100017 Brilliance CT Big Bore Oncology Systems

Line #	Part #	Description	Qty	Each	Price

989801292194: Handover On-Site Education: Clinical Education Specialists will provide twenty-four (24) hours of education for up to three (3) dedicated Therapy staff members. This training will encompass all aspects of data acquisition for CT Simulation. Day 1 is reserved for acceptance testing and commissioning if required. ASRT CEU credits may be available if the participant meets the Philips Guidelines. Note: Site must be patient-ready. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

989801292080: Follow-Up On-Site Education: Clinical Education Specialists will provide twenty-four (24) hours of education for up to three (3) dedicated Therapy staff members, selected by customer. This course covers Tumor LOC and Respiratory Correlated Imaging. Schedule patients based on Training Guidelines. CEU(s) are not available at this time. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

It is highly recommended that 989801292077 (CT Cross Trainer) is purchased.

The above education entitlements expire one (1) year from System installation date (or purchase date if sold separately). Ref#: 234194080-100614

2	**NCTA485	**Keyboard Language - English**	1	$0.00	$0.00
3	**NCTB391	**LAP DORADO 3 Red (Wall)**	1	$38,264.20	$38,264.20

LAP DORADO 3 CT Simulation Laser System with three red movable lasers for identifying the isocenter location: One Ceiling-mounted Sagittal Laser, and Two (Side) Lasers mounted on the wall. The LAP laser system along with DicomConnect software completes the integration of Tumor L.O.C. allowing for the transfer of isocenter position to enable automatic movement of lasers to patient marking position. Includes installation and one year warranty from LAP.

Note: Transfer of isocenter position from Tumor LOC to DicomConnect for automatic movement of laser to patient marking position is only applicable if system has Tumor LOC and an absolute marking couch (ie. Brilliance Big Bore).

4	**NCTA082	**30-min Console UPS**	1	$2,498.31	$2,498.31

Uninterruptible Power Supply (UPS) provides up to 30 minutes of battery backup for computer/reconstruction system.

5	**989605200521	**Teal 100kVA Isotran Plus**	1	$8,242.88	$8,242.88

Teal 100 kVA isolation voltage adapting transformer:

Input voltage: 200/208/240/380/400/416/480/500, 3-phase, delta plus protective earth. 50/60 Hz
Output voltage: 480 VAC (277 VAC wye).
Includes: Programmable input circuit breaker.
Includes: TVSS (Transient Voltage Surge Suppression), load side filtration for noise attenuation and remote control contactor.
Weight: 598 lbs. (271 kg)
Dimensions: 27.8" (70.7 cm) wide, 20.5" (52.1 cm) deep, 44.0" (111.8 cm) high.

6	**NCTC930	**Oncology Workflow & Image Quality Enhancement Pkg**	1	$38,773.21	$38,773.21

Line #	Part #	Description	Qty	Each	Price
		100017 Brilliance CT Big Bore Oncology Systems			

Includes a comprehensive set of options especially tailored for radiation therapy departments who want to enhance workflow and improve IQ. It's everything you need to improve IQ and CT localization/simulation workflow on the CT console which includes CT Sim on Console, Metal Artifact Reduction and Amplitude Binning for 4D correlated image Studies!

CT Sim on Console
Meets the clinical needs of Radiation Therapy departments where segmentation, localization and fast emergency sim and treats can be completed directly on the CT display console. CT Sim now will provide tools to assist in isocenter localization and fast CT simulation with blocking/MLC capabilities and machine characterizations.
CT Sim on Console:
- Provides Localization of treatment isocenter
- Increases productivity and improves workflow.
- Minimizes simulation time while enhancing the patient marking process.
- Provides Visualization and analysis of treatment beam geometry and beam modifiers
- Provides Efficient, advanced machine characterization preparation for radiotherapy CT Simulation.

Metal Artifact Reduction
Metal Artifact Reduction supports the image quality needs of Radiation Therapy departments by reducing artifacts in image data caused by large high density metal objects such as prosthetic hip replacements.
Metal Artifact Reduction improves:
- Treatment accuracy
- Visualization of critical structures
- Visualization of target volumes

Amplitude Binning
Amplitude Binning for 4D correlated imaging is a "new Philips feature that uses a proprietary algorithm that utilizes the amplitude of the respiratory signal in addition to phase base information when creating 4D-CT volumes. Amplitude Binning a unique binning process that compensates for the patients uneven breathing pattern.
The resulting images may aid the Radiation Oncologist in:
- Assessing motion of the tumor and critical organs.
- Making decisions about gating the radiotherapy delivery.
- Delineating a target volume that encompasses the entire range of tumor motion.

7	**989801292078	**Full Travel Package for OffSite Training**	2	$1,890.62	$3,781.23

Includes one (1) participant's airfare from North American customer location to Cleveland, Ohio, with modest lodging, ground transportation, and meal expenses. Breakfast/dinner provided by the hotel, and lunch/breaks are catered by Philips. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process.
Note: Cancellation/rescheduling policy strictly enforced.
Expires one (1) year from the earlier of equipment delivery date or purchase date.

8	**NNAC227	**Workflow and IQ Clinical Entitlemet Pkg**	1	$0.00	$0.00

Clinical Education for Big Bore Workflow and IQ Enhancement Package

OnSite Education: Clinical Education Specialists will provide twenty-four (24) hours of education for up to three (3) dedicated Therapy staff members, selected by customer. This course covers Tumor LOC and Respiratory Correlated Imaging. Schedule patients based on Training Guidelines. ASRT and MDCB credits may be available if the participant meets the Philips Guidelines. Note:

100017 Brilliance CT Big Bore Oncology Systems					
Line #	Part #	Description	Qty	Each	Price
		Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref #080-101215			

100017 Brilliance CT Big Bore Oncology Systems

LIST PRICE	$1,173,530.00
DISCOUNT	$563,962.00
NET PRICE	$609,568.00

Buying Group: NO CONTRACT Contract #: NONE

Addt'l Terms:

Each Quotation solution will reference a specific Buying Group/Contract Number representing an agreement containing discounts, fees and any specific terms and conditions which will apply to that single quoted solution. If no Buying Group/Contract Number is shown, Philips' Terms and Conditions of Sale will apply to the quoted solution.

Each equipment system listed on purchase order/orders represents a separate and distinct financial transaction. We understand and agree that each transaction is to be individually billed and paid.

Price above does not include any applicable sales taxes.

The preliminary delivery request date for this equipment is:_____.

If you do not issue formal purchase orders indicate by initialing here_____.

Tax Status:

Taxable_____ Tax Exempt_____

If Exempt, please indicate the Exemption Certification Number:_____, and attach a copy of the certificate.

Delivery/Installation Address:

_____

_____

_____

Invoice Address:

_____

_____

_____

Contact Phone #:

_____

Contact Phone #:

_____

Purchaser approval as quoted:

_____

Date:

_____

Title:

_____

This quotation is signed and accepted by an authorized representative in acknowledgement of the system configuration, terms and conditions stated herein.

Philips Standard Terms and Conditions of Sale

The products and services listed in the quotation are offered by Philips Healthcare, a division of Philips Electronics North America Corporation ("Philips") only under the terms and conditions described below.

1. Price; Taxes. The purchase price stated in the quotation does not include applicable sales, excise, use, or other taxes in effect or later levied. Unless Customer provides Philips with an appropriate exemption certificate reasonably in advance of the date the product is available for delivery, Philips shall invoice Customer for those taxes, and Customer shall pay those taxes in accordance with the terms of the invoice.

2. Cancellation. Philips' cancellation policies are set forth in the applicable schedule attached to these Terms and Conditions of Sale.

3. Payment Terms.
3.1 Unless otherwise specified in the quotation, Philips will invoice Customer, and Customer will immediately pay such invoice on receipt for each product in accordance with the payment terms set forth in the applicable schedule attached to these Terms and Conditions of Sale:
3.2 Orders are subject to Philips' on-going credit review and approval.
3.3 Customer shall pay interest on any amount not paid when due at the maximum rate permitted by applicable law. If Customer fails to pay any amount when due, in addition to any other rights or remedies available to Philips at law or in equity, Philips may discontinue the performance of services, discontinue the delivery of the product, or deduct the unpaid amount from any amounts otherwise owed to Customer by Philips under any agreement with Customer. In any action initiated to enforce the terms of the quotation following a Customer default or product cancellation under an order arising from the quotation, Philips shall be entitled to recover as part of its damages all costs and expenses, including reasonable attorneys' fees, in connection with such action.

4. Trade - In. If Customer will be trading-in any equipment ("Trade-In"), then:
4.1 Customer represents and warrants that Customer has good and marketable title to such Trade-In;
4.2 Title to the Trade-In shall pass from Customer to Philips upon Philips making the new equipment available for first patient use. Removal of the Trade-In from Customer's site shall occur no later than the date Philips makes the new product available for first patient use, unless otherwise agreed in writing between Philips and the Customer; and
4.3 Notwithstanding anything to the contrary in any Business Associate Addendum ("BAA"), Customer represents and warrants that Customer has removed or de-identified all Protected Health Information ("PHI") from the Trade-In equipment as of the date the equipment is removed. To the extent Customer has not done so, Customer agrees to reimburse Philips for any out-of-pocket costs Philips incurs to remove or de-identify PHI from the Trade-In.
4.4 If (a) the condition of the Trade-In is not substantially the same when Philips removes the Trade-In (ordinary wear and tear excepted) as it was when Philips quoted the Trade-In value; or (b) Customer delays the removal of the Trade-In, then Philips may reduce the price quoted for such Trade-In or cancel the Trade-In and Customer will pay the adjustment amount within thirty (30) days of receipt of invoice.
4.5 If Philips does not receive possession of the Trade-In, Philips will charge Customer, and Customer will pay within thirty (30) days of receipt of invoice, the amount of the Trade-In allowance.
4.6 Evidence that Customer intends to trade in an asset as part of the purchase or lease of any product(s) shall be in the form of, but not limited to: (a) receiving a trade in quote and/or authorization from Philips on the value of the asset to be traded in; (b) providing Philips with serial numbers of assets to be traded in; and/or, (c) providing Philips with a de-installation date to remove an existing asset in order to install Philips quoted equipment.

5. Leases. If Customer desires to convert the purchase of any product to a lease, Customer will arrange for the lease agreement and all other related documentation to be reviewed and approved by Philips not later than ninety (90) days prior to the date of the availability for delivery of major components of the product. The Customer is responsible for converting the transaction to a lease, and is required to secure the leasing company's approval of all of these Terms and Conditions of Sale. No product will be delivered to the Customer until Philips has received copies of the fully executed lease documents and has approved the same.

6. Security Interest. Customer hereby grants to Philips a purchase money security interest in the products until all payments have been made. Customer shall sign any financing statements or other documents necessary to perfect Philips' security interests in the products. Where permitted by applicable law, Customer's signature on the quotation or on a purchase order issued as a result of the quotation gives Philips the right to sign on Customer's behalf and file any financing statement or other documents to perfect Philips' security interest in the product.

7. Shipment and Risk of Loss.
7.1 The applicable schedule attached to these Terms and Conditions of Sale shall apply for delivery.
7.2 Title to any product (excluding software), and the risk of loss or damage to any product shall pass to the Customer F.O.B. destination. Customer shall obtain and pay for insurance covering such risks at destination.

8. Installation, Site Preparation, Remote Services.
8.1 **Installation.** Customer shall provide Philips full and free access to the installation site and suitable and safe space for the storage of the products before installation. Customer shall advise Philips of conditions at or near the site, including any hazardous materials, that could adversely affect the installation or pose a health or safety risk to Philips' personnel, and shall ensure that those conditions are corrected and hazardous materials removed, and that the site is fully prepared and available to Philips before installation work begins. Customer shall ensure, at no charge to Philips, that there are no obstacles preventing Philips from moving the product from the entrance of the Customer's premises to the installation site. Customer shall be responsible, at its expense, for rigging, the removal of partitions or other obstacles, and restoration work. The products will be installed during normal working hours. Philips will unpack the product, construct applicable pads (if required for certain products), connect the product to a safety switch or breaker to be installed by the Customer, and calibrate and test the product. If local labor conditions, including but not limited to a requirement to utilize union labor, require the use of non-Philips employees to participate in the installation of the product, then such participation of non-Philips employees shall be at Customer's expense. In such case, Philips will provide engineering supervision during the installation.
8.2 **Site Preparation.** Except where Philips has agreed in writing to provide construction services for a fee pursuant to a construction

agreement and scope of work signed by Customer, Customer shall be responsible, at its expense, for the preparation of the installation site where the product will be installed including any required structural alterations. Customer shall provide any and all plumbing, carpentry work, conduit, wiring including communications and/or computer wiring, network equipment, power supply, surge suppression and power conditioning (except to the extent they are expressly included in the quotation), fire protection and environmental controls, ground fault and isolation system, and other fixtures and utilities required to properly attach, install, and use the product. Site preparation shall be in compliance with all safety, electrical, RF or magnetic shielding and acoustical suppression and building codes relevant to the product and its installation and use. The sufficiency of any installation site plans shall be the responsibility of Customer. Customer, at its expense, shall obtain all permits and licenses required by federal, state, or local authorities in connection with the installation and operation of the product, including any certificate of need and zoning variances. PHILIPS MAKES NO WARRANTY AND ASSUMES NO LIABILITY FOR THE FITNESS OR ADEQUACY OF THE SITE IN WHICH THE PRODUCT IS TO BE INSTALLED OR USED. CUSTOMER INDEMNIFIES PHILIPS AGAINST ANY CLAIMS, INCLUDING SUBROGATION CLAIMS, ARISING FROM CUSTOMER'S SITE PREPARATION RESPONSIBILITIES.

8.3 **Remote Services Network ("RSN").** Customer will (a) provide Philips with a secure location at Customer's premises to store one Philips RSN router (or a Customer-owned router acceptable to Philips at Customer's option) for connection to the equipment and to Customer's network; and (b) at all times during the warranty period provide Philips with full and free access to the router and a dedicated broadband Internet access node, including but not limited to public and private interface access, suitable to establish a successful connection to the products through the Philips RSN and Customer's network for Philips' use in remote servicing of the product, remote assistance to personnel that operate the products, updating the products software, transmitting automated status notifications from the product and regular uploading of products data files (such as but not limited to error logs and utilization data for improvement of Philips products and services and aggregation into services). Customer's failure to provide such access at the scheduled time will constitute Customer's waiver of the scheduled planned maintenance service and will void support or warranty coverage of product malfunctions until such time as planned maintenance service is completed or RSN access is provided. Customer agrees to pay Philips at the prevailing demand service rates for all time spent by Philips service personnel waiting for access to the products.

9. Product Warranty.

9.1 If a separate product warranty page prints as part of this quotation, that product warranty applies to your purchase and is incorporated herein; otherwise Section 9.2-9.5 shall apply.

9.2 **Hardware/Systems.** Philips warrants to Customer that the Philips equipment (including its operating software) will perform in substantial compliance with its performance specifications in the documentation accompanying the products, for a period of 12 months beginning upon availability for first patient use.

9.3 **Stand-alone Licensed Software.** For a period of ninety (90) days from the date Philips makes Stand-alone Licensed Software available for first patient use, such Stand-alone Licensed Software shall substantially conform to the technical user manual that ships with the Stand-alone Licensed Software. "Stand-alone Licensed Software" means sales of Licensed Software without a contemporaneous purchase of a server for the Licensed Software. If Philips is not the installer of the Stand-alone Licensed Software, the foregoing warranty period shall commence upon shipment.

9.4 If the start of the installation is delayed for any reason beyond the control of Philips for more than thirty (30) days following the date that Philips notifies Customer that the major components of the product are available for delivery, the warranty period begins on the thirty-first (31st) day following that date.

9.5 Philips' sole obligations and Customer's exclusive remedy under any product warranty are limited, at Philips' option, to the repair or the replacement of the product or a portion thereof within thirty (30) days after receipt of written notice of such material breach from Customer ("Product Warranty Cure Period") or, upon expiration of the Product Warranty Cure Period, to a refund of a portion of the purchase price paid by the Customer, upon Customer's request. Any refund will be paid to the Customer when the product is returned to Philips. Warranty service outside of normal working hours (i.e, 8:00 A.M. to 5:00 P.M., Monday through Friday, excluding Philips' observed holidays), will be subject to payment by Customer at Philips' standard service rates.

9.6 This warranty is subject to the following conditions: the product (a) is to be installed by authorized Philips representatives (or is to be installed in accordance with all Philips installation instructions by personnel trained by Philips); (b) is to be operated exclusively by duly qualified personnel in a safe and reasonable manner in accordance with Philips' written instructions and for the purpose for which the products were intended; and (c) is to be maintained and in strict compliance with all recommended and scheduled maintenance instructions provided with the product; and Customer is to notify Philips immediately if the product at any time fails to meet its printed performance specifications. Philips' obligations under any product warranty do not apply to any product defects resulting from improper or inadequate maintenance or calibration by the Customer or its agents; Customer or third party supplied interfaces, supplies, or software including without limitation loading of operating system patches to the Licensed Software and/or upgrades to anti-virus software (except DAT file changes) running in connection with the Licensed Software without prior validation approval by Philips; use or operation of the product other than in accordance with Philips' applicable product specifications and written instructions; abuse, negligence, accident, loss, or damage in transit; improper site preparation; unauthorized maintenance or modifications to the product; or viruses or similar software interference resulting from connection of the product to a network. Philips does not provide a warranty for any third party products furnished to Customer by Philips under the quotation; however, Philips shall use reasonable efforts to extend to Customer the third party warranty for the product. The obligations of Philips described herein and in the applicable product-specific warranty document are Philips' only obligations and Customer's sole and exclusive remedy for a breach of a product warranty.

9.7 THE WARRANTIES SET FORTH HEREIN AND IN PHILIPS' WARRANTY DOCUMENT WITH RESPECT TO A PRODUCT (INCLUDING THE SOFTWARE PROVIDED WITH THE PRODUCT) ARE THE ONLY WARRANTIES MADE BY PHILIPS IN CONNECTION WITH THE PRODUCT, THE SOFTWARE, AND THE TRANSACTIONS CONTEMPLATED BY THE QUOTATION, AND ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, WHETHER WRITTEN, ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Philips may use refurbished parts in the manufacture of the products, which are subject to the same quality control procedures and warranties as for new products.

10. Philips Proprietary Service Materials. Any Philips maintenance or service software and documentation provided with the product and/or located at Customer's premises is intended solely to assist Philips and its authorized agents to install and to test the products or to assist Philips and its authorized agents to maintain and to service the products under warranty or a separate support agreement with Customer. Customer agrees to restrict access to such software and documentation to Philips' employees and those of Philips' authorized agents only and to permit Philips to remove its Proprietary Service Materials upon request.

11. Patent Infringement Claims.

11.1 Philips shall defend or settle any claim against Customer that a Philips product provided in the quotation infringes a valid claim under a United States patent provided that Customer:
(a) provides Philips prompt written notice of the claim;
(b) grants Philips full and complete information and assistance necessary for Philips to defend, settle, or avoid the claim; and
(c) gives Philips sole control of the defense or settlement of the claim.
11.2 The provisions of this section shall not apply if the product is sold or transferred.
11.3 If (a) a Philips product is found or believed by Philips to infringe such a claim; or, (b) Customer has been enjoined from using the Philips product pursuant to an injunction issued by a court of competent jurisdiction, Philips may, at its option, (i) procure the right for Customer to use the product, (ii) replace or modify the product to avoid infringement, or (iii) refund to Customer a portion of the product purchase price upon the return of the original product. Philips shall have no obligation for any claim of infringement arising from: Philips' compliance with Customer's designs, specifications, or instructions; Philips' use of technical information or technology supplied by Customer; modifications to the product by Customer or its agents; use of the product other than in accordance with the product specifications or applicable written product instructions; use of the product with products not manufactured by Philips; if infringement would have been avoided by the use of a current unaltered release of the products and Philips provided Customer written notification that use of such release was mandatory; or use of the products after Philips has offered Customer one of the options described herein. The terms in this section state Philips' entire obligation and liability for claims of infringement, and Customer's sole remedy in the event of a claim of infringement.

12. Limitation of Liability. THE TOTAL LIABILITY, IF ANY, OF PHILIPS AND ITS AFFILIATES FOR ALL DAMAGES AND BASED ON ALL CLAIMS, WHETHER ARISING FROM BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT, OR OTHERWISE, ARISING FROM A PRODUCT, LICENSED SOFTWARE, AND/OR SERVICE IS LIMITED TO THE PRICE PAID HEREUNDER FOR THE PRODUCT, LICENSED SOFTWARE, OR SERVICE. THIS LIMITATION SHALL NOT APPLY TO THIRD PARTY CLAIMS FOR BODILY INJURY OR DEATH CAUSED BY PHILIPS' NEGLIGENCE OR PROVEN PRODUCT DEFECT.

13. DISCLAIMER. IN NO EVENT SHALL PHILIPS OR ITS AFFILIATES BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR PROFITS, BUSINESS INTERRUPTION, LOSS OF DATA, OR THE COST OF SUBSTITUTE PRODUCTS OR SERVICES WHETHER ARISING FROM BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT.

14. Confidentiality. Each party shall maintain as confidential any information furnished or disclosed to one party by the other party, whether disclosed in writing or disclosed orally, relating to the business of the disclosing party, its customers and/or its patients, and the quotation and its terms, including the pricing terms under which Customer has agreed to purchase the products. Each party shall use the same degree of care to protect the confidentiality of the disclosed information as that party uses to protect the confidentiality of its own information, but in no event less than a reasonable amount of care. Each party shall disclose such confidential information only to its employees having a need to know such information to perform the transactions contemplated by the quotation. The obligation to maintain the confidentiality of such information shall not extend to information in the public domain at the time of disclosure, and/or information that is required to be disclosed by law or by court order.

15. Compliance with Laws & Privacy.
15.1 Each party shall comply with all laws, rules, and regulations applicable to the party in connection with the performance of its obligations in connection with the transactions contemplated by the quotation, including, but not limited to, those relating to affirmative action, fair employment practices, FDA, Medicare fraud and abuse, and the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"). Health care providers are reminded that if the purchase includes a discount or loan, they must fully and accurately report such discount or loan on cost reports or other applicable claims for payment submitted under any federal or state health care program, including but not limited to Medicare and Medicaid, as required by federal law (see 42 CFR 1001.952[h]).
15.2 In the course of providing project implementation related services and/or warranty services to Customer, hereunder, it may be necessary for Philips to have access to, view and/or download computer files from the products that might contain Personal Data. "Personal Data" means information relating to an individual, from which that individual can be directly or indirectly identified. Personal Data can include both personal health information (i.e. images, heart monitor data, and medical record number) and non-health information (i.e. date of birth, gender). Philips will process Personal Data only to the extent necessary to perform and/or fulfill its project implementation related service, warranty service and/or warranty obligations hereunder.
15.3 It is Customer's responsibility to notify Philips if any portion of the order is funded under the American Reinvestment and Recovery Act ("ARRA"). To ensure compliance with the ARRA regulation, Customer shall include a clause stating that the order is funded under ARRA on its purchase order or other document issued by Customer.

16. General Terms. The following additional terms shall be applicable to the purchase of a product:
16.1 **Force Majeure.** Each party shall be excused from performing its obligations (except for payment obligation) arising from any delay or default caused by events beyond its reasonable control including, but not limited to, acts of God, acts of third parties, acts of any civil or military authority, fire, floods, war, embargoes, labor disputes, acts of sabotage, riots, accidents, delays of carriers, subcontractors or suppliers, voluntary or mandatory compliance with any government act, regulation or request, shortage of labor, materials or manufacturing facilities.
16.2 **Bankruptcy.** If Customer becomes insolvent, is unable to pay its debts when due, files for bankruptcy, is the subject of involuntary bankruptcy, has a receiver appointed, or has its assets assigned, Philips may cancel any unfulfilled obligations, or suspend performance; however, Customer's financial obligations to Philips shall remain in effect.
16.3 **Assignment.** Customer may not assign any rights or obligations in connection with the transactions contemplated by the quotation without the prior written consent of Philips, which consent shall not be unreasonably withheld, and any attempted assignment without such consent shall be of no force or effect.
16.4 **Export.** Customer shall assume sole responsibility for obtaining any required export authorizations in connection with Customer's export of the products from the country of delivery.
16.5 **Governing Law.** All transactions contemplated by the quotation shall be governed by the laws of the state where the equipment will be installed, without regard to that state's choice of law principles, and expressly excluding application of the Uniform Computer Information Transactions Act ("UCITA"), in any form. EACH PARTY, KNOWINGLY AND AFTER CONSULTATION WITH COUNSEL, FOR ITSELF, IT'S SUCCESSSORS' AND ASSIGNS, WAIVES ALL RIGHT TO TRIAL BY JURY OF ANY CLAIM ARISING WITH RESPECT TO

THIS AGREEMENT OR ANY MATTER RELATED IN ANY WAY THERETO.

