

The German Arthroplasty Registry (EPRD)

# **Annual Report 2021**





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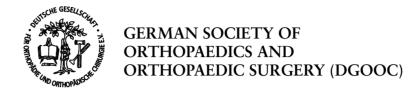
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For better readability, we refrain from gender-specific wording in the text. This publication is inclusive of the male, female and diverse genders.

## The German Arthroplasty Registry

An initiative of the German Society for Orthopaedics and Orthopaedic Surgery (DGOOC)



## **Annual Report 2021**

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We are very grateful to the members of the working groups for their suggestions and feedback regarding this annual report.

# Message from the Scientific Director of the EPRD



Professor Volkmar Jansson, M.Eng., M.D., Ph.D. Scientific Director of the EPRD

The COVID-19 crisis impacted the activity of the EPRD - resulting in a national reduction in primary arthroplasty procedures of 9 %, and revision procedures of about 7 % in 2020.

However, the high quality and validity of data collection of the EPRD was maintained, its unique structure allowing almost 100 % coverage of re-operations. It is in this respect that the EPRD differs from most other registries worldwide. Thus we can once again present a robust annual report with interesting numbers this years.

We owe a debt of gratitude to all participating hospitals, surgeons and patients for their Happy reading!

commitment: the EPRD would not exist without them.

The EPRD is now well established amongst national arthroplasty registries. Publications accepted in high-ranking peer-reviewed journals testify to the acceptance of our work. The unique product database, developed and constantly refined in co-operation with the British National Joint Registry (NJR) enjoys high standing and is recognised as a blueprint for all registries, to be adopted worldwide. This will ensure that implants are analysed by their product characteristics as described in the harmonised EPRD - NJR product classification system. A great success in the standardisation of arthroplasty surgery evaluation for arthroplasty registries worldwide!

Along with the raw numbers, we also present interpretations and conclusions on specific topics. This year, we are taking a closer look at the infection-related revision probabilities, and we will for the first time also address implant component "mismatches". We also include a detailed analysis of stem cementation.

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# 1 Introduction

The German Arthroplasty Registry (EPRD) was established by physicians, health insurance providers and industry as a purely voluntary registry to create a reliable database for the assessment of endoprosthetic hip and knee replacements. Since its foundation, the declared mission has been "More quality with safety". Accordingly, the EPRD does not regard data collection purely as an end in itself, but rather as a means to improve the quality of care in Germany.

The EPRD continues to make good progress: although many procedures were cancelled or postponed last year due to the COVID-19 pandemic, the hospitals submitted documents for almost 290,000 procedures to the registry in 2020 alone. So, even when times are difficult, hospital commitment continues. Nevertheless, the arthroplasty sector in Germany and the EPRD did not come through the COVID-19 crisis unscathed: its effects are addressed in chapters 2 and 4 which focus on the latest developments and the surgical documentation registered for the calendar year 2020.

As in previous years, the main focus of this annual report is on arthroplasty survival outcomes, which are presented in Chapter 5.

The insights gained from the analysis of arthroplasty survival data can help improve quality. This year, we specifically focus on revision surgery due to periprosthetic joint infection. Infections are a particularly serious reason for revision surgery because they also markedly increase the risk of subsequent reoperations. Section 5.4 examines the general risk of periprosthetic joint infections and the factors that modulate this risk.

Chapter 6 addresses another option to implement quality improvements and increase patient safety in a simple and straightforward manner. In rare cases, incompatible components are implanted together during primary surgery. In these cases, it is often foreseeable that the patients will suffer problems with these implants. In order to prevent these avoidable "mismatches" in future primary surgery, the EPRD will establish a system which will report these cases back to the hospitals at an early stage.

Chapter 7 briefly summarises the most important contents.

# 2 Registry development



# 2 Registry development

From the start of data collection in November 2012 until the end of 2020, the EPRD was able to collect data on more than 1.67 million hip and knee arthroplasty procedures. The upward trend we had seen until 2019 came to a standstill when the COVID-19 pandemic struck Germany in the spring of 2020. While in 2019 the EPRD was able to document about 70 % of the hip and knee arthroplasties performed in Germany, the figures for 2020 declined for the first time (see figure 1). In 2020, 733 hospitals provided data sets for a total of 290,420 operations, which is 9 % less than the previous year.

This decline can be attributed in particular to the lockdown period last spring (see figure 2). While in January and February the documentation figures for 2020 were still slightly above the level of previous years, the number of documented procedures dropped

massively once lockdown started, in March. Fortunately, the number of documented procedures stabilised over the summer months, even slightly exceeding the figures of the previous year. However, the EPRD did not see any noticeable "catch-up effect" in the sense of arthroplasties originally scheduled for the spring being increasingly performed over the summer months. At the beginning of the second COVID wave, in the autumn of 2020, documentation numbers fell once again — even if only slightly — below the level of the previous year.

The COVID-19 crisis ultimately affected arthroplasty throughout Germany, as the EPRD documentation numbers demonstrate — but not to the same extent and at the same time everywhere. Figure 3 details how the annual documentation figures in the EPRD evolved from 2019 to 2020.

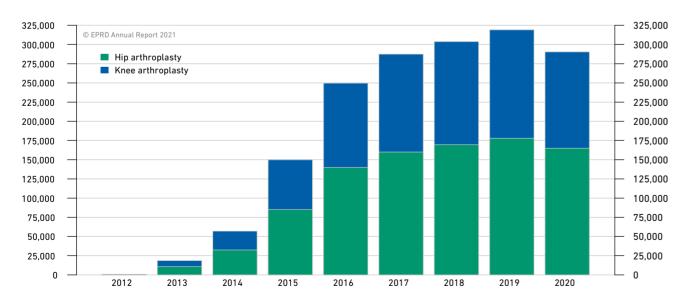


Figure 1: Evolution of surgical documentation submission figures from 2012 to 2020

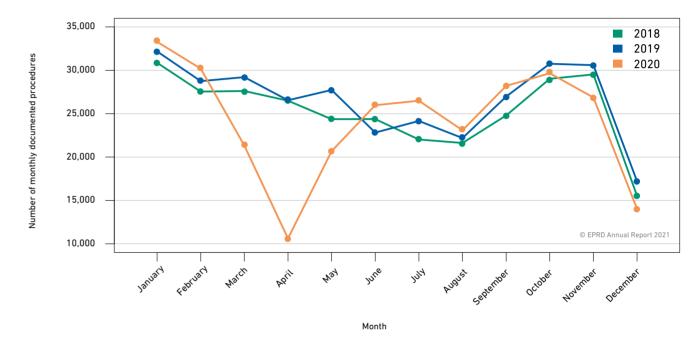


Figure 2: Comparison of monthly numbers of documented surgical procedures submitted to the EPRD from 2018 to 2020

The most significant decrease in the documentation numbers occurred in the "old" states in Western Germany. In parts of the north and east, on the other hand, they only declined less than 5 %.

However, there are clear differences in case numbers not only between regions, but also between hospitals within a region: in North Rhine-Westphalia, for example, the documentation figures dropped by 8 % overall. However, while approximately one quarter of the hospitals there reported 20 % fewer operations to the registry, the numbers stayed the same or even increased for the other quarter of hospitals.

As far as the future of the EPRD is concerned, in the autumn of 2019 parliament — as already reported last year — decided to establish a mandatory Implant Registry Germany (IRD). In the long run, the EPRD, with its accumulated data pool, will be merged with the IRD. Responding to a parliamentary question by the Free Democratic Party¹, the Federal Government has now clarified the timeline: a trial period for the documentation of hip and knee arthroplasties in the IRD is planned for the first quarter of 2023, and regular operation will start in 2024. So, for at least the next two years, the EPRD will continue on a voluntary basis

<sup>1</sup> PDF available at https://dserver.bundestag.de/btd/19/275/1927579.pdf

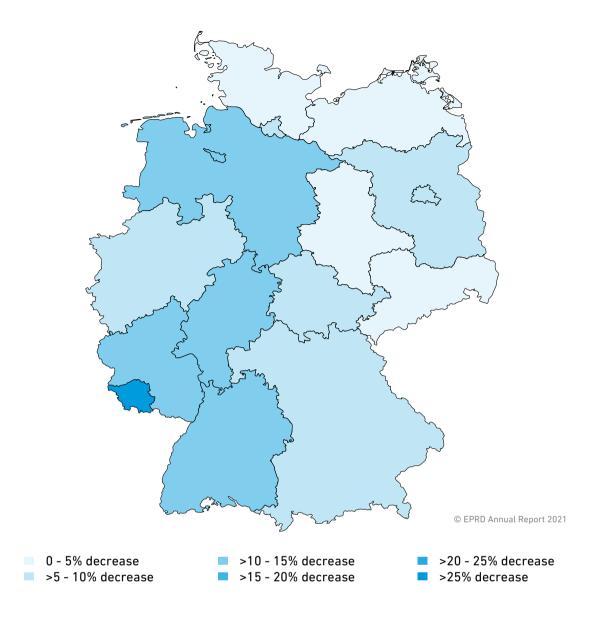


Figure 3: Decrease in documented procedures submitted to the EPRD from 2019 to 2020 by federal state

as before, nd in the meantime will try to document as many arthroplasty procedures performed in Germany as possible.

### In brief

- In 2020, about 290,000 operations were documented in the EPRD by 733 hospitals
- The COVID-19 crisis had a clear impact on documentation numbers, although this varied greatly from region to region
- The mandatory Implant Registry Germany (IRD) will not start full operation until 2024

# 3 Summary of statistical methodology and data linkage

# 3 Summary of statistical methodology and data linkage

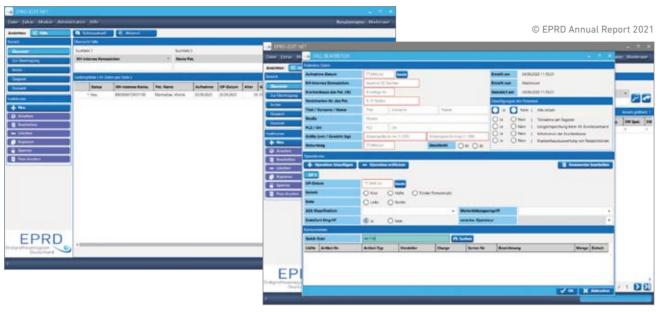


Illustration 1: For registry documentation, hospitals may enter their data via the EPRD-Edit software, among others. Illustrated here are: the main window after starting the software (back) and the dialogue window to document a new case (front).

The EPRD analyses data that it receives from three different sources (also see Illustration 2):

- With the patient's consent, a participating hospital may document arthroplasties directly in the EPRD. This registry documentation provides the EPRD with basic data on the procedure and the patient. This includes details of the date of the operation, the joint operated on, the type of operation, as well as the patient's age, sex and, since 2017, height and weight. Moreover, the hospitals also document exactly which components were implanted during the procedure.
- The EPRD closely cooperates with the federal associations of health insurance providers (AOK-Bundesverband GbR) and the Verband der Ersatzkassen e.V (vdek). By

consenting to participate in the registry, the patient agrees that the health insurance provider may provide the EPRD with further information — in accordance with data protection regulations — on both the documented surgery and any subsequent reoperations. From the German ICPM and ICD codes contained in this routine data, the EPRD can derive details of the procedure and its accompanying circumstances. Once the health insurance provider has reported the relevant patient data to the EPRD, the former will from then on independently check whether there are any further changes to the patient's arthroplasty. If this is the case or if the patient has died or left the provider, the health insurance provider reports this to the EPRD. In this way, the EPRD learns about a reoperation even if it was not directly documented in the registry.

• The implant manufacturers are also actively involved in the EPRD and enter information on their products in the EPRD product database. The database contains not only basic product information, e.g., part number and trade name, but also more detailed classification data with specific information on material, size, condition, etc. The database also contains a list of all the articles in the catalogue. Altogether, the product database currently comprises about 67,000 individual items. The classification data may be linked to the registry documentation via the documented part numbers. This allows the reported registry documentation to be categorised and arthroplasties with the same characteristics to be grouped together for analysis purposes<sup>2</sup>.

For its analysis, the EPRD combines the data from these three sources. The purely descriptive analysis of the current arthroplasty situation as described in Chapter 4 only requires the registry documentation and data from the product database. However, in order to

calculate survival times, as in Chapter 5, it is essential to include routine data from the health insurance providers. This is the only way that the EPRD, as a purely voluntary registry, can ensure that it does not miss any reoperation or censoring event. Since only the AOK and Ersatzkasse providers participate in the EPRD and since it takes time, due to the nature of the process, until the participating federal associations of health insurance providers can also provide routine data on arthroplasties documented in the registry, the number of data sets available for arthroplasty survival analysis is significantly smaller than the total number of data sets compiled in the EPRD.

In order to ensure the highest data quality possible, the EPRD thoroughly reviews incoming data sets for plausibility and notifies the hospitals of any documentation issues. The routine data of the health insurance providers are also included in the review to identify any inconsistencies. Any data set with contradictory or questionable informa-

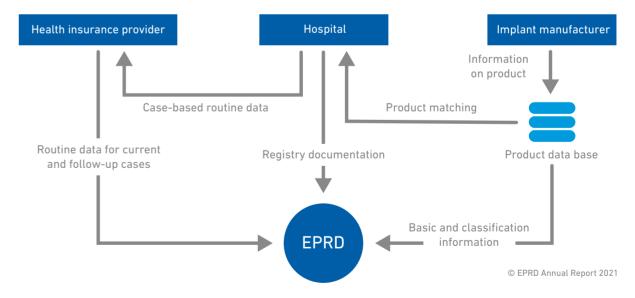


Illustration 2: The flow of data from hospitals, health insurance providers and implant manufacturers to the EPRD

<sup>2</sup> The product database is continuously upgraded and improved. These changes may affect the analysis results. In order to clearly present the development year by year, documentation from previous years is also re-analysed retroactively with the current state of the product database. To some extent this limits any comparison of the outcomes of this report with previous annual reports.

tion is excluded from the analysis until issues are resolved. The product survival analysis of this annual report was based on data from almost 664,000 primary arthroplasties and 21,000 primary revisions.

Arthroplasty survival trend analysis looks at the probabilities of first or repeat revision procedures and of subsequent complementary operations respectively. In the chapters below more detailed information on the particular illustrations and statistical methods is provided in highlighted text boxes at the beginning of the corresponding sections. In total, Chapter 5 analyses four different endpoints and timelines:

- 1. Period between primary arthroplasty and first revision for any reason (including explantation of components) (sections 5.1 to 5.3 except for Table 44): Subsequent (secondary) patellar resurfacing is explicitly not counted as revision, even if during the same procedure the insert was replaced prophylactically. If the procedure involves revision or explantation, this is considered to be the endpoint of the analysis — regardless of whether implant components were actually left in situ during the surgery or replaced. Censoring events include patient death, leg amputation and the termination of the follow-up, e.g., due to the patient changing health insurance provider.
- 2. Period between the primary arthroplasty and subsequent secondary patellar resurfacing (Table 44 Section 5.2): In order for a procedure to count as secondary patellar resurfacing, no prosthetic components other than the actual patellar component and an insert must be documented for the procedure. Moreover, the only arthroplasties

eligible for analysis are those without patellar resurfacing during primary surgery. For the purpose of this analysis, "standard" revision arthroplasties, as defined in number 1 above, are counted as additional censoring events.

- 3. Period between primary implantation and first revision or explantation of arthroplasty components due to infection (Section 5.4): This endpoint differs from number 1 only in that revision or explantation due to periprosthetic joint infection<sup>3</sup> is counted as an arthroplasty failure, while revision for other reasons is considered a censoring event.
- 4. Time span between first and second revision arthroplasty including explantation (Section 5.5): Only revisions of primary arthroplasties already documented in the registry are considered. If the first revision was carried out in two stages, i.e., components were explanted and re-implanted at two different dates, the period is only calculated from the re-implantation date.

### In brief

- Arthroplasty survival analyses:
   Based on 664,000 primary procedures and 21,000 first/subsequent revision arthroplasties followed up
- In this report, infection-related revisions are considered separately for the first time

<sup>3</sup> A reoperation is counted as such if the person documenting it in the registry specified "infection" as the indication for revision, or if the routine data for this procedure lists the ICD-10 code T84.5 ("Infection and inflammatory reaction due to internal joint prosthesis").

# The 2020 operating year



# 4 The 2020 operating year

This chapter takes a closer look at the data of the 290,420 operations reported to the EPRD for the 2020 calendar year. As in previous years, this report attempts to present current therapy in as much detail as possible and to highlight developments that have become apparent over the years in the EPRD.

This year, it should be noted that some supposed developments may simply reflect shortterm effects of the COVID-19 pandemic, which struck Germany in 2020. This also applies to Table 1, which illustrates the breakdown of the number of documented procedures between hip and knee replacements as well as between primary operations and reoperations. Compared to previous years, the share of hip arthroplasties increased by one percentage point (56.8 % in 2020 versus 55.8 % in 2019 and 2018). However, this increase does not reflect a general development, but rather the result of the lockdown periods this past year: while elective surgeries were temporarily postponed or completely cancelled, endoprosthetic treatments of femoral neck fractures were still being performed.

Thus, in 2020 the EPRD's percentage of hip hemiarthroplasties, almost solely performed to treat hip fractures, reached a new high of 11.5 % (versus 9.9 % in 2019; see Table 4).

It should be noted, however, that the decline in the absolute numbers documented in the EPRD not only impacted primary procedures but also reoperations. In 2020, about 7 % fewer hip and knee reoperations were reported compared to 2019.

All data sets submitted
Primary hip arthroplasties
Hip reoperations
Primary knee arthroplasties
Knee reoperations
Total femoral replacement

Proportion [%]	Age	m/f [%]	ВМІ
100.0	70	41 / 59	28.1
50.9	71	40 / 60	26.9
5.9	76	42 / 58	27.0
38.3	69	41 / 59	29.8
4.7	70	42 / 58	30.1
0.1	73	36 / 64	27.8
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Table 1: Proportion of registered procedures by joint and type of intervention in 2020. Absolute number of data sets in brackets below the percentages.

# Presentation of descriptive data

In this chapter, data sets submitted to the EPRD were categorised separately by type of arthroplasty, and the following descriptive parameters were determined for each category:

Parameter	Description
Proportion [%]	Percentage of the procedures in each category
Age	Median age in years of patients in this category. Thus, at least 50 $\%$ of patients in this category are not older and at least 50 $\%$ are not younger than this age.
m/f [%]	Percentage of male and female patients in this category
ВМІ	Median BMI of patients in this category. In each case, the figure refers to the subgroup of these patients for whom valid data on weight and height had been provided.

Classification into the various arthroplasty categories is based on the products documented for the procedure and the classification information stored in the product database. As a rule, the categories are designed so that they do not overlap. In total, given percentages usually add up to 100 % and refer to the total number of data sets to which the corresponding analysis rule could be applied. If analysis rules could not be applied to data sets because, for example, the classification was not known for all essential products, these data sets were excluded from the pertinent analysis.

90 years and 20 to 35 points. The further left a line is, the younger the patients are or the lower the BMI of the patients in this category.

The sex ratio is visualised by two complementary bars: the light blue bar on the left represents the male patients, while the pink bar on the right stands for the female patients. If the light blue bar dominates, the patients in this category are predominantly male; if the pink bar dominates, they are predominantly female.

Category A
Category B

Subcategory B1 Subcategory B2

Subcategory B3

As illustrated by the following example, results of the descriptive analyses are presented as a mix of tables (numerical values for the parameters) and graphs (additional visual elements). In addition to numeric percentage values, percentages are also displayed as horizontal bars relative to a left-hand baseline. The greater the percentage, the longer the bar. Median age and median BMI are symbolised by additional horizontal lines in the "Age" and "BMI" columns respectively, spanning ranges from 50 to

 Proportion [%]
 Age
 m/f [%]
 BMI

 95.9
 72
 40 / 60
 27.1

 2.3
 66
 38 / 62
 25.7

 0.3
 57
 50 / 50
 26.3

 1.8
 69
 36 / 64
 25.6

 0.1
 52
 25 / 75
 25.8

If the table includes indented category names, the above rule that the percentages shown in a table always add up to 100 % does not apply. Indented category names indicate subcategories of the category previously listed but not indented. Apart from rounding errors, the sum of the shares of the subcategories again equals the share of their parent category.

4 The 2020 operating year 4.1 Primary hip arthroplasty

# 4.1 Primary hip arthroplasty

For last year, the EPRD registered 147,739 primary hip arthroplasties. Table 2 presents the patients with such operations broken down by age and sex. In total, the share of male patients in primary hip arthroplasties is 40 %, with a preponderance of male patients in the age groups up to 54 years. The male sex accounts for a decreasing percentage with advancing age.

As is evident from Table 3, only a small percentage of these patients had undergone significant prior surgery. Most of these cases involved internal fixation or osteotomy of the femur.

Tables 4 to 15 provide a detailed view of the different types of hip arthroplasties in 2020 and the corresponding patient characteristics.

<45 years 45-54 years 55-64 years 65-74 years 75-84 years

All primary hip arthroplasties

75-84 years 85 years and older Male

Female

Age	m/f [%]	ВМІ
71	40 / 60	26.9
	56 / 44	27.5
	52 / 48	28.4
	49 / 51	28.1
	40 / 60	27.6
	34 / 66	26.0
	29 / 71	24.5
69	100 / 0	27.7
73	0 / 100	26.3
	71	71 40 / 60 56 / 44 52 / 48 49 / 51 40 / 60 34 / 66 29 / 71 69 100 / 0

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Table 2: Primary hip arthroplasties in 2020 by patient age and sex

No prior surgery
Osteosynthesis / Osteotomy
Pelvis
Femur
Pelvis and femur
Femoral head necrosis
Arthrodesis
Other prior surgery

Proportion [%]	Age	m/f [%]	BMI
96.6	71	40 / 60	26.9
2.1	67	39 / 61	25.8
0.3	58	47 / 53	26.9
1.7	70	38 / 62	25.6
0.1	56	28 / 72	26.3
0.2	61	58 / 42	27.4
<0.1	72.5	28 / 72	26.5
1.0	66	44 / 56	26.8

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Table 3: Previous surgeries reported for primary hip arthroplasties in 2020

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Total arthroplasty
Hemiarthroplasty

Proportion [%]	Age	m/f [%]	ВМІ
88.5	70	41 / 59	27.3
11.5	84	31 / 69	24.2

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Table 4: Types of primary hip replacements in 2020

Uncemented implants
Hybrid implants
Cemented implants
Reverse-hybrid implants
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
77.6	67	45 / 55	27.7
16.7	79	28 / 72	26.2
4.3	81	26 / 74	25.5
1.1	73.5	27 / 73	26.4
0.4	71	41 / 59	26.3

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Table 5: Fixations in primary total hip arthroplasties in 2020

Cemented implants
Uncemented implants
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
86.6	84	30 / 70	24.2
12.9	82	36 / 64	24.6
0.5	76	43 / 57	26.2

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Table 6: Fixations in primary hip hemiarthroplasties in 2020

Femoral stem with modular head Short stem Femoral neck prosthesis Revision or tumour stem Modular stem Surface replacement Unknown

Proportion [%]	Age	m/f [%]	ВМІ
86.4	71	40 / 60	27.2
11.0	63	49 / 51	27.5
1.0	60	50 / 50	27.5
0.5	76	37 / 63	25.2
0.4	75	36 / 64	26.8
0.2	58	97 / 3	27.8
0.5	66	48 / 52	27.1

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Table 7: Stem types in primary total hip arthroplasties in 2020

4 The 2020 operating year 4.1 Primary hip arthroplasty

Modular cup
Monobloc cup
Dual mobility
Revision cup
Resurfacing cup
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
87.9	69	42 / 58	27.4
9.7	75	37 / 63	26.6
1.4	78	33 / 67	25.5
0.9	71	36 / 64	26.5
0.1	56	98 / 2	28.3
<0.1	71	33 / 67	29.6

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Table 8: Acetabular components in primary total hip arthroplasties in 2020

Without reconstruction shell
With reconstruction shell

Proportion [%]	Age	m/f [%]	BMI
99.8	70	41 / 59	27.3
0.2	78	39 / 61	25.8
	0	FPRD Annua	I Report 2021

Table 9: Reconstruction shells in primary total hip arthroplasties in 2020

28 mm
32 mm
36 mm
Other diameters
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
5.0	71	15 / 85	26.2
52.7	70	32 / 68	27.1
41.4	69	56 / 44	27.6
0.4	65	48 / 52	25.7
0.4	77	31 / 69	26.4
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Table 10: Head sizes in primary total hip arthroplasties in 2020

XS		
S		
М		
L		
XL		
XXL		
XXXL		
Unknown		

Proportion [%]	Age	m/f [%]	ВМІ
0.7	70	30 / 70	26.6
38.1	70	34 / 66	27.0
37.5	70	42 / 58	27.4
17.1	69	52 / 48	27.7
4.5	68	58 / 42	27.8
0.5	69	61 / 39	27.1
<0.1	76	33 / 67	25.2
1.5	76	45 / 55	26.6
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Table 11: Head-neck lengths in primary total hip arthroplasties in 2020

20

hXLPE
hXLPE+antioxidant
Ceramic
PE
mXLPE
Metal
mXLPE+antioxidant
Unknown

Prop	ortion [%]	Age	m/f [%]	вмі
	55.8	70	41 / 59	27.3
	19.9	69	42 / 58	27.4
	8.2	62	46 / 54	27.5
	8.0	76	34 / 66	26.6
	7.8	73	41 / 59	27.0
	0.2	58	97 / 3	27.8
	<0.1	77	100 / 0	29.3
	0.2	77	23 / 77	26.7

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Table 12: Acetabular bearing materials in primary total hip arthroplasties in 2020

Ceramic	
Metal	
Ceramicised metal	
Unknown	

Proportion [%]	Age	m/f [%]	ВМІ
89.3	69	42 / 58	27.4
7.3	80	36 / 64	26.1
3.0	68	44 / 56	27.7
0.4	77	31 / 69	26.4

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Table 13: Modular heads in primary total hip arthroplasties in 2020

Ceramic / hXLPE
Ceramic / hXLPE+antioxidant
Ceramic / ceramic
Ceramic / mXLPE
Ceramic / PE
Metal / hXLPE
Ceramicised metal / hXLPE
Metal / PE
Metal / mXLPE
Ceramicised metal / PE
Metal / hXLPE+antioxidant
Metal / Metal
Ceramicised metal / hXLPE+antioxidant
Ceramicised metal / mXLPE
Ceramic / mXLPE+antioxidant
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
49.2	69	42 / 58	27.4
19.4	68	43 / 57	27.5
8.1	62	46 / 54	27.5
6.9	72	42 / 58	27.2
5.5	75	35 / 65	27.1
4.1	79	37 / 63	26.4
2.3	68	45 / 55	28.0
1.5	81	30 / 70	25.2
0.9	81	32 / 68	25.9
0.7	70	39 / 61	26.9
0.5	79	34 / 66	26.0
0.2	58	97 / 3	27.8
<0.1	70	27 / 73	24.9
<0.1	80	38 / 62	28.9
<0.1	77	100 / 0	29.3
0.7	77	28 / 72	26.6
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Table 14: Bearing materials in primary total hip arthroplasties in 2020

4 The 2020 operating year 4.2 Hip arthroplasty reoperations

Metal
Ceramic
Ceramicised metal
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
91.0	84	31 / 69	24.2
3.3	84	33 / 67	24.8
0.4	85	25 / 75	23.5
5.2	84	30 / 70	24.2

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Table 15: Modular head materials in primary hip hemiarthroplasties in 2020

Even though the effects of the COVID lockdowns in Germany mask some of the findings, as noted above, it is still possible to identify consistent trends over the years:

- Fully cemented total hip arthroplasties have become less common in the EPRD. While arthroplasties, where both hip stem and acetabular component were cemented, still accounted for 8.1 % in 2014, this figure had fallen to only 4.3 % by 2020. On the other hand, there has been an increase in completely uncemented fixation, even if this increase in recent years has only been minor, and the percentage of hybrid fixations has also risen slightly once more.
- Short stems continue to be the trend in the EPRD. Last year, 11 % of total hip arthroplasties relied on short stems. This constitutes a new record. Five years ago their share was still only 6.6 %.
- In the EPRD the use of monobloc cups has markedly decreased from 2014 to 2020. Their share dropped from 14.4 % to 9.7 %. Similarly, the share of modular cups increased from 84.3 % to 87.9 %.
- Between 2014 and 2020, the percentage of ceramic head components in total hip arthroplasties rose steadily from 86.4 % to 89.3 %. The same applies to heads made of ceramicised metal: their share has been around 3 % in the past three years. The use of full metal heads, on the other hand, has decreased from 13.2 % to 7.3 %.

- In terms of the head components, there is a clear trend towards larger heads in total hip arthroplasties: while in 2014, 36-mm heads accounted for 31.4 % in the EPRD, this percentage was a full ten percentage points higher in 2020. And recently, shorter femoral necks have been preferred: in 2020, the XS and S lengths were implanted in 38.8 % of all hip arthroplasties. In 2014, that share was still six percentage points smaller.
- Inserts made of highly cross-linked polyethylene (PE) both with and without additional antioxidants have continued to increase their share. From 2014 to 2020, their overall share increased by about 24 percentage points from 51.8 % to 75.7 %. In contrast, inserts made of conventional or moderately cross-linked polyethylene and ceramic inserts are being used less and less.

### In brief

- Marked trend favouring highly crosslinked PE insert components (increase of 24 percentage points since 2014)
- · Use of short stems increases to 11 %
- Use of ceramic heads (89.3 %) in total hip arthroplasties is the standard
- More 36-mm heads than ever before (currently 41.4 %)

# 4.2 Hip arthroplasty reoperations

For 2020, a total of 17,212 reoperations of the hip were documented in the EPRD. 14,331 of these reoperations were single-stage revisions, while the other 2,881 reoperations comprised explantations and two-stage revision procedures. The EPRD is interested in the documentation of both explantations and re-implantations. However, the explantations in two-stage revision procedures tend to be documented much less often in the EPRD than the re-implantations (1,028 versus 1,853).

Table 16 below presents the age and sex distribution of patients who had undergone reoperations in 2020. Table 17 details the pertinent reasons for reoperations as well as their frequencies. As in previous years, the most common reasons for reoperations apparently were loosening (24.7 %), infections (15.8 %), periprosthetic fractures (13.4 %), and dislocations (13.0 %).

Table 18 summarises which components were replaced or newly implanted during the reoperations. The head component previously implanted was thus left untouched

in only a few reoperations, but was replaced in most cases (96.4 %). Slightly more than one in four reoperations involved a complete replacement of the entire prosthesis system, in which both the stem and the acetabular components were re-implanted (27.5 %). In almost three quarters of procedures (73.9 %), at least one of the components anchored in the bone was re-implanted. Whether components with bone fixation are replaced or not very much depends on the reason for the revision. While patients with implant loosening or periprosthetic fractures almost always required re-implantation of the stem or acetabular component, this was only true in 52.1 % of infection-related revision procedures in 2020. Interestingly enough, this percentage has been declining in recent years. In 2014, the stem or acetabular component was replaced in 67.2 % of these periprosthetic joint infections.

In revisions with re-implantation of the acetabular component, a dual-mobility cup was chosen in 29.3 % of cases in 2020. This percentage has risen sharply in recent years (2014: 10 %). In 29.8% of reoperations, at least one implant component specifically designed for revision procedures was re-implanted.

All hip reoperations

<45 years

45-54 years

55-64 years

65-74 years

75-84 years

85 years and older

Male

Female

Proportion [%]	Age	m/f [%]	ВМІ
100.0	76	42 / 58	27.0
1.7		59 / 41	27.7
5.0		52 / 48	28.4
15.9		51 / 49	28.7
24.2		45 / 55	28.2
38.9		38 / 62	26.4
14.3		30 / 70	24.8
41.8	73	100 / 0	27.6
58.2	77	0 / 100	26.4

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Table 16: Hip reoperations in 2020 by patient age and sex

4 The 2020 operating year 4.2 Hip arthroplasty reoperations

Infection
Loosening
Cup
Stem
Cup and stem
Osteolysis with fixed component
Cup
Stem
Cup and stem
Periprosthetic fracture
Dislocation
Wear
Component failure
Malalignment
Progression of arthrosis
Condition after removal
Other reasons

Proportion [%]	Age	m/f [%]	ВМІ
15.8	74	49 / 51	28.4
24.7	75	40 / 60	27.0
13.0	76	33 / 67	26.7
9.3	74	50 / 50	27.5
2.4	77	42 / 58	26.7
0.7	73	48 / 52	27.3
0.3	72	49 / 51	26.1
0.1	64	48 / 52	27.3
0.2	77	46 / 54	27.7
13.4	80	34 / 66	25.6
13.0	78	35 / 65	26.3
6.4	75	42 / 58	27.1
2.2	73	51 / 49	27.4
1.8	72	34 / 66	27.0
0.5	70	40 / 60	25.5
10.8	72	51 / 49	27.7
10.7	73	41 / 59	26.9

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Table 17: Reasons for hip reoperations in 2020

Stem, head, cup, insert
Head, cup, insert
Head, insert
Stem, head
Head
Stem, head, insert
Cup, insert
Insert
Accessory parts only (e.g., screws)

	Proportion [%]	
	27.5	
	22.6	
	16.9	
	15.2	
	7.7	
	6.5	
	2.1	
	0.9	
	0.5	
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Table 18: Components replaced or complemented4 in hip reoperations in 2020

### In brief

- · The most common reasons for reoperations: loosening (24.7 %), infection (15.8 %), periprosthetic fracture (13.4 %), and dislocation (13 %)
- · In at least three quarters of reoperations, at least one component with bony fixation was replaced
- · Revision-specific stem or acetabular components were re-implanted in about 30 % of reoperations

# 4.3 Primary knee arthroplasty

In the 2020 calendar year a total of 111,365 primary knee arthroplasties were documented in the EPRD. Data on the patients treated and any prior operations they may have had are summarised in tables 19 and 20. Unlike patients undergoing hip arthroplasties (see Section 4.1), patients requiring knee arthroplasties tended to be somewhat younger. But these younger patients suggests that premature wear and tear of the had a higher body mass index. The median

BMI of EPRD patients with knee arthroplasties is about 30. According to the classification of the World Health Organisation (WHO), someone with a BMI of 30 or more is considered obese. Roughly half of the patients undergoing knee arthroplasties would therefore be classified as obese. This percentage is even higher in the younger age groups (60.9 % in patients up to 64 years of age), but somewhat lower in older patients (only 32.2 % in patients 75 years and older). This knee joint is often due to severe obesity.

All primary knee arthroplasties

<45 years

45-54 years

55-64 years

65-74 years

75-84 years

85 years and older

Male

Female

Proportion [%]	Age	m/f [%]	ВМІ	
100.0	69	41 / 59	29.8	
0.7		38 / 62	32.0	
7.7		42 / 58	32.5	
27.8		46 / 54	31.4	
33.4		40 / 60	30.1	
27.9		37 / 63	27.9	
2.6		35 / 65	26.3	
40.8	68	100 / 0	29.4	
59.2	69	0 / 100	30.1	
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Table 19: Primary knee arthroplasties in 2020 by patient age and sex

<sup>4</sup> Explantations in two-stage revision procedures are counted as total replacements. As a matter of principle, the EPRD only registers the components implanted, but not those explanted. In all other reoperations the explanted components are inferred based on the products documented at the time of the reoperation. If, for example, a new acetabular component is documented, it may be assumed that the existing acetabular component had to be replaced. Only surgical documentation identifying all items in the product database are considered here because only then is this inference possible.

Tables 21 to 33 below present how often which type of arthroplasty and which corresponding implant characteristics were preferred in 2020. When comparing the figures with those of previous years, the following developments are apparent:

- Between 2015 and 2019, the percentage of unicondylar knee arthroplasties increased from 9.5 % to 13.4 % but plateaued at 13.2 % in 2020.
- 2020 saw more fully cemented implants than ever before, both in total and unicondylar knee arthroplasties. For both types of arthroplasties, the percentage of cemented fixation was now 94.3 % and 89.9 % respectively, more than three percentage points higher than five years earlier.

• A continued slight increase in the rate of posterior-stabilised and pivot systems has been observed in total knee arthroplasties. Within the last five years, posterior-stabilised systems increased their share from 12.9 % to 19.2 %, while pivot systems, which are still seldom used, climbed from 0.8 % to 2.5 %.

• In contrast, the use of mobile bearings continues to decline in both total and unicondylar knee arthroplasties. Between 2014 to 2020, the decline in the EPRD was six percentage points for total knee arthroplasties (from 18.9 % to now 12.6 %) and as much as 15 percentage points for unicondylar arthroplasties (from 71.6 % to 56.1 %).

No prior surgery Osteosynthesis / Osteotomy Femur Tibia Patella Several locations Capsule and ligaments Arthrodesis Other prior surgery

Age	m/f [%]	BMI
69	40 / 60	29.8
63	53 / 47	29.4
66	50 / 50	29.2
63	54 / 46	29.4
68	52 / 48	28.4
62	52 / 48	29.9
61	56 / 44	29.2
70	44 / 56	28.4
65	48 / 52	29.6
	69 63 66 63 68 62 61 70	69 40 / 60 63 53 / 47 66 50 / 50 63 54 / 46 68 52 / 48 62 52 / 48 61 56 / 44 70 44 / 56

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Table 20: Prior surgeries reported for knee arthroplasties in 2020

Total knee arthroplasty Unicondylar knee arthroplasty Patellofemoral arthroplasty Other arthroplasties

Proportion [%]	Age	m/f [%]	ВМІ
86.6	70	40 / 60	30.0
13.2	63	49 / 51	29.4
0.2	56	31 / 69	28.0
<0.1	79	100 / 0	24.9

Table 21: Types of primary knee replacements in 2020

26

79		100 / 0	24.9
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• At 11.8 %, the percentage of primary total knee arthroplasties with concurrent patellar resurfacing was higher in the EPRD than in all previous years. But the numbers varied greatly between hospitals. Almost 48 % of the hospitals documenting at least one total knee arthroplasty in the EPRD for 2020 did not perform a single primary patellar resurfacing in that year; while 5.5 % of hospitals performed primary retropatellar resurfacing in over half of all their total knee arthroplasties.

• The trend favouring highly cross-linked polyethylenes in knee arthroplasties is not as marked as in hip arthroplasties (see Section 4.1) but is nevertheless clearly evident. Between 2014 to 2020, total knee arthroplasties saw a rise from 10.7 % to now 20.5 % and for unicondylar arthroplasties from 1.8 % to 11.5 %. In each case, the models enriched with antioxidants recorded the greatest increases. Over the same period, the use of coated metal femoral components in total knee arthroplasties increased steadily (from 2.4 % to 4.7 %).

Unconstrained systems Cruciate-retaining Posterior-stabilised Cruciate-retaining/sacrificing Cruciate-sacrificing Pivot Constrained systems Hinged Varus-valgus-stabilised Unknown

Proportion [%]	Age	m/f [%]	ВМІ
94.6	69	40 / 60	30.0
43.4	69	41 / 59	30.1
19.2	69	40 / 60	29.8
15.1	70	40 / 60	29.8
14.4	70	38 / 62	30.1
2.5	68	42 / 58	30.0
5.2	74	30 / 70	28.4
2.8	76	26 / 74	28.1
2.4	71	34 / 66	29.1
0.2	65	48 / 52	29.6

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Table 22: Grade of constraint in primary total knee arthroplasties in 2020

Cemented implants Hybrid implants Uncemented implants Reverse-hybrid implants Unknown

Proportion [%]	Age	m/f [%]	ВМІ
94.3	70	39 / 61	29.9
3.9	69	44 / 56	30.1
0.9	68	38 / 62	30.1
0.1	66	19 / 81	30.4
0.8	68	38 / 62	29.2

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Table 23: Fixations in primary total knee arthroplasties in 2020

4 The 2020 operating year 4.3 Primary knee arthroplasty

Cemented implants
Uncemented implants
Hybrid implants
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
89.9	63	48 / 52	29.4
9.6	63	61 / 39	29.4
0.4	62	42 / 58	27.7
0.1	54.5	44 / 56	30.4

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Table 24: Fixations in primary unicondylar knee arthroplasties in 2020

Fixed bearing Mobile bearing Unknown

Proportion [%]	Age	m/f [%]	ВМІ
87.4	69	39 / 61	30.0
12.6	70	40 / 60	29.7
<0.1	76	54 / 46	27.6

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Table 25: Bearing mobility in primary total knee arthroplasties in 2020

Mobile bearing Fixed bearing

Proportion [%]	Age	m.	/f [%	]	ВМІ	
56.1	64		48 /	52	29.	5
43.9	63	3 !	51 /	49	29.	1

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Table 26: Bearing mobility in primary unicondylar knee arthroplasties in 2020

Without patellar resurfacing
With patellar resurfacing

Proportion [%]	Age	m/f [%]	ВМІ	
88.2	70	40 / 60	30.0	
11.8	70	37 / 63	29.9	
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Table 27: Patellar resurfacing in primary total knee arthroplasties in 2020

Uncoated metal
Coated metal
Ceramicised metal
Ceramic
Unknown

Proportion [%]	Age	m/f [%]	BMI
91.8	70	41 / 59	29.8
4.7	66	18 / 82	30.8
3.4	64	23 / 77	31.1
<0.1	66	12 / 88	30.8
0.1	69	22 / 78	29.7

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Table 28: Femoral bearing materials in primary total knee arthroplasties in 2020

Proportion [%]	Age	m/f [%]	ВМІ	
44.1	70	39 / 61	29.8	
35.1	70	39 / 61	29.9	
11.6	68	38 / 62	30.1	
8.9	69	43 / 57	30.1	
0.4	70	40 / 60	30.9	
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Table 29: Tibial bearing materials in primary total knee arthroplasties in 2020

Uncoated metal / PE
Uncoated metal / mXLPE
Uncoated metal / hXLPE
Uncoated metal / hXLPE+antioxidant
Coated metal / mXLPE
Ceramicised metal / PE
Coated metal / PE
Ceramicised metal / hXLPE
Uncoated metal / mXLPE+antioxidant
Coated metal / hXLPE+antioxidant
Coated metal / hXLPE+antioxidant
Ceramic / PE
Unknown

Proportion [%]	Age	m/f [%]	ВМІ
40.1	70	41 / 59	29.8
32.1	70	41 / 59	29.8
10.5	68	39 / 61	30.0
8.8	69	44 / 56	30.1
3.0	65	16 / 84	30.8
2.3	65	19 / 81	31.1
1.6	67	23 / 77	30.7
1.0	62	31 / 69	31.1
0.4	70	40 / 60	30.9
0.1	64	7 / 93	32.8
<0.1	66	12 / 88	30.8
0.1	69	22 / 78	29.7
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Table 30: Bearing materials in primary total knee arthroplasties in 2020

Uncoated metal
Coated metal
Ceramicised metal
Unknown

F	Proportion [%]	Age	m/f [%]	ВМІ
	89.5	64	52 / 48	29.3
	8.5	60	29 / 71	30.1
	1.9	59	37 / 63	29.4
	<0.1	56	75 / 2 <mark>5</mark>	31.5

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Table 31: Femoral bearing materials in primary unicondylar knee arthroplasties in 2020

mXLPE
PE
hXLPE+antioxidant
hXLPE

Proportion [%]	Age	m/f [%]	ВМІ	
70.2	63	49 / 51	29.4	
18.3	62	50 / 50	29.2	
10.4	64	53 / 47	29.4	
1.1	62	52 / 48	28.4	

Table 32: Tibial bearing materials in primary unicondylar knee arthroplasties in 2020

4 The 2020 operating year 4.4 Knee arthroplasty reoperations

Uncoated metal / mXLPE
Uncoated metal / PE
Uncoated metal / hXLPE+antioxidant
Coated metal / mXLPE
Ceramicised metal / PE
Uncoated metal / hXLPE
Coated metal / PE
Unknown

Proportion [%]	Age	m/f [%	] вмі	
62.5	64	4 51 /	49 29.3	3
15.5	63	3 54 /	46 29.0	)
10.4	64	4 53 /	47 29.4	
7.7	60	29 /	71 30.0	)
1.9	59	9 37 /	63 29.4	
1.1	62	2 52 /	48 28.4	
0.8	60	21 /	79 31.6	5
<0.1	56	5 75 /	2 <mark>5 31.5</mark>	5
<0.1	56		25 31.5	_

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Table 33: Bearing materials in primary unicondylar knee arthroplasties in 2020

# In brief

- 94 % of primary total knee arthroplasties and 90 % of unicondylar arthroplasties were fully cemented
- Share of unicondylar arthroplasties stable at 13.2 %
- Use of highly cross-linked PE increased by ten percentage points since 2014
- Continued decrease in the use of mobile bearings

# 4.4 Knee arthroplasty reoperations

For the 2020 calendar year, 13,767 knee reoperations were documented in the EPRD. In two-staged knee revisions, the number of documented re-implantations (1,708) is also markedly higher than the number of explantations (939). This indicates that hospitals often forget to report their explantations to the EPRD. Table 34 presents the demographics of patients that underwent reoperations in 2020. Table 35 lists indications for this procedure as documented by the surgeons. As with hip arthroplasties, loosening (23.4 %) and infections (14.9 %) were the most common complications reported in knee reoperations. At 53 %, male patients are disproportionately often affected by infections. This situation is discussed in more detail in Section 5.4.

Table 36 summarises which components in the reoperations considered were replaced or re-implanted. Thus, in 55.3 % of reoperations all knee components were replaced, and in 64.9 % at least one of the components with bone fixation was replaced. In 12.9 % of cases, the reoperation presumably only served to subsequently perform complementary patellar resurfacing of an existing knee arthroplasty, with or without prophylactic replacement of the insert.

Whereas hinged and varus-valgus-stabilised knee systems are only rarely used in primary arthroplasties (5.2 %; see Table 22), such components account for a total of 39 % of all reoperations and 59 % of total revision procedures.

### In brief

- More than half of all reoperations required complete re-implantation of all components
- Reasons for knee revisions primarily included loosening (23.4 %) and infection (14.9 %)

## All knee reoperations

<45 years

45-54 years

55-64 years

65-74 years

75-84 years

85 years and older

Male

Female

-	Proportion [%]	Age	m/f [%]	ВМІ
	100.0	70	42 / 58	30.1
	1.3		49 / 51	29.0
	8.3		39 / 61	32.2
	25.4		47 / 53	31.8
	29.9		43 / 57	30.9
	30.1		40 / 60	28.7
	5.1		30 / 70	26.8
	42.3	69	100 / 0	29.7
	57.7	70	0 / 100	30.7

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Table 34: Knee reoperations in 2020 by patient age and sex

Infection
Loosening
Femoral component
Tibial tray
Patellar component
Several components
Osteolysis with fixed component
Femoral component
Tibial tray
Patellar component
Several components
Periprosthetic fracture
Ligament instability
Wear
Component failure
Prosthetic malalignment / Malrotation
Restricted mobility
Progression of arthrosis
Condition after removal
Other reasons

Proportion [%]	Age	m/f [%]	ВМІ
14.9	71	53 / 47	29.8
23.4	69	40 / 60	30.6
4.6	70	44 / 56	30.1
8.8	67	36 / 64	31.1
0.6	71	38 / 62	30.1
9.4	70	42 / 58	30.5
1.2	72	51 / 49	29.6
0.4	71	54 / 46	29.5
0.3	74	42 / 58	29.6
0.1	79	75 / 2 <mark>5</mark>	27.8
0.5	71	49 / 51	30.4
3.2	79	21 / 79	28.6
8.9	68	33 / 67	30.1
5.4	71	39 / 61	30.4
2.1	70	46 / 54	30.5
1.7	66	28 / 72	29.7
4.8	64	44 / 56	30.2
5.7	67	40 / 60	30.5
12.4	71	49 / 51	29.7
16.2	68	42 / 58	30.5

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Proportion [%]
49.1
20.3
6.5
6.4
6.2
4.7
2.8
2.0
1.2
0.4
0.4
0.1

Table 35: Reasons for knee reoperations in 2020

Femoral component, tibial tray, insert
Insert
Insert, patellar arthroplasty
Patellar arthroplasty
Femoral component, tibial tray, insert, patellar arthroplasty
Tibial tray, insert
Femoral component, insert
Accessory parts only (e.g., screws)
Femoral component
Tibial tray, insert, patellar arthroplasty
Femoral component, insert, patellar arthroplasty
Femoral component, patellar arthroplasty

Table 36: Components replaced or complemented<sup>5</sup> during knee reoperations in 2020

5 Explantations in two-stage revision procedures are counted as total replacements. As a matter of principle, the EPRD only registers the components implanted, but not those explanted. In all other reoperations the explanted components are inferred based on the products documented at the time of the reoperation. If, for example, a new tibial tray is documented, it may be assumed that the existing tray had to be replaced. Only surgical documentation identifying all items in the product database are considered here because only then is this inference possible.

# Hip and knee arthroplasty survival



# 5 Hip and knee arthroplasty survival

The term "survival" denotes the time an arthroplasty system remains unchanged in the patient's body before it has to be removed or replaced. This annual report focuses on these system survival times because they are an important quality criterion in hip and knee arthroplasty. Since most cases are still being followed up, the next subsections discuss the probabilities of requiring a first revision (see the Sections 5.1 to 5.4) or a repeat revision (see Section 5.5) over time.

Section 5.1 first looks at how these probabilities differ for different types and characteristics of arthroplasties. Section 5.2 then addresses how non-implant-related factors affect these probabilities. During the early post-implantation phase in particular, patient- and hospital-related factors, such as the patient's general state of health or the hospital's institutional experience with certain procedures, can play a significant role and overshadow implant effects. This must be taken into account especially when assessing

## Calculation of revision and complementary arthroplasty probabilities

The EPRD defines a "revision" as any arthroplasty that subsequently requires revision surgery. Kaplan-Meier estimators are used to calculate the probability that no such (re) operation will be required within a certain time frame after the primary arthroplasty or the primary revision surgery, and that the arthroplasty will therefore remain in place.

It is taken into account that:

- at the time of the analysis the monitoring of the arthroplasty has not yet been completed in most cases and
- that events such as patient death or amputation of the leg may prevent the complete follow-up of an arthroplasty.

A similar approach is used to calculate the probability of secondary patellar resurfacing. Revision operations are regarded as additional censoring events and taken into account accordingly. The results of the estimates are presented as figures and tables (see the explanations in the following sections). The reciprocal probabilities of the Kaplan-Meier estimators, i.e., the cumulative probabilities of arthroplasty revision or complementary arthroplasty, are presented together with their 95 % confidence intervals.

