

inspired

Where innovation brings Inspiration

Issue One | Summer 2009

Oncology update for health professionals



CyberKnife®
Robotic Radiosurgery System



Our vision

Malcolm Miller, Chief Executive of The London Clinic, talks about his vision for the new cancer centre and how it will take cancer care into the 21st century and beyond.

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The interview

We talk to Dr Bill Bice, Chief Medical Physicist at The London Clinic. We hear about his background and experience and his thoughts on his new and exciting role.

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10 facts

The new cancer centre is going to provide state-of-the-art technology and patient care second to none. Here are 10 interesting facts about the new building, which illustrate how we are caring for the environment as well as our patients.

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All the images of the outside and inside of the cancer centre are computer generated. The centre is due for completion Winter 2009.

Cancer care for the 21st century and beyond

Our vision

Greetings from Malcolm Miller, Chief Executive

The Clinic is proud to announce a £70m investment in the future of cancer care in London



Our vision for this innovative building is to offer cancer patients an environment specifically designed with them in mind and to deliver both a holistic and progressive approach to the treatment of cancer. We want to offer patients more by exploring and utilising the very latest treatments and techniques.

We worked alongside many partners such as the City of Westminster and Howard de Walden Estates, to ensure that this prestigious new development displays both a commitment and dedication to the future of medical treatment, as well as maintaining links with the renowned heritage of the area.

environment. As well as having its own entrance at 21 Devonshire Place, to ensure direct access to the centre from the main hospital, a tunnel has been built under the road on Devonshire Place linking the two front entrances.

While we already offer sophisticated cancer screening techniques, chemotherapy, stem cell transplants and other specialist haematology and oncology services, we will be introducing the latest radiosurgical technology into the centre. This includes three Linear Accelerators (LINACs): the CyberKnife® Robotic Radiosurgery System and the Varian Clinac® iX and Trilogy® Systems with RapidArc™. This will provide innovation for cancer care in the 21st century.

Malcolm Miller
Chief Executive

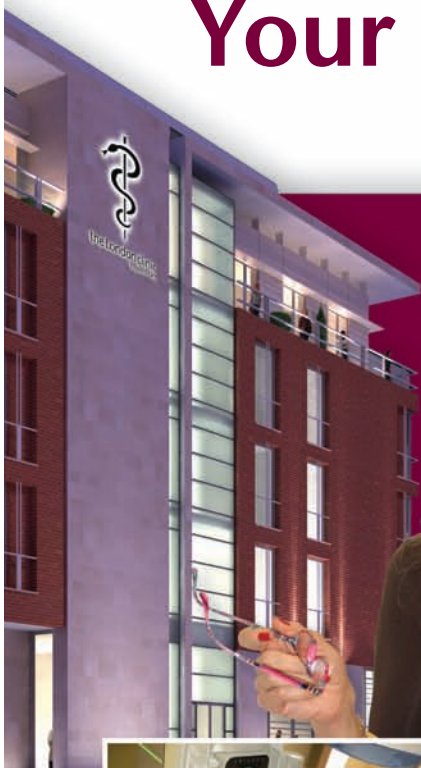
When the project is completed, we will have a dedicated centre which will provide optimism and hope for all those who come through the door regardless of whether they are consultants, patients, staff or visitors.

Due for completion at the end of 2009, the construction will comprise eight storeys including three below ground level. The 7,500m² site is prominently located in the heart of London's Harley Street medical community.

The building will hold 47 individual bedrooms and 22 day care pods in a modern purpose built



Your questions answered



Amanda Hallums,
Matron/Director of Clinical Services

and **Paul Wood,**
Strategy Director



We've put some of your questions to Amanda and Paul.

Q How is The London Clinic Cancer Centre going to be better than other centres in the UK or in Europe? The building looks great, but how will the treatment compare with established UK centres such as The Royal Marsden?

AH: We will have the most up to date treatments, using ground breaking technology, available to every patient that walks through the door. Uniquely, it will be a single facility that offers all cancer treatment options (chemotherapy, radiation) under one roof, staffed by an experienced team of high quality, well trained healthcare professionals, able to meet every patient's individual needs. Lastly, the centre has been built to be flexible - to be responsive to the needs of the patients and the medical community. So as medical science progresses, so will the Clinic.