16.6 **Entire Agreement.** These Terms and Conditions of Sale, the terms and conditions set forth in the quotation and the applicable Philips' product-specific warranty document constitute the entire understanding and agreement by and between the parties with respect to the transactions contemplated by the quotation, and supersede any previous understandings or agreements between the parties, whether written or oral, regarding the transactions contemplated by the quotation. The pricing in the quotation is based upon the terms and conditions in the quotation. No additional terms, conditions, consents, waivers, alterations, or modifications shall be binding unless in writing and signed by the parties. Customer's additional or different terms and conditions, whether stated in a purchase order or other document issued by Customer, are specifically rejected and shall not apply to the transactions contemplated by the quotation.

16.7 **Headings.** The headings in the quotation are intended for convenience only and shall not be used to interpret the quotation.

16.8 **Severability.** If any provision of the quotation is deemed to be illegal, unenforceable, or invalid, in whole or in part, the validity and enforceability of the remaining provisions shall not be affected or impaired, and shall continue in full force and effect.

16.9 **Notices.** Notices or other communications shall be in writing, and shall be deemed served if delivered personally, or if sent by facsimile transmission, by overnight mail or courier, or by certified mail, return receipt requested and addressed to the party at the address set forth in the quotation.

16.10 **Performance.** The failure of Customer or of Philips at any time to require the performance of any obligation will not affect the right to require such performance at any time thereafter. Course of dealing, course of performance, course of conduct, prior dealings, usage of trade, community standards, industry standards, and customary standards and customary practice or interpretation in matters involving the sale, delivery, installation, use, or service of similar or dissimilar products or services shall not serve as references in interpreting the terms and conditions of the quotation.

16.11 **Obligations.** Customer's obligations are independent of any other obligations the Customer may have under any other agreement, contract, or account with Philips. Customer will not exercise any right of offset in connection with the terms and conditions in the quotation or in connection with any other agreement, contract, or account with Philips.

16.12 **Additional Terms.** Schedule 1 is incorporated herein and its additional terms shall apply solely to Customer's purchase of Interventional X-Ray (iXR), Computed Tomography (CT), Magnetic Resonance (MR), Cardiovascular (CV), Positron Emission Tomography (PET), Nuclear Medicine (NM) and Ultrasound (US) products (including Image Guided Intervention and Therapy (IGIT) products). If any terms set forth in a schedule conflict with terms set forth in these Terms and Conditions of Sales, the terms set forth in the schedule shall govern.

LICENSED SOFTWARE

1. License Grant.

1.1 Subject to any usage limitations for the Licensed Software set forth on the product description of the quotation, Philips grants to Customer a nonexclusive and non-transferable right and license to use the computer software package ("Licensed Software") in accordance with the terms of the quotation. The License shall continue for as long as Customer continues to own the product, except that Philips may terminate the License if Customer is in breach or default. Customer shall return the Licensed Software and any authorized copies thereof to Philips immediately upon expiration or termination of this License.

1.2 The License does not include any right to use the Licensed Software for purposes other than the operation of the product. Customer may make one copy of the Licensed Software in machine-readable form solely for backup purposes. Philips reserves the right to charge for backup copies created by Philips. Except as otherwise provided under section 1.6, Customer may not copy, reproduce, sell, assign, transfer, or sublicense the Licensed Software for any purpose without the prior written consent of Philips. Customer shall reproduce Philips' copyright notice or other identifying legends on such copies or reproductions. Customer will not (and will not allow any third party to) decompile, disassemble, or otherwise reverse engineer or attempt to reconstruct or discover the product or Licensed Software by any means whatsoever.

1.3 The License shall not affect the exclusive ownership by Philips of the Licensed Software or of any trademarks, copyrights, patents, trade secrets, or other intellectual property rights of Philips (or any of Philips' suppliers) relating to the Licensed Software.

1.4 Customer agrees that only authorized officers, employees, and agents of Customer will use the Licensed Software or have access to the Licensed Software (or to any part thereof), and that none of Customer's officers, employees, or agents will disclose the Licensed Software, or any portion thereof, or permit the Licensed Software, or any portion thereof, to be used by any person or entity other than those entities identified on the quotation. Customer acknowledges that certain of Philips' rights may be derived from license agreements with third parties, and Customer agrees to preserve the confidentiality of information provided by Philips under such third party license agreements.

1.5 The Licensed Software shall be used only on the product(s) referenced in the quotation.

1.6 Customer may transfer the Licensed Software in connection with sale of the product to a healthcare provider who accepts all of the terms and conditions of this License; provided that Customer is not in breach or default of this License, the Terms and Conditions of Sale, or any payment obligation to Philips.

2. Modifications.

2.1 If Customer modifies the Licensed Software in any manner, all warranties associated with the Licensed Software and the products shall become null and void. If Customer or any of its officers, employees, or agents should devise any revisions, enhancements, additions, modifications, or improvements in the Licensed Software, Customer shall disclose them to Philips, and Philips shall have a non-exclusive royalty-free license to use and to sub-license them.

2.2 The Licensed Software is licensed to Customer on the basis that (i) Customer shall maintain the configuration of the products as they were originally designed and manufactured and (ii) the product includes only those subsystems and components certified by Philips. The Licensed Software may not perform as intended on systems modified by other than Philips or its authorized agents, or on systems which include subsystems or components not certified by Philips. Philips does not assume any responsibility or liability with respect to unauthorized modification or substitution of subsystems or components.

3. Open Source.

3.1 Customer's rights under this License are conditioned upon Customer not performing, and Customer shall not perform, any actions in a manner that would require any software furnished with the product, or the product and/or any derivative work thereof, to be licensed under Open License Terms. These actions include but are not limited to:

(a) combining such software, the product or a derivative work thereof with Open Source Software by means of incorporation, linking or otherwise; or

(b) distributing such software, the product or a derivative work thereof with Open Source Software; or

(c) using Open Source Software to create a derivative work of the product or such software, insofar as these actions would require such software, the product or a derivative work thereof to be licensed under Open License Terms.
3.2 As used herein, "Open Source Software" means any software that is licensed under Open License Terms. "Open License Terms" means terms in any license agreement or grant that requires as a condition of use, modification and/or distribution of a work that:
(a) source code will be made available; or
(b) permission will be granted for creating derivative works; or
(c) a royalty-free license be granted to any party under any intellectual property right regarding that work and/or any other work that contains, is combined with, requires or is based on that work.
3.3 Customer shall indemnify Philips and its affiliates against and hold Philips and its affiliates harmless from any damage or costs arising from or in connection with any violation or breach of the provisions of this Section 3, and Customer shall reimburse all costs and expenses incurred by Philips and/or its affiliates in defending any claim, demand, suit or proceeding arising from or in connection with such violation or breach.

Schedule 1
Interventional X-Ray (iXR), Computed Tomography (CT), Magnetic Resonance (MR), Cardiovascular (CV), Positron Emission Tomography (PET), Nuclear Medicine (NM), and Ultrasound (US) products (including Image Guided Intervention and Therapy (IGIT) Products)

1. Payment Terms.
Unless otherwise specified in the quotation, Philips will invoice Customer, and Customer will pay such invoice on receipt, as follows:
1.1 For Interventional X-Ray (iXR), Computed Tomography (CT), Magnetic Resonance (MR), Cardiovascular (CV), Positron Emission Tomography (PET), and Nuclear Medicine (NM) products:
(a) 10% of the purchase price shall be due with Customer's acceptance of the quotation.
(b) 70% of the purchase price shall be due on delivery of the major components of the product. Product installation will not begin until Customer has paid this portion of the purchase price.
(c) 20% of the purchase price shall be due when the product is available for first patient use. Available for first patient use means the product has been installed and substantially meets Philips' published specifications.
1.2 For Ultrasound(US) products (including IGIT Products):
(a) 100% of the purchase price shall be due thirty (30) days from Philips' invoice date.
1.3 If the start of the installation is delayed for any reason beyond the control of Philips for more than thirty (30) days following the date that Philips notifies customer that the major components of the product are available for delivery, the unpaid portion of the purchase price shall be due on the thirty-first (31st) day following such date.

2. Cancellation.
2.1 **All Schedule 1 Products, except Ultrasound.** The quotation is subject to change or withdrawal prior to written acceptance by Customer. All purchase orders issued by Customer are subject to acceptance by Philips. If Customer cancels an order prior to product shipment, Customer shall pay a cancellation charge of fifteen percent (15%) of the net order price. Orders may not be cancelled after shipment.
2.2 **Ultrasound.** The quotation is subject to change or withdrawal prior to written acceptance by Customer. All purchase orders issued by Customer are subject to acceptance by Philips. If Customer cancels an order after an ultrasound product has shipped, Customer shall pay a cancellation charge of fifteen percent (15%) of the net order price for the product cancelled. Orders may not be cancelled after shipment.

3. Delivery.
3.1 Philips will use reasonable efforts to ship the product to the Customer by: (a) by the mutually agreed upon shipment date; or (b) by the date stated in the quotation; or (c) as otherwise agreed in writing. Philips will ship the product according to Philips' standard commercial practices. Philips may make partial shipments. Philips will pay shipping costs associated with product shipment.
3.2 Prior to the shipment of any product, Philips may change the construction or the design of the product without notice to the Customer so long as the function, footprint, and performance of the product are not substantially altered.
3.3 If Customer requests a delay in the date major components of the product are available for delivery, then Philips will place the product in storage and the unpaid portion of the purchase price shall be due. Customer will reimburse Philips for all storage fees incurred upon receipt of invoice.

4. Additional Customer Installation Obligations for Magnetic Resonance.
4.1 Customer's contractor or Customer's architect is required to provide detailed information on the proposed Helium Exhaust Pipe for their MRI system prior to installation to ensure safety specifications are being met.
Required Details include:
(a) Architectural drawing or sketch with complete dimensions including lengths, bending radii, bending angles, and pipe diameters for entire Helium Exhaust Pipe run from RF enclosure to discharge location.
(b) Completed Helium Exhaust Pipe Verification Checklist (Provided by Local Philips Project Manager)
(c) Picture showing the area where the Helium Exhaust Pipe will discharge.
4.2 Magnets will not be released for delivery unless and until Helium Exhaust Pipe details are provided for verification and have been confirmed to meet all life safety specifications.

5. Additional Terms Related to Sales of IGIT Products.
5.1 As part of installation, Philips will connect the IGIT product to such DICOM compatible scanners as Customer may designate (in writing), including CT and MR scanners and, if ultrasound navigation is included in the product, an iU22 ultrasound system.
5.2 If Customer requires that Philips connect the IGIT product to more than two (2) scanners or other devices, then Philips shall invoice Customer and Customer shall pay for installation services at Philips' then-current daily service rate. Additionally, Customer shall (a) make the scanner(s) the Customer has designated available to Philips' installation representative, (b) create and provide a data set of the installation phantom on or before the installation date, and (c) have its IT representative available to assist in connecting the IGIT product to Customer's DICOM devices during the agreed installation time. If such installation and connection is delayed due to Customer failing in its obligations described in this section, then Philips may invoice Customer and Customer shall pay either for (a) any time that Philips spends waiting at the site for such obligation to be fulfilled, at Philips' then-current service rate, or (b) reasonable travel expenses if Philips has to reschedule such installation.
5.3 Training on the IGIT Product is not included with the purchase of the IGIT product unless it is separately identified on the quotation.

PHILIPS PRODUCT WARRANTY

COMPUTED TOMOGRAPHY (CT) SYSTEMS

This product warranty document is an addition to the terms and conditions set forth in the quotation to which this warranty document is attached. The terms and conditions of the quotation are incorporated into this warranty document. The capitalized terms herein have the same meaning as set forth in the quotation.

TWELVE (12) MONTH SYSTEM WARRANTY

Philips warrants to Customer that the Philips CT System (the "System") will be free from defects in material and manufacturing workmanship for a period of twelve (12) months after completion of installation or availability for patient use, whichever occurs first. If an X-ray tube, Chiller Unit, Power Conditioner Unit, CT Injector Unit, Option, Upgrade or Accessory is purchased from Philips, they will be covered by the special warranty set forth below.

PLANNED MAINTENANCE

During the warranty period, Philips service personnel will schedule planned maintenance visits, in advance, at a mutually agreeable time on weekdays, between 8:00 A.M. and 5:00 P.M., excluding Philips observed holidays.

SYSTEM OPTIONS, UPGRADES OR ACCESSORIES

Any commercially available options, upgrades, or accessories for the System which are delivered and/or installed on the System during the original term of the System warranty shall be subject to the same warranty terms contained in the first paragraph of this warranty, except that such warranty shall expire on the later of: a) upon termination of the initial twelve (12) month warranty period for the System on which the option, upgrade or accessory is installed, b) after ninety (90) days for parts only from the date of installation. Any commercially available options, upgrades, or accessories for the System which are delivered and/or installed on the System after the original term of the System warranty has expired shall be subject to the same warranty terms contained in the first paragraph of this warranty, except that such warranty shall expire the later of: a) after ninety (90) days for parts only from the date of installation, or b) on the twelve (12) month renewal date of any current service agreement then in effect on the System.

X-RAY TUBE WARRANTY BRILLIANCE CT SERIES -MRC X-RAY TUBES:

The CT MRC X-ray Tube ("tube") warranty period is for twelve (12) months from the date of installation or availability for patient use, whichever occurs first. If a tube becomes inoperative or fails when operated within this twelve (12) month warranty period, upon return of the tube, Philips will provide a replacement tube at no additional charge. The replacement tube will be warranted for the balance of the original twelve (12) month warranty.

BRILLIANCE CT SERIES & MX8000 CT SERIES – AKRON OR CTR2112/ CTR2150 X-RAY TUBES:

The CT X-ray Tube ("Tube") warranty period is the shorter of twelve (12) months from the date of installation or 120,000 scan-seconds. If a tube becomes inoperative or fails when operated within published ratings, upon return of the tube, a prorated credit toward the purchase of a replacement tube from Philips will be issued as follows: Failure within the first 3,000 Scan-Seconds = 100% credit will be provided. Failure after the first 3,000 Scan-Seconds = tube credit will be prorated (See CT X-ray Tube Credit Proration Calculation below). Scan-Seconds are the number of seconds the System operates with the X-ray on.

Brilliance CT Series & Mx8000 CT Series X-Ray Tube Credit Proration Calculation:

$$\text{Credit} = 1 - \frac{\text{Number of Scan-Seconds Used}}{120{,}000}$$

Expressed in a percentage not to exceed 100%.

ACQSIM CT, PQ2000S OR ULTRA-Z CT X-RAY TUBES

The CT X-ray Tube ("Tube") warranty period is the shorter of twelve (12) months from the date of installation or 100,000 exposures. If a tube becomes inoperative or fails when operated within published ratings, upon return of the tube a prorated credit toward the purchase of a replacement tube will be issued as follows: Failure within the first 3,000 exposures = 100% credit will be provided. Failure after the first 3,000 exposures = tube credit will be prorated (See CT X-ray Tube Credit Proration Calculation below). An Exposure is any 360 degree or partial angle rotation of the gantry scan frame with the X-ray on.

ACQSIM CT, PQ2000s or ULTRA-Z CT X-ray Tube Credit Proration Calculation:

$$\text{Credit} = 1 - \frac{\text{Number of Exposures Made}}{100{,}000}$$

Expressed in a percentage not to exceed 100%.

All claims under this Tube warranty must be made within sixty (60) days of failure, or fourteen (14) months of (1) the date of installation (if installation of the tube is performed by Philips) or (2) the delivery (if installation of the tube is not performed by Philips), which ever comes first.

CHILLER UNIT, POWER CONDITIONER UNIT OR INJECTOR UNIT WARRANTY

The System can be purchased with an optional Chiller Unit, Power Conditioner Unit or Injector Unit. If any of these Units are purchased with the System, Philips will include these Units under the twelve (12) month System warranty as an OEM Warranty pass through. Authorized representatives of the Original Equipment Manufacturer will perform warranty service on each of these units.

SYSTEM SOFTWARE AND SOFTWARE UPDATES

The software provided with the System will be the latest version of the standard software available for that system as of the 90th day prior to the date the System is delivered to Customer. Updates to standard software for the System that do not require additional hardware or equipment modifications will be performed as a part of normal warranty service during the term of the warranty. "Updates" shall mean changes to the right of the decimal point for the software shipped with the product

All software is and shall remain the sole property of Philips or its software suppliers. Use of the software is subject to the terms of a separate software license agreement. Customer must sign all such license agreements prior to or upon the delivery of the product. No license or other right is granted to Customer or to any other party to use the software except as set forth in the license agreements.

Any Philips maintenance or service software and documentation provided with the product and/or located at Customer's premises is intended solely to assist Philips and its authorized agents to install and to test the System, to assist Philips and its authorized agents to maintain and to service the System under a separate support agreement with Customer, or to permit Customer to maintain and service the System. Customer agrees to restrict the access to such software and documentation to Philips' employees and those of its authorized agents, and to authorized employees of Customer only.

WARRANTY LIMITATIONS

Philips' obligations under the System warranty are limited, at Philips' option, to the repair or the replacement of the System or a portion thereof, or to a credit or refund of a portion of the purchase price paid by Customer. Any refund will be paid to Customer when the System is returned to Philips. Certain of the parts used in the manufacture or installation of, or in the replacement parts for, this System may contain refurbished components. If such components are used, they will be subject to the same quality control and inspection procedures as new components. Any System warranty is made on condition that Philips receives written notice of a System defect during the warranty period, and within thirty (30) days following the discovery of the defect by Customer. Philips' obligations under the System warranty do not apply to any System defects resulting from: improper or inadequate maintenance or calibration by Customer or its agents; Customer or third party supplied software, interfaces, or supplies; use or operation of the product other than in accordance with loss, or damage in transit; improper site preparation; operation of the system outside its environmental, electrical, or performance specifications; unauthorized maintenance or Philips' applicable product specifications and written instructions; abuse, negligence, accident, modifications to the System; or to viruses or similar software interference resulting from the connection of the product to a network. Philips does not provide a warranty for any such third party products furnished to Customer by Philips; however, Philips shall use reasonable efforts to extend to Customer the third party warranty for the product. The obligations of Philips described above are Philips' only obligations and Customer's sole and exclusive remedy for a breach of a System warranty. Repairs or replacement parts do not extend the term of this warranty.

THE WARRANTIES SET FORTH IN PHILIPS' WARRANTY DOCUMENT WITH RESPECT TO THIS SYSTEM (INCLUDING THE SOFTWARE PROVIDED WITH THE SYSTEM) ARE THE ONLY WARRANTIES MADE BY PHILIPS IN CONNECTION WITH THE SYSTEM, THE SOFTWARE, AND THE TRANSACTIONS CONTEMPLATED BY THE QUOTATION, AND ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

ACCESS TO SYSTEM

Philips shall have full, free and safe access to the System and Customer's operation, performance and maintenance records for the System, on each scheduled or requested warranty service visit. Philips shall also have access to and use of any machine, service, attachment, features or other equipment required to perform the necessary service contemplated herein at no charge to Philips. Customer waives warranty service if it does not provide such access to the System and Customer's records. Should Philips be denied access to the

System and Customer's records at the agreed upon time, a charge equal to the appropriate hourly rate will be accepted by Customer for "waiting time."

WARRANTY SERVICE

In the event it is not possible to accomplish warranty service within normal working hours (8:00 A.M. to 5:00 P.M., Monday through Friday, excluding Philips observed holidays), or in the event Customer specifically requests that warranty service be performed outside of Philips normal working hours, Customer agrees to pay for such services at Philips standard service rates in effect. Customer Support Agreements are available for extended coverage.

TRANSFER OF SYSTEM

In the event Customer transfers or relocates the System, all obligations under this warranty will terminate unless Customer receives the prior written consent of Philips for the transfer or relocation. Upon any transfer or relocation, the System must be inspected and certified by Philips as being free from all defects in material, software and workmanship and as being in compliance with all technical and performance specifications. Customer will compensate Philips for these services at the prevailing service rates in effect as of the date the inspection is performed. Any System, which is transported intact to pre-approved locations and is maintained as originally installed in mobile configurations, will remain covered by this warranty.

CONDITIONS

This warranty is subject to the following conditions: the System (a) is to be installed by authorized Philips representatives (or is to be installed in accordance with all Philips installation instructions by personnel trained by Philips), (b) is to be operated exclusively by duly qualified personnel in a safe and reasonable manner in accordance with Philips written instructions and for the purpose for which the products were intended, (c) is to be maintained and in strict compliance with all recommended and scheduled maintenance instructions provided with the System, and (d) Customer is to notify Philips immediately in the event the System at any time fails to meet its printed performance specifications.

LIMITATIONS OF LIABILITY AND DISCLAIMERS

The liability, if any, of Philips for damages whether arising from breach of the terms in the quotation, breach of warranty, negligence, indemnity, strict liability or other tort, or otherwise with respect to the products and services is limited to an amount not to exceed the price of the product or service giving rise to the liability.

IN NO EVENT SHALL PHILIPS BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR PROFITS, OR THE COST OF SUBSTITUTE PRODUCTS OR SERVICES WHETHER ARISING FROM BREACH OF THE TERMS IN THIS QUOTATION, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT. PHILIPS SHALL HAVE NO LIABILITY FOR ANY GRATUITOUS ADVICE PROVIDED TO THE CUSTOMER.

FORCE MAJEURE

Philips and Customer shall each be excused from performing its obligations arising from any delay or default caused by events beyond its reasonable control including, but not limited to: acts of God, acts of third parties, acts of the other party, acts of any civil or military authority, fire, floods, war, embargoes, labor disputes, acts of sabotage, riots, accidents, delays of carriers, subcontractors or suppliers, voluntary or mandatory compliance with any government act, regulation or request, shortage of labor, materials or manufacturing facilities.

Non Disclosure Agreement for Philips Confidential Pricing Information

The parties specified below agree to the following terms:

A. Philips

Name	Philips Medical Systems North America a division of Philips Electronics North America Corporation
Address	22100 Bothell-Everett Highway, Bothell, WA 98021 United States of America

B. Company

Name	NORTHEAST REGIONAL ONCOLOGY NETWORK- COMMUNITY CANCERCARE
Address	100 HAYNES STREET MANCHESTER, CT 06040

C. Confidential Information

Authorized Purpose	To evaluate Philips' confidential information relating to pricing for imaging equipment ("Pricing") in connection with the potential purchase of such imaging equipment.
Period	Begins on the date Pricing is first disclosed and continues for 5 years from date Pricing is last disclosed.

D. Philips Contact

Name	Jane Aldieri
Title	
Telephone	(888) 345-8002 x2482
Fax	(914) 570-2396
e-mail	
Signature	

Company Contact

Name	
Title	
Telephone	
Fax	
e-mail	
Signature	

1. The following terms and conditions (the "Agreement") apply to Pricing disclosed by Philips and its Affiliates ("Philips") to Company and its Affiliates ("Company"), in connection with the Authorized Purpose.

   (a) Subject to Philips' prior written consent, Company may disclose, or request that Philips disclose, Pricing to Company's Affiliates that need to know the Pricing for carrying out the Authorized Purpose, provided they are advised of and agree to be bound by this Agreement. Company is responsible for any breach of this Agreement by its Affiliates.