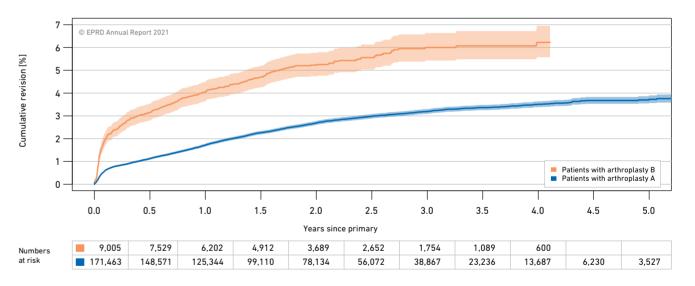
In addition to the confidence intervals referenced to the respective point in time, the p-value of the test for parity of revision or complementary arthroplasty probabilities over the entire course of the arthroplasty is determined and specified.

the outcomes of the specific arthroplasty systems presented in Section 5.3. For total knee arthroplasty systems, this section not only lists the probabilities for revision or explantation, but also separately for secondary patellar resurfacing. Any revision or explantation of arthroplasty components is always an unfortunate experience for patients. As explained in Section 5.5, it is even worse for them if this surgery is

necessary because of by an infection. In this case, they run a markedly higher risk that this will not stop at one reoperation. The EPRD has taken this as an opportunity to analyse separately in Section 5.4 of this annual report the probabilities of periprosthetic joint infections together with the factors promoting their onset.

# Revision probabilities graph

The following graph of the revision probabilities in this report is provided as an example. The legends below the graphs also show how many arthroplasties were still followed up at any given time, i.e., how many arthroplasties had already been followed up over a correspondingly long period without revision or the patient terminating the follow-up for other reasons.



Representative example of the revision probability of two arthroplasty subgroups. Below the graph displaying revision probabilities with their corresponding 95% confidence intervals, a table lists the actual number of arthroplasties under observation at any of the given time points examined.

The revision probabilities shown in the graphs of section 5.1 to 5.4 are based on at least 500 arthroplasties under follow-up. Section 5.5 does not present any confidence intervals.

All outcomes are summarised in tables at the end of each of the following sections. It must be pointed out that all current findings by the EPRD solely relate to the early life of arthroplasty components. While this year's annual report is the first to present cumulative revision probabilities for a period of up to six years after primary arthroplasty this follow-up period is still very short compared to the possible "arthroplasty survival" estimated at 15 to 20 years.

### In brief:

- The EPRD can still only provide data for the early phase of arthroplasty survival
- Non-implant-related factors can outweigh implant effects

# 5.1 Revision probabilities by type of arthroplasty

The following subsections address the revision probabilities for different forms of hip (Section 5.1.1) and knee arthroplasties (Section 5.1.2) as well as the impacts of specific arthroplasty and implant characteristics.

Finally, the outcomes for the various types of arthroplasties and their characteristics are summarised in tables at the end of each subsection (see Table 37 and Table 38). Arthroplasty results which are not addressed in the text are only presented in the tables if they encompass the required minimum number of cases.

# 5.1.1 Comparison of different hip arthroplasty types

The majority of documented hip arthroplasties are elective arthroplasties, i.e., procedures "freely" timed and usually performed for osteoarthritis of the affected joint. Most cases require total hip arthroplasty. Urgent arthroplasties, for example in femoral fractures close to the hip joint — usually in older patients — are more likely to be partial

rather than total arthroplasties. These types of arthroplasties reveal significant differences in their revision probabilities early on (see figure 4).

In elective total hip arthroplasty, the vast majority still relies on uncemented stems. However, the EPRD finds lower revision probabilities for cemented stems in both elective and non-elective arthroplasties (see Table 37 and Figure 5). This is mainly due to the markedly different outcomes in older patients (see also Figure 20 in Section 5.2), who seem to benefit greatly from cemented femoral stems. This issue is analysed in more detail on pages 80 to 82.

In all total hip arthroplasties, be they elective or non-elective, the larger the head component, the lower the revision probability during the early phase (see examples Figure 6 and Table 37). For the three head sizes commonly seen in the EPRD in total hip arthroplasties, 28 mm, 32 mm and 36 mm, the best short-term outcomes to date have been noted for the latter. This is probably due to their lower risk of dislocation.

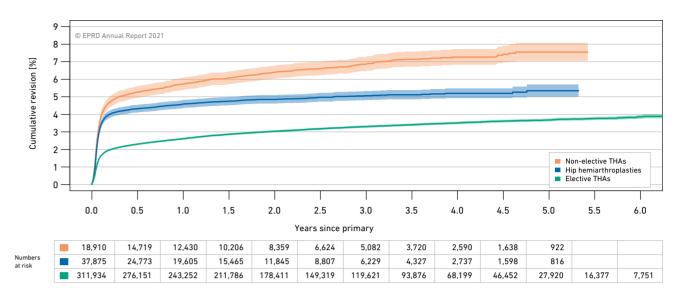


Figure 4: Revision probabilities of elective and non-elective hip arthroplasties (p < 0.0001)

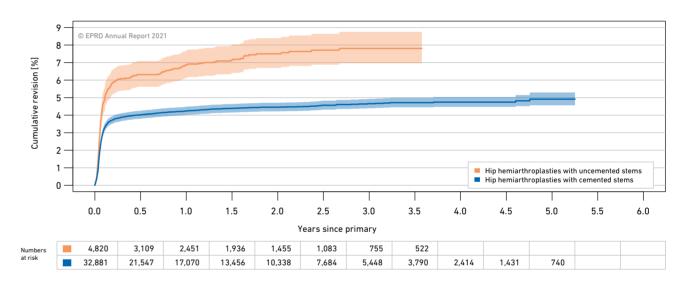


Figure 5: Revision probabilities of uncemented and cemented partial hip arthroplasties (p<0.0001)

However, not only the size is important, but also the neck length of the head component. The head-neck length selected by the surgeon depends on certain biomechanical conditions as well as the surgical technique. For instance, cases aiming to compensate for possible shortening of the leg (e.g., with a more cranial centre of rotation) may

generally have poorer entry conditions and thus be subject to a certain bias. As shown in Table 37 for all types of hip replacements and in Figure 7 as an example of elective total hip arthroplasties with uncemented stems, the registry notes higher revision probabilities with increasing head-neck lengths.

Table 37 below summarises the revision probabilities for various types and characteristics of hip arthroplasties, supplemented by data on the patient groups operated on and hospitals performing the arthroplasties.

## In brief

- Revision probabilities markedly higher in non-elective procedures
- In hip arthroplasty, larger heads and shorter head-neck lengths generally linked to lower revision probabilities during the early phase

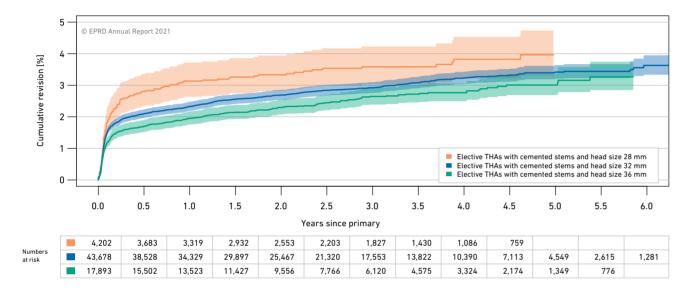


Figure 6: Revision probabilities of elective total hip arthroplasties with cemented stems by head size (p=0.0008)

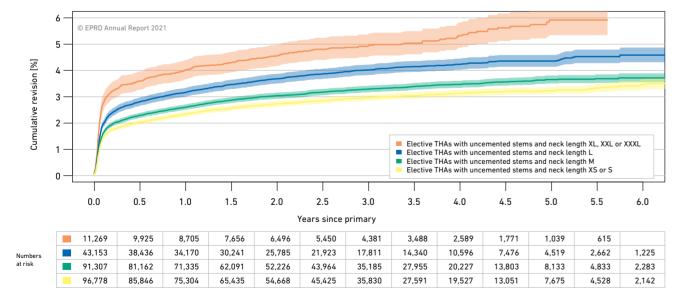


Figure 7: Revision probabilities of elective total hip arthroplasties with uncemented stems by head-neck length (p < 0.0001)

# Tables of the revision and complementary arthroplasty probabilities

When presenting the outcomes by type of arthroplasty in sections 5.1.1, 5.1.2 and 5.4.1 and by risk factors in sections 5.2 and 5.4.2, the implant-related outcomes in Section 5.3, the following parameters are presented in tables:

Number of refers to the total number of followed-up arthroplasties in the given category.

Age refers to the median age and the age quartiles of the patients who received these arthroplasties.

m/f refers to the percentage of male and female patients with these arthroplasties.

BMI refers to the median BMI of patients with corresponding arthroplasty (not in tables 40 to 44).

Hosp. refers to the number of hospitals documenting these arthroplasties.

In the fields for the revision probability, the corresponding 95 % confidence interval (in brackets) and the number of arthroplasties still followed up at the respective point in time (in parentheses) are listed after the actual revision probability in percent — unless the latter is zero.

Results are only presented if at least 300 primary arthroplasties from at least three different hospitals are available for the analysis of this type of arthroplasty, implant system or implant combination. If the number of arthroplasties being followed up is less than 150 at any one time, both the revision probability and confidence interval are shown in italics. If the number is less than 50, the results are not reported.

<sup>6</sup> Not all arthroplasties can always be assigned to a category with certainty, for example, if details are not available. The total number of categories presented may therefore be less than the total number of arthroplasties considered.

								Revision probabilities after						
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years	
Elective THAs with	uncemented stems		244,075	67 (59-75)	40/60	27.8	673	2.7 [2.6; 2.8] (190,644)	3.1 [3.1; 3.2] (139,924)	3.4 [3.3; 3.5] (93,656)	3.6 [3.5; 3.7] (53,180)	3.7 [3.7; 3.8] (21,469)	3.9 [3.8; 4.0] (5,960)	
	Bearing	Ceramic / hXLPE	120,327	67 (59-74)	40/60	27.9	577	2.6 [2.5; 2.7] (93,452)	3.1 [3.0; 3.2] (68,145)	3.3 [3.2; 3.5] (45,482)	3.5 [3.4; 3.6] (25,896)	3.7 [3.6; 3.8] (10,272)	3.8 [3.7; 4.0] (2,759)	
		Ceramic / hXLPE+antiox.	42,821	67 (60-75)	41/59	28.0	323	2.6 [2.5; 2.8] (31,702)	3.0 [2.8; 3.1] (21,447)	3.1 [3.0; 3.3] (12,672)	3.2 [3.1; 3.4] (5,963)	3.3 [3.1; 3.6] (1,765)	3.3 [3.1; 3.6] (331)	
		Ceramic / ceramic	26,386	62 (55-69)	44/56	27.7	340	2.2 [2.0; 2.4] (21,636)	2.6 [2.4; 2.8] (16,869)	2.8 [2.6; 3.0] (12,110)	3.0 [2.8; 3.2] (7,419)	3.1 [2.9; 3.3] (3,338)	3.2 [3.0; 3.6] (1,045)	
		Ceramic / mXLPE	20,648	70 (62-76)	40/60	27.7	238	2.6 [2.4; 2.8] (16,615)	3.1 [2.9; 3.3] (12,710)	3.4 [3.1; 3.6] (8,977)	3.6 [3.4; 3.9] (5,204)	3.9 [3.6; 4.2] (2,178)	4.0 [3.6; 4.4] (652)	
		Ceramic / PE	16,549	71 (63–77)	36/64	27.8	429	3.1 [2.9; 3.4] (13,783)	3.8 [3.5; 4.1] (10,985)	4.2 [3.9; 4.6] (8,177)	4.6 [4.2; 4.9] (5,181)	4.8 [4.4; 5.2] (2,442)	5.1 [4.6; 5.5] (807)	
		Ceramicised metal / hXLPE	6,149	67 (59-75)	42/58	28.1	95	2.7 [2.3; 3.1] (4,754)	2.9 [2.5; 3.4] (3,128)	3.3 [2.9; 3.9] (1,665)	3.6 [3.1; 4.3] (663)	4.0 [3.3; 4.9] (127)		
		Metal / hXLPE	5,398	73 (64-79)	42/58	27.7	305	4.0 [3.5; 4.6] (4,219)	4.2 [3.7; 4.8] (3,222)	4.5 [4.0; 5.1] (2,227)	4.6 [4.1; 5.3] (1,348)	4.7 [4.1; 5.4] (577)	4.7 [4.1; 5.4] (133)	
		Metal / mXLPE	2,068	75 (68-80)	36/64	27.7	130	4.5 [3.7; 5.5] (1,733)	5.1 [4.2; 6.2] (1,402)	5.4 [4.4; 6.5] (1,044)	5.7 [4.7; 6.8] <sub>(699)</sub>	5.7 [4.7; 6.8] (402)	5.7 [4.7; 6.8] (106)	
		Metal / PE	1,160	77 (70-81)	32/68	27.1	246	5.7 [4.5; 7.2] <sub>(969)</sub>	5.9 [4.7; 7.4] (799)	6.3 [5.0; 7.9] (597)	6.7 [5.3; 8.4] <sub>(379)</sub>	7.2 [5.7; 9.1] (176)	7.2 [5.7; 9.1] <sub>(54)</sub>	
		Ceramicised metal / PE	972	72 (63-78)	34/66	27.5	49	3.6 [2.6; 5.0] (617)	4.5 [3.3; 6.2] (432)	5.2 [3.7; 7.2] (236)	5.6 [4.0; 7.9] (108)			
		Metal / hXLPE+antiox.	817	77 (71–80)	36/64	27.5	103	5.8 [4.4; 7.7] (629)	6.1 [4.7; 8.1] (467)	6.4 [4.8; 8.3] (283)	6.4 [4.8; 8.3] (175)	6.4 [4.8; 8.3] (78)		
	Acetabular articu- lating surface	hXLPE	132,174	67 (59-74)	40/60	27.9	588	2.7 [2.6; 2.8] (102,625)	3.1 [3.0; 3.2] (74,598)	3.4 [3.3; 3.5] (49,409)	3.6 [3.5; 3.7] (27,930)	3.7 [3.6; 3.9] (10,986)	3.9 [3.7; 4.1] (2,908)	
		hXLPE+antiox.	43,701	68 (60-75)	41/59	28.0	333	2.7 [2.5; 2.9] (32,372)	3.0 [2.9; 3.2] (21,936)	3.2 [3.0; 3.4] (12,970)	3.3 [3.1; 3.5] (6,142)	3.4 [3.2; 3.6] (1,844)	3.4 [3.2; 3.6] (346)	
		Ceramic	26,401	62 (55-69)	44/56	27.7	341	2.2 [2.0; 2.4] (21,649)	2.6 [2.4; 2.8] (16,875)	2.8 [2.6; 3.0] (12,111)	3.0 [2.8; 3.2] (7,420)	3.1 [2.9; 3.3] (3,338)	3.3 [3.0; 3.6] (1,045)	
		mXLPE	22,732	71 (63–77)	40/60	27.7	253	2.7 [2.5; 3.0] (18,360)	3.3 [3.0; 3.5] (14,114)	3.5 [3.3; 3.8] (10,021)	3.8 [3.6; 4.1] (5,903)	4.0 [3.7; 4.3] (2,580)	4.1 [3.8; 4.5] (758)	
		PE	18,785	72 (63-78)	36/64	27.8	478	3.3 [3.1; 3.6] (15,432)	4.0 [3.7; 4.3] (12,251)	4.4 [4.1; 4.7] (9,016)	4.7 [4.4; 5.1] (5,669)	5.0 [4.6; 5.3] (2,633)	5.2 [4.8; 5.7] (861)	
	Head component	Ceramic	226,999	67 (59-74)	41/59	27.8	671	2.6 [2.5; 2.7] (177,385)	3.1 [3.0; 3.1] (130,298)	3.3 [3.2; 3.4] (87,542)	3.5 [3.4; 3.6] (49,776)	3.7 [3.6; 3.8] (20,083)	3.8 [3.7; 4.0] (5,636)	
		Metal	9,459	74 (66-80)	39/61	27.7	477	4.5 [4.1; 4.9] (7,560)	4.8 [4.4; 5.3] (5,899)	5.1 [4.6; 5.6] (4,156)	5.3 [4.8; 5.8] (2,604)	5.4 [4.9; 5.9] (1,233)	5.4 [4.9; 5.9] (308)	
		Ceramicised metal	7,178	67 (60-75)	41/59	28.0	99	2.8 [2.4; 3.2] (5,416)	3.1 [2.7; 3.6] (3,585)	3.6 [3.1; 4.1] (1,917)	3.9 [3.3; 4.5] (776)	4.2 [3.5; 5.0] (143)		
	Head size	28 mm	13,428	67 (58-75)	10/90	27.3	547	3.2 [2.9; 3.5] (10,928)	3.5 [3.2; 3.9] (8,489)	3.8 [3.5; 4.2] (6,131)	4.0 [3.6; 4.3] (3,737)	4.1 [3.7; 4.5] (1,618)	4.1 [3.7; 4.5] (431)	
		32 mm	135,658	68 (60-75)	32/68	27.7	668	2.7 [2.6; 2.8] (107,061)	3.2 [3.1; 3.3] (79,385)	3.4 [3.3; 3.5] (53,395)	3.6 [3.5; 3.7] (30,262)	3.8 [3.7; 3.9] (12,465)	4.0 [3.8; 4.1] (3,520)	
		36 mm	94,152	66 (59-74)	57/43	28.1	583	2.6 [2.5; 2.7] (72,064)	3.0 [2.9; 3.1] (51,676)	3.3 [3.1; 3.4] (33,924)	3.4 [3.3; 3.6] (19,072)	3.6 [3.5; 3.8] (7,346)	3.8 [3.6; 4.0] (2,004)	
	Head-neck length	XS	1,759	69 (61-76)	31/69	27.4	68	2.7 [2.0; 3.6] (1,332)	3.3 [2.5; 4.3] (889)	3.8 [3.0; 5.0] (546)	3.8 [3.0; 5.0] (343)	3.8 [3.0; 5.0] (149)		
		S	95,019	68 (60-75)	33/67	27.5	655	2.3 [2.2; 2.4] (73,972)	2.7 [2.6; 2.8] (53,779)	2.9 [2.8; 3.1] (35,284)	3.1 [3.0; 3.2] (19,184)	3.2 [3.1; 3.4] (7,526)	3.4 [3.2; 3.7] (2,115)	

Table 37: Table of revision probabilities for different types and characteristics of hip arthroplasties. The table is continued on the following pages.

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Head-neck length	М	91,307	67 (59-75)	42/58	28.0	665	2.6 [2.5; 2.7] (71,335)	3.0 [2.9; 3.2] (52,226)	3.3 [3.2; 3.4] (35,185)	3.5 [3.3; 3.6] (20,227)	3.7 [3.5; 3.8] (8,133)	3.7 [3.6; 3.9] (2,283)
		L	43,153	66 (59-74)	50/50	28.4	662	3.2 [3.0; 3.3] (34,170)	3.7 [3.5; 3.9] (25,785)	4.0 [3.8; 4.2] (17,811)	4.2 [4.0; 4.4] (10,596)	4.4 [4.1; 4.6] (4,519)	4.6 [4.3; 4.9] (1,225)
		XL	10,142	65 (58-73)	57/43	28.7	580	3.9 [3.5; 4.3] (7,826)	4.4 [4.0; 4.8] (5,809)	4.8 [4.4; 5.3] (3,886)	5.2 [4.7; 5.8] (2,286)	5.9 [5.2; 6.5] (898)	5.9 [5.2; 6.5] (256)
		XXL	1,089	67 (59-74)	62/38	29.1	208	5.5 [4.3; 7.1] (843)	6.1 [4.8; 7.8] (652)	6.5 [5.1; 8.2] (464)	6.5 [5.1; 8.2] <sub>(278)</sub>	6.8 [5.3; 8.7] <sub>(127)</sub>	
	Cup type	Modular cup	225,965	67 (59-75)	41/59	27.8	669	2.7 [2.6; 2.7] (177,035)	3.1 [3.0; 3.2] (130,223)	3.4 [3.3; 3.5] (87,337)	3.6 [3.5; 3.7] (49,727)	3.7 [3.6; 3.8] (20,088)	3.9 [3.8; 4.0] (5,544)
		Monobloc cup	15,254	69 (60-76)	38/62	27.8	427	2.3 [2.1; 2.5] (11,554)	2.6 [2.4; 2.9] (8,234)	2.9 [2.6; 3.2] (5,368)	3.0 [2.7; 3.3] (2,938)	3.4 [3.0; 3.8] (1,171)	3.4 [3.0; 3.8] <sub>(349)</sub>
		Revision cup	1,960	64 (54-73)	32/68	27.3	275	6.4 [5.4; 7.6] (1,463)	7.6 [6.4; 8.9] (1,091)	8.0 [6.8; 9.3] (723)	8.3 [7.0; 9.7] (398)	8.3 [7.0; 9.7] (167)	
		Dual mobility	893	74 (62-80)	36/64	27.8	173	5.6 [4.2; 7.4] (590)	6.4 [4.9; 8.4] (376)	6.7 [5.1; 8.8] (228)	6.7 [5.1; 8.8] (117)		
	Stem type	Femoral stem with modular head	208,946	68 (60-75)	40/60	27.9	673	2.7 [2.7; 2.8] (163,840)	3.2 [3.1; 3.3] (120,576)	3.5 [3.4; 3.6] (81,072)	3.7 [3.6; 3.8] (46,348)	3.8 [3.7; 3.9] (18,993)	4.0 [3.9; 4.1] (5,289)
		Short stem	28,956	62 (55-69)	45/55	27.8	324	2.1 [1.9; 2.2] (21,767)	2.4 [2.3; 2.6] (15,267)	2.6 [2.4; 2.8] (9,545)	2.8 [2.6; 3.0] (4,898)	3.0 [2.7; 3.2] (1,914)	3.0 [2.7; 3.2] (604)
		Femoral neck prosthesis	3,981	59 (53-67)	47/53	27.5	111	2.2 [1.8; 2.7] (3,334)	2.6 [2.1; 3.1] (2,693)	3.0 [2.5; 3.6] (1,964)	3.3 [2.7; 4.0] (1,296)	3.6 [2.9; 4.5] (395)	
		Modular stem	1,431	69 (61-76)	40/60	28.0	81	4.4 [3.4; 5.6] (1,205)	5.1 [4.0; 6.4] (1,030)	5.5 [4.4; 6.9] (855)	5.9 [4.7; 7.4] (525)	5.9 [4.7; 7.4] <sub>(122)</sub>	
		Revision or tumour stem	612	73.5 (63–80)	39/61	26.6	222	9.3 [7.2; 12.0] (433)	10.3 [8.1; 13.2] (308)	11.1 [8.6; 14.1] (189)	11.1 [8.6; 14.1] (105)		
	Reconstruction shell	Without reconstruction shell	243,778	67 (59-75)	40/60	27.8	673	2.7 [2.6; 2.7] (190,422)	3.1 [3.0; 3.2] (139,753)	3.4 [3.3; 3.5] <sub>(93,545)</sub>	3.6 [3.5; 3.7] <sub>(53,120)</sub>	3.7 [3.6; 3.8] (21,448)	3.9 [3.8; 4.0] <sub>(5,953)</sub>
	Fixation	Uncemented	240,713	67 (59-75)	41/59	27.8	673	2.7 [2.6; 2.7] (188,095)	3.1 [3.0; 3.2] (138,016)	3.4 [3.3; 3.4] (92,367)	3.5 [3.5; 3.6] (52,467)	3.7 [3.6; 3.8] (21,205)	3.9 [3.7; 4.0] (5,895)
		Reverse-hybrid	3,362	74 (65-80)	24/76	27.2	456	4.9 [4.2; 5.7] (2,549)	5.7 [4.9; 6.5] (1,908)	6.3 [5.5; 7.3] (1,289)	6.4 [5.5; 7.4] (713)	7.0 [6.0; 8.2] (264)	7.0 [6.0; 8.2] (65)
Elective THAs with	cemented stems		67,100	79 (75-82)	26/74	26.7	651	2.3 [2.2; 2.4] (52,152)	2.6 [2.5; 2.7] (38,194)	2.9 [2.7; 3.0] (25,801)	3.1 [3.0; 3.3] (14,945)	3.3 [3.2; 3.5] (6,433)	3.6 [3.3; 3.9] (1,790)
	Bearing	Ceramic / hXLPE	29,294	78 (74-81)	25/75	26.7	464	2.0 [1.8; 2.2] (22,240)	2.3 [2.1; 2.5] (15,722)	2.6 [2.4; 2.8] (10,326)	2.8 [2.6; 3.0] (5,751)	2.9 [2.7; 3.2] (2,480)	3.2 [2.8; 3.5] (795)
		Ceramic / PE	10,655	79 (75-82)	25/75	26.8	413	2.2 [1.9; 2.5] (8,874)	2.7 [2.4; 3.0] (7,087)	2.9 [2.6; 3.3] (5,275)	3.1 [2.8; 3.5] (3,380)	3.2 [2.8; 3.6] (1,543)	3.4 [3.0; 4.0] (459)
		Metal / hXLPE	7,340	80 (77-83)	28/72	26.8	293	2.8 [2.4; 3.2] (5,657)	3.0 [2.7; 3.5] (4,146)	3.2 [2.8; 3.7] (2,665)	3.5 [3.0; 4.0] (1,453)	3.6 [3.1; 4.2] (587)	4.2 [3.1; 5.6] (121)
		Metal / PE	5,546	81 (77-84)	26/74	26.4	372	3.1 [2.7; 3.6] (4,425)	3.4 [3.0; 4.0] (3,478)	3.7 [3.2; 4.3] (2,543)	4.1 [3.6; 4.8] (1,560)	4.5 [3.8; 5.2] (717)	4.5 [3.8; 5.2] <sub>(150)</sub>
		Ceramic / hXLPE+antiox.	5,274	79 (74–82)	22/78	26.7	210	1.9 [1.5; 2.3] (3,898)	2.1 [1.7; 2.6] (2,523)	2.6 [2.2; 3.2] (1,465)	2.9 [2.3; 3.5] (707)	3.2 [2.6; 4.1] (264)	3.2 [2.6; 4.1] (51)
		Ceramic / mXLPE	3,408	78 (74–81)	22/78	26.7	161	2.6 [2.1; 3.2] (2,642)	3.2 [2.6; 3.9] (1.969)	3.5 [2.9; 4.2] (1,380)	4.1 [3.3; 4.9] (883)	4.6 [3.7; 5.6] <sub>(390)</sub>	4.6 [3.7; 5.6] <sub>(107)</sub>
		Metal / mXLPE	1,622	81 (77-84)	25/75	26.0	135	3.6 [2.8; 4.7] (1,281)	3.9 [3.0; 5.0] (1,001)	4.4 [3.5; 5.7] (702)	4.9 [3.9; 6.3] (436)	5.2 [4.0; 6.6] (190)	5.2 [4.0; 6.6] (59)
		Ceramic / ceramic	1,214	76 <sub>(71–79)</sub>	24/76	27.6	106	1.3 [0.8; 2.2] (1,054)	1.4 [0.9; 2.3] (870)	1.4 [0.9; 2.3] (684)	1.6 [1.0; 2.5] (428)	1.8 [1.1; 3.0] (160)	

Table 37 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Bearing	Metal / hXLPE+antiox.	718	80 (77-84)	28/72	26.6	96	2.2 [1.3; 3.6] (536)	2.4 [1.5; 4.0] (383)	2.4 [1.5; 4.0] (237)	2.4 [1.5; 4.0] (125)		
		Metal / Metal	611	56 (51-61)	94/6	27.8	28	0.7 [0.3; 1.8] (523)	1.1 [0.5; 2.4] (397)	1.4 [0.7; 3.0] (246)	2.3 [1.1; 4.7] (129)		
		Ceramicised metal / hXLPE	393	79 (75–82)	27/73	27.2	36	3.2 [1.8; 5.5] (304)	3.2 [1.8; 5.5] (215)	3.2 [1.8; 5.5] (99)			
	Acetabular articu- lating surface	hXLPE	37,139	78 (75-82)	26/74	26.7	501	2.2 [2.0; 2.3] (28,280)	2.5 [2.3; 2.6] (20,126)	2.7 [2.5; 2.9] (13,093)	2.9 [2.7; 3.2] (7,229)	3.1 [2.9; 3.3] (3,075)	3.4 [3.0; 3.7] <sub>(919)</sub>
		PE	16,855	79 (76-83)	25/75	26.6	499	2.5 [2.3; 2.8] (13,758)	3.0 [2.7; 3.2] (10,833)	3.2 [2.9; 3.5] (7,942)	3.5 [3.2; 3.8] (4,983)	3.6 [3.3; 4.0] (2,272)	3.8 [3.4; 4.2] (609)
		hXLPE+antiox.	6,015	79 (75-82)	22/78	26.7	235	1.9 [1.6; 2.3] (4,448)	2.2 [1.8; 2.6] (2,909)	2.6 [2.2; 3.2] (1,702)	2.8 [2.4; 3.4] (832)	3.2 [2.5; 3.9] (303)	3.2 [2.5; 3.9] (66)
		mXLPE	5,031	79 (75–82)	23/77	26.5	204	2.9 [2.5; 3.4] (3,923)	3.4 [2.9; 4.0] (2,970)	3.8 [3.3; 4.4] (2,082)	4.3 [3.7; 5.0] (1,319)	4.7 [4.0; 5.6] (580)	4.7 [4.0; 5.6] (166)
		Ceramic	1,221	76 <sub>(71–79)</sub>	24/76	27.6	107	1.3 [0.8; 2.2] (1,058)	1.4 [0.9; 2.3] (870)	1.4 [0.9; 2.3] (684)	1.6 [1.0; 2.5] (428)	1.8 [1.1; 2.9] (160)	
		Metal	611	56 (51-61)	94/6	27.8	28	0.7 [0.3; 1.8] (523)	1.1 [0.5; 2.4] (397)	1.4 [0.7; 3.0] (246)	2.3 [1.1; 4.7] (129)		
	Head component	Ceramic	49,910	78 (74–82)	24/76	26.7	622	2.1 [1.9; 2.2] (38,749)	2.4 [2.3; 2.6] (28,189)	2.7 [2.5; 2.8] (19,139)	2.9 [2.8; 3.1] (11,153)	3.1 [2.9; 3.3] (4,837)	3.4 [3.1; 3.7] (1,437)
		Metal	16,000	80 (76-83)	29/71	26.6	516	2.9 [2.6; 3.1] (12,543)	3.2 [2.9; 3.4] (9,476)	3.4 [3.1; 3.7] (6,436)	3.8 [3.4; 4.1] (3,724)	4.0 [3.6; 4.4] (1,576)	4.2 [3.7; 4.8] (350)
		Ceramicised metal	688	79 <sub>(76–82)</sub>	24/76	27.0	50	3.2 [2.1; 4.8] (540)	3.6 [2.4; 5.4] (388)	3.6 [2.4; 5.4] (216)	4.1 [2.7; 6.2] <sub>(67)</sub>		
	Head size	28 mm	4,202	79 (75–83)	12/88	26.1	410	3.1 [2.6; 3.7] (3,319)	3.3 [2.8; 3.9] (2,553)	3.6 [3.0; 4.2] (1,827)	3.8 [3.2; 4.5] (1,086)	4.0 [3.3; 4.7] (487)	4.0 [3.3; 4.7] (110)
		32 mm	43,678	79 <sub>(75–82)</sub>	21/79	26.6	614	2.3 [2.2; 2.5] (34,329)	2.7 [2.5; 2.9] (25,467)	2.9 [2.8; 3.1] (17,553)	3.2 [3.0; 3.4] (10,390)	3.4 [3.2; 3.6] (4,549)	3.6 [3.3; 3.9] (1,281)
		36 mm	17,893	78 (75–82)	37/63	27.0	460	1.9 [1.8; 2.2] (13,523)	2.3 [2.1; 2.5] (9,556)	2.6 [2.4; 2.9] (6,120)	2.8 [2.5; 3.1] (3,324)	3.0 [2.7; 3.4] (1,349)	3.5 [2.9; 4.2] (393)
	Head-neck length	XS	360	79 <sub>(75–83)</sub>	20/80	26.2	36	1.4 [0.6; 3.4] (294)	2.1 [1.0; 4.4] (208)	2.1 [1.0; 4.4] (125)	2.1 [1.0; 4.4] (65)		
		S	21,321	79 (75–82)	18/82	26.4	579	1.9 [1.7; 2.1] (16,283)	2.2 [2.0; 2.4] (11,537)	2.4 [2.2; 2.6] (7,680)	2.6 [2.3; 2.9] (4,295)	2.7 [2.4; 3.0] (1,796)	3.0 [2.5; 3.6] (510)
		М	26,246	79 <sub>(75–82)</sub>	24/76	26.7	615	2.0 [1.9; 2.2] (20,548)	2.4 [2.2; 2.6] (15,247)	2.7 [2.5; 2.9] (10,422)	2.9 [2.7; 3.2] (6,185)	3.1 [2.8; 3.4] (2,686)	3.2 [2.9; 3.5] (811)
		L	13,360	78 (75–82)	32/68	27.1	565	2.8 [2.5; 3.1] (10,632)	3.2 [2.9; 3.5] (8,015)	3.4 [3.1; 3.7] (5,510)	3.7 [3.3; 4.1] (3,210)	3.9 [3.5; 4.3] <sub>(1,379)</sub>	4.1 [3.6; 4.5] (358)
		XL	2,572	78 <sub>(74–82)</sub>	42/58	27.4	413	4.0 [3.3; 4.8] (1,963)	4.7 [3.9; 5.6] <sub>(1,445)</sub>	5.2 [4.3; 6.3] (935)	5.8 [4.8; 7.0] (527)	6.6 [5.4; 8.1] (212)	
		XXL	328	79 (73–82)	42/58	27.5	123	4.6 [2.7; 7.6] (253)	4.6 [2.7; 7.6] (205)	5.0 [3.0; 8.2] (168)	5.0 [3.0; 8.2] (103)		
	Cup type	Modular cup	46,884	78 <sub>(74–82)</sub>	25/75	26.8	620	2.2 [2.0; 2.3] (36,055)	2.5 [2.3; 2.6] (26,023)	2.7 [2.6; 2.9] (17,310)	3.0 [2.8; 3.1] <sub>(9,733)</sub>	3.1 [2.9; 3.3] (4,085)	3.4 [3.1; 3.8] (1,097)
		Monobloc cup	17,828	80 (76-83)	24/76	26.6	510	2.2 [2.0; 2.4] (14,511)	2.6 [2.4; 2.8] (11,129)	2.9 [2.6; 3.1] (7,878)	3.2 [2.9; 3.5] (4,888)	3.4 [3.1; 3.8] (2,218)	3.6 [3.2; 4.0] (664)
		Dual mobility	1,129	80 (75–84)	26/74	25.9	194	2.2 [1.5; 3.3] (716)	2.4 [1.6; 3.5] (433)	2.8 [1.8; 4.3] (239)	3.6 [2.0; 6.3] <sub>(102)</sub>		
		Revision cup	999	78 <sub>(73–82)</sub>	33/67	25.8	253	9.2 [7.5; 11.2] (653)	9.8 [8.1; 12.0] (448)	10.8 [8.8; 13.1] (266)	11.6 [9.4; 14.3] (161)	12.2 [9.8; 15.1] (68)	

Table 37 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Stem type	Femoral stem with modular head	65,918	79 <sub>(75–82)</sub>	25/75	26.7	645	2.3 [2.1; 2.4] (51,241)	2.6 [2.5; 2.7] (37,541)	2.9 [2.7; 3.0] (25,410)	3.1 [3.0; 3.3] (14,757)	3.3 [3.1; 3.5] (6,381)	3.6 [3.3; 3.8] (1,783)
		Surface replacement	611	56 (51-61)	94/6	27.8	28	0.7 [0.3; 1.8] (523)	1.1 [0.5; 2.4] (397)	1.4 [0.7; 3.0] (246)	2.3 [1.1; 4.7] (129)		
	Reconstruction shell	Without reconstruction shell	66,649	79 (75–82)	25/75	26.7	650	2.2 [2.1; 2.3] (51,882)	2.5 [2.4; 2.7] (38,009)	2.8 [2.7; 2.9] (25,684)	3.1 [2.9; 3.2] (14,875)	3.3 [3.1; 3.4] (6,405)	3.5 [3.3; 3.8] (1,782)
		With reconstruction shell	451	79 (74-84)	35/65	24.6	171	11.5 [8.8; 15.1] (270)	13.1 [10.0; 16.9] (185)	14.1 [10.9; 18.2] (117)	15.1 [11.5; 19.7] (70)		
	Fixation	Hybrid	50,195	78 (74–82)	26/74	26.8	631	2.2 [2.1; 2.3] (38,673)	2.5 [2.4; 2.6] (27,952)	2.7 [2.6; 2.9] (18,582)	3.0 [2.8; 3.2] (10,468)	3.2 [3.0; 3.4] (4,395)	3.5 [3.2; 3.8] (1,155)
		Cemented	16,905	80 (76-84)	23/77	26.4	536	2.5 [2.3; 2.8] (13,479)	2.9 [2.7; 3.2] (10,242)	3.3 [3.0; 3.6] (7,219)	3.5 [3.2; 3.9] (4,477)	3.8 [3.4; 4.2] (2,038)	4.0 [3.5; 4.4] (635)
Non-elective THAs			18,910	76 (69-82)	29/71	24.7	611	5.7 [5.4; 6.1] (12,430)	6.4 [6.0; 6.8] (8,359)	6.9 [6.5; 7.3] (5,082)	7.3 [6.8; 7.7] (2,590)	7.6 [7.1; 8.1] (922)	7.6 [7.1; 8.1] (174)
	Bearing	Ceramic / hXLPE	6,403	<b>74</b> <sub>(66–79)</sub>	30/70	24.7	416	5.6 [5.0; 6.2] (4,143)	6.2 [5.6; 6.8] (2,689)	6.6 [5.9; 7.3] <sub>(1,590)</sub>	7.0 [6.3; 7.8] (819)	7.0 [6.3; 7.8] (269)	
		Ceramic / hXLPE+antiox.	2,396	75 <sub>(67–80)</sub>	33/67	24.8	185	6.1 [5.2; 7.2] (1,518)	6.8 [5.8; 8.0] (947)	7.2 [6.1; 8.5] (503)	7.4 [6.3; 8.8] (236)	7.4 [6.3; 8.8] (87)	
		Ceramic / PE	2,366	<b>77</b> <sub>(70–82)</sub>	27/73	24.7	307	5.1 [4.3; 6.1] (1,664)	6.0 [5.0; 7.1] (1,206)	6.2 [5.2; 7.3] (797)	6.4 [5.4; 7.7] (430)	6.8 [5.6; 8.2] (168)	
		Metal / PE	2,249	81 (76-86)	25/75	24.5	263	5.8 [4.9; 6.9] (1,436)	6.8 [5.8; 8.1] (1,001)	7.5 [6.3; 8.8] (632)	8.0 [6.7; 9.5] (336)	8.0 [6.7; 9.5] (137)	
		Metal / hXLPE	2,046	79 <sub>(74–84)</sub>	26/74	24.5	223	5.1 [4.2; 6.2] (1,293)	5.8 [4.8; 7.0] <sub>(869)</sub>	6.3 [5.2; 7.7] <sub>(531)</sub>	6.3 [5.2; 7.7] (241)	6.9 [5.4; 8.7] <sub>(75)</sub>	
		Ceramic / mXLPE	1,247	74 (67-79)	32/68	24.9	146	5.7 [4.5; 7.2] <sub>(924)</sub>	6.2 [4.9; 7.8] (680)	7.1 [5.6; 8.9] (415)	8.1 [6.3; 10.2] (210)	8.8 [6.7; 11.5] <sub>(82)</sub>	
		Ceramic / ceramic	745	68 (61-76)	34/66	25.0	121	5.2 [3.8; 7.2] (545)	5.7 [4.2; 7.7] (401)	6.3 [4.6; 8.5] (297)	6.3 [4.6; 8.5] (168)	8.1 [5.5; 11.9] <sub>(59)</sub>	
		Metal / mXLPE	645	79 (75–85)	29/71	25.0	96	8.1 [6.2; 10.6] (444)	8.6 [6.6; 11.1] (326)	8.9 [6.8; 11.6] (219)	9.9 [7.5; 13.0] (119)		
	Acetabular articu- lating surface	hXLPE	8,665	75 (68-81)	29/71	24.7	448	5.5 [5.0; 6.0] (5,572)	6.2 [5.6; 6.7] (3,634)	6.6 [6.0; 7.2] (2,153)	6.9 [6.3; 7.6] <sub>(1,069)</sub>	7.0 [6.4; 7.8] <sub>(345)</sub>	7.0 [6.4; 7.8] (62)
		PE	4,885	<b>79</b> <sub>(73–85)</sub>	26/74	24.5	391	5.5 [4.9; 6.2] (3,259)	6.4 [5.7; 7.2] (2,280)	6.8 [6.1; 7.7] (1,444)	7.2 [6.4; 8.1] (769)	7.4 [6.5; 8.3] (306)	7.4 [6.5; 8.3] (55)
		hXLPE+antiox.	2,661	75 (67-81)	33/67	24.8	206	6.3 [5.4; 7.4] (1,656)	6.9 [6.0; 8.1] (1,028)	7.4 [6.4; 8.7] <sub>(549)</sub>	7.6 [6.5; 8.9] (253)	7.6 [6.5; 8.9] <sub>(92)</sub>	
		mXLPE	1,894	76 (69-81)	31/69	25.0	171	6.5 [5.5; 7.8] (1,369)	7.0 [5.9; 8.3] (1,006)	7.7 [6.5; 9.1] <sub>(634)</sub>	8.7 [7.2; 10.4] (329)	9.1 [7.5; 11.1] (119)	
		Ceramic	748	68 (61-76)	34/66	25.0	121	5.2 [3.8; 7.1] (548)	5.6 [4.1; 7.7] (401)	6.2 [4.6; 8.5] (297)	6.2 [4.6; 8.5] (168)	8.1 [5.5; 11.9] <sub>(59)</sub>	
	Head component	Ceramic	13,186	75 (67-80)	30/70	24.8	588	5.6 [5.2; 6.0] (8,807)	6.2 [5.8; 6.7] (5,926)	6.7 [6.2; 7.2] (3,604)	7.0 [6.5; 7.6] (1,864)	7.4 [6.8; 8.0] (666)	7.4 [6.8; 8.0] (131)
		Metal	5,226	80 (75–85)	26/74	24.6	403	6.0 [5.3; 6.7] <sub>(3,320)</sub>	6.7 [6.0; 7.5] (2,283)	7.3 [6.6; 8.2] (1,430)	7.7 [6.9; 8.7] (714)	7.9 [7.0; 8.9] <sub>(254)</sub>	
	Head size	28 mm	2,083	78 (70-83)	16/84	23.9	360	6.6 [5.6; 7.8] (1,313)	7.4 [6.2; 8.7] (902)	7.7 [6.6; 9.1] (571)	8.5 [7.1; 10.1] (307)	8.5 [7.1; 10.1] (135)	
		32 mm	10,889	76 (69-82)	24/76	24.7	573	5.7 [5.3; 6.2] <sub>(7,439)</sub>	6.5 [6.0; 7.0] (5,151)	6.9 [6.4; 7.5] <sub>(3,246)</sub>	7.2 [6.7; 7.8] (1,704)	7.4 [6.8; 8.0] <sub>(598)</sub>	7.4 [6.8; 8.0] (115)
		36 mm	5,518	76 (68-81)	44/56	25.0	405	5.3 [4.7; 6.0] (3,439)	5.8 [5.2; 6.5] (2,205)	6.4 [5.7; 7.2] (1,247)	6.8 [6.1; 7.7] (573)	7.7 [6.5; 9.1] (188)	

Table 37 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Head-neck length	S	4,832	76 (69-82)	23/77	24.4	502	4.7 [4.1; 5.4] (3,187)	5.3 [4.6; 6.0] (2,087)	5.9 [5.1; 6.7] <sub>(1,255)</sub>	6.2 [5.4; 7.1] <sub>(635)</sub>	6.4 [5.6; 7.5] (223)	6.4 [5.6; 7.5] <sub>(52)</sub>
		М	7,149	76 (69-82)	27/73	24.7	559	5.4 [4.8; 5.9] (4,684)	6.0 [5.4; 6.6] (3,181)	6.4 [5.8; 7.1] (1,935)	7.1 [6.3; 7.8] (1,017)	7.1 [6.3; 7.8] (352)	7.1 [6.3; 7.8] (66)
		L	4,536	76 (68-81)	35/65	25.0	520	6.6 [5.9; 7.4] (3,079)	7.5 [6.7; 8.4] (2,119)	7.7 [6.9; 8.6] (1,346)	7.9 [7.1; 8.8] (680)	8.3 [7.3; 9.4] (257)	
		XL	1,313	75 (67-81)	44/56	25.1	366	7.3 [5.9; 8.9] (841)	7.7 [6.3; 9.3] (585)	8.6 [7.0; 10.4] (352)	8.8 [7.2; 10.8] (181)	10.5 [8.0; 13.7] (65)	
	Cup type	Modular cup	13,271	75 (67-80)	31/69	24.8	587	5.9 [5.5; 6.4] (8,879)	6.5 [6.1; 7.0] <sub>(6,009)</sub>	7.0 [6.6; 7.5] (3,647)	7.4 [6.9; 8.0] (1,885)	7.8 [7.2; 8.5] (684)	7.8 [7.2; 8.5] <sub>(135)</sub>
		Monobloc cup	4,437	80 (75–85)	25/75	24.5	372	4.8 [4.2; 5.5] (2,898)	5.6 [4.9; 6.4] (1,972)	6.1 [5.3; 7.0] (1,253)	6.3 [5.5; 7.3] (632)	6.3 [5.5; 7.3] (218)	
		Dual mobility	930	80 (74–86)	32/68	24.5	161	6.5 [5.0; 8.3] (488)	7.3 [5.7; 9.5] <sub>(269)</sub>	7.3 [5.7; 9.5] (120)			
	Stem type	Femoral stem with modular head	18,178	76 (69-82)	29/71	24.7	609	5.6 [5.3; 6.0] (11,992)	6.3 [5.9; 6.7] (8,063)	6.7 [6.3; 7.2] (4,897)	7.1 [6.7; 7.6] (2,497)	7.4 [6.9; 8.0] (891)	7.4 [6.9; 8.0] (167)
		Revision or tumour stem	362	79 (72-86)	26/74	25.4	185	9.9 [7.1; 13.9] (202)	11.8 [8.6; 16.2] (137)	12.5 [9.1; 17.1] (87)			
	Reconstruction shell	Without reconstruction shell	18,844	76 (69-82)	29/71	24.7	610	5.7 [5.4; 6.1] (12,393)	6.4 [6.0; 6.8] (8,337)	6.8 [6.4; 7.3] (5,069)	7.2 [6.8; 7.7] (2,582)	7.5 [7.0; 8.0] (919)	7.5 [7.0; 8.0] (173)
	Fixation	Uncemented	8,482	72 (64–78)	34/66	24.8	570	6.7 [6.2; 7.3] <sub>(5,762)</sub>	7.3 [6.8; 7.9] (3,983)	7.8 [7.2; 8.4] (2,444)	8.2 [7.5; 8.9] (1,260)	8.7 [7.9; 9.6] (460)	8.7 [7.9; 9.6] <sub>(83)</sub>
		Hybrid	5,797	77 (72-82)	27/73	24.7	495	4.6 [4.0; 5.2] (3,797)	5.2 [4.6; 5.8] (2,498)	5.9 [5.2; 6.7] <sub>(1,496)</sub>	6.5 [5.7; 7.4] (753)	6.5 [5.7; 7.4] (262)	6.5 [5.7; 7.4] (58)
		Cemented	4,071	81 (76–86)	24/76	24.5	370	4.7 [4.0; 5.4] (2,539)	5.5 [4.7; 6.3] <sub>(1,651)</sub>	5.7 [4.9; 6.6] (1,005)	5.9 [5.1; 6.9] <sub>(502)</sub>	5.9 [5.1; 6.9] <sub>(170)</sub>	
		Reverse-hybrid	454	77 (67-83)	28/72	25.4	185	8.5 [6.2; 11.6] (276)	9.4 [6.9; 12.7] (189)	9.4 [6.9; 12.7] (110)	9.4 [6.9; 12.7] (58)		
Hip hemiarthropla	sties		37,875	84 (80-89)	28/72	24.2	533	4.6 [4.4; 4.8] (19,605)	4.9 [4.6; 5.1] (11,845)	5.1 [4.8; 5.3] (6,229)	5.2 [4.9; 5.5] (2,737)	5.3 [5.0; 5.7] (816)	5.3 [5.0; 5.7] (115)
	Head component	Metal	34,519	84 (80-89)	28/72	24.2	507	4.5 [4.3; 4.8] (17,900)	4.8 [4.5; 5.0] (10,909)	5.0 [4.7; 5.2] (5,845)	5.1 [4.8; 5.3] (2,588)	5.2 [4.9; 5.6] <sub>(797)</sub>	5.2 [4.9; 5.6] (113)
		Ceramic	1,438	84 (79-89)	28/72	24.7	197	5.2 [4.1; 6.6] <sub>(769)</sub>	5.6 [4.5; 7.1] (453)	5.9 [4.7; 7.6] (244)	7.1 [5.2; 9.7] <sub>(100)</sub>		
	Head size	28 mm	33,552	84 (80-89)	27/73	24.2	515	4.5 [4.3; 4.7] (17,471)	4.7 [4.5; 5.0] (10,705)	4.9 [4.6; 5.2] <sub>(5,752)</sub>	5.0 [4.8; 5.3] (2,526)	5.2 [4.8; 5.6] <sub>(740)</sub>	5.2 [4.8; 5.6] <sub>(103)</sub>
		32 mm	2,088	84 (79-88)	48/52	24.8	93	5.6 [4.7; 6.8] (1,094)	6.2 [5.1; 7.4] (649)	6.5 [5.4; 7.8] (357)	6.8 [5.5; 8.3] (162)	6.8 [5.5; 8.3] (62)	
	Head-neck length	XS	300	84 (80-89)	31/69	23.7	22	3.3 [1.7; 6.3] (173)	3.3 [1.7; 6.3] (108)				
		S	12,064	84 (80-89)	24/76	24.0	445	4.2 [3.8; 4.6] (6,114)	4.5 [4.1; 4.9] (3,528)	4.6 [4.2; 5.0] (1,806)	4.6 [4.2; 5.0] (786)	4.9 [4.2; 5.7] (231)	
		М	16,886	84 (80-89)	29/71	24.3	486	4.4 [4.1; 4.8] (8,804)	4.6 [4.3; 5.0] (5,436)	4.8 [4.4; 5.2] (2,982)	4.9 [4.5; 5.3] (1,328)	4.9 [4.5; 5.3] <sub>(393)</sub>	4.9 [4.5; 5.3] (63)
		L	3,662	84 (79-89)	34/66	24.6	396	5.3 [4.6; 6.2] (1,953)	5.7 [4.9; 6.6] (1,302)	5.7 [4.9; 6.6] (771)	6.1 [5.1; 7.2] (334)	6.6 [5.3; 8.2] <sub>(99)</sub>	
		XL	591	83 (79-89)	35/65	25.4	192	6.3 [4.5; 8.8] (324)	6.9 [5.0; 9.6] (222)	8.0 [5.7; 11.2] <sub>(135)</sub>	8.0 [5.7; 11.2] <sub>(55)</sub>		
	Stem type	Femoral stem with modular head	37,220	84 (80-89)	28/72	24.2	528	4.5 [4.3; 4.8] (19,302)	4.8 [4.5; 5.0] (11,669)	5.0 [4.7; 5.3] (6,145)	5.1 [4.8; 5.4] (2,700)	5.3 [4.9; 5.6] (808)	5.3 [4.9; 5.6] (114)

Table 37 (continued)

								Revision probabilities after					
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Stem type	Revision or tumour stem	412	84 (79-89)	27/73	24.9	153	10.2 [7.5; 13.9] (193)	11.5 [8.4; 15.7] (113)	11.5 [8.4; 15.7] (53)			
	Fixation	Cemented	32,881	84 (80-89)	27/73	24.2	514	4.2 [4.0; 4.5] (17,070)	4.5 [4.2; 4.7] (10,338)	4.7 [4.4; 4.9] (5,448)	4.7 [4.5; 5.0] (2,414)	4.9 [4.6; 5.3] (740)	4.9 [4.6; 5.3] (106)
		Uncemented	4,820	83 (78-88)	33/67	24.7	296	6.9 [6.1; 7.7] (2,451)	7.5 [6.7; 8.4] <sub>(1,455)</sub>	7.8 [7.0; 8.8] <sub>(755)</sub>	8.2 [7.2; 9.4] <sub>(311)</sub>	8.2 [7.2; 9.4] <sub>(75)</sub>	

Table 37 (continued)

# 5.1.2 Comparison of different knee arthroplasty types

The basic types of knee arthroplasties differ significantly in terms of their indications and thus the underlying conditions of the patients. The smallest group of knee arthroplasties considered in the EPRD are the patellofemoral arthroplasties, which suffer a revision probability of more than 10 % after three years already (see Table 38). Figure 8 compares the revision probabilities of unicondylar and total knee arthroplasties. Unicondylar arthroplasties have a revision probability that is almost twice that of total knee arthroplasties.