PW: Because hospitals are complex institutions, it depends what one is measuring. We will not necessarily be 'better than' the Royal Marsden, Christies, Guys or Great Ormond Street in terms of research, education, clinical trials or breadth of service provision. The large public sector organisations often score highly in these areas. That said, we will offer our patients and doctors many other benefits. The physical environment will be new, well designed and built to a high quality, patient focussed specification. It will be a purpose built cancer facility in a building of its own, yet discreetly connected to London's largest independently owned hospital with all the infrastructure and back-up clinical support required to treat acutely ill patients. The cancer centre will immediately share The London Clinic's reputation for offering personalised service, quality, robustness and integrity. Its radiotherapy department will be extremely well equipped.

Q Why should I go there when I can go to a state-of-the-art NHS cancer centre - like UCH or the new CRCUK- Barts Centre - for free?

A PW: Most elements of clinical treatment provided in NHS facilities will be every bit as good as at the Clinic. One of the proud and wonderful features of healthcare in the UK is that for the most part, it is clinically indistinguishable between the public and private sectors. What is different however is the more personalised nature of services in the independent sector, something the Clinic excels at. Care is focussed on patients as individuals who are not only with us because they are sick, but because they have chosen to be, as paying customers. Because we are small, we pride ourselves on our ability to be operationally slicker, more flexible and responsive to patients' needs than the large bureaucratic institutions can be. The NHS is a high volume business with the inevitable compromises on →

Your questions answered



We will have the most up to date treatments, using ground breaking technology, available to every patient who walks through the door.



individuality and quality that that entails. Sometimes, small (or 'smaller' at least) really is beautiful!

Q Will everything a cancer patient needs be on site?

A AH: Yes. A full range of services will be available here. This includes everything from chemotherapy to radiotherapy, counselling and a range of holistic therapies designed to make the patient experience more comfortable.

There are a few exceptions – thyroid cancer out-patients, for example, attend the endocrinology department at 5 Devonshire Place and will receive their radiotherapy in the cancer centre. I regard the cancer centre and main building as being one site, albeit two buildings connected by the basement level corridor.

Q Can patients have their cancer surgery or cancer screening at the new centre?

A PW: Cancer screening services are being further developed at The London Clinic. Surgical and screening facilities are all going to stay in the main site building, along with endoscopy and colonoscopy services. All surgical oncology patients will be admitted for treatment as they are now.

Q Will there be other treatments and special equipment available apart from the CyberKnife?

A AH: The Clinic has a fully accredited stem cell cryopreservation suite which is unique in the independent sector within the UK. The new building will also house the latest linear accelerators from Varian, including a Trilogy system. More importantly than having simply procured

the latest technology, we will be aiming to offer advanced forms of radiotherapy treatment that are not routinely offered in many other centres such as IMRT, IGRT and Rapid-Arc therapy which enables treatment to be delivered more accurately and more quickly than other systems.

Q How is CyberKnife different from Gamma Knife?

A PW: Both the GammaKnife and Cyberknife were invented by neurosurgeons. The GammaKnife uses a head frame (stereotactic frame) to treat intracranial tumours whereas CyberKnife treats tumours from head to toe, including lung, prostate and pancreas. It is a pain-free and non-invasive alternative to traditional surgery that uses a robot to guide the high-dose beams of radiation to destroy the tumours with pinpoint accuracy.

Q Which consultants will be working at the new cancer centre?

A PW: Those consultants already working within our oncology services will all be treating patients at our new centre. In addition we have seen significant interest from potential new consultants who have recently asked to join the Clinic, possibly as a direct result of our investment in the new facilities.

Q How are the clinical services going to be different to the existing hospital?

A AH: Most will be very similar if not the same. The only ones that are fundamentally new and different are the radiotherapy based treatments. Nuclear medicine treatments will also be offered for the first time in appropriately

designed in-patient rooms. The new building is a purpose built facility that will expand our patient bed capacity and our radiotherapy provision.

Q Isn't this just The London Clinic responding to competition from UCH, Barts and other NHS providers?

A PW: No. The Clinic's decision to build a cancer centre is essentially for three reasons, unrelated to any NHS hospital's plans. Firstly, to improve and expand our existing facilities; secondly to offer a more comprehensive cancer service, including for the first time, radiotherapy; and thirdly to meet what is likely to be increased demand in a growing market. The incidence of cancer seems certain to increase in the coming years as the population's life expectancy grows and the Clinic wishes to respond to this need. To meet its political obligations it is unsurprising that the NHS will be doing the same.

Q Why are you recruiting non resident, overseas staff? How many more non-Clinic consultants will be brought in?

A AH: The hiring of overseas staff is to ensure the availability of trained healthcare professionals with the specialist skills and experience of the advanced, new treatment technologies we are investing in. We plan that the vast majority of staff will still be recruited from local sources, in recognition of local quality and expertise. The Chief Medical Physicist post was open to applications from any country, including the UK, but Dr Bill Bice, who so happens to be American, was the best candidate with the particular skills, experience and qualifications that we require.