   (b) An Affiliate is any corporation, company, or other entity, that: (i) is under the Control of a party hereto; or (ii) has Control of a party hereto; or (iii) is under common Control with a party hereto. For this purpose "Control" means that more than fifty percent (50%) of the controlled entity's shares or ownership interest representing the right to make decisions for such are owned or controlled, directly or

2. Philips may disclose Pricing to Company with respect to the Authorized Purpose in writing, orally, or otherwise. All information is assumed to be Pricing, and confidential, if the confidential or proprietary nature is reasonable under the circumstances.

3. All Pricing disclosed by Philips shall remain Philips' the property. Company does not, by implication, estoppel, or otherwise, acquire any intellectual property right, title, or ownership, nor a license to any such intellectual property right, with respect to any Pricing disclosed by Philips hereunder.

   ALL PRICING IS PROVIDED ON AN "AS IS" BASIS, WITHOUT ANY WARRANTY WHATSOEVER. PHILIPS SHALL HAVE NO LIABILITY WHATSOEVER RESULTING FROM THE USE OF THE INFORMATION PROVIDED.

4. Company shall:
   (a) not use the Pricing for any purpose other than the Authorized Purpose;
   (b) not disclose the Pricing to any third party;
   (c) protect the Pricing against disclosure in the same manner and with the same degree of care with which Company protects its own confidential information but not less than a reasonable degree of care; and
   (d) limit circulation of the Pricing to Company's employees as have a need to know in connection with the Authorized Purpose.

   These obligations shall survive the termination of this Agreement. Philips may terminate this Agreement at any time by means of a written notice to Company. Company shall return to Philips, or certify destruction of, all Pricing, immediately upon termination or expiration of this Agreement.

5. Information disclosed by Philips to Company pursuant to this Agreement shall not be confidential to the extent that the information:
   (a) is or becomes part of the public domain without violation of this Agreement or any other obligation of confidentiality;
   (b) is known by Company prior to disclosure by Philips;
   (c) is lawfully obtained by Company from a third party without any breach of confidentiality or violation of law; or
   (d) is developed by Company completely independently of any such disclosure by Philips.

6. If Company is required, pursuant to administrative or judicial action or subpoena, to disclose the Pricing, Company shall use its best efforts to maintain the confidentiality of the Pricing, e.g. by asserting in such action any applicable privileges. Immediately after gaining knowledge or receiving notice of such action or subpoena, Company shall notify Philips and give Philips the opportunity to seek any other legal remedies so as to maintain such Pricing in confidence, including a reasonable protective order.

7. Company may not transfer or assign any or all of its rights and/or obligations or delegate the performance of any or all of its obligations under this Agreement, directly or indirectly, through acquisition, merger or otherwise, without the prior written consent of Philips. Any transfer, assignment or delegation in contravention of the foregoing shall be void.

8. Company shall not disclose, export or release the Pricing in contravention of any applicable laws or regulations.

9. This Agreement shall be governed and construed in accordance with the laws of the State of New York, without giving effect to its conflict of laws provisions.

10. This Agreement contains the entire understanding of the parties and supersedes any previous understandings or agreements with respect to the subject matter hereof. This Agreement may be amended only in writing signed by authorized representatives of each party.

Attachment - C

TOWN	ZIP	# of pts PCCC
Agawam, MA	01001	0
Amston	06231	0
Andover	06232	0
Ashford	06278	0
Bar Harbor, ME	04609	1
Bloomfield	06002	1
Bolton	06043	0
Broad Brook	06016	2
Brooklyn	06234	0
Chaplin	06235	0
Colchester	06415, 06420	0
Columbia	06237	0
Coventry	06238	0
Danielson	06239	0
East Granby	06026	5
East Hartford	06108, 06118	0
East Hartland	06027	1
East Windsor	06088	3
Ellington	06029	1
Enfield	06082	49
Glastonbury	06033	2
Granby	06035	0
Granville	01034	0
Hartford	06114, 06112, 06105	0
Hebron	06248	0
Jewitt City	06351	1
Lebanon	06249	0
Manchester	06040, 06042	1
Mansfield Center	06250	0
Marlborough	06447	0
New Britain	06051, 06052, 06053	0
North Windham	06235, 06256	0
Pomfret Center	06259	1
Portland	06480	1
Putnam	06260	0
Quinebaug	06262	0
Simsbury	06070	2
Somers	06071	6
Somersville	06072	0
South Glastonbury	06073	0
South Windsor	06074	0
Southwick, MA	01077	1
Stafford	06075	1
Stafford Springs	06076	20
Staffordville	06077	0
Sterling	06377	0
Storrs	06268	0
Suffield	06078	6
Thompson	06277	0
Tolland	06084	1
Vernon/Rockville	06066	2
West Granby	06090	1
West Simsbury	06092	0
West Suffield	06093	3
Westfield, MA	01085	1
Willimantic	06226	0
Willington	06279	1
Windham	06280	0
Windsor	06095	8
Windsor Locks	06096	8
Windsorville	06016	0
Woodstock	06281	0

Total # of Patients Overall per Site **130**

Attachment - D

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Localization: conventional and CT simulation

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ABSTRACT. Recent developments in imaging and computer power have led to the ability to acquire large three dimensional data sets for target localization and complex treatment planning for radiation therapy. Conventional simulation implies the use of a machine capable of the same mechanical movements as treatment units. Images obtained from these machines are essentially two dimensional with the facility to acquire a limited number of axial slices to provide patient contours and tissue density information. The recent implementation of cone beam imaging on simulators has transformed them into three dimensional imaging devices able to produce the data required for complex treatment planning. The introduction of computed axial tomography (CT) in the 1970s was a step-change in imaging and its potential use in radiotherapy was quickly realised. However, it remained a predominantly diagnostic tool until modifications were introduced to meet the needs of radiotherapy and software was developed to perform the simulation function. The comparability of conventional and virtual simulation has been the subject of a number of studies at different disease sites. The development of different cross sectional imaging modalities such as MRI and positron emission tomography has provided additional information that can be incorporated into the simulation software by image fusion and has been shown to aid in the delineation of tumours. Challenges still remain, particularly in localizing moving structures. Fast multislice scanning protocols freeze patient and organ motion in time and space, which may lead to inaccuracy in both target delineation and the choice of margins in three dimensions. Breath holding and gated respiration techniques have been demonstrated to produce four-dimensional data sets that can be used to reduce margins or to minimize dose to normal tissue or organs at risk. Image guided radiotherapy is being developed to address the interfraction movement of both target volumes and critical normal structures. Whichever method of localization and simulation is adopted, the role of quality control is important for the overall accuracy of the patient's treatment and must be adapted to reflect the networked nature of the process.

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The development of the delivery of radiation therapy is closely related to the accuracy with which the target tumour can be located with respect to surrounding anatomical structures. In recent years, the increase in computing power and the development of refined computer graphics have resulted in the ability to perform complex treatment planning in three dimensions and to manipulate images in real time. Early simulators were machines capable of the same mechanical movements as treatment units and were used to confirm treatment set up rather than for localization [1, 2]. Simulators that were developed commercially in the 1960s had the addition of fluoroscopy that was used to set the isocentre with the aid of remotely controlled movements of the couch. Field portals adequate to encompass the target volume to be treated could also be set by remote adjustments to the field defining wires. The introduction of computed axial tomography (CT) scanning in the 1970s was a step change in the ability to define tumours in relation to normal anatomy, and over the ensuing years has been widely adopted in tumour localization. Today it may be used in conjunction with complex graphics software as a virtual simulator. However, the conventional simulator still retains its place in many radiotherapy departments for localization of some tumour sites, either as a result of lack of sufficient access to a CT scanner or for relatively simple techniques not requiring the production of a dose plan. The conventional simulator is also frequently used to verify the more complex treatment plans, producing an image corresponding to a beam's eye view (BEV) from the treatment planning system (TPS) or by verifying the isocentre location from orthogonal films.

Brief history

Mould [3] describes the development of simulation, from the use of diagnostic radiographs and skin marks in the 1950s to the introduction of virtual simulation in the 1980s. In 1973, Hounsfield and Ambrose [4, 5] published their work on computerized transverse axial tomography and the potential uses of CT in radiotherapy were quickly recognized [6]. However, access to a CT scanner was often very limited, and in many cases the scanner was not even in the same hospital as the treatment facilities. In addition, a CT scanner was principally a diagnostic tool with limitations for treatment planning imposed by the small aperture and the design of the

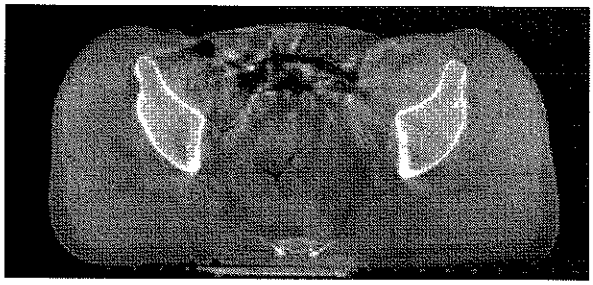
couch, which frequently prevented the patient from being scanned in the treatment position. Harrison and Farmer [7] recognized the usefulness of being able to acquire a cross-sectional image of the patient in the treatment position using a simulator as a CT scanner and went on to describe the implementation of their idea using a fluorescent screen and an Isocon camera [8]. A number of other adaptations of the simulator to produce cross-sectional images were also proposed at this time [9–12]. This functionality was called Sim-CT and became standard on simulators in the 1990s, but the system had its limitations:

1. The heat capacity of the X-ray tube generally meant that only a few slices could be scanned;
2. The time taken to scan was limited to approximately one revolution per minute, which introduced motion artefacts resulting in images that were of a poorer quality than those produced on a diagnostic scanner;
3. The uncertainty in the Hounsfield units (HU), which depends on the field of view and the phantom/patient size, a result of the beam hardening in the unfiltered X-ray beam from the simulator CT. However, the uncertainty in HU is translated into dose variation not exceeding 3% for photon beams in the range 6–18 MV [13];
4. The relatively high dose to the patient which was shown to be approximately 10 times that delivered with a diagnostic scanner under similar conditions [14].

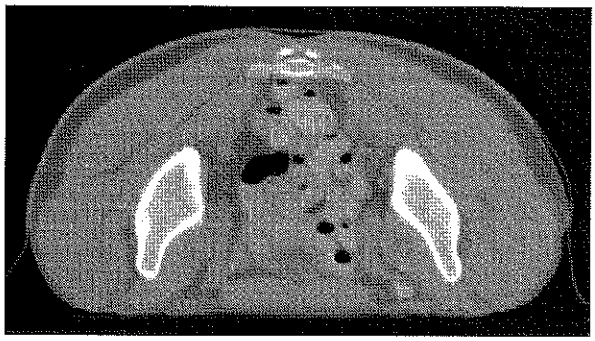
In spite of its limitations, the Sim-CT was a useful tool for planning in a department with limited access to a diagnostic scanner. It was a more accurate way of producing a patient outline than manual methods using callipers and flexicurves and enabled CT numbers to be converted to relative electron densities for tissue inhomogeneity corrections to be applied to a single CT slice in dose calculations. The dose distributions and monitor unit calculations showed good agreement with those obtained with diagnostic scan data [14].

In 1998, Cho et al [15] described the application of digital technology to a radiotherapy simulator in which the imaging system was replaced by a digital spot imager (DSI). The DSI consisted of an image intensifier, digital image processing, display and data transfer facilities. The images were stored during acquisition for later archiving or transfer to workstations. Simulator manufacturers now offer digital capabilities on their machines and conventional image intensifiers have been replaced by flat panel amorphous silicon (aSi) detectors. Their longevity in this application has to be proved and it is possible that the need for regular replacement may have significant revenue consequences. The most recent simulators include anatomical protocol selection, automatic correction for image distortion, last image hold, multileaf collimator (MLC) verification, a variety of image viewing and manipulation tools with annotation, image printing to film or paper, Digital Image Communications in Medicine (DICOM) export to TPS, electronic portal imaging device (EPID), record and verify, and patient management systems. The image manipulation tools enable adjustments to be made to field parameters and image quality on the last-held image, which reduces the screening time and hence patient dose compared with non-digital systems. A wide aperture (typically 90 cm) CT option is available. However, because of the restriction on gantry rotation speed, acquisition times are still slow and reconstruction time does not match that of a diagnostic scanner. In an attempt to overcome this, volume or cone beam CT (CBCT) has been developed. A number of authors describe cone beam reconstructions, based on Feldkamp's original back projection algorithm [16], for the acquisition of volumetric data [17–19].

When first proposed, the size of the detector was a severe limitation on the reconstruction volume and, although promising results were obtained, its use in treatment planning was not realised until aSi flat panel detectors of a reasonable size became available. Commercial systems are now available. For example, the Acuity (Varian, Palo Alto, CA) with cone beam option gives a cone of 17 cm at the isocentre but with added penumbra of 1.9 cm at either end regardless of the scan length. It is therefore not appropriate to acquire a single narrow slice. A single slice takes 45 s and 675 images are acquired per rotation. Early reports (private communications, A Vinall, K Venables, 2005) suggest that the geometric performance and image quality are adequate for radiotherapy planning purposes although the images are not of diagnostic quality. The rotation time of 45 s does, however, result in significant movement artefacts. Figure 1a shows the streaking that results from the movement of bowel gas during the acquisition of a CBCT scan compared with a CT planning scan.



(a)



(b)

Figure 1. (a) Movement artefacts on an axial slice of a CBCT scan as a result of movement of bowel gas. (b) An axial slice from a planning CT of the pelvis for comparison. (Courtesy of Varian Medical Systems, Palo Alto, CA and Memorial Sloan-Kettering Cancer Centre).

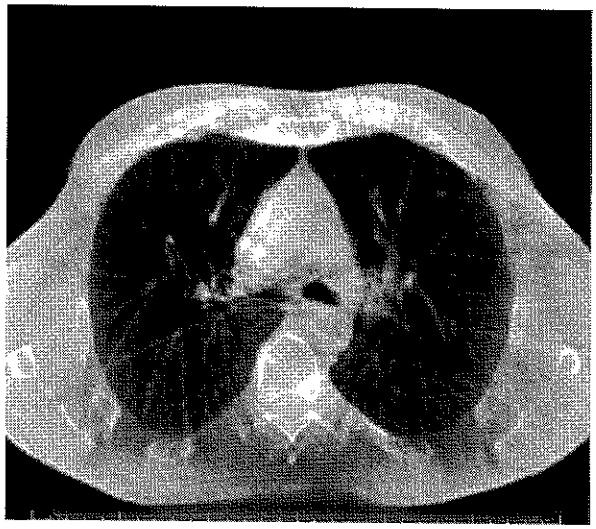


Figure 2. Movement artefacts on an axial slice from a CBCT acquired during normal breathing. (Courtesy of Varian Medical Systems and Hirslanden Klinik, Aarau).

Figure 2 shows similar streaking in the soft tissue around lungs in a CBCT taken during normal breathing. As with the single slice option on the simulator, there seem to be problems with the HU values both in accuracy compared with the calibration and reproducibility on a day-to-day basis. Slice thicknesses of 1–5 mm are available. Reconstruction times vary with the slice thickness and are in the order of 90 s. There is no standard way of quoting doses for these scans. Computed tomography dose index ($CTDI_w$) is a measure of the dose from a CT scan, weighted between the centre and the surface to give an average value across the section. A $CTDI_w$/810 mAs value of 15 mGy has been measured for a 10 cm scan length collimated to 13.8 cm (15 pulse s^{-1}, pulse length 15 ms, 80 mA, 125 kV, 45 s rotation). Setting the scan length to 1 cm in clinical mode gave 54 mGy/810 mAs with the same exposure factors. This compares with the national reference dose of 20 mGy for a multislice scanner [20].

CT simulation

The alternative to using the simulator and CBCT to acquire a volume data set of the patient in the treatment position was to modify CT scanners to meet the needs of radiotherapy and add software to perform the simulation function.

With the rapid development of computer technology, enabling fast reconstruction of images in three dimensions, the true value of the enormous quantity of data acquired by a CT scanner and its use in radiotherapy planning was recognized.

The development of the concept of the beam's eye view (BEV) into the transmission image from CT scans that would result from any beam orientation paved the way to producing images from CT data that correspond to conventional simulator films [21–23]. These digitally reconstructed radiographs (DRRs) could be overlaid with the outlines of anatomic structures, field shapes and cross wires, and hence could display images similar to simulator radiographs. However, the spatial resolution of DRRs is limited by the voxel size of the CT scans and cannot match that of a simulator radiograph taken with a small focal spot and a short exposure. Even in the early implementation of this process the reconstruction time of the DRRs was reasonable, being in the region of 10 s for a 50 slice study. However, studies were limited by the specification of the CT scanner. The acquisition of a single slice might take 2–3 s with a delay between scans required for repositioning of the scanner and tubes with low heat capacity needed cooling time during the scan [24].

Early critical analysis of the CT simulation process highlighted the areas for improvement [25]. These included the limitations imposed on both treatment technique and the size of the patient by the aperture of the scanner (normally 70 cm), the time required for CT data acquisition and transfer from the scanner to the planning system, time required for outlining and contouring target volume and critical structures and the inconsistent accuracy of portal marking on the patient's skin. Complete field ports were marked on the patient's skin in most cases and novel devices for doing this constituted an important part of the virtual simulation process reported. [26, 27]. These drawbacks have now largely been overcome.

Multislice helical scanning, with high heat capacity CT tubes, has reduced the time required to acquire a CT data set of 100 slices to a matter of seconds. Wide bore scanners have removed most of the constraints of patient size and technique. Increased computing capacity and speed allows for real time reconstruction of the slice images at the scanner and real time manipulation of images in the virtual simulation software. In addition, the DICOM protocol facilitates fast transfer of image data between systems.

Current practice

Conformal radiotherapy (CRT) is now accepted best practice for a number of treatment sites, having the advantages of sparing normal tissue and providing the opportunity for dose escalation. Intensity-modulated radiotherapy (IMRT) is the ultimate expression of this, but successful implementation of CRT and IMRT cannot be achieved without three-dimensional information on the location and extent of the target volume and the position of adjacent organs at risk (OAR). The three-dimensionality of virtual simulation is essential to visualize the coverage of the target volume and the avoidance of OARs in the highly complex treatment plans required for CRT and IMRT. For some sites, such as the lung where the relative position of the target and OARs varies with time, this fourth dimension needs to be taken into account.

Sherouse et al [28] introduced the term virtual simulation in 1987 to describe the process of using computer aided design and digitally reconstructed radiographs to replace the process of physical simulation. The process of virtual simulation has been described in detail by Aird and Conway [29] who also gave examples of its application to a number of different sites.

The specification of a CT simulator

The fundamental requirements of a CT simulator are a CT scanner with a flat couch, positioning lasers and virtual simulation software.

CT scanner

Advances in the design and capabilities of CT scanners have modified the specifications given by Aird and Conway [29]. Multislice scanners enable very fast scanning times, even for the large studies, with narrow slice thicknesses required for the production of good DRRs. High heat capacity anodes are required for the large datasets that are frequently required for treatment planning applications. One manufacturer (Siemens Medical, Erlangen, Germany) has introduced a new design of directly cooled anode that should eliminate delays due to anode heating and enable fast acquisition of scans with the large number of narrow slices required for good DRRs.

Three manufacturers now produce wide aperture (85 cm) scanners designed for radiotherapy applications. In two, the scanned field of view (SFOV) is 60 cm with an extended reconstructed FOV of 85 cm. It should be noted that in the extended reconstructed FOV the HU numbers may not be consistent with the SFOV. In reality, it is unlikely that the uncertainty in HU translates into a dose discrepancy of more that 1–2% in the target. The third manufacturer claims a true SFOV of 85 cm.

Positioning lasers

A system of three lasers for the accurate positioning and alignment of the patient is required. The lateral lasers may be wall or frame mounted, and may be either fixed or move in a vertical plane. The sagittal laser must be able to move laterally to account for lack of lateral movement on the CT couch. These lasers move under computer control to define the isocentre for the treatment plan in terms of shifts from the reference marks.

Virtual simulation software

The virtual simulation software may either be part of a treatment planning system or may be a stand-alone system. If the latter is chosen, it is essential that connectivity is easily established with the treatment planning system for dose calculation. Since the introduction of DICOM-RT this connectivity is more readily achievable, but the user must be aware that not all manufacturers interpret the standard in the same way and there are frequently hidden licensing issues associated with the connectivity. Essential features of virtual simulation software include automatic contouring of body outlines and semi-automatic contouring of other structures and critical organs such as spinal cord, kidneys and lungs. Particular attention should be paid to treatment of bifurcating structures. Contouring tools should be simple to use and interpolation between non-adjacent slices, with correction as necessary, should be provided to speed the contouring process. The ability to contour in three dimensions, *i.e.* in sagittal and coronal as well as axial sections, is particularly helpful. Figure 3 shows how three single contours in orthogonal planes produce a three dimensional structure. This functionality can considerably reduce the time taken to outline structures. The shape of the contours can be modified on any slice as necessary. Similar interpolation tools should be available for target volume delineation and true three-dimensional volume margin growth with different margin widths in different directions. Three-dimensional display systems are an essential feature of

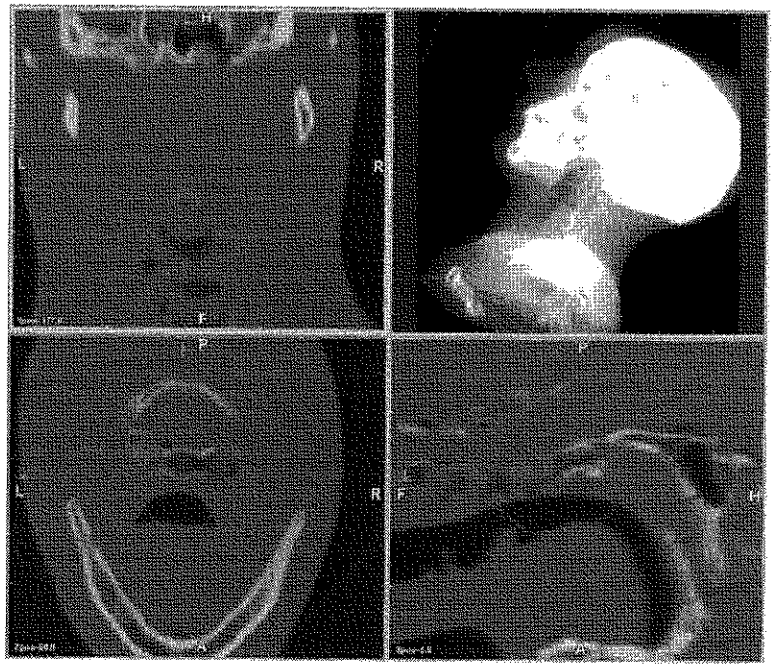


Figure 3. A single contour in axial sagittal and coronal planes defines a three dimensional target in Prosoma. (Courtesy of Oncology Systems Limited, Shrewsbury, UK and Medcom, Darmstadt, Germany).

any virtual simulation software. It should be possible to display axial, sagittal and coronal sections on the same screen and relate each section to the others, and to visualize the DRRs in the same window. An Observer's Eye View, with the patient on the couch and the floor and gantry angles depicted, is an aid to patient setup, as is a light-field displayed on the patient's skin related to skin marks or tattoos. Anti-collision software avoids planning a treatment field which it is physically impossible to reproduce in the treatment room. There are many different ways of rendering the target volume and OARs, but they should be unambiguous and should be rendered in three-dimensions so that coverage can be checked from all aspects. Optimization of MLC leaf positions and collimator angle should be available but adjustable by the planner. For treatment planning where a full dose distribution will not be calculated, a particularly useful feature is the calculation of the equivalent square of an irregular field, the parameter required for simple dose calculations. Increasingly, oncologists are using a number of other imaging modalities such as MRI (see Khoo and Joon in this issue) and positron emission tomography (PET) (see Jarritt et al in this issue) to help in determining target volumes. Most virtual simulation packages include an image fusion function enabling registration of two datasets of the same or different modalities, CT/CT, CT/MRI, CT/PET. Image registration and fusion may be achieved in a number of different ways, both manual and automatic (see Kessler in this issue). Irrespective of the algorithm, there is a variety of display modes to assist in performing and viewing the fusion, some of which are shown in Figure 4. Figure 4a shows the two data sets (MR and CT) fused with information from both sets displayed in the same window. The image can be "faded" between the two showing 100% of the primary data set (CT in this case) through to 100% of the secondary data set (MRI in this example). Figure 4b shows a split screen, with two quadrants displaying the CT data and two showing the MRI data. The point of intersection can be moved around the image to display the intersection at any position on the image. This will assist in delineating the structures using information from both data sets. Figure 4c shows a split screen with the secondary data set fused with the primary in the centre of the image and the primary image on either side. Contours outlining the target or OARs can be drawn on either data set or on the fused images in any of these display modes. These three screens show the fused images in the top three windows and the secondary data set in the lower windows. Figure 4d shows the region of discrepancy between the two fused data sets, in this case two CT studies, as areas of enhancement on the image. Improved localization of a brain tumour when CT and MRI data sets are fused compared with localization on CT alone for treatment planning is demonstrated in Figure 5.