The majority of patients with total knee arthroplasties receive standard knee systems without additional lateral stabilisation. Varus-valgus-stabilised arthroplasties and hinged systems are implanted in a much smaller percentage of patients. These so-called "constrained" systems are employed in patients with corresponding ligament instabilities or joint deformities. Thus, the outcomes presented in Figure 9 with markedly higher revision probabilities as the degree of stabilisation increases also reflect the different baseline conditions.

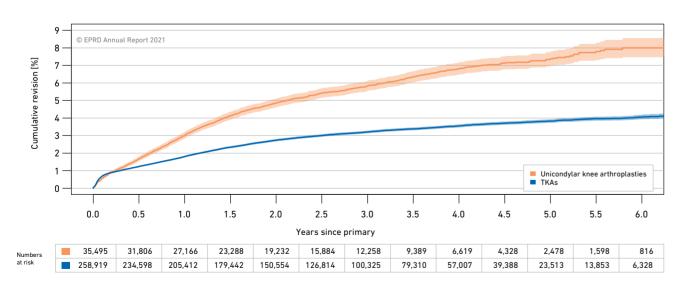


Figure 8: Revision probabilities of total and unicondylar knee arthroplasties (p < 0.0001)

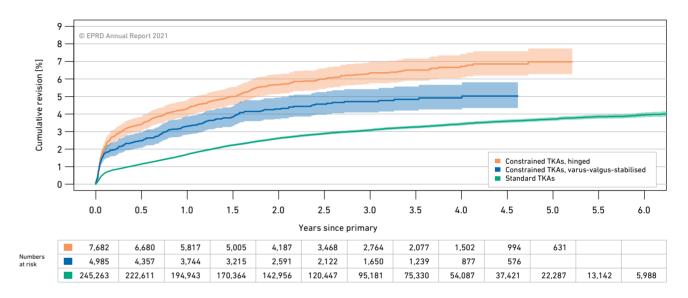


Figure 9: Revision probabilities of total knee arthroplasties by degree of constraint (p < 0.0001)

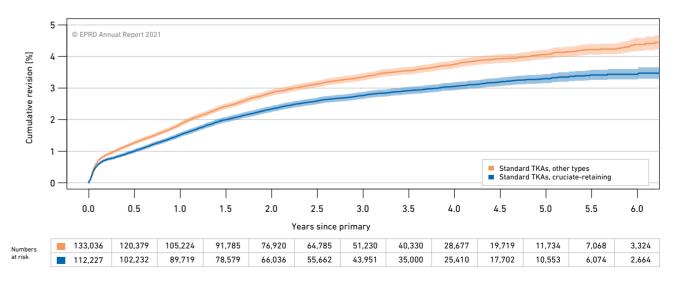


Figure 10: Revision probabilities of standard total knee arthroplasties by knee system (p < 0.0001)

systems, only the group of pure cruciateretaining systems, with their slightly lower revision probability, stands out from the other systems (Figure 10). When interpreting these outcomes, this patient selection must be taken into account because, unlike other systems, pure cruciate-retaining systems are only employed if the ligament situation is good and the joint stable.

As demonstrated by the trend in the EPRD, the use of fixed bearings continues to

When considering the various standard knee increase in both total and unicondylar knee arthroplasties (see Section 4.3). The total knee arthroplasty numbers in the EPRD reveal a lower revision probability for fixed bearing systems within the first few years (see Figure 11). This is consistent with the outcomes of the Australian arthroplasty registry (AOANJRR [1]).

> The femoral components in knee arthroplasties are mostly made of cobalt-chromiummolybdenum alloys. A small percentage of these components are coated on the bearing

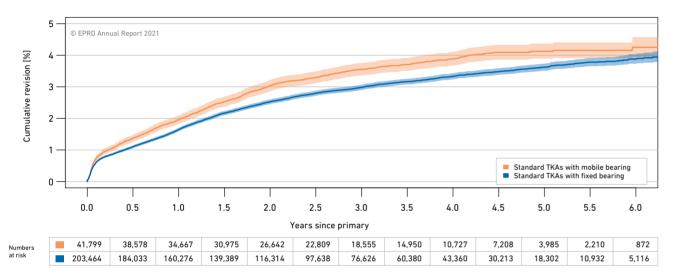


Figure 11: Revision probabilities of standard total knee arthroplasties by bearing mobility (p < 0.0001)

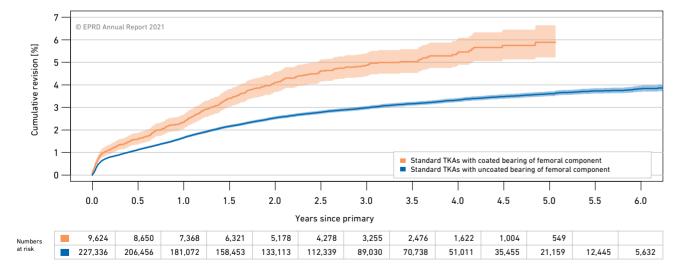


Figure 12: Revision probabilities of standard total knee arthroplasties by coated or uncoated femoral articulating surface (p < 0.0001)

side. However, for all types of arthroplasties considered in the EPRD, these coated components have higher revision probabilities than uncoated components. However, this must be considered against the fact that arthroplasties with coated femoral bearings are often implanted in patients with a confirmed or suspected metal sensitivity, and here the coating itself presumably plays less of a role than other factors [2].

### In brief:

- Revision probabilities of unicondylar arthroplasties are almost twice as high as those of total knee arthroplasties
- Higher probability of revision in the period reviewed for total knee arthroplasties with mobile bearings than for those with fixed bearings
- Outcomes for coated metal components worse than for uncoated models

Table 38 summarises the outcomes of the various types of knee arthroplasties analysed.

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
Standard TKAs			245,263	70 (62–77)	34/66	30.1	662	1.7 [1.6; 1.8] (194,943)	2.6 [2.5; 2.7] (142,956)	3.1 [3.0; 3.2] (95,181)	3.4 [3.3; 3.5] (54,087)	3.7 [3.6; 3.8] (22,287)	3.9 [3.8; 4.1] (5,988)
	Bearing mobility	Fixed bearing	203,464	70 (62–77)	34/66	30.1	637	1.6 [1.6; 1.7] (160,276)	2.5 [2.4; 2.6] (116,314)	3.0 [2.9; 3.1] (76,626)	3.3 [3.2; 3.4] (43,360)	3.6 [3.5; 3.7] (18,302)	3.9 [3.7; 4.0] (5,116)
		Mobile bearing	41,799	71 (63–77)	34/66	30.0	314	2.0 [1.8; 2.1] (34,667)	3.0 [2.9; 3.2] (26,642)	3.6 [3.4; 3.8] (18,555)	3.9 [3.7; 4.1] (10,727)	4.1 [3.9; 4.4] (3,985)	4.3 [3.9; 4.6] (872)
	Bearing	Uncoated metal / PE	104,648	71 (63–77)	35/65	30.1	471	1.6 [1.5; 1.6] (84,042)	2.3 [2.2; 2.4] (62,781)	2.7 [2.6; 2.9] (42,560)	3.1 [3.0; 3.2] (25,012)	3.4 [3.2; 3.5] (10,645)	3.7 [3.5; 3.9] (2,987)
		Uncoated metal / mXLPE	90,086	71 (63–77)	35/65	30.1	417	1.8 [1.7; 1.9] (72,565)	2.8 [2.6; 2.9] (53,307)	3.3 [3.2; 3.4] (35,601)	3.6 [3.5; 3.8] (20,165)	3.9 [3.7; 4.0] (8,153)	4.0 [3.8; 4.2] (2,092)
		Uncoated metal / hXLPE	18,865	69 (61-76)	30/70	30.4	324	1.7 [1.5; 1.9] (14,745)	2.6 [2.3; 2.8] (10,542)	2.9 [2.6; 3.2] (6,721)	3.1 [2.8; 3.4] (3,644)	3.3 [3.0; 3.7] (1,554)	3.4 [3.0; 3.7] (356)
		Uncoated metal / hXLPE+antiox.	12,457	69 (61-76)	38/62	30.4	163	1.7 [1.4; 1.9] (8,629)	2.5 [2.2; 2.9] (5,535)	3.0 [2.6; 3.4] (3,491)	3.5 [3.0; 4.0] (1,878)	3.9 [3.3; 4.5] (730)	3.9 [3.3; 4.5] <sub>(197)</sub>
		Coated metal / mXLPE	7,143	66 (58-74)	14/86	30.9	307	2.2 [1.8; 2.5] (5,471)	3.9 [3.4; 4.4] (3,825)	4.6 [4.1; 5.3] (2,380)	5.1 [4.5; 5.8] (1,192)	5.5 [4.8; 6.4] (436)	7.0 [5.3; 9.2] <sub>(76)</sub>
		Ceramicised metal / PE	5,100	66 (58-73)	17/83	31.4	209	1.5 [1.2; 1.9] (3,914)	2.7 [2.3; 3.3] (2,795)	3.3 [2.8; 3.9] (1,828)	3.5 [2.9; 4.2] (1,067)	3.7 [3.1; 4.5] (522)	3.9 [3.2; 4.8] <sub>(256)</sub>
		Ceramicised metal / hXLPE	2,957	66 (59-74)	31/69	30.4	86	2.7 [2.2; 3.4] (2,395)	3.9 [3.2; 4.8] (1,723)	4.7 [3.9; 5.7] (972)	5.2 [4.3; 6.3] (342)		
		Coated metal / PE	2,329	68 (60–76)	22/78	30.9	128	3.0 [2.4; 3.8] (1,783)	5.0 [4.1; 6.1] (1,278)	5.8 [4.8; 7.0] (831)	6.7 [5.5; 8.1] (405)	7.2 [5.8; 8.9] (109)	
		Uncoated metal / mXLPE + antiox.	1,280	71 (63–77)	35/65	31.2	17	1.9 [1.3; 2.9] (1,091)	2.7 [1.9; 3.8] (948)	3.4 [2.5; 4.7] (657)	3.9 [2.9; 5.3] (312)	5.4 [3.6; 7.9] (77)	
	Femoral articulat- ing surface	Uncoated metal	227,336	71 (63–77)	35/65	30.1	657	1.7 [1.6; 1.7] (181,072)	2.5 [2.5; 2.6] (133,113)	3.0 [2.9; 3.1] (89,030)	3.3 [3.2; 3.4] (51,011)	3.6 [3.5; 3.7] (21,159)	3.8 [3.7; 4.0] <sub>(5,632)</sub>
		Coated metal	9,624	66 (59-74)	16/84	30.9	391	2.3 [2.0; 2.7] (7,368)	4.1 [3.7; 4.6] (5,178)	4.9 [4.4; 5.4] (3,255)	5.4 [4.8; 6.0] (1,622)	5.9 [5.2; 6.6] (549)	7.0 [5.6; 8.7] (99)
		Ceramicised metal	8,057	66 (58-74)	22/78	31.0	226	2.0 [1.7; 2.3] (6,309)	3.2 [2.8; 3.6] (4,518)	3.8 [3.4; 4.4] (2,800)	4.1 [3.6; 4.7] (1,409)	4.3 [3.7; 4.9] (563)	4.5 [3.8; 5.2] (257)
	Tibial articulating surface	PE	112,323	71 (63–77)	34/66	30.1	527	1.6 [1.5; 1.7] (89,933)	2.4 [2.3; 2.5] (67,001)	2.8 [2.7; 2.9] (45,315)	3.2 [3.0; 3.3] (26,529)	3.5 [3.3; 3.6] (11,292)	3.8 [3.6; 4.0] (3,266)
		mXLPE	97,229	71 (63–77)	34/66	30.1	438	1.8 [1.7; 1.9] (78,036)	2.8 [2.7; 2.9] (57,132)	3.4 [3.3; 3.5] (37,981)	3.7 [3.6; 3.9] (21,357)	4.0 [3.8; 4.2] (8,589)	4.2 [4.0; 4.4] (2,168)
		hXLPE	21,822	68 (60-76)	31/69	30.4	338	1.8 [1.6; 2.0] (17,140)	2.8 [2.5; 3.0] (12,265)	3.1 [2.9; 3.4] (7,693)	3.4 [3.1; 3.7] (3,986)	3.6 [3.3; 3.9] (1,595)	3.6 [3.3; 4.0] <sub>(357)</sub>
		hXLPE+antiox.	12,609	68 (61-76)	38/62	30.4	167	1.6 [1.4; 1.9] (8,743)	2.5 [2.2; 2.9] (5,610)	3.0 [2.6; 3.4] (3,535)	3.4 [3.0; 3.9] (1,903)	3.8 [3.3; 4.4] (734)	3.8 [3.3; 4.4] <sub>(197)</sub>
		mXLPE+antiox.	1,280	71 (63–77)	35/65	31.2	17	1.9 [1.3; 2.9] (1,091)	2.7 [1.9; 3.8] (948)	3.4 [2.5; 4.7] (657)	3.9 [2.9; 5.3] (312)	5.4 [3.6; 7.9] (77)	
	Knee system	CR	112,227	70 (62–77)	35/65	30.3	588	1.5 [1.4; 1.6] (89,719)	2.3 [2.2; 2.4] (66,036)	2.8 [2.7; 2.9] (43,951)	3.1 [2.9; 3.2] (25,410)	3.3 [3.2; 3.4] (10,553)	3.4 [3.3; 3.6] (2,664)
		PS	45,889	70 (62-77)	32/68	30.1	470	2.0 [1.8; 2.1] (35,253)	3.0 [2.8; 3.2] (24,579)	3.5 [3.3; 3.7] (15,570)	3.9 [3.6; 4.1] (8,673)	4.2 [3.9; 4.4] (3,924)	4.6 [4.2; 5.0] (1,414)
		CR/CS	45,689	70 (63–77)	34/66	30.0	302	1.7 [1.6; 1.9] (37,454)	2.7 [2.6; 2.9] (28,248)	3.2 [3.1; 3.4] (19,454)	3.6 [3.4; 3.8] (11,057)	3.9 [3.6; 4.1] (4,457)	4.0 [3.7; 4.3] (1,145)
		CS	37,963	71 (63–77)	31/69	30.1	416	1.8 [1.7; 1.9] (30,150)	2.8 [2.6; 3.0] (22,700)	3.3 [3.1; 3.5] (15,470)	3.9 [3.6; 4.1] (8,666)	4.2 [3.9; 4.5] (3,277)	4.7 [4.2; 5.1] (761)
		Pivot	3,495	69 (61-76)	38/62	30.0	63	2.1 [1.7; 2.7] (2,367)	3.1 [2.5; 3.8] (1,393)	3.4 [2.7; 4.2] <sub>(736)</sub>	3.4 [2.7; 4.2] (281)	3.4 [2.7; 4.2] <sub>(76)</sub>	

Table 38: Table of revision probabilities for different types and characteristics of knee arthroplasties. The table is continued on the following pages.

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Patella	Without patellar resurfacing	219,823	70 (62–77)	34/66	30.1	660	1.7 [1.6; 1.7] (174,849)	2.6 [2.5; 2.7] (128,204)	3.0 [3.0; 3.1] (85,477)	3.4 [3.3; 3.5] (48,598)	3.6 [3.5; 3.7] (20,020)	3.9 [3.7; 4.0] (5,412)
		With patellar resurfacing	25,440	70 (62–77)	31/69	30.5	427	1.8 [1.6; 2.0] (20,094)	2.9 [2.6; 3.1] (14,752)	3.4 [3.1; 3.6] (9,704)	3.9 [3.6; 4.2] (5,489)	4.4 [4.0; 4.8] (2,267)	4.8 [4.2; 5.3] (576)
	Fixation	Cemented	226,703	70 (62–77)	34/66	30.1	659	1.7 [1.6; 1.7] (179,189)	2.6 [2.5; 2.7] (130,453)	3.1 [3.0; 3.1] (86,282)	3.4 [3.3; 3.5] (48,795)	3.7 [3.6; 3.8] (20,096)	3.9 [3.8; 4.1] (5,352)
		Hybrid	14,940	69 (62-76)	39/61	30.2	174	1.8 [1.6; 2.1] (12,772)	2.8 [2.5; 3.1] (10,243)	3.2 [2.9; 3.6] (7,386)	3.5 [3.2; 3.9] (4,441)	3.9 [3.5; 4.3] (1,889)	4.1 [3.7; 4.6] (548)
		Uncemented	3,183	69 (61-76)	31/69	30.5	169	2.0 [1.6; 2.6] (2,637)	3.3 [2.7; 4.1] (2,015)	4.0 [3.3; 4.8] (1,384)	4.0 [3.3; 4.9] (802)	4.2 [3.4; 5.1] (287)	4.2 [3.4; 5.1] (87)
Constrained TKAs			12,667	74 (66-80)	24/76	29.1	596	3.9 [3.6; 4.3] (9,561)	5.1 [4.7; 5.6] (6,778)	5.7 [5.3; 6.2] (4,414)	6.0 [5.6; 6.5] (2,379)	6.2 [5.7; 6.8] (964)	6.2 [5.7; 6.8] (231)
	Bearing mobility	Fixed bearing	12,651	74 (66-80)	24/76	29.1	596	3.9 [3.6; 4.3] (9,548)	5.1 [4.7; 5.6] (6,769)	5.7 [5.3; 6.2] (4,411)	6.0 [5.6; 6.5] (2,379)	6.2 [5.7; 6.8] (964)	6.2 [5.7; 6.8] (231)
	Bearing	Uncoated metal / PE	8,197	75 (67-80)	24/76	28.7	486	3.9 [3.5; 4.3] (6,274)	5.0 [4.5; 5.5] (4,495)	5.5 [5.0; 6.1] (2,989)	5.7 [5.2; 6.3] (1,601)	6.0 [5.4; 6.7] (652)	6.0 [5.4; 6.7] (156)
		Uncoated metal / mXLPE	2,821	74 (66–79)	26/74	29.1	251	3.6 [3.0; 4.4] (2,151)	4.9 [4.1; 5.8] (1,564)	5.3 [4.4; 6.3] (1,030)	5.7 [4.8; 6.8] (620)	5.7 [4.8; 6.8] (251)	5.7 [4.8; 6.8] (64)
		Coated metal / PE	554	73 (64–79)	20/80	29.3	120	6.1 [4.3; 8.6] (382)	8.0 [5.8; 10.9] (252)	9.9 [7.2; 13.5] (133)			
		Uncoated metal / hXLPE	489	72 (62-79)	27/73	30.1	51	3.7 [2.3; 6.0] (347)	6.2 [4.2; 9.2] (209)	6.2 [4.2; 9.2] (114)			
	Femoral articulat- ing surface	Uncoated metal	11,665	75 (66-80)	25/75	29.0	585	3.8 [3.4; 4.2] (8,856)	5.0 [4.6; 5.4] (6,305)	5.5 [5.0; 6.0] (4,145)	5.8 [5.3; 6.3] (2,269)	6.0 [5.5; 6.6] (921)	6.0 [5.5; 6.6] (228)
		Coated metal	790	72 (63–78)	18/82	29.4	190	5.7 [4.2; 7.6] (555)	7.6 [5.8; 9.9] <sub>(372)</sub>	9.4 [7.2; 12.2] (210)	10.0 [7.6; 13.1] (80)		
	Tibial articulating surface	PE	8,963	75 (66-80)	24/76	29.0	504	4.0 [3.6; 4.4] (6,806)	5.2 [4.7; 5.7] (4,848)	5.7 [5.2; 6.3] (3,181)	6.0 [5.4; 6.6] (1,674)	6.3 [5.7; 7.0] (681)	6.3 [5.7; 7.0] (158)
		mXLPE	3,057	73 (65–79)	25/75	29.2	267	3.7 [3.1; 4.5] (2,324)	5.0 [4.2; 5.9] (1,684)	5.5 [4.7; 6.5] (1,107)	5.9 [5.0; 7.0] <sub>(657)</sub>	5.9 [5.0; 7.0] <sub>(265)</sub>	5.9 [5.0; 7.0] <sub>(65)</sub>
		hXLPE	489	72 (62-79)	27/73	30.1	51	3.7 [2.3; 6.0] (347)	6.2 [4.2; 9.2] (209)	6.2 [4.2; 9.2] (114)			
	Knee system	Hinged	7,682	76 (68-81)	22/78	28.4	535	4.3 [3.8; 4.8] (5,817)	5.7 [5.1; 6.3] (4,187)	6.3 [5.8; 7.0] (2,764)	6.7 [6.1; 7.4] (1,502)	7.0 [6.3; 7.7] (631)	7.0 [6.3; 7.7] (120)
		Varus-valgus-stabilised	4,985	72 (63–78)	28/72	29.7	362	3.3 [2.8; 3.9] (3,744)	4.3 [3.7; 4.9] (2,591)	4.7 [4.1; 5.4] (1,650)	4.9 [4.3; 5.7] (877)	5.0 [4.3; 5.8] (333)	5.0 [4.3; 5.8] (111)
	Patella	Without patellar resurfacing	10,890	75 (66-80)	24/76	29.0	586	3.8 [3.4; 4.1] (8,211)	5.0 [4.6; 5.5] (5,805)	5.6 [5.2; 6.1] (3,788)	6.0 [5.5; 6.5] (2,036)	6.2 [5.7; 6.8] (830)	6.2 [5.7; 6.8] (201)
		With patellar resurfacing	1,777	73 (64-79)	25/75	29.6	197	4.8 [3.9; 5.9] (1,350)	5.8 [4.8; 7.1] (973)	6.2 [5.1; 7.5] (626)	6.4 [5.2; 7.7] (343)	6.4 [5.2; 7.7] <sub>(134)</sub>	
	Fixation	Cemented	12,513	74 (66-80)	24/76	29.1	596	3.9 [3.5; 4.2] <sub>(9,486)</sub>	5.0 [4.6; 5.5] (6,732)	5.6 [5.1; 6.0] (4,391)	5.9 [5.4; 6.4] (2,366)	6.1 [5.6; 6.6] <sub>(961)</sub>	6.1 [5.6; 6.6] (231)
Unicondylar knee a	rthroplasties		35,495	64 (57-72)	44/56	29.6	570	3.0 [2.8; 3.2] (27,166)	4.9 [4.6; 5.1] (19,232)	5.8 [5.5; 6.1] (12,258)	6.8 [6.5; 7.2] (6,619)	7.4 [7.0; 7.8] (2,478)	8.0 [7.5; 8.6] (816)
	Bearing mobility	Mobile bearing	21,975	64 (57-73)	44/56	29.7	382	3.1 [2.9; 3.4] (17,090)	4.8 [4.5; 5.2] (12,340)	5.7 [5.4; 6.1] (7,996)	6.7 [6.3; 7.1] (4,434)	7.3 [6.8; 7.8] (1,761)	7.8 [7.2; 8.5] (624)
		Fixed bearing	13,520	63 (57-72)	43/57	29.4	375	2.8 [2.5; 3.1] (10,076)	4.9 [4.5; 5.3] (6,892)	6.0 [5.6; 6.5] (4,262)	7.0 [6.5; 7.7] (2,185)	7.6 [6.9; 8.2] (717)	8.4 [7.4; 9.5] (192)
	Bearing	Uncoated metal / mXLPE	23,955	65 (58-73)	45/55	29.5	406	2.8 [2.6; 3.0] (18,618)	4.3 [4.1; 4.6] (13,441)	5.2 [4.9; 5.5] (8,619)	6.1 [5.8; 6.6] (4,712)	6.6 [6.2; 7.1] (1,795)	7.3 [6.7; 8.0] (596)

Table 38 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Bearing	Uncoated metal / PE	5,676	64 (57-72)	46/54	29.4	218	2.6 [2.2; 3.1] (4,480)	4.7 [4.1; 5.3] (3,331)	5.7 [5.0; 6.5] (2,247)	6.6 [5.8; 7.4] (1,216)	7.1 [6.2; 8.1] (402)	7.4 [6.4; 8.6] (128)
		Coated metal / mXLPE	2,938	61 (55-68)	27/73	30.0	270	4.0 [3.3; 4.8] (2,164)	7.4 [6.4; 8.6] (1,424)	9.3 [8.1; 10.7] (833)	10.5 [9.0; 12.1] (435)	11.1 [9.5; 13.0] (183)	12.1 [10.1; 14.6] (70)
		Uncoated metal / hXLPE+antiox.	1,525	63 (56-71)	47/53	29.4	73	2.7 [1.9; 3.7] (824)	4.3 [3.1; 6.0] (267)				
		Ceramicised metal / PE	661	60 (54-66)	32/68	30.1	105	5.6 [4.1; 7.8] (502)	8.3 [6.2; 11.0] (325)	10.1 [7.7; 13.3] (194)	10.7 [8.1; 14.2] (92)		
		Uncoated metal / hXLPE	426	62 (56-70)	46/54	29.3	30	5.0 [3.3; 7.7] (347)	7.1 [4.9; 10.2] (275)	8.1 [5.7; 11.5] (198)	9.9 [7.0; 14.0] (109)	9.9 [7.0; 14.0] (55)	
		Coated metal / PE	306	61 (55-69)	19/81	29.4	63	12.0 [8.8; 16.5] (224)	17.3 [13.2; 22.5] (164)	17.8 [13.7; 23.1] (123)	20.3 [15.6; 26.3] (54)		
	Femoral articulat- ing surface	Uncoated metal	31,582	64 (57-73)	46/54	29.4	543	2.8 [2.6; 3.0] (24,269)	4.4 [4.2; 4.7] (17,314)	5.3 [5.0; 5.6] (11,104)	6.3 [5.9; 6.6] (6,037)	6.8 [6.4; 7.2] (2,252)	7.4 [6.8; 8.0] <sub>(735)</sub>
		Coated metal	3,244	61 (55-68)	26/74	30.0	313	4.8 [4.1; 5.6] (2,388)	8.4 [7.4; 9.5] (1,588)	10.1 [8.9; 11.4] (956)	11.5 [10.1; 13.1] (489)	12.7 [10.9; 14.8] (199)	13.7 [11.5; 16.1] (75)
		Ceramicised metal	661	60 (54-66)	32/68	30.1	105	5.6 [4.1; 7.8] (502)	8.3 [6.2; 11.0] (325)	10.1 [7.7; 13.3] (194)	10.7 [8.1; 14.2] (92)		
	Tibial articulating surface	mXLPE	26,893	64 (57-73)	43/57	29.6	428	2.9 [2.7; 3.1] (20,782)	4.7 [4.4; 4.9] (14,865)	5.6 [5.3; 5.9] (9,452)	6.6 [6.2; 7.0] (5,147)	7.1 [6.7; 7.6] (1,978)	7.8 [7.2; 8.5] (666)
		PE	6,651	63 (57-72)	43/57	29.7	267	3.4 [2.9; 3.9] (5,213)	5.6 [5.0; 6.3] <sub>(3,825)</sub>	6.7 [6.0; 7.4] (2,568)	7.6 [6.9; 8.5] (1,363)	8.5 [7.5; 9.5] (445)	8.7 [7.6; 9.9] <sub>(139)</sub>
		hXLPE+antiox.	1,525	63 (56-71)	47/53	29.4	73	2.7 [1.9; 3.7] (824)	4.3 [3.1; 6.0] (267)				
		hXLPE	426	62 (56-70)	46/54	29.3	30	5.0 [3.3; 7.7] (347)	7.1 [4.9; 10.2] (275)	8.1 [5.7; 11.5] (198)	9.9 [7.0; 14.0] (109)	9.9 [7.0; 14.0] <sub>(55)</sub>	
	Fixation	Cemented	30,876	64 (57-72)	42/58	29.6	567	2.9 [2.7; 3.1] (23,483)	4.9 [4.6; 5.1] (16,544)	5.9 [5.6; 6.2] (10,501)	7.0 [6.6; 7.4] (5,603)	7.6 [7.1; 8.0] (2,019)	8.3 [7.7; 8.9] <sub>(619)</sub>
		Uncemented	4,177	63 (57-71)	55/45	29.8	78	3.3 [2.8; 4.0] (3,308)	4.7 [4.1; 5.4] (2,387)	5.5 [4.8; 6.3] (1,539)	5.8 [5.0; 6.7] <sub>(902)</sub>	6.1 [5.3; 7.1] (410)	6.5 [5.4; 7.7] (168)
		Hybrid	396	66 (60-75)	36/64	28.4	37	4.4 [2.8; 7.0] (346)	5.7 [3.7; 8.6] (282)	6.4 [4.3; 9.5] (205)	6.4 [4.3; 9.5] (104)		
Patellofemoral arti	nroplasties		542	54 (48-61)	26/74	27.8	155	4.5 [2.9; 6.8] (407)	7.7 [5.5; 10.7] (285)	9.8 [7.2; 13.3] (182)	14.3 [10.5; 19.3] (87)		
	Femoral articulating surface	Uncoated metal	307	55 <sub>(47-62)</sub>	26/74	27.6	91	3.1 [1.6; 6.1] (233)	6.0 [3.6; 9.9] (175)	7.7 [4.8; 12.1] (115)	12.8 [8.3; 19.7] (55)		
	Patella	With patellar resurfacing	448	54 (48-61)	25/75	28.0	129	4.1 [2.5; 6.7] (337)	7.1 [4.9; 10.5] (227)	9.8 [6.9; 13.9] (140)	13.3 [9.3; 18.8] (58)		

Table 38 (continued)

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5 Hip and knee arthroplasty survival 5.2 Non-implant-related factors

# 5.2 Non-implant-related factors

Whether arthroplasties survive for a long time depends not only on the components used, but also to a large extent on the patients themselves and the hospitals where the surgery was performed. Patient sex, for example, has a significant impact on arthroplasty survival: for most types of joint replacement, men are more likely to fail than women (see example Figure 13). As will be explained in detail later in Section 5.4, this difference is mainly due to an increased risk of infection in male patients.

Patient age may also play a significant role in the revision probabilities. For both knee arthroplasties and non-elective hip replacements, the probability of revision decreases with age in the medium term (see Figure 14). Only in elective total hip arthroplasties with uncemented stems does the revision probability increase with advancing age of the patients (see Figure 15): in patients aged 75 and older, arthroplasties with cemented stems

show a markedly lower probability of revision than arthroplasties with uncemented stems. Pages 80 to 82 analyse whether this may be used to formulate a new recommendation for arthroplasties in older patients.

Another factor affecting arthroplasty survival is obesity with its negative impact on implant survival. Whether patients are underweight, have normal weight or are overweight is usually assessed by the body mass index which links body weight and height. Patients with a BMI of 30 or more are considered obese. Patient height and weight have been documented in the EPRD since 2017. For the arthroplasties documented since then, for which patient BMI can thus be calculated, Figure 16 and Figure 17 correlate the grade of obesity with the revision probabilities. This correlation is particularly evident in hip arthroplasties. This is particularly serious because arthroplasties in patients with a high BMI are not only more likely to fail in general, but also have a higher rate of periprosthetic joint infection (see also Subsection 5.4.2).

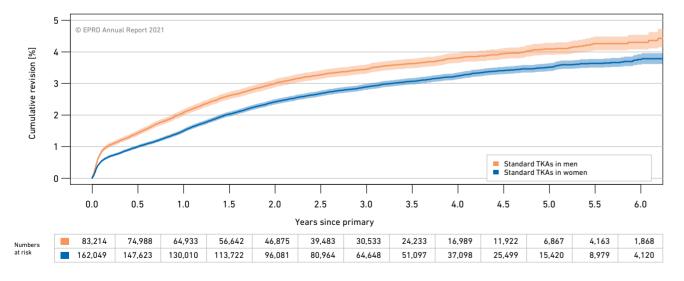


Figure 13: Revision probabilities of standard total knee arthroplasties by sex (p < 0.0001)

Obesity is just one of many comorbidities. A comorbidity index such as the Elixhauser score assesses the general health status of a patient by asking the patient about 30 different medical conditions. In addition to obesity, this includes various physical and mental illnesses such as diabetes, depression, high blood pressure, but also cancer and AIDS. The ICD-10 codes the EPRD receives from the health insurance providers can be

used to check which comorbidities patients participating in the registry have [3]. Figure 18 is an example of how the number of diagnosed illnesses correlates with the revision probabilities. Regardless of the exact condition the patient is suffering from, it is evident that the risk of arthroplasty revision increases markedly in patients with poor general health.

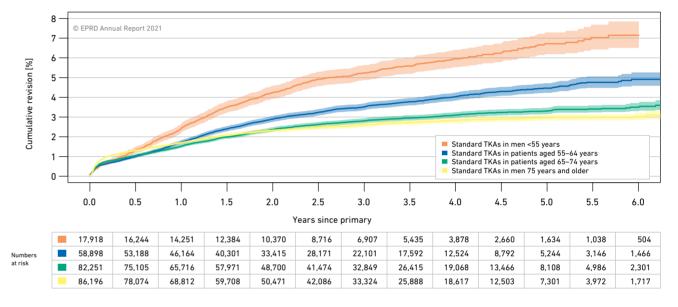


Figure 14: Revision probabilities of standard total knee arthroplasties by patient age (p < 0.0001)

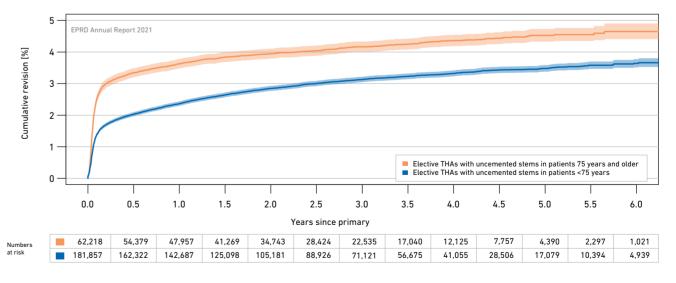


Figure 15: Revision probabilities of elective total hip arthroplasties with uncemented stems by patient age (p < 0.0001)

The comorbidity indices do not include osteoporosis.7 It seems obvious that osteoporosis has a negative impact on arthroplasty survival. Due to the worse initial situation in the bone, the components cannot be fixed quite as well, and the risk of periprosthetic fractures also increases. In the registry, significant differences have so far only been found for elective total hip arthroplasties with uncemented stems (see Figure 19). It would therefore be debatable to what extent this type of arthroplasty should be adopted in patients with osteoporosis.

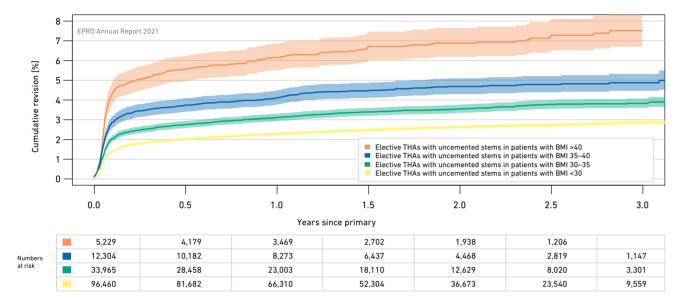


Figure 16: Revision probabilities of elective total hip arthroplasties with uncemented stems by body mass index (p < 0.0001)

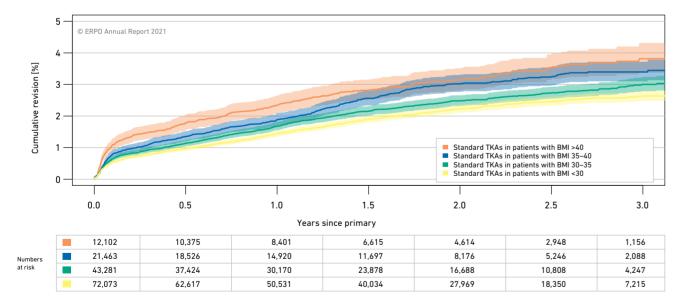


Figure 17: Revision probabilities of standard total knee arthroplasties by body mass index (p < 0.0001)

7 ICD-10 codes M81.\*, M82.\*

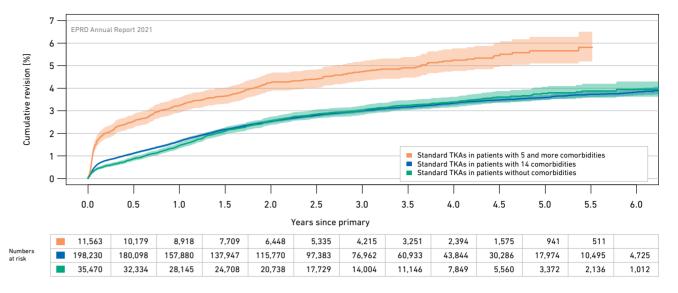


Figure 18: Revision probabilities of standard total knee arthroplasties by comorbidities (p < 0.0001)

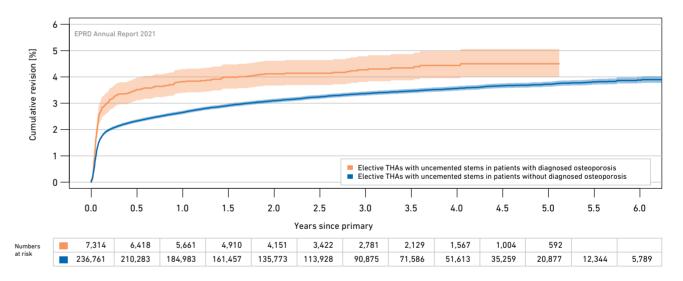


Figure 19: Revision probabilities of elective total hip arthroplasties with uncemented stems by known osteoporosis diagnosis (p < 0.0001)

But arthroplasty outcome is affected by more than just patient-related factors. The ty reports, where each hospital reports in experience hospitals have with this type of detail how many treatments of which type arthroplasty also plays a major role. The they performed in the previous year. Figures EPRD does not have any data on how many 20 to 22 illustrate the correlation between surgeons operate in a hospital, how many procedures each of them performs, and what their personal expertise is. Nevertheless, the knee arthroplasties. institutional experience of the hospitals can

be estimated based on the hospital qualithe annual case volume and the revision probability for different types of hip and

tend to be associated with lower revision probabilities in elective arthroplasties, this does not mean that every hospital with higher annual case volumes achieves better outcomes than hospitals with lower annual case numbers. From the individual hospital anal-

Even if higher annual hospital case volumes vses, the EPRD is aware of both hospitals with very good outcomes despite low case volumes and hospitals with high case volumes but poor outcomes. Also, it is not only the general experience of a hospital with hip and knee arthroplasties that is important, but also the familiarity with certain implants.

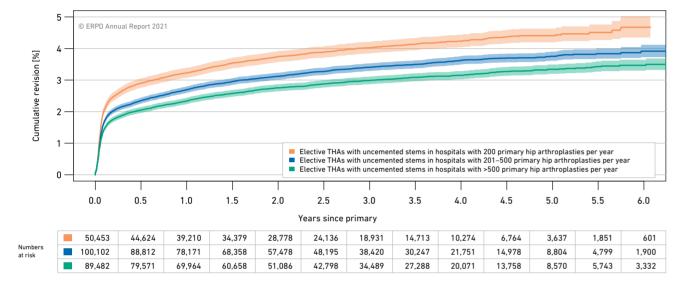


Figure 20: Revision probabilities of elective total hip arthroplasties with uncemented stems by hospitals annual volume of primary hip arthroplasties (p < 0.0001)

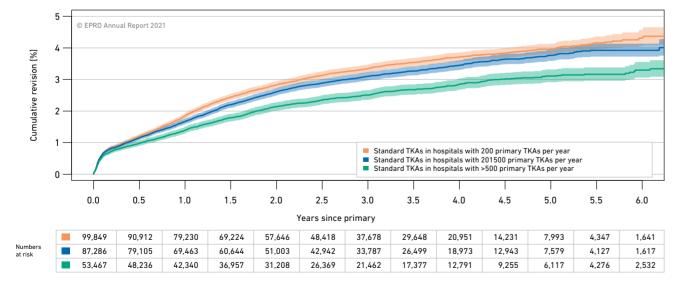


Figure 21: Revision probabilities of standard total knee arthroplasties by hospitals annual volume of primary total knee arthroplasties (p < 0.0001)

Figure 23 compares the outcomes that hospitals achieve in the first two years after switching to uncemented acetabular systems from a new key manufacturer, and the outcomes achieved otherwise. The term "key manufacturer" refers to arthroplasty manufacturers supplying at least 70 % of the relevant components to the hospital in any calendar quarter. The follow-up period of two years only commences with the quarter in which

another manufacturer has achieved a correspondingly high share and thus the changeover to another manufacturer presumably has been completed. As can be seen in the graph, significantly worse arthroplasty results are observed at least for the first two years after switching manufacturers (p = 0.0009). This applies not only to the present example of revisions of uncemented cup systems, but also, e.g., to manufacturer changes in

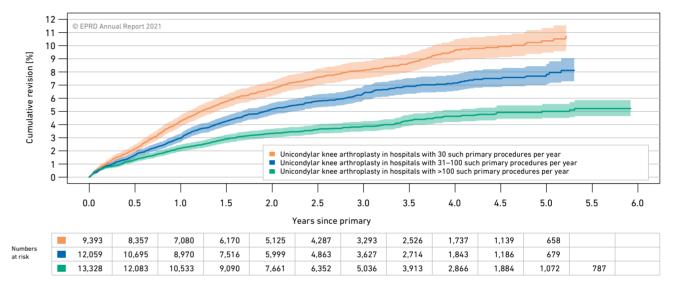


Figure 22: Revision probabilities of unicondylar knee arthroplasties by the number of primary unicondylar knee arthroplasties (p < 0.0001)

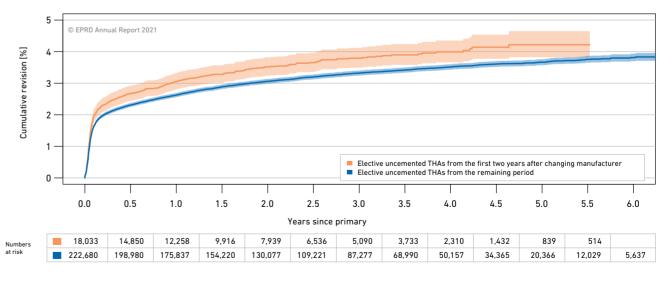


Figure 23: Revision probabilities of uncemented elective total hip arthroplasties after changing cup system manufacturer (p=0.0009)

uncemented femoral stems (p = 0.02), stand- Table 39 below differentiates the effects knee systems (p = 0.001). The effects of a system change within the product portfolio of one and the same arthroplasty manufacturer cannot be analysed here, as the systems are not always clearly identifiable.

ard knee systems (p = 0.01) and unicondylar of several non-implant-related factors for different types of arthroplasties.

#### In brief:

- Patient-specific parameters such as age, sex, BMI, and comorbidities have a significant impact on the probability of revision surgery
- Higher patient volumes per hospital generally reduce the risk of revision arthroplasty
- Hospital experience with specific arthroplasty systems is also important

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
Elective THAs wi	th uncemented stems		244,075	67 (59-75)	40/60	27.8	673	2.7 [2.6; 2.8] (190,644)	3.1 [3.1; 3.2] (139,924)	3.4 [3.3; 3.5] (93,656)	3.6 [3.5; 3.7] (53,180)	3.7 [3.7; 3.8] (21,469)	3.9 [3.8; 4.0] (5,960)
	Age group	≤ 54 years	32,973	50 (46-53)	50/50	28.3	659	2.3 [2.1; 2.4] (26,255)	2.9 [2.7; 3.1] (19,429)	3.3 [3.1; 3.5] (13,132)	3.5 [3.3; 3.8] (7,671)	3.7 [3.5; 4.0] (3,242)	4.0 [3.7; 4.4] (983)
		55-64 years	67,366	60 (58-62)	44/56	28.5	665	2.3 [2.2; 2.4] (52,365)	2.8 [2.7; 3.0] (38,394)	3.1 [2.9; 3.2] (25,785)	3.3 [3.1; 3.5] (14,666)	3.5 [3.3; 3.7] (6,065)	3.6 [3.4; 3.8] (1,732)
		65-74 years	81,518	69 (67-72)	38/62	28.1	664	2.4 [2.3; 2.5] (64,067)	2.8 [2.7; 3.0] (47,358)	3.1 [3.0; 3.2] (32,204)	3.2 [3.1; 3.4] (18,718)	3.4 [3.2; 3.5] (7,772)	3.5 [3.3; 3.7] (2,224)
		75-84 years	57,870	78 (76-80)	36/64	27.0	661	3.6 [3.4; 3.7] (44,840)	3.9 [3.7; 4.0] (32,602)	4.1 [3.9; 4.3] (21,230)	4.3 [4.1; 4.5] (11,482)	4.5 [4.3; 4.7] (4,177)	4.6 [4.3; 4.8] <sub>(977)</sub>
		85 years and older	4,348	86 (85-88)	33/67	25.8	506	4.5 [4.0; 5.2] (3,117)	4.8 [4.2; 5.5] (2,141)	4.9 [4.3; 5.6] (1,305)	4.9 [4.3; 5.6] (643)	5.1 [4.4; 6.0] (213)	
	Sex	Male	98,926	66 (58-74)	100/0	28.4	669	2.8 [2.7; 2.9] (76,589)	3.3 [3.2; 3.4] (55,806)	3.6 [3.4; 3.7] (37,104)	3.7 [3.6; 3.9] (20,763)	3.9 [3.8; 4.0] (8,278)	4.1 [3.9; 4.3] (2,308)
		Female	145,149	68 (60-75)	0/100	27.5	668	2.6 [2.5; 2.7] (114,055)	3.0 [2.9; 3.1] (84,118)	3.3 [3.2; 3.4] (56,552)	3.5 [3.4; 3.6] (32,417)	3.6 [3.5; 3.8] (13,191)	3.8 [3.6; 3.9] (3,652)
	Body Mass Index	≤ 25	38,809	68 (60-76)	30/70	23.2	641	2.0 [1.9; 2.2] (26,572)	2.4 [2.2; 2.6] (14,602)	2.7 [2.5; 2.9] (3,782)			
		>25 to ≤30	57,656	68 (60-76)	46/54	27.4	647	2.4 [2.3; 2.6] (39,741)	2.8 [2.7; 2.9] (22,074)	3.0 [2.8; 3.1] (5,778)			
		>30 to ≤35	33,961	66 (59-73)	44/56	31.9	641	3.1 [2.9; 3.3] (23,001)	3.5 [3.3; 3.8] (12,627)	3.8 [3.6; 4.1] (3,300)			
		>35 to ≤40	12,321	64 (57-70)	41/59	36.8	614	4.1 [3.8; 4.5] (8,282)	4.7 [4.3; 5.1] (4,474)	4.9 [4.5; 5.3] (1,149)			
		>40	5,211	61 (55-67)	33/67	42.5	584	6.2 [5.5; 6.9] (3,459)	6.9 [6.2; 7.7] <sub>(1,931)</sub>	7.5 [6.7; 8.4] (494)			
	Comorbidities	W/o comorbidities	57,858	62 (55-70)	43/57	25.9	662	1.7 [1.6; 1.8] (45,769)	2.1 [2.0; 2.2] (33,788)	2.4 [2.2; 2.5] (22,835)	2.5 [2.4; 2.7] (12,956)	2.7 [2.5; 2.9] (5,248)	2.9 [2.7; 3.1] (1,577)
		1-4 comorbidities	178,338	68 (61-75)	40/60	28.5	672	2.8 [2.7; 2.9] (139,237)	3.2 [3.1; 3.3] (102,175)	3.5 [3.4; 3.6] (68,269)	3.7 [3.6; 3.8] (38,828)	3.9 [3.7; 4.0] (15,720)	4.0 [3.9; 4.1] (4,273)
		More than 4 comorbidities	7,879	<b>74</b> <sub>(66-79)</sub>	40/60	31.6	598	7.8 [7.2; 8.4] (5,638)	8.4 [7.8; 9.0] (3,961)	8.6 [8.0; 9.3] (2,552)	8.9 [8.3; 9.6] (1,396)	9.0 [8.3; 9.7] (501)	9.0 [8.3; 9.7] (110)
	Osteoporosis	Patient w/o diagnosed osteoporosis	236,761	67 <sub>(59–74)</sub>	41/59	27.9	673	2.7 [2.6; 2.7] (184,983)	3.1 [3.0; 3.2] (135,773)	3.4 [3.3; 3.4] (90,875)	3.6 [3.5; 3.6] (51,613)	3.7 [3.6; 3.8] (20,877)	3.9 [3.8; 4.0] <sub>(5,789)</sub>
		Patient with diagnosed osteoporosis	7,314	73 (66-78)	13/87	26.6	568	3.8 [3.4; 4.3] (5,661)	4.1 [3.7; 4.6] (4,151)	4.3 [3.8; 4.8] (2,781)	4.4 [4.0; 5.0] (1,567)	4.5 [4.0; 5.1] (592)	4.5 [4.0; 5.1] (171)
	Hospital size*	Hospitals with low annual case volumes	50,453	69 (61-76)	40/60	28.1	339	3.2 [3.1; 3.4] (39,210)	3.7 [3.6; 3.9] (28,778)	4.0 [3.8; 4.2] (18,931)	4.2 [4.0; 4.4] (10,274)	4.4 [4.2; 4.6] (3,637)	4.7 [4.3; 5.0] (601)

<sup>\*</sup> For classification see legend in Figure 20

Table 39: Table of revision probabilities for different types of arthroplasties and non-implant-related factors. The table is continued on the following pages.

