



The European CyberKnife® Centre

Precision Radiosurgery Using Image-Guided Robotics

Painless Treatment for Tumours and Lesions

Special expertise in radiosurgery of the central nervous system (brain and spine)

Treats lesions which are otherwise inoperable and intreatable

What patients say about CyberKnife® treatment

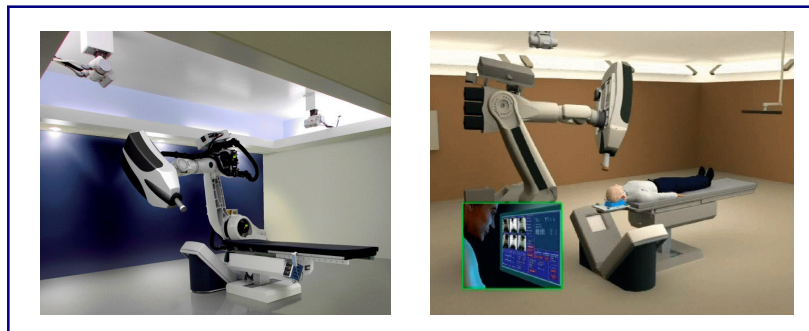
Valorie, spinal AVM “The CyberKnife® provided me the only possibility of leading a normal life without paralysis.”

Donald, acoustic neuroma “I looked for an alternative when I was told a 7-hour surgical procedure would result in the loss of balance nerve, and possible damage to the facial nerve. After a 90-minute CyberKnife® treatment, my wife and I went out for a glass of wine. It’s been 4 years since my treatment and I believe the CyberKnife® procedure gave me a second chance at life.”

Tomye, recurrent part-optic meningioma “The CyberKnife® saved my life without invasive surgery.”

Anne, spinal tumour “I credit the CyberKnife® technology with helping me stay one step ahead of cancer.”

Guide for Patients and their Doctors



There are CyberKnife® centres across the USA and some in Asia and Europe. As yet many countries lack a CyberKnife® Centre but Medilux Healthcare Ltd introduces patients, doctors and health insurers around the world to the European CyberKnife® Centre in Munich (Europäisches CyberKnife® Zentrum München or ECZM)

ECZM offers modern, state-of-the-art facilities and was named as the leading CyberKnife® Centre in the world for treatment of tumours in the central nervous system at the annual Cyberknife® Users meeting in San Diego in January 2006. ECZM offers attractively priced treatment packages and arranges transfers and accommodation for visiting patients and their relatives.

We provide information on radiosurgery treatments at ECZM, associated pre-operative procedures, submission of scans, overall costs and time scale for obtaining treatment. For Medical Professionals we offer formal presentations with the opportunity to meet ECZM personnel. These are held at the Royal Society of Medicine in London or, subject to demand, in other locations. We also arrange places at on-site practical seminars in Munich.

Special note for UK doctors and patients:

ECZM is now accepting National Health Service referrals. Please ask us for further details.

CyberKnife® Radiosurgery - Giving Patients New Hope

What is CyberKnife® Radiosurgery?

CyberKnife® radiosurgery is a precise, painless, non-invasive radiation treatment that can be an alternative to open surgery in certain cases.

Multiple beams of high-energy radiation are delivered from multiple points and converge precisely at the tumour or lesion inside the body. Each individual beam is insufficient to cause harm, but the convergence of all the beams at the tumour results in the lesion receiving a very high dose of radiation whilst sparing nearby normal tissue.



CyberKnife® radiosurgery is so precise that radiation beams can be sculpted to small, complex-shaped tumours near critical structures, such as hearing and vision nerves. This ability to accurately irradiate only the tumour and protect healthy tissue allows the CyberKnife® to treat many lesions which may be considered inoperable or untreatable without this radiosurgery system.

How does CyberKnife® work?