Comparison of conventional and virtual simulation

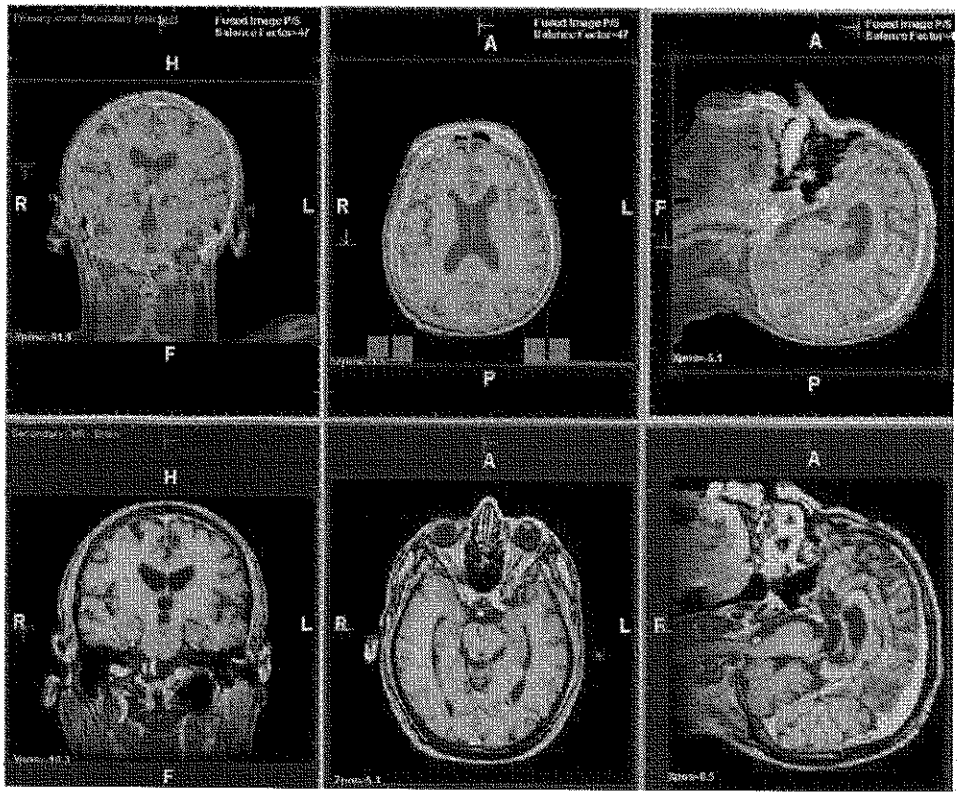
Conventional and virtual simulation approach the task of localizing the target volume for treatment planning in very different ways, which may result in significantly different treatments. Realisation of the steps performed to provide the data to a treatment planning system is compared for the two modalities in Table 1.

In comparing the two methods of simulation, the first question that arises is whether the two are comparable in terms of accuracy of the treatment set up. There are a number of studies addressing this question for different treatment sites. Bollet et al [30] showed that in a series of 20 patients who were CT scanned and had conventional simulation, the precision of set up evaluations using DRRs was similar to that using simulator films in conformal prostate treatments. They also considered whether errors were introduced at the simulation stage and found a statistically significant systematic error between DRRs and simulator, in both the craniocaudal direction and the anteroposterior direction. In another study of prostate patients Valicenti et al [31] showed that there was no statistically significant reduction in treatment setup error if patients have physical simulation following virtual simulation and concluded that physical simulation may be omitted if virtual simulation is available. In a study of 86 patients undergoing palliative radiotherapy for lung cancer using parallel opposed fields, McJury et al [32] found that setup errors were comparable between the group planned by virtual simulation and that planned using conventional simulation. Similar results are reported at different treatment sites [33–35]. In a detailed study of setup errors in 39 patients undergoing CT planned radiotherapy for lung cancer, de Boer et al [36] concluded that the setup errors introduced at simulation, which become systematic errors if the simulator film is used as the reference image, were comparable with systematic errors at the treatment unit. Hence, omission of the simulation stage would reduce systematic errors on treatment. This conclusion supported a similar result for prostate patients [37].

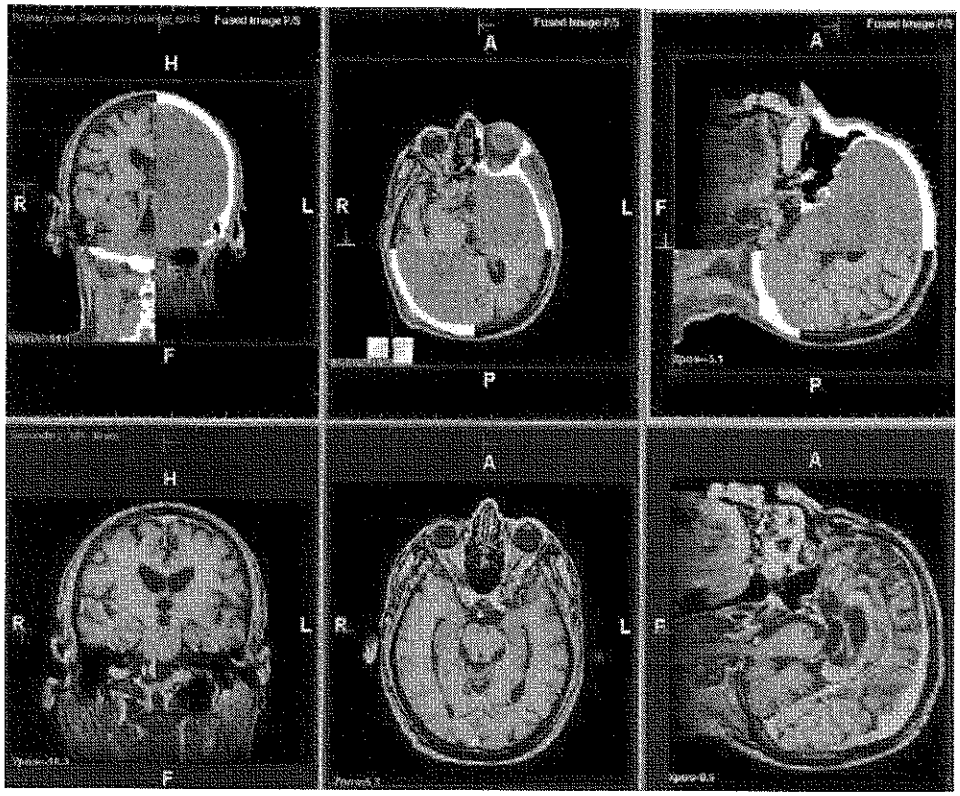
In comparing the two methods of simulation, studies have shown that the target volumes and field sizes are smaller for virtual than conventional simulation in lung cancer with the associated reduction in irradiation of normal tissue [32, 38]. Smaller field sizes have also been reported for maxillary cancer with a corresponding reduction in long-term side effects [39].

One of the perceived advantages of virtual simulation is the improved coverage of the gross tumour volume (GTV) and the avoidance of OARs as a result of better visualization of soft tissue structures on a CT scan compared with a simulator image, particularly if shielded by bone. This is aided by software functions that remove overlying structures, giving better definition of the region of interest. A study comparing conventional and virtual simulation in the treatment planning of malignant lymphoma showed incomplete coverage of the spleen and spleen hilus in 5 of 15 and 6 of 15 patients, respectively, on conventional simulation and incomplete coverage of the right and left hilus in 4 of 15 and 1 of 15 patients, respectively. In addition, the left kidney was inadequately shielded in 6 of 15 of the conventionally planned patients [40]. Similar improvements in target coverage and OAR avoidance are reported for other anatomical sites [41–44].

Improved visualization of soft tissue structures may bring to light hitherto unsuspected pathology. Mehta

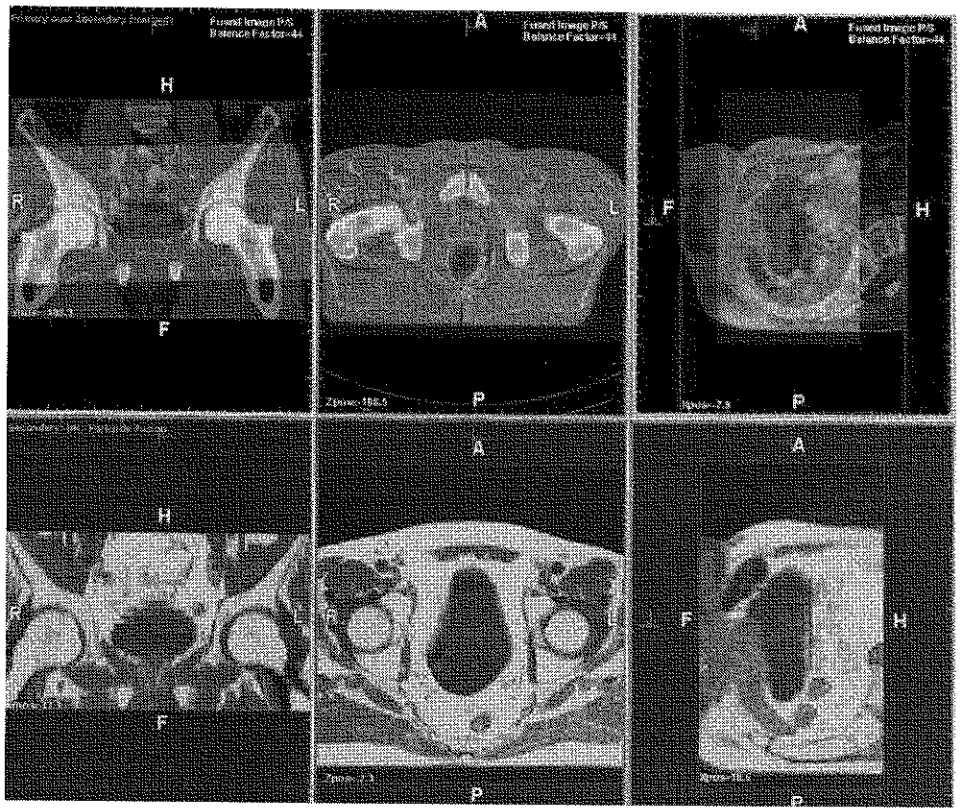


(a)

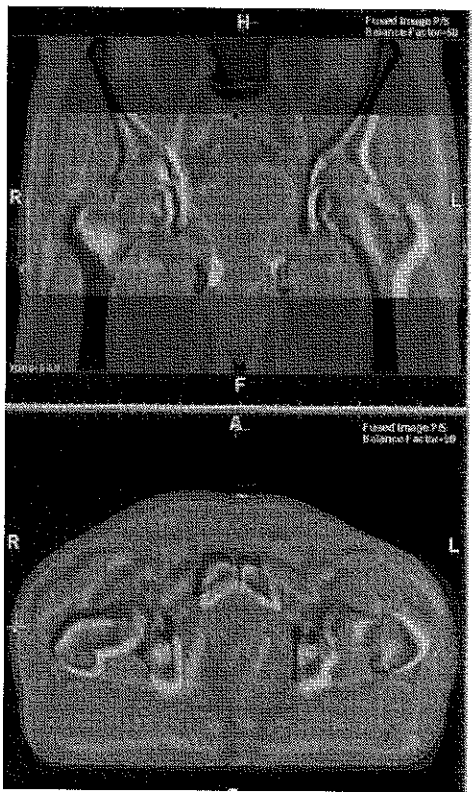


(b)

Figure 4. (a) Fusion of MRI and CT data sets, fused images in the top windows and MRI images below. (b) A split screen showing fusion between CT and MRI data sets in quadrants. (*Continued*)



(c)



(d)

Figure 4. (*Cont.*) (c) An alternative split screen representation of fusion between CT and MRI data sets. (d) Areas of mismatch between two CT data sets displayed as image enhancement. (Courtesy of OSL and Medcom).

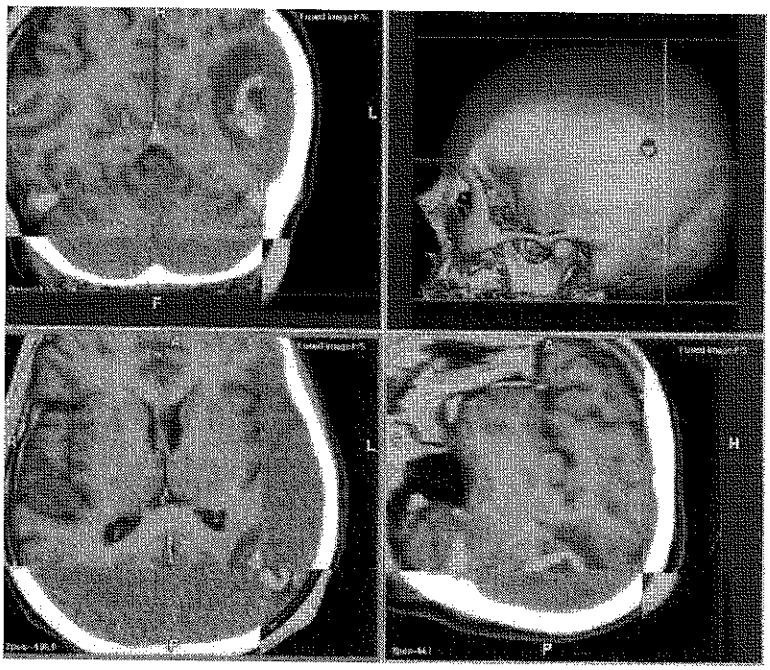


Figure 5. Improved localization of brain tumour using fused CT and MRI data sets. (Courtesy of OSL and Medcom).

and Goffinet [45] reported 17 unsuspected abnormalities in 153 scans (11%) obtained for treatment planning for patients referred for irradiation of the breast or chest wall. Of these, four represented disease that altered the treatment plan.

Working practices

The introduction of CT simulation has had a considerable impact on working practices in radiotherapy departments.

Oncologist attendance

The most notable change is that an oncologist is not required to be present during the scanning process. This releases the planning schedule from reliance on the oncologist's timetable, and the oncologists are free to undertake volume definition at a time convenient to them.

Time

A number of centres have reported on the different time allocation between conventional and virtual simulation [25, 28, 35]. Experience at the Kent Oncology Centre has shown that there is little difference in the total time needed for localization between the two modalities for the planning radiographers. With three radiographers in the scanning suite, 20 min appointments are adequate for most patients. Patients undergoing planning for breast radiotherapy are usually allocated 30 min because of the complex immobilization and positioning required with a narrow aperture scanner. These times are shorter than conventional simulation (30 min and 45 min, respectively), but more time is spent in manipulating the acquired data in the virtual simulation software. This includes the registering of reference marks and the production of DRRs for palliative patients, and outlining of target volumes and OARs for radical patients. Reduced simulation time for the patient leads to improved patient compliance, resulting in fewer problems from movement during scanning.

Table 1. Comparison of localization with CT and conventional simulation

Function	Conventional simulation	Virtual simulation
Patient alignment	Room lasers	Room lasers
Reference point definition	Skin markers	Skin markers
Localization	Fluoroscopy	CT scan
Definition of target and organs at risk	Drawing on plane films	Contouring on original or reconstructed slices
Isocentre	From simulator scales or film	DRR from CT
Field definition	From simulator scales or film	Virtual Sim
Patient outline	Manual/optical/single slice on Sim CT	Axial slice
Isocentre compared with reference point	Shifts measured on film	Calculated from Virtual Sim data
Treatment verification	Plane films	DRRs

DRR, digitally reconstructed radiograph.

Reference marks

In conventional simulation, using fluoroscopy for localization of the target volume, the isocentre can usually be established and marked at the time of simulation. In CT simulation, a reference point is chosen at the scanning session and the eventual isocentre is defined by movements of the couch from the reference point. If virtual simulation of palliative patients is undertaken with the patient remaining on the couch, the isocentre can be marked immediately from the couch movements indicated.

Verification

It has already been shown that to verify a plan on a conventional simulator after virtual simulation is not only unnecessary, but it could also be a source of systematic errors. However, treatment verification is still required and is of greater importance because of the use of reference marks. Verification takes place on the treatment unit with the electronic portal imaging system. The portal images acquired are then compared with the DRRs produced by the TPS or the virtual simulation software. For complex plans, this may require an extra treatment slot to allow time for the detailed comparison of portal images and DRRs before treatment.

Advantages and disadvantages of conventional and CT simulation

The advantages and disadvantages of conventional and CT simulation are summarized in Tables 2 and 3.

The availability of a three-dimensional dataset for all patients has some unexpected benefits. The increased information available may demonstrate previously unsuspected disease that may influence patient management. In palliative patients the extent of bone destruction from osteolytic lesions is easier to visualize on a CT scan than on a simulator film (Figure 6) and the use of software functions to remove overlying structures and display images optimized for different tissue types enables quicker localization of the disease. In breast planning, cardiac and lung volumes are more clearly demonstrated and therefore the fields can be adjusted or shielding employed accordingly.

One disadvantage of CT simulation is the increased patient dose. Doses for CT scanners are quoted as $CTDI_w$ with values in the region of 20 mGy. This dose is delivered to regions of normal healthy tissue as well as the tumour volume. Manufacturers of CT scanners provide various methods to reduce the total dose to the patient, taking account of the different dimensions of the patient at different levels and modulating the exposure in response to the detector measurements.

Some challenges still remain. Respiratory motion can affect the position of lung tumours and their relationship to OARs. Fast scanning protocols freeze patient and organ motion giving a snapshot view in time and space which may lead to inaccuracy in target delineation and choice of margins in three dimensions. Imaging techniques to overcome this drawback are an area of active investigation. The conventional method of treatment planning for lung tumours is to use fluoroscopic imaging to determine the maximum migration of the tumour during respiration and adopt large margins around the CTV to ensure that the target remains in the high dose region throughout the breathing cycle. A similar philosophy can be adopted by performing scans at deep inhale and deep exhale [46]. However, a number of other techniques have been suggested involving breath holding and respiratory gating techniques [47]. Deep inspiration breath hold (DIBH) increases the lung volume relative to normal breathing and hence the total volume of lung irradiated will be reduced using this technique [48]. In some patients, DIBH may displace the tumour away from OARs [49], which has the potential for dose escalation to the target for the same level of toxicity to OARs. Gated respiration techniques may either be active or passive. In active breathing control (ABC), the patient is prevented from breathing at a given part of the respiratory cycle during which the scan is performed and subsequent treatment takes place. By acquiring a number of scans at different parts of the breathing cycle, motion of the organ in three-dimensions can be demonstrated. Passive techniques allow the patient to breathe normally and a surrogate for the respiratory induced motion, such as the movement of the anterior chest wall, is monitored. Images obtained from CT scans are sorted according to respiratory phase to produce a 4D CT data set [50–52].

Table 2. Advantages and disadvantages of CT simulation

Advantages	Disadvantages
Three-dimensional dataset available, resulting in better visualization of tumour and nodal involvement, leads to reduction in side effects	Organ motion not visualized
Reduced simulation time leads to improved patient compliance	Repeat scan required for changes in patient set-up/shape/size during treatment
One fewer patient visit during planning	Palliative patients may spend longer in department between scanning and treatment
Oncologist not required during scanning	Transfer of verification to treatment unit may require extra treatment slot
Reduced transfer inaccuracies by omitting conventional simulator verification	Some patients/techniques may not be suitable for small aperture scanners (availability of wide aperture scanners should eliminate this problem)
Can simulate non-coplanar fields	Data storage
	Higher patient doses

Table 3. Advantages and disadvantages of conventional simulation

Advantages	Disadvantages
Fluoroscopy gives idea of organ motion	Difficult to visualize some tumours, especially if overlaid by bone (e.g. mediastinal lesions)
High spatial resolution	Limited three-dimensional information, even with CT option. Therefore cannot plan conformal or IMRT (cone beam may improve this)
Field visualization on patients skin	Two patient appointments required, localization and verification
	Difficult or impossible to simulate non-coplanar treatment fields

IMRT, intensity-modulated radiotherapy.

Breath hold and ABC techniques both require the co-operation of the patient and are therefore not appropriate for all patients. Some verbal or visual coaching helps to maintain regular breathing.

An alternative approach to the problem of organ motion is suggested by Murphy [53] who describes the real-time tracking of moving organs. Tracking respiratory motion is a complex procedure as it involves fast movement of organs relative to each other. For real-time tracking to be successful, the system must be able to locate the target, predict the motion to account for any time delays in repositioning the beam and adapt the treatment plan to allow for the change in relative positions of target and OARs. Although respiratory motion appears fairly regular, there are changes in amplitude and period from one cycle to the next which make prediction complicated. Murphy discusses two ways of predicting respiratory movement, by developing a mathematical model and by using an empirical algorithm that is based on measurements of previous breathing cycles. The technical challenges of fast response times to organ motion in continuous real time tracking are presented, but Murphy suggests that in the future it should be possible to treat lung tumours in some patients during free breathing, without needing to include movement margins in the treatment plan.

Respiratory correlation techniques developed to minimize motion artefacts in axial and helical scanning are not applicable to CBCT and different techniques have been developed for the CB application. Sonke et al [54] describe a method for sorting the projections into different phases of the breathing cycle to produce a 4D CBCT scan. Sillanpaa et al describe a method of acquiring megavoltage cone beam CT projection images at the same phase of breathing at all acquisition angles, giving a three-dimensional reconstruction at a single breathing phase [55]. It must be emphasised that gated respiration techniques must be employed at both the localization stage and during treatment.

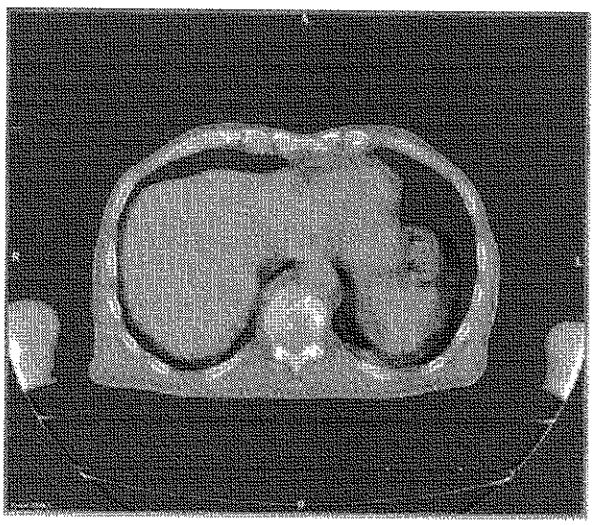


Figure 6. Osteolytic lesion of the spine.

Quality assurance

The accuracy of both conventional and CT simulation has a crucial effect on the overall accuracy of the patient's treatment. Whereas the accuracy of conventional simulation relies mainly on geometric features such as gantry and collimator angles and field defining wire positions, that of CT simulation depends on the image obtained by the scanner and the faithful transfer to the virtual simulation software. This connectivity should be part of any quality assurance (QA) programme.

A detailed description of quality control tests in conventional simulation and their recommended frequency is given by Tuohy [56].