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Hospital size*	Hospitals with average annual case volumes	100,102	67 (60-75)	41/59	27.9	244	2.7 [2.6; 2.8] (78,171)	3.1 [3.0; 3.2] (57,478)	3.4 [3.3; 3.5] (38,420)	3.6 [3.5; 3.8] (21,751)	3.8 [3.6; 3.9] (8,804)	3.9 [3.7; 4.1] (1,900)
		Hospitals with high annual case volumes	89,482	66 (58-73)	40/60	27.6	66	2.3 [2.2; 2.4] (69,964)	2.8 [2.6; 2.9] (51,086)	3.0 [2.9; 3.1] (34,489)	3.2 [3.0; 3.3] (20,071)	3.3 [3.2; 3.5] (8,570)	3.5 [3.3; 3.6] <sub>(3,332)</sub>
Elective THAs with	cemented stems		67,100	79 (75-82)	26/74	26.7	651	2.3 [2.2; 2.4] (52,152)	2.6 [2.5; 2.7] (38,194)	2.9 [2.7; 3.0] (25,801)	3.1 [3.0; 3.3] (14,945)	3.3 [3.2; 3.5] (6,433)	3.6 [3.3; 3.9] (1,790)
	Age group	≤54 years	703	51 (47-53)	62/38	27.5	213	2.8 [1.8; 4.3] (547)	3.8 [2.6; 5.7] (403)	4.7 [3.2; 7.0] <sub>(238)</sub>	5.7 [3.8; 8.3] (129)		
		55-64 years	2,254	61 (59-63)	39/61	27.9	425	2.5 [1.9; 3.2] (1,747)	3.2 [2.5; 4.1] (1,277)	3.5 [2.8; 4.5] (868)	3.9 [3.0; 5.0] (498)	4.6 [3.5; 6.0] (201)	4.6 [3.5; 6.0] (61)
	Age group	65-74 years	13,082	72 (69-73)	24/76	27.7	556	2.2 [2.0; 2.5] (10,402)	2.6 [2.4; 2.9] (7,944)	3.0 [2.7; 3.3] (5,658)	3.4 [3.0; 3.8] (3,501)	3.5 [3.1; 3.9] (1,658)	4.1 [3.5; 4.8] (537)
		75-84 years	42,425	79 (77-81)	25/75	26.6	627	2.2 [2.0; 2.3] (33,166)	2.5 [2.4; 2.7] (24,198)	2.7 [2.6; 2.9] (16,260)	3.0 [2.8; 3.2] (9,346)	3.2 [3.0; 3.4] (3,992)	3.2 [3.0; 3.5] (1,066)
		85 years and older	8,636	87 (85-88)	24/76	25.6	587	2.7 [2.3; 3.0] (6,290)	2.9 [2.5; 3.3] (4,372)	3.0 [2.6; 3.4] (2,777)	3.0 [2.6; 3.4] (1,471)	3.3 [2.8; 3.8] <sub>(536)</sub>	3.3 [2.8; 3.8] (117)
	Sex	Male	17,114	78 (74-82)	100/0	27.1	586	2.6 [2.4; 2.8] (13,184)	3.1 [2.8; 3.3] (9,574)	3.4 [3.1; 3.7] (6,409)	3.7 [3.4; 4.1] (3,705)	3.8 [3.5; 4.2] (1,576)	4.3 [3.7; 5.0] (421)
		Female	49,986	79 (75-82)	0/100	26.6	641	2.2 [2.0; 2.3] (38,968)	2.5 [2.3; 2.6] (28,620)	2.7 [2.5; 2.9] (19,392)	2.9 [2.8; 3.1] (11,240)	3.2 [3.0; 3.4] (4,857)	3.3 [3.1; 3.6] (1,369)
	Body Mass Index	≤ 25	14,356	80 (76-83)	21/79	23.0	583	2.0 [1.7; 2.2] (9,550)	2.2 [2.0; 2.5] (5,206)	2.6 [2.2; 3.0] (1,452)			
		>25 to ≤30	15,777	79 (76-82)	29/71	27.3	587	2.1 [1.9; 2.3] (10,889)	2.4 [2.1; 2.6] (6,024)	2.6 [2.3; 2.9] (1,754)			
		>30 to ≤35	7,404	78 (74–82)	27/73	31.6	539	2.6 [2.3; 3.1] (5,091)	3.1 [2.7; 3.5] (2,833)	3.4 [2.9; 3.9] (825)			
		>35 to ≤40	2,186	77 (71–80)	22/78	36.7	423	4.6 [3.8; 5.6] (1,480)	5.0 [4.1; 6.1] (859)	5.0 [4.1; 6.1] (274)			
		>40	808	72 (66-78)	22/78	42.2	295	4.8 [3.5; 6.5] (530)	4.9 [3.6; 6.7] (302)	4.9 [3.6; 6.7] <sub>(92)</sub>			
	Comorbidities	W/o comorbidities	8,059	77 (73–81)	26/74	24.8	535	1.2 [0.9; 1.4] (6,426)	1.5 [1.2; 1.8] (4,844)	1.7 [1.4; 2.0] (3,340)	1.9 [1.6; 2.3] (1,927)	2.3 [1.8; 2.8] (829)	2.7 [1.9; 3.7] (223)
		1-4 comorbidities	53,719	79 (75-82)	25/75	26.8	645	2.1 [2.0; 2.3] (41,971)	2.5 [2.4; 2.6] (30,774)	2.7 [2.6; 2.9] (20,828)	3.0 [2.9; 3.2] (12,093)	3.2 [3.0; 3.4] (5,253)	3.4 [3.1; 3.7] (1,465)
		More than 4 comorbidities	5,322	80 (76-83)	29/71	29.0	537	5.3 [4.7; 6.0] (3,755)	5.7 [5.1; 6.4] (2,576)	6.0 [5.3; 6.7] (1,633)	6.3 [5.6; 7.1] (925)	6.6 [5.8; 7.5] <sub>(351)</sub>	7.0 [5.9; 8.3] (102)
	Osteoporosis	Patient w/o diagnosed osteoporosis	60,897	79 (75-82)	27/73	26.8	649	2.2 [2.1; 2.4] (47,382)	2.6 [2.5; 2.7] (34,749)	2.9 [2.7; 3.0] (23,593)	3.1 [3.0; 3.3] (13,694)	3.3 [3.1; 3.5] (5,936)	3.6 [3.3; 3.9] (1,649)
		Patient with diagnosed osteoporosis	6,203	79 (75–83)	8/92	25.8	511	2.5 [2.1; 2.9] (4,770)	2.8 [2.4; 3.3] (3,445)	2.9 [2.5; 3.4] (2,208)	3.3 [2.8; 3.8] (1,251)	3.4 [2.9; 4.0] (497)	3.4 [2.9; 4.0] (141)
	Hospital size**	Hospitals with low annual case volumes	13,397	79 <sub>(75–83)</sub>	26/74	26.9	327	2.9 [2.6; 3.2] (10,270)	3.2 [2.9; 3.5] (7,403)	3.5 [3.2; 3.9] (4,946)	3.8 [3.4; 4.2] (2,748)	3.9 [3.5; 4.3] <sub>(993)</sub>	4.0 [3.5; 4.4] (204)
		Hospitals with average annual case volumes	29,053	79 (75-82)	26/74	26.8	237	2.3 [2.2; 2.5] (22,863)	2.7 [2.5; 2.9] (17,131)	2.9 [2.7; 3.1] (11,716)	3.2 [3.0; 3.4] (6,908)	3.3 [3.1; 3.6] (2,951)	3.6 [3.2; 4.0] (701)
		Hospitals with high annual case volumes	22,811	78 <sub>(75–82)</sub>	25/75	26.4	66	1.8 [1.6; 2.0] (17,458)	2.1 [1.9; 2.3] (12,430)	2.3 [2.1; 2.6] (8,222)	2.6 [2.4; 2.9] (4,670)	2.8 [2.5; 3.1] (2,159)	3.1 [2.7; 3.6] <sub>(776)</sub>
Non-elective THAs			18,910	76 (69-82)	29/71	24.7	611	5.7 [5.4; 6.1] (12,430)	6.4 [6.0; 6.8] (8,359)	6.9 [6.5; 7.3] (5,082)	7.3 [6.8; 7.7] (2,590)	7.6 [7.1; 8.1] <sub>(922)</sub>	7.6 [7.1; 8.1] (174)
	Age group	≤54 years	564	51 (48-53)	54/46	23.9	303	6.3 [4.5; 8.7] (411)	6.8 [5.0; 9.4] (288)	7.3 [5.3; 10.1] (179)	8.0 [5.7; 11.2] (83)		

<sup>\* \*\*</sup> For classification see legend in Figure 20

Table 39 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Age group	55-64 years	2,335	61 (58-63)	39/61	24.2	489	6.9 [5.9; 8.0] <sub>(1,554)</sub>	7.6 [6.6; 8.9] (1,028)	8.2 [7.0; 9.5] (644)	8.7 [7.5; 10.2] <sub>(359)</sub>	9.6 [7.9; 11.5] (127)	
		65-74 years	5,110	70 (67-72)	30/70	25.0	556	5.0 [4.4; 5.7] (3,580)	5.8 [5.2; 6.6] (2,481)	6.5 [5.8; 7.3] (1,559)	6.9 [6.1; 7.7] (832)	7.1 [6.2; 8.0] (314)	7.1 [6.2; 8.0] (68)
		75-84 years	7,905	79 (77–81)	26/74	24.8	561	5.9 [5.4; 6.5] (5,259)	6.4 [5.9; 7.0] <sub>(3,562)</sub>	6.8 [6.2; 7.4] (2,162)	7.1 [6.5; 7.8] (1,075)	7.4 [6.7; 8.2] <sub>(378)</sub>	7.4 [6.7; 8.2] <sub>(71)</sub>
		85 years and older	2,996	88 (86-90)	25/75	24.3	413	5.5 [4.7; 6.4] (1,626)	6.1 [5.2; 7.1] (1,000)	6.6 [5.6; 7.8] (538)	6.9 [5.8; 8.2] (241)	6.9 [5.8; 8.2] (74)	
	Sex	Male	5,551	74 (66-81)	100/0	25.2	543	7.0 [6.3; 7.7] <sub>(3,452)</sub>	7.8 [7.1; 8.6] (2,270)	8.5 [7.7; 9.4] (1,346)	9.0 [8.1; 10.0] (659)	9.5 [8.4; 10.7] (238)	
		Female	13,359	77 (70-82)	0/100	24.4	603	5.2 [4.8; 5.6] (8,978)	5.8 [5.4; 6.3] (6,089)	6.2 [5.8; 6.7] (3,736)	6.6 [6.1; 7.1] (1,931)	6.8 [6.2; 7.4] (684)	6.8 [6.2; 7.4] <sub>(135)</sub>
	Body Mass Index	≤25	6,534	76 (68-82)	26/74	22.5	533	4.8 [4.3; 5.4] <sub>(3,705)</sub>	5.5 [4.9; 6.1] (1,838)	5.7 [5.1; 6.5] (492)			
		>25 to ≤30	4,152	77 (70-82)	34/66	26.9	517	5.7 [5.1; 6.5] (2,488)	6.5 [5.7; 7.4] (1,325)	7.0 [6.1; 8.0] (367)			
		>30 to ≤35	1,184	75 (68-81)	29/71	31.6	380	7.7 [6.3; 9.4] (694)	8.5 [6.9; 10.4] (338)	8.8 [7.1; 10.9] <sub>(74)</sub>			
	Comorbidities	W/o comorbidities	2,540	72 (64-78)	30/70	23.9	481	3.3 [2.7; 4.1] (1,817)	4.0 [3.2; 4.9] (1,262)	4.2 [3.4; 5.2] (816)	4.7 [3.8; 5.8] (417)	5.4 [4.2; 7.1] (159)	
		1-4 comorbidities	13,797	76 (69-82)	29/71	24.8	600	5.5 [5.1; 5.9] <sub>(9,248)</sub>	6.1 [5.7; 6.5] (6,265)	6.6 [6.1; 7.1] <sub>(3,772)</sub>	6.9 [6.4; 7.5] (1,945)	7.2 [6.6; 7.7] (688)	7.2 [6.6; 7.7] (131)
		More than 4 comorbidities	2,573	79 (73–85)	32/68	25.6	451	9.9 [8.7; 11.2] (1,365)	10.9 [9.7; 12.4] (832)	11.6 [10.2; 13.2] (494)	12.1 [10.6; 13.9] (228)	12.1 [10.6; 13.9] (75)	
	Osteoporosis	Patient w/o diagnosed osteoporosis	17,160	76 (68-82)	31/69	24.8	607	5.8 [5.5; 6.2] (11,260)	6.5 [6.1; 6.9] (7,574)	6.9 [6.5; 7.4] (4,597)	7.4 [6.9; 7.9] (2,347)	7.7 [7.2; 8.2] (839)	7.7 [7.2; 8.2] <sub>(155)</sub>
		Patient with diagnosed osteoporosis	1,750	78 (73–83)	14/86	24.2	400	4.8 [3.9; 5.9] (1,170)	5.7 [4.6; 7.0] (785)	6.2 [5.1; 7.7] (485)	6.2 [5.1; 7.7] (243)	6.2 [5.1; 7.7] (83)	
	Hospital size*	Hospitals with low annual case volumes	7,867	76 (68-82)	29/71	24.8	310	5.5 [5.0; 6.1] <sub>(5,250)</sub>	6.3 [5.7; 6.9] (3,587)	6.8 [6.2; 7.5] (2,185)	7.2 [6.5; 7.9] (1,057)	7.8 [6.9; 8.7] (323)	7.8 [6.9; 8.7] (50)
		Hospitals with average annual case volumes	8,555	76 (68-82)	30/70	24.7	226	5.6 [5.1; 6.1] (5,572)	6.2 [5.7; 6.8] (3,716)	6.6 [6.1; 7.3] (2,212)	7.0 [6.4; 7.7] (1,169)	7.1 [6.5; 7.9] (453)	7.1 [6.5; 7.9] (77)
		Hospitals with high annual case volumes	1,993	78 (70-84)	29/71	24.4	58	6.8 [5.8; 8.1] (1,266)	7.3 [6.2; 8.6] (806)	7.8 [6.6; 9.2] (505)	8.5 [7.1; 10.1] (261)	8.5 [7.1; 10.1] <sub>(96)</sub>	
Hip hemiarthropla	sties		37,875	84 (80-89)	28/72	24.2	533	4.6 [4.4; 4.8] (19,605)	4.9 [4.6; 5.1] (11,845)	5.1 [4.8; 5.3] (6,229)	5.2 [4.9; 5.5] (2,737)	5.3 [5.0; 5.7] (816)	5.3 [5.0; 5.7] (115)
	Age group	55-64 years	665	61 (58-63)	50/50	24.2	260	6.9 [5.1; 9.3] (339)	7.2 [5.3; 9.7] (210)	7.9 [5.7; 11.0] (120)	8.8 [6.2; 12.5] (66)		
		65-74 years	2,890	71 (69–73)	42/58	24.5	420	5.2 [4.4; 6.2] (1,603)	5.9 [5.0; 7.0] (1,022)	6.2 [5.3; 7.3] (575)	6.4 [5.4; 7.6] (297)	6.4 [5.4; 7.6] <sub>(104)</sub>	
		75-84 years	15,676	81 (78-83)	29/71	24.7	509	4.9 [4.6; 5.3] (8,753)	5.2 [4.8; 5.6] (5,441)	5.4 [5.0; 5.8] (2,926)	5.6 [5.2; 6.1] (1,307)	5.8 [5.3; 6.4] (391)	5.8 [5.3; 6.4] <sub>(51)</sub>
		85 years and older	18,466	89 (87-92)	24/76	23.9	498	4.0 [3.7; 4.4] (8,813)	4.2 [3.9; 4.6] <sub>(5,097)</sub>	4.3 [4.0; 4.7] (2,563)	4.3 [4.0; 4.7] (1,042)	4.5 [4.0; 5.0] <sub>(297)</sub>	
	Sex	Male	10,583	83 (78-88)	100/0	24.7	502	5.0 [4.6; 5.5] (4,750)	5.4 [4.9; 5.9] (2,662)	5.8 [5.3; 6.4] (1,296)	6.1 [5.5; 6.8] (542)	6.1 [5.5; 6.8] (155)	
		Female	27,292	85 (80-89)	0/100	24.0	520	4.4 [4.2; 4.7] (14,855)	4.7 [4.4; 4.9] (9,183)	4.8 [4.5; 5.1] <sub>(4,933)</sub>	4.9 [4.6; 5.2] (2,195)	5.1 [4.7; 5.5] (661)	5.1 [4.7; 5.5] <sub>(95)</sub>
	Body Mass Index	≤25	14,145	85 (80-90)	26/74	22.3	490	4.6 [4.2; 5.0] (6,154)	4.7 [4.4; 5.2] (2,848)	4.9 [4.5; 5.3] (605)			

<sup>\*</sup> For classification see legend in Figure 20

Table 39 (continued)

										Revision proba	bilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Body Mass Index	>25 to ≤30	7,607	84 (80-88)	32/68	26.9	469	4.6 [4.1; 5.1] <sub>(3,650)</sub>	4.7 [4.2; 5.2] (1,751)	4.9 [4.3; 5.6] <sub>(390)</sub>			
		>30 to ≤35	2,001	83 (79-87)	24/76	31.2	405	6.4 [5.4; 7.7] (985)	6.7 [5.6; 8.0] (483)	7.2 [5.9; 8.8] (115)			
		>35 to ≤40	381	81 (77–85)	23/77	36.5	222	10.1 [7.3; 14.0] (169)	10.7 [7.7; 14.8] (89)				
	Comorbidities	W/o comorbidities	2,091	83 (78-88)	26/74	23.7	380	2.6 [2.0; 3.5] (1,297)	3.0 [2.3; 4.0] (850)	3.2 [2.4; 4.2] (486)	3.6 [2.6; 4.9] (222)	3.6 [2.6; 4.9] <sub>(76)</sub>	
		1-4 comorbidities	26,754	84 (80-89)	27/73	24.2	522	4.1 [3.9; 4.4] (14,502)	4.4 [4.1; 4.7] <sub>(8,844)</sub>	4.6 [4.3; 4.9] (4,680)	4.7 [4.4; 5.0] (2,082)	4.7 [4.4; 5.0] (623)	4.7 [4.4; 5.0] (88)
		More than 4 comorbidities	9,030	84 (80-89)	32/68	24.8	481	6.5 [6.0; 7.1] (3,806)	6.7 [6.2; 7.3] (2,151)	7.1 [6.4; 7.7] (1,063)	7.1 [6.5; 7.9] (433)	8.2 [6.7; 10.0] (117)	
	Osteoporosis	Patient w/o diagnosed osteoporosis	33,222	84 (79-89)	30/70	24.3	532	4.6 [4.3; 4.8] (17,071)	4.9 [4.6; 5.1] (10,330)	5.1 [4.8; 5.4] (5,474)	5.2 [4.9; 5.5] (2,429)	5.4 [5.0; 5.8] <sub>(746)</sub>	5.4 [5.0; 5.8] <sub>(105)</sub>
		Patient with diagnosed osteoporosis	4,653	85 (81-89)	15/85	23.7	415	4.6 [4.0; 5.3] (2,534)	4.8 [4.2; 5.5] (1,515)	4.9 [4.2; 5.6] (755)	5.1 [4.4; 6.0] (308)	5.1 [4.4; 6.0] (70)	
	Hospital size*	Hospitals with low annual case volumes	19,270	84 (79-89)	28/72	24.3	296	4.4 [4.1; 4.7] (9,997)	4.6 [4.3; 5.0] (6,032)	4.8 [4.5; 5.2] (3,209)	5.0 [4.6; 5.4] (1,398)	5.1 [4.7; 5.6] (406)	5.1 [4.7; 5.6] (54)
		Hospitals with average annual case volumes	15,830	85 (80-89)	28/72	24.2	194	4.8 [4.4; 5.2] (8,122)	5.0 [4.7; 5.4] (4,883)	5.3 [4.9; 5.7] (2,464)	5.4 [5.0; 5.8] (1,056)	5.6 [5.0; 6.3] (311)	
		Hospitals with high annual case volumes	1,234	85 <sub>(79–89)</sub>	27/73	24.0	28	5.1 [3.9; 6.6] (601)	5.8 [4.5; 7.5] (351)	6.5 [5.0; 8.6] <sub>(198)</sub>	6.5 [5.0; 8.6] <sub>(97)</sub>		
Standard TKAs			245,263	70 (62-77)	34/66	30.1	662	1.7 [1.6; 1.8] (194,943)	2.6 [2.5; 2.7] (142,956)	3.1 [3.0; 3.2] (95,181)	3.4 [3.3; 3.5] (54,087)	3.7 [3.6; 3.8] (22,287)	3.9 [3.8; 4.1] (5,988)
	Age group	≤54 years	17,918	51 (49-53)	36/64	33.0	635	2.4 [2.2; 2.7] (14,251)	4.2 [3.9; 4.6] (10,370)	5.2 [4.9; 5.6] (6,907)	6.0 [5.5; 6.4] <sub>(3,878)</sub>	6.7 [6.2; 7.3] (1,634)	7.1 [6.5; 7.8] (504)
		55-64 years	58,898	60 (58-62)	38/62	32.0	655	1.7 [1.6; 1.8] (46,164)	2.9 [2.7; 3.0] (33,415)	3.5 [3.3; 3.7] (22,101)	4.0 [3.8; 4.2] (12,524)	4.5 [4.2; 4.7] <sub>(5,244)</sub>	4.9 [4.6; 5.3] <sub>(1,466)</sub>
		65-74 years	82,251	70 (67-72)	33/67	30.8	656	1.5 [1.4; 1.6] (65,716)	2.4 [2.3; 2.5] (48,700)	2.8 [2.7; 2.9] (32,849)	3.1 [3.0; 3.2] (19,068)	3.3 [3.2; 3.5] (8,108)	3.5 [3.3; 3.7] (2,301)
		75–84 years	79,715	78 (76–80)	32/68	28.4	655	1.7 [1.6; 1.8] (63,819)	2.3 [2.2; 2.4] (46,930)	2.6 [2.5; 2.7] (31,098)	2.8 [2.7; 3.0] (17,413)	3.0 [2.8; 3.1] (6,859)	3.0 [2.9; 3.2] (1,628)
		85 years and older	6,481	86 (85-88)	30/70	26.8	606	1.9 [1.6; 2.3] (4,993)	2.3 [1.9; 2.7] (3,541)	2.5 [2.2; 3.0] (2,226)	2.5 [2.2; 3.0] (1,204)	2.5 [2.2; 3.0] (442)	3.5 [2.0; 6.1] (89)
	Sex	Male	83,214	69 (62-76)	100/0	29.6	652	2.1 [2.0; 2.2] (64,933)	3.0 [2.9; 3.1] (46,875)	3.5 [3.3; 3.6] (30,533)	3.8 [3.7; 4.0] (16,989)	4.1 [3.9; 4.3] (6,867)	4.3 [4.1; 4.5] (1,868)
		Female	162,049	71 (63–77)	0/100	30.5	659	1.5 [1.4; 1.6] (130,010)	2.4 [2.3; 2.5] (96,081)	2.9 [2.8; 3.0] (64,648)	3.2 [3.1; 3.3] (37,098)	3.5 [3.4; 3.6] (15,420)	3.8 [3.6; 3.9] (4,120)
	Body Mass Index	≤25	20,973	75 (67-80)	31/69	23.6	615	1.4 [1.2; 1.6] (14,613)	2.2 [1.9; 2.4] (8,153)	2.6 [2.3; 2.9] (2,072)			
		>25 to ≤30	51,103	73 (65–78)	41/59	27.7	629	1.5 [1.4; 1.6] (35,920)	2.3 [2.1; 2.4] (19,816)	2.7 [2.5; 2.9] (5,143)			
		>30 to ≤35	43,279	69 (62-76)	36/64	32.0	625	1.7 [1.6; 1.8] (30,169)	2.5 [2.3; 2.7] (16,689)	3.0 [2.8; 3.2] (4,247)			
		>35 to ≤40	21,512	66 (60-72)	29/71	37.0	620	1.9 [1.7; 2.1] (14,958)	3.0 [2.8; 3.3] (8,194)	3.4 [3.1; 3.7] (2,094)			
		>40	12,052	62 (57-69)	22/78	42.9	608	2.4 [2.1; 2.7] (8,362)	3.1 [2.8; 3.5] (4,595)	3.8 [3.4; 4.3] (1,150)			
	Comorbidities	W/o comorbidities	35,470	67 (59-75)	40/60	27.5	648	1.5 [1.3; 1.6] (28,145)	2.5 [2.4; 2.7] (20,738)	3.0 [2.8; 3.2] (14,004)	3.4 [3.2; 3.6] <sub>(7,849)</sub>	3.8 [3.5; 4.1] (3,372)	3.9 [3.6; 4.3] (1,012)

<sup>\*</sup> For classification see legend in Figure 20

Table 39 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Comorbidities	1-4 comorbidities	198,230	71 (63-77)	33/67	30.5	660	1.6 [1.6; 1.7] (157,880)	2.5 [2.5; 2.6] (115,770)	3.0 [2.9; 3.1] (76,962)	3.3 [3.2; 3.4] (43,844)	3.6 [3.5; 3.7] (17,974)	3.8 [3.7; 4.0] (4,725)
		More than 4 comorbidities	11,563	74 (67-79)	30/70	33.5	619	3.2 [2.9; 3.6] (8,918)	4.3 [3.9; 4.7] (6,448)	4.7 [4.3; 5.2] (4,215)	5.2 [4.8; 5.8] (2,394)	5.7 [5.1; 6.3] (941)	6.1 [5.3; 7.2] (251)
	Osteoporosis	Patient w/o diagnosed osteoporosis	236,698	70 (62-77)	35/65	30.2	662	1.7 [1.6; 1.7] (188,122)	2.6 [2.5; 2.7] (137,917)	3.1 [3.0; 3.2] (91,845)	3.4 [3.3; 3.5] (52,252)	3.7 [3.6; 3.8] (21,568)	3.9 [3.8; 4.1] (5,800)
		Patient with diagnosed osteoporosis	8,565	76 (70-80)	9/91	28.2	571	1.8 [1.5; 2.1] (6,821)	2.5 [2.2; 2.9] (5,039)	3.0 [2.6; 3.5] (3,336)	3.3 [2.8; 3.7] (1,835)	3.6 [3.1; 4.2] (719)	3.9 [3.1; 5.0] (188)
	Hospital size*	Hospitals with low annual case volumes	99,849	71 (63-77)	34/66	30.2	474	1.8 [1.8; 1.9] (79,230)	2.8 [2.7; 2.9] (57,646)	3.3 [3.2; 3.5] (37,678)	3.7 [3.6; 3.9] (20,951)	4.0 [3.8; 4.1] (7,993)	4.3 [4.1; 4.6] (1,641)
		Hospitals with average annual case volumes	87,286	71 (63-77)	34/66	30.1	134	1.7 [1.6; 1.8] (69,463)	2.6 [2.5; 2.7] (51,003)	3.1 [3.0; 3.2] (33,787)	3.4 [3.3; 3.6] (18,973)	3.8 [3.6; 3.9] (7,579)	3.9 [3.7; 4.1] (1,617)
		Hospitals with high annual case volumes	53,467	69 (61-76)	35/65	30.0	31	1.4 [1.3; 1.5] (42,340)	2.1 [2.0; 2.3] (31,208)	2.5 [2.4; 2.7] (21,462)	2.8 [2.7; 3.0] (12,791)	3.1 [2.9; 3.3] (6,117)	3.3 [3.1; 3.6] (2,532)
Constrained TKAs			12,667	74 (66-80)	24/76	29.1	596	3.9 [3.6; 4.3] (9,561)	5.1 [4.7; 5.6] (6,778)	5.7 [5.3; 6.2] (4,414)	6.0 [5.6; 6.5] (2,379)	6.2 [5.7; 6.8] (964)	6.2 [5.7; 6.8] (231)
	Age group	≤54 years	760	51 (47-53)	35/65	33.2	265	4.1 [2.9; 5.9] (584)	6.1 [4.5; 8.2] (422)	7.2 [5.4; 9.6] (275)	7.6 [5.7; 10.2] (148)	7.6 [5.7; 10.2] (62)	
		55-64 years	2,008	60 (58-63)	32/68	32.0	419	4.3 [3.5; 5.3] (1,505)	5.8 [4.8; 7.0] (1,059)	6.6 [5.4; 7.9] (692)	7.1 [5.8; 8.6] (381)	7.8 [6.3; 9.7] (150)	
		65-74 years	3,608	70 (67-72)	24/76	30.8	494	4.1 [3.5; 4.8] (2,763)	5.5 [4.8; 6.4] (1,992)	6.3 [5.4; 7.2] (1,337)	6.7 [5.8; 7.7] (751)	6.8 [5.9; 7.9] (331)	6.8 [5.9; 7.9] (71)
		75-84 years	5,304	79 (77-82)	21/79	27.7	534	3.6 [3.1; 4.1] (4,026)	4.5 [4.0; 5.2] (2,824)	4.9 [4.3; 5.6] (1,804)	5.1 [4.5; 5.9] <sub>(953)</sub>	5.2 [4.5; 6.0] <sub>(378)</sub>	5.2 [4.5; 6.0] <sub>(95)</sub>
		85 years and older	987	87 (85-89)	18/82	26.0	362	4.0 [2.9; 5.5] (683)	4.6 [3.4; 6.3] (481)	4.6 [3.4; 6.3] (306)	4.6 [3.4; 6.3] (146)		
	Sex	Male	3,071	72 (63-79)	100/0	28.7	474	4.9 [4.1; 5.7] (2,274)	6.1 [5.3; 7.1] (1,615)	7.0 [6.1; 8.1] (1,034)	7.3 [6.3; 8.5] <sub>(534)</sub>	7.7 [6.6; 9.0] (202)	
		Female	9,596	75 (67-80)	0/100	29.2	587	3.6 [3.2; 4.0] (7,287)	4.8 [4.4; 5.3] (5,163)	5.3 [4.8; 5.8] (3,380)	5.6 [5.1; 6.2] (1,845)	5.8 [5.2; 6.4] (762)	5.8 [5.2; 6.4] (182)
	Body Mass Index	≤25	1,806	78 (71-82)	21/79	23.1	423	3.5 [2.7; 4.5] (1,161)	5.1 [4.0; 6.4] (618)	5.8 [4.5; 7.4] (161)			
		>25 to ≤30	2,588	77 (69-81)	30/70	27.5	459	3.6 [3.0; 4.5] (1,724)	4.6 [3.8; 5.5] (937)	4.9 [4.0; 6.0] (276)			
		>30 to ≤35	1,835	73 (66-79)	24/76	32.0	410	3.6 [2.8; 4.6] (1,246)	4.9 [3.9; 6.2] (666)	5.6 [4.2; 7.3] (194)			
		>35 to ≤40	936	69 (61-76)	22/78	37.0	316	4.9 [3.6; 6.5] (624)	7.1 [5.4; 9.3] (334)	7.7 [5.8; 10.3] (107)			
		>40	645	64 (57-70)	18/82	43.8	257	5.1 [3.6; 7.2] <sub>(437)</sub>	6.1 [4.4; 8.4] (248)	7,6 [5,2; 11,0] <sub>(58)</sub>			
	Comorbidities	W/o comorbidities	1,410	71 (62-78)	30/70	26.6	371	2.1 [1.5; 3.1] (1,101)	3.8 [2.8; 5.0] (814)	4.3 [3.2; 5.7] (512)	4.5 [3.4; 6.0] (279)	4.5 [3.4; 6.0] (125)	
		1-4 comorbidities	10,068	74 (66-80)	24/76	29.3	582	3.9 [3.5; 4.3] (7,661)	5.0 [4.5; 5.5] (5,417)	5.6 [5.1; 6.2] (3,566)	6.0 [5.5; 6.6] (1,923)	6.1 [5.6; 6.7] (784)	6.1 [5.6; 6.7] (186)
		More than 4 comorbidities	1,189	78 (71–82)	21/79	31.1	379	6.5 [5.2; 8.1] (799)	8.2 [6.6; 10.1] (547)	8.2 [6.6; 10.1] (336)	8.2 [6.6; 10.1] (177)	9.3 [6.9; 12.4] (55)	
	Osteoporosis	Patient w/o diagnosed osteoporosis	11,721	74 <sub>(65–80)</sub>	26/74	29.3	592	3.9 [3.6; 4.3] (8,833)	5.1 [4.7; 5.6] (6,266)	5.8 [5.3; 6.3] (4,079)	6.1 [5.6; 6.6] (2,199)	6.3 [5.8; 6.9] <sub>(909)</sub>	6.3 [5.8; 6.9] (220)

<sup>\*</sup> For classification see legend in Figure 21

Table 39 (continued)

										Revision proba	abilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Osteoporosis	Patient with diagnosed osteoporosis	946	77 (71-82)	6/94	25.9	312	3.6 [2.5; 5.0] (728)	5.0 [3.7; 6.7] (512)	5.0 [3.7; 6.7] (335)	5.4 [3.9; 7.4] (180)	5.4 [3.9; 7.4] (55)	
	Hospital size*	Hospitals with low annual case volumes	6,496	75 (67-80)	24/76	29.1	419	3.9 [3.5; 4.4] (4,899)	5.3 [4.7; 5.9] (3,511)	6.0 [5.4; 6.7] (2,287)	6.3 [5.7; 7.1] (1,258)	6.7 [5.9; 7.5] (472)	6.7 [5.9; 7.5] <sub>(68)</sub>
		Hospitals with average annual case volumes	4,222	74 (65-80)	25/75	28.9	127	4.2 [3.6; 4.9] (3,161)	5.3 [4.6; 6.1] (2,169)	5.8 [5.0; 6.6] (1,358)	5.8 [5.1; 6.7] (680)	6.0 [5.2; 6.9] (233)	6.0 [5.2; 6.9] (61)
		Hospitals with high annual case volumes	1,743	73 (64-79)	26/74	29.0	30	3.2 [2.5; 4.2] (1,332)	4.1 [3.2; 5.3] <sub>(963)</sub>	4.5 [3.5; 5.7] (669)	4.9 [3.8; 6.3] (377)	4.9 [3.8; 6.3] (220)	4.9 [3.8; 6.3] <sub>(84)</sub>
Unicondylar knee	arthroplasties		35,495	64 (57-72)	44/56	29.6	570	3.0 [2.8; 3.2] (27,166)	4.9 [4.6; 5.1] (19,232)	5.8 [5.5; 6.1] (12,258)	6.8 [6.5; 7.2] (6,619)	7.4 [7.0; 7.8] (2,478)	8.0 [7.5; 8.6] (816)
	Age group	≤54 years	5,906	51 (49-53)	41/59	31.2	492	3.8 [3.3; 4.3] (4,520)	6.6 [5.9; 7.3] (3,216)	7.9 [7.1; 8.7] (2,062)	9.4 [8.5; 10.5] (1,127)	10.5 [9.3; 11.8] (472)	11.1 [9.8; 12.6] (169)
		55-64 years	12,633	60 (57-62)	48/52	30.4	535	2.9 [2.6; 3.2] (9,524)	5.2 [4.8; 5.7] (6,639)	6.3 [5.8; 6.9] (4,209)	7.6 [7.0; 8.3] <sub>(2,238)</sub>	8.3 [7.6; 9.1] (826)	9.4 [8.3; 10.5] (266)
		65-74 years	10,183	69 (67-72)	41/59	29.4	487	2.8 [2.5; 3.1] (7,873)	4.0 [3.6; 4.5] (5,643)	5.0 [4.5; 5.5] (3,656)	5.6 [5.1; 6.2] (2,033)	6.0 [5.4; 6.7] (740)	6.5 [5.6; 7.5] (245)
		75-84 years	6,391	78 (76-80)	42/58	27.8	402	2.9 [2.5; 3.4] (4,967)	4.0 [3.5; 4.5] (3,543)	4.4 [3.9; 5.0] (2,214)	4.9 [4.3; 5.6] (1,148)	5.0 [4.3; 5.7] (408)	5.0 [4.3; 5.7] (122)
		85 years and older	382	86 (85-88)	39/61	26.3	134	2.5 [1.3; 4.7] (282)	3.3 [1.8; 5.9] (191)	3.8 [2.1; 6.8] (117)	3.8 [2.1; 6.8] (73)		
	Sex	Male	15,454	63 (57-72)	100/0	29.4	540	3.0 [2.7; 3.2] (11,744)	4.6 [4.3; 5.0] (8,225)	5.5 [5.1; 6.0] (5,197)	6.3 [5.8; 6.8] (2,771)	6.7 [6.1; 7.3] (1,067)	7.7 [6.8; 8.6] <sub>(355)</sub>
		Female	20,041	64 (57-73)	0/100	29.8	542	3.0 [2.8; 3.3] (15,422)	5.0 [4.7; 5.4] (11,007)	6.1 [5.7; 6.5] (7,061)	7.2 [6.8; 7.7] (3,848)	7.9 [7.3; 8.5] (1,411)	8.2 [7.6; 8.9] (461)
	Body Mass Index	≤25	3,114	67 (59-76)	37/63	23.7	410	2.8 [2.2; 3.5] (2,039)	4.8 [4.0; 5.8] (1,099)	5.5 [4.5; 6.8] (306)			
		>25 to ≤30	8,062	66 (59-74)	50/50	27.7	488	2.3 [2.0; 2.7] (5,366)	4.1 [3.6; 4.7] (2,912)	5.2 [4.6; 6.0] (765)			
		>30 to ≤35	6,242	63 (57-70)	46/54	32.1	466	3.2 [2.8; 3.7] (4,181)	5.0 [4.4; 5.7] (2,256)	6.0 [5.3; 6.9] (585)			
		>35 to ≤40	2,691	60 (55-67)	39/61	36.9	385	3.1 [2.5; 3.9] (1,754)	5.2 [4.2; 6.3] (938)	6.4 [5.2; 7.9] (231)			
		>40	1,079	58 (52-63)	31/69	42.5	274	5.0 [3.8; 6.6] (725)	6.7 [5.2; 8.7] (410)	6.7 [5.2; 8.7] <sub>(97)</sub>			
	Comorbidities	W/o comorbidities	8,168	61 (55-69)	48/52	27.5	499	2.8 [2.5; 3.2] (6,290)	4.8 [4.4; 5.4] (4,529)	5.8 [5.2; 6.4] (3,013)	6.4 [5.8; 7.1] (1,724)	7.2 [6.5; 8.1] (820)	8.0 [7.0; 9.1] (338)
		1-4 comorbidities	26,563	65 (58-73)	42/58	30.3	558	3.0 [2.8; 3.3] (20,303)	4.8 [4.6; 5.1] (14,300)	5.8 [5.5; 6.1] (9,014)	6.9 [6.5; 7.3] (4,768)	7.4 [6.9; 7.9] (1,609)	7.9 [7.3; 8.6] <sub>(470)</sub>
		More than 4 comorbidities	764	70 (62-76)	38/62	33.5	211	3.7 [2.5; 5.4] (573)	5.6 [4.1; 7.8] (403)	7.9 [5.8; 10.7] (231)	9.4 [6.9; 12.8] (127)		
	Osteoporosis	Patient w/o diagnosed osteoporosis	34,954	64 (57-72)	44/56	29.6	570	3.0 [2.8; 3.2] (26,744)	4.8 [4.6; 5.1] (18,942)	5.8 [5.5; 6.1] (12,069)	6.8 [6.5; 7.2] <sub>(6,528)</sub>	7.4 [7.0; 7.8] (2,453)	8.0 [7.5; 8.6] (809)
		Patient with diagnosed osteoporosis	541	73 (66-78)	10/90	27.8	180	3.8 [2.4; 5.9] (422)	6.3 [4.4; 9.0] (290)	6.7 [4.6; 9.5] (189)	7.5 [5.1; 11.0] <sub>(91)</sub>		
	Hospital size**	Hospitals with low annual case volumes	9,393	62 (56-70)	45/55	29.4	411	4.2 [3.8; 4.7] (7,080)	6.7 [6.2; 7.3] <sub>(5,125)</sub>	8.1 [7.5; 8.8] (3,293)	9.6 [8.9; 10.5] (1,737)	10.4 [9.5; 11.3] (658)	10.9 [9.8; 12.0] (137)
		Hospitals with average annual case volumes	12,059	64 (57-72)	44/56	29.7	117	3.0 [2.7; 3.3] (8,970)	5.2 [4.7; 5.6] (5,999)	6.4 [5.8; 6.9] (3,627)	7.2 [6.6; 7.8] (1,843)	7.8 [7.1; 8.6] <sub>(679)</sub>	9.0 [7.9; 10.4] (193)

<sup>\*</sup> For classification see legend in Figure 21, \*\* For classification see legend in Figure 22

Table 39 (continued)

										Revision proba	bilities after		
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	1 year	2 years	3 years	4 years	5 years	6 years
	Hospital size*	Hospitals with high annual case volumes	13,328	66 (58-74)	42/58	29.6	24	2.2 [2.0; 2.5] (10,533)	3.3 [3.0; 3.7] (7,661)	3.9 [3.5; 4.2] <sub>(5,036)</sub>	4.6 [4.2; 5.1] (2,866)	5.0 [4.5; 5.6] (1,072)	5.2 [4.6; 5.9] <sub>(458)</sub>
Patellofemoral art	throplasties		542	54 (48-61)	26/74	27.8	155	4.5 [2.9; 6.8] (407)	7.7 [5.5; 10.7] (285)	9.8 [7.2; 13.3] (182)	14.3 [10.5; 19.3] (87)		
	Sex	Female	404	54 (48-61)	0/100	27.9	133	4.8 [3.0; 7.6] (304)	8.3 [5.8; 12.0] (213)	9.8 [6.9; 13.8] (133)	13.9 [9.8; 19.6] (62)		
	Comorbidities	1-4 comorbidities	342	56.5 (49-63)	25/75	29.1	116	4.1 [2.3; 7.1] (261)	7.4 [4.8; 11.3] (187)	10.6 [7.3; 15.4] (116)	17.8 [12.4; 25.2] (50)		
	Osteoporosis	Patient w/o diagnosed osteoporosis	534	54 (48-61)	26/74	27.9	154	4.5 [3.0; 6.9] (400)	7.8 [5.6; 10.8] (281)	9.6 [7.0; 13.1] (179)	14.2 [10.4; 19.2] (85)		

Table 39 (continued)

<sup>\*</sup> For classification see legend in Figure 22

## Specific analysis: is stem cementation appropriate for older patients?

Elective hip arthroplasties in patients aged 75 years and older show markedly lower revision probabilities for cemented stems than for uncemented stems (see Table 39 and Figure 24 below). In the hospitals, however, the decision for cemented or uncemented stems often depends on the patient's baseline physical conditions. Cemented stems in particular are implanted in patients with poorer baseline or pre-existing diseases. This section will examine to what extent stem fixation actually causes the differences in revision probabilities or whether they are more likely due to patient selection.

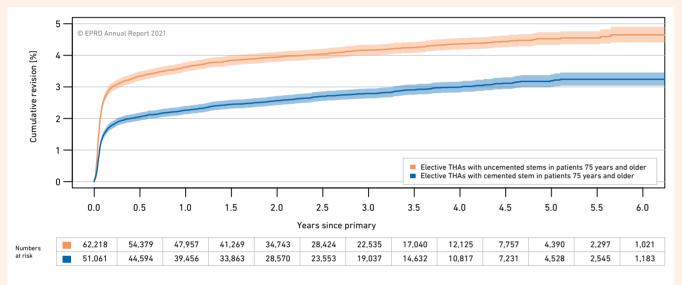


Figure 24: Revision probabilities of elective total hip arthroplasties by stem fixation in risk-matched groups of patients aged 75 years and older (p < 0.0001)

#### Study subgroups

For this analysis, the EPRD has data on 113,279 elective primary total hip arthroplasties in patients aged 75 and over. However, differences between patients receiving cemented or uncemented stems were not only apparent in terms of revision probabilities, but also other characteristics:

Before risk matching	Arthroplasties with	
Characteristic	uncemented stem	cemented stem
Number	62,218	51,061
Males [%]	35.6 %	24.7 %
Median age (+ quartiles)	78 (76–81)	80 (78–83)
Median hospital case volume (+ quartiles)	332 (198–553)	350 (225–580)
Mean Elixhauser Score (+ standard dev.)	2.50 (4.84)	3.41 (5.83)

In the groups analysed, patient mortality differed significantly (p-value < 0.0001), amounting to 2.0 % [1.9 %; 2.1 %] at one year postoperatively for arthroplasties with uncemented stems and 3.1 % [3.0 %; 3.3 %] in those with cemented stems.

#### Risk-matching of study groups

In order to arrive at reliable statements about what impact stem fixation really has, it was first necessary to establish baseline conditions that were as comparable as possible in both patient groups.

For this purpose, the analysis is limited to "best possible conditions". The comparison therefore included only those arthroplasties where...

- the procedure was indicated in primary osteoarthritis of the hip (ICD-10 codes M16.0, M16.1),
- no significant prior operations were documented for the patient,
- the patient did not suffer from osteoporosis (ICD-10 codes M81, M82),
- an uncemented acetabular component was implanted,
- · the head component was made of ceramic or ceramicised metal.

This was followed by a matching step which assigned each arthroplasty with a cemented stem to an arthroplasty resembling it to a certain degree, but with an uncemented stem. This allows any remaining differences in the age and sex distributions, the general health status of the patients (represented by the Elixhauser scores) as well as the hospital case volume to be balanced out even further. After these matching steps, the groups no longer displayed any significant differences:

After matching	Arthroplasties with	
Characteristic	uncemented fixation	hybrid fixation
Number	21,401	21,401
Males [%]	27.5 %	26.6 %
Median age (+ quartiles)	80 (77–83)	80 (77–82)
Median hospital case volume (+ quartiles)	359 (227–670)	359 (236–729)
Mean Elixhauser Score (+ standard dev.)	2.72 (4.89)	2.80 (5.02)

Moreover, patient mortality between uncemented and hybrid fixation groups was no longer significantly different (p-value = 0.3). Mortality within one year after primary arthroplasty was 1.9 % [1.7 %; 2.1 %] for uncemented and 2.0 % [1.8 %; 2.2 %] for hybrid fixations.

5 Hip and knee arthroplasty survival

#### Results and conclusion

The revision probabilities however still differed significantly even after group matching (p-value < 0.0001). For arthroplasties with uncemented stems, the probability of revision within two years after primary arthroplasty was 3.7 % [3.4 %; 4.0 %], whereas for arthroplasties with cemented stems it was only 2.0 % [1.8 %; 2.2 %]. Regarding the reasons for revision, a markedly higher percentage of periprosthetic fractures (18 %) was noted in uncemented arthroplasties than in hybrid arthroplasties (5 %).

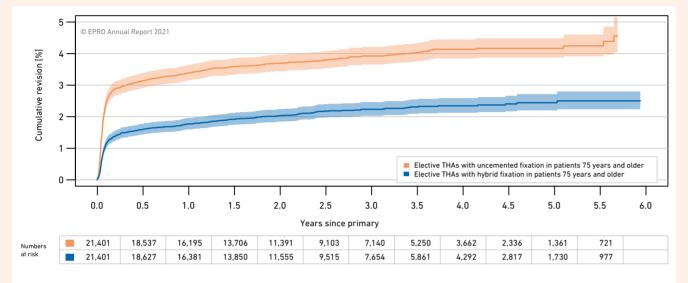


Figure 25: Revision probabilities of uncemented vs hybrid elective total hip arthroplasties in risk-matched groups of patients aged 75 years and older (p < 0.0001)

Accordingly, the EPRD recommends the more frequent use of cemented stems in older patients. This is reinforced by the outcomes of non-elective hip arthroplasties. Even without additional matching steps, there is a significant difference in the revision probabilities for both non-elective hemiarthroplasty and total arthroplasty of the hip, but none in patient mortality.

#### What the literature and other registries say

Only a few other countries employ uncemented stems in elderly patients as much as in Germany. Nevertheless, a few years ago, there was a worldwide trend favouring uncemented stems in older patients, despite the fact that virtually all registries reported that this concept suffered from significantly higher revision probabilities [4]. Recently this trend had been declining again in some countries [5].

