

PreOPlan

The solution for planning your Synthes osteosyntheses

www.siemens.com/preoplan

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The solution for planning your Synthes osteosyntheses



The tasks of modern trauma surgery and orthopedics are becoming increasingly complex. PreOPlan is helping to reduce this complexity. It has been developed in close cooperation with Synthes, market leader in the production of trauma implants. PreOPlan is a software for preoperative planning of fracture treatment, focussing on an easy-to-use user interface, short planning time, and reliable results.

Preoperative planning of trauma cases

PreOPlan supports surgeons in the reduction of fractures and in selecting and placing Synthes implants. PreOPlan features an easy-to-use user interface. This facilitates efficient planning of surgical procedures and seamless integration into the surgical workflow.

Simulating fracture treatment with PreOPlan supports the OR team in preparing the intervention in an optimal way.

- **Short planning time**
- **Solution oriented surgical planning**
- **Easy operation**
- **Integrated technologies designed in cooperation by Siemens and Synthes**
- **Ideally suited also as teaching aid**

Short training and planning time

Thanks to practice-oriented user guidance and the intelligent Synthes implant database the whole planning is a sequence of a few, intuitive interactions. Tedious actions to search and combine of implants are no longer necessary.

Reliable results

In selection, combination and manipulation of implants PreOPlan is following the proven OR techniques by Synthes.

Precision in preoperative planning

The photorealistic, three-dimensional rendering of implants and the possibility to plan in two planes are facilitating high precision planning and reducing the probability of surprises in the OR. With PreOPlan, even bending of suited implants can be planned on screen.

Allocation of material for the OR

The final planning report is created automatically and contains – apart from the visual result – the list of all implants needed to effectively prepare the operation, including material numbers.

Unlimited connectivity

With PreOPlan, 2D x-ray images of the patient can be loaded from arbitrary connected digital media (e.g. hard disk, CD, USB stick ...), or from any DICOM picture archive (PACS) which is accessible over the network. The final planning report can be printed, saved as PDF document, saved as DICOM file on media, or sent back to a PACS, from where it could be loaded onto a PACS viewing station in the OR, for example.

No risk

Before deciding to buy PreOPlan, its full functionality can be tested for 90 days, for free.

Usage of PreOPlan:

This software is used preoperatively by an instructed user (surgeon) to plan surgical interventions (planning of osteosyntheses).

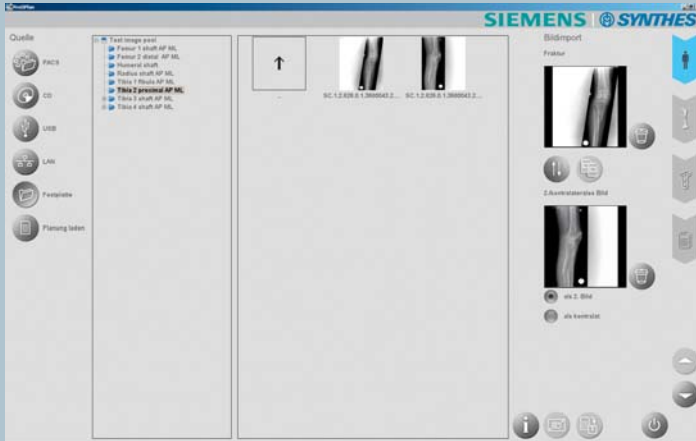
PreOPlan is intended to be used in an office workstation environment (e.g. doctor's office) where the physician plans the surgical intervention (generally the day before). The software is operated by mouse and keyboard. It is not intended for diagnostic purposes, but allows the use of simple measuring functions in the planning process.

The software is designed to be used in traumatology and for planning the surgical treatment of fractures. The software is not an archive medium.

The main task in the surgical treatment of fractures is the correct joining of the individual bone fragments (reposition) and their stable fixation (osteosynthesis) by means of suitable implants (e.g. plates or intramedullary nails).

The surgeon is planning the surgical procedure by devising a strategy for reducing the fracture based on the X-ray images, and by selecting a suitable implant to fix the reduced fracture.

The planning result is communicated to the OR staff who will then prepare the required material and sterile items.