Virtual simulation forms part of the network of the radiotherapy department, the end result of which is the treatment of the patient. The QA of this network should be seen as a process to which the various components of the hardware and software contribute. Guidance for the QA of a networked radiotherapy department is due to be published soon [57]. A QA programme should be established that reflects the importance of the contribution of each component of the system to the accuracy of the patient's treatment. Some components will be checked daily, such as the alignment of the lasers, the accuracy of positioning of any moving lasers and the HU accuracy for water. Others may be checked monthly, annually or after significant upgrades to the system. Special phantoms have been designed to assist with various aspects of QA [58, 59]. The Kent Oncology Centre has produced its own phantom that incorporates checks for a number of parameters in one scan study. These include spatial resolution, HU number, slice thickness, alignment and geometric accuracy.

Mutic et al [60] provide a comprehensive guide to the QA of CT simulators. They stress the need for audit and review of the process and flexibility in the programme as CT simulation evolves.

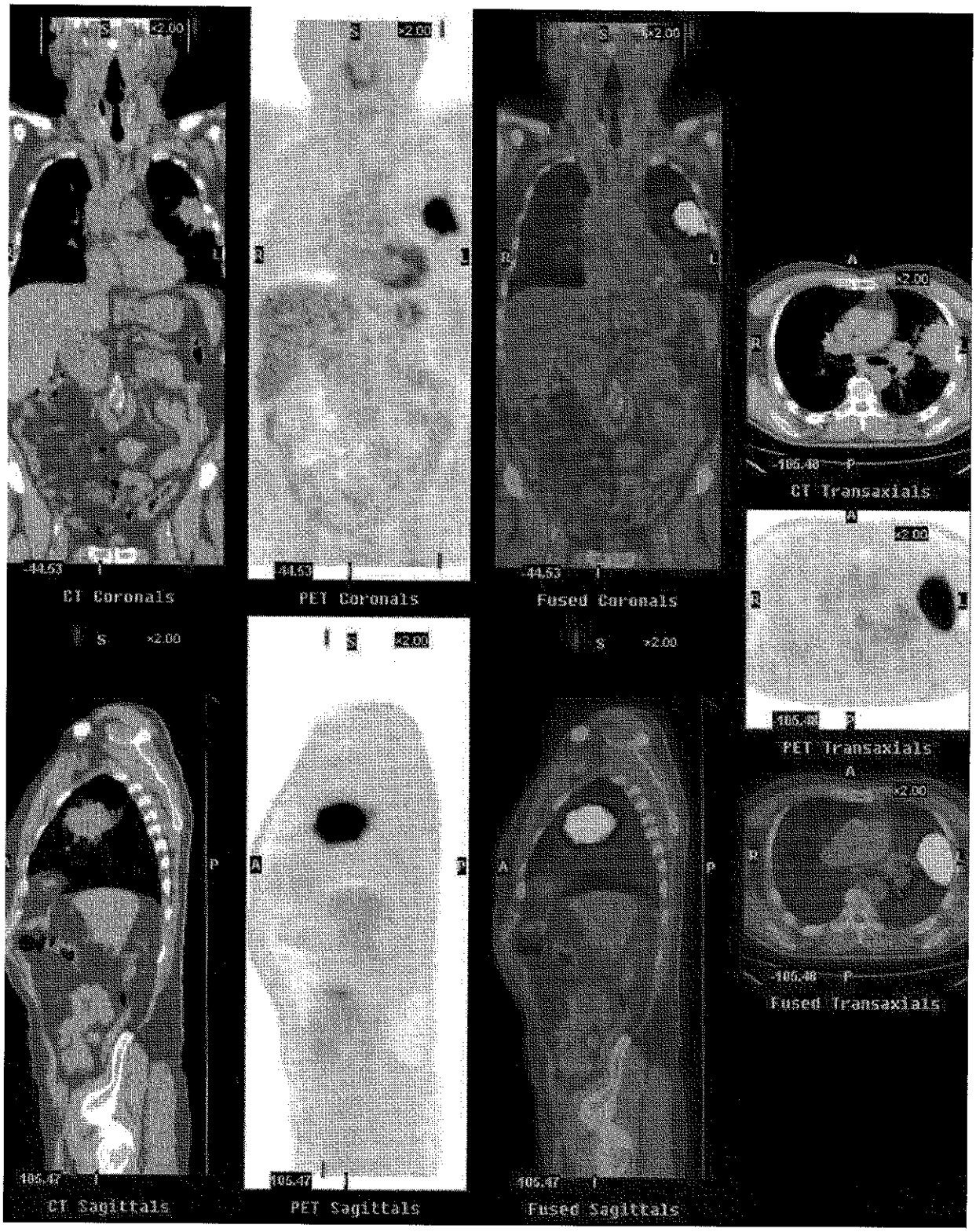


Figure 7. Fusion of positron emission tomography (PET) and CT images from a CT/PET scanner to localize a left lung tumour.

The future

The aim of radiotherapy is to deliver a tumoricidal dose of radiation to the clinical target volume (CTV) whilst sparing normal tissue and critical organs as far as possible. Localization is aimed at answering the question "where is the target?" The gross tumour volume (GTV) is neither a simple line nor an unchanging volume. It is an oncological concept and will vary according to the imaging technique or techniques used, any additional clinical data available and the judgement of the clinician. Each imaging modality displays different information about the GTV. Traditionally, delineation of the GTV has been associated with an anatomical abnormality that is imaged by plane radiography, CT or in some cases MRI. This gives structural, not functional information. However, molecular and physiological imaging techniques are now available which give an indication of the functional state of the tissues. This information can potentially be used in addition to CT and MRI to assist in defining clinically relevant targets more accurately [61]. Ling et al [62] proposed treating a biological target volume defined from anatomical, physiological and/or molecular images. For example, increased glycolysis is a function of a tumour and fluorine-18 fluorodeoxyglucose positron emission tomography (^{18}FDG-PET) studies have been used as an addition to CT for planning patients with poorly defined non-small cell lung cancer (NSCLC) [63, 64], head and neck cancers [65] and malignant gliomas [66] (see Jarritt et al in this issue). Figure 7 shows the fused images from ^{18}FDG-PET and CT acquired in a single session on a PET/CT scanner. The lesion in the left lung is clearly demonstrated in both modalities in this example. Other PET agents may be used to identify areas of hypoxia within a tumour that may benefit from higher doses of radiation such as can be delivered by IMRT. Similar inhomogeneous dose distributions may be applied to regions of the prostate demonstrating a high choline:citrate ratio, indicating a region of active tumour, as demonstrated on MR spectroscopy [67] (see Payne and Leach in this issue). Modalities such as functional MRI (fMRI) and single photon emission computed tomography (SPECT) may also be used to assist in GTV and OAR delineation. SPECT perfusion studies for NSCLC can be used in treatment planning to provide information on normal lung tissue and help to reduce the volume of normal lung irradiated [68].

Imaging techniques are continually evolving and as they are refined they will reveal more information about the disease to be treated. Collaboration between radiologists and oncologists will be essential if the information contained within these new images is to be maximized for the benefit of the patient.

No consideration of the future of radiation therapy would be complete without mention of image guided radiotherapy (IGRT). IGRT aims to address the interfraction movement of tumours and their relationship to OARs. Of the linear accelerator manufacturers, both Elekta (Crawley, Sussex, UK) and Varian (Palo Alto, CA) provide kilovoltage cone beam CT (CBCT) on the gantry and Siemens (Erlangen, Germany) have installed a CT scanner on rails in the treatment room (see Moore et al and Thieke et al, respectively, in this issue).

These imaging devices provide the ability to localize the tumour immediately prior to treatment and to reposition the patient to correct for interfraction variation in tumour position. Wong et al [69] describe the use of daily scans in the treatment room to reposition prostate patients for the final phase of their treatment. 46% required no isocentre adjustment in the anterior–posterior direction, but 44% required a shift of greater than 5 mm. In the superoinferior direction, 25% required a shift greater than 5 mm and in left-right direction 24% required a shift greater than 5 mm. The shifts were associated with significant changes in the dosimetry. Other authors describe the implementation of CBCT for IGRT [54, 70, 71].

IGRT is a rapidly evolving field and will undoubtedly have implications for treatment planning.

Conclusion

Both conventional and virtual simulation have developed in line with the changes in imaging techniques over recent years. The anticipated advantages of virtual simulation have been realised to a great extent and have changed the work flow in treatment planning. The availability of wide bore scanners enables most treatment techniques to be imaged. Fast computer graphics that have reduced image reconstruction times enable the acquisition of large data sets that can be manipulated for respiratory correlated techniques. The rapid development of biological imaging holds the prospect of multimodality localization, which is already being realised for some disease sites such as lung and prostate. The addition of cone beam CT to conventional simulators may add flexibility to departments with both a scanner and a simulator. However localization is achieved, it must be considered as part of the overall process that leads to treatment. The accuracy of the data acquisition and transfer is vital to this process and a comprehensive QA programme is essential.

I would like to thank Dr Ruth Beddows for the design of the Kent Oncology Centre phantom, Ms Alison Vinall and Ms Karen Venables for reports on cone beam CT, David Hill for assistance with image processing and colleagues for discussions during the preparation of this manuscript.

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composite gross tumor volume in three dimensional conformal radiotherapy for lung cancer. Int J Radiat Oncol Biol Phys 2004;60:613–22.
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Attachment - E

Stephen H. Hauser MD 5/9/16

CURRICULUM VITAE

STEPHEN H. HAUSER, MD

March 1, 2011

Address / Phone Numbers / Email

Professional	Department of Radiation Oncology, Hartford Hospital 80 Seymour Street, P.O. Box 5037 Hartford, CT 06102-5037 Telephone: (860) 545-2803 FAX: (860) 545-1500 E-mail: shauser@harthosp.org
Home	328 North Steele Road West Hartford, CT 06117-2231 Telephone: (860) 236-3098

Personal

Date / Place of Birth:	March 2, 1963 / New Haven, CT
Citizenship:	United States Citizen
Marital Status:	married, two children

Education

Undergraduate: Sep. 1981 - Jun. 1985	Fairfield University / Fairfield, CT B.S. Biology, Summa Cum Laude
Medical School: Sep. 1985 - Jun. 1989	Tufts University School of Medicine / Boston, MA M.D.

Post-Graduate Training

Internship: Jul. 1989 - Jun. 1990	Carney Hospital / Boston, MA Transitional Medicine
Residency: Jul. 1990 - Jun. 1994	New England Medical Center / Boston, MA Radiation Oncology

Board Certification

July 1, 1990	Diplomate, National Board of Medical Examiners Certificate # 366873
June 9, 1994	Board Certified in Radiation Oncology American Board of Radiology

Professional Appointments

Jul 1993 - Jun 1994	Chief Resident, Radiation Oncology New England Medical Center, Boston, MA
Jul 1994 - Sep 1997	Staff, Department of Radiation Oncology Wilford Hall USAF Medical Center, Lackland AFB, TX
Jul 1997 - Sep 1997	Assistant Chief, Radiation Oncology Wilford Hall USAF Medical Center, Lackland AFB, TX
Oct 1997 - Jun 2001	Staff, Department of Radiation Oncology New England Medical Center and VA Boston, Boston, MA
Oct 1997 - Jun 2001	Chief, Radiation Oncology VA Boston Healthcare System, Boston, MA
Jul 1999 - Sep 2000	Chair, Cancer Committee VA Boston Healthcare System, Boston, MA
Apr 2000 - Jun 2001	Clinical Director, Radiation Oncology New England Medical Center, Boston, MA
July 2001- present	Staff, Department of Radiation Oncology Hartford Hospital, University of Connecticut Health Center and ECHN Manchester Memorial Hospital, Manchester / Hartford, CT -with 9 board certified radiation oncologists -with 8 high energy linear accelerators; Helical Tomotherapy; Intensity Modulated Radiation Therapy; Image Guided Radiation Therapy; Cranial and Extracranial Stereotactic Radiosurgery and High Dose Rate Brachytherapy.
Feb 2009 - present	Medical Director, Radiation Oncology Northeast Regional Radiation Oncology Network, Manchester CT
Mar 2011 - present	Chair, Cancer Committee ECHN Manchester Memorial Hospital, Manchester CT

Academic Appointments/Teaching Experience

June 1997 - Sept. 1997	Director of Education, Radiation Oncology Wilford Hall Medical Center, Lackland AFB, TX
Oct. 1997 - June 2001	Assistant Professor, Radiation Oncology Resident Program, New England Medical Center, Tufts Univ. School of Medicine, Boston, MA
Nov. 1998 - June 2001	Adjunct Assistant Professor, Radiation Medicine Brown Univ. School of Medicine, Providence, RI
July 2001 - present	Assistant Clinical Professor of Radiation Oncology Univ. of Connecticut School of Medicine, Farmington, CT

Honors / Awards / Specialized Training

Undergraduate	Alpha Epsilon Delta Honor Society, 1983 - 1985
Medical School	U.S. Air Force Health Professions Scholarship, 1984 Alpha Omega Alpha Honor Society, 1988 Medical Class of 1929 Award for Outstanding Work in the Course of Anatomy, 1989
Residency	Radiological Society of North America Research Resident Grant, 1993 Fletcher Society Resident Presentation Award, 1994
Staff	Radionics Radiosurgery Xknife Training Course, 1995 Air Force Outstanding Unit Award, 1996 Uniformed Services Radiation Oncology Group, Research Coordinator, 1996 - 1997 Texas Prostate Brachytherapy Services Practical Course in Transperineal Prostate Brachytherapy, 1998 MammoSite for Accelerated Partial Breast Irradiation MammoSite Corporation, New, NY. 2004

Professional Societies

American Society for Therapeutic Radiology and Oncology
American College of Radiology
American Society of Clinical Oncology
Gilbert H. Fletcher Society
Massachusetts Medical Society
Connecticut State Medical Society
Hartford County Medical Society
Medial Review Committee Member 2004 - present
Radiation Therapy Oncology Group, 1999 - present
Principal Investigator, Boston VA Medical Center
National Surgical Adjuvant Breast and Bowel Project, June 6, 2006 - present

Grant Support

Radiological Society of North America Research Resident Grant, $25,000 in salary support, 1993 - 1994.

USPG Pfizer, Inc. Unrestricted Educational Grant, $50,000 to the National Kidney Foundation 1997 - 1998.

Medical License

Pennsylvania	10/18/94 - present
Massachusetts	03/29/95 - present
Texas	06/28/95 - present
Rhode Island	01/12/98 - present
Connecticut	04/16/01 - present

Publications

Curran WJ, Scott C, Langer C, Komaki R, Lee JS, **Hauser S**, Movsas B, Wasserman TH, Rosenthal S, Byhardt R, Sause W, Cox J: Phase III Comparison of Sequential vs. concurrent Chemoradiation for Patients (Pts) with Unresected Stage III Non-Small Cell Lung Cancer (NSCLC): Initial Report of Radiation Therapy Oncology Group (RTOG) 9410. Proc. Am. Soc. Clin. Oncol., #1891, 2000. Abstract.

Gao Q, **Hauser SH**, Liu XL, Wazer DE, Madoc-Jones H, Band V: Mutant p53-induced Immortalization of Primary Human Mammary Epithelial Cells. Cancer Res. 56:3129-3133, 1996.

Calorini L, Simile MM, **Hauser SH**, Gattoni-Celli S: Re-Expression of the Major Histocompatibility Complex (MHC) Class I Antigen H-2Kb by M1 (B16-F10) Murine Melanoma Cells. Intern. J. Oncology. 5:741-748, 1994.

Hauser SH, Calorini L, Wazer DE, Borek C, Gattoni-Celli S: Radiation-Enhanced Expression of Major Histocompatibility Complex (MHC) Class I Antigens in B16 Melanoma Cells. Cancer Res. 53:1952-1955, 1993.

Calorini L, **Hauser SH**, Gattoni-Celli S: Major Histocompatibility Complex (MHC) Class I Antigen Expression and Cell-Cell Communication in B16 Melanoma Cells. Intern. J. Of Rad. Onc. Biol. Phys. 24(suppl 1):267, 1992. Abstract.

Presentations (National Conferences)

Lung Cancer: Team Approach to Therapy Satellite Videoconference. The Federal Forum Oncology Educational Series: Second of Five Programs, The VA Learning University EES, Birmingham, AL Feb 2000.

A Unique p53 Mutant that Induces Dominant Immortalization of Human Mammary Epithelial Cells. 38th Annual Air Force Regional Meeting of the American College of Physicians, San Antonio, TX Mar. 1996.

Prevention of Radiation Induced Mucositis Using Daily Fluconazole. First Annual Meeting of the Uniformed Services Radiation Oncology Group. Tempe, AZ. May 1995.

The Role of p53 Mutations in Radiation Transformed Human Mammary Epithelial Cells. 19th Annual Gilbert H. Fletcher Society Scientific Meeting, Houston, TX Apr. 1994.

Radiation-Enhanced Expression of Major Histocompatibility Complex (MHC) Class I Antigens in B16 Melanoma Cells. 34th Annual American Society for Therapeutic Radiology and Oncology Meeting, San Diego, CA, Oct. 1992.

Kristoffer J. Popovitch

8 Charles St, Tolland, Ct. 06084 • 860-454-8670 • kristofferpopovitch@yahoo.com

PROFESSIONAL EXPERIENCE

Core Skills

- Highly focused on customer satisfaction.
- Demonstrated ability to work on interdisciplinary projects, including communication of findings to staff and assurance of follow-up.
- Effective management of capital and operational budget
- Effective management of cutting edge Imaging technical systems.
- Effective staff mentoring and training.
- Evaluation of service needs as it relates to in-patient/out-patient services, various modalities and information systems, including the future scope of services.
- Knowledge of all hospital systems software.
- Highly energetic; ability to work well under pressure; great sense of humor and finds challenge very stimulating.

Administrative Director of Cancer Services — *Manchester, Ct.*
Eastern Connecticut Health Network
and Northeast Regional Radiation Oncology Network — *October 2009-present*

Direct oversight of a four hospital collaboration radiation oncology department as well as all cancer services including the breast care center. Provide leadership in budget, policy and regularity issues. Oversee the operations of the cancer center and institute standards of care for patients. Oversee and direct the Women's Center for Wellness.

- Successfully relocated and designed new cancer center
- Developed survivorship and nurse navigator programs
- Established new integrative medicine programs

Senior Director of Clinical Services — *Manchester, Ct.*
Eastern Connecticut Health Network — *July 2006 – October 2009*

Oversee the operational, financial and capital acquisitions for Occupational Medicine, Medical Imaging, Cardiology, Neurology and Cardiopulmonary departments of ECHN in order to provide and anticipate the need for health care services. Acts as the point person for regulatory agencies, physicians and staff for problem resolution and eliminates of barriers to improve services.

- Negotiated reduction in price with several vendors
- Developed and maintained an effective budget for multiple departments
- Oversaw implementation of PACS computer system

Director of CorpCare Occupational Health — *Manchester, Ct*
Eastern Connecticut Health Network — *July 2004- July 2006*

Supervise and manage staff and clinic operations, including clinical and non-clinical positions. Maintain budget and pay invoices associated with CorpCare's expenses. Problem solve clinic issues and interact with CorpCare clients. Initiate standards for quality of care as well as providing training for current and new staff.

- Developed and implemented workflow process
- Developed operations manual
- Trained 20 staff members on regulations of federal governments standards on breath alcohol technology administration

Radiographer *Manchester, Ct*
Eastern Connecticut Health Network *May 1994-July 2004*

Perform all radiology procedures at CorpCare and maintain quality assurance. Provide patient care for injuries and physical exams; including injury care, phlebotomy, breath alcohol testing, drug screening, laser vision testing, audiometric conservation examinations, and spirometric testing

Interim Pastor Canterbury, Ct
Westminster Congregational *January 2002-June 2004*

Served as interim pastor while the church searched for a permanent full time pastor. Responsible for weekly teaching and preaching. Taught adult Sunday school and functioned as church administrator; leading the church in several building/construction projects.

Youth Pastor *Coventry, Ct*
Presbyterian Church of Coventry *September 1997-September 2000*

Lead the youth of the church in service related activities such as the Nursing Home Ministry and Community outreach. Focused on building relationships with teens and pre-teens of the church as well as local community. Held weekly meetings for provide an atmosphere of learning and fellowship. Served as Sunday school teacher for the junior and senior high school students.

EDUCATION

Hartford Seminary *September 2007-2009*
Master of Divinity

University of St Francis
Bachelor of Science, Health Arts *September2002-May2003*

Manchester Hospital School of Radiology *October 1991- October 1993*
Radiology Certification

RELATED EXPERIENCE

Member of Association of Caner Executives

Youth Baseball

Served as head baseball coach for the Town of Rockville from 1990-1997 and for the Town of Tolland from 2005-present. Currently serving on the Executive board as secretary in Tolland

Interim Pulpit Supply of New England

Serve as preaching supply for vacationing pastors or vacant pulpits in New England. Preach and teach the Gospel of Jesus Christ in the pulpit as well as in adult Sunday school from September 2006 to present.

Nursing Home Ministry Coordinator

Serve as coordinator of the Nursing Home Ministry for the Presbyterian Church of Coventry by preaching and leading worship service for the residents of a local nursing home from September 2004 to 2009

Board of Directors Tolland Chamber of Commerce

Attend board meetings and participate in decision making for Tolland County Chamber of Commerce. Serve on legislative committee.

Board of Directors Rockville Downtown Association

Attend board meetings to serve as the leadership of the Rockville Downtown Association.

Michelle L. Kane

43 Mountain Brook Rd
Sturbridge, MA 01566
(860) 878-9455

EDUCATION:

Bachelor of Arts Degree, May 2001, Dean's List
Saint Joseph College, West Hartford, CT

Related Skills:

- Microsoft Office XP (Word, Excel, Outlook, PowerPoint)
- Proficient in QuickBooks Pro

WORK EXPERIENCE:

Operations Manager October 2009- Present
Community CancerCare (NRRON), Manchester and Enfield, CT

- Oversees the operational activities for two radiation oncology clinics with emphasis on staffing , physicians, policies, human relations, budget, marketing, partner hospital collaboration, and community events
- Partners with the Administrative Director and Chief Therapist to continuously develop and maintain a quality assurance program that adheres to the standards set by the American College of Radiation (ACR)
- Provides ongoing support and reports for the NRRON Board of Directors

Executive Assistant February 2004 – October 2009
Community CancerCare (NRRON), Manchester and Enfield, CT

- Provide administrative support to the Executive Director.
- Capture all radiation therapy billing charges, process monthly cash reconciliation, and monitor reimbursement from contracted payors.
- Expedite accounts payable, accounts receivable, and manage inventory & purchasing for both office locations.
- Supervise front desk staff in daily operations to ensure superior customer service and patient health information standards.
- Establish and maintain quality relationships with third party vendors.

Disability Income Contract Change Analyst August 2001- Feb. 2004
Mass Mutual Financial Group, Hartford, CT

- Promptly serviced agents and clients in processing contract changes on existing insurance policies.
- Researched, analyzed, and adjusted monthly contract change reports for management.
- Created long-lasting customer relations with principal clients through proactive interaction.
- Created business solutions for existing issues as a selected member of Disability Income Council.

ACCOMPLISHMENTS:

- CT Notary Public

- Division II Intercollegiate Athletics (Women's Soccer) SNHU 1997-2000

MARGARET V. LANE, B.A., R.T. (T.)

144 O'Connell Drive

East Hartford, CT 06118

860-569-4481

EDUCATION:

1989-1991: R.T.T. Certificate, Hartford Hospital School of Allied Health

1980-1984: B.A., Biology, St. Leo's College, St. Leo, Florida

WORK EXPERIENCE:

2009 – Present: Chief Therapist at NRRON

Community Cancer Care

Department of Radiation Oncology

100 Haynes Street,

Manchester, CT 06040

Job Responsibilities include coordinating methods to:

- Develop and foster effective collaboration between the technical and the medical, physics, nursing and administrative groups of NRRON to ensure an integrated approach to providing services.
- Communicate with Executive and Medical Directors with regard to technical and treatment aspects of operations on a frequent and regular basis. Design and provide reports to support the leadership in areas of Quality Management, Equipment and Staff utilization and other mission critical areas. Attend internal and external meetings as appropriate and requested by the Executive Director and Medical Director.