# 5.3 Outcomes of specific implant systems (brands) and combinations

The following tables list the revision probabilities for specific implant systems and components. Hip arthroplasties are presented as femoral stem and acetabular component pairs (Table 40) and knee arthroplasties as femoral and tibial component pairs (Table 41). The outcomes for the stem and acetabular component, obtained by considering each component in isolation across all combinations, are also listed separately in tables 42 and 43. And finally, Table 44 also lists the probabilities for secondary patellar resurfacing for the various total knee arthroplasty systems.

The initial conditions for various implant systems can differ and certain implant systems, for example, are only used for very specific indications. To account for this aspect, the hip and knee arthroplasties under consideration are grouped into comparable arthroplasty systems. In the case of hip arthroplasties, grouping into comparable systems is based on the specified type of fixation, and in knee arthroplasties on the type of arthroplasty present, the type of fixation, knee system, and the degree of constraint. Within each group, the implants are listed alphabetically by name. The outcome analysis in this chapter only considers elective hip arthroplasties. Thus, the calculation does not include hemiarthroplasties and total hip arthroplasties implanted because of femoral neck fractures.

To ensure that the final results obtained were robust, only outcomes for implant combinations or implants based on a minimum of 300 primary arthroplasties in follow-up and sourced from at least 3 different hospitals were considered. If the follow-up figures fall below the limit of 150 arthroplasties over time, this is highlighted in italics in the tables to indicate the resulting higher uncertainty of the numbers. If the number of arthroplasties followed up decreases to less than 50, no further numbers are given.

It should be emphasised once again that the outcomes obtained cannot be attributed solely to the components implanted, but also to the circumstances of the arthroplasty and specific aspects of the patient groups treated with these implants (see also Section 5.2). In order to, at least partially, reflect these external contributing circumstances, the following tables also list arthroplasty patients' characteristics (median age and percentage of male to female patients).

Elective total hip arthroplasties								Revision proba	abilities after		
Femoral stem	Cup	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Hybrid fixation											
ABG II Stem (Stryker)	Trident Cup (Stryker)	422	9	79 (75-82)	23/77	2.7 [1.5; 4.8] (349)	3.2 [1.9; 5.5] (247)	3.2 [1.9; 5.5] (99)			
Avenir (Zimmer Biomet)	Allofit (Zimmer Biomet)	1,621	89	79 (75-83)	23/77	2.3 [1.7; 3.2] (985)	2.6 [1.9; 3.6] (616)	2.8 [2.0; 4.0] (393)	2.8 [2.0; 4.0] (208)	2.8 [2.0; 4.0] (88)	
BICONTACT S (Aesculap)	PLASMAFIT PLUS (Aesculap)	551	46	78 (74-82)	21/79	1.3 [0.6; 2.7] (459)	1.3 [0.6; 2.7] (352)	2.2 [1.2; 4.1] (254)	2.6 [1.4; 4.8] (144)	2.6 [1.4; 4.8] (76)	
BICONTACT S (Aesculap)	PLASMAFIT POLY (Aesculap)	435	27	79 (75-82)	18/82	1.0 [0.4; 2.7] (354)	1.3 [0.6; 3.2] (288)	1.7 [0.8; 3.8] (205)	1.7 [0.8; 3.8] (119)	1.7 [0.8; 3.8] (53)	
C-STEM™ AMT-Hüftschaft (DePuy)	PINNACLE™ Press Fit-Hüftpfanne (DePuy)	303	5	79 (75-83)	17/83	1.0 [0.3; 3.2] (260)	1.0 [0.3; 3.2] (225)	1.5 [0.6; 4.0] (149)	1.5 [0.6; 4.0] (87)		
CCA CoCr (Mathys)	Allofit (Zimmer Biomet)	396	4	76 <sub>(73–80)</sub>	33/67	2.5 [1.4; 4.7] (372)	3.3 [2.0; 5.7] (351)	3.9 [2.4; 6.4] <sub>(334)</sub>	4.5 [2.8; 7.2] <sub>(301)</sub>	4.5 [2.8; 7.2] (210)	4.5 [2.8; 7.2] (144)
CORAIL™ AMT-Hüftschaft (DePuy)	PINNACLE™ Press Fit-Hüftpfanne (DePuy)	2,992	113	79 (74-82)	22/78	2.9 [2.4; 3.6] (2,126)	3.5 [2.8; 4.3] (1,391)	3.8 [3.1; 4.6] (832)	4.5 [3.6; 5.7] (428)	4.5 [3.6; 5.7] (151)	
EXCEPTION (Zimmer Biomet)	Allofit (Zimmer Biomet)	527	10	78 <sub>(74-82)</sub>	20/80	2.2 [1.2; 3.9] (373)	2.4 [1.4; 4.3] (203)	2.4 [1.4; 4.3] (76)			
EXCIA T (Aesculap)	PLASMAFIT PLUS (Aesculap)	547	36	77 (73-81)	22/78	2.1 [1.1; 3.7] (423)	2.8 [1.6; 4.7] (293)	3.2 [1.9; 5.3] (163)	3.2 [1.9; 5.3] (92)		
EXCIA T (Aesculap)	PLASMAFIT POLY (Aesculap)	564	37	79 (74-82)	20/80	1.5 [0.7; 2.9] (362)	1.5 [0.7; 2.9] (189)	1.5 [0.7; 2.9] (77)			
EXCIA TL (Aesculap)	PLASMAFIT POLY (Aesculap)	337	25	79 (75-82)	20/80	1.2 [0.5; 3.2] (232)	1.6 [0.7; 4.0] (75)				
M.E.M. Geradschaft (Zimmer Biomet)	Allofit (Zimmer Biomet)	12,623	143	78 (75-81)	26/74	1.9 [1.7; 2.2] (9,527)	2.1 [1.9; 2.4] (6,589)	2.4 [2.1; 2.7] (4,169)	2.5 [2.2; 2.8] (2,186)	2.8 [2.4; 3.2] (869)	3.3 [2.4; 4.5] (185)
M.E.M. Geradschaft (Zimmer Biomet)	Trilogy (Zimmer Biomet)	1,182	11	77 (74-80)	29/71	1.1 [0.7; 1.9] (1,048)	1.2 [0.7; 2.1] (864)	1.4 [0.8; 2.3] (676)	1.4 [0.8; 2.3] (449)	1.6 [0.9; 2.7] (237)	1.6 [0.9; 2.7] (107)
METABLOC (Zimmer Biomet)	Allofit (Zimmer Biomet)	1,451	24	78 (75-82)	28/72	2.5 [1.8; 3.4] (1,218)	2.7 [2.0; 3.7] (950)	3.0 [2.2; 4.0] (656)	3.0 [2.2; 4.0] (420)	3.0 [2.2; 4.0] (184)	3.0 [2.2; 4.0] <sub>(52)</sub>
MS-30 (Zimmer Biomet)	Allofit (Zimmer Biomet)	2,841	25	78 (73-81)	27/73	1.7 [1.3; 2.3] (2,351)	1.9 [1.4; 2.4] (1,877)	2.0 [1.6; 2.7] (1,397)	2.3 [1.8; 3.0] (842)	2.3 [1.8; 3.0] (324)	
Müller Geradschaft (OHST Medizintech- nik)	R3 (Smith & Nephew)	706	11	78 (75-81)	32/68	3.5 [2.4; 5.2] (545)	3.9 [2.7; 5.7] <sub>(305)</sub>	3.9 [2.7; 5.7] <sub>(149)</sub>			
Polarschaft (Smith & Nephew)	R3 (Smith & Nephew)	889	45	79 (76-82)	23/77	3.4 [2.4; 4.9] (673)	3.5 [2.5; 5.0] (458)	3.8 [2.6; 5.3] (238)	4.2 [2.9; 6.1] (77)		
QUADRA (Medacta)	VERSAFITCUP CC TRIO (Medacta)	1,090	30	79 (77-82)	22/78	1.9 [1.2; 3.0] (771)	2.3 [1.5; 3.4] (450)	2.3 [1.5; 3.4] (189)	2.3 [1.5; 3.4] <sub>(66)</sub>		
SPII® Modell Lubinus (Waldemar Link)	Allofit (Zimmer Biomet)	3,772	37	77 (74-81)	30/70	2.4 [1.9; 2.9] (2,802)	2.8 [2.3; 3.4] (2,043)	3.1 [2.5; 3.8] (1,399)	3.4 [2.8; 4.2] (771)	3.6 [2.9; 4.4] (377)	4.5 [3.2; 6.3] (142)
SPII® Modell Lubinus (Waldemar Link)	CombiCup PF (Waldemar Link)	1,024	30	77 (73-81)	28/72	0.9 [0.5; 1.7] (844)	1.8 [1.1; 2.9] (644)	2.0 [1.2; 3.2] (431)	2.8 [1.8; 4.6] (257)	2.8 [1.8; 4.6] <sub>(93)</sub>	
Taperloc Cemented (Zimmer Biomet)	G7 (Zimmer Biomet)	318	10	80 (74-82)	25/75	2.0 [0.9; 4.3] (244)	3.3 [1.7; 6.3] (179)	3.3 [1.7; 6.3] (116)	3.3 [1.7; 6.3] <sub>(63)</sub>		
twinSys cem. (Mathys)	RM Pressfit vitamys (Mathys)	687	18	78 <sub>(72–82)</sub>	22/78	2.0 [1.2; 3.4] (511)	2.2 [1.3; 3.7] (354)	2.2 [1.3; 3.7] (160)	2.9 [1.6; 5.4] <sub>(53)</sub>		

Table 40: Implant outcomes for stem/cup combinations in elective total hip arthroplasties. For each type of fixation, the combinations are listed alphabetically by the stem component. The table is continued on the following pages.

Elective total hip arthroplasties								Revision proba	abilities after		
Femoral stem	Cup	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Uncemented fixation											
A2 Kurzschaft (ARTIQO)	ANA.NOVA® Alpha Pfanne (ARTIQO)	1,958	29	64 (58-71)	43/57	1.6 [1.1; 2.3] (1,314)	1.7 [1.2; 2.4] (810)	2.1 [1.4; 3.1] (345)	2.1 [1.4; 3.1] (79)		
A2 Kurzschaft (ARTIQO)	ANA.NOVA® Hybrid Pfanne (ARTIQO)	3,069	27	63 (57-70)	37/63	1.3 [1.0; 1.8] (2,189)	1.6 [1.2; 2.2] (1,377)	1.9 [1.4; 2.6] (645)	1.9 [1.4; 2.6] (132)		
ABG II Stem (Stryker)	Trident Cup (Stryker)	369	11	65 (59-70)	42/58	3.5 [2.1; 6.0] (320)	5.6 [3.6; 8.7] (246)	6.4 [4.2; 9.7] (187)	6.4 [4.2; 9.7] (152)	6.4 [4.2; 9.7] (62)	
Accolade II Stem (Stryker)	Trident Cup (Stryker)	4,365	41	67 (60-75)	42/58	2.5 [2.1; 3.1] (3,096)	2.8 [2.3; 3.4] (1,796)	3.0 [2.5; 3.6] (872)	3.3 [2.7; 4.1] (423)	3.3 [2.7; 4.1] (143)	
Accolade II Stem (Stryker)	Trident TC Cup (Stryker)	434	10	68 (62-75)	36/64	1.9 [0.9; 3.7] (408)	2.4 [1.3; 4.3] (393)	2.6 [1.5; 4.7] (359)	2.9 [1.7; 5.1] (275)		
Accolade II Stem (Stryker)	Tritanium Cup (Stryker)	1,777	21	69 (62-76)	40/60	2.7 [2.0; 3.6] (1,295)	3.2 [2.4; 4.2] (839)	3.7 [2.8; 4.8] <sub>(583)</sub>	4.0 [3.1; 5.3] (314)	4.0 [3.1; 5.3] (120)	
Actinia cementless (Implantcast)	EcoFit cpTi (Implantcast)	565	10	69 (61-76)	41/59	2.5 [1.5; 4.2] (502)	3.6 [2.3; 5.7] (322)	3.6 [2.3; 5.7] (143)			
Actinia cementless (Implantcast)	EcoFit NH cpTi (Implantcast)	360	5	74 (67-78)	28/72	3.7 [2.2; 6.3] (229)	4.2 [2.5; 7.0] (156)	4.9 [2.9; 8.3] (98)			
ACTIS™-Hüftschaft (DePuy)	PINNACLE™ Press Fit-Hüftpfanne (DePuy)	462	18	62 (55-69)	39/61	1.5 [0.7; 3.4] (130)					
Alloclassic (Zimmer Biomet)	Alloclassic (Zimmer Biomet)	387	7	67 (59-75)	32/68	3.9 [2.4; 6.4] (356)	4.5 [2.8; 7.1] (316)	4.8 [3.1; 7.5] (255)	5.2 [3.4; 8.1] (185)	5.2 [3.4; 8.1] (86)	
Alloclassic (Zimmer Biomet)	Allofit (Zimmer Biomet)	7,205	57	70 (62-76)	35/65	2.5 [2.1; 2.9] (5,980)	3.0 [2.6; 3.5] (4,836)	3.3 [2.9; 3.8] (3,596)	3.5 [3.1; 4.0] (2,433)	3.8 [3.3; 4.3] (1,133)	4.0 [3.5; 4.6]
Alloclassic (Zimmer Biomet)	Trilogy (Zimmer Biomet)	421	5	67 (63-70)	35/65	3.6 [2.2; 6.0] (352)	4.5 [2.9; 7.1] (281)	4.5 [2.9; 7.1] (212)	4.5 [2.9; 7.1] (118)		
Alpha-Fit (Corin)	Trinity no Hole (Corin)	444	3	75 (69-78)	32/68	1.6 [0.8; 3.3] (423)	1.9 [0.9; 3.7] (357)	2.2 [1.2; 4.3] (249)	2.2 [1.2; 4.3] (186)	2.2 [1.2; 4.3] (114)	
AMISTEM (Medacta)	VERSAFITCUP CC TRIO (Medacta)	1,062	28	67 (58-74)	42/58	3.5 [2.5; 4.8] (781)	3.9 [2.8; 5.3] <sub>(539)</sub>	3.9 [2.8; 5.3] <sub>(335)</sub>	3.9 [2.8; 5.3] (146)		
ANA.NOVA® Alpha Schaft (ARTIQO)	ANA.NOVA® Alpha Pfanne (ARTIQO)	800	7	70 (63-76)	43/57	3.5 [2.4; 5.0] (665)	3.8 [2.6; 5.4] (529)	4.0 [2.8; 5.7] (359)	4.7 [3.3; 6.7] (230)	4.7 [3.3; 6.7] (51)	
ANA.NOVA® Alpha Schaft (ARTIQO)	ANA.NOVA® Hybrid Pfanne (ARTIQO)	780	10	69 (62-75)	39/61	2.0 [1.2; 3.3] (595)	2.6 [1.6; 4.2] (416)	2.6 [1.6; 4.2] (253)	2.6 [1.6; 4.2] (139)		
ANA.NOVA® Solitär Schaft (ARTIQO)	ANA.NOVA® Hybrid Pfanne (ARTIQO)	421	7	74 (65-80)	34/66	4.0 [2.5; 6.5] (311)	4.0 [2.5; 6.5] (183)	4.5 [2.8; 7.3] (94)	4.5 [2.8; 7.3] (51)		
Avenir (Zimmer Biomet)	Allofit (Zimmer Biomet)	14,798	141	70 (62-76)	40/60	2.9 [2.7; 3.2] (10,259)	3.2 [2.9; 3.5] (6,405)	3.4 [3.1; 3.7] (3,870)	3.4 [3.1; 3.7] (1,909)	3.4 [3.1; 3.8] <sub>(546)</sub>	3.4 [3.1; 3.8]
Avenir (Zimmer Biomet)	Allofit IT (Zimmer Biomet)	1,924	42	67 (59-75)	40/60	3.3 [2.6; 4.2] (1,350)	3.8 [3.0; 4.8] (879)	3.8 [3.0; 4.8] (479)	3.8 [3.0; 4.8] (185)		
BICONTACT H (Aesculap)	PLASMACUP SC (Aesculap)	1,663	19	70 (63–76)	49/51	2.3 [1.6; 3.1] (1,405)	2.6 [1.9; 3.5] (1,143)	2.6 [2.0; 3.6] (868)	2.6 [2.0; 3.6] (595)	2.6 [2.0; 3.6] (288)	2.6 [2.0; 3.6] <sub>(!</sub>
BICONTACT H (Aesculap)	PLASMAFIT PLUS (Aesculap)	2,656	58	71 (63–76)	53/47	3.5 [2.8; 4.2] (2,198)	3.6 [2.9; 4.4] (1,661)	3.8 [3.1; 4.6] (1,166)	3.8 [3.1; 4.6] (702)	3.8 [3.1; 4.6] (369)	3.8 [3.1; 4.6] (1.
BICONTACT H (Aesculap)	PLASMAFIT POLY (Aesculap)	764	40	70 (64–76)	49/51	3.7 [2.5; 5.3] (611)	4.4 [3.1; 6.2] (453)	4.7 [3.3; 6.6] (313)	4.7 [3.3; 6.6] <sub>(203)</sub>	4.7 [3.3; 6.6] <sub>(76)</sub>	
BICONTACT S (Aesculap)	PLASMACUP SC (Aesculap)	1,751	23	72 (66-77)	32/68	2.1 [1.6; 2.9] (1,567)	2.8 [2.1; 3.7] (1,380)	2.9 [2.2; 3.9] (1,099)	3.3 [2.5; 4.3] (764)	3.3 [2.5; 4.3] (397)	3.3 [2.5; 4.3] (1

Elective total hip arthroplasties									Revision proba	bilities after		
Femoral stem	Cup	Number	Hosp.	Age	m/f		1 year	2 years	3 years	4 years	5 years	6 years
Uncemented fixation												
BICONTACT S (Aesculap)	PLASMAFIT PLUS (Aesculap)	4,341	79	71 (64-77)	35/65	3.1 [	[2.6; 3.7] (3,587)	3.4 [2.9; 4.0] (2,747)	3.7 [3.1; 4.3] (1,959)	3.7 [3.1; 4.3] (1,206)	3.7 [3.1; 4.3] (603)	3.7 [3.1; 4.3] (184)
BICONTACT S (Aesculap)	PLASMAFIT POLY (Aesculap)	1,758	44	71 (64-76)	38/62	5.3 [4	[4.3; 6.4] (1,340)	5.5 [4.5; 6.7] (972)	5.5 [4.5; 6.7] (613)	5.5 [4.5; 6.7] (299)	5.5 [4.5; 6.7] (72)	
BICONTACT SD (Aesculap)	PLASMAFIT PLUS (Aesculap)	321	30	67 (56-74)	11/89	2.3 [	3 [1.1; 4.7] <sub>(277)</sub>	3.0 [1.6; 5.6] (233)	3.4 [1.8; 6.2] (158)	3.4 [1.8; 6.2] <sub>(95)</sub>		
Brexis (Zimmer Biomet)	Allofit (Zimmer Biomet)	382	22	61 (54-67)	48/52	2.9 [	9 [1.6; 5.2] <sub>(244)</sub>	2.9 [1.6; 5.2] (80)				
CLS Spotorno (Zimmer Biomet)	Allofit (Zimmer Biomet)	17,202	165	65 (58-72)	43/57	2.7 [2	[2.5; 3.0] (14,350)	3.2 [2.9; 3.5] (11,434)	3.5 [3.2; 3.8] (8,416)	3.7 [3.4; 4.0] <sub>(5,326)</sub>	3.9 [3.5; 4.2] (2,552)	4.0 [3.6; 4.4] (790)
CLS Spotorno (Zimmer Biomet)	Allofit IT (Zimmer Biomet)	1,331	28	66 (58-73)	43/57	1.3 [0	[0.8; 2.1] (1,254)	2.2 [1.5; 3.2] (986)	2.2 [1.5; 3.2] (775)	2.2 [1.5; 3.2] (611)	2.4 [1.7; 3.5] (371)	2.4 [1.7; 3.5] (211)
CLS Spotorno (Zimmer Biomet)	Trilogy (Zimmer Biomet)	305	7	65 (57-71)	42/58	3.6 [	6 [2.0; 6.5] <sub>(278)</sub>	4.7 [2.8; 7.9] <sub>(247)</sub>	4.7 [2.8; 7.9] (214)	4.7 [2.8; 7.9] <sub>(179)</sub>	4.7 [2.8; 7.9] <sub>(92)</sub>	
CLS Spotorno (Zimmer Biomet)	Trilogy IT (Zimmer Biomet)	843	3	68 (61-74)	41/59	3.3 [	3 [2.3; 4.8] (712)	3.6 [2.5; 5.1] (566)	3.8 [2.7; 5.4] (415)	3.8 [2.7; 5.4] (271)	3.8 [2.7; 5.4] (114)	
CORAIL™ AMT-Hüftschaft (DePuy)	Allofit (Zimmer Biomet)	1,449	17	69 (60-76)	33/67	2.6 [	[1.9; 3.6] (1,246)	2.8 [2.0; 3.8] (1,001)	3.0 [2.2; 4.1] (584)	3.0 [2.2; 4.1] (267)		
CORAIL™ AMT-Hüftschaft (DePuy)	Allofit IT (Zimmer Biomet)	390	5	72 (66-77)	38/62	3.1 [	1 [1.8; 5.4] (366)	4.2 [2.6; 6.7] (345)	4.5 [2.8; 7.1] (329)	4.5 [2.8; 7.1] (253)		
LURAII ''' AMI-HIITISCHATT (DEPILV)	DURALOC™ OPTION™ Press Fit- Hüftpfanne (DePuy)	478	8	67 (59-74)	40/60	3.8 [	3 [2.4; 6.0] <sub>(391)</sub>	4.1 [2.6; 6.3] (318)	4.1 [2.6; 6.3] (246)	4.1 [2.6; 6.3] (166)	4.1 [2.6; 6.3] (63)	
CORAIL™ AMT-Hüftschaft (DePuy)	PINNACLE™ Press Fit-Hüftpfanne (DePuy)	28,290	148	70 (62-76)	38/62	2.5 [2	[2.3; 2.7] (21,844)	2.9 [2.7; 3.1] (15,795)	3.1 [2.9; 3.4] (10,306)	3.4 [3.1; 3.6] (5,513)	3.5 [3.3; 3.8] (2,046)	3.9 [3.4; 4.4] (573)
EXCEPTION (Zimmer Biomet)	Allofit (Zimmer Biomet)	1,290	12	68 (61-75)	49/51	4.2 [	2 [3.2; 5.5] <sub>(921)</sub>	4.5 [3.5; 5.8] <sub>(594)</sub>	5.3 [4.0; 6.8] (291)	5.3 [4.0; 6.8] (50)		
EXCIA (Aesculap)	PLASMAFIT PLUS (Aesculap)	302	12	72 (64-77)	37/63	4.7 [	7 [2.8; 7.8] (257)	5.6 [3.5; 9.0] (214)	6.1 [3.8; 9.6] (186)	6.1 [3.8; 9.6] (131)	6.1 [3.8; 9.6] (69)	
EXCIA T (Aesculap)	PLASMAFIT PLUS (Aesculap)	2,075	51	70 (63-76)	33/67	2.9 [2	[2.2; 3.7] (1,471)	3.2 [2.5; 4.1] (942)	3.3 [2.6; 4.3] (500)	3.3 [2.6; 4.3] <sub>(137)</sub>		
EXCIA T (Aesculap)	PLASMAFIT POLY (Aesculap)	2,620	48	69 (61-76)	37/63	3.2 [2	[2.6; 4.0] (1,957)	3.5 [2.9; 4.4] (1,316)	3.5 [2.9; 4.4] (743)	3.5 [2.9; 4.4] (273)		
EXCIA TL (Aesculap)	PLASMAFIT PLUS (Aesculap)	777	49	69 (61-75)	52/48	3.0 [	) [2.0; 4.6] <sub>(560)</sub>	3.4 [2.3; 5.1] (381)	3.4 [2.3; 5.1] (273)	3.4 [2.3; 5.1] <sub>(112)</sub>		
EXCIA TL (Aesculap)	PLASMAFIT POLY (Aesculap)	1,672	43	70 (62-76)	51/49	3.1 [2	[2.3; 4.0] (1,291)	3.7 [2.8; 4.7] (870)	3.8 [3.0; 5.0] (485)	4.1 [3.1; 5.4] (188)		
Fitmore (Zimmer Biomet)	Allofit (Zimmer Biomet)	15,308	166	62 (56-69)	46/54	2.0 [1	[1.8; 2.3] (11,847)	2.4 [2.2; 2.7] (8,715)	2.6 [2.4; 2.9] (5,813)	2.8 [2.5; 3.1] (3,445)	2.9 [2.6; 3.3] (1,464)	3.1 [2.7; 3.6] (316)
Fitmore (Zimmer Biomet)	Allofit IT (Zimmer Biomet)	1,898	53	57 (51-64)	46/54	2.8 [2	[2.1; 3.7] (1,458)	3.7 [2.9; 4.7] (1,086)	4.2 [3.3; 5.3] (768)	4.2 [3.3; 5.3] (442)	4.4 [3.4; 5.6] (192)	5.0 [3.6; 6.9] (63)
Fitmore (Zimmer Biomet)	Trilogy (Zimmer Biomet)	1,926	13	62 (56-67)	42/58	1.8 [	[1.3; 2.5] (1,600)	2.2 [1.6; 3.0] (1,234)	2.5 [1.8; 3.3] (879)	2.7 [2.0; 3.7] (565)	3.1 [2.3; 4.2] (299)	3.5 [2.5; 5.1] (158)
GTS (Zimmer Biomet)	Allofit (Zimmer Biomet)	669	17	65 (57-71)	45/55	2.3 [	3 [1.4; 3.8] <sub>(547)</sub>	2.7 [1.7; 4.4] (392)	3.1 [1.9; 5.0] (197)	3.1 [1.9; 5.0] (110)		
GTS (Zimmer Biomet)	G7 (Zimmer Biomet)	358	10	66 (58-75)	35/65	4.4 [	4 [2.6; 7.1] <sub>(278)</sub>	5.5 [3.5; 8.7] (215)	5.5 [3.5; 8.7] (131)	6.4 [4.0; 10.2] <sub>(94)</sub>		
Konusprothese (Zimmer Biomet)	Allofit (Zimmer Biomet)	443	72	53 (45-61)	19/81	2.6 [	6 [1.5; 4.7] <sub>(355)</sub>	2.9 [1.6; 5.0] (270)	3.3 [1.9; 5.8] (202)	3.3 [1.9; 5.8] (141)	3.3 [1.9; 5.8] (68)	

Elective total hip arthroplasties								Revision proba	abilities after		
Femoral stem	Cup	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Uncemented fixation											
Konusprothese (Zimmer Biomet)	Allofit IT (Zimmer Biomet)	342	14	69 (58-76)	11/89	2.4 [1.2; 4.7] (313)	3.1 [1.7; 5.6] (272)	3.8 [2.2; 6.7] (232)	4.4 [2.5; 7.5] (172)	4.4 [2.5; 7.5] (126)	4.4 [2.5; 7.5] <sub>(72)</sub>
LCU (Waldemar Link)	Allofit (Zimmer Biomet)	492	5	68 (61-76)	50/50	1.7 [0.8; 3.4] (379)	1.7 [0.8; 3.4] (265)	2.7 [1.4; 5.3] (143)			
LCU (Waldemar Link)	CombiCup PF (Waldemar Link)	1,046	19	69 (62-75)	44/56	2.3 [1.5; 3.4] (829)	2.7 [1.8; 3.9] (525)	2.9 [2.0; 4.2] (293)	2.9 [2.0; 4.2] <sub>(63)</sub>		
LCU (Waldemar Link)	CombiCup SC (Waldemar Link)	413	7	62 (54-68)	48/52	2.5 [1.4; 4.7] (353)	2.9 [1.6; 5.1] (270)	3.4 [1.9; 6.0] (175)	3.4 [1.9; 6.0] (80)		
M/L Taper (Zimmer Biomet)	Allofit (Zimmer Biomet)	3,990	22	69 (62-75)	42/58	2.9 [2.4; 3.5] (3,225	3.4 [2.8; 4.0] (2,586)	3.6 [3.1; 4.3] (1,722)	4.0 [3.4; 4.8] (896)	4.2 [3.5; 5.0] <sub>(379)</sub>	4.2 [3.5; 5.0] <sub>(96)</sub>
M/L Taper (Zimmer Biomet)	Trilogy (Zimmer Biomet)	489	3	69 (63-72)	32/68	1.0 [0.4; 2.5] (452)	1.5 [0.7; 3.1] (418)	1.5 [0.7; 3.1] (381)	1.5 [0.7; 3.1] (299)	1.9 [0.9; 3.8] (197)	1.9 [0.9; 3.8] (114)
METABLOC (Zimmer Biomet)	Allofit (Zimmer Biomet)	498	13	73 (66-78)	39/61	2.1 [1.1; 3.8] (458)	2.3 [1.3; 4.1] (390)	2.5 [1.4; 4.4] (335)	3.2 [1.9; 5.4] (236)	3.2 [1.9; 5.4] <sub>(132)</sub>	3.2 [1.9; 5.4] (66)
Metafix (Corin)	Trinity Hole (Corin)	484	10	74 (66-79)	35/65	1.6 [0.7; 3.2] (391)	1.6 [0.7; 3.2] (287)	1.9 [1.0; 3.9] (208)	1.9 [1.0; 3.9] (112)		
Metafix (Corin)	Trinity no Hole (Corin)	812	7	71 (64-76)	46/54	1.5 [0.8; 2.6] (730)	2.1 [1.3; 3.4] (557)	2.3 [1.4; 3.7] (443)	2.5 [1.6; 4.1] (295)	2.9 [1.8; 4.6] (138)	
METHA (Aesculap)	PLASMACUP SC (Aesculap)	793	22	59 (53-64)	44/56	1.7 [1.0; 2.9] (688)	2.6 [1.7; 4.0] (574)	2.6 [1.7; 4.0] (431)	2.9 [1.8; 4.5] (310)	2.9 [1.8; 4.5] (196)	2.9 [1.8; 4.5] (103)
METHA (Aesculap)	PLASMAFIT PLUS (Aesculap)	3,303	90	57 <sub>(52-63)</sub>	48/52	3.0 [2.5; 3.7] (2,745	3.7 [3.0; 4.4] (2,116)	4.0 [3.3; 4.7] (1,462)	4.2 [3.5; 5.0] <sub>(879)</sub>	4.2 [3.5; 5.0] (461)	4.2 [3.5; 5.0] (122)
METHA (Aesculap)	PLASMAFIT POLY (Aesculap)	1,143	57	56 (51-61)	50/50	2.7 [1.9; 3.9] (835)	3.4 [2.4; 4.8] <sub>(534)</sub>	3.4 [2.4; 4.8] (302)	3.4 [2.4; 4.8] (158)	3.4 [2.4; 4.8] <sub>(57)</sub>	
MiniHip (Corin)	Trinity Hole (Corin)	939	31	61 (54-67)	50/50	2.4 [1.6; 3.6] (789)	2.7 [1.8; 4.0] (638)	2.9 [1.9; 4.3] (468)	3.2 [2.1; 4.8] (278)	3.2 [2.1; 4.8] (113)	
MiniHip (Corin)	Trinity no Hole (Corin)	720	19	60 (54-66)	44/56	3.7 [2.5; 5.4] (610)	4.7 [3.3; 6.6] (464)	5.0 [3.5; 7.0] (279)	5.0 [3.5; 7.0] (151)		
Nanos Schenkelhalsprothese (OHST / Smith & Nephew)	Allofit (Zimmer Biomet)	757	16	62 (56-69)	49/51	2.2 [1.3; 3.5] (670)	2.3 [1.4; 3.7] (573)	2.5 [1.6; 4.0] (457)	2.5 [1.6; 4.0] (300)	2.5 [1.6; 4.0] (114)	
Nanos Schenkelhalsprothese (OHST / Smith & Nephew)	EP-FIT PLUS (Smith & Nephew)	322	26	57 (52-61)	56/44	3.2 [1.7; 5.8] (294)	3.2 [1.7; 5.8] (259)	3.2 [1.7; 5.8] (221)	3.8 [2.1; 6.8] (152)	3.8 [2.1; 6.8] (67)	
Nanos Schenkelhalsprothese (OHST / Smith & Nephew)	HI Lubricer Schale (Smith & Nephew)	451	12	60 (54-68)	49/51	1.1 [0.5; 2.7] (420)	2.1 [1.1; 4.0] (371)	4.0 [2.4; 6.5] (267)	5.2 [3.2; 8.2] (177)		
Nanos Schenkelhalsprothese (OHST / Smith & Nephew)	R3 (Smith & Nephew)	1,001	57	58 (52-64)	48/52	3.1 [2.2; 4.5] (741)	3.3 [2.3; 4.6] (523)	3.6 [2.5; 5.0] (322)	3.6 [2.5; 5.0] (159)		
Nanos Schenkelhalsprothese (OHST / Smith & Nephew)	REFLECTION (Smith & Nephew)	325	4	66 (58-74)	38/62	1.6 [0.7; 3.7] (276)	1.6 [0.7; 3.7] (247)	1.6 [0.7; 3.7] (159)	1.6 [0.7; 3.7] <sub>(128)</sub>		
optimys (Mathys)	Allofit (Zimmer Biomet)	2,352	22	64 (57-70)	47/53	2.0 [1.5; 2.6] (1.815	2.0 [1.5; 2.6] (1,368)	2.1 [1.6; 2.9] (894)	2.1 [1.6; 2.9] (475)	2.1 [1.6; 2.9] (163)	
optimys (Mathys)	aneXys Flex (Mathys)	1,429	41	60 (55-66)	47/53	1.8 [1.2; 2.7] (929)	2.2 [1.5; 3.2] (507)	2.2 [1.5; 3.2] (266)			
optimys (Mathys)	RM Pressfit (Mathys)	546	7	72 (63-78)	42/58	2.6 [1.6; 4.4] (464)	2.8 [1.7; 4.6] (316)	2.8 [1.7; 4.6] (196)	4.0 [2.3; 6.8] (85)		
optimys (Mathys)	RM Pressfit vitamys (Mathys)	7,962	62	65 <sub>(58–73)</sub>	44/56	1.7 [1.4; 2.0] (5,75)	1.8 [1.6; 2.2] (3,855)	1.9 [1.6; 2.3] (2,278)	1.9 [1.6; 2.3] (1,044)	2.4 [1.8; 3.2] (279)	2.4 [1.8; 3.2] (66)
Polarschaft (Smith & Nephew)	EP-FIT PLUS (Smith & Nephew)	1,100	31	68 (61-75)	47/53	2.3 [1.6; 3.4] (953)	2.5 [1.7; 3.6] (824)	2.5 [1.7; 3.6] (583)	2.5 [1.7; 3.6] (280)		

Elective total hip arthroplasties								Revision prob	abilities after		
Femoral stem	Cup	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Uncemented fixation											
Polarschaft (Smith & Nephew)	HI Lubricer Schale (Smith & Nephew)	2,203	13	70 (63-77)	33/67	2.4 [1.8; 3.1]	2.9 [2.2; 3.7] (1,376)	2.9 [2.2; 3.7] (921)	3.1 [2.4; 4.1] (504)	3.4 [2.5; 4.4] (196)	3.4 [2.5; 4.4] (72)
Polarschaft (Smith & Nephew)	R3 (Smith & Nephew)	5,673	69	69 (61-76)	43/57	2.8 [2.4; 3.3]	3.1 [2.7; 3.6] (2,923)	3.4 [2.9; 3.9] (1,705)	3.7 [3.1; 4.3] (743)	3.7 [3.1; 4.3] (216)	
PROFEMUR® GLADIATOR CLASSIC (MicroPort)	PROCOTYL® L BEADED (MicroPort)	327	12	69 (64-75)	39/61	3.6 [2.0; 6.5	4.5 [2.6; 7.7] (146)	4.5 [2.6; 7.7] <sub>(91)</sub>	4.5 [2.6; 7.7] <sub>(56)</sub>		
Proxy PLUS Schaft (Smith & Nephew)	EP-FIT PLUS (Smith & Nephew)	341	13	70 (62-75)	46/54	3.8 [2.2; 6.5	4.8 [3.0; 7.7] (288)	5.1 [3.2; 8.1] (243)	5.6 [3.5; 8.7] (171)	5.6 [3.5; 8.7] (82)	
Pyramid (Atesos)	Pyramid (Atesos)	2,360	22	71 (64-77)	37/63	2.9 [2.3; 3.6]	3.3 [2.6; 4.1] <sub>(1,569)</sub>	3.6 [2.9; 4.5] (1,111)	3.8 [3.0; 4.7] (615)	3.8 [3.0; 4.7] (184)	
QUADRA (Medacta)	VERSAFITCUP CC TRIO (Medacta)	5,833	45	68 (61-75)	40/60	2.4 [2.0; 2.8]	2.9 [2.4; 3.4] (3,156)	3.2 [2.7; 3.7] (1,673)	3.4 [2.8; 4.0] (608)	4.4 [3.1; 6.3] (74)	
SL-PLUS Schaft (Smith & Nephew)	Allofit (Zimmer Biomet)	571	11	64 (57-71)	36/64	3.7 [2.4; 5.6	4.6 [3.2; 6.8] (497)	5.0 [3.5; 7.2] (471)	5.2 [3.7; 7.5] (411)	6.0 [4.3; 8.4] (355)	6.0 [4.3; 8.4] (258)
SL-PLUS Schaft (Smith & Nephew)	BICON-PLUS (Smith & Nephew)	1,179	26	72 (65-77)	37/63	2.4 [1.7; 3.5]	3.6 [2.6; 4.9] (850)	4.6 [3.5; 6.1] (697)	6.0 [4.6; 7.8] (506)	6.3 [4.9; 8.3] (303)	7.2 [5.2; 10.0] (72)
SL-PLUS Schaft (Smith & Nephew)	EP-FIT PLUS (Smith & Nephew)	362	12	66 (62-72)	43/57	2.8 [1.5; 5.2	3.2 [1.8; 5.6] (276)	3.2 [1.8; 5.6] (237)	3.6 [2.0; 6.2] <sub>(179)</sub>	3.6 [2.0; 6.2] <sub>(83)</sub>	
SL-PLUS Schaft (Smith & Nephew)	R3 (Smith & Nephew)	1,561	22	69 (63-76)	34/66	3.7 [2.8; 4.7]	4.4 [3.5; 5.6] (943)	4.9 [3.9; 6.2] (616)	4.9 [3.9; 6.2] (323)	5.6 [4.3; 7.4] (113)	
SL MIA Schaft (Smith & Nephew)	Allofit (Zimmer Biomet)	1,243	14	70 (61-77)	31/69	2.5 [1.8; 3.6	3.2 [2.3; 4.5] (468)	3.2 [2.3; 4.5] (281)	3.8 [2.5; 5.7] <sub>(104)</sub>		
SL MIA Schaft (Smith & Nephew)	BICON-PLUS (Smith & Nephew)	697	16	71 (64-77)	35/65	1.7 [1.0; 3.1	2.4 [1.5; 3.9] (583)	2.9 [1.9; 4.5] (520)	3.5 [2.3; 5.3] (433)	3.8 [2.5; 5.6] (314)	4.4 [3.0; 6.6] (156)
SL MIA Schaft (Smith & Nephew)	EP-FIT PLUS (Smith & Nephew)	592	10	73 (64-78)	39/61	2.7 [1.7; 4.4	3.7 [2.4; 5.6] (484)	3.9 [2.6; 5.8] (404)	3.9 [2.6; 5.8] (258)	3.9 [2.6; 5.8] (104)	
SL MIA Schaft (Smith & Nephew)	R3 (Smith & Nephew)	1,336	23	69 (61-76)	39/61	2.9 [2.1; 3.9]	3.2 [2.4; 4.4] (698)	3.4 [2.5; 4.6] (348)	3.4 [2.5; 4.6] <sub>(95)</sub>		
SP-CL (Waldemar Link)	Allofit (Zimmer Biomet)	1,397	13	64 (57-69)	39/61	3.5 [2.6; 4.6]	4.2 [3.2; 5.4] (795)	4.7 [3.6; 6.1] <sub>(502)</sub>	4.7 [3.6; 6.1] (190)		
SP-CL (Waldemar Link)	CombiCup PF (Waldemar Link)	611	22	66 (58-72)	39/61	3.6 [2.4; 5.4	4.0 [2.7; 5.9] (427)	4.5 [3.1; 6.6] (293)	4.5 [3.1; 6.6] (138)		
Taperloc (Zimmer Biomet)	Allofit (Zimmer Biomet)	937	19	67 (60-74)	42/58	2.6 [1.8; 3.9	3.0 [2.0; 4.4] (329)	3.3 [2.2; 4.9] (161)			
Taperloc (Zimmer Biomet)	G7 (Zimmer Biomet)	1,664	8	70 (62-76)	35/65	2.3 [1.7; 3.2]	3.0 [2.3; 4.0] (1,189)	3.8 [2.9; 4.9] (775)	3.9 [3.0; 5.1] (311)		
TAPERLOC COMPLETE (Zimmer Biomet)	Allofit (Zimmer Biomet)	442	15	64 (57-71)	50/50	2.1 [1.1; 4.0	2.8 [1.4; 5.6] (65)				
TAPERLOC COMPLETE (Zimmer Biomet)	G7 (Zimmer Biomet)	557	7	67 (60-75)	39/61	3.5 [2.2; 5.6	3.8 [2.4; 6.0] (62)				
TRENDHIP L (Aesculap)	PLASMAFIT PLUS (Aesculap)	343	28	69 (60-76)	58/42	1.8 [0.8; 4.0	2.3 [1.1; 4.9] (194)	2.3 [1.1; 4.9] (121)	2.3 [1.1; 4.9] (61)		
TRENDHIP L (Aesculap)	PLASMAFIT POLY (Aesculap)	949	23	69 (62-76)	58/42	2.5 [1.6; 3.7	2.6 [1.8; 3.9] (545)	2.6 [1.8; 3.9] (282)	2.6 [1.8; 3.9] (171)	2.6 [1.8; 3.9] (74)	
TRENDHIP S (Aesculap)	PLASMAFIT PLUS (Aesculap)	827	31	69 (61-77)	34/66	3.1 [2.1; 4.6	3.6 [2.5; 5.3] (410)	3.6 [2.5; 5.3] <sub>(256)</sub>	3.6 [2.5; 5.3] <sub>(132)</sub>		
TRENDHIP S (Aesculap)	PLASMAFIT POLY (Aesculap)	1,891	24	69 (62-76)	32/68	2.4 [1.8; 3.2]	2.7 [2.0; 3.5] (979)	2.7 [2.0; 3.5] (461)	3.0 [2.1; 4.1] (252)	3.0 [2.1; 4.1] (114)	

Elective total hip arthroplasties						Revision probabilities after						
Femoral stem	Cup	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years	
Uncemented fixation												
TRILOCK®-Hüftschaft (DePuy)	PINNACLE™ Press Fit-Hüftpfanne (DePuy)	2,577	43	60 (54-66)	48/52	1.9 [1.5; 2.6] (2,042)	2.5 [2.0; 3.3] (1,457)	2.9 [2.2; 3.7] (1,039)	3.2 [2.5; 4.1] (648)	3.2 [2.5; 4.1] <sub>(301)</sub>	3.2 [2.5; 4.1] (78)	
twinSys uncem. (Mathys)	aneXys Flex (Mathys)	694	22	70 (65-76)	44/56	3.9 [2.6; 5.6] (460)	4.1 [2.8; 5.9] (235)	4.1 [2.8; 5.9] (101)				
twinSys uncem. (Mathys)	RM Classic full profile (Mathys)	364	3	76 <sub>(71–80)</sub>	30/70	0.9 [0.3; 2.9] (229)	0.9 [0.3; 2.9] (130)	2.3 [0.7; 8.1] (68)				
twinSys uncem. (Mathys)	RM Pressfit (Mathys)	444	9	74 (69-79)	41/59	2.3 [1.2; 4.1] (414)	3.0 [1.8; 5.1] (342)	3.3 [2.0; 5.5] (292)	3.6 [2.2; 6.0] (208)	3.6 [2.2; 6.0] (113)		
twinSys uncem. (Mathys)	RM Pressfit vitamys (Mathys)	1,831	27	72 (64-78)	37/63	2.1 [1.5; 2.9] (1,361)	2.3 [1.7; 3.1] (955)	2.5 [1.9; 3.5] (567)	2.8 [2.0; 3.8] (269)	2.8 [2.0; 3.8] (136)		
Cemented fixation												
Avenir (Zimmer Biomet)	Flachprofil (Zimmer Biomet)	509	47	81 (77-84)	21/79	3.6 [2.3; 5.8] (329)	3.6 [2.3; 5.8] (205)	3.6 [2.3; 5.8] (110)	3.6 [2.3; 5.8] <sub>(51)</sub>			
BICONTACT H (Aesculap)	ALL POLY CUP STANDARD (Aesculap)	330	23	81 (78-84)	32/68	1.9 [0.8; 4.1] (284)	1.9 [0.8; 4.1] (216)	2.3 [1.1; 4.9] (145)	2.3 [1.1; 4.9] (82)			
BICONTACT S (Aesculap)	ALL POLY CUP STANDARD (Aesculap)	993	53	80 (77-84)	20/80	2.6 [1.7; 3.8] (847)	2.6 [1.7; 3.8] (706)	2.9 [2.0; 4.1] (545)	3.0 [2.1; 4.4] (365)	3.0 [2.1; 4.4] (201)	3.0 [2.1; 4.4] (81)	
CORAIL™ AMT-Hüftschaft (DePuy)	TRILOC® II-PE-Hüftpfanne (DePuy)	718	65	80 (76-84)	19/81	2.6 [1.6; 4.1] (591)	2.8 [1.8; 4.3] (469)	3.0 [1.9; 4.6] (333)	3.3 [2.1; 5.1] (200)	4.0 [2.4; 6.4] (56)		
CS PLUS Schaft (Smith & Nephew)	Hüftpfanne Müller II (OHST Medizintechnik)	485	20	79 (77-82)	26/74	1.0 [0.4; 2.5] (454)	1.7 [0.9; 3.4] (418)	2.3 [1.2; 4.2] (328)	2.3 [1.2; 4.2] (205)	2.3 [1.2; 4.2] (66)		
EXCIA (Aesculap)	ALL POLY CUP STANDARD (Aesculap)	315	20	78 <sub>(75–82)</sub>	29/71	1.0 [0.3; 3.0] (266)	1.7 [0.7; 4.1] (231)	2.2 [1.0; 4.9] (184)	2.2 [1.0; 4.9] (142)	2.2 [1.0; 4.9] (71)		
EXCIA T (Aesculap)	ALL POLY CUP STANDARD (Aesculap)	345	33	79 (75-83)	23/77	1.5 [0.6; 3.5] (256)	1.5 [0.6; 3.5] (178)	1.5 [0.6; 3.5] (103)	1.5 [0.6; 3.5] (52)			
M.E.M. Geradschaft (Zimmer Biomet)	Flachprofil (Zimmer Biomet)	3,689	119	80 (77-83)	24/76	2.3 [1.9; 2.9] (2,969)	2.8 [2.3; 3.4] (2,263)	2.9 [2.4; 3.6] (1,575)	3.2 [2.6; 3.9] (991)	3.3 [2.7; 4.0] (472)	3.3 [2.7; 4.0] (142)	
METABLOC (Zimmer Biomet)	Flachprofil (Zimmer Biomet)	402	16	79 (76-83)	26/74	2.6 [1.4; 4.8] (328)	2.9 [1.6; 5.2] (256)	3.4 [1.9; 6.0] (171)	3.4 [1.9; 6.0] (89)			
MS-30 (Zimmer Biomet)	Flachprofil (Zimmer Biomet)	464	25	79 (75-82)	23/77	1.5 [0.7; 3.2] (414)	1.8 [0.9; 3.6] (313)	2.2 [1.1; 4.3] (213)	2.2 [1.1; 4.3] (147)	2.2 [1.1; 4.3] (70)		
Polarschaft (Smith & Nephew)	Hüftpfanne Müller II (OHST Medizintechnik)	551	29	80 (76-83)	24/76	3.5 [2.3; 5.5] (442)	4.0 [2.6; 6.1] (327)	4.0 [2.6; 6.1] (202)	4.0 [2.6; 6.1] (85)			
SPII® Modell Lubinus (Waldemar Link)	Endo-Modell Mark III (Waldemar Link)	457	6	77 (73-81)	19/81	1.8 [0.9; 3.6] (416)	2.5 [1.4; 4.5] (379)	2.5 [1.4; 4.5] (334)	2.8 [1.6; 5.0] (286)	2.8 [1.6; 5.0] (233)	2.8 [1.6; 5.0] (169)	
SPII® Modell Lubinus (Waldemar Link)	IP-Hüftpfannen, UHMWPE (Waldemar Link)	369	15	80 (77-83)	26/74	1.7 [0.7; 3.6] (318)	2.3 [1.2; 4.7] (252)	2.8 [1.4; 5.4] (184)	2.8 [1.4; 5.4] (142)	2.8 [1.4; 5.4] (57)		
SPII® Modell Lubinus (Waldemar Link)	IP-Hüftpfannen, X-Linked (Waldemar Link)	735	20	81 (78-84)	25/75	2.7 [1.7; 4.2] (627)	3.0 [2.0; 4.5] (480)	3.5 [2.3; 5.2] <sub>(348)</sub>	4.8 [3.1; 7.2] (211)	4.8 [3.1; 7.2] <sub>(80)</sub>		
SPII® Modell Lubinus (Waldemar Link)	Kunststoffpfanne Modell Lubinus (Waldemar Link)	720	18	79 (75-83)	24/76	1.0 [0.5; 2.2] (577)	1.4 [0.7; 2.7] (441)	1.4 [0.7; 2.7] (329)	1.9 [0.9; 3.7] (184)	2.7 [1.2; 5.8] (94)		

Total knee arthroplasties								Revision proba	abilities after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Constrained total knee systems, hinged, fix	ed bearing, cemented										
Endo-Modell® - M, Rotationsversion (Waldemar Link)	Endo-Modell® - M, Rotationsversion (Waldemar Link)	840	102	76 (68-82)	24/76	5.8 [4.4; 7.6] (601)	7.4 [5.7; 9.5] (403)	7.4 [5.7; 9.5] (241)	8.3 [6.0; 11.2] (103)		
Endo-Modell®, Rotationsversion (Waldemar Link)	Endo-Modell®, Rotationsversion (Waldemar Link)	997	123	77 (69-82)	20/80	3.4 [2.5; 4.8] (784)	4.4 [3.2; 6.0] <sub>(551)</sub>	5.0 [3.7; 6.7] (371)	5.0 [3.7; 6.7] (211)	5.0 [3.7; 6.7] (99)	
ENDURO (Aesculap)	ENDURO (Aesculap)	1,448	140	75 (67-80)	22/78	3.9 [3.0; 5.0] (1,087)	5.1 [4.0; 6.5] (793)	5.9 [4.7; 7.5] <sub>(522)</sub>	6.4 [5.0; 8.1] (313)	6.4 [5.0; 8.1] (135)	
NexGen RHK (Zimmer Biomet)	NexGen RHK (Zimmer Biomet)	926	118	<b>75</b> <sub>(67–81)</sub>	23/77	2.9 [2.0; 4.3] (731)	4.2 [3.0; 5.9] (518)	4.7 [3.4; 6.6] <sub>(319)</sub>	5.2 [3.6; 7.3] (177)	6.1 [4.0; 9.2] <sub>(89)</sub>	
RT-Plus (Smith & Nephew)	RT-Plus (Smith & Nephew)	1,723	121	77 (70-81)	20/80	3.9 [3.1; 5.0] (1,357)	4.9 [3.9; 6.1] (1,006)	5.5 [4.4; 6.8] (697)	5.8 [4.7; 7.2] (392)	6.0 [4.8; 7.5] (140)	
RT-Plus Modular (Smith & Nephew)	RT-Plus Modular (Smith & Nephew)	487	95	75 (65-80)	28/72	4.9 [3.3; 7.4] (381)	6.3 [4.4; 9.0] (290)	7.4 [5.2; 10.4] (211)	7.4 [5.2; 10.4] (106)		
Constrained total knee systems, varus-valg	gus-stabilised, fixed bearing, cemented										
LEGION PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	406	42	72 (64-78)	28/72	3.1 [1.8; 5.4] (267)	4.4 [2.6; 7.3] (113)				
LEGION Revision COCR (Smith & Nephew)	LEGION Revision (Smith & Nephew)	403	53	70 (64–78)	26/74	5.0 [3.2; 7.7] (320)	5.6 [3.7; 8.5] <sub>(237)</sub>	5.6 [3.7; 8.5] <sub>(157)</sub>	5.6 [3.7; 8.5] (63)		
NexGen LCCK (Zimmer Biomet)	NexGen (Zimmer Biomet)	1,306	95	72 (63-79)	31/69	2.6 [1.8; 3.6] (1,032)	2.8 [2.0; 3.9] (787)	3.1 [2.2; 4.3] (553)	3.1 [2.2; 4.3] (314)	3.1 [2.2; 4.3] (114)	
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	548	22	71.5 (63-77)	32/68	2.6 [1.5; 4.4] (412)	4.5 [2.9; 6.9] (278)	5.2 [3.4; 8.0] (180)	6.4 [4.2; 9.7] (106)		
Standard total knee systems, cruciate-reta	ining, fixed bearing, hybrid										
COLUMBUS CR zf (Aesculap)	COLUMBUS CR/PS (Aesculap)	485	5	69 (62-76)	38/62	4.7 [3.1; 7.1] (397)	5.2 [3.5; 7.7] (331)	5.8 [4.0; 8.4] (247)	5.8 [4.0; 8.4] (138)		
EFK Femur zementfrei (OHST Medizintechnik)	EFK Tibia zementiert (OHST Medizintechnik)	1,154	13	70 (63-76)	42/58	1.3 [0.7; 2.1] (1,037)	1.6 [1.0; 2.6] (935)	2.0 [1.3; 3.0] (836)	2.1 [1.4; 3.2] (638)	3.0 [2.0; 4.5] (307)	
GENESIS II CR COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	402	5	68 (62-76)	42/58	0.6 [0.1; 2.2] (352)	1.1 [0.4; 3.0] (314)	1.5 [0.6; 3.6] (255)	1.5 [0.6; 3.6] (185)	1.5 [0.6; 3.6] (126)	1.5 [0.6; 3.6] (64)
NexGen CR-Flex (Zimmer Biomet)	NexGen (Zimmer Biomet)	702	18	69 (61-75)	49/51	0.6 [0.2; 1.6] (655)	1.7 [0.9; 3.1] (529)	1.7 [0.9; 3.1] (339)	1.7 [0.9; 3.1] (168)	2.4 [1.2; 4.6] (80)	
NexGen CR (Zimmer Biomet)	NexGen (Zimmer Biomet)	491	6	69 (62-75)	48/52	0.6 [0.2; 1.9] (456)	1.1 [0.4; 2.6] (413)	1.1 [0.4; 2.6] (363)	1.1 [0.4; 2.6] (223)	1.1 [0.4; 2.6] (89)	
TC-PLUS CR (Smith & Nephew)	TC-PLUS (Smith & Nephew)	407	12	71 (63–77)	38/62	2.8 [1.6; 5.1] (315)	3.5 [2.0; 6.0] (255)	3.5 [2.0; 6.0] (131)	3.5 [2.0; 6.0] <sub>(50)</sub>		
Triathlon CR (Stryker)	Triathlon (Stryker)	349	14	69 (63-75)	37/63	0.9 [0.3; 2.8] (297)	1.6 [0.7; 3.8] (220)	1.6 [0.7; 3.8] (155)	2.5 [1.0; 6.1] (67)		
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	691	8	68 (60-74)	43/57	2.0 [1.2; 3.5] (523)	3.1 [1.9; 4.8] (376)	3.3 [2.1; 5.2] (236)	3.9 [2.4; 6.4] <sub>(125)</sub>		
Standard total knee systems, cruciate-reta	ining, fixed bearing, cemented										
ACS cemented (Implantcast)	ACS FB cemented (Implantcast)	692	43	66 (59-74)	22/78	3.0 [1.9; 4.6] (523)	4.6 [3.2; 6.7] (353)	6.3 [4.4; 8.9] (199)	6.8 [4.7; 9.6] (85)		
ACS LD cemented (Implantcast)	ACS LD FB cemented (Implantcast)	331	9	70 (63-76)	48/52	3.0 [1.6; 5.8] (239)	4.3 [2.5; 7.6] (156)	4.3 [2.5; 7.6] <sub>(77)</sub>			

Table 41: Implant outcomes for femoral-tibial combinations in knee arthroplasties. Within the groups comprising type of arthroplasty, type of fixation, knee system, and degree of constraint, the combinations are listed alphabetically by the femoral component. The table is continued on the following pages.