CyberKnife® is a revolutionary new way of performing stereotactic radiosurgery and combines two advanced technologies:

1. The first innovation is a lightweight radiation delivery system mounted on a **multi-jointed robotic arm**. The robotic arm provides unparalleled access to tumours anywhere in the body, reaching areas of the body that are untreatable with other radiosurgery systems and allowing more flexible delivery of radiation for optimum treatment.
2. The second innovation is an **image guidance system**. This advance allows the CyberKnife® System to locate the tumour throughout the treatment and correct for small patient movements, which allows radiation to be delivered without the use of stereotactic frame.

What makes CyberKnife® so unique?

100% Frameless:

The ability of the CyberKnife® to correct for patient movement during treatment spares you from the pain and inconvenience associated with a conventional head frame that must be fixed to the skull with screws. Published studies have shown that the frameless CyberKnife® radiosurgery is as accurate – if not more so – than traditional frame-based radiosurgery.

Full Body Capability & Staged Treatment:

The unique design of the CyberKnife® System allows it to deliver precise high dose radiation not just to lesions in the brain but to lesions in the spine and other organs throughout the body. In addition, because no frame is required, the CyberKnife® System can perform “hypo-fractionated” or staged radiosurgery – where the total radiation dose is divided into 3-5 smaller doses. This is especially beneficial for treating lesions near sensitive structures and larger tumours because it better protects surrounding healthy tissue.

Painless Surgery:

The CyberKnife® system allows you to be treated in a unique radiosurgery suite where painless “surgery” is performed on an outpatient basis, eliminating the risk of complications and lengthy recovery time associated with traditional open surgery.

Better Quality of Life During & After Treatment:

The CyberKnife® procedure allows you to resume normal activities immediately after treatment.

Is CyberKnife® clinically proven?

The CyberKnife® System is based on radiation technology that has been proven for 30 years. Thousands of patients have received CyberKnife® treatments worldwide, and many clinical studies with the CyberKnife® have been published in medical journals.



What types of tumours can be treated?

CyberKnife® is cleared with the FDA to treat tumours and lesions anywhere in the body when radiation treatment is indicated. Consult your physician to see if CyberKnife® treatment is right for you. The principal treatments offered by the European CyberKnife® Centre are as follows.

Brain

Acoustic neuroma	AVM (arterio-venous malformations)
Meningeoma	Trigeminal neuralgia
Other Neuromas	Haemangioblastomas
Metastases	Jugular foramen tumours
Gliomas (selected cases)	

ECZM has recently installed the new Siemens Emotion 16 detector CT which enables very fast scanning times (30 seconds for a brain scan).

Spine

Metastases	Haemangioblastomas
Neuromas	Tumour pain
Meningeomas	MPNST (malignant peripheral nerve sheath tumours)

Spine lesions are treated with the brand new Xsight software package, which enables a treatment without the need to place invasive fiducials for spinal tracking. ECZM is currently the only CyberKnife® Centre in Europe operating this software.

Body

Lung metastases (single)	Renal cell cancer (Stage I)
Lung cancer (Stage I)	Liver tumours

Body lesions are treated with the Synchrony (breath triggered robot movement) system. Note: these treatments are more complex than brain and spine treatments and patients are carefully selected for suitability. Preparatory procedures are required one week before CyberKnife® can be used and these are conducted in the adjacent University Hospital.

When conventional therapy has been insufficient

CyberKnife® treatments can sometimes be performed for patients after conventional therapy when the tumour could not be controlled. This is an important advantage because traditionally there was no other option for these patients.

Who will be involved in my treatment?

CyberKnife® treatment utilises a team approach, where medical experts collaborate with you as their central focus. Team members may include your surgeon, radiation oncologist, medical oncologist, physicist, and other team members within the hospital.

Simple Outpatient Treatment

Step 1: Treatment Setup

Making a Mask

A custom soft mask (for head/neck treatments) is formed and used to help minimize movements during the treatment and ensure your comfort. The process is simple and painless.