1991-2009: Staff Radiation Therapist, Hartford Hospital,
Department of Radiation Oncology, Hartford, CT

1987-1989: Travel Consultant, McKenna Travel Services, Hartford CT.

1984-1987: Travel Consultant, International Travel Consultants,
St. John, s, Antigua, West Indies

Attachment - F

STATE OF CONNECTICUT

Department of Public Health

LICENSE

License No. 0306

Outpatient Clinic

In accordance with the provisions of the General Statutes of Connecticut Section 19a-493:

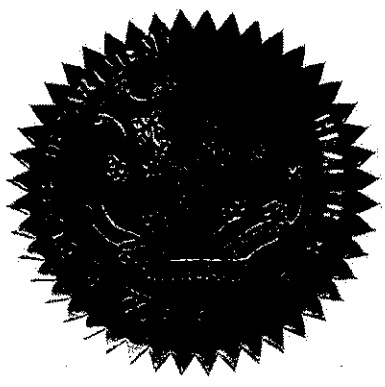
Northeast Regional Radiation Oncology Network, Inc. of Manchester, CT, d/b/a Community Cancercare is hereby licensed to maintain and operate an Outpatient Clinic.

Community Cancercare is located at 142 Hazard Avenue, Enfield, CT 06082.

This license expires **September 30, 2012** and may be revoked for cause at any time.

Dated at Hartford, Connecticut, October 1, 2008. RENEWAL.

Services:
Primary Care Services



J Robert Galvin MD, MPH, MBA

J. Robert Galvin, MD, MPH, MBA, Commissioner

Attachment - G

Northeast Regional Radiation Oncology Network, Inc. d/b/a Community Cancer Care

Report on Financial Statements

Years Ended September 30, 2011 and 2010

NORTHEAST REGIONAL RADIATION ONCOLOGY NETWORK, INC.
D/B/A COMMUNITY CANCER CARE

Index

	Page
Report of Independent Public Accountants	2
Statements of Financial Position September 30, 2011 and 2010	3
Statements of Operations and Changes in Net Assets Years Ended September 30, 2011 and 2010	4
Statements of Cash Flows Years Ended September 30, 2011 and 2010	5
Notes to Financial Statements	6 -13

J.H. COHN LLP
Accountants and Consultants since 1919

www.jhcohn.com • 888-542-6461 • fax 888-542-3291

Report of Independent Public Accountants

To the Board of Directors
Northeast Regional Radiation Oncology Network, Inc.
d/b/a Community Cancer Care

We have audited the accompanying statements of financial position of Northeast Regional Radiation Oncology Network, Inc. d/b/a Community Cancer Care ("NRRON") as of September 30, 2011 and 2010, and the related statements of operations and changes in net assets and cash flows for the years then ended. These financial statements are the responsibility of NRRON's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Northeast Regional Radiation Oncology Network, Inc. d/b/a Community Cancer Care as of September 30, 2011 and 2010 and the changes in its net assets and cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

J.H. Cohn LLP

Glastonbury, Connecticut
December 20, 2011

NORTHEAST REGIONAL RADIATION ONCOLOGY NETWORK, INC.
D/B/A COMMUNITY CANCER CARE

STATEMENTS OF FINANCIAL POSITION
SEPTEMBER 30, 2011 AND 2010

ASSETS

	2011	2010
Current assets:		
Cash and cash equivalents	**$ 5,987,307**	$ 6,509,165
Certificates of deposit	**2,188,609**	2,188,381
Accounts receivable, net	**1,060,781**	783,746
Prepaid expenses	**53,475**	22,113
Total current assets	**9,290,172**	9,503,405
Equipment, fixtures and leasehold improvements, net	**5,639,755**	5,929,080
Security deposits	**13,574**	13,574
Total assets	**$ 14,943,501**	$ 15,446,059

LIABILITIES AND NET ASSETS

Current liabilities:		
Accounts payable and accrued expenses	**$ 97,269**	$ 452,247
Current portion of loan payable	**518,811**	414,747
Total current liabilities	**616,080**	866,994
Loan payable, less current portion	**3,068,779**	3,277,986
Total liabilities	**3,684,859**	4,144,980
Commitments		
Unrestricted net assets	**11,258,642**	11,301,079
Total liabilities and net assets	**$ 14,943,501**	$ 15,446,059

See Notes to Financial Statements.

NORTHEAST REGIONAL RADIATION ONCOLOGY NETWORK, INC.
D/B/A COMMUNITY CANCER CARE

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS
YEARS ENDED SEPTEMBER 30, 2011 AND 2010

Changes in unrestricted net assets:	2011	2010
Revenues and support:		
Net patient service revenue	**$ 7,100,584**	$ 6,168,434
Contributions	**-**	157,314
Rental income	**5,409**	5,901
Investment income	**3,506**	15,482
Total revenues and support	**7,109,499**	6,347,131
Expenses:		
Personnel, including contract services	**3,156,620**	2,732,873
Grants	**1,400,000**	-
Non-personnel	**477,322**	413,277
Occupancy	**777,108**	1,233,580
Depreciation and amortization	**762,196**	333,617
Equipment maintenance and technology support	**337,593**	261,096
Interest expense	**189,435**	46,292
Bad debt expense	**51,662**	19,013
Total expenses	**7,151,936**	5,039,748
Change in net assets	**(42,437)**	1,307,383
Net assets, beginning of year	**11,301,079**	9,993,696
Net assets, end of year	**$ 11,258,642**	$ 11,301,079

See Notes to Financial Statements.

NORTHEAST REGIONAL RADIATION ONCOLOGY NETWORK, INC.
D/B/A COMMUNITY CANCER CARE

STATEMENTS OF CASH FLOWS
YEARS ENDED SEPTEMBER 30, 2011 AND 2010

	2011	2010
Operating activities:		
Change in net assets	**$ (42,437)**	$ 1,307,383
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Depreciation and amortization	**762,196**	333,617
Loss on disposal of equipment, fixtures and leasehold improvements	**-**	14,890
Bad debt expense	**51,662**	19,013
Changes in operating assets and liabilities:		
Accounts receivable, net	**(328,697)**	(202,187)
Lease termination deposit	**-**	700,000
Prepaid expenses	**(31,362)**	64,548
Security deposits	**-**	13,916
Accounts payable and accrued expenses	**(354,978)**	396,399
Net cash provided by operating activities	**56,384**	2,647,579
Investing activities:		
Purchases of equipment, fixtures and leasehold improvements	**(472,871)**	(4,952,498)
Proceeds from sale of equipment and fixtures	**-**	8,000
(Purchases) proceeds of certificates of deposit	**(228)**	447,799
Net cash used in investing activities	**(473,099)**	(4,496,699)
Financing activities:		
Proceeds from loan payable	**308,235**	3,692,733
Payments on loan payable	**(413,378)**	-
Net cash (used in) provided by financing activities	**(105,143)**	3,692,733
Net (decrease) increase in cash and cash equivalents	**(521,858)**	1,843,613
Cash and cash equivalents, beginning of year	**6,509,165**	4,665,552
Cash and cash equivalents, end of year	**$ 5,987,307**	$ 6,509,165
Supplemental disclosure of cash flow data:		
Interest paid during the year	**$ 189,435**	$ 78,071

See Notes to Financial Statements.

NORTHEAST REGIONAL RADIATION ONCOLOGY NETWORK, INC.
D/B/A COMMUNITY CANCER CARE

NOTES TO FINANCIAL STATEMENTS

Note 1 - Organization and summary of significant accounting policies:

Organization:

Northeast Regional Radiation Oncology Network, Inc. d/b/a Community Cancer Care ("NRRON"), a not-for-profit organization, provides accessible community-based comprehensive medical care and treatment to cancer patients utilizing radiation therapy services. NRRON also provides, or coordinates, the delivery of supporting services including, but not limited to, education, screening and early detection, pre-treatment evaluation, tumor boards, rehabilitation, continuing care, outpatient services, terminal care, hospice and research.

NRRON was incorporated under the Nonstock Corporation Act of the State of Connecticut. The founding and initial members of NRRON were Hartford Hospital, Johnson Memorial Hospital, Inc., Manchester Memorial Hospital, and Rockville General Hospital, Inc. The by-laws of NRRON provide for the annual election of four directors, one from each of the founding members.

Basis of presentation:

The accompanying financial statements have been prepared on the accrual basis of accounting. The financial statements report information regarding NRRON's financial position and activities according to three classes of net assets: unrestricted, temporarily restricted and permanently restricted. They are described as follows:

Unrestricted - Net assets that are not subject to explicit donor-imposed stipulations. Unrestricted net assets may be designated for specific purposes by action of the Board of Directors.

Temporarily Restricted - Net assets whose use by NRRON is subject to either explicit donor-imposed stipulations or by the operation of law that can be fulfilled by actions of NRRON or that expire by the passage of time. At September 30, 2011 and 2010, NRRON had no temporarily restricted net assets.

Permanently Restricted - Net assets subject to explicit donor-imposed stipulations that they be maintained permanently by NRRON and stipulate the use of income and/or appreciation as either unrestricted or temporarily restricted based on donor imposed stipulations or by operation of law. At September 30, 2011 and 2010, NRRON had no permanently restricted net assets.

Cash and cash equivalents:

NRRON considers all highly liquid investments with a maturity of three months or less when acquired to be cash equivalents. NRRON had $7,240,653 and $6,356,470 of cash equivalents at September 30, 2011 and 2010, respectively.

Certificates of deposit:

Certificates of deposit have a maturity date between three months and one year when acquired.

Note 1 - Organization and summary of significant accounting policies (continued):

Equipment, fixtures & leasehold improvements:

Equipment, fixtures and leasehold improvements are recorded at cost. Depreciation is computed using the straight-line method over the estimated useful lives. NRRON amortizes its leasehold improvements over the lesser of the lease term or estimated useful life. Maintenance and repairs are charged against change in net assets as incurred and major renewals and betterments are capitalized. Construction in progress is not being depreciated until placed into service. Cost and accumulated depreciation of property sold or disposed of are eliminated from the respective accounts and any realized gain or loss is reflected in the statements of operations and changes in net assets.

Revenue recognition:

Contributions:

Contributions received are recorded as unrestricted, temporarily restricted or permanently restricted support depending on the existence and/or nature of any donor restrictions. Support that is restricted by the donor is reported as an increase in unrestricted net assets if the restrictions expire in the reporting period in which the support is recognized. All donor-restricted support is reported as an increase in temporarily or permanently restricted net assets, depending on the nature of the restriction. When a restriction expires (that is, when a stipulated time restriction ends or purpose restriction is accomplished), temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statements of operations and changes in net assets as net assets released from restrictions.

Patient service revenue:

Patient service revenue reimbursed through Medicare and certain managed care companies accounted for a majority of NRRON's net patient service revenue for the years ended September 30, 2011 and 2010. Laws and regulations governing the Medicare program are complex and subject to interpretation. As a result, there is at least a reasonable possibility that recorded estimates will change by material amounts in the near term.

NRRON believes that it is in compliance with all applicable laws and regulations and is not aware of any pending or threatened investigations involving allegations of potential wrongdoing. While no such regulatory inquiries are outstanding, compliance with such laws and regulations can be subject to future government review and interpretation, as well as significant regulatory action including fines, penalties and exclusion from the Medicare program. Changes in the Medicare program and the reduction of funding levels could have an adverse impact on NRRON.

Note 1 - Organization and summary of significant accounting policies (continued):

Revenue recognition (concluded):

The following table summarizes net patient service revenue:

	Years Ended September 30	
	2011	2010
Gross patient service revenue	**$ 25,360,707**	$ 21,346,911
Allowances	**(18,260,123)**	(15,178,477)
Net patient service revenue	**$ 7,100,584**	$ 6,168,434

Patient accounts receivable and revenue are recorded when patient services are performed. Amounts received from certain payors are different from established billing rates of NRRON and the differences are accounted for as allowances. As of September 30, 2011 and 2010, NRRON recorded reserves of $2,438,771 and $1,710,233, respectively, which represent the difference between billed rates and reimbursement rates agreed to by third-party payors.

Net patient service revenue is reported at the estimated net realizable amounts from patients, third-party payors and others for services rendered. Revenue under certain third-party payor agreements is subject to audit and retroactive adjustments. Provisions for estimated third-party payor settlements and adjustments are estimated in the period the related services are rendered and adjusted in future periods as final settlements are determined.

Allowance for uncollectible accounts:

The allowance for uncollectible accounts is determined by management based on an assessment of the receivables' collectability. Management considers past history, current economic conditions and overall viability of the third party when determining the need for an allowance. Receivables are written off only when management believes amounts will not be collected. Receivables are considered past due based on the service date. The allowance for uncollectible accounts was $21,581 and $33,368 as of September 30, 2011 and 2010, respectively.

Charity care:

NRRON provides care to patients who meet certain criteria under its charity care policy without charge or at amounts less than its established rates. Such patients are identified based on financial information obtained from the patient and services provided. Due to the fact that NRRON does not pursue collection of amounts determined to qualify as charity care, such amounts are not reported as revenue in the accompanying statements of operations and changes in net assets. During the years ended September 30, 2011 and 2010, NRRON provided charity care to patients of $67,913 and $70,640, respectively.

NOTES TO FINANCIAL STATEMENTS

Note 1 - Organization and summary of significant accounting policies (concluded):

Income taxes:

NRRON is organized as a nonstock, nonprofit corporation under Section 501(c)(3) of the Internal Revenue Code and is not subject to Federal or state corporate income taxes.

NRRON has no unrecognized tax benefits at September 30, 2011 and 2010. NRRON's U.S. Federal and state information returns prior to fiscal year 2008 are closed and management continually evaluates expiring statutes of limitations, audits, proposed settlements, changes in tax law and new authoritative rulings.

If NRRON had unrelated business income taxes, it would recognize interest and penalties associated with any tax matters as part of the income tax provision and include accrued interest and penalties with the related tax liability in the statements of financial position.

Use of estimates:

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

Subsequent events:

NRRON has evaluated events and transactions for potential recognition or disclosure through December 20, 2011 which is the date the financial statements were available to be issued.

Note 2 - Concentrations of credit risk:

Financial instruments which potentially subject NRRON to concentrations of credit risk consist primarily of cash and cash equivalents, certificates of deposit and patient accounts receivable. NRRON maintains its cash and cash equivalents and certificates of deposit with high-credit quality financial institutions. As of September 30, 2011, NRRON held cash and cash equivalents and certificates of deposit of approximately $8,429,000 in excess of the Federally insured limit.

Note 2 - Concentrations of credit risk (concluded):

NRRON's concentration of credit risk with patient accounts receivable consists of amounts owed by various governmental agencies, insurance companies and private patients. NRRON does not obtain collateral for amounts due from providing patient services. NRRON manages the receivables by regularly reviewing its patient accounts and contracts and by providing appropriate allowances for uncollectible amounts. Significant concentrations of gross patient accounts receivable are as follows as of September 30:

	2011	2010
Medicare	**48%**	42%
Anthem Blue Cross Blue Shield	**27**	21
Commercial and other	**20**	24
CIGNA	**5**	10
Self-pay	**-**	3
	100%	100%

Note 3 - Equipment, fixtures and leasehold improvements:

Equipment, fixtures and leasehold improvements consisted of the following at September 30:

	2011	2010
Equipment	**$ 6,566,656**	$ 6,213,052
Leasehold improvements	**1,968,234**	1,892,589
Furniture and fixtures	**95,734**	95,734
Software and computers	**172,758**	143,648
Network	**61,770**	61,770
	8,865,152	8,406,793
Accumulated depreciation and amortization	**(3,304,229)**	(2,542,033)
	5,560,923	5,864,760
Construction in progress	**78,832**	64,320
	$ 5,639,755	$ 5,929,080

Included within equipment, fixtures and leasehold improvements is $31,778 of capitalized interest as of September 30, 2011 and 2010.

Note 4 - Loan payable:

During fiscal year 2010, NRRON entered into a loan with Rockville Bank (the "Bank") to finance the purchase of certain cancer-related equipment and leasehold improvements. The Bank agreed to lend up to $4,000,000 to NRRON during the draw down period, which ended October 31, 2010. During the draw down period, NRRON made interest-only payments at a fixed rate of 4.9%. Effective November 1, 2010, NRRON made monthly principal and interest payments of $56,917 that will continue through October 2017. As of September 30, 2011 and 2010, the outstanding loan was $3,587,590 and $3,692,733, respectively. The loan is collateralized by the business assets of NRRON.

Note 4 - Loan payable (concluded):

Maturities for the loan payable subsequent to September 30 are as follows:

Year Ending September 30,	
2012	$ 518,811
2013	544,812
2014	572,115
2015	600,787
2016	630,896
Thereafter	720,169
	$ 3,587,590

Note 5 - Related party transactions/commitments:

At the beginning of fiscal year 2010, NRRON leased space for its administrative offices and one treatment center from Manchester Memorial Hospital at 73 Haynes Street in Manchester, Connecticut. This lease, which originally ended in 2019, was terminated during fiscal year 2010 and NRRON moved to a new building, which was constructed by Manchester Memorial Hospital, at 100 Haynes Street. The new agreement, which expires June 30, 2025, requires annual rental payments which will increase in future years based on the Consumer Price Index. The base annual rent at the beginning of the lease was $422,416.

As part of the termination of the lease at 73 Haynes Street, NRRON was obligated to pay a $700,000 termination fee. The associated expense was recorded during the year ended September 30, 2010 in occupancy expense in the statements of operations and changes in net assets.

NRRON leases space for a treatment center in Enfield, Connecticut from Johnson Memorial Hospital, Inc. The base annual rent was $158,298 at the start of the lease and has increased throughout the lease based on the Consumer Price Index. The agreement provides for the option to extend the lease for three successive terms of five years each upon the termination of the original lease, which ends in October 2018.

Rent expense, not including utilities and common area maintenance charges, for the years ended September 30, 2011 and 2010 was $696,162 and $455,760, respectively.

Future minimum lease payments under the leases in each of the five years subsequent to September 30, 2011 and thereafter are as follows:

Year Ending September 30,	
2012	$ 682,932
2013	682,932
2014	682,932
2015	682,932
2016	682,932
Thereafter	4,423,940
	$ 7,838,600

Note 5 - Related party transactions/commitments (concluded):

NRRON has a contract, expiring October 31, 2013, with Hartford Hospital to provide a variety of radiation therapy services to both NRRON treatment centers. Hartford Hospital is reimbursed for these services based on rates and times set forth in the agreement. Costs for the years ended September 30, 2011 and 2010 were $2,345,356 and $1,946,737, respectively, and are included in personnel, including contract services, in the accompanying statements of operations and changes in net assets.

NRRON has an administrative contract with Eastern Connecticut Health Network (which owns two of the founding member facilities) to receive various services including executive, administrative and valet. The expenses associated with this agreement were $162,307 and $180,553 for the years ended September 30, 2011 and 2010, respectively, and are included in personnel, including contract services in the accompanying statements of operations and changes in net assets.

During fiscal year 2011, NRRON paid $350,000 to each of their founding members, for a total of $1,400,000. These payments represent grants which were made by NRRON to further its mission to maintain and improve the health status of the residents of Connecticut by providing accessible community-based comprehensive medical care and treatment of cancer patients.

Note 6 - Expense allocation:

Directly identifiable expenses are charged to program services. Management and general expenses include those expenses that are not directly identifiable with any other specific function but provide for the overall support and direction of NRRON. During the year ended September 30, 2011, NRRON expended $5,191,082 and $1,960,854 for program services and for management and general expenses, respectively. During the year ended September 30, 2010, NRRON expended $3,878,055 and $1,161,693 for program services and for management and general expenses, respectively.

Note 7 - Retirement plan:

NRRON maintains a 401(k) plan. Employees who are reasonably expected to receive at least $5,000 in compensation in the current calendar year or who have received at least $5,000 in compensation in the preceding calendar year are eligible. Salary reduction election agreements are signed annually with employees and may be modified quarterly. NRRON makes matching contributions in an amount equal to the sum of 100% of the portion of the employees' 401(k) contributions that do not exceed 3% of compensation, plus 50% of the portion of the employees' 401(k) contributions between 3% and 5% of compensation. Expense for the years ended September 30, 2011 and 2010 was $3,728 and $5,829, respectively.

Note 8 - Fair value measurements:

NRRON values its financial assets and liabilities based on the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In order to increase consistency and comparability in fair value measurements, a fair value hierarchy that prioritizes observable and unobservable inputs is used to measure fair value into three broad levels, which are described below:

Level 1: Quoted prices (unadjusted) in active markets that are accessible at the measurement date for identical assets or liabilities. The fair value hierarchy gives the highest priority to Level 1 inputs.

Level 2: Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities; quoted prices in inactive markets; or model-derived valuations in which all significant inputs are observable or can be derived principally from or corroborated with observable market data.

Level 3: Unobservable inputs are used when little or no market data is available. The fair value hierarchy gives the lowest priority to Level 3 inputs.

In determining fair value, NRRON utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible as well as considers counterparty credit risk in its assessment of fair value. There were no changes in valuation techniques used during the years ended September 30, 2011 and 2010.

Financial assets carried at fair value at September 30, 2011 and 2010 are classified in the tables below in one of the three categories described above.

2011	Level 1	Level 2	Level 3	Total
Certificates of deposit	**$ -**	**$ 2,188,609**	**$ -**	**$ 2,188,609**

2010	Level 1	Level 2	Level 3	Total
Certificates of deposit	$ -	$ 2,188,381	$ -	$ 2,188,381

Certificates of deposit are valued using significant observable inputs particularly dealer market prices for comparable investments as of the valuation date.

Note 9 - Professional liability:

NRRON is insured with respect to professional liability on a claims-made basis. Insurance coverage under the policy has limits of $1,000,000 per claim and $3,000,000 in the aggregate.