Total knee arthroplasties								Revision proba	abilities after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Standard total knee systems, cruciate-retain	ining, fixed bearing, cemented										
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	5,802	94	67 (60-75)	38/62	1.6 [1.3; 2.0] (4,408)	2.6 [2.2; 3.1] (3,073)	3.1 [2.6; 3.7] (1,982)	3.2 [2.7; 3.8] (1,064)	3.6 [2.9; 4.4] (483)	3.6 [2.9; 4.4] (153)
balanSys BICONDYLAR cem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	1,846	19	72 (64-78)	35/65	2.0 [1.4; 2.7] (1,414)	2.4 [1.7; 3.2] <sub>(995)</sub>	3.0 [2.2; 4.1] (642)	3.2 [2.4; 4.4] (286)	4.2 [2.8; 6.2] (78)	
COLUMBUS CR (Aesculap)	COLUMBUS CR/PS (Aesculap)	10,740	130	71 (62-77)	33/67	1.3 [1.1; 1.5] (8,460)	2.2 [1.9; 2.5] (6,040)	2.6 [2.2; 3.0] (3,966)	2.9 [2.5; 3.4] (2,237)	3.1 [2.7; 3.6] (949)	3.4 [2.8; 4.1] (295)
COLUMBUS CR (Aesculap)	COLUMBUS CRA/PSA (Aesculap)	2,407	35	69 (62-77)	36/64	1.1 [0.7; 1.6] (1,887)	1.9 [1.3; 2.6] (1,289)	2.3 [1.6; 3.1] (754)	2.3 [1.6; 3.1] (343)	2.3 [1.6; 3.1] (109)	
EFK Femur zementiert (OHST Medizintechnik)	EFK Tibia zementiert (OHST Medizintechnik)	2,904	39	72 (64-77)	38/62	1.3 [0.9; 1.8] (2,703)	1.8 [1.4; 2.4] (2,480)	2.0 [1.5; 2.5] (2,239)	2.3 [1.7; 2.9] (1,519)	2.6 [2.0; 3.4] (544)	3.1 [2.3; 4.2] (55)
EFK Femur zementiert TiNbN (OHST Medizintechnik)	EFK Tibia zementiert TiNbN (OHST Medizintechnik)	424	44	66 (58-74)	6/94	1.9 [1.0; 3.8] (380)	2.7 [1.5; 4.9] (337)	3.6 [2.2; 6.1] (304)	4.0 [2.4; 6.5] (254)	4.9 [2.8; 8.5] <sub>(93)</sub>	
GEMINI SL Fixed Bearing CR / Mobile Bearing (zementiert) (Waldemar Link)	GEMINI SL Fixed Bearing CR/ PS (zementiert) (Waldemar Link)	462	27	72 (63-77)	29/71	2.1 [1.1; 4.0] (372)	3.8 [2.3; 6.2] (236)	5.1 [3.2; 8.2] (134)	5.1 [3.2; 8.2] (64)		
GENESIS II CR COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	7,254	85	70 (62-76)	34/66	1.8 [1.5; 2.1] (5,724)	2.6 [2.2; 3.0] (4,148)	3.1 [2.6; 3.5] (2,944)	3.5 [3.0; 4.0] (1,817)	3.5 [3.0; 4.1] (825)	3.5 [3.0; 4.1] (202)
GENESIS II CR OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	2,073	105	65 (58-73)	19/81	1.5 [1.0; 2.1] (1,745)	2.8 [2.1; 3.7] (1,384)	3.2 [2.4; 4.1] (985)	3.3 [2.6; 4.3] (643)	3.3 [2.6; 4.3] (331)	3.3 [2.6; 4.3] (160)
GENESIS II LDK COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	1,876	16	70 (62-76)	36/64	2.3 [1.7; 3.0] (1,790)	3.1 [2.4; 4.0] (1,622)	3.8 [3.0; 4.8] (1,191)	3.9 [3.1; 5.0] (862)	4.4 [3.5; 5.6] <sub>(378)</sub>	4.4 [3.5; 5.6] <sub>(110)</sub>
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	1,077	26	73 (65-78)	42/58	2.1 [1.4; 3.3] (876)	2.5 [1.7; 3.7] (699)	2.5 [1.7; 3.7] (498)	2.9 [2.0; 4.3] (285)	2.9 [2.0; 4.3] (139)	
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	312	17	72 (65-78)	17/83	1.6 [0.7; 3.9] (267)	2.4 [1.2; 5.0] (217)	3.4 [1.8; 6.6] (150)	3.4 [1.8; 6.6] <sub>(93)</sub>	3.4 [1.8; 6.6] <sub>(53)</sub>	
JOURNEY II CR OXINIUM (Smith & Nephew)	JOURNEY (Smith & Nephew)	828	23	64 (58-72)	36/64	2.9 [2.0; 4.4] (687)	4.1 [2.9; 5.8] (504)	5.7 [4.1; 7.9] (231)	6.3 [4.4; 8.9] (82)		
LEGION CR COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	7,288	101	71 (63-77)	37/63	1.6 [1.3; 1.9] (5,235)	2.5 [2.1; 3.0] (3,047)	2.9 [2.4; 3.4] (1,331)	3.2 [2.7; 3.9] (467)	3.2 [2.7; 3.9] (51)	
LEGION CR OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	1,781	114	65 (58-72)	14/86	1.8 [1.3; 2.6] (1,219)	3.2 [2.4; 4.4] (739)	4.2 [3.1; 5.7] (347)	4.5 [3.3; 6.1] (95)		
LEGION PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	324	27	71 (63–77)	29/71	1.8 [0.7; 4.7] (189)	2.4 [1.0; 5.6] (92)				
Natural Knee NK Flex (Zimmer Biomet)	Natural Knee NK II (Zimmer Biomet)	390	10	72 (63-78)	33/67	1.0 [0.4; 2.7] (365)	1.9 [0.9; 3.9] (313)	2.2 [1.1; 4.4] (210)	2.2 [1.1; 4.4] (120)	3.1 [1.5; 6.4] (74)	
NexGen CR-Flex-Gender (Zimmer Biomet)	NexGen (Zimmer Biomet)	3,816	95	70 (62-77)	10/90	0.8 [0.6; 1.1] (3,229)	1.6 [1.2; 2.1] (2,486)	1.9 [1.5; 2.4] (1,690)	2.0 [1.6; 2.6] (1,057)	2.4 [1.8; 3.2] (515)	2.4 [1.8; 3.2] (211)
NexGen CR-Flex (Zimmer Biomet)	NexGen (Zimmer Biomet)	14,545	115	72 (64-77)	40/60	1.3 [1.1; 1.5] (11,794)	1.8 [1.6; 2.1] (8,926)	2.0 [1.8; 2.3] (5,992)	2.2 [1.9; 2.5] (3,603)	2.3 [2.0; 2.7] (1,752)	2.4 [2.1; 2.8] (573)
NexGen CR (Zimmer Biomet)	NexGen (Zimmer Biomet)	3,202	50	70 (63-76)	43/57	1.2 [0.9; 1.7] (2,757)	1.9 [1.5; 2.5] (2,332)	2.4 [1.9; 3.1] (1,702)	3.2 [2.5; 4.0] (1,161)	3.3 [2.6; 4.1] (643)	3.8 [2.9; 4.9] <sub>(179)</sub>
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	3,112	67	69 (61-76)	38/62	1.0 [0.7; 1.5] (2,133)	1.4 [1.0; 2.0] (1,229)	1.6 [1.1; 2.2] (710)	1.8 [1.2; 2.7] (318)	1.8 [1.2; 2.7] (94)	
Scorpio NRG CR (Stryker)	Scorpio (Stryker)	339	8	71 (63-77)	30/70	0.9 [0.3; 2.7] (333)	1.8 [0.8; 3.9] (324)	2.8 [1.4; 5.3] (278)	2.8 [1.4; 5.3] (182)	3.5 [1.8; 6.8] (85)	
TC-PLUS CR (Smith & Nephew)	TC-PLUS (Smith & Nephew)	3,369	40	72 (64-78)	36/64	1.1 [0.8; 1.5] (2,770)	1.6 [1.2; 2.1] (1,982)	1.8 [1.4; 2.4] (1,001)	2.3 [1.6; 3.2] (425)	2.3 [1.6; 3.2] (100)	
Triathlon CR (Stryker)	Triathlon (Stryker)	8,079	76	70 (63–77)	37/63	1.5 [1.2; 1.8] (6,194)	2.4 [2.1; 2.8] (4,243)	3.0 [2.6; 3.5] (2,738)	3.4 [3.0; 4.0] (1,557)	3.5 [3.0; 4.1] (712)	3.5 [3.0; 4.1] <sub>(201)</sub>

Table 41 (continued)

Total knee arthroplasties								Revision proba	abilities after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Standard total knee systems, cruciate-reta	nining, fixed bearing, cemented										
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	9,786	86	71 (63-77)	33/67	1.9 [1.6; 2.2] (7,674)	2.8 [2.5; 3.2] (5,485)	3.3 [2.9; 3.7] (3,523)	3.6 [3.2; 4.1] (1,916)	4.0 [3.5; 4.6] (650)	4.0 [3.5; 4.6]
Standard total knee systems, cruciate-reta	nining, mobile bearing, hybrid										
TC-PLUS CR (Smith & Nephew)	TC-PLUS SB (Smith & Nephew)	368	6	69 (62-77)	34/66	2.5 [1.3; 4.7] (335)	4.3 [2.6; 7.0] <sub>(298)</sub>	4.6 [2.8; 7.4] (255)	5.2 [3.2; 8.3] (144)		
Standard total knee systems, cruciate-reta	nining, mobile bearing, cemented										
ACS cemented (Implantcast)	ACS MB cemented (Implantcast)	519	21	71 (62-77)	30/70	2.2 [1.2; 3.9] (433)	3.7 [2.3; 6.0] <sub>(330)</sub>	4.0 [2.5; 6.4] (235)	5.7 [3.6; 8.9] (136)		
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	1,417	21	70 (62-75)	36/64	1.4 [0.9; 2.2] (1,176)	2.0 [1.4; 3.0] (888)	2.8 [1.9; 3.9] (610)	3.2 [2.2; 4.6] (345)	3.2 [2.2; 4.6] <sub>(75)</sub>	
COLUMBUS CR (Aesculap)	COLUMBUS RP (Aesculap)	1,912	22	71 (64-77)	34/66	1.4 [0.9; 2.0] (1,597)	2.0 [1.5; 2.8] (1,176)	2.5 [1.8; 3.5] (802)	2.5 [1.8; 3.5] (456)	2.5 [1.8; 3.5] (183)	2.5 [1.8; 3.5]
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	1,146	61	70 (63-77)	98/2	2.0 [1.3; 3.1] (959)	3.1 [2.2; 4.3] <sub>(767)</sub>	3.5 [2.5; 4.9] (544)	3.9 [2.8; 5.4] (306)	4.3 [3.0; 6.1] (99)	
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	315	31	70 (63-76)	78/22	2.3 [1.1; 4.8] (241)	3.2 [1.7; 6.1] (188)	4.4 [2.4; 8.0] (127)	5.7 [3.0; 10.6] (60)		
NexGen CR-Flex (Zimmer Biomet)	NexGen CR (Zimmer Biomet)	556	10	71 (64-76)	42/58	0.8 [0.3; 2.0] (482)	1.4 [0.7; 3.0] (414)	2.2 [1.2; 4.1] (316)	3.2 [1.8; 5.5] (257)	3.2 [1.8; 5.5] (119)	
TC-PLUS CR (Smith & Nephew)	TC-PLUS SB (Smith & Nephew)	371	9	71 (63-78)	29/71	2.9 [1.5; 5.2] (308)	3.5 [2.0; 6.2] (255)	5.1 [3.2; 8.3] (205)	5.1 [3.2; 8.3] (107)		
Standard total knee systems, cruciate-reta	nining/sacrificing, fixed bearing, hybrid										
SIGMA® Femur (DePuy)	SIGMA® Tibia (DePuy)	751	20	68 (61-76)	41/59	1.0 [0.5; 2.0] (636)	1.3 [0.7; 2.5] (494)	1.6 [0.8; 3.0] (338)	2.0 [1.1; 3.9] (190)	<i>3.7</i> [1.8; 7.5] <sub>(72)</sub>	
Standard total knee systems, cruciate-reta	nining/sacrificing, fixed bearing, cemented										
3D (Speetec Implantate Gmbh)	3D (Speetec Implantate Gmbh)	1,523	21	71 (63-77)	35/65	2.1 [1.5; 3.0] (1,322)	2.8 [2.0; 3.8] (1,192)	3.4 [2.6; 4.6] (899)	3.8 [2.9; 5.0] (538)	4.5 [3.3; 6.0] (205)	
SIGMA® Femur (DePuy)	SIGMA® Tibia (DePuy)	21,161	127	71 (63-77)	35/65	1.4 [1.2; 1.5] (17,016)	2.2 [2.0; 2.4] (12,527)	2.6 [2.3; 2.8] (8,631)	2.9 [2.6; 3.2] (4,747)	3.1 [2.8; 3.5] (1,913)	3.2 [2.9; 3.5]
Unity CR cmtd (Corin)	Unity cmtd (Corin)	404	12	74 (66-78)	29/71	0.8 [0.3; 2.5] (360)	1.8 [0.8; 3.9] (284)	2.5 [1.2; 4.9] (204)	2.5 [1.2; 4.9] (125)	3.3 [1.6; 6.5] (58)	
Standard total knee systems, cruciate-reta	nining/sacrificing, mobile bearing, hybrid										
LCS® COMPLETE™ Femur (DePuy)	MBT Tibia (DePuy)	2,757	35	70 (62-77)	35/65	2.6 [2.0; 3.2] (2,390)	3.6 [2.9; 4.4] (1,885)	4.1 [3.4; 5.0] (1,250)	4.2 [3.5; 5.1] <sub>(677)</sub>	4.2 [3.5; 5.1] (251)	4.2 [3.5; 5.1]
Standard total knee systems, cruciate-reta	nining/sacrificing, mobile bearing, uncemented	d									
LCS® COMPLETE™ Femur (DePuy)	LCS® COMPLETE™ Tibia (DePuy)	510	70	64.5 (58-73)	6/94	2.1 [1.1; 3.8] (412)	4.2 [2.7; 6.7] (296)	5.0 [3.2; 7.7] (181)	5.5 [3.6; 8.5] (77)		
LCS® COMPLETE™ Femur (DePuy)	MBT Tibia (DePuy)	1,192	23	70 (61-76)	36/64	1.5 [0.9; 2.4] (1,031)	2.8 [2.0; 4.0] (832)	3.3 [2.4; 4.6] (586)	3.3 [2.4; 4.6] (360)	3.3 [2.4; 4.6] (149)	3.3 [2.4; 4.6]
SCORE (Amplitude)	SCORE (Amplitude)	362	4	69 (62-77)	30/70	1.5 [0.6; 3.7] (261)	2.8 [1.4; 5.6] (165)	3.7 [1.8; 7.3] <sub>(98)</sub>			
E.MOTION FP/UC (Aesculap)	E.MOTION UC/PS (Aesculap)	8,284	81	70 (62-77)	33/67	2.2 [1.9; 2.6] (6,588)	3.6 [3.2; 4.1] (4,714)	4.2 [3.8; 4.8] (2,983)	4.6 [4.0; 5.1] (1,587)	5.0 [4.4; 5.7] (625)	5.0 [4.4; 5.7]

Total knee arthroplasties									Revision proba	abilities after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f		1 year	2 years	3 years	4 years	5 years	6 years
Standard total knee systems, cruciate-reta	aining/sacrificing, mobile bearing, cemented											
LCS® COMPLETE™ Femur (DePuy)	MBT Tibia (DePuy)	4,893	59	71 (64-77)	36/64	2.1 [	[1.7; 2.6] (4,359)	3.2 [2.7; 3.8] (3,612)	3.6 [3.1; 4.2] (2,805)	3.9 [3.4; 4.6] (1,883)	4.2 [3.6; 4.9] (863)	4.2 [3.6; 4.9] (151)
SIGMA® Femur (DePuy)	MBT Tibia (DePuy)	1,749	27	72 (64-78)	36/64	2.4 [	[1.7; 3.2] (1,354)	3.1 [2.3; 4.1] (922)	3.8 [2.9; 5.0] (596)	4.0 [3.1; 5.3] (327)	4.0 [3.1; 5.3] <sub>(73)</sub>	
Standard total knee systems, cruciate-sac	rificing, fixed bearing, hybrid											
balanSys BICONDYLAR uncem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	1,006	7	70 (63-77)	44/56	2.3	3 [1.5; 3.5] (795)	3.6 [2.5; 5.1] (527)	4.2 [3.0; 5.9] (351)	5.1 [3.5; 7.3] (177)	5.1 [3.5; 7.3] <sub>(94)</sub>	
Standard total knee systems, cruciate-sac	rificing, fixed bearing, cemented											
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	1,362	65	69 (60-76)	37/63	2.5	5 [1.7; 3.6] <sub>(946)</sub>	3.8 [2.8; 5.1] (719)	4.0 [3.0; 5.5] (536)	5.6 [4.1; 7.6] (307)	5.9 [4.3; 8.1] <sub>(154)</sub>	
balanSys BICONDYLAR cem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	1,525	23	70 (62-77)	28/72	2.1 [	[1.5; 3.1] (1,084)	3.4 [2.5; 4.6] (725)	4.5 [3.3; 6.1] <sub>(398)</sub>	5.9 [4.3; 8.0] (198)	5.9 [4.3; 8.0] (106)	
COLUMBUS CR (Aesculap)	COLUMBUS CR/PS (Aesculap)	1,905	80	71 (62-77)	24/76	2.3 [	3 [1.7; 3.1] <sub>(1,485)</sub>	3.3 [2.5; 4.3] (1,093)	3.7 [2.9; 4.8] (708)	4.0 [3.1; 5.2] (374)	4.0 [3.1; 5.2] (117)	
COLUMBUS CR (Aesculap)	COLUMBUS CRA/PSA (Aesculap)	721	24	69 (61-76)	31/69	2.2	2 [1.3; 3.6] (575)	3.6 [2.4; 5.3] (440)	4.0 [2.7; 6.0] (271)	4.9 [3.3; 7.2] (143)		
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	1,304	41	72 (64-78)	40/60	1.0 [	0 [0.6; 1.8] (1,074)	1.5 [0.9; 2.4] (779)	1.8 [1.1; 2.9] (474)	2.7 [1.7; 4.2] (231)	3.7 [2.3; 6.2] <sub>(69)</sub>	
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	653	31	72 (65-78)	21/79	2.6	6 [1.6; 4.2] (561)	3.1 [2.0; 4.9] (438)	3.4 [2.2; 5.2] (276)	4.6 [3.0; 7.0] (174)	5.7 [3.4; 9.5] (58)	
Natural Knee NK Flex (Zimmer Biomet)	Natural Knee NK II (Zimmer Biomet)	478	10	68 (61-75)	32/68	1.9	9 [1.0; 3.7] (423)	2.4 [1.3; 4.3] (365)	3.0 [1.8; 5.2] (273)	3.0 [1.8; 5.2] (193)	3.0 [1.8; 5.2] (112)	3.0 [1.8; 5.2] <sub>(59)</sub>
Natural Knee NK II (Zimmer Biomet)	Natural Knee NK II (Zimmer Biomet)	341	8	73 (67-77)	28/72	2.1	1 [1.0; 4.3] (327)	3.0 [1.6; 5.5] (317)	3.0 [1.6; 5.5] (308)	3.0 [1.6; 5.5] (232)	4.0 [2.2; 7.0] (164)	5.3 [2.8; 10.1] (66)
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	3,096	59	69 (61-76)	35/65	1.2 [	? [0.9; 1.7] <sub>(2,074)</sub>	2.0 [1.5; 2.7] (1,423)	2.3 [1.8; 3.1] (948)	2.8 [2.1; 3.8] (369)	2.8 [2.1; 3.8] (67)	
SIGMA® Femur (DePuy)	SIGMA® Tibia (DePuy)	3,781	102	71 (63–77)	33/67	2.3 [	3 [1.9; 2.9] <sub>(3,166)</sub>	3.4 [2.8; 4.0] (2,489)	4.1 [3.4; 4.9] (1,767)	4.9 [4.1; 5.8] (961)	5.4 [4.5; 6.5] (367)	6.8 [5.1; 9.0] (115)
Triathlon CR (Stryker)	Triathlon (Stryker)	1,679	21	70 (62-77)	36/64	1.5 [	5 [1.0; 2.3] <sub>(1,215)</sub>	2.7 [1.9; 3.7] (787)	3.2 [2.3; 4.4] (415)	3.4 [2.4; 4.9] (266)	4.4 [2.9; 6.5] <sub>(137)</sub>	
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	6,133	77	72 (64-78)	29/71	1.5 [	5 [1.2; 1.8] (4,802)	2.4 [2.0; 2.9] (3,468)	2.9 [2.5; 3.4] (2,255)	3.5 [2.9; 4.1] (1,249)	3.6 [3.0; 4.3] (419)	
Standard total knee systems, cruciate-sac	rificing, mobile bearing, hybrid											
balanSys BICONDYLAR uncem. (Mathys)	balanSys BICONDYLAR RP (Mathys)	779	6	70 (62–77)	38/62	1.7	7 [1.0; 3.0] (674)	3.3 [2.2; 4.9] (565)	3.5 [2.3; 5.2] (442)	3.8 [2.5; 5.6] (295)	3.8 [2.5; 5.6] (176)	3.8 [2.5; 5.6] (116)
Standard total knee systems, cruciate-sac	rificing, mobile bearing, cemented											
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	417	20	76 (67-80)	36/64	1.0	0 [0.4; 2.8] (327)	1.4 [0.6; 3.3] (219)	1.4 [0.6; 3.3] (125)	1.4 [0.6; 3.3] (70)		
balanSys BICONDYLAR cem. (Mathys)	balanSys BICONDYLAR RP (Mathys)	548	9	75 (66-79)	27/73	1.4	4 [0.7; 2.8] (438)	2.1 [1.1; 4.0] (343)	2.5 [1.4; 4.5] (239)	2.5 [1.4; 4.5] <sub>(139)</sub>		
COLUMBUS CR (Aesculap)	COLUMBUS UCR (Aesculap)	950	5	69 (62-76)	40/60	1.1	1 [0.6; 2.0] (838)	1.7 [1.0; 2.8] (722)	1.9 [1.1; 3.0] (593)	2.0 [1.3; 3.3] (405)	2.0 [1.3; 3.3] (196)	
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	4,544	65	73 (65-78)	30/70	2.2 [	? [1.8; 2.7] <sub>(3,813)</sub>	3.2 [2.7; 3.8] (3,012)	3.9 [3.3; 4.6] (2,102)	4.3 [3.6; 5.0] (1,185)	4.5 [3.8; 5.3] (396)	

Total knee arthroplasties									Revision proba	bilities after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f		1 year	2 years	3 years	4 years	5 years	6 years
Standard total knee systems, cruciate-sacr	ificing, mobile bearing, cemented											
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	3,612	60	72 (64-78)	18/82		1.5 [1.2; 2.0] (2,887)	2.4 [1.9; 3.0] (2,166)	2.6 [2.1; 3.3] (1,464)	2.9 [2.3; 3.6] (764)	3.4 [2.5; 4.6] (194)	
SIGMA® Femur (DePuy)	MBT Tibia (DePuy)	576	37	73 (65-79)	29/71		1.9 [1.0; 3.4] (453)	2.9 [1.7; 4.8] (318)	3.3 [1.9; 5.4] (206)	3.7 [2.2; 6.2] <sub>(103)</sub>		
Standard total knee systems, pivot, fixed be	earing, cemented											
ADVANCE® (MicroPort)	ADVANCE® II (MicroPort)	411	8	72 (64-78)	48/52		3.8 [2.3; 6.2] (336)	5.3 [3.4; 8.1] (254)	5.3 [3.4; 8.1] (169)	5.3 [3.4; 8.1] (105)		
EVOLUTION® (MicroPort)	EVOLUTION® (MicroPort)	1,103	15	68 (60-75)	34/66		1.1 [0.6; 2.0] (798)	1.9 [1.2; 3.2] (443)	2.6 [1.5; 4.3] (199)			
GMK SPHERE (Medacta)	GMK (Medacta)	771	26	68 (61-75)	46/54		2.4 [1.5; 3.9] (476)	3.1 [2.0; 4.9] (293)	3.5 [2.2; 5.5] (138)	3.5 [2.2; 5.5] (53)		
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	531	8	68 (62-76)	42/58		1.9 [0.9; 3.8] (293)	2.3 [1.2; 4.4] (123)				
Standard total knee systems, posterior-sta	bilised, cemented											
balanSys BICONDYLAR PS cem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	1,922	23	71 (63-77)	38/62		1.9 [1.4; 2.7] (1,291)	3.8 [2.9; 5.0] (722)	5.0 [3.8; 6.6] (334)	5.4 [4.0; 7.2] (190)	5.4 [4.0; 7.2] (96)	
COLUMBUS PS (Aesculap)	COLUMBUS CR/PS (Aesculap)	386	26	70 (62-76)	35/65		4.0 [2.4; 6.6] (311)	6.0 [4.0; 9.1] (243)	6.5 [4.3; 9.8] (179)	7.9 [5.2; 11.9] <sub>(111)</sub>	7.9 [5.2; 11.9] <sub>(63)</sub>	
E.MOTION PS (Aesculap)	E.MOTION UC/PS (Aesculap)	416	17	68 (61-75)	37/63		3.0 [1.7; 5.3] (370)	5.8 [3.8; 8.7] (317)	6.4 [4.3; 9.4] (285)	7.2 [4.9; 10.4] (197)	7.2 [4.9; 10.4] (111)	
E.MOTION PS PRO (Aesculap)	E.MOTION UC/PS (Aesculap)	1,867	32	69 (61-76)	31/69		1.8 [1.3; 2.6] (1,385)	3.0 [2.3; 4.1] (919)	4.0 [3.0; 5.4] (540)	4.5 [3.4; 6.1] (271)	4.9 [3.6; 6.7] <sub>(108)</sub>	
GEMINI SL Fixed Bearing PS (zementiert) (Waldemar Link)	GEMINI SL Fixed Bearing CR/ PS (zementiert) (Waldemar Link)	845	20	72 (64-78)	37/63		2.2 [1.4; 3.5] (558)	2.6 [1.6; 4.0] (292)	3.1 [1.9; 5.0] (142)	3.1 [1.9; 5.0] (60)		
GENESIS II PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	2,728	62	72 (64-78)	34/66	;	2.5 [2.0; 3.2] (2,266)	3.3 [2.6; 4.1] (1,802)	3.4 [2.8; 4.3] (1,187)	3.9 [3.1; 4.9] <sub>(552)</sub>	4.2 [3.3; 5.4] (214)	5.4 [3.8; 7.8] <sub>(55)</sub>
GENESIS II PS OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	447	46	64 (57-71)	19/81		1.0 [0.4; 2.5] (368)	2.2 [1.1; 4.5] (271)	3.0 [1.6; 5.6] (195)	3.0 [1.6; 5.6] (93)		
JOURNEY II BCS COCR (Smith & Nephew)	JOURNEY (Smith & Nephew)	448	24	70 (62-77)	41/59		2.5 [1.3; 4.5] (295)	3.7 [2.1; 6.4] (116)				
JOURNEY II BCS OXINIUM (Smith & Nephew)	JOURNEY (Smith & Nephew)	1,387	37	68 (61-76)	32/68	:	3.3 [2.5; 4.4] (1,143)	4.6 [3.5; 5.9] (824)	4.9 [3.8; 6.2] (500)	5.6 [4.2; 7.4] (138)		
LEGION PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	4,101	76	70 (63–77)	37/63	:	2.1 [1.7; 2.6] (2,837)	3.0 [2.4; 3.6] (1,623)	3.3 [2.7; 4.1] (710)	3.7 [3.0; 4.6] (266)	3.7 [3.0; 4.6] <sub>(67)</sub>	
LEGION PS OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	1,170	81	66.5 (59 - 75)	20/80		1.1 [0.6; 2.0] (850)	2.2 [1.4; 3.3] (558)	2.8 [1.8; 4.2] (348)	3.2 [2.0; 4.9] (219)	4.1 [2.6; 6.6] (106)	
NexGen LPS-Flex-Gender (Zimmer Biomet)	NexGen (Zimmer Biomet)	3,258	75	69 (61-76)	7/93		1.3 [1.0; 1.8] (2,650)	2.2 [1.7; 2.9] (1,895)	2.8 [2.2; 3.5] (1,331)	2.9 [2.3; 3.7] (810)	3.6 [2.7; 4.7] (418)	3.9 [2.9; 5.3] (200)
NexGen LPS-Flex (Zimmer Biomet)	NexGen (Zimmer Biomet)	10,803	193	69 (61-76)	31/69		1.8 [1.6; 2.1] (8,725)	2.9 [2.5; 3.2] (6,313)	3.2 [2.9; 3.6] (4,191)	3.6 [3.2; 4.1] (2,410)	4.1 [3.5; 4.6] (1,053)	4.1 [3.5; 4.6] (337)
NexGen LPS (Zimmer Biomet)	NexGen (Zimmer Biomet)	7,527	37	70 (62-76)	40/60		1.2 [1.0; 1.5] (6,072)	1.8 [1.5; 2.2] (4,692)	2.2 [1.9; 2.6] (3,394)	2.4 [2.0; 2.9] (2,248)	2.5 [2.1; 3.0] (1,187)	3.0 [2.4; 3.7] (550)
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	1,080	40	69 (61-76)	41/59		2.9 [2.0; 4.2] (649)	4.1 [2.9; 5.8] (411)	4.9 [3.5; 6.9] (227)	4.9 [3.5; 6.9] (103)		
Triathlon PS (Stryker)	Triathlon (Stryker)	3,062	58	72 (64-78)	35/65	;	2.5 [2.0; 3.2] (2,267)	3.7 [3.0; 4.5] <sub>(1,520)</sub>	4.0 [3.2; 4.8] (737)	4.0 [3.2; 4.8] <sub>(308)</sub>	4.0 [3.2; 4.8] (115)	

Total knee Unicondylar knee arthroplasties								Revision proba	bilities after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Standard total knee systems, posterior-sta	bilised, cemented										
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	1,404	44	72 (64-78)	31/69	2.8 [2.0; 3.8] (1,032)	4.6 [3.5; 6.0] (666)	5.3 [4.1; 6.9] (425)	5.7 [4.3; 7.6] (224)	6.3 [4.6; 8.5] (59)	
VEGA PS (Aesculap)	VEGA PS (Aesculap)	1,170	31	70 (60-77)	31/69	1.9 [1.2; 2.9] (867)	2.7 [1.8; 4.0] (579)	4.4 [3.1; 6.2] <sub>(361)</sub>	4.7 [3.3; 6.7] (231)	5.5 [3.6; 8.2] <sub>(101)</sub>	
Unicondylar knee arthroplasties, fixed bear	ing, cemented										
balanSys UNI (Mathys)	balanSys UNI fix (Mathys)	401	27	63 (56-71)	48/52	2.8 [1.5; 5.1] (309)	4.8 [3.0; 7.7] (239)	7.4 [4.9; 11.1] (164)	7.9 [5.3; 11.9] <sub>(90)</sub>		
JOURNEY UNI COCR (Smith & Nephew)	JOURNEY UNI (Smith & Nephew)	774	63	63 (57-70)	47/53	1.6 [0.9; 2.9] (545)	3.6 [2.4; 5.5] (335)	4.4 [2.9; 6.8] (191)	5.2 [3.3; 8.4] (86)		
JOURNEY UNI OXINIUM (Smith & Nephew)	JOURNEY UNI (Smith & Nephew)	657	104	60 (54-66)	33/67	5.7 [4.1; 7.9] (498)	8.3 [6.3; 11.0] (323)	10.2 [7.7; 13.4] (192)	10.8 [8.1; 14.3] (90)		
Oxford (Zimmer Biomet)	Oxford (Zimmer Biomet)	692	35	71 (61-77)	18/82	0.9 [0.4; 2.1] (500)	2.1 [1.1; 3.7] (321)	2.4 [1.3; 4.2] (166)	4.7 [2.5; 8.6] (64)		
Persona Partial Knee (Zimmer Biomet)	Persona Partial Knee (Zimmer Biomet)	1,433	58	63 (57-72)	47/53	2.7 [2.0; 3.8] (796)	4.1 [2.9; 5.9] (265)				
Schlittenprothese (Waldemar Link)	Schlittenprothese All-Poly (Waldemar Link)	505	25	65 (56-73)	53/47	2.8 [1.6; 4.8] (387)	7.1 [4.9; 10.2] (272)	9.4 [6.7; 13.0] (191)	10.5 [7.6; 14.5] (126)	11.3 [8.1; 15.6] (58)	
Schlittenprothese (Waldemar Link)	Schlittenprothese Metal backed (Waldemar Link)	552	45	63 (58-73)	43/57	2.9 [1.7; 4.8] (413)	7.1 [5.0; 10.1] (277)	9.8 [7.1; 13.5] (197)	11.3 [8.1; 15.6] (92)		
SIGMA® HP Partial-Kniesystem (DePuy)	SIGMA® HP Partial-Kniesystem (DePuy)	2,963	79	63 (57-71)	45/55	1.7 [1.2; 2.2] (2,328)	3.5 [2.8; 4.3] (1,754)	4.3 [3.6; 5.3] (1,155)	5.5 [4.5; 6.7] (646)	5.9 [4.8; 7.2] (243)	7.9 [5.6; 10.9] <sub>(58)</sub>
Triathlon PKR (Stryker)	Triathlon PKR (Stryker)	426	30	62 (56-70)	46/54	5.0 [3.3; 7.7] (347)	7.1 [4.9; 10.2] (275)	8.1 [5.7; 11.5] (198)	9.9 [7.0; 14.0] (109)	9.9 [7.0; 14.0] (55)	
UNIVATION XF (Aesculap)	UNIVATION XF (Aesculap)	1,555	69	62 (56-70)	44/56	4.8 [3.8; 6.1] (1,111)	8.8 [7.3; 10.7] (654)	12.2 [10.1; 14.6] (288)	12.9 [10.7; 15.6] (87)		
ZUK (Lima)	ZUK (Lima)	2,872	86	65 (58-73)	44/56	2.2 [1.7; 2.8] (2,390)	3.2 [2.6; 4.0] (1,936)	3.6 [3.0; 4.5] (1,324)	4.6 [3.7; 5.6] (706)	4.6 [3.7; 5.6] (200)	5.1 [3.9; 6.7] <sub>(51)</sub>
Unicondylar knee arthroplasties, mobile be	aring, uncemented										
Oxford (Zimmer Biomet)	Oxford (Zimmer Biomet)	4,142	69	63 (57-71)	55/45	3.2 [2.7; 3.8] (3,282)	4.4 [3.8; 5.1] (2,370)	5.2 [4.5; 6.0] (1,528)	5.5 [4.7; 6.4] <sub>(900)</sub>	5.8 [5.0; 6.8] (410)	6.2 [5.2; 7.4] (168)
Unicondylar knee arthroplasties, mobile be	aring, cemented										
Oxford (Zimmer Biomet)	Oxford (Zimmer Biomet)	17,046	342	64 (57-73)	41/59	2.9 [2.6; 3.2] (13,142)	4.6 [4.3; 5.0] (9,427)	5.5 [5.1; 5.9] (6,066)	6.5 [6.0; 7.0] (3,320)	7.0 [6.5; 7.6] (1,249)	7.6 [6.9; 8.4] (403)

Elective total hip arthroplasties								Revision probal	bilities after		
Femoral stem	Number	Hosp.	Age	m/f	1	1 year	2 years	3 years	4 years	5 years	6 years
Uncemented femoral stems											
A2 Kurzschaft (ARTIQO)	5,262	53	63 (57-70)	39/61	1.4 [1.	1.1; 1.8] (3,668)	1.7 [1.3; 2.1] (2,305)	2.0 [1.6; 2.5] (1,070)	2.0 [1.6; 2.5] (269)		
ABG II Stem (Stryker)	438	14	66 (59-71)	40/60	5.1 [3.	[3.4; 7.6] <sub>(380)</sub>	7.0 [4.9; 10.0] (289)	7.7 [5.5; 10.9] (219)	7.7 [5.5; 10.9] (181)	7.7 [5.5; 10.9] <sub>(77)</sub>	
Accolade II Stem (Stryker)	7,043	53	68 (60-75)	41/59	2.6 [2.2	2.2; 3.0] (5,177)	2.9 [2.5; 3.4] (3,353)	3.2 [2.8; 3.7] (2,051)	3.5 [3.0; 4.1] (1,166)	3.6 [3.1; 4.2] (370)	
Actinia cementless (Implantcast)	1,512	16	72 (64-78)	35/65	4.2 [3.3	3.2; 5.3] (1,163)	4.9 [3.9; 6.2] (761)	5.3 [4.1; 6.6] (380)	5.5 [4.3; 7.0] (84)		
ACTIS™-Hüftschaft (DePuy)	478	19	62 (55-69)	39/61	1.9 [0.	[0.9; 3.8] (139)					
Alloclassic (Zimmer Biomet)	8,835	73	69 (62-76)	35/65	2.7 [2.4	2.4; 3.1] (7,333)	3.3 [2.9; 3.7] (5,879)	3.6 [3.2; 4.1] (4,355)	3.9 [3.5; 4.4] (2,903)	4.1 [3.7; 4.6] (1,323)	4.3 [3.8; 4.9] (312)
Alpha-Fit (Corin)	683	3	<b>75</b> <sub>(69-78)</sub>	30/70	1.9 [1.	[1.1; 3.3] (643)	2.1 [1.2; 3.5] (548)	2.3 [1.4; 3.9] (381)	2.3 [1.4; 3.9] (284)	2.3 [1.4; 3.9] (164)	
AMISTEM (Medacta)	1,105	30	67 (58-74)	43/57	3.5 [2.	[2.6; 4.8] (812)	3.9 [2.9; 5.3] (569)	3.9 [2.9; 5.3] <sub>(363)</sub>	3.9 [2.9; 5.3] (161)		
ANA.NOVA® Alpha Schaft (ARTIQO)	1,603	12	69 (62-76)	41/59	2.9 [2.2	2.2; 3.9] (1,277)	3.3 [2.5; 4.4] (959)	3.5 [2.6; 4.5] (622)	3.9 [2.9; 5.2] (378)	3.9 [2.9; 5.2] <sub>(73)</sub>	
ANA.NOVA® SL-complete® Schaft (ARTIQO)	430	9	73 (64-78)	38/62	3.9 [2.	[2.4; 6.4] <sub>(344)</sub>	4.2 [2.7; 6.7] (241)	4.8 [3.0; 7.6] <sub>(147)</sub>	4.8 [3.0; 7.6] <sub>(74)</sub>		
ANA.NOVA® Solitär Schaft (ARTIQO)	462	7	74 (66-80)	34/66	3.9 [2.	[2.4; 6.2] (344)	3.9 [2.4; 6.2] (198)	4.4 [2.7; 6.9] (102)	4.4 [2.7; 6.9] <sub>(57)</sub>		
Avenir (Zimmer Biomet)	17,437	158	69 (62-76)	40/60	3.1 [2.8	2.8; 3.4] (12,133)	3.4 [3.1; 3.7] (7,629)	3.6 [3.3; 3.9] (4,546)	3.6 [3.3; 3.9] (2,173)	3.7 [3.4; 4.0] (614)	3.7 [3.4; 4.0] (77)
BICONTACT H (Aesculap)	5,900	93	70 (63-76)	51/49	3.1 [2.5]	2.7; 3.6] (4,876)	3.4 [2.9; 3.9] (3,767)	3.5 [3.1; 4.1] (2,687)	3.5 [3.1; 4.1] (1,709)	3.6 [3.1; 4.2] (842)	3.6 [3.1; 4.2] (214)
BICONTACT S (Aesculap)	8,833	114	71 (64-77)	35/65	3.3 [3.0	3.0; 3.7] (7,342)	3.7 [3.4; 4.2] (5,811)	3.9 [3.5; 4.4] (4,202)	4.1 [3.7; 4.6] (2,600)	4.2 [3.7; 4.7] (1,233)	4.2 [3.7; 4.7] (388)
BICONTACT SD (Aesculap)	609	46	65 (57-73)	11/89	2.8 [1.	[1.8; 4.5] (519)	3.2 [2.1; 5.0] (443)	3.4 [2.2; 5.3] (316)	3.4 [2.2; 5.3] (186)	4.0 [2.5; 6.2] (85)	
Brexis (Zimmer Biomet)	566	25	58 (53-65)	50/50	2.3 [1.	[1.4; 4.0] (406)	2.9 [1.7; 4.8] (177)	2.9 [1.7; 4.8] (62)			
CBC Evolution (Mathys)	648	13	67 (62-75)	40/60	2.6 [1.	[1.6; 4.2] (560)	3.5 [2.3; 5.4] (457)	4.0 [2.7; 6.0] (373)	4.6 [3.1; 6.8] (249)	4.6 [3.1; 6.8] <sub>(98)</sub>	4.6 [3.1; 6.8] (55)
CFP (Waldemar Link)	1,161	28	61 (54-67)	55/45	1.8 [1.	[1.2; 2.8] (992)	2.4 [1.7; 3.5] (871)	2.7 [1.8; 3.8] (703)	2.8 [2.0; 4.1] (453)	3.2 [2.2; 4.7] (248)	3.2 [2.2; 4.7] (164)
CLS Spotorno (Zimmer Biomet)	20,452	185	65 (58-72)	43/57	2.8 [2.5	2.5; 3.0] (17,262)	3.2 [3.0; 3.5] (13,766)	3.5 [3.3; 3.8] (10,211)	3.7 [3.4; 4.0] (6,605)	3.9 [3.6; 4.2] (3,231)	4.0 [3.7; 4.4] (1,055)
CORAIL™ AMT-Hüftschaft (DePuy)	31,847	158	70 (62-76)	38/62	2.6 [2.5	2.5; 2.8] <sub>(24,907)</sub>	3.0 [2.8; 3.2] (18,386)	3.2 [3.0; 3.5] (12,232)	3.5 [3.2; 3.7] (6,743)	3.6 [3.4; 3.9] <sub>(2,518)</sub>	3.9 [3.5; 4.3] (744)
COREHIP STD (Aesculap)	799	15	69 (62-75)	34/66	1.8 [1.	[1.0; 3.3] (329)					
EcoFit cpTi (Implantcast)	942	11	74 (67-79)	29/71	4.9 [3.	[3.7; 6.5] <sub>(840)</sub>	5.5 [4.2; 7.2] <sub>(625)</sub>	5.9 [4.5; 7.7] (404)	6.2 [4.7; 8.0] (202)		
EcoFit HA (Implantcast)	624	7	71 (64–78)	43/57	2.3 [1.	[1.4; 3.9] (464)	2.3 [1.4; 3.9] (316)	2.3 [1.4; 3.9] (179)	2.3 [1.4; 3.9] (59)		

Table 42: Implant outcomes for femoral stems in elective total hip arthroplasties. For each type of fixation, the femoral stems are listed alphabetically by their designation. The table is continued on the following pages.