Fiducial Placement

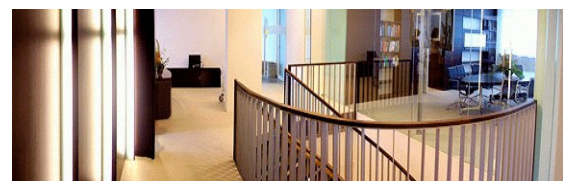
CyberKnife® treatments for body (non-head) lesions may require a short outpatient procedure to implant several small metal markers (fiducials) near the tumour, in order to track its position throughout the treatment. ECZM uses the latest additional software however, which enables it to treat spinal tumours without implanting fiducials.

Imaging

A T-scan is performed. Your surgeon and radiation oncologist use the scan to identify the exact size, shape and location of the tumour along with the surrounding vital structures to be avoided.

Step 2: Treatment Planning

The CT data is downloaded to the CyberKnife® treatment-planning computer where physicians will use advanced software to customise the number, intensity and direction of radiation beams for the robot to send to the target. You do not need to be present during this step.



Step 3: Treatment Delivery

Arriving

Wear comfortable clothing and no jewellery. Try to relax, knowing that this will be a painless procedure. Feel free to bring a list of questions to ask the CyberKnife® team. They are there to ensure your comfort and safety.

Positioning

You will be asked to lie on the treatment table and be fitted with the custom mask or body mould made earlier during the set-up process. Generally, no sedation or anaesthesia is required because the treatment is painless.



Painless Treatment

During treatment, you will need to lie still. You will be awake throughout the entire procedure, which typically lasts 30-90 minutes depending on the complexity of your tumour. Bring your favourite CD to help you relax! The image guidance system periodically takes x-ray images and compares them to data from the CT scan to ensure that the radiation is targeted accurately to the tumour.

Completion

If you are undergoing single-session radiosurgery treatment, your treatment is complete and you can usually leave the hospital and resume normal activity immediately. If your physician prescribes a “hypo-fractionated” or staged treatment, this will be spread over three or five consecutive days, either Monday to Wednesday or Monday to Friday.

Follow-up

As with any radiosurgery or radiation therapy procedure, follow-up imaging and consultation is required to monitor your tumour’s progress, ideally on a six-monthly basis. This may require a return to Munich, however in most cases it will be sufficient to send MRI control scans and neurological follow up results on a CD.

How do I obtain treatment?

The European CyberKnife® Centre (ECZM) is in great demand as a global centre of excellence for brain and spinal tumours. Scanning facilities and medical software are upgraded periodically, offering new or improved treatments, so we are instructed to review initial enquiries and advise doctors or patients of information required by ECZM to consider each new case. Please understand that this enables the Consultants to work efficiently and ensures prompt and fair treatment for all patients. We are Sole Representatives in the UK and Ireland and welcome enquiries from all other countries. There is no charge for ECZM treatment enquiries made through us.

Patients or doctors should request our **Patient Assessment Form**. This will be supplied by e-mail, with more detailed information on CyberKnife® treatments as well as practical guidance on visiting ECZM. We can also advise patients, doctors or health insurers in general terms whether CyberKnife® is likely to be of assistance for a stated condition and give an indication of cost. Medilux Healthcare Ltd and ECZM are committed to the prompt handling of enquiries and once ECZM accepts a case treatment is usually offered within two weeks.

NOTE: Medilux Healthcare Ltd does not examine or diagnose patients, nor can we commit ECZM to any diagnosis, outcome or costing or enter into any formal or informal agreement on ECZM’s behalf. We will not enter into contractual arrangements with any party regarding their or their patient’s treatment at the ECZM, nor will we be in any way liable for the success, failure or other outcome of such treatment.

Presentations and training seminars for Medical Professionals

Medilux Healthcare Ltd. arranges occasional presentations at the Royal Society of Medicine in London, where participants can meet ECZM personnel and ask questions. Please register contact details, professional status and any particular area of interest to be informed of future dates. Special presentations to specific audiences or in other locations are possible by request.



Neurosurgeons, radiation therapists, medical physicists, medical technical assistants and others may also attend practical seminars in Munich. Treatments can be observed by video camera and discussed with attending physicians. Please ask us for details or to arrange a place.

Contact details

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