

The next generation in radiosurgery : ZAP-X®

High-precision radiation therapy
for brain tumors and brain metastasis





„My BRAIN is ME“

**Dear patient,
dear family member!**

Being diagnosed with a brain tumor or brain metastasis - whether in connection with another type of cancer or as a primary diagnosis - has a very significant impact on patients as well as other persons close to them. They are extremely worried about personality changes or memory loss. Various treatment options are meanwhile available, however.

We are in a position, as the first hospital in Germany and indeed Europe, to offer innovative stereotactic radiosurgery (SRS) ZAP-X®. In the case of certain indications, this treatment provides either an alternative or a supplement to classical surgery and radiotherapy.

Tumors and metastasis in the brain can be treated with highly dosed and precisely delivered radiation, with maximum protection of the surrounding healthy tissue. The therapy is painless. No anesthesia is required. This makes outpatient treatment possible, so that patients may return to their home environment on the same day.

Since brain tumor therapy requires expertise from a number of medical disciplines, cooperation between medical specialists in the individual disciplines is standard procedure for us. Surgery with ZAP-X®, just as other kinds of cancer treatment, is presented to the tumor board, in the context of which neurosurgeons, neurologists, radiotherapists and oncologists discuss the patient's condition and set up an individual treatment plan.

We would be pleased to arrange a personal meeting to inform you about treatment possibilities with ZAP-X®. Please contact us either directly or via the doctor responsible for your treatment.

Yours sincerely

Prof. (UCPY) Dr. (PY) Peter Douglas Klassen

Neurosurgeon

The next generation in radiosurgery ZAP-X®

The radiosurgical platform ZAP-X® is a non-invasive alternative to surgery and traditional radiation therapy. It is the latest generation in radiosurgery, also with regard to patient safety.

Built for the brain

„ We developed ZAP-X® especially for the brain.” We are delighted to collaborate with Prof. Dr. Klassen and his team, a competent physician who is now offering our latest stereotactic radiosurgery in Europe!”

ZAP Surgical® was founded by Dr. John Adler in 2014. He is a professor of neurosurgery and radiation oncology at Stanford University and also the inventor of the Cyber-Knife® Robotic Radiosurgery System, as well as founder of Accuray, Inc.. In 2018, Dr. Adler was awarded the American Association of Neurological Surgeons (AANS) Cushing Award for Technical Excellence and Innovation in Neurosurgery.



Foto: ZAP Surgical



Many years ago, both the mother and the closest friend of Prof. Dr. Klassen died of cancer in his home country of Paraguay. They suffered from brain metastasis caused by breast cancer in the case of his mother, and lung cancer in the case of his friend.

„Under such circumstances, patients often only had access to top-class care in large cities“, says Prof. Dr. Klassen. “The new ZAP-X® technology now makes this advanced SRS treatment available close to people's homes in Germany.”



Top medicine for our region



In the case of specific diagnoses ZAP-X® treatment in the area of head and neck is possible for:

Benign tumors

- Meningioma
- Acoustic neuroma
- Pituitary adenoma
- Vascular malformation

Malignant tumors

- Metastases

Neuromodulation and pain

- Trigeminal neuralgia
- Hypoglossal neuralgia
- Temporal lobe epilepsy

Benefits for patients: gentle, outpatient treatment

If the indication criteria for ZAP-X® radiotherapy are met, this treatment offers numerous benefits for the patient:

- Non-invasive treatment
- No head surgery involving opening of the skull
- No pain
- Patient remains responsive at all times
- Team of doctors in the same room and, upon request, a family member can be in an adjacent room separated only by a pane of glass
- Individual, breathable mask, no invasive head frame
- No holding of breath during treatment
- Targeted and precise radiation of the tumor
- Low impact on surrounding healthy tissue
- Automatic tracking of the tumor by ZAP-X®, even if the patient is moving
- Constant safety monitoring of the beam
- Brief duration of treatment
- Low level of stray radiation and radiation exposure of healthy brain tissue
- Minimal number of treatments overall
- Little or no complications and side effects
- Most patients are able to return to their regular activities quickly following treatment with ZAP-X

Treatment steps: simple, personalized and precise

The greatest comfort for patients is the simple, personalized treatment process we have designed to improve quality of life and quickly get patients back to normal activities. Here is how we approach high-precision radiotherapy with ZAP-X® at Bonifatius Hospital Lingen.