Elective total hip arthroplasties								Revision proba	abilities after		
Femoral stem	Number	Hosp.	Age	m/f		1 year	2 years	3 years	4 years	5 years	6 years
Uncemented femoral stems											
EXCEPTION (Zimmer Biomet)	1,314	14	68 (60-75)	49/51	4.2	.2 [3.2; 5.5] (941)	4.5 [3.5; 5.8] (610)	5.2 [4.0; 6.8] (303)	5.2 [4.0; 6.8] (56)		
EXCIA (Aesculap)	438	18	72 (64–77)	35/65	4.4	.4 [2.8; 6.8] (364)	5.1 [3.3; 7.7] (284)	5.4 [3.6; 8.2] (243)	5.4 [3.6; 8.2] (161)	5.4 [3.6; 8.2] (81)	
EXCIA T (Aesculap)	4,917	86	70 (62-76)	35/65	3.1	1 [2.6; 3.6] (3,589)	3.4 [2.9; 4.0] (2,356)	3.5 [3.0; 4.1] (1,286)	3.5 [3.0; 4.1] (427)		
EXCIA TL (Aesculap)	2,629	77	69 (62-76)	50/50	3.0	0 [2.4; 3.7] (1,972)	3.5 [2.8; 4.3] (1,341)	3.7 [3.0; 4.5] (810)	3.8 [3.1; 4.8] (324)		
Fitmore (Zimmer Biomet)	19,926	203	62 (55-69)	46/54	2.1	I [1.9; 2.4] <sub>(15,559)</sub>	2.6 [2.4; 2.8] (11,564)	2.8 [2.6; 3.1] (7,848)	3.0 [2.7; 3.3] (4,691)	3.2 [2.9; 3.5] (2,047)	3.4 [3.1; 3.8] (564)
GTS (Zimmer Biomet)	1,628	30	64 (56-71)	40/60	3.2	2 [2.4; 4.1] (1,351)	3.9 [3.1; 5.1] (1,036)	4.1 [3.2; 5.2] (638)	4.3 [3.3; 5.5] (351)	4.3 [3.3; 5.5] (122)	
Konusprothese (Zimmer Biomet)	1,133	107	57 (48-67)	16/84	2.9	.9 [2.1; 4.1] (961)	3.8 [2.8; 5.1] (782)	4.3 [3.2; 5.8] (622)	4.6 [3.4; 6.1] (438)	4.6 [3.4; 6.1] (254)	4.6 [3.4; 6.1] (106)
LCU (Waldemar Link)	2,353	29	67 (60-75)	45/55	2.3	3 [1.8; 3.0] (1,763)	2.6 [2.0; 3.4] (1,175)	3.2 [2.4; 4.1] (667)	3.2 [2.4; 4.1] (204)		
M/L Taper (Zimmer Biomet)	4,690	24	69 (61-74)	41/59	2.7	7 [2.3; 3.3] <sub>(3,843)</sub>	3.2 [2.7; 3.8] (3,138)	3.4 [2.9; 4.0] (2,202)	3.7 [3.2; 4.4] (1,253)	3.9 [3.3; 4.6] (601)	3.9 [3.3; 4.6] (217)
METABLOC (Zimmer Biomet)	712	15	72 (65–78)	39/61	2.4	.4 [1.5; 3.9] (650)	2.6 [1.6; 4.1] (549)	2.8 [1.8; 4.3] (435)	3.3 [2.1; 5.1] (286)	3.3 [2.1; 5.1] <sub>(135)</sub>	3.3 [2.1; 5.1] <sub>(66)</sub>
Metafix (Corin)	1,331	13	72 (65–77)	42/58	1.5	5 [0.9; 2.3] (1,151)	1.8 [1.2; 2.8] (871)	2.1 [1.4; 3.1] (672)	2.3 [1.5; 3.4] (421)	2.5 [1.7; 3.8] (185)	
METHA (Aesculap)	6,081	143	57 <sub>(52-63)</sub>	47/53	2.7	7 [2.3; 3.1] (5,027)	3.4 [2.9; 3.9] (3,868)	3.6 [3.1; 4.1] (2,721)	3.7 [3.2; 4.3] (1,763)	3.8 [3.3; 4.4] (931)	3.8 [3.3; 4.4] (308)
MiniHip (Corin)	1,754	39	60.5 (54-67)	46/54	3.0	0 [2.3; 3.9] (1,480)	3.6 [2.8; 4.7] (1,164)	3.9 [3.0; 4.9] (789)	4.2 [3.2; 5.4] (448)	4.2 [3.2; 5.4] (169)	
Nanos Schenkelhalsprothese (OHST / Smith & Nephew)	3,710	107	59 (53-66)	48/52	2.2	2 [1.8; 2.8] (3,162)	2.6 [2.1; 3.2] (2,601)	3.0 [2.5; 3.6] (1,921)	3.4 [2.8; 4.1] (1,274)	3.7 [2.9; 4.5] (383)	
optimys (Mathys)	13,428	92	64 (57-72)	44/56	1.8	8 [1.6; 2.1] <sub>(9,760)</sub>	2.0 [1.8; 2.3] (6,575)	2.1 [1.8; 2.4] (3,998)	2.2 [1.9; 2.5] (1,867)	2.4 [2.0; 2.9] (528)	2.4 [2.0; 2.9] (99)
Peira Schaft (ARTIQO)	376	6	72 (67-77)	36/64	3.5	.5 [2.0; 5.9] (332)	3.5 [2.0; 5.9] (248)	4.1 [2.4; 6.9] (144)			
Polarschaft (Smith & Nephew)	10,136	95	69 (62-76)	41/59	2.6	6 [2.3; 2.9] <sub>(8,100)</sub>	3.0 [2.7; 3.4] (5,944)	3.2 [2.8; 3.6] (3,787)	3.4 [3.0; 3.8] (1,878)	3.4 [3.0; 3.9] (627)	3.4 [3.0; 3.9] <sub>(149)</sub>
PROFEMUR® GLADIATOR CLASSIC (MicroPort)	508	13	70 (64-76)	37/63	3.2	.2 [1.9; 5.2] (354)	3.7 [2.3; 5.9] (242)	4.6 [2.9; 7.3] (149)	4.6 [2.9; 7.3] (87)		
Proxy PLUS Schaft (Smith & Nephew)	820	24	69 (62-75)	44/56	3.3	.3 [2.3; 4.8] (749)	4.0 [2.9; 5.6] (629)	4.3 [3.1; 6.0] (493)	4.5 [3.3; 6.3] (322)	4.5 [3.3; 6.3] (123)	
Pyramid (Atesos)	2,445	23	71 (64–77)	37/63	2.9	9 [2.3; 3.7] (1,997)	3.3 [2.6; 4.1] (1,618)	3.6 [2.9; 4.5] (1,147)	3.8 [3.0; 4.7] (633)	3.8 [3.0; 4.7] (192)	
QUADRA (Medacta)	6,188	48	68 (61-75)	39/61	2.5	5 [2.2; 3.0] (4,661)	3.0 [2.6; 3.5] (3,330)	3.3 [2.9; 3.8] (1,791)	3.5 [3.0; 4.1] (661)	4.5 [3.2; 6.2] <sub>(82)</sub>	
SBG-Schaft (Smith & Nephew)	434	9	72 (64-78)	36/64	5.2	2 [3.4; 7.8] (366)	5.7 [3.9; 8.4] (315)	6.4 [4.4; 9.3] (239)	6.4 [4.4; 9.3] (156)	6.4 [4.4; 9.3] (80)	
SL-PLUS Schaft (Smith & Nephew)	4,493	59	69 (62-76)	36/64	3.3	3 [2.8; 3.8] (3,822)	4.1 [3.5; 4.7] <sub>(3,206)</sub>	4.7 [4.1; 5.4] (2,528)	5.2 [4.5; 5.9] (1,782)	5.7 [5.0; 6.6] <sub>(987)</sub>	6.0 [5.2; 7.0] (389)
SL MIA Schaft (Smith & Nephew)	4,579	47	70 (62-77)	36/64	2.6	6 [2.2; 3.2] (3,618)	3.2 [2.7; 3.7] (2,594)	3.4 [2.9; 4.0] (1,759)	3.7 [3.1; 4.4] (1,001)	3.8 [3.2; 4.6] (481)	4.3 [3.5; 5.3] (180)

Elective total hip arthroplasties								Revision proba	bilities after		
Femoral stem	Number	Hosp.	Age	m/f		1 year	2 years	3 years	4 years	5 years	6 years
Uncemented femoral stems											
SP-CL (Waldemar Link)	2,609	43	65 (57-71)	37/63	3.	3.8 [3.2; 4.7] <sub>(1,966)</sub>	4.6 [3.8; 5.5] (1,427)	5.1 [4.3; 6.1] (878)	5.1 [4.3; 6.1] (364)	5.1 [4.3; 6.1] <sub>(52)</sub>	
SPS Evolution (Symbios)	878	13	63 (57-69)	44/56	1	1.9 [1.2; 3.1] (705)	2.2 [1.4; 3.4] (515)	2.4 [1.5; 3.8] (277)	2.4 [1.5; 3.8] (132)		
Taperloc (Zimmer Biomet)	2,988	29	69 (61-76)	37/63	2.	2.4 [1.9; 3.1] (2,396)	3.1 [2.5; 3.8] (1,832)	3.6 [3.0; 4.4] (1,225)	3.7 [3.0; 4.6] (584)	4.0 [3.2; 5.0] (170)	
TAPERLOC COMPLETE (Zimmer Biomet)	3,362	23	66 (58-73)	44/56	1.	1.9 [1.5; 2.4] (2,415)	2.1 [1.6; 2.6] (1,565)	2.1 [1.6; 2.6] (978)	2.3 [1.8; 2.9] (472)		
TRENDHIP L (Aesculap)	1,439	44	69 (61-76)	57/43	2.	2.6 [1.9; 3.5] (1,157)	2.8 [2.0; 3.8] (804)	2.8 [2.0; 3.8] (432)	2.8 [2.0; 3.8] (251)	2.8 [2.0; 3.8] (106)	
TRENDHIP S (Aesculap)	3,180	46	70 (62-76)	32/68	2.	2.6 [2.1; 3.3] (2,486)	3.0 [2.4; 3.6] (1,649)	3.1 [2.5; 3.8] (876)	3.3 [2.6; 4.1] (465)	3.3 [2.6; 4.1] (163)	
TRILOCK®-Hüftschaft (DePuy)	3,398	44	61 (54-67)	47/53	1.	1.9 [1.5; 2.5] (2,806)	2.6 [2.1; 3.2] (2,149)	3.0 [2.4; 3.7] (1,631)	3.3 [2.7; 4.0] (1,049)	3.3 [2.7; 4.0] (438)	3.3 [2.7; 4.0] (94)
TRJ (Aesculap)	778	25	70 (62-77)	34/66	2	2.4 [1.5; 3.8] (642)	3.5 [2.4; 5.2] (458)	3.7 [2.5; 5.5] (326)	4.5 [3.0; 6.7] (224)	4.5 [3.0; 6.7] (116)	
twinSys uncem. (Mathys)	3,979	45	73 (66-78)	38/62	2.	2.4 [2.0; 2.9] (3,016)	2.7 [2.2; 3.3] (2,108)	3.0 [2.5; 3.6] (1,407)	3.2 [2.6; 3.8] (852)	3.3 [2.7; 4.0] (497)	3.3 [2.7; 4.0] (225)
VEKTOR-TITAN (Peter Brehm)	316	7	66 (59-73)	42/58	2	2.5 [1.3; 5.0] (304)	3.2 [1.7; 5.8] (280)	3.9 [2.2; 6.8] (241)	4.4 [2.6; 7.4] (207)	4.9 [2.9; 8.1] (145)	
Cemented femoral stems											
ABG II Stem (Stryker)	643	11	<b>79</b> <sub>(76–82)</sub>	22/78	2	2.8 [1.8; 4.5] (544)	3.4 [2.3; 5.2] (422)	3.7 [2.4; 5.6] (243)	3.7 [2.4; 5.6] <sub>(135)</sub>	3.7 [2.4; 5.6] (50)	
Actinia cemented (Implantcast)	350	9	80 (76-83)	22/78	2	2.0 [1.0; 4.2] (290)	3.4 [1.8; 6.3] (168)	3.4 [1.8; 6.3] (60)			
AS PLUS Schaft (Smith & Nephew)	625	22	80 (76-83)	21/79	3	3.5 [2.3; 5.3] <sub>(546)</sub>	3.6 [2.4; 5.5] (480)	3.9 [2.6; 5.8] (338)	4.3 [2.8; 6.5] (203)	4.3 [2.8; 6.5] (54)	
Avenir (Zimmer Biomet)	2,508	104	80 (76-83)	23/77	2.	2.8 [2.2; 3.6] (1,532)	3.0 [2.4; 3.8] (911)	3.2 [2.5; 4.1] (548)	3.4 [2.6; 4.4] (282)	3.4 [2.6; 4.4] (118)	
Bicana (Implantcast)	376	17	78 <sub>(75–81)</sub>	29/71	3	3.2 [1.9; 5.6] <sub>(339)</sub>	3.8 [2.3; 6.4] (307)	4.1 [2.5; 6.8] (268)	4.5 [2.8; 7.3] (231)	4.5 [2.8; 7.3] (163)	
BICONTACT H (Aesculap)	697	48	79 (76-83)	35/65	2	2.7 [1.7; 4.2] (586)	2.8 [1.8; 4.4] (455)	3.1 [2.0; 4.7] (318)	3.4 [2.2; 5.2] (189)	3.4 [2.2; 5.2] (91)	
BICONTACT S (Aesculap)	2,416	80	79 (76-83)	21/79	2.	2.2 [1.6; 2.8] (2,051)	2.3 [1.7; 3.0] (1,668)	2.6 [2.0; 3.4] (1,247)	2.9 [2.2; 3.7] (775)	2.9 [2.2; 3.7] (393)	2.9 [2.2; 3.7] (145)
C-STEM™ AMT-Hüftschaft (DePuy)	443	8	79 (75-83)	19/81	1	1.4 [0.6; 3.1] (380)	2.0 [1.0; 3.9] (322)	2.9 [1.6; 5.2] (233)	3.3 [1.9; 5.9] (152)	4.6 [2.3; 9.0] (73)	
CCA CoCr (Mathys)	1,094	15	78 (74-81)	29/71	2	2.7 [1.9; 3.9] (947)	3.6 [2.6; 4.9] (778)	3.9 [2.8; 5.2] (665)	4.2 [3.1; 5.7] (508)	4.4 [3.3; 6.0] <sub>(305)</sub>	4.4 [3.3; 6.0] (181)
CORAIL™ AMT-Hüftschaft (DePuy)	4,252	121	79 (75-82)	21/79	3.	3.0 [2.5; 3.6] (3,087)	3.4 [2.9; 4.1] (2,114)	3.8 [3.2; 4.4] (1,347)	4.4 [3.7; 5.2] <sub>(750)</sub>	4.6 [3.8; 5.5] (256)	5.7 [3.7; 8.8] (52)
CS PLUS Schaft (Smith & Nephew)	937	32	78 (75-82)	26/74	1	1.7 [1.1; 2.8] (885)	2.4 [1.6; 3.7] (783)	2.8 [1.9; 4.1] (515)	2.8 [1.9; 4.1] (319)	2.8 [1.9; 4.1] (121)	
EXCEPTION (Zimmer Biomet)	620	12	79 (75-82)	20/80	2	2.7 [1.6; 4.3] (431)	3.2 [2.0; 5.1] (244)	3.2 [2.0; 5.1] (94)			
EXCIA (Aesculap)	607	33	79 (75-83)	26/74	1	1.4 [0.7; 2.7] (517)	1.8 [0.9; 3.3] (414)	2.6 [1.5; 4.4] (340)	2.6 [1.5; 4.4] (257)	2.6 [1.5; 4.4] (128)	

Elective total hip arthroplasties							Revision proba	abilities after		
Femoral stem	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Cemented femoral stems										
EXCIA T (Aesculap)	1,588	69	78 (74-82)	22/78	1.7 [1.2; 2.5] (1,139)	2.0 [1.4; 2.8] (729)	2.1 [1.5; 3.0] (380)	2.1 [1.5; 3.0] (178)		
EXCIA TL (Aesculap)	703	48	79 (75-83)	26/74	2.2 [1.3; 3.6] (509)	2.7 [1.6; 4.3] (282)	2.7 [1.6; 4.3] (165)	2.7 [1.6; 4.3] (96)		
Exeter Stem (Stryker)	320	16	80 (76-83)	26/74	2.3 [1.1; 4.8] (214)	2.3 [1.1; 4.8] (108)	3.3 [1.5; 7.3] (61)			
LCP (Waldemar Link)	508	8	81 (78-84)	14/86	2.7 [1.6; 4.5] (392)	2.7 [1.6; 4.5] (299)	3.0 [1.8; 5.1] (192)	3.0 [1.8; 5.1] (85)	3.0 [1.8; 5.1] (52)	
M.E.M. Geradschaft (Zimmer Biomet)	19,010	173	79 (75-82)	26/74	2.0 [1.8; 2.2] (14,666)	2.3 [2.1; 2.5] (10,525)	2.5 [2.3; 2.7] (6,937)	2.6 [2.3; 2.9] (3,863)	2.8 [2.5; 3.2] (1,686)	3.0 [2.6; 3.6] (475)
METABLOC (Zimmer Biomet)	2,208	28	79 (75-82)	27/73	2.7 [2.1; 3.5] (1,862)	3.0 [2.3; 3.8] (1,458)	3.3 [2.6; 4.2] (1,016)	3.4 [2.7; 4.3] <sub>(634)</sub>	3.7 [2.8; 4.7] <sub>(267)</sub>	3.7 [2.8; 4.7] <sub>(70)</sub>
MS-30 (Zimmer Biomet)	3,420	32	78 (74-81)	26/74	1.8 [1.4; 2.3] (2,857)	2.0 [1.5; 2.5] (2,264)	2.2 [1.7; 2.7] (1,671)	2.4 [1.9; 3.0] (1,026)	2.4 [1.9; 3.0] (406)	
MUELLER V40 Stem (Stryker)	315	10	79 (74-82)	26/74	2.6 [1.3; 5.1] (285)	3.3 [1.8; 6.1] (260)	3.7 [2.1; 6.6] (216)	4.2 [2.4; 7.2] (160)	4.8 [2.8; 8.2] (60)	
Müller Geradschaft (OHST Medizintechnik)	1,684	43	79 (75-82)	27/73	2.7 [2.0; 3.6] (1,435)	2.9 [2.2; 3.8] (1,109)	3.0 [2.3; 4.0] (786)	3.1 [2.4; 4.1] (439)	3.1 [2.4; 4.1] (178)	
Polarschaft (Smith & Nephew)	2,091	68	79 (76-82)	24/76	3.5 [2.8; 4.4] (1,615)	3.7 [2.9; 4.6] (1,131)	3.8 [3.0; 4.7] (689)	3.9 [3.1; 4.9] (303)	3.9 [3.1; 4.9] (111)	
QUADRA (Medacta)	1,333	35	80 (76-83)	23/77	2.0 [1.3; 2.9] (941)	2.4 [1.6; 3.4] (558)	2.4 [1.6; 3.4] (263)	2.4 [1.6; 3.4] (88)		
SPECTRON (Smith & Nephew)	343	11	79 (76-83)	26/74	1.5 [0.6; 3.7] (275)	1.9 [0.9; 4.2] (216)	1.9 [0.9; 4.2] (146)	1.9 [0.9; 4.2] (87)		
SPII® Modell Lubinus (Waldemar Link)	9,528	98	78 (74-81)	27/73	2.0 [1.7; 2.3] (7,467)	2.5 [2.2; 2.8] (5,779)	2.8 [2.4; 3.1] (4,160)	3.2 [2.8; 3.6] (2,492)	3.4 [3.0; 4.0] (1,151)	3.9 [3.3; 4.7] (409)
Standard C Cem (Waldemar Link)	426	5	77.5 (74-81)	32/68	0.7 [0.2; 2.2] (409)	1.5 [0.7; 3.3] (331)	1.5 [0.7; 3.3] (226)	2.1 [0.9; 4.6] (122)		
Taperloc Cemented (Zimmer Biomet)	997	27	79 (75-83)	17/83	1.9 [1.2; 3.0] (700)	2.4 [1.6; 3.7] (462)	2.7 [1.7; 4.1] (262)	2.7 [1.7; 4.1] (138)		
TRENDHIP S (Aesculap)	364	30	80 (77-83)	19/81	2.3 [1.2; 4.5] (272)	2.3 [1.2; 4.5] (167)	2.3 [1.2; 4.5] (74)			
twinSys cem. (Mathys)	1,433	35	79 (74-82)	24/76	1.7 [1.2; 2.6] (1,089)	2.1 [1.5; 3.1] (764)	2.1 [1.5; 3.1] (465)	2.6 [1.8; 3.9] (233)	3.7 [2.3; 6.0] (110)	

Elective total hip arthroplasties							Revision proba	bilities after		
Сир	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Uncemented cups										
Alloclassic (Zimmer Biomet)	511	10	69 (60-77)	30/70	3.2 [2.0; 5.1] (478)	3.8 [2.4; 5.9] (422)	4.0 [2.6; 6.2] (338)	4.4 [2.9; 6.6] (245)	4.4 [2.9; 6.6] (120)	
Alloclassic Variall (Zimmer Biomet)	516	14	70 (61-77)	35/65	0.6 [0.2; 1.9] (456)	0.9 [0.3; 2.3] (339)	0.9 [0.3; 2.3] (223)	0.9 [0.3; 2.3] (143)	0.9 [0.3; 2.3] (75)	
Allofit (Zimmer Biomet)	97,918	329	70 (61–77)	38/62	2.5 [2.4; 2.6] (75,798)	2.8 [2.7; 3.0] (55,739)	3.1 [3.0; 3.2] (37,978)	3.3 [3.2; 3.4] (22,202)	3.4 [3.3; 3.6] (9,655)	3.6 [3.4; 3.8] (2,642)
Allofit IT (Zimmer Biomet)	7,253	96	65 (56-74)	40/60	2.6 [2.3; 3.0] (5,796)	3.3 [2.9; 3.8] (4,311)	3.6 [3.1; 4.0] (3,089)	3.7 [3.2; 4.2] (1,898)	3.9 [3.4; 4.5] (837)	4.0 [3.5; 4.7] (383)
ANA.NOVA® Alpha Pfanne (ARTIQO)	3,272	34	66 (59-74)	42/58	2.3 [1.8; 2.9] (2,395)	2.4 [1.9; 3.1] (1,620)	2.7 [2.1; 3.4] (852)	3.1 [2.4; 4.0] (353)	3.1 [2.4; 4.0] (64)	
ANA.NOVA® Hybrid Pfanne (ARTIQO)	5,892	43	67 (59-75)	36/64	2.2 [1.8; 2.6] (4,444)	2.6 [2.2; 3.1] (3,066)	2.9 [2.4; 3.4] (1,819)	2.9 [2.5; 3.5] (839)	3.1 [2.6; 3.7] <sub>(131)</sub>	
aneXys Flex (Mathys)	2,483	48	64 (58-72)	44/56	2.6 [2.0; 3.3] (1,648)	3.0 [2.4; 3.9] (917)	3.3 [2.6; 4.3] (498)	3.3 [2.6; 4.3] (131)		
APRIL Poly (Symbios)	410	12	61.5 (56 - 69)	41/59	1.7 [0.8; 3.6] (335)	2.3 [1.2; 4.4] (239)	2.3 [1.2; 4.4] (120)	2.3 [1.2; 4.4] (51)		
BICON-PLUS (Smith & Nephew)	2,605	49	72 (63-77)	36/64	2.3 [1.8; 3.0] (2,286)	3.1 [2.5; 3.9] (1,976)	3.8 [3.1; 4.7] (1,664)	4.6 [3.8; 5.6] (1,250)	4.8 [4.0; 5.9] (770)	5.4 [4.4; 6.6] (243)
CombiCup PF (Waldemar Link)	3,214	53	71 (63-77)	38/62	2.0 [1.6; 2.6] (2,668)	2.7 [2.2; 3.3] (1,949)	3.0 [2.4; 3.7] (1,288)	3.3 [2.6; 4.1] (611)	3.3 [2.6; 4.1] (220)	
CombiCup SC (Waldemar Link)	983	11	72 (61-78)	40/60	1.9 [1.2; 3.0] (827)	2.5 [1.6; 3.7] (628)	2.9 [1.9; 4.3] (397)	3.2 [2.1; 4.8] (205)	3.2 [2.1; 4.8] (53)	
DURALOC™ OPTION™ Press Fit-Hüftpfanne (DePuy)	1,204	12	69 (61-76)	39/61	3.1 [2.3; 4.3] (1,017)	3.8 [2.8; 5.0] (855)	4.2 [3.2; 5.6] (731)	4.7 [3.5; 6.2] <sub>(541)</sub>	5.1 [3.8; 6.8] (240)	
EcoFit cpTi (Implantcast)	1,179	20	73 (65-79)	35/65	3.2 [2.4; 4.4] (1,037)	4.0 [3.0; 5.3] (736)	4.1 [3.1; 5.5] (410)	4.4 [3.3; 5.8] (195)		
EcoFit EPORE (Implantcast)	1,173	16	74 (67-79)	30/70	4.5 [3.4; 5.8] (816)	4.9 [3.7; 6.3] (536)	5.4 [4.1; 7.2] (268)			
EcoFit EPORE NH (Implantcast)	352	5	73 (64-79)	42/58	1.9 [0.8; 4.1] (189)					
EcoFit NH cpTi (Implantcast)	967	11	72 (63-78)	37/63	3.8 [2.8; 5.3] <sub>(704)</sub>	4.1 [3.0; 5.6] (507)	4.6 [3.4; 6.3] <sub>(344)</sub>	4.6 [3.4; 6.3] <sub>(166)</sub>	6.4 [4.0; 10.1] <sub>(53)</sub>	
EL PFANNE (Smith & Nephew)	351	4	71 (63–77)	32/68	4.9 [3.1; 7.7] (326)	4.9 [3.1; 7.7] (311)	5.2 [3.3; 8.1] (303)	5.8 [3.8; 8.9] (283)	5.8 [3.8; 8.9] (262)	5.8 [3.8; 8.9] (142)
EP-FIT PLUS (Smith & Nephew)	3,196	64	70 (61-76)	44/56	2.6 [2.1; 3.3] (2,835)	3.0 [2.5; 3.7] (2,506)	3.1 [2.6; 3.8] (2,006)	3.3 [2.7; 4.0] (1,276)	3.3 [2.7; 4.0] (491)	3.5 [2.8; 4.3] (112)
Exceed (Zimmer Biomet)	339	10	72 (63-77)	34/66	2.9 [1.6; 5.4] (318)	3.6 [2.0; 6.2] (302)	3.6 [2.0; 6.2] (294)	3.6 [2.0; 6.2] (287)	3.6 [2.0; 6.2] (168)	
Fitmore (Zimmer Biomet)	724	12	68 (59-76)	34/66	1.8 [1.1; 3.1] (691)	2.2 [1.4; 3.6] (576)	2.6 [1.6; 4.1] (414)	2.6 [1.6; 4.1] (216)	2.6 [1.6; 4.1] <sub>(74)</sub>	
G7 (Zimmer Biomet)	2,975	19	70 (62-77)	34/66	2.9 [2.3; 3.6] (2,350)	3.7 [3.0; 4.5] (1,688)	4.2 [3.5; 5.1] (1,077)	4.4 [3.6; 5.4] (497)	4.8 [3.8; 6.1] <sub>(93)</sub>	
HI Lubricer Schale (Smith & Nephew)	4,762	34	71 (62-77)	35/65	2.5 [2.1; 3.0] <sub>(3,978)</sub>	3.0 [2.6; 3.6] (3,097)	3.4 [2.8; 3.9] (2,087)	3.7 [3.2; 4.4] (1,236)	4.2 [3.5; 5.0] (472)	4.4 [3.6; 5.4] (116)
MobileLink TiCaP Cluster Hole (Waldemar Link)	868	29	70 (61-78)	34/66	4.7 [3.3; 6.6] (261)	6.4 [4.3; 9.4] (92)				

Table 43: Implant outcomes for acetabular cups in elective total hip arthroplasties. For each type of fixation, the cups are listed alphabetically by their designation. The table is continued on the following pages.

Elective total hip arthroplasties								Revision proba	bilities after		
Cup	Number	Hosp.	Age	m/f		1 year	2 years	3 years	4 years	5 years	6 years
Uncemented cups											
PINNACLE™ Press Fit-Hüftpfanne (DePuy)	35,753	168	70 (61-77)	37/63	2.	2.5 [2.4; 2.7] <sub>(27,336)</sub>	2.9 [2.7; 3.1] (19,574)	3.2 [3.0; 3.4] (12,809)	3.4 [3.2; 3.7] (6,996)	3.6 [3.3; 3.8] (2,646)	3.8 [3.5; 4.2] (736)
PINNACLE™ SPIROFIT™-Schraubpfanne (DePuy)	439	18	74 (65-79)	26/74	3	3.9 [2.4; 6.2] (405)	4.1 [2.6; 6.5] (377)	4.4 [2.8; 6.8] (316)	4.4 [2.8; 6.8] (203)	5.0 [3.2; 7.8] (123)	
PLASMACUP DC (Aesculap)	948	11	67 (57-76)	29/71	3	3.4 [2.4; 4.8] (874)	3.7 [2.6; 5.1] <sub>(693)</sub>	3.8 [2.8; 5.3] (595)	4.3 [3.2; 5.9] (454)	4.6 [3.3; 6.2] (260)	4.6 [3.3; 6.2] <sub>(98)</sub>
PLASMACUP delta (Aesculap)	491	19	61 (56-68)	56/44	1	1.0 [0.4; 2.5] (401)	1.0 [0.4; 2.5] (316)	1.0 [0.4; 2.5] (218)	1.0 [0.4; 2.5] (143)	1.0 [0.4; 2.5] (77)	
PLASMACUP SC (Aesculap)	5,436	40	70 (62-76)	38/62	2.	2.1 [1.7; 2.5] (4,561)	2.6 [2.2; 3.1] (3,682)	2.7 [2.3; 3.2] (2,814)	2.9 [2.4; 3.4] (1,935)	2.9 [2.5; 3.5] (1,007)	2.9 [2.5; 3.5] (345)
PLASMAFIT PLUS (Aesculap)	18,168	162	69 (60-76)	40/60	3.	3.0 [2.7; 3.2] (14,360)	3.3 [3.1; 3.6] (10,705)	3.6 [3.3; 3.9] (7,339)	3.7 [3.4; 4.0] (4,197)	3.7 [3.4; 4.0] (1,957)	3.7 [3.4; 4.0] (490)
PLASMAFIT POLY (Aesculap)	16,247	123	69 (61-77)	39/61	2.	2.8 [2.5; 3.0] (12,323)	3.1 [2.9; 3.4] (8,388)	3.2 [2.9; 3.5] (4,863)	3.3 [3.0; 3.6] (2,334)	3.3 [3.0; 3.6] (516)	3.3 [3.0; 3.6] <sub>(70)</sub>
PROCOTYL® L BEADED (MicroPort)	980	22	68 (60-75)	40/60	2	2.9 [2.0; 4.2] (669)	3.7 [2.6; 5.2] (440)	4.5 [3.2; 6.3] (271)	5.0 [3.4; 7.2] (144)		
Pyramid (Atesos)	2,508	23	71 (64-77)	36/64	2.	2.9 [2.3; 3.6] (2,051)	3.2 [2.6; 4.0] (1,644)	3.6 [2.9; 4.5] (1,163)	3.7 [3.0; 4.6] (643)	3.9 [3.1; 4.8] <sub>(190)</sub>	
R3 (Smith & Nephew)	13,185	110	70 (61-77)	39/61	3.	3.0 [2.7; 3.3] (10,147)	3.4 [3.1; 3.7] (7,079)	3.7 [3.3; 4.1] (4,162)	3.9 [3.5; 4.3] (1,893)	4.1 [3.7; 4.6] (567)	4.3 [3.8; 4.9] (95)
REFLECTION (Smith & Nephew)	899	9	68 (60-76)	38/62	1	1.7 [1.0; 2.8] (795)	2.1 [1.3; 3.3] (632)	2.4 [1.5; 3.7] (415)	2.4 [1.5; 3.7] (286)	2.4 [1.5; 3.7] (53)	
RM Classic bevelled (Mathys)	1,274	16	75 (67-79)	31/69	3.	3.2 [2.4; 4.3] (1,145)	3.8 [2.9; 5.1] (1,039)	3.9 [3.0; 5.2] (907)	4.2 [3.2; 5.5] (698)	4.5 [3.4; 5.8] <sub>(370)</sub>	4.5 [3.4; 5.8] (194)
RM Classic full profile (Mathys)	463	4	77 (72-80)	30/70	1	1.0 [0.4; 2.7] (311)	1.0 [0.4; 2.7] (189)	1.9 [0.7; 5.2] (111)	1.9 [0.7; 5.2] (74)		
RM Pressfit (Mathys)	1,136	12	74 (67-79)	40/60	2.	2.3 [1.6; 3.4] (1,013)	2.7 [1.9; 3.9] (749)	3.0 [2.1; 4.3] (555)	3.6 [2.6; 5.0] (329)	3.6 [2.6; 5.0] <sub>(147)</sub>	
RM Pressfit vitamys (Mathys)	11,417	67	68 (60-76)	41/59	1.	1.7 [1.5; 2.0] (8,404)	1.9 [1.7; 2.2] (5,737)	2.1 [1.8; 2.4] (3,431)	2.2 [1.9; 2.5] (1,661)	2.7 [2.2; 3.2] (593)	2.7 [2.2; 3.2] (124)
SCREWCUP SC (Aesculap)	1,888	52	72 (63-78)	35/65	2	2.9 [2.3; 3.8] (1,529)	3.8 [3.0; 4.8] (1,123)	4.2 [3.3; 5.3] (709)	4.7 [3.7; 6.0] (386)	5.5 [4.1; 7.4] (189)	5.5 [4.1; 7.4] (61)
seleXys PC (Mathys)	513	7	70 (61-77)	39/61	1	1.0 [0.4; 2.4] (448)	1.0 [0.4; 2.4] (347)	1.0 [0.4; 2.4] (245)	2.0 [0.9; 4.6] (129)		
T.O.P. Hüftpfannensystem (Waldemar Link)	350	8	62 (56-68)	50/50	2	2.3 [1.2; 4.6] (332)	2.6 [1.4; 4.9] (319)	2.9 [1.6; 5.4] (292)	3.3 [1.8; 5.8] (260)	3.8 [2.1; 6.6] (183)	3.8 [2.1; 6.6] (126)
TM Modular (Zimmer Biomet)	1,097	106	64 (54-74)	29/71	6	6.2 [4.9; 7.8] (847)	7.0 [5.6; 8.8] <sub>(657)</sub>	7.5 [6.0; 9.4] (464)	8.0 [6.4; 10.0] (289)	8.4 [6.7; 10.5] (139)	
Trident Cup (Stryker)	6,122	55	69 (61-76)	40/60	2	2.7 [2.3; 3.1] (4,524)	3.1 [2.7; 3.6] (2,893)	3.4 [3.0; 4.0] (1,543)	3.7 [3.2; 4.4] (798)	3.7 [3.2; 4.4] (274)	
Trident TC Cup (Stryker)	782	15	73 (65-78)	32/68	2	2.6 [1.7; 4.0] (730)	3.1 [2.1; 4.6] (701)	3.6 [2.5; 5.1] <sub>(645)</sub>	3.7 [2.6; 5.3] (492)	4.0 [2.8; 5.7] (124)	
Trilogy (Zimmer Biomet)	5,199	27	68 (60-75)	37/63	2	2.0 [1.7; 2.5] (4,542)	2.7 [2.3; 3.2] (3,705)	2.8 [2.4; 3.4] (2,826)	2.9 [2.5; 3.5] (1,870)	3.2 [2.7; 3.7] (963)	3.3 [2.8; 4.0] (418)
Trilogy IT (Zimmer Biomet)	1,212	6	71 (62-77)	38/62	3.	3.1 [2.2; 4.2] (1,003)	3.3 [2.4; 4.5] (807)	3.4 [2.5; 4.7] <sub>(597)</sub>	3.6 [2.6; 5.0] (397)	3.6 [2.6; 5.0] (168)	
Trinity Hole (Corin)	1,649	38	66 (58-75)	42/58	2	2.3 [1.7; 3.2] (1,326)	2.5 [1.8; 3.4] (1,033)	2.7 [2.0; 3.7] (756)	2.9 [2.1; 4.0] (434)	2.9 [2.1; 4.0] (171)	

Elective total hip arthroplasties							Revision proba	abilities after		
Cup	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Uncemented cups										
Trinity no Hole (Corin)	2,183	24	68 (61-76)	41/59	2.2 [1.7; 2.9] (1,962)	2.8 [2.2; 3.6] (1,562)	3.1 [2.4; 4.0] (1,133)	3.2 [2.5; 4.1] <sub>(736)</sub>	3.4 [2.6; 4.3] <sub>(331)</sub>	
Tritanium Cup (Stryker)	2,055	24	71 (63-77)	38/62	2.7 [2.1; 3.5] (1,504)	3.1 [2.4; 4.1] (959)	3.6 [2.8; 4.6] (654)	3.9 [3.0; 5.1] (343)	3.9 [3.0; 5.1] (123)	
VERSAFITCUP CC TRIO (Medacta)	8,209	49	70 (61-77)	38/62	2.5 [2.2; 2.9] (6,145)	3.0 [2.6; 3.4] (4,233)	3.2 [2.8; 3.7] (2,246)	3.4 [2.9; 3.9] (837)	4.2 [3.1; 5.6] <sub>(95)</sub>	
Cemented cups										
ALL POLY CUP STANDARD (Aesculap)	3,217	126	80 (76-83)	23/77	2.6 [2.1; 3.2] (2,611)	3.0 [2.5; 3.7] (2,030)	3.3 [2.7; 4.1] (1,428)	3.4 [2.8; 4.1] (896)	3.5 [2.9; 4.3] (423)	3.5 [2.9; 4.3] (146)
AVANTAGE (Zimmer Biomet)	563	94	78 (71-83)	25/75	4.1 [2.7; 6.2] (354)	4.4 [2.9; 6.6] (210)	5.2 [3.3; 8.2] (110)	6.6 [3.8; 11.4] <sub>(58)</sub>		
CCB full profile (Mathys)	322	15	80 (75-83)	19/81	1.8 [0.7; 4.3] (217)	2.3 [1.0; 5.1] (136)	2.3 [1.0; 5.1] (79)			
CCB low profile (Mathys)	453	24	79 (74-82)	24/76	3.2 [1.9; 5.3] (339)	4.4 [2.8; 6.9] (222)	4.4 [2.8; 6.9] (172)	4.4 [2.8; 6.9] (100)	5.7 [3.2; 10.0] <sub>(54)</sub>	
Endo-Modell Mark III (Waldemar Link)	557	6	77 (72-81)	18/82	1.8 [1.0; 3.4] (508)	2.6 [1.6; 4.4] (458)	3.1 [1.9; 5.0] (402)	3.3 [2.1; 5.3] (338)	3.3 [2.1; 5.3] (271)	3.3 [2.1; 5.3] (199)
Flachprofil (Zimmer Biomet)	6,516	262	80 (76-83)	23/77	3.0 [2.6; 3.5] (5,148)	3.5 [3.0; 4.0] (3,892)	3.9 [3.4; 4.4] (2,657)	4.1 [3.5; 4.6] (1,626)	4.4 [3.8; 5.1] <sub>(708)</sub>	4.8 [3.9; 5.9] (197)
Hüftpfanne Müller II (OHST Medizintechnik)	2,431	104	80 (76-83)	24/76	2.8 [2.2; 3.6] (2,075)	3.4 [2.7; 4.2] (1,730)	3.7 [3.0; 4.6] (1,260)	3.9 [3.2; 4.8] (724)	3.9 [3.2; 4.8] (266)	
IP-Hüftpfannen, UHMWPE (Waldemar Link)	389	18	80 (76-83)	26/74	2.1 [1.1; 4.1] (329)	2.8 [1.5; 5.1] (258)	3.2 [1.8; 5.7] (188)	3.2 [1.8; 5.7] (146)	3.2 [1.8; 5.7] <sub>(59)</sub>	
IP-Hüftpfannen, X-Linked (Waldemar Link)	849	27	80 (78-84)	26/74	2.6 [1.7; 3.9] (720)	3.0 [2.0; 4.4] (541)	3.4 [2.3; 5.0] (383)	4.6 [3.1; 6.9] (224)	4.6 [3.1; 6.9] (82)	
Kunststoffpfanne Modell Lubinus (Waldemar Link)	904	33	79 (74-83)	24/76	1.9 [1.1; 3.0] (707)	2.2 [1.4; 3.4] (532)	2.3 [1.5; 3.7] (393)	2.7 [1.7; 4.4] (217)	3.4 [2.0; 5.9] (108)	
Mueller II (Implantcast)	301	27	79 (74-83)	22/78	3.5 [1.9; 6.4] (236)	4.9 [2.8; 8.3] (141)	5.8 [3.3; 9.8] (95)			
TRILOC® II-PE-Hüftpfanne (DePuy)	1,035	80	79 (74–83)	19/81	3.0 [2.1; 4.3] (840)	3.1 [2.2; 4.4] (661)	3.4 [2.5; 4.8] (481)	3.7 [2.6; 5.1] <sub>(297)</sub>	4.5 [3.1; 6.6] (102)	

Total knee arthroplasties								Probability of patella	ar resurfacing after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Constrained total knee systems, hinged, fix	ed bearing, cemented										
Endo-Modell® - M, Rotationsversion (Waldemar Link)	Endo-Modell® - M, Rotationsversion (Waldemar Link)	761	98	77 (68-82)	23/77	0.2 [0.0; 1.1] (55	1.0 [0.4; 2.4] (364)	1.0 [0.4; 2.4] (218)	1.9 [0.7; 5.5] (92)		
Endo-Modell®, Rotationsversion (Waldemar Link)	Endo-Modell®, Rotationsversion (Waldemar Link)	866	117	77 (69-82)	20/80	0.3 [0.1; 1.1] (65	0.8 [0.3; 1.9] (485)	0.8 [0.3; 1.9] (331)	0.8 [0.3; 1.9] (192)	0.8 [0.3; 1.9] (93)	
ENDURO (Aesculap)	ENDURO (Aesculap)	1,175	133	76 (68-80)	21/79	0.6 [0.3; 1.3] (88	1.1 [0.6; 2.1] (644)	1.7 [1.0; 3.0] (423)	1.7 [1.0; 3.0] (248)	1.7 [1.0; 3.0] (107)	
NexGen RHK (Zimmer Biomet)	NexGen RHK (Zimmer Biomet)	792	112	75 (68-81)	24/76	0.3 [0.1; 1.2] (62	0.7 [0.3; 1.9] (435)	1.4 [0.6; 3.2] (268)	1.4 [0.6; 3.2] (154)	1.4 [0.6; 3.2] (75)	
RT-Plus (Smith & Nephew)	RT-Plus (Smith & Nephew)	1,614	118	77 (70-81)	20/80	0.4 [0.2; 0.9] (1,2	0.7 [0.4; 1.3] (933)	0.9 [0.5; 1.7] (641)	1.1 [0.6; 2.0] (361)	1.1 [0.6; 2.0] (128)	
RT-Plus Modular (Smith & Nephew)	RT-Plus Modular (Smith & Nephew)	442	93	75 (65-81)	28/72	0.8 [0.3; 2.4] (33	1.1 [0.4; 2.9] (258)	1.1 [0.4; 2.9] (185)	1.1 [0.4; 2.9] (91)		
Constrained total knee systems, varus-valg	gus-stabilised, fixed bearing, cemented										
LEGION PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	378	39	71 (64-78)	29/71	0.0 (252)	0.0 (107)				
LEGION Revision COCR (Smith & Nephew)	LEGION Revision (Smith & Nephew)	329	51	71 (64–78)	27/73	0.4 [0.1; 2.5] (26	0.8 [0.2; 3.2] (199)	0.8 [0.2; 3.2] (139)	0.8 [0.2; 3.2] (57)		
NexGen LCCK (Zimmer Biomet)	NexGen (Zimmer Biomet)	1,020	92	72 (63-79)	32/68	0.2 [0.1; 0.9] (81	0.9 [0.4; 1.9] (612)	0.9 [0.4; 1.9] (434)	0.9 [0.4; 1.9] (246)	0.9 [0.4; 1.9] (90)	
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	446	21	71 (64–77)	33/67	0.0 (319)	0.4 [0.1; 2.9] (209)	0.4 [0.1; 2.9] (131)	1.2 [0.3; 5.0] <sub>(75)</sub>		
Standard total knee systems, cruciate-reta	ining, fixed bearing, hybrid										
COLUMBUS CR zf (Aesculap)	COLUMBUS CR/PS (Aesculap)	485	5	69 (62-76)	38/62	0.0 (397)	0.0 (331)	0.0 (247)	0.0 (138)		
EFK Femur zementfrei (OHST Medizintechnik)	EFK Tibia zementiert (OHST Medizintechnik)	1,132	13	70 (63–76)	42/58	0.2 [0.0; 0.8] (1,0	0.6 [0.3; 1.3] (909)	0.6 [0.3; 1.3] (812)	0.6 [0.3; 1.3] (619)	0.6 [0.3; 1.3] (300)	
GENESIS II CR COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	389	5	68 (62-76)	43/57	0.3 [0.0; 2.0] (34	0.3 [0.0; 2.0] (303)	1.1 [0.3; 3.3] (246)	1.1 [0.3; 3.3] (179)	1.1 [0.3; 3.3] (121)	1.1 [0.3; 3.3] (60)
NexGen CR-Flex (Zimmer Biomet)	NexGen (Zimmer Biomet)	522	18	69 (61-75)	51/49	0.6 [0.2; 1.9] (48	0.8 [0.3; 2.3] (388)	0.8 [0.3; 2.3] (248)	0.8 [0.3; 2.3] (139)	0.8 [0.3; 2.3] (78)	
NexGen CR (Zimmer Biomet)	NexGen (Zimmer Biomet)	491	6	69 (62-75)	48/52	0.0 (456)	0.0 (413)	0.0 (363)	0.0 (223)	0.0 (89)	
TC-PLUS CR (Smith & Nephew)	TC-PLUS (Smith & Nephew)	407	12	71 (63-77)	38/62	0.3 [0.0; 2.2] (31)	0.3 [0.0; 2.2] (254)	0.3 [0.0; 2.2] (130)			
Triathlon CR (Stryker)	Triathlon (Stryker)	311	14	69 (63-75)	38/62	0.0 (266)	0.8 [0.2; 3.2] (198)	0.8 [0.2; 3.2] (150)	0.8 [0.2; 3.2] (66)		
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	689	8	68 (60-74)	43/57	0.0 (521)	0.4 [0.1; 1.7] (372)	1.1 [0.4; 2.9] (233)	1.1 [0.4; 2.9] <sub>(123)</sub>		
Standard total knee systems, cruciate-reta	ining, fixed bearing, cemented										
ACS cemented (Implantcast)	ACS FB cemented (Implantcast)	650	39	66 (59-74)	22/78	0.0 (499)	0.4 [0.1; 1.8] (334)	0.8 [0.2; 2.4] (189)	0.8 [0.2; 2.4] (80)		
ACS LD cemented (Implantcast)	ACS LD FB cemented (Implantcast)	321	9	70 (63-76)	48/52	0.4 [0.1; 2.8]	1.9 [0.7; 5.1] (148)	1.9 [0.7; 5.1] (74)			

Table 44: Implant outcomes for secondary patellar resurfacing. The table is continued on the following pages.

