Planning report v1

Case No: XXX
Surgeon: Dr. XXX
Hospital: XXX

This planning report contains:
• Analysis of the preoperative situation based on the provided CT scan
• Implant design with screw proposal for this patient case
Message to the surgeon

Dear Dr. XXX,

This report contains the planning for your patient ‘XXX’ (ID XXX).

We seek your feedback on the proposed visualisations and drafted implant design.

Please approve and/or comment each of the topic-related questions via the comment window in SurgiCase and/or phone call.

An overview of the questions is provided on the last slides of this report.

Kind regards,
Your Materialise Clinical Engineer
Patient: Male, 82y

Side to treat: Left hemi-pelvis

CT scan date: DD/MM/YYYY

CT data received: DD/MM/YYYY

Surgery date: To be confirmed

Do you have a surgery date in mind?

Materialise addresses great importance to the full protection of privacy and personal health information. Personal information is anonymized via a unique patient number and/or case number. Accordingly, patient data can be consulted by the surgeon by use of the prescription form. This report contains confidential information and is meant for the operating surgeon only.
Preoperative situation
Right side: overview

- Cemented hip stem
- Cement
- Liner

Anterior

Lateral

Anterolateral
Left side: overview

- Cemented hip stem
- Cement
- Bone Fragment
- Cerclage wire
- Screws
- Liner
- Metal mesh

Anterior

Lateral

Anterolateral
Left side: present components

- 1 screw is fixating the metal mesh (no 5).
- 1 screw is loose (no. 6).
- 4 screws are partially embedded in the bone (no. 1 to 4).

Acetabular preparation:

All components should be removed prior to implant insertion.

Do you agree with the acetabular preparation as presented?
Left side: bone defect
Acetabular Bone Loss

The figure below quantifies in percentages and in color the bone loss in the different regions of the acetabulum.

- Cranial region: -$97\%$
- Medial wall: -$52\%$
- Anterior column: -$36\%$
- Posterior column: -$53\%$
- Medial wall: -$52\%$

Analysis based on Gelaude F. et al. (2011)
Defect classification

Defect classification according to: Paprosky W.G. et al. (1994)

Left hemi-pelvis classification

- Cranial region: totally degraded; nearly missing
- Anterior column: severely degraded
- Medial wall: severely degraded
- Posterior column: severely degraded; bone deformation present
- Original anatomical acetabular rim
- Joint centre displacement: Fully deformed, and thus absent from at least nine to five o’clock. Displacement of the joint center is larger than 20mm (34 mm).

Please confirm the defect classification
Bone quality for fixation

Lateral

Medial
Implant design

Cup
- Inclination: 40°
- AV angle: 20°
- Inner Diameter: 61mm
- Cup/Liner diameter: 57mm

1. Do you agree with the position of the proposed Centre of Rotation?
2. Do you agree with the proposed inclination and anteverision?
3. A cup/liner component of max 57mm outside diameter can be cemented in the implant. Is this OK?
Preparation and reconstruction

Some **bone removal** is needed for proper implant insertion. Is this OK?

Do you agree to use a **posterolateral approach**? If no, please specify. Is the **plate outline** compliant with your surgical exposure?

Is the shape of the **trabecular augment** OK? To enable insertion some clearance will be foreseen, which can be filled with morselized bone.

Planned bone removal: 4.2 cm³ (ml)

Planned bone after removal

Implant design (**Trabecular augment** and **plate** are built as one part)
Screw proposal

Do you have any remarks concerning the screw positioning? See also the attached 3D animation.
The use of titanium cancellous bone screws (Ø 6.5 mm) is recommended. The selected screws must have a maximal head height of 4.8 mm and a head diameter between 7.85 mm and 8 mm.

The use of a flexible drill is recommended. By default the aMace guides are designed to be compatible with a 3.2 mm drill. Note that the drill bit will not be provided by Materialise.

Please specify the drill bit diameter corresponding to your choice of screws.

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<th>Screw</th>
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Important information

- We will need both the **patient prescription form** and **quote** filled out and sent over to us in order to produce and deliver the implant.

- Materialise NV delivers a **custom implant and custom accessories** (trial implant, bone model and drill guides). **We do not provide any other components or instrumentation**, such as screws, liner or drill instrumentation. These need to be provided by the hospital.

- Indicate if additional **administrative preparation** is needed to receive/process **custom implants** at your hospital.

- Note that it is highly recommended to **perform the surgery within 6 months of the CT scan date**.

- The implant will be produced in titanium (alloy Ti6Al4V). Please indicate if this poses any problems.

- All components are delivered **non-sterile** and need to be cleaned and sterilised at hospital facility. For this purpose the implant will be delivered at least one day ahead of surgery. Indicate if more time is needed, and please specify your **material responsible’s contact details**.
Questions for the surgeon

**Surgery date** not yet defined. Do you have a date or time period in mind?

Do you agree with the **acetabular preparation planning** as presented regarding components removal?

Please confirm the **defect classification**. Additional visualisation can be provided if needed.

Please provide feedback on the proposed **Centre Of Rotation**.

Do you agree with the proposed **inclination** and **anteversion**?

The design is compatible with a **cup/liner component** with maximum outside diameter of **57mm**. Which liner component do you want to use? Please specify the **type** and **size**.

(Note that the cup/liner component is not provided by Materialise NV.)
Questions for the surgeon

Do you agree with the proposed bone removal required to enable proper implant insertion?

Do you agree to use a posterolateral approach? If no, please specify your surgical approach. Is the plate outline compliant with your surgical exposure?

Is the shape of the trabecular augment OK? To enable insertion, some clearance will be foreseen which can be filled with morselized allografts.

Do you have any remarks concerning the screw positioning? (screws are not provided by Materialise NV)

The use of titanium cancellous bone screws (Ø6.5mm) is recommended. The selected screws must have a maximal head height of 4.8 mm and a head diameter between 7.85 mm and 8 mm.

By default the aMace guides are designed to be compatible with a 3.2 mm drill. Please specify the drill bit diameter corresponding to your choice of screws.
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