Step 1 Diagnostics

The patient contacts us - either via email or in person - and informs us about his diagnosis by means of CT and MRI images that show size, form and position of the tumor or the metastasis. In a team of neurosurgeons and radiotherapists, and after presentation of the case at the interdisciplinary tumor board at Bonifatius Hospital, a treatment procedure is agreed with the patient.



Step 2 Planning

If medical treatment with ZAP-X® is appropriate, a team of doctors, medical physicists and radiotherapists jointly assesses the available examination findings. CT and MRI data is transferred to the computer for planning purposes. On the basis of the detailed examination of the tumor or the metastases, calculations are conducted to determine how and in what dosage high-precision radiation therapy will be applied, and how the surrounding healthy tissue is to be protected in the best possible way.



Step 3 Day of Treatment

On the day of treatment, the patient is prepared by our team. In a comfortable lying position, the patient is provided with a previously prepared, custom-fitted breathable immobilizing mask. Depending on the diagnosis, radiotherapy treatment takes an average of 45 minutes. Our medical team remains in the same room and in direct contact with the patient.

Upon request, a familiar person may also remain in the immediate vicinity. During treatment, a tumor can change its position due to the patient's movements. Due to intelligent imaging, permanent tracking and real-time transmission of information concerning the position of the tumor or metastase, the system automatically adjusts the radiation beam. This also permits interruption of treatment if a patient wishes, for example, to take a drink or stand up for a moment. Following an extensive concluding discussion, the patient can leave our ZAP-X® Center on the same day.



Step 4 Follow-up

At regular intervals, we assess and document how the tumor or metastases react to the radiation therapy. Some tumors or metastases disappear slower than others, some stop growing immediately and show no more activity. In rare cases, follow-up treatment of the tissue may be required.

Depending on the individual diagnosis, a first check-up is scheduled 6 to 12 weeks after treatment. Up-to-date MRI images will be required for this check-up. These images can be taken either at Bonifatius Hospital, or someplace near your home and transferred to us.



Ask 3 important questions*

Sometimes you have to make decisions concerning your further treatment. Please ensure that you receive answers to the following 3 questions.

- What are my options? (including waiting and observing)

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- What are the advantages and disadvantages of each of these options for me personally?

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- How can I get support in making a decision that is right for me?

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Do you have any further questions? Please do not hesitate to bring up any issue that is important for you!



Isabelle Scholl, Anja Lindig, Pola Hahlweg, Universitätsklinikum Hamburg-Eppendorf
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*Quelle: Lindig et al. Health Expect. 2020;00:1–16 (DOI: 10.1111/hex.13114)

A detailed anatomical illustration of a human brain, viewed from the side, showing the cerebral cortex with its characteristic folds (gyri and sulci). The brain is rendered in a light gray, almost ethereal style, set against a background of horizontal dotted lines.