Attachment - H

Attachment I

22. Please provide one year of actual results and three (3) years of projections of MRRON's revenue, expense and volume statistics with and without, incremental to and with the CON proposal in the following reporting format:

Total Facility: / **Description**	**FY2011 Actual Results**		**FY2013 Projected W/out CON**	**FY2013 Projected Incremental**	**FY2013 Projected With CON**	**FY2014 Projected W/out CON**	**FY2014 Projected Incremental**	**FY2014 Projected With CON**	**FY2015 Projected W/out CON**	**FY2015 Projected Incremental**	**FY2015 Projected With CON**
NET PATIENT REVENUE	**$7,100,584**		**$7,915,384**		**$7,945,768**	**$8,152,846**		**$8,184,074**	**$8,429,596**		**$8,462,090**
Non-Government	$3,450,884		$3,799,384	$30,384	$3,829,768	$3,913,366	$31,228	$3,944,594	$4,046,206	$32,494	$4,078,700
Medicare	$3,408,280		$3,846,877	$0	$3,846,877	$3,962,283	$0	$3,962,283	$4,096,784	$0	$4,096,784
Medicaid and Other Medical Assistance	$241,420		$269,123	$0	$269,123	$277,197	$0	$277,197	$286,606	$0	$286,606
Other Government				$0	$0		$0	$0		$0	$0
Total Net Patient Patient Revenue	$7,100,584		$7,915,384	$30,384	$7,945,768	$8,152,846	$31,228	$8,184,074	$8,429,596	$32,494	$8,462,090
Other Operating Revenue	$8,915		$10,000		$10,000	$10,000		$10,000	$10,000		$10,000
Revenue from Operations	$7,109,499		$7,925,384	$30,384	$7,955,768	$8,162,846	$31,228	$8,194,074	$8,439,596	$32,494	$8,472,090
OPERATING EXPENSES											
Salaries and Fringe Benefits	$402,155		$450,919		$450,919	$464,447		$464,447	$478,380		$478,380
Professional / Contracted Services	$3,009,184		$3,099,459	$57,700	$3,157,159	$3,192,443	$137,000	$3,329,443	$3,288,216	$137,000	$3,425,216
Supplies and Drugs	$30,974		$32,000		$32,000	$32,640		$32,640	$33,293		$33,293
Bad Debts	$51,662		$60,000		$60,000	$25,000		$25,000	$25,000		$25,000
Other Operating Expense	$512,349		$525,250	$30,384	$555,634	$535,755	$30,384	$566,139	$546,470	$30,384	$576,854
Subtotal	$4,006,324		$4,167,628	$88,084	$4,255,712	$4,250,284	$167,384	$4,417,668	$4,371,359	$167,384	$4,538,743
Depreciation/Amortization	$762,196		$800,000	$96,714	$896,714	$881,508	$176,714	$1,058,222	$881,508	$176,714	$1,058,222
Interest Expense	$189,435		$162,000		$162,000	$138,070		$138,070	$138,070		$138,070
Lease Expense	$793,981	C	$819,027	$7,500	$826,527	$835,408	$8,000	$843,408	$852,116	$8,000	$860,116
Total Operating Expense	$5,751,936		$5,948,655	$192,298	$6,140,953	$6,105,270	$352,098	$6,457,368	$6,243,053	$352,098	$6,595,151
Gain/(Loss) from Operations	$1,357,563		$1,976,729	($161,914)	$1,814,815	$2,057,576	($320,870)	$1,736,706	$2,196,543	($319,604)	$1,876,939
Plus: Non-Operating Expenses	$1,400,000				$0			$0			$0
Revenue Over/(Under) Expense	($42,437)		$1,976,729	($161,914)	$1,814,815	$2,057,576	($320,870)	$1,736,706	$2,196,543	($319,604)	$1,876,939
FTEs (just for Enfield)	3		4		4	4		4	4		4
***Volume Statistics:**											
Provide projected inpatient and/or outpatient statistics for any new services and provide actual and projected inpatient and/or outpatient statistics for any existing services which will change due to the proposal.											
Treatments	13,160		13,555		13,555	13,962		13,962	14,381		14,381
CT Simulations	0		144		144	148		148	153		153

Attachment - I

Attachment II

22. Please provide three (3) years of projections of incremental revenue, expense and volume statistics **attributable to the proposal** in the following reporting format:

Type of Service Description	CT Simulation for treatment planning
Type of Unit Description:	Philips Big Bore Brilliance Oncology CT Unit
# of Months in Operation	12

FY 2013_____ (Year 1_) **FY Projected Incremental** Total Incremental Expenses: **$192,298** **Total Facility by Payer Category:**	(1)	(2) Rate	(3) Units	(4) Gross Revenue Col. 2 * Col. 3	(5) Allowances/ Deductions	(6) Charity Care	(7) Bad Debt	(8) Net Revenue Col.4 - Col.5 -Col.6 - Col.7	(9) Operating Expenses Col. 1 Total * Col. 4 / Col. 4 Total	(10) Gain/(Loss) from Operations Col. 8 - Col. 9
Medicare	$0	$0	71	$0	$0	$0	$0	$0	$0	$0
Medicaid	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
CHAMPUS/TriCare	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify):	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Total Governmental	$0		72	$0	$0	$0	$0	$0	$0	$0
Commercial Insurers		$1,739	71	$123,469	**$194,272**	$40,000	$45,000	($155,803)	$192,298	($348,101)
Uninsured		$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify:) Self Pay		$422	0	$0	$0	$0	$0	$0	$0	$0
Total Nongovernment			72	$123,469	$194,272	$40,000	$45,000	($155,803)	$192,298	($348,101)
Total All Payers		$0	144	$123,469	$194,272	$40,000	$45,000	($155,803)	[illegible]	($348,101)

FY 2014_____ (Year 2_) **FY Projected Incremental** Total Incremental Expenses: **$352,098** **Total Facility by Payer Category:**	(1)	(2) Rate	(3) Units	(4) Gross Revenue Col. 2 * Col. 3	(5) Allowances/ Deductions	(6) Charity Care	(7) Bad Debt	(8) Net Revenue Col.4 - Col.5 -Col.6 - Col.7	(9) Operating Expenses Col. 1 Total * Col. 4 / Col. 4 Total	(10) Gain/(Loss) from Operations Col. 8 - Col. 9
'edicare	$0	$0	73	$0	$0	$0	$0	$0	$0	$0
.edicaid	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
CHAMPUS/TriCare	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Other (Specify):	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Total Governmental	$0		74	$0	$0	$0	$0	$0	$0	$0
Commercial Insurers	$0	$1,739	73	$126,947	**$198,957**	$42,000	$47,500	($161,510)	$156,429	($317,939)
Uninsured	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify:) Self Pay	$0	$439	0	$0	$0	$0	$0	$0	$0	$0
Total NonGovenrment	$0	$0	74	$126,947	$198,957	$42,000	$47,500	($161,510)	$156,429	($317,939)
Total All Payers		$0	148	$126,947	$198,957	$42,000	$47,500	($161,510)	[illegible]	($317,939)

FY 2015(Year 3_) **FY Projected Incremental** Total Incremental Expenses: **$352,098** **Total Facility by Payer Category:**	(1)	(2) Rate	(3) Units	(4) Gross Revenue Col. 2 * Col. 3	(5) Allowances/ Deductions	(6) Charity Care	(7) Bad Debt	(8) Net Revenue Col.4 - Col.5 -Col.6 - Col.7	(9) Operating Expenses Col. 1 Total * Col. 4 / Col. 4 Total	(10) Gain/(Loss) from Operations Col. 8 - Col. 9
Medicare	$0	$0	74	$0	$0	$0	$0	$0	$0	$0
Medicaid	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
CHAMPUS/TriCare	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify):	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Total Governmental	$0		76	$0	$0	$0	$0	$0	$0	$0
Commercial Insurers		$1,739	73	$126,947	**$204,098**	$45,000	$49,000	($171,151)	$156,229	($327,380)
Uninsured			4	$0	$0	$0	$0	$0	$0	$0
Other (Specify:) Self Pay		$439	0	$0	$0	$0	$0	$0	$0	$0
Total NonGovenrment		$0	77	$126,947	$204,098	$45,000	$49,000	($171,151)	[illegible]	($327,380)
Total All Payers		$0	153	$126,947	$204,098	$45,000	$49,000	($171,151)	$156,229	($327,380)

Attachment - J

NOTES/ASSUMPTIONS - Attachment I & II

NRRON recognizes there will be a reduction of overall NET revenue due to purchasing and performing CT simulations within cancer center. This is a reduction we are willing to absorb to create a better patient focused environment of care. It greatly increases our quality of care and service. This may result in revenue increases over time. The primary reason for this purchase is to benefit our patients and the quality of their radiation treatment planning. The dedicated CT Simulator will result in an increase in access/appointments and allow for long term

Total Volume increase of CT Sim is based on SGR and historic data

Payer Mix for NRRON has historically been 48% commercial payers with average reimbursement for CT Sim of $422. Specific commercial rates can not contractually be disclosed. This is the explanation for cells G11, K11 and O11. The revenue calculated is for the number of commercial payers based on the historic data and SGR projected multiplied by the average reimbursement rate of $422 as explained above.

Attachment II Columns E61 through E65 are left blank for Gross revenue due to Government payers bundling their reimbursement for simulation with the treatment planning, therefore the rate for CT Sim for government payers is undetermined. Based on this payment structure it is understood the treatment planning revenue for government payers will not change based on whether a CT Sim is performed or not because it is bundled. A specific treatment plan needs to be done for each patient prior to beginning radiation therapy.

Attachment I G11, K11 and O11 is determined by taking 50% of the total volume of CT Sims, this is where we will see the increase in revenue (the commercial payers) and multiplying this times the avg reimbursement of $422.

Attachment I lines G22, K22 and O22 projected incremental change is due to NRRON savings $100 per click fee for government payers to JMH. NRRON contracted with Johnson Memorial Hospital to perform CT. The increase also comes from the CT service contract simulations for patients due to NRRON not having its own CT simulator. The commercial payers have been billed by MMH, however because of the bundled payment reimbursement of government CPT codes, NRRON negotiated a $100 per click fee for the government payers. The volume of government payers multiplied times the $100 click fee is the expense change outlined.

Attachment II Lines F17 thru F21 no data: Government payers bundle reimbursement into CPT codes for Treatment planning for CT Sims.

Attachment II Line E26 is Gross revenue commercial charges times 48% of the volume which does not reflect G15 line representing the NET patient Revenue of Attachment I

Attachment I Depreciation and Amortization increases each year based on the new equipment and facility costs related to expansion related to the Enfield site in 2013. The major increase from year to year relates specifically to this move and purchase of new equipment. The incremental increase demonstrated in cells G27, K27 and O27 of $96,714 relates to the CT Sim only. This relates mainly to the cost of the machine (CT Big Bore Simulator) and some related to the build out (39 years of depreciation)

Attachment I cells K25 and O25 represent $30,384 "other operating costs" relates to the maintenance costs of the CT Simulator

Attachment I Lease expense increase (Line 29) relates to increase of more square footage for the cancer center to house the CT Simulator

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

Office of Health Care Access

August 30, 2012 VIA FAX ONLY

Kristoffer Popovitch
Administrative Director of Cancer Services
Community CancerCare
142 Hazard Avenue, First Floor
Enfield, CT 06082

RE: Certificate of Need Application; Docket Number: 12-31778-CON
Northeast Regional Radiation Oncology Network, Inc. d/b/a Community CancerCare
Acquisition of a Computed Tomography-Simulator

Dear Mr. Popovitch:

On August 1, 2012, the Office of Health Care Access ("OHCA") received your initial Certificate of Need ("CON") application filing on behalf of Northeast Regional Radiation Oncology Network, Inc. ("NRRON") d/b/a Community CancerCare ("Applicant") for the acquisition of a Computed Tomography-Simulator ("CT Simulator"), with an associated total capital expenditure of $800,00.

OHCA has reviewed the CON application and requests the following additional information pursuant to General Statutes §19a-638a(8):

Page 5

1. Please provide additional details on the following:

    a. NRRON's chart of organizational structure including the two cancer centers (Manchester and Enfield).
    b. The types of cancer services provided at each of the cancer centers.
    c. Accreditations and memberships to professional organizations etc.

Page 6-7

2. Please discuss in detail the benefits of a CT Simulator.

3. Provide the past 3 years annual number of cancer patient visits to the Center.

4. Provide the target population to be served by the proposed CT Simulator. Please explain the origin of the target population.

5. Provide the service area of the patients for the proposed CT simulator. Explain how the proposed service area was selected and provide evidence.

6. On December 29, 2011, under Docket Number: 11-31709-CON, OHCA approved a CON granting NRRON for the acquisition of a Computed-Tomography Simulator to be located at the John A. DeQuattro Community Cancer Center at 100 Haynes Street, Manchester, CT. Please provide evidence to support the need for a second CT Simulator in Enfield.

7. Please explain in detail why patients can't use the Manchester location for the CT Simulator and then use the Enfield location for the treatment.

8. Please provide a color coded map with the Manchester location and the Enfield location showing the origin of the target population to be served at each location.

Page 8

9. The Applicant refers to Attachment I, column B as providing the response to the effect of the proposal on the existing providers. OHCA is unable to locate Attachment I, column B. Please clarify.

10. Provide FY 2012, year-to-date and annualized volumes for the simulations performed on Johnson Memorial Surgery Center's CT Scanner. Explain any discrepancies.

11. Please explain where there is a decline in simulation utilization between FY 2009-FY 2010.

12. Please explain why NRRON is projecting 3% annual growth for the proposed CT Simulator and provide supporting documentation.

Page 13

13. Please resubmit the patient population mix table in a % format.

Attachment H

14. Financial Attachment I ("FAI") is labeled as "ECHN-mobile PET/CT Service." Please explain and revise as necessary to reflect the financials and assumptions of the Applicant.

In responding to the questions contained in this letter, please repeat each question before providing your response. **Paginate and date** your response (i.e., each page in its entirety). Information filed after the initial CON application submission (i.e. completeness response letter, prefile testimony, late file submissions and the like) must be numbered sequentially from the Applicant's document preceding it. Please reference "Docket Number: 12-31778-CON." Submit one (1) original and five (5) hard copies of your response. In addition, please submit a scanned copy of your response including all attachments on CD in an Adobe format (.pdf) and in an MS Word format.

If you have any questions concerning this letter, please feel free to contact me at (860) 418-7001.

Sincerely,

Paolo Fiducia
Associate Health Care Analyst

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	3028
RECIPIENT ADDRESS	98605334011
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RESULT	OK

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
OFFICE OF HEALTH CARE ACCESS

FAX SHEET

TO: KRISTOFFER POPOVITCH

FAX: 860 533 4011

AGENCY: NRRON

FROM: PAOLO FIDUCIA

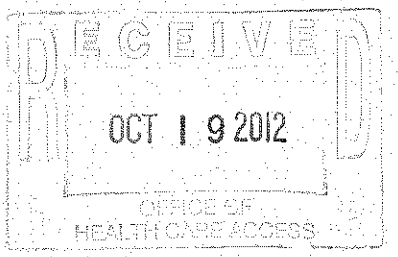
DATE: 8/30/12 TIME: 10:30 AM

NUMBER OF PAGES: 4
(including transmittal sheet

Comments: IJ-31778-CON
COMPLETENESS LETTER

PLEASE PHONE IF THERE ARE ANY TRANSMISSION PROBLEMS.

October 15, 2012



Paolo Fiducia
Associate Health Care Analyst
Office of Health Care Access
410 Capitol Avenue, MS #13HCA
P.O. Box 340308
Hartford, CT 06134-0308

RE: Certificate of Need Application Docket Number 12-31778-CON
Northeast Regional Radiation Oncology Network, Inc. d/b/a Community CancerCare
Acquisition of a Computed Tomography-Simulator

Dear Mr. Fiducia:

On August 30, 2012 we received OHCA's request for additional information and/or clarification regarding the Certificate of Need Application referenced above. Please find our responses below:

Response:

1. NRRON's chart of organizational structure has been included as **Attachment K**.

   Community CancerCare provides radiation oncology services and operates two linear accelerators at its Manchester campus located at the John A. DeQuattro Cancer Center at 100 Haynes Street across from Manchester Memorial Hospital. A second location in Enfield also provides radiation oncology services at 142 Hazard Avenue and operates one linear accelerator.

   Community CancerCare is licensed as an Outpatient Clinic by the Department of Public Health. The facility is also accredited by the American College of Radiology (ACR) and has a license with the Nuclear Regulatory Commission (NRC).

   The certificates from the ACR have been included as **Attachment L**.

2. Please discuss in detail the benefits of a CT Simulator.

Response:

CT Simulation is used by Radiation Oncologists and Medical Physicists to design a customized treatment plan for each cancer patient, and is essential for three-dimensional conformal, intensity modulated and stereoscopic radiation therapy delivery. The Radiation Oncologist and Medical Physicist, using this technology, is able to map the exact location and size of the tumor, the location of healthy tissue in close proximity to the tumor, and the intensity of the radiation beam to have a focused, evenly distributed delivery of radiation.

Presently at the Cancer Center, patients undergo a virtual simulation at Johnson Memorial Surgery Center which is located across the street from the cancer center. The virtual simulation allows the Radiation Oncologist to identify the necessary information for the CT simulation prior to physically scanning the patient. The patient is then sent to Johnson Memorial Surgery Center to have the actual CT performed. The CT is performed following the specifications identified by the Radiation Oncologist using the virtual simulator. Once completed, the patient returns to the Cancer Center at 142 Hazard Avenue so the Radiation Oncologist may review the final scan and formulate the treatment plan. This multi-step process is very time consuming, for both the patient and the Radiation Oncologist because of the detail needed to accurately map the tumor and the surrounding healthy tissue. The time requirement for this procedure is further complicated due to the remote location of the CT scanner in relationship to the Virtual Simulation Room and the Cancer Center.

CT capabilities within the new Cancer Center building offer the opportunity to reduce the time burden placed upon patients undergoing a simulation for their radiation therapy. The current process requires ninety minutes to two hours of the patient's time to complete the procedure. With a dedicated CT available, the entire procedure can be completed in approximately one hour. The virtual simulation performed by the Radiation Oncologist and Medical Physicist would be performed directly on the table of the CT scanner. As soon as the necessary information has been collected, the actual CT scan would be performed without any additional inconvenience to the patient.

3. Provide the past 3 years annual number of cancer patient visits to the Center.

Response:

The number of new patients who visited the Enfield location to obtain radiation oncology services over the past three years is summarized in the table below (each patient average 35 treatments):

	FY2009	FY2010	FY2011
Patients	126	124	129

4. Provide the target population to be served by the proposed CT Simulator. Please explain the origin of the target population.

Response:

The patient population to be served by the proposed CT simulator includes patients diagnosed with cancer. The CT simulator is used to design a customized treatment plan for cancer patients undergoing radiation therapy. According to data available from NRRON's data repository, the prevalence of cancer cases originating from the Applicant's service area is approximately 379 patients since 2009.

	2009	2010	2011
ZIP code Analysis for Enfield	126	124	129

Community Cancer Care currently provides radiation oncology services to patients within this target population. Utilization of CT simulation is a vital component in the development of each individual treatment plan. As stated in the Applicant's response to question 2diii (page 8 of the original CON submission), the CT simulation is currently being performed at Johnson Memorial Surgery Center on their diagnostic CT scanner. These CT simulations are only performed as part of the overall cancer treatment plan development and are not performed by Johnson Memorial Hospital as a stand-alone service for any other purpose.

5. Provide the service area of the patients for the proposed CT Simulator. Explain how the proposed service area was selected and provide evidence.

Response:

The Applicant typically serves patients from northern and eastern Connecticut at both its Manchester and Enfield locations. For the purpose of this application, the following towns define the service area for the proposed CT Simulator:

Bloomfield	Jewett City
Broad Brook	Manchester
East Granby	Promfret Center
East Hartford	Stafford Springs
East Windsor	Suffield
Ellington	Tolland
Enfield	Vernon/Rockville
Granby	Windsor
Glastonbury	Windsor Locks

These towns were identified for the service area because more than 85% of the patients treated at the Enfield location in FY2011 originated from one of the above towns.

The patient volume by zip code previously provided as Attachment C (page 51) of the original CON application has been revised to show patient origin percentages by town to support the service area definition. Please see **Attachment M** for this rendering of the data.

6. On December 29, 2011, under Docket Number 11-31709-CON, OHCA approved CON granting NRRON for the acquisition of a Computed Tomography Simulator to be located at the John DeQuattro Community Cancer Center at 100 Haynes Street, Manchester, CT. Please provide evidence to support the need for a second CT Simulator in Enfield.

Response:

Currently, CT simulations are performed at Johnson Memorial Hospital Ambulatory Surgery Center medical imaging department on a diagnostic CT unit not designed for radiation therapy simulation, making the process challenging and difficult for our patients. To accommodate this substandard situation, CT simulation exams are first planned as a virtual procedure in a separate room away from the diagnostic CT unit where immobilization devices are fabricated specific to the patients' needs. Once fabricated the patient must then travel to the diagnostic CT area of Johnson Memorial Ambulatory Surgery Center and begin the treatment planning session. Once complete the patient and the fabricated immobilization device must then travel from surgery center area to 142 Hazard Ave to complete the process. The patient usually has to disrobe at each point of care.

Quality of care is a concern with our current workflow. Because the patient's radiation treatment is planned in 3 locations there is an increased likelihood the patient's position will vary, adding unnecessary uncertainty to the focused delivery of the radiation therapy treatment. CT simulation is an essential precursor to radiation therapy, whereby immobilization devices are created and the simulation image is performed all at once on the CT simulator table designed for this purpose. In addition, the radiation therapy departments must comply with providing onsite physician supervision during treatment. This cannot be accomplished, maintaining the current busy patient schedule without delaying treatment for other patients.

7. Please explain in detail why patients can't use the Manchester location and the Enfield location showing the origin of the target population to be served.

Response

As shown in the response. (MAP), to question 8, the patient origins are different for the Enfield and Manchester locations. This difference in patient geographical origin is why the Enfield and Manchester locations were formed. Providing localized cancer care is the cornerstone of the NRRON mission. It would not be appropriate to require all patients to travel outside of their community's for radiation oncology cancer services. Keeping service delivery efficient and localized is extremely important to this fragile patient population. It is currently not best practice to have patient's travel to the surgery center located across the parking lot, and would be greatly decrease accessibility to patients if they were required to travel to Manchester for segments of their radiation oncology treatment.

8. Please provide a color coded map with the Manchester location and the Enfield location showing the origin of the target population to be served at each location.

Response:

Please see **Attachment N**.

9. The Applicant refers to an Attachment I, column B as providing the response to the effect of the proposal on the existing providers. OCHA is unable to locate attachment 1, column B, please clarify.

Response:

The Applicant regrets that the reference to Attachment I, column B as a response to this question. This information was entered in error. Please disregard the previous response to Question 2dv and utilize the following response in its place:

This proposal will have a minimal impact on the existing provider of the CT Simulation service (Johnson Memorial Hospital), as the volume of simulations to be performed at the Cancer Center represents less than 2% of the total CT volume performed at the hospital (less than 2 patients per day). Community CancerCenter will only perform CT simulations on patients of the Cancer Center undergoing radiation therapy. The CT simulator will not have a power injector for the CT unit to perform diagnostic CT which encompasses the remaining 98% of Johnson Memorial Hospital's volume.

10. Provide FY-2012 year to date and annualized volume of Simulations preformed on Johnson Memorial Surgery's Center's CT scanner. Explain any discrepancies?

Response:

The FY2012 annualized volume of CT simulations performed at Johnson Memorial Surgery Center (JMSC) was previously provided in Table 2a on page 9 of the original CON application. The actual simulation volume observed at JMSC from October through May was annualized to provide the estimated volume of 140. The table below provides an update to this statistic:

CT Simulations performed on Enfield CT Scanner

Submitted with CON Annualized Volume	Updated Statistic Completed Data for FY 2012
140	129

The updated statistic using 12 months' worth of data is only 8% less than the original projection based on 6 months of data utilizing the same calculation methodology (average simulations per month). The discrepancy has prompted the Applicant to adjust the previously noted projections noted in the CON application and are listed in the graph below. The expectation was for the medical oncology practice to start sooner than they did, however, now that they have established a full-time practice we can expect the 3% growth as planned.

Projected Volume (First 3 Full Operational FYs)**		
FY 2013	FY 2014	FY 2015
133	137	141

11. Please explain why there is a decline in simulation utilization between FY 2009-FY 2010.

Response:

Johnson Memorial Hospital medical oncology practice has changed significantly during this time period. The lack of availability of medical oncologists to the community caused patients to seek care outside of their community. With Johnson Memorial recent affiliation with Saint Francis Health Center, the void in medical oncology has been resolved. Medical Oncology is the leading driver of radiation oncology referrals.

12. Please explain why NRRON is projecting 3% annual growth for the proposed CT simulator and provide supporting documentation.

Response:

Through the first eight months of FY2012, the Applicant projected an annualized volume of 140 CT simulations. This was not realized due to the delayed start date of the medical oncology practice in the same cancer center. It is anticipated that with the full-time practice as well as Johnson Memorial Hospital's recent accreditation with the American College of Surgeons Commission on Cancer that the 3% growth can be expected.

13. Please resubmit the patient population mix table in a % format.

Response:

Please see **Attachment M.**

14. Financial Attachment I("FAI") is labeled as "ECHN-mobile Pet/CT Service". Please explain and revise as necessary to reflect the financials and assumptions of the Applicant.

Response:

The Financial Attachment I previously submitted accurately reflects the financials of the Applicant.

A previously completed Financial Attachment I was referenced internally to illustrate the methodology for completing both financial attachments. The same Excel template was then reused for completion with the present CON. All of the fields were updated to reflect the Applicant and this proposal with the exception of the document header which was overlooked by mistake.

Please find the revised Financial Attachment I and Financial Attachment II included in as **Attachment O** with the correct Applicant name and docket number noted in the document header.

Please accept the above as our response to the completeness questions posed on August 30, 2012. If you have any other questions or require additional clarification please do not hesitate to give me a call at (860) 533-4002.