Start planning



Reduce fracture



Select implant



Place implant



Plan screws



End planning

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Preoperative planning of trauma cases

Start planning

- Selection of image data: 2D X-ray images, format JPEG, TIF or DICOM Computed Radiography (recommended)
- Utilization of one or two images (2nd plane or with mirrored side as template)
- Input of patient data (name, date of birth, fractured side, etc.) – for DICOM image data mostly filled automatically
- Confirmation of scale (automatic recognition of scaling sphere or manual definition according to an arbitrary structure of known size in the image)
- Basic image preprocessing (rotate, zoom, pan, contrast adjustment)

Reduce fracture

- Identification and segmentation of bone fragments (set contour by connecting points or by free-hand drawing)
- Fracture reduction by moving and rotating fragments separately or together
- Support by angle and distance measurement functions

Select implant

- Convenient preselection by clicking on body region, free text search and/or implant material
- Direct access to corresponding OR technique manual

Place implant

- Moving and/or swiveling implant
- Convenient selection of different implant shapes by simply dragging corresponding handles with the mouse (different lengths, angles or diameters, if available for that implant)
- Simple mechanism to bend implants with the mouse (for certain implants)
- When planning in two planes, changes on implants are synchronized in both views, as far as possible

Plan screws

- Automatically created proposal of standard assignment of the implant with Synthes screws
- Selection and deselection of corresponding implants with mouse click on the corresponding hole
- Selection of screw lengths as well as angles towards implant (for non-fixed-angle screws) by simply dragging corresponding handles with the mouse
- Possible angles correspond to effective degree of freedom, as well as only real lengths are proposed
- When planning in two planes, changes on corresponding implants are synchronized in both views, as far as possible

End planning

- Automatically created planning report
- Planning image(s) with implants
- List of all planned implants incl. material numbers
- User comments (directly within the image or separately in the report text)
- Report output on paper printer, in different document formats or saved in any archiving/PACS system accessible over the network (if configured)

Based on the report the OR staff can carry out the necessary preparations for the operation.

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Technical Data

Minimum requirements hard- and software

| | |
|-------------------------------|--------------------------------------------------------------------------------------------------|
| Operating systems | Microsoft® Windows XP Home/Professional or Microsoft® Windows Vista Home Premium/Business |
| Processor | x86 or compatible (Intel/AMD), 2.0 GHz min. |
| Free RAM | 1 GB min. |
| Graphic adapter | nVidia GeForce 6xxx or nVidia Quadro FX 1600M / higher or ATI Radeon HD 48xx, OpenGL 2.0 support |
| Graphic memory | 128 MB min. |
| Recommended screen resolution | 1280 x 1024 pixel or more |
| Hard disk | 5 GB free space |
| Connections | 1 x USB 2.0 or more |
| Software | Internet Explorer 6.0 or higher, PDF Reader |

Possible operation modes as DICOM node within the institution (optional)

| | |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inbox (passive) | Archive system or different DICOM node can send images to PreOPlan (Pre-requisite: PreOPlan computer is constantly running and connected to the network) |
| Query/Retrieve (active) | From PreOPlan, images from an archive system or different DICOM node can be queried and loaded into the software |
| Sender | Final report can be sent from PreOPlan to archive system or different (Pre-requisite: Original images of that patient have been received from there before) |

Scope of delivery, further information

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Available variants | Trial (90 days free), Professional |
| Scope of delivery Trial | Software with ca. 4000 implants, manual (digital as PDF), can be used for max. 90 days after installation |
| Scope of delivery Professional | Software with ca. 4000 implants, manual (digital as PDF), license key USB license dongle, 2 stainless steel scaling spheres in pouch (diameter 25 mm), 100 pcs. disposable tape rings for scaling spheres |
| Product status PreOPlan | CE-Release as medical product acc. to MDD |
| Supported languages | German/English (user interface and manual) |
| Licence model Professional | Software license is bound to corresponding computer after installation via USB license dongle, and runs only on this computer while connected |
| Product homepage | www.siemens.com/preoplan |

Local Contact Information

In USA

Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway
Malvern, PA 19355-1406 USA
Phone: +1 888 826 9702

In Japan

Siemens-Asahi
Medical Technologies Ltd.
Takanawa Park Tower
3-20-14, Higashi-gotanda
Shinagawa-ku
Tokyo 141-8644
Phone: +81 3 5423 8510

In Asia

Siemens Pte Ltd
The Siemens Center
60 MacPherson Road
Singapore 348615
Phone: +65 6490 8182

In Germany

Siemens AG
Healthcare Sector
Karlheinz-Kaske-Str. 2
91052 Erlangen
Phone: +49 9131 84-0

Global Business Unit

Siemens AG
Medical Solutions
Special Systems
Henkestr. 127
DE-91052 Erlangen
Germany
Phone: +49 9131 84-0

PreOPlan is not available in the US.

The information in this document contains general descriptions of the technical options available and may not always apply in individual cases.

The required features should therefore be specified in each individual case at completion of contract.

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Global Siemens Headquarters

Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

Global Siemens Healthcare Headquarters

Siemens AG
Healthcare Sector
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84-0
www.siemens.com/healthcare

Legal Manufacturer

Siemens AG
Wittelsbacherplatz 2
DE-80333 Muenchen
Germany

www.siemens.com/healthcare