Where to find us: ZAP-X® Center at Bonifatius Hospital Lingen



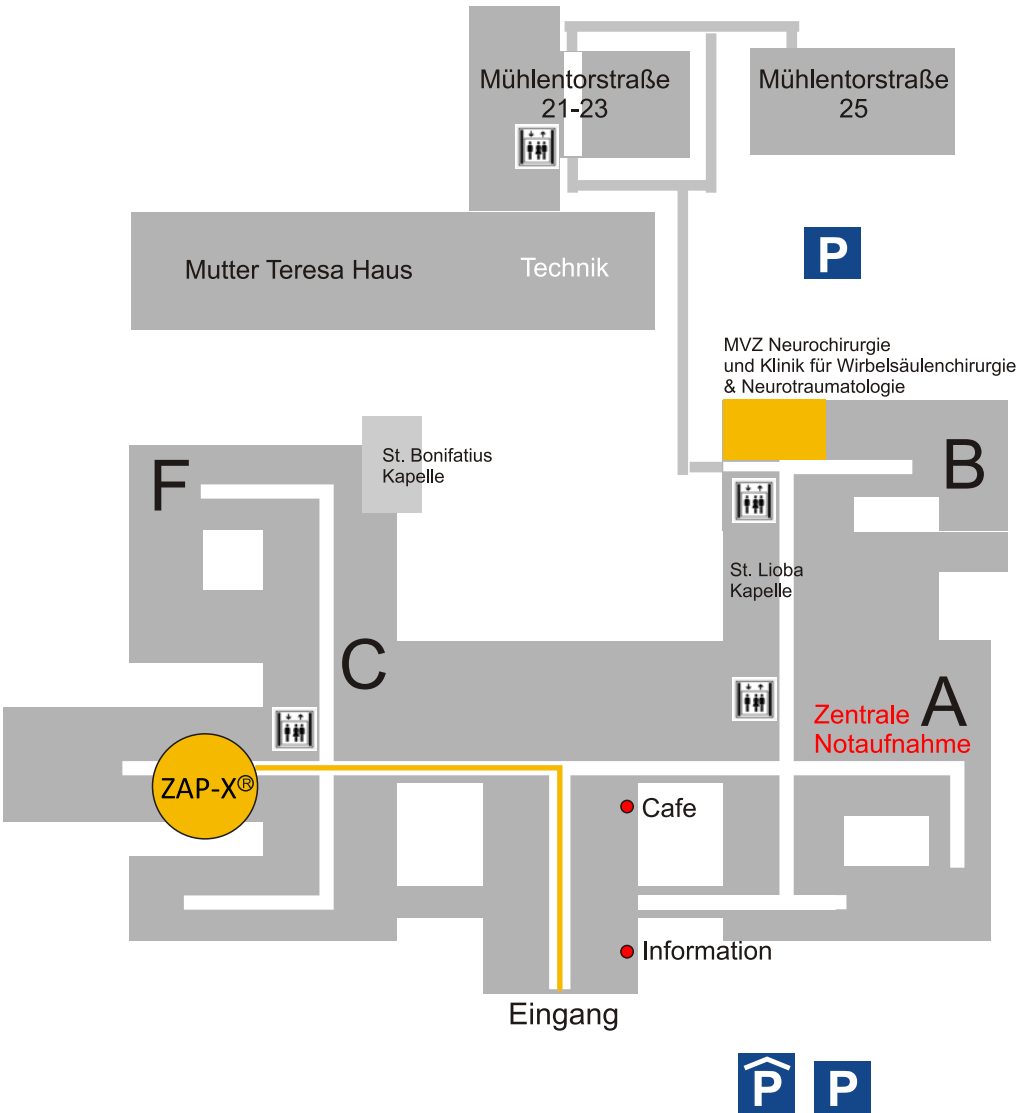
The Bonifatius Hospital Lingen is a Catholic hospital run by a non-profit limited liability company (gGmbH) and was voted one of the best hospitals in its size category in Lower Saxony (FAZ Institut 2020). Sole shareholder of the gGmbH is the St. Bonifatius Hospitalgesellschaft Lingen e.V. association.

Unser Verbund

Das ist die St. Bonifatius Hospitalgesellschaft



How to get to ZAP-X® Center at Bonifatius Hospital Lingen



Our cooperation partners: “Your BRAIN is YOU”

Medicine

Regional joint practice for radiotherapy (Überörtliche Gemeinschaftspraxis für Strahlentherapie Nordhorn - Meppen)



Dr. med. Davar Hatami
Medical specialist in radiotherapy



Dr. rer. nat. Jörg Harmsen
Medical physicist expert



Sibylle Heinrich, radiographer



Vanessa Le, radiographer

Clinic for stereotax and functional neurosurgery, University Hospital Cologne



Univ. Prof. Dr. med. Maximilian I. Ruge
Department head of
oncologic stereotax
and radiosurgery
Medical specialist in neurosurgery

Foto: Michael Wodak / MedizinFotoKöln



Priv.-Doz. Dr. rer. nat. Harald Treuer
Head of medical physics

Foto: Conventus Congressmanagement
& Marketing GmbH

Science/Research

PTW Freiburg

Physikalisch-Technische Werkstätten Dr. Pychlau GmbH



ZAP-X® Center of the Bonifatius Hospital Lingen

Ärzteteam:



Prof. (UCPY) Dr. (PY) Peter Douglas Klassen
Medical specialist in neurosurgery (EANS)



Dr. med. Bert Baume
Medical specialist in neurosurgery



Victor Velazquez
Medical specialist in neurosurgery

Casemanagement



Edelgard Klassen B. Sc., MBA
Coordination and case management

Secretariat



Marita Wester
Medical assistant

Contact data:

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Please do not hesitate to contact us directly should you have any questions, concerns or thoughts. You are welcome to bring a person close to you to the first meeting.

In addition to German, we offer counselling in English, Spanish, Arabic and Greek.

Your team at ZAP-X® Center



Bonifatius Hospital Lingen

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Eine Einrichtung der **St. Bonifatius Hospitalgesellschaft**
den Menschen verbunden

ZAP-X® Zentrum

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