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Do you have a question for Amanda or Paul? Email: info@thelondonclinic.co.uk We will publish a selection in the next issue.

The interview: Dr Bill Bice, Chief Medical Physicist

Dr Bill Bice,
Chief Medical Physicist
at The London Clinic,
will be based at the
new cancer centre



In 'The Interview' we find out about his background and his thoughts on his new role.

Q ED. Tell us a bit about your background

A BB. I graduated from the United States Military Academy, at West Point, New York in 1973.

After spending nine years as an Engineer Officer in the army I went back to retrain to become a physicist. I obtained a Masters degree in physics from the University of Illinois followed by a doctorate in medical physics from the University of Florida.

For four years after receiving my doctorate I practiced medical physics at Brooke Army Medical Centre in San Antonio, Texas. After leaving the army in 1989, I became a consulting medical physicist and have run two medical physics services firms, this year stepping down to join the staff at The London Clinic. I am certified in radiation oncology physics and in diagnostic radiological physics by the American Board of Radiology

and registered as a Clinical Scientist by the UK Health Professions Council.

For the last 20 years I have also been Adjunct Professor at the University of Texas Health Science Centre at San Antonio and still hold this post, currently acting as dissertation advisor for four doctoral candidates.

Q ED. Why did you join The London Clinic?

A BB. This is a rare and wonderful opportunity – to create something unique in an inspiring environment, one in which delivery of quality patient care trumps all other concerns.

I have previously worked with the Varian Trilogy System and, whilst I have been involved with stereotactic radiosurgery and stereotactic radiotherapy since 1994, I have not yet had the opportunity to treat with CyberKnife. I am looking forward to being involved from the start and having the chance to build a new

team and department at The London Clinic Cancer Centre.

Q ED. What exactly will your role involve?

A BB. As the Chief Medical Physicist my role will be to ensure that the physics team works effectively together so that the quality of care in radiation oncology is consistently high. The physics team make sure that the radiation machines operate properly, that the

amount of radiation prescribed by the clinical oncologist is delivered correctly, and that the method of treatment is optimal for the patient. This is done by designing the patient's treatment on a computer, where the radiation from the treatment can be viewed and precisely placed to treat the cancer whilst avoiding normal, healthy tissues.

Radiation safety also comes under our remit as does the process of quality assurance. An independent test is carried out before each patient is treated. For most treatments measurements are made using phantoms, which mimic the patient's body; to ensure that the treatment fields designed at the treatment planning stage are being delivered correctly.

My team at The London Clinic is likely to consist of three or four medical physicists and one or two dosimetrists.

Q ED. What are your thoughts on the latest radiation technology and equipment which will be in use in the new centre?

A BB. Both the Trilogy System and CyberKnife are incredibly innovative pieces of equipment. Over the last 20 years all new technology has concentrated on



how to better deliver doses of radiation to a tumour whilst sparing as much normal tissue as possible. These two systems represent the very latest in the development of radiotherapy and radiosurgical treatment.

Let me give you a short history of this development to put things in context: 20 years ago only the most basic beam shaping was done: rectangular beams of radiation were focused on the patient's tumour, no matter what shape the tumour took or what normal tissues

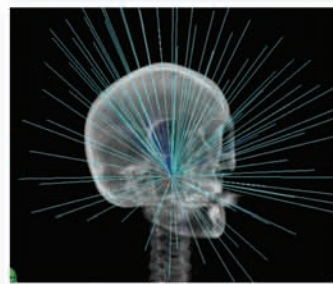
heals of IMRT came IGRT, Image Guided Radiotherapy. Various forms of image guided technology – ultrasound, CT and stereoscopy – have been introduced into the treatment room over the last five years allowing for a more and more accurate delivery of the radiation. Recently we have even been able to incorporate and correct for the effects of patient motion (like breathing) during the delivery of the radiation.