Sincerely,

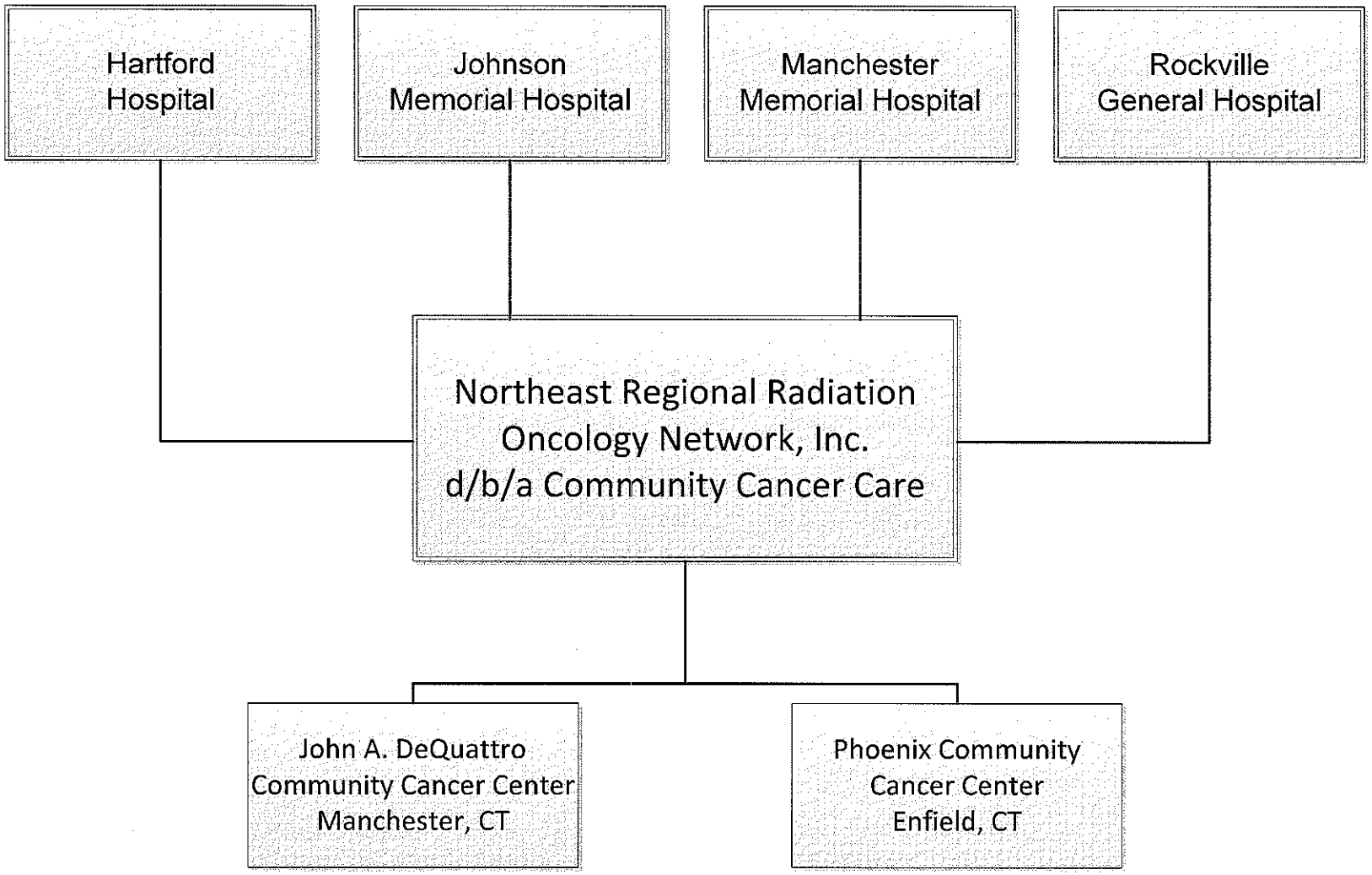
Kristoffer Popovitch

Administrative Director, Northeast Regional Radiation Oncology Network, Inc.

ATTACHMENT - K

Northeast Regional Radiation Oncology Network, Inc.

d/b/a Community Cancer Care



ATTACHMENT - L

Privileged and Confidential Peer Review Information
Release or disclosure of this document is prohibited
in accordance with §.01-581.17 Code of Virginia.

ACR AMERICAN COLLEGE OF RADIOLOGY

ASTRO
TARGETING CANCER CARE

August 15, 2011

Andrew Lister Salner, MD
Stephen Hauser, MD

Hartford Hospital
Helen and Harry Gray Cancer Center
80 Seymour Street Box 5037
Hartford, CT 06102

Northeast Regional Radiation Oncology Network-
Enfield
142 Hazard Ave.
Enfield, CT 06082

Hartford Hospital
Helen and Harry Gray Cancer Center
80 Fisher Drive
Avon, CT 06001

Northeast Regional Radiation Oncology Network-
Manchester
73A Haynes St.
Manchester, CT 06040

Dear Drs. Salner and Hauser:

SUBJECT: ACR-ASTRO Radiation Oncology Practice Accreditation
FML#: 220, 5436, 4823, 4824

The Committee on Radiation Oncology Practice Accreditation is pleased to inform you that the above listed facilities, which recently underwent accreditation review and onsite surveys on March 11-13, 2011 have been GRANTED accreditation by the American College of Radiology-American Society for Radiation Oncology for a period of three years.

Application Status	Facility	Strata	Period of Accreditation
Renewal	Hartford Avon Enfield Manchester	H1 H3 F2 F2	August 15, 2011- August 31, 2014
Overall Outcome			
Overall Evaluation	Acceptable		Accreditation Granted

The goal of the ACR-ASTRO Radiation Oncology Practice Accreditation Program is to: provide impartial, third party, peer review; recognize quality radiation oncology practices through accreditation; and make recommendations for improvement in practice and patient outcomes.

ACR Practice Guidelines and Technical Standards were used to evaluate appropriate delivery and documentation of radiation therapy and ongoing quality assessment and improvement efforts. In addition, other currently accepted guidelines, such as the American Association of Physicists in Medicine (AAPM) and the ACR Appropriateness Criteria™, as well as the ACR-ASTRO database of accredited facilities were used to determine accreditation status. ACR-ASTRO accredited facilities data were used for comparison of personnel and equipment ratios.

This accreditation decision is based upon the information submitted in your application package and the

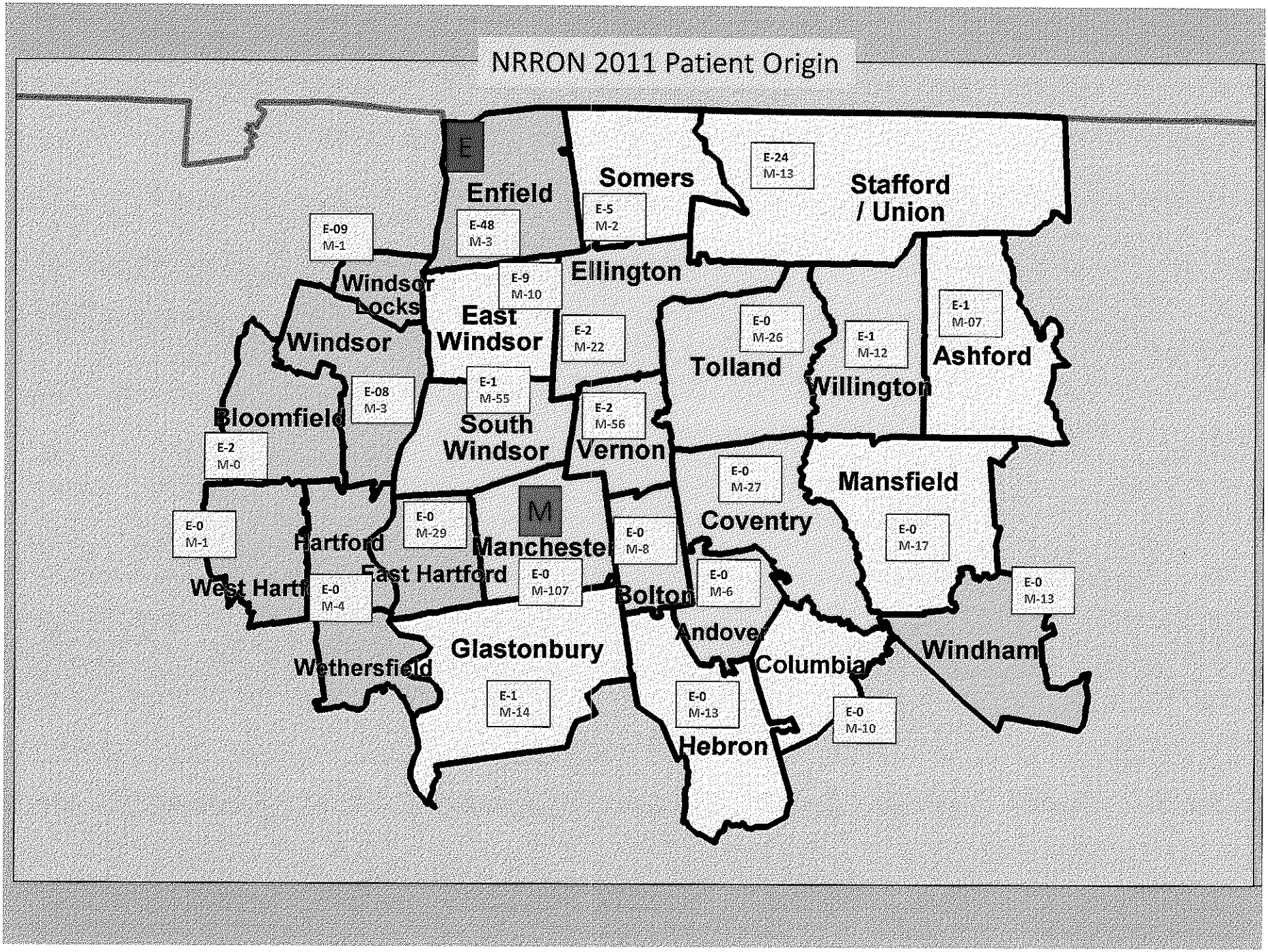
ATTACHMENT - M

TOWN	ZIP	# of pts PCCC	Percentage
Agawam, MA	01001	0	0%
Amston	06231	0	0%
Andover	06232	0	0%
Ashford	06278	0	0%
Bar Harbor, ME	04609	1	1%
Bloomfield	06002	1	1%
Bolton	06043	0	0%
Broad Brook	06016	2	2%
Brooklyn	06234	0	0%
Chaplin	06235	0	0%
Colchester	06415, 06420	0	0%
Columbia	06237	0	0%
Coventry	06238	0	0%
Danielson	06239	0	0%
East Granby	06026	5	4%
East Hartford	06108, 06118	0	0%
East Hartland	06027	1	1%
East Windsor	06088	3	2%
Ellington	06029	1	1%
Enfield	06082	49	38%
Glastonbury	06033	2	2%
Granby	06035	0	0%
Granville	01034	0	0%
Hartford	06114, 06112, 06105	0	0%
Hebron	06248	0	0%
Jewitt City	06351	1	1%
Lebanon	06249	0	0%
Manchester	06040, 06042	1	1%
Mansfield Center	06250	0	0%
Marlborough	06447	0	0%
New Britain	06051, 06052, 06053	0	0%
North Windham	06235, 06256	0	0%
Pomfret Center	06259	1	1%
Portland	06480	1	1%
Putnam	06260	0	0%
Quinebaug	06262	0	0%
Simsbury	06070	2	2%
Somers	06071	6	5%
Somersville	06072	0	0%
South Glastonbury	06073	0	0%
South Windsor	06074	0	0%
Southwick, MA	01077	1	1%
Stafford	06075	1	1%
Stafford Springs	06076	20	15%
Staffordville	06077	0	0%
Sterling	06377	0	0%
Storrs	06268	0	0%
Suffield	06078	6	5%
Thompson	06277	0	0%
Tolland	06084	1	1%
Vernon/Rockville	06066	2	2%
West Granby	06090	1	1%
West Simsbury	06092	0	0%
West Suffield	06093	3	2%
Westfield, MA	01085	1	1%
Willimantic	06226	0	0%
Willington	06279	1	1%
Windham	06280	0	0%
Windsor	06095	8	6%
Windsor Locks	06096	8	6%
Windsorville	06016	0	0%
Woodstock	06281	0	0%

Total # of Patients Overall per Site **130**

ATTACHMENT - N

NRRON 2011 Patient Origin



REVISED

ATTACHMENT - O

Attachment I

22. Please provide one year of actual results and three (3) years of projections of NRRON's revenue, expense and volume statistics with and without, incremental to and with the CON proposal in the following reporting format:

Total Facility: / **Description**	**FY2011 Actual Results**		**FY2013 Projected W/out CON**	**FY2013 Projected Incremental**	**FY2013 Projected With CON**	**FY2014 Projected W/out CON**	**FY2014 Projected Incremental**	**FY2014 Projected With CON**	**FY2015 Projected W/out CON**	**FY2015 Projected Incremental**	**FY2015 Projected With CON**
NET PATIENT REVENUE	**$7,100,584**		**$7,915,384**		$7,945,768	**$8,152,846**		$8,184,074	**$8,429,596**		$8,462,090
Non-Government	$3,450,884		$3,799,384	$30,384	$3,829,768	$3,913,366	$31,228	$3,944,594	$4,046,206	$32,494	$4,078,700
Medicare	$3,408,280		$3,846,877	$0	$3,846,877	$3,962,283	$0	$3,962,283	$4,096,784	$0	$4,096,784
Medicaid and Other Medical Assistance	$241,420		$269,123	$0	$269,123	$277,197	$0	$277,197	$286,606	$0	$286,606
Other Government				$0	$0		$0	$0		$0	$0
Total Net Patient Patient Revenue	$7,100,584		$7,915,384	$30,384	$7,945,768	$8,152,846	$31,228	$8,184,074	$8,429,596	$32,494	$8,462,090
Other Operating Revenue	$8,915		$10,000		$10,000	$10,000		$10,000	$10,000		$10,000
Revenue from Operations	$7,109,499		$7,925,384	$30,384	$7,955,768	$8,162,846	$31,228	$8,194,074	$8,439,596	$32,494	$8,472,090
OPERATING EXPENSES											
Salaries and Fringe Benefits	$402,155		$450,919		$450,919	$464,447		$464,447	$478,380		$478,380
Professional / Contracted Services	$3,009,184		$3,099,459	$57,700	$3,157,159	$3,192,443	$137,000	$3,329,443	$3,288,216	$137,000	$3,425,216
Supplies and Drugs	$30,974		$32,000		$32,000	$32,640		$32,640	$33,293		$33,293
Bad Debts	$51,662		$60,000		$60,000	$25,000		$25,000	$25,000		$25,000
Other Operating Expense	$512,349		$525,250	$30,384	$555,634	$535,755	$30,384	$566,139	$546,470	$30,384	$576,854
Subtotal	$4,006,324		$4,167,628	$88,084	$4,255,712	$4,250,284	$167,384	$4,417,668	$4,371,359	$167,384	$4,538,743
Depreciation/Amortization	$762,196		$800,000	$96,714	$896,714	$881,508	$176,714	$1,058,222	$881,508	$176,714	$1,058,222
Interest Expense	$189,435		$162,000		$162,000	$138,070		$138,070	$138,070		$138,070
Lease Expense	$793,981	C	$819,027	$7,500	$826,527	$835,408	$8,000	$843,408	$852,116	$8,000	$860,116
Total Operating Expense	$5,751,936		$5,948,655	$192,298	$6,140,953	$6,105,270	$352,098	$6,457,368	$6,243,053	$352,098	$6,595,151
Gain/(Loss) from Operations	$1,357,563		$1,976,729	($161,914)	$1,814,815	$2,057,576	($320,870)	$1,736,706	$2,196,543	($319,604)	$1,876,939
Plus: Non-Operating Expenses	$1,400,000				$0			$0			$0
Revenue Over/(Under) Expense	($42,437)		$1,976,729	($161,914)	$1,814,815	$2,057,576	($320,870)	$1,736,706	$2,196,543	($319,604)	$1,876,939
FTEs (just for Enfield)	3		4		4	4		4	4		4
Volume Statistics:											
Provide projected inpatient and/or outpatient statistics for any new services and provide actual and projected inpatient and/or outpatient statistics for any existing services which will change due to the proposal.											
Treatments	13,160		13,555		13,555	13,962		13,962	14,381		14,381
CT Simulations	0		144		144	148		148	153		153

Attachment II

22. Please provide three (3) years of projections of incremental revenue, expense and volume statistics **attributable to the proposal** in the following reporting format:

Type of Service Description	CT Simulation for treatment planning
Type of Unit Description:	Philips Big Bore Brilliance Oncology CT Unit
# of Months in Operation	12

FY 2013_____ (Year 1_) FY Projected Incremental Total Incremental Expenses: $192,298	(1)	(2) Rate	(3) Units	(4) Gross Revenue Col. 2 * Col. 3	(5) Allowances/ Deductions	(6) Charity Care	(7) Bad Debt	(8) Net Revenue Col.4 - Col.5 -Col.6 - Col.7	(9) Operating Expenses Col. 1 Total * Col. 4 / Col. 4 Total	(10) Gain/(Loss) from Operations Col. 8 - Col. 9
Total Facility by Payer Category:										
Medicare	$0	$0	71	$0	$0	$0	$0	$0	$0	$0
Medicaid	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
CHAMPUS/TriCare	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify):	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Total Governmental	$0		72	$0	$0	$0	$0	$0	$0	$0
Commercial Insurers		$1,739	71	$123,469	$194,272	$40,000	$45,000	($155,803)	$192,298	($348,101)
Uninsured		$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify:) Self Pay		$422	0	$0	$0	$0	$0	$0	$0	$0
Total Nongovernment			72	$123,469	$194,272	$40,000	$45,000	($155,803)	$192,298	($348,101)
Total All Payers		$0	144	$123,469	$194,272	$40,000	$45,000	($155,803)		($348,101)

FY 2014_____ (Year 2_) FY Projected Incremental Total Incremental Expenses: $352,098	(1)	(2) Rate	(3) Units	(4) Gross Revenue Col. 2 * Col. 3	(5) Allowances/ Deductions	(6) Charity Care	(7) Bad Debt	(8) Net Revenue Col.4 - Col.5 -Col.6 - Col.7	(9) Operating Expenses Col. 1 Total * Col. 4 / Col. 4 Total	(10) Gain/(Loss) from Operations Col. 8 - Col. 9
Total Facility by Payer Category:										
Medicare	$0	$0	73	$0	$0	$0	$0	$0	$0	$0
Medicaid	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
CHAMPUS/TriCare	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Other (Specify):	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Total Governmental	$0		74	$0	$0	$0	$0	$0	$0	$0
Commercial Insurers	$0	$1,739	73	$126,947	$198,957	$42,000	$47,500	($161,510)	$156,429	($317,939)
Uninsured	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify:) Self Pay	$0	$439	0	$0	$0	$0	$0	$0	$0	$0
Total NonGovernment	$0	$0	74	$126,947	$198,957	$42,000	$47,500	($161,510)	$156,429	($317,939)
Total All Payers		$0	148	$126,947	$198,957	$42,000	$47,500	($161,510)		($317,939)

FY 2015(Year 3_) FY Projected Incremental Total Incremental Expenses: $352,098	(1)	(2) Rate	(3) Units	(4) Gross Revenue Col. 2 * Col. 3	(5) Allowances/ Deductions	(6) Charity Care	(7) Bad Debt	(8) Net Revenue Col.4 - Col.5 -Col.6 - Col.7	(9) Operating Expenses Col. 1 Total * Col. 4 / Col. 4 Total	(10) Gain/(Loss) from Operations Col. 8 - Col. 9
Total Facility by Payer Category:										
Medicare	$0	$0	74	$0	$0	$0	$0	$0	$0	$0
Medicaid	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
CHAMPUS/TriCare	$0	$0	1	$0	$0	$0	$0	$0	$0	$0
Other (Specify):	$0	$0	0	$0	$0	$0	$0	$0	$0	$0
Total Governmental	$0		76	$0	$0	$0	$0	$0	$0	$0
Commercial Insurers		$1,739	73	$126,947	$204,098	$45,000	$49,000	($171,151)	$156,229	($327,380)
Uninsured			4	$0	$0	$0	$0	$0	$0	$0
Other (Specify:) Self Pay		$439	0	$0	$0	$0	$0	$0	$0	$0
Total NonGovernment		$0	77	$126,947	$204,098	$45,000	$49,000	($171,151)		($327,380)
Total All Payers		$0	153	$126,947	$204,098	$45,000	$49,000	($171,151)	$156,229	($327,380)

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

Office of Health Care Access

November 20, 2012 VIA FAX ONLY

Kristoffer Popovitch
Administrative Director of Cancer Services
Community CancerCare
142 Hazard Avenue, First Floor
Enfield, CT 06082

RE: Certificate of Need Application; Docket Number: 12-31778-CON
Northeast Regional Radiation Oncology Network, Inc. d/b/a Community CancerCare
Acquisition of a Computed Tomography-Simulator
Notification Deeming the CON Application Complete

Dear Mr. Popovitch:

This letter is to inform you that, pursuant to Section 19a-639a(d) of the Connecticut General Statutes, the Office of Health Care Access ("OHCA") has determined that the above-referenced application has been deemed complete as of November 9, 2012. The date of November 9, 2012, also begins the ninety-day review period of the application.

If you have any questions regarding this matter, please feel free to contact me at (860) 418-7015.

Sincerely,

Paolo Fiducia
Associate Health Analyst,

****
*** TX REPORT ***
****

TRANSMISSION OK

TX/RX NO	3161
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STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
OFFICE OF HEALTH CARE ACCESS

FAX SHEET

TO: KRISTOFFER POPOVITCH

FAX: 860 533 4011

AGENCY: NRRON

FROM: PAOLO FIDUCIA

DATE: 11/20/12 TIME: 10 30 AM

NUMBER OF PAGES: 2
(including transmittal sheet

Comments:
12-31778-CON
NOTIFICATION DEEMING THE CON APPLICATION COMPLETE

PLEASE PHONE IF THERE ARE ANY TRANSMISSION PROBLEMS.

FACSIMILE

Date	11-27-12
Number of pages including cover sheet	

RECEIVED NOV 27 2012 OFFICE OF HEALTH CARE ACCESS

TO:	**FROM:**
Paolo Fiducia	Kristoffer Popovitch
	Community CancerCare
	Community CancerCare
	100 Haynes Street
	Manchester, CT 06040
Phone:	**Phone: (860)533-4000**
Fax:	**Fax: (860)533-4011**

REMARKS: ☒ Urgent ☒ For your review ☐ Reply ASAP ☐ Please Comment

Paolo,

attached is the sheet for the pt. population in percentage form

Please let me know if you need anything else

Kris Popovitch

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f. List all funding or financing sources for the proposal and the dollar amount of each. Provide applicable details such as interest rate; term; monthly payment; pledges and funds received to date; letter of interest or approval from a lending institution.

Response: The funding of this project will come from NRRON operations.

g. Demonstrate how this proposal will affect the financial strength of the state's health care system.

Response: Acquisition of the CT Simulator will positively impact the financial strength of the health care system in the local area by enhancing the quality of care delivered and improving the efficiency of care delivery. The improved operational efficiencies attained will help to reduce operating costs associated with the current process.

6. Patient Population Mix: Current and Projected

a. Provide the current and projected patient population mix (based on the number of patients, not based on revenue) with the CON proposal for the proposed program.

Table 4: Patient Population

	Current** FY 2012	Year 1 FY 2013	Year 2 FY 2014	Year 3 FY 2015
Medicare*		45%	45%	44%
Medicaid*		.02%	.02%	.03%
CHAMPUS & TriCare		.01%	.01%	.01%
Total Government		**49%**	**48%**	**47%**
Commercial Insurers*		50%	51%	51%
Uninsured		.01%	.02%	.02%
Workers Compensation		0	0	0
Total Non-Government		**51%**	**52%**	**53%**
Total Payer Mix		**144**	**148**	**153**

* Includes managed care activity.
** New programs may leave the "current" column blank.
*** Fill in years. Ensure the period covered by this table corresponds to the period covered in the projections provided.

b. Provide the basis for/assumptions used to project the patient population mix.

Response: Patient case mix is based on actual historical data. Current year is 6months annualized