All of these developments have enabled us to use much smaller,

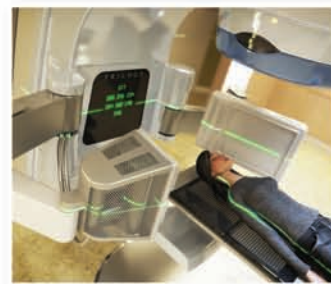
CyberKnife uses many, many small beams to build up an IMRT-like distribution. IGRT is achieved using stereotactic localisation from two fixed X-ray tubes which monitor the patient's position during the robotically delivered radiation fields. One advantage that CyberKnife has is the ability to deliver the radiation from almost any angle without moving the patient. CyberKnife boasts sub-millimetre precision on phantoms with only a slight decrease in accuracy for actual patient treatments. The CyberKnife and the Trilogy both have the ability



CyberKnife® Robotic Radiosurgery System



3D CyberKnife® beam position



Trilogy® Radiosurgery System

surrounded it. Simple, thick metal blocks came to be used to shield the normal tissues to some degree, but this was still very rudimentary. Computers came along and developed to the point that the dose from the radiation treatments could be viewed and planned in 3 dimensions inside the patient's body. This type of treatment, termed 3DCRT, was the best available until the advent of Intensity Modulated Radiotherapy (IMRT). IMRT, which has only become commercially available in the last ten years, allowed shaping the dose until it was very conformal to the tumour. With this increased control and conformity came increased requirement to deliver the radiation more precisely to the right place in the body. Enter better imaging, allowing alignment of the radiation beams right before treatment or even during the treatment. On the

better controlled radiation fields to be delivered more accurately to the tumour-sparing healthy tissue. In the end this allows us to give higher doses of radiation whilst minimising complications and provides us a better opportunity to cure the patient.

The Trilogy System with on board imaging, portal vision and cone-beam CT scan which is taken with a rotating movement to give IGRT, gives us the most detailed image of the patient and the tumour to be treated.

The Trilogy system also employs RapidArc, a technology that allows us to deliver IMRT at much greater speeds – shortening patient treatments. This improves accuracy and the general comfort of the patient.

to gate treatment, tracking the tumour as it moves in the body – during breathing for example. Essentially what we have with the Trilogy System and CyberKnife are two complementary cutting-edge modalities. With this equipment we can deliver every type of external beam X-ray treatment that the clinician would ever want to deliver. It is a great position to be in.

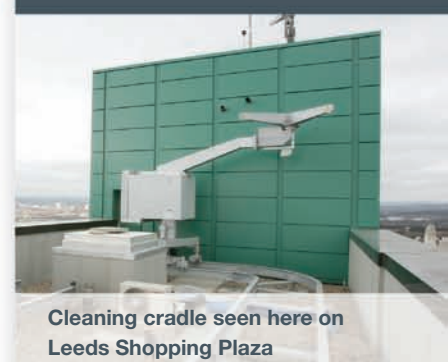
I am very excited about being able to give our patients the very best treatment available and, more importantly, giving them the best chance to beat their cancer.

Dr Bill Bice is the Chief Medical Physicist at The London Clinic

Let there be light!

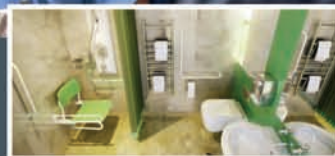
The environment and light within the cancer centre are key to the core design, which helps to create a restful, healing and nurturing atmosphere for patients. Natural light and views are paramount to this which is why floor-to-ceiling windows have been incorporated into each patient room. This allows patients and staff to remain in touch with the outside world; even in the basement levels through the building's light well.

As such, the centre has employed the services of a professional window cleaner who has neither eyes, ears nor hands! The robotic cleaning cradle will 'sleep' at the top of the new building and will run on a series of rails. Its extendable arm will reach out over the building with a cage attached to it – allowing the people within to clean the many windows and helping to flood the building with light and hope.



Cleaning cradle seen here on Leeds Shopping Plaza

10 facts about the new cancer centre



1

Environmentally responsive paving slabs will be used on the external walls of the new centre to reduce CO² emissions

2

To prevent the spread of infection, ledges and protrusions will be minimised with windows made flush to the wall surrounds

3

The building has been designed so that natural light is channelled throughout all the floors, including the basement levels, via a 'light well'

4

Electronic vision panels in the doors of inpatient bedrooms will allow 100% visibility to patients from the corridor

5

Mechanically driven sliding doors will be installed to clinical utility rooms – avoiding the need for staff and patients to touch the door and providing additional space

6

Patient's notes will be logged electronically through a recording system at their bedside

7

Therapeutic colours will assist way-finding and provide a restful environment for both staff and patients

8

Rainwater will be harvested for irrigation of the garden landscape

9

Staff, patients and visitors on the underground levels will also be able to see what is happening outside. TV screens located on walls of the basement levels will be linked to cameras showing live footage from nearby Regent's Park

10

Patient areas will all have triple glazing – improving acoustics and reducing the likelihood of infection with blinds located between the double glazing unit and secondary glazing



Contact Us

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