Total knee arthroplasties							Probability of patellar resurfacing after								
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years				
Standard total knee systems, cruciate-retai	ining, fixed bearing, cemented														
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	4,656	92	67 (59-75)	39/61	0.2 [0.1; 0.4] (3,584)	0.6 [0.4; 0.9] (2,534)	0.6 [0.4; 1.0] (1.670)	0.8 [0.5; 1.2] (878)	0.8 [0.5; 1.2] (402)	0.8 [0.5; 1.2] (127)				
balanSys BICONDYLAR cem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	1,755	19	72 (64-78)	36/64	0.0 (1,342)	0.0 (950)	0.2 [0.1; 0.9] (621)	0.2 [0.1; 0.9] (282)	0.2 [0.1; 0.9] (77)					
COLUMBUS CR (Aesculap)	COLUMBUS CR/PS (Aesculap)	10,255	127	71 (62-77)	33/67	0.2 [0.1; 0.3] (8,047)	0.6 [0.5; 0.9] (5,709)	0.8 [0.6; 1.0] (3,736)	0.8 [0.7; 1.1] (2,111)	1.1 [0.8; 1.4] (918)	1.1 [0.8; 1.4] (291)				
COLUMBUS CR (Aesculap)	COLUMBUS CRA/PSA (Aesculap)	2,337	34	69 (62-77)	36/64	0.3 [0.1; 0.7] (1,824)	0.5 [0.3; 1.0] (1,237)	0.5 [0.3; 1.0] (718)	0.5 [0.3; 1.0] (322)	0.5 [0.3; 1.0] (102)					
EFK Femur zementiert (OHST Medizintechnik)	EFK Tibia zementiert (OHST Medizintechnik)	2,888	39	72 (64-77)	38/62	0.1 [0.0; 0.3] (2,686)	0.3 [0.2; 0.6] (2,459)	0.4 [0.2; 0.7] (2,216)	0.4 [0.2; 0.7] (1,502)	0.5 [0.3; 0.9] (536)	0.5 [0.3; 0.9] (53)				
EFK Femur zementiert TiNbN (OHST Medizintechnik)	EFK Tibia zementiert TiNbN (OHST Medizintechnik)	414	43	66 (58-74)	6/94	0.3 [0.0; 1.9] (370)	0.3 [0.0; 1.9] (327)	0.6 [0.1; 2.4] (293)	0.6 [0.1; 2.4] (244)	0.6 [0.1; 2.4] (90)					
GEMINI SL Fixed Bearing CR / Mobile Bearing (zementiert) (Waldemar Link)	GEMINI SL Fixed Bearing CR/ PS (zementiert) (Waldemar Link)	372	26	72 (63-77)	31/69	0.3 [0.0; 2.1] (319)	0.6 [0.2; 2.6] (229)	0.6 [0.2; 2.6] (131)	0.6 [0.2; 2.6] (64)						
GENESIS II CR COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	6,660	83	70 (62-76)	34/66	0.5 [0.3; 0.7] (5,237)	1.2 [0.9; 1.6] (3,755)	1.5 [1.2; 1.9] (2,661)	1.5 [1.2; 1.9] (1,625)	1.6 [1.3; 2.1] (714)	1.6 [1.3; 2.1] (155)				
GENESIS II CR OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	1,948	103	66 (58-73)	20/80	0.5 [0.3; 1.0] (1,636)	1.0 [0.6; 1.7] (1,289)	1.6 [1.0; 2.4] (911)	1.7 [1.1; 2.6] (593)	1.9 [1.3; 2.9] (307)	1.9 [1.3; 2.9] (150)				
GENESIS II LDK COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	1,696	16	70 (62-76)	38/62	0.3 [0.1; 0.7] (1,609)	1.1 [0.7; 1.8] (1,436)	1.5 [1.0; 2.2] (1,054)	1.7 [1.1; 2.5] (763)	1.7 [1.1; 2.5] (352)	1.7 [1.1; 2.5] <sub>(101)</sub>				
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	1,073	25	73 (65-78)	42/58	0.2 [0.1; 0.8] (871)	0.3 [0.1; 1.0] (694)	0.9 [0.4; 2.0] (492)	0.9 [0.4; 2.0] (282)	0.9 [0.4; 2.0] (137)					
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	309	17	72 (65-78)	17/83	0.4 [0.1; 2.5] (263)	1.2 [0.4; 3.6] (211)	1.2 [0.4; 3.6] (147)	1.2 [0.4; 3.6] (90)	1.2 [0.4; 3.6] (51)					
JOURNEY II CR OXINIUM (Smith & Nephew)	JOURNEY (Smith & Nephew)	801	23	64 (58-72)	36/64	0.3 [0.1; 1.2] (659)	0.7 [0.2; 1.8] (485)	0.7 [0.2; 1.8] (225)	0.7 [0.2; 1.8] (82)						
LEGION CR COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	7,046	100	71 (63-77)	38/62	0.2 [0.1; 0.4] (5,027)	0.7 [0.5; 1.0] (2,869)	0.8 [0.6; 1.1] (1,237)	0.8 [0.6; 1.1] (454)						
LEGION CR OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	1,563	110	65 (58-73)	15/85	0.4 [0.1; 0.9] (1,056)	1.1 [0.6; 2.1] (625)	1.1 [0.6; 2.1] (295)	1.1 [0.6; 2.1] (93)						
Natural Knee NK Flex (Zimmer Biomet)	Natural Knee NK II (Zimmer Biomet)	385	10	72 (63-78)	33/67	0.0 (360)	0.3 [0.0; 2.0] (309)	0.6 [0.2; 2.5] (207)	0.6 [0.2; 2.5] (120)	0.6 [0.2; 2.5] (74)					
NexGen CR-Flex-Gender (Zimmer Biomet)	NexGen (Zimmer Biomet)	3,632	93	70 (62-77)	10/90	0.1 [0.0; 0.3] (3,070)	0.4 [0.2; 0.7] (2,350)	0.6 [0.4; 1.0] (1,584)	0.6 [0.4; 1.0] (981)	0.6 [0.4; 1.0] (479)	0.6 [0.4; 1.0] (203)				
NexGen CR-Flex (Zimmer Biomet)	NexGen (Zimmer Biomet)	12,528	113	72 (64-77)	42/58	0.1 [0.0; 0.1] (10,150)	0.2 [0.2; 0.3] (7,606)	0.3 [0.2; 0.5] (5,051)	0.4 [0.3; 0.6] (3,019)	0.4 [0.3; 0.6] (1,451)	0.4 [0.3; 0.6] (537)				
NexGen CR (Zimmer Biomet)	NexGen (Zimmer Biomet)	2,984	48	70 (62-76)	43/57	0.1 [0.1; 0.4] (2,540)	0.5 [0.3; 0.9] (2,119)	0.7 [0.4; 1.1] (1,508)	0.8 [0.5; 1.3] (1,009)	0.8 [0.5; 1.3] (579)	0.8 [0.5; 1.3] (169)				
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	2,986	65	69 (61-76)	39/61	0.1 [0.0; 0.3] (2,058)	0.2 [0.1; 0.5] (1,187)	0.3 [0.1; 0.8] (688)	0.3 [0.1; 0.8] (313)	0.3 [0.1; 0.8] (94)					
TC-PLUS CR (Smith & Nephew)	TC-PLUS (Smith & Nephew)	3,327	40	72 (64-78)	36/64	0.2 [0.1; 0.4] (2,726)	0.3 [0.1; 0.6] (1,954)	0.4 [0.2; 0.7] (985)	0.4 [0.2; 0.7] (417)	0.7 [0.3; 1.7] (100)					
Triathlon CR (Stryker)	Triathlon (Stryker)	5,828	73	71 (63-77)	36/64	0.4 [0.2; 0.6] (4,606)	1.0 [0.8; 1.4] (3,337)	1.5 [1.1; 1.9] (2,253)	1.7 [1.3; 2.2] (1,291)	1.7 [1.3; 2.2] (585)	1.7 [1.3; 2.2] (165)				
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	9,405	84	71 (63-77)	33/67	0.1 [0.1; 0.2] (7,373)	0.4 [0.3; 0.6] (5,269)	0.7 [0.5; 0.9] (3,385)	0.7 [0.5; 1.0] (1,844)	0.7 [0.5; 1.0] (631)	0.7 [0.5; 1.0] (59)				

Total knee arthroplasties							Probability of patellar resurfacing after						
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 ye	ear	2 years	3 years	4 years	5 years	6 ye	
Standard total knee systems, cruciate-ret	aining, mobile bearing, hybrid												
TC-PLUS CR (Smith & Nephew)	TC-PLUS SB (Smith & Nephew)	368	6	69 (62-77)	34/66	0.3 [0.0;	; 2.0] (335)	0.3 [0.0; 2.0] (298)	0.3 [0.0; 2.0] (255)	0.8 [0.2; 3.4] (143)			
Standard total knee systems, cruciate-ret	aining, mobile bearing, cemented												
ACS cemented (Implantcast)	ACS MB cemented (Implantcast)	504	21	71 (62-77)	30/70	0.2 [0.0;	; 1.6] (421)	0.5 [0.1; 1.9] (319)	1.2 [0.4; 3.3] (227)	1.2 [0.4; 3.3] (132)			
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	1,186	21	69 (62-75)	38/62	0.2 [0.0;	; 0.8] (962)	0.4 [0.2; 1.2] (707)	0.8 [0.3; 1.7] (472)	1.0 [0.5; 2.1] (264)	1.0 [0.5; 2.1] (73)		
COLUMBUS CR (Aesculap)	COLUMBUS RP (Aesculap)	1,877	22	71 (64-77)	35/65	0.2 [0.1;	0.6] (1,560)	0.3 [0.1; 0.7] (1,151)	0.3 [0.1; 0.7] (787)	0.5 [0.2; 1.3] (451)	0.5 [0.2; 1.3] (182)	0.5 [0.2;	
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	1,007	59	70 (63-77)	98/2	0.1 [0.0;	; 0.8] (845)	0.1 [0.0; 0.8] (662)	0.3 [0.1; 1.2] (465)	0.3 [0.1; 1.2] (259)	0.3 [0.1; 1.2] (75)		
NexGen CR-Flex (Zimmer Biomet)	NexGen CR (Zimmer Biomet)	468	9	70 (64-76)	41/59	0.5 [0.1;	; 1.9] (400)	0.8 [0.2; 2.4] (334)	0.8 [0.2; 2.4] (241)	0.8 [0.2; 2.4] (188)	0.8 [0.2; 2.4] (80)		
TC-PLUS CR (Smith & Nephew)	TC-PLUS SB (Smith & Nephew)	371	9	71 (63-78)	29/71	0.6 [0.2;	; 2.5] (306)	1.3 [0.5; 3.4] (251)	1.7 [0.7; 4.1] (201)	1.7 [0.7; 4.1] (104)			
Standard total knee systems, cruciate-ret	aining/sacrificing, fixed bearing, hybrid												
SIGMA® Femur (DePuy)	SIGMA® Tibia (DePuy)	748	20	68 (61-76)	41/59	0.1 [0.0;	; 1.1] (632)	0.5 [0.2; 1.5] (488)	0.7 [0.3; 1.9] (334)	0.7 [0.3; 1.9] (188)	0.7 [0.3; 1.9] (71)		
Standard total knee systems, cruciate-ret	aining/sacrificing, fixed bearing, cemented												
3D (Speetec Implantate Gmbh)	3D (Speetec Implantate Gmbh)	1,349	20	71 (63-77)	35/65	0.3 [0.1;	0.8] (1,153)	1.1 [0.6; 1.8] (1,039)	1.2 [0.7; 2.0] (791)	1.2 [0.7; 2.0] (482)	1.5 [0.8; 2.6] (184)		
SIGMA® Femur (DePuy)	SIGMA® Tibia (DePuy)	18,571	123	71 (63-77)	35/65	0.2 [0.1; 0	0.3] (14,781)	0.5 [0.4; 0.6] (10,768)	0.6 [0.5; 0.8] (7,369)	0.7 [0.5; 0.8] (4,074)	0.8 [0.6; 1.0] (1,645)	0.9 [0.7; 1	
Unity CR cmtd (Corin)	Unity cmtd (Corin)	357	11	75 <sub>(68–78)</sub>	26/74	0.6 [0.1;	; 2.3] (322)	0.9 [0.3; 2.9] (263)	0.9 [0.3; 2.9] (190)	0.9 [0.3; 2.9] (120)	0.9 [0.3; 2.9] (57)		
Standard total knee systems, cruciate-ret	aining/sacrificing, mobile bearing, hybrid												
LCS® COMPLETE™ Femur (DePuy)	MBT Tibia (DePuy)	2,739	34	70 (62-77)	35/65	0.2 [0.1;	0.4] (2,372)	0.6 [0.3; 1.0] (1,864)	0.6 [0.4; 1.1] (1,235)	0.6 [0.4; 1.1] (669)	0.6 [0.4; 1.1] (248)	0.6 [0.4;	
Standard total knee systems, cruciate-ret	aining/sacrificing, mobile bearing, uncemented	d											
LCS® COMPLETE™ Femur (DePuy)	LCS® COMPLETE™ Tibia (DePuy)	489	69	64 (58-73)	5/95	0.2 [0.0;	; 1.7] (395)	0.6 [0.1; 2.3] (280)	1.0 [0.3; 3.0] (173)	1.0 [0.3; 3.0] (77)			
LCS® COMPLETE™ Femur (DePuy)	MBT Tibia (DePuy)	1,157	21	70 (61-76)	36/64	0.5 [0.2;	; 1.1] (996)	0.8 [0.4; 1.6] (799)	0.8 [0.4; 1.6] (556)	0.8 [0.4; 1.6] (335)	0.8 [0.4; 1.6] (134)	0.8 [0.4; 1	
SCORE (Amplitude)	SCORE (Amplitude)	361	4	69 (62-77)	30/70	0.0	(260)	0.4 [0.1; 2.8] (163)	0.4 [0.1; 2.8] (97)				
Standard total knee systems, cruciate-ret	aining/sacrificing, mobile bearing, cemented												
E.MOTION FP/UC (Aesculap)	E.MOTION UC/PS (Aesculap)	7,937	79	70 (62-77)	33/67	0.6 [0.4;	0.8] (6,273)	1.5 [1.2; 1.8] (4,465)	1.7 [1.4; 2.1] (2,816)	2.0 [1.6; 2.4] (1,491)	2.1 [1.7; 2.6] (587)	2.1 [1.7; 2	
LCS® COMPLETE™ Femur (DePuy)	MBT Tibia (DePuy)	4,845	58	71 (64-77)	36/64	0.3 [0.2;	0.5] (4,303)	0.9 [0.7; 1.2] (3,539)	1.1 [0.8; 1.5] (2,737)	1.1 [0.8; 1.5] (1,836)	1.2 [0.9; 1.6] (843)	1.2 [0.9; 1	
SIGMA® Femur (DePuy)	MBT Tibia (DePuy)	1,683	26	72 (64-78)	37/63	0.3 [0.1;	0.8] (1,301)	1.1 [0.6; 1.9] (874)	1.3 [0.8; 2.2] (565)	1.3 [0.8; 2.2] (310)	1.3 [0.8; 2.2] (67)		

Total knee arthroplasties							Probability of patellar resurfacing after								
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 уеаг	2 years	3 years	4 years	5 years	6 years				
Standard total knee systems, cruciate-sacr	ificing, fixed bearing, hybrid														
balanSys BICONDYLAR uncem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	973	7	70 (63-77)	45/55	0.2 [0.1; 1.0]	0.7 [0.3; 1.7] (511)	0.7 [0.3; 1.7] (339)	1.0 [0.4; 2.4] (168)	1.0 [0.4; 2.4] (88)					
Standard total knee systems, cruciate-sacr	ificing, fixed bearing, cemented														
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	1,163	60	69 (61-76)	37/63	0.6 [0.2; 1.4]	1.2 [0.6; 2.3] (592)	1.3 [0.7; 2.5] (445)	1.7 [0.9; 3.2] (253)	1.7 [0.9; 3.2] (131)					
balanSys BICONDYLAR cem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	1,248	23	70 (62-77)	28/72	0.0 (886)	0.9 [0.4; 1.9] (602)	1.5 [0.8; 2.8] (329)	1.5 [0.8; 2.8] (168)	1.5 [0.8; 2.8] (87)					
COLUMBUS CR (Aesculap)	COLUMBUS CR/PS (Aesculap)	1,804	77	70 (62-77)	24/76	0.0 (1,393)	0.2 [0.1; 0.7] (1,006)	0.4 [0.1; 1.0] (656)	0.4 [0.1; 1.0] (345)	0.4 [0.1; 1.0] (114)					
COLUMBUS CR (Aesculap)	COLUMBUS CRA/PSA (Aesculap)	718	24	69 (61-76)	31/69	0.0 (572)	0.0 (438)	0.0 (270)	0.0 (142)						
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	1,047	38	71 (64-78)	40/60	0.3 [0.1; 1.0]	0.7 [0.3; 1.5] (692)	0.7 [0.3; 1.5] (430)	0.9 [0.4; 2.0] (215)	0.9 [0.4; 2.0] (63)					
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	597	28	72 (65–77)	21/79	0.2 [0.0; 1.3]	0.4 [0.1; 1.5] (405)	0.4 [0.1; 1.5] (259)	0.4 [0.1; 1.5] (166)	0.4 [0.1; 1.5] (57)					
Natural Knee NK Flex (Zimmer Biomet)	Natural Knee NK II (Zimmer Biomet)	477	9	68 (61-75)	32/68	0.2 [0.0; 1.6]	0.5 [0.1; 1.9] (362)	0.5 [0.1; 1.9] (270)	0.9 [0.3; 2.8] (191)	0.9 [0.3; 2.8] (111)	0.9 [0.3; 2.8] (59)				
Natural Knee NK II (Zimmer Biomet)	Natural Knee NK II (Zimmer Biomet)	335	8	73 (67-77)	28/72	0.3 [0.0; 2.2]	0.3 [0.0; 2.2] (312)	0.3 [0.0; 2.2] (303)	0.3 [0.0; 2.2] (228)	0.3 [0.0; 2.2] (161)	0.3 [0.0; 2.2] (65)				
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	2,050	56	69 (61-76)	37/63	0.0 (1,312)	0.3 [0.1; 0.9] (784)	0.3 [0.1; 0.9] (483)	0.3 [0.1; 0.9] (229)	0.3 [0.1; 0.9] (64)					
SIGMA® Femur (DePuy)	SIGMA® Tibia (DePuy)	2,453	91	71 (64-77)	33/67	0.6 [0.3; 1.0] (1	1.3 [0.9; 1.9] (1,521)	1.7 [1.2; 2.4] (1,068)	1.8 [1.3; 2.5] (606)	1.8 [1.3; 2.5] (221)	1.8 [1.3; 2.5] (55)				
Triathlon CR (Stryker)	Triathlon (Stryker)	1,388	21	69 (62-76)	37/63	0.1 [0.0; 0.7]	0.5 [0.2; 1.3] (586)	0.7 [0.3; 1.6] (289)	0.7 [0.3; 1.6] (183)	0.7 [0.3; 1.6] (85)					
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	5,530	75	72 (64-78)	30/70	0.2 [0.1; 0.4] (4	0.6 [0.4; 0.9] (3,069)	0.8 [0.6; 1.2] (1,961)	1.0 [0.7; 1.4] (1,074)	1.0 [0.7; 1.4] (364)					
Standard total knee systems, cruciate-sacr	ificing, mobile bearing, hybrid														
balanSys BICONDYLAR uncem. (Mathys)	balanSys BICONDYLAR RP (Mathys)	607	6	70 (62-77)	41/59	0.7 [0.3; 1.9]	1.1 [0.5; 2.4] (453)	1.3 [0.6; 2.8] (356)	1.6 [0.8; 3.3] (238)	2.1 [1.0; 4.1] (139)	2.1 [1.0; 4.1] (91)				
Standard total knee systems, cruciate-sacr	ificing, mobile bearing, cemented														
ATTUNE® Femur (DePuy)	ATTUNE™ Tibia (DePuy)	377	19	77 (68-80)	36/64	0.6 [0.2; 2.5]	1.7 [0.7; 4.0] (196)	2.2 [1.0; 4.9] (113)	2.2 [1.0; 4.9] <sub>(63)</sub>						
COLUMBUS CR (Aesculap)	COLUMBUS UCR (Aesculap)	944	5	69 (62-76)	40/60	0.2 [0.1; 0.9]	0.7 [0.3; 1.6] (711)	0.7 [0.3; 1.6] (584)	0.9 [0.4; 1.9] (398)	0.9 [0.4; 1.9] (193)					
INNEX (Zimmer Biomet)	INNEX (Zimmer Biomet)	3,976	63	73 (65-78)	31/69	0.1 [0.1; 0.3] (3	0.6 [0.4; 1.0] (2,570)	0.8 [0.5; 1.2] (1,754)	1.1 [0.7; 1.6] (942)	1.2 [0.8; 1.8] (294)					
INNEX Gender (Zimmer Biomet)	INNEX (Zimmer Biomet)	3,202	59	72 (64–78)	19/81	0.3 [0.1; 0.5] (2)	1.0 [0.7; 1.5] (1,863)	1.4 [0.9; 2.0] (1,241)	1.5 [1.0; 2.2] (628)	1.7 [1.1; 2.5] (161)					
SIGMA® Femur (DePuy)	MBT Tibia (DePuy)	493	34	73 (65-79)	30/70	0.7 [0.2; 2.1]	1.3 [0.5; 3.1] (261)	1.3 [0.5; 3.1] (170)	1.9 [0.8; 4.4] (77)						
Standard total knee systems, pivot, fixed be	earing, cemented														
ADVANCE® (MicroPort)	ADVANCE® II (MicroPort)	389	8	72 (64-78)	48/52	0.0 (319)	1.4 [0.5; 3.6] (238)	1.4 [0.5; 3.6] (159)	1.4 [0.5; 3.6] (100)						

Total knee arthroplasties								Probability of patella	r resurfacing after		
Femoral component	Tibial component	Number	Hosp.	Age	m/f	1 year	2 years	3 years	4 years	5 years	6 years
Standard total knee systems, pivot, fixed be	earing, cemented										
EVOLUTION® (MicroPort)	EVOLUTION® (MicroPort)	1,003	15	68 (61-76)	35/65	0.6 [0.2; 1.4] (730)	0.9 [0.4; 1.8] (415)	0.9 [0.4; 1.8] (191)			
GMK SPHERE (Medacta)	GMK (Medacta)	738	25	68 (61-75)	46/54	0.8 [0.3; 2.0] (444)	1.5 [0.7; 3.2] (261)	1.5 [0.7; 3.2] (109)			
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	524	7	69 (62-76)	42/58	0.3 [0.0; 2.0] (287)	0.3 [0.0; 2.0] (120)				
Standard total knee systems, posterior stal	bilised, cemented										
balanSys BICONDYLAR PS cem. (Mathys)	balanSys BICONDYLAR fix (Mathys)	989	23	72 (64-78)	40/60	0.1 [0.0; 0.8] (713)	0.4 [0.1; 1.3] (441)	0.4 [0.1; 1.3] (228)	0.4 [0.1; 1.3] (112)		
COLUMBUS PS (Aesculap)	COLUMBUS CR/PS (Aesculap)	379	26	70 (62-76)	35/65	0.3 [0.0; 2.2] (306)	0.3 [0.0; 2.2] (240)	0.3 [0.0; 2.2] (177)	0.3 [0.0; 2.2] (110)	0.3 [0.0; 2.2] (63)	
E.MOTION PS (Aesculap)	E.MOTION UC/PS (Aesculap)	395	17	68 (61-75)	37/63	1.4 [0.6; 3.3] (348)	2.3 [1.2; 4.6] (293)	3.7 [2.1; 6.5] (258)	3.7 [2.1; 6.5] (173)	4.5 [2.5; 7.9] (98)	
E.MOTION PS PRO (Aesculap)	E.MOTION UC/PS (Aesculap)	1,803	29	69 (61-76)	31/69	0.6 [0.3; 1.1] (1,334)	1.7 [1.1; 2.6] (883)	2.3 [1.5; 3.4] (522)	2.5 [1.7; 3.6] (264)	2.5 [1.7; 3.6] (105)	
GEMINI SL Fixed Bearing PS (zementiert) (Waldemar Link)	GEMINI SL Fixed Bearing CR/ PS (zementiert) (Waldemar Link)	818	19	72 (64-78)	37/63	0.1 [0.0; 0.9] (540)	1.0 [0.4; 2.6] (279)	1.0 [0.4; 2.6] (138)	1.0 [0.4; 2.6] (58)		
GENESIS II PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	2,470	60	72 (63-78)	35/65	0.5 [0.3; 0.9] (2,019)	1.8 [1.3; 2.5] (1,580)	2.0 [1.5; 2.8] (1,039)	2.2 [1.6; 3.1] (497)	2.8 [1.8; 4.3] (179)	
GENESIS II PS OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	403	41	63 (57-71)	20/80	0.8 [0.3; 2.6] (322)	1.6 [0.6; 3.7] (240)	2.1 [0.9; 4.7] (173)	2.1 [0.9; 4.7] (85)		
JOURNEY II BCS COCR (Smith & Nephew)	JOURNEY (Smith & Nephew)	408	24	70.5 (62-77)	42/58	0.7 [0.2; 2.8] (258)	4.1 [2.0; 8.3] (109)				
JOURNEY II BCS OXINIUM (Smith & Nephew)	JOURNEY (Smith & Nephew)	1,263	34	68 (61-76)	33/67	0.9 [0.5; 1.7] (1,026)	2.1 [1.4; 3.2] (734)	2.2 [1.5; 3.4] (439)	2.5 [1.6; 3.7] (107)		
LEGION PS COCR (Smith & Nephew)	Genesis II (Smith & Nephew)	3,598	75	70 (63-77)	37/63	0.6 [0.4; 1.0] (2,499)	1.9 [1.4; 2.6] (1,457)	2.2 [1.6; 2.9] (661)	2.3 [1.7; 3.2] (250)	2.3 [1.7; 3.2] (62)	
LEGION PS OXINIUM (Smith & Nephew)	Genesis II (Smith & Nephew)	1,034	79	66 (59-75)	21/79	0.7 [0.3; 1.6] (748)	1.8 [1.0; 3.1] (488)	2.6 [1.5; 4.3] (306)	2.6 [1.5; 4.3] (188)	3.1 [1.8; 5.4] (86)	
NexGen LPS-Flex-Gender (Zimmer Biomet)	NexGen (Zimmer Biomet)	2,801	74	69 (61-77)	8/92	0.1 [0.0; 0.4] (2,265)	0.3 [0.1; 0.6] (1,582)	0.7 [0.4; 1.2] (1,106)	0.8 [0.4; 1.4] (666)	0.8 [0.4; 1.4] (354)	0.8 [0.4; 1.4] (165)
NexGen LPS-Flex (Zimmer Biomet)	NexGen (Zimmer Biomet)	8,961	189	69 (61-76)	30/70	0.2 [0.1; 0.3] (7,183)	0.5 [0.4; 0.7] (5,127)	0.6 [0.4; 0.8] (3,367)	0.6 [0.4; 0.8] (1,878)	0.6 [0.4; 0.8] (801)	0.6 [0.4; 0.8] (257)
NexGen LPS (Zimmer Biomet)	NexGen (Zimmer Biomet)	7,216	35	70 (62-76)	40/60	0.1 [0.0; 0.2] (5,809)	0.4 [0.3; 0.7] (4,487)	0.6 [0.4; 0.8] (3,247)	0.7 [0.5; 1.0] (2,150)	0.7 [0.5; 1.0] (1,146)	0.7 [0.5; 1.0] (541)
Persona (Zimmer Biomet)	Persona (Zimmer Biomet)	1,019	40	69 (61-76)	41/59	0.3 [0.1; 1.1] (606)	0.5 [0.2; 1.5] (381)	0.8 [0.3; 2.1] (213)	0.8 [0.3; 2.1] (100)		
Triathlon PS (Stryker)	Triathlon (Stryker)	2,410	54	72 (64-78)	36/64	0.5 [0.3; 0.9] (1,759)	1.3 [0.9; 2.0] (1,178)	1.6 [1.1; 2.5] (613)	1.6 [1.1; 2.5] (248)	1.6 [1.1; 2.5] <sub>(84)</sub>	
Vanguard (Zimmer Biomet)	Vanguard (Zimmer Biomet)	1,358	41	73 (64-78)	32/68	0.2 [0.0; 0.8] (993)	0.6 [0.2; 1.3] (635)	0.6 [0.2; 1.3] (404)	0.6 [0.2; 1.3] (216)	0.6 [0.2; 1.3] (54)	
VEGA PS (Aesculap)	VEGA PS (Aesculap)	1,057	29	69 (60-77)	31/69	0.2 [0.1; 0.8] (798)	1.4 [0.7; 2.5] (532)	2.3 [1.3; 4.0] (322)	3.0 [1.8; 5.0] (195)	3.0 [1.8; 5.0] <sub>(79)</sub>	

5 Hip and knee arthroplasty survival 5.4 Probability of infection-related revision surgery

### 5.4 Probability of infectionrelated revision surgery

As already presented in sections 4.2 and 4.4, infections are among the most common reasons for revision (about 15 %). Particularly in the early phase of up to two years after primary arthroplasty, periprosthetic joint infections are the reason for up to 50 % of revision arthroplasties. Infection usually results in massive health problems for the affected patient and also frequently leads to additional reoperations, as noted in Section 5.5. The following sections detail the infection-related revision probabilities observed for different types of hip and knee arthroplasties. They also address factors that may increase or decrease the risk of infection.

#### 5.4.1 Infection-related revision probabilities by type of arthroplasty

Across all types of arthroplasties, most revision procedures were performed within the first few months post implantation (Figure 26). There are significant differences between elective and non-elective arthroplasties in terms of the incidence of infection-related revisions within just a few

weeks after primary arthroplasty. While the probability of infection-related revision after two years is 1.1 % in elective total hip arthroplasties, at the same time it is about double, at 2.1 % and 2.3 % in non-elective hemiarthroplasty and total arthroplasty of the hip respectively. In other words, within the first two years, infection-related revisions of total arthroplasties account for about onethird of all revisions, and infection related revisions of hemiarthroplasties for as much as around one half of all revision procedures. The latter observation is certainly due to the older age and multimorbidities of hemiarthroplasty patients (see also Table 46).

Short-stem implants are increasingly being used, especially in younger patients (see Section 4.1). Compared to conventional stems, short stems generally have lower revision probabilities (see Table 37). A study based on the EPRD data demonstrated that this is primarily due to a lower probability of infection [6], see also Figure 27. The patient groups analysed in the study were statistically matched for age, sex and clinical experience, among other factors. One explanation for the lower infection-related revision

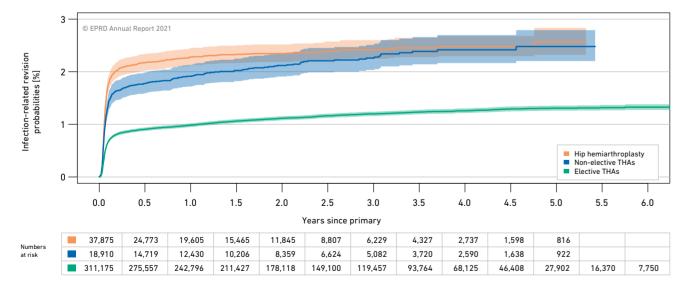


Figure 26: Infection-related elective and non-elective hip arthroplasty revision probabilities (p < 0.0001)

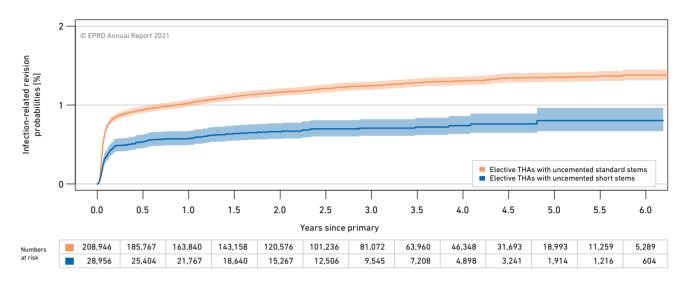


Figure 27: Infection-related revision probabilities of elective total hip arthroplasty by stem type (p < 0.0001)

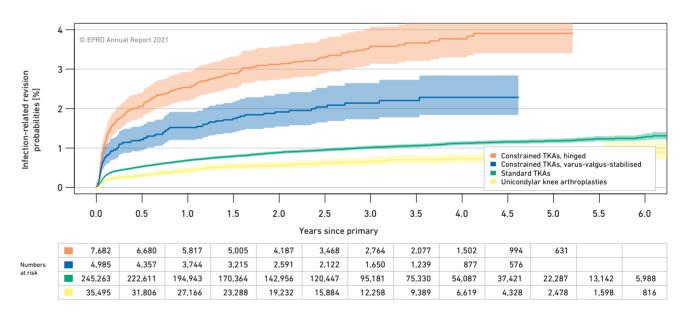


Figure 28: Infection-related revision probabilities by type of knee arthroplasty (p < 0.0001)

probabilities of short stem implants may be associated with different infection-related that the dimensions and design of the short stems allows them be implanted via less invasive surgical approaches with less muscle trauma.

lengths of the head components are also

revision probabilities. Accordingly, the risk of infection increases with greater headneck lengths. This tendency is also evident if, for example, only male or only female patients are considered. Ceramic on ceramic As shown in Table 45, the different neck bearings have lower infection probabilities (Table 45). As evident from an analysis based

favour of ceramic-on-ceramic bearings persists even among statistically risk-matched comparison groups [7]. In knee arthroplasties, unicondylar procedures have a markedly lower infection-related revision probability than total knee arthroplasties. Within the group of total arthroplasties, the risk of infection also increases significantly with a higher degree of constraint (Figure 28). While the patient groups compared differ to

on EPRD data, this significant difference in a certain extent in their make-up, this alone does not explain these differences. The fact that unicondylar arthroplasties have significantly lower infection-related revision probabilities can therefore also be attributed to the tendency of shorter operating times and smaller wounds. Similarly, in total knee arthroplasties, it can be assumed that the probability of infection-related revisions depends on the complexity of the procedure and the size of the arthroplasty system implanted.

									Inf	ection-related revision	n probabilities following	]	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
Elective THAs with	uncemented stems		244,075	67 (59-75)	40/60	27.8	673	0.8 [0.8; 0.9] (226,363)	0.9 [0.9; 0.9] (216,701)	1.0 [0.9; 1.0] (190,644)	1.1 [1.1; 1.2] (139,924)	1.2 [1.1; 1.2] (93,656)	1.2 [1.2; 1.3] (53,180)
	Bearing	Ceramic / hXLPE	120,327	67 (59-74)	40/60	27.9	577	0.8 [0.8; 0.9] (111,358)	0.9 [0.9; 1.0] (106,604)	1.0 [0.9; 1.1] (93,452)	1.1 [1.1; 1.2] (68,145)	1.2 [1.2; 1.3] (45,482)	1.3 [1.2; 1.4] (25,896)
		Ceramic / hXLPE+antiox.	42,821	67 (60-75)	41/59	28.0	323	0.8 [0.7; 0.9] (39,203)	0.8 [0.8; 0.9] (37,169)	0.9 [0.8; 1.0] (31,702)	1.0 [0.9; 1.1] (21,447)	1.0 [0.9; 1.1] (12,672)	1.0 [0.9; 1.2] (5,963)
		Ceramic / ceramic	26,386	62 (55-69)	44/56	27.7	340	0.5 [0.4; 0.6] (24,947)	0.6 [0.5; 0.7] (23,977)	0.7 [0.6; 0.8] (21,636)	0.8 [0.7; 0.9] (16,869)	0.9 [0.7; 1.0] (12,110)	0.9 [0.8; 1.1] (7,419)
		Ceramic / mXLPE	20,648	70 (62–76)	40/60	27.7	238	0.8 [0.7; 0.9] (19,388)	0.8 [0.7; 1.0] (18,662)	0.9 [0.8; 1.1] (16,615)	1.1 [0.9; 1.2] (12,710)	1.1 [1.0; 1.3] (8,977)	1.2 [1.1; 1.4] (5,204)
		Ceramic / PE	16,549	71 (63–77)	36/64	27.8	429	0.9 [0.8; 1.1] (15,564)	1.0 [0.8; 1.2] (15,054)	1.1 [0.9; 1.3] (13,783)	1.2 [1.1; 1.4] (10,985)	1.3 [1.2; 1.5] (8,177)	1.4 [1.2; 1.6] (5,181)
		Ceramicised metal / hXLPE	6,149	67 (59-75)	42/58	28.1	95	1.0 [0.8; 1.3] (5,691)	1.0 [0.8; 1.3] (5,444)	1.2 [0.9; 1.5] (4,754)	1.2 [1.0; 1.6] (3,128)	1.3 [1.1; 1.7] (1,665)	1.3 [1.1; 1.7] (663)
		Metal / hXLPE	5,398	73 (64-79)	42/58	27.7	305	1.1 [0.9; 1.4] (4,955)	1.2 [0.9; 1.5] (4,759)	1.3 [1.0; 1.6] (4,219)	1.4 [1.1; 1.7] (3,222)	1.5 [1.2; 1.8] (2,227)	1.5 [1.2; 1.8] (1,348)
		Metal / mXLPE	2,068	75 (68-80)	36/64	27.7	130	1.6 [1.1; 2.2] (1,922)	1.7 [1.2; 2.3] (1,869)	1.8 [1.3; 2.5] (1,733)	2.2 [1.6; 3.0] (1,402)	2.2 [1.6; 3.0] (1,044)	2.3 [1.7; 3.1] (699)
		Metal / PE	1,160	77 (70-81)	32/68	27.1	246	2.0 [1.3; 3.0] (1,054)	2.2 [1.5; 3.2] (1,023)	2.3 [1.5; 3.3] (969)	2.3 [1.5; 3.3] (799)	2.4 [1.6; 3.5] (597)	2.4 [1.6; 3.5] (379)
		Ceramicised metal / PE	972	72 (63–78)	34/66	27.5	49	1.5 [0.9; 2.5] (849)	1.6 [1.0; 2.7] (783)	1.8 [1.1; 2.9] (617)	1.9 [1.2; 3.1] (432)	1.9 [1.2; 3.1] (236)	2.4 [1.4; 4.1] (108)
		Metal / hXLPE+antiox.	817	77 (71–80)	36/64	27.5	103	2.3 [1.5; 3.6] (734)	2.6 [1.7; 4.0] (704)	2.6 [1.7; 4.0] (629)	2.6 [1.7; 4.0] (467)	2.6 [1.7; 4.0] (283)	2.6 [1.7; 4.0] (175)
	Acetabular articu- lating surface	hXLPE	132,174	67 (59-74)	40/60	27.9	588	0.9 [0.8; 0.9] (122,270)	0.9 [0.9; 1.0] (117,058)	1.0 [1.0; 1.1] (102,625)	1.2 [1.1; 1.2] (74,598)	1.2 [1.2; 1.3] (49,409)	1.3 [1.2; 1.4] (27,930)
		hXLPE+antiox.	43,701	68 (60-75)	41/59	28.0	333	0.8 [0.7; 0.9] (39,996)	0.9 [0.8; 1.0] (37,929)	0.9 [0.9; 1.0] (32,372)	1.0 [0.9; 1.1] (21,936)	1.0 [1.0; 1.2] (12,970)	1.1 [1.0; 1.2] (6,142)
		Ceramic	26,401	62 (55-69)	44/56	27.7	341	0.5 [0.4; 0.6] (24,961)	0.6 [0.5; 0.7] (23,991)	0.7 [0.6; 0.8] (21,649)	0.8 [0.7; 0.9] (16,875)	0.9 [0.7; 1.0] (12,111)	0.9 [0.8; 1.0] (7,420)
		mXLPE	22,732	71 (63–77)	40/60	27.7	253	0.9 [0.7; 1.0] (21,324)	0.9 [0.8; 1.1] (20,545)	1.0 [0.9; 1.1] (18,360)	1.2 [1.0; 1.3] (14,114)	1.2 [1.1; 1.4] (10,021)	1.3 [1.2; 1.5] (5,903)
		PE	18,785	72 (63–78)	36/64	27.8	478	1.0 [0.9; 1.2] (17,557)	1.1 [1.0; 1.3] (16,940)	1.2 [1.0; 1.4] (15,432)	1.3 [1.2; 1.5] (12,251)	1.4 [1.3; 1.6] (9,016)	1.5 [1.3; 1.7] (5,669)

Table 45: Table of infection-related revision probabilities for different types and characteristics of arthroplasties. The table is continued on the following pages.

									Inf	ection-related revision	n probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Head component	Ceramic	226,999	67 (59-74)	41/59	27.8	671	0.8 [0.8; 0.8] (210,703)	0.9 [0.8; 0.9] (201,692)	0.9 [0.9; 1.0] (177,385)	1.1 [1.0; 1.1] (130,298)	1.2 [1.1; 1.2] (87,542)	1.2 [1.2; 1.3] (49,776)
		Metal	9,459	74 (66-80)	39/61	27.7	477	1.4 [1.2; 1.7] (8,678)	1.5 [1.3; 1.8] (8,368)	1.6 [1.4; 1.9] (7,560)	1.8 [1.5; 2.1] (5,899)	1.8 [1.6; 2.1] (4,156)	1.9 [1.6; 2.2] (2,604)
		Ceramicised metal	7,178	67 (60-75)	41/59	28.0	99	1.1 [0.9; 1.3] (6,592)	1.1 [0.9; 1.4] (6,277)	1.3 [1.0; 1.5] (5,416)	1.3 [1.1; 1.6] (3,585)	1.4 [1.1; 1.7] (1,917)	1.5 [1.2; 1.8] (776)
	Head size	28 mm	13,428	67 (58-75)	10/90	27.3	547	0.7 [0.6; 0.9] (12,527)	0.8 [0.7; 1.0] (12,058)	0.9 [0.7; 1.1] (10,928)	1.0 [0.8; 1.1] (8,489)	1.1 [0.9; 1.3] (6,131)	1.1 [0.9; 1.3] (3,737)
		32 mm	135,658	68 (60-75)	32/68	27.7	668	0.8 [0.8; 0.9] (126,087)	0.9 [0.8; 0.9] (120,944)	1.0 [0.9; 1.0] (107,061)	1.1 [1.0; 1.2] (79,385)	1.2 [1.1; 1.2] (53,395)	1.3 [1.2; 1.3] (30,262)
		36 mm	94,152	66 (59-74)	57/43	28.1	583	0.8 [0.8; 0.9] (86,991)	0.9 [0.8; 1.0] (82,983)	1.0 [0.9; 1.1] (72,064)	1.1 [1.1; 1.2] (51,676)	1.2 [1.1; 1.3] (33,924)	1.3 [1.2; 1.3] (19,072)
	Head-neck length	XS	1,759	69 (61-76)	31/69	27.4	68	0.7 [0.4; 1.2] (1,626)	0.8 [0.4; 1.3] (1,559)	0.9 [0.5; 1.5] (1,332)	1.1 [0.7; 1.8] (889)	1.1 [0.7; 1.8] (546)	1.1 [0.7; 1.8] (343)
		S	95,019	68 (60-75)	33/67	27.5	655	0.7 [0.6; 0.7] (88,142)	0.7 [0.7; 0.8] (84,287)	0.8 [0.7; 0.9] (73,972)	0.9 [0.8; 1.0] (53,779)	1.0 [0.9; 1.0] (35,284)	1.0 [1.0; 1.1] (19,184)
		М	91,307	67 (59-75)	42/58	28.0	665	0.8 [0.7; 0.9] (84,768)	0.9 [0.8; 0.9] (81,162)	0.9 [0.9; 1.0] (71,335)	1.1 [1.0; 1.2] (52,226)	1.2 [1.1; 1.3] (35,185)	1.2 [1.2; 1.3] (20,227)
		L	43,153	66 (59-74)	50/50	28.4	662	1.1 [1.0; 1.2] (40,063)	1.1 [1.0; 1.3] (38,436)	1.2 [1.1; 1.3] (34,170)	1.4 [1.3; 1.5] (25,785)	1.5 [1.4; 1.6] (17,811)	1.5 [1.4; 1.7] (10,596)
		XL	10,142	65 (58-73)	57/43	28.7	580	1.4 [1.1; 1.6] (9,337)	1.4 [1.2; 1.7] (8,942)	1.6 [1.4; 1.9] (7,826)	1.8 [1.5; 2.1] (5,809)	1.9 [1.7; 2.2] (3,886)	2.0 [1.7; 2.3] (2,286)
		XXL	1,089	67 (59-74)	62/38	29.1	208	1.1 [0.7; 2.0] (989)	1.3 [0.8; 2.3] (946)	1.3 [0.8; 2.3] (843)	1.7 [1.1; 2.8] (652)	1.7 [1.1; 2.8] (464)	1.7 [1.1; 2.8] (278)
	Cup type	Modular cup	225,965	67 (59-75)	41/59	27.8	669	0.8 [0.8; 0.9] (209,754)	0.9 [0.8; 0.9] (200,970)	1.0 [0.9; 1.0] (177,035)	1.1 [1.1; 1.1] (130,223)	1.2 [1.1; 1.2] (87,337)	1.2 [1.2; 1.3] (49,727)
		Monobloc cup	15,254	69 (60–76)	38/62	27.8	427	0.7 [0.6; 0.8] (14,089)	0.8 [0.6; 0.9] (13,347)	0.8 [0.7; 1.0] (11,554)	0.9 [0.8; 1.1] (8,234)	1.0 [0.9; 1.2] (5,368)	1.1 [0.9; 1.3] (2,938)
		Revision cup	1,960	64 (54-73)	32/68	27.3	275	2.0 [1.4; 2.7] (1,751)	2.2 [1.7; 3.0] (1,673)	2.4 [1.8; 3.2] (1,463)	2.6 [2.0; 3.5] (1,091)	2.7 [2.1; 3.6] (723)	2.7 [2.1; 3.6] (398)
		Dual mobility	893	74 (62-80)	36/64	27.8	173	2.2 [1.4; 3.5] (767)	2.5 [1.6; 3.8] (709)	2.6 [1.7; 4.0] (590)	2.9 [1.9; 4.3] (376)	3.2 [2.1; 4.8] (228)	3.2 [2.1; 4.8] (117)
	Stem type	Femoral stem with modular head	208,946	68 (60-75)	40/60	27.9	673	0.9 [0.8; 0.9] (193,827)	0.9 [0.9; 1.0] (185,767)	1.0 [1.0; 1.1] (163,840)	1.2 [1.1; 1.2] (120,576)	1.2 [1.2; 1.3] (81,072)	1.3 [1.3; 1.4] (46,348)
		Short stem	28,956	62 (55-69)	45/55	27.8	324	0.5 [0.4; 0.6] (26,816)	0.5 [0.5; 0.6] (25,404)	0.6 [0.5; 0.7] (21,767)	0.7 [0.6; 0.8] (15,267)	0.7 [0.6; 0.8] (9,545)	0.7 [0.6; 0.9] (4,898)
		Femoral neck prosthesis	3,981	59 <sub>(53–67)</sub>	47/53	27.5	111	0.4 [0.3; 0.7] (3,770)	0.4 [0.3; 0.7] (3,670)	0.5 [0.4; 0.8] (3,334)	0.6 [0.4; 0.9] (2,693)	0.8 [0.6; 1.2] (1,964)	0.9 [0.7; 1.4] (1,296)
		Modular stem	1,431	69 (61-76)	40/60	28.0	81	1.1 [0.7; 1.8] (1,343)	1.3 [0.8; 2.1] (1,298)	1.5 [1.0; 2.4] (1,205)	1.7 [1.1; 2.6] (1,030)	1.7 [1.1; 2.6] (855)	1.9 [1.2; 2.8] (525)
		Revision or tumour stem	612	73.5 (63-80)	39/61	26.6	222	4.0 [2.7; 6.0] (517)	4.2 [2.8; 6.2] (488)	4.2 [2.8; 6.2] (433)	4.5 [3.0; 6.6] (308)	4.5 [3.0; 6.6] (189)	4.5 [3.0; 6.6] (105)
	Reconstruction shell	Without reconstruction shell	243,778	67 (59-75)	40/60	27.8	673	0.8 [0.8; 0.9] (226,104)	0.9 [0.9; 0.9] (216,454)	1.0 [0.9; 1.0] (190,422)	1.1 [1.1; 1.1] (139,753)	1.2 [1.1; 1.2] (93,545)	1.2 [1.2; 1.3] (53,120)
	Fixation	Uncemented	240,713	67 (59-75)	41/59	27.8	673	0.8 [0.8; 0.9] (223,323)	0.9 [0.8; 0.9] (213,830)	1.0 [0.9; 1.0] (188,095)	1.1 [1.1; 1.1] (138,016)	1.2 [1.1; 1.2] (92,367)	1.2 [1.2; 1.3] (52,467)
		Reverse-hybrid	3,362	74 (65-80)	24/76	27.2	456	1.3 [1.0; 1.8] (3,040)	1.4 [1.1; 1.9] (2,871)	1.5 [1.1; 2.0] (2,549)	1.7 [1.3; 2.3] (1,908)	2.1 [1.6; 2.7] (1,289)	2.1 [1.6; 2.7] (713)

Table 45 (continued)

									Inf	fection-related revision	n probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
Elective THAs with	cemented stems		67,100	79 (75-82)	26/74	26.7	651	0.9 [0.8; 1.0] (61,665)	1.0 [0.9; 1.0] (58,856)	1.0 [0.9; 1.1] (52,152)	1.1 [1.1; 1.2] (38,194)	1.2 [1.2; 1.3] (25,801)	1.3 [1.2; 1.4] (14,945)
	Bearing	Ceramic / hXLPE	29,294	78 (74–81)	25/75	26.7	464	0.8 [0.7; 1.0] (26,770)	0.9 [0.8; 1.0] (25,430)	0.9 [0.8; 1.1] (22,240)	1.1 [1.0; 1.2] (15,722)	1.2 [1.1; 1.3] (10,326)	1.2 [1.1; 1.4] (5,751)
		Ceramic / PE	10,655	<b>79</b> <sub>(75–82)</sub>	25/75	26.8	413	0.9 [0.7; 1.1] (9,998)	0.9 [0.8; 1.2] (9,675)	1.0 [0.8; 1.2] (8,874)	1.2 [1.0; 1.4] (7,087)	1.3 [1.1; 1.5] (5,275)	1.3 [1.1; 1.6] (3,380)
		Metal / hXLPE	7,340	80 (77-83)	28/72	26.8	293	1.0 [0.8; 1.2] (6,714)	1.0 [0.8; 1.3] (6,418)	1.1 [0.9; 1.4] (5,657)	1.3 [1.0; 1.6] (4,146)	1.3 [1.1; 1.6] (2,665)	1.4 [1.2; 1.8] (1,453)
		Metal / PE	5,546	81 (77-84)	26/74	26.4	372	1.2 [1.0; 1.6] (5,062)	1.3 [1.0; 1.6] (4,870)	1.4 [1.1; 1.7] (4,425)	1.5 [1.2; 1.8] (3,478)	1.6 [1.3; 2.0] (2,543)	1.7 [1.4; 2.1] (1,560)
		Ceramic / hXLPE+antiox.	5,274	79 (74-82)	22/78	26.7	210	0.8 [0.6; 1.0] (4,830)	0.8 [0.6; 1.1] (4,538)	0.9 [0.6; 1.1] (3,898)	0.9 [0.7; 1.2] (2,523)	1.1 [0.8; 1.5] (1,465)	1.2 [0.9; 1.6] (707)
		Ceramic / mXLPE	3,408	78 (74–81)	22/78	26.7	161	0.9 [0.6; 1.3] (3,154)	0.9 [0.6; 1.3] (2,989)	0.9 [0.7; 1.3] (2,642)	1.2 [0.8; 1.6] (1,969)	1.2 [0.9; 1.7] (1,380)	1.3 [0.9; 1.8] (883)
		Metal / mXLPE	1,622	81 (77-84)	25/75	26.0	135	1.1 [0.7; 1.7] (1,484)	1.1 [0.7; 1.8] (1,428)	1.1 [0.7; 1.8] (1,281)	1.1 [0.7; 1.8] (1,001)	1.4 [0.9; 2.2] (702)	1.4 [0.9; 2.2] (436)
		Ceramic / ceramic	1,214	76 (71–79)	24/76	27.6	106	0.7 [0.3; 1.3] (1,146)	0.7 [0.3; 1.3] (1,128)	0.8 [0.4; 1.5] (1,054)	0.8 [0.4; 1.5] (870)	0.8 [0.4; 1.5] (684)	0.8 [0.4; 1.5] (428)
		Metal / hXLPE+antiox.	718	80 (77-84)	28/72	26.6	96	1.0 [0.5; 2.1] (653)	1.0 [0.5; 2.1] (616)	1.2 [0.6; 2.3] (536)	1.2 [0.6; 2.3] (383)	1.2 [0.6; 2.3] (237)	1.2 [0.6; 2.3] (125)
		Metal / Metal	611	56 (51-61)	94/6	27.8	28	0 (594)	0.2 [0.0; 1.2] (578)	0.2 [0.0; 1.2] (523)	0.2 [0.0; 1.2] (397)	0.2 [0.0; 1.2] (246)	0.2 [0.0; 1.2] (129)
		Ceramicised metal / hXLPE	393	79 (75-82)	27/73	27.2	36	2.1 [1.1; 4.2] (353)	2.1 [1.1; 4.2] (335)	2.1 [1.1; 4.2] (304)	2.1 [1.1; 4.2] (215)	2.1 [1.1; 4.2] (99)	
	Acetabular articu- lating surface	hXLPE	37,139	78 (75–82)	26/74	26.7	501	0.9 [0.8; 1.0] (33,934)	0.9 [0.8; 1.0] (32,277)	1.0 [0.9; 1.1] (28,280)	1.1 [1.0; 1.3] (20,126)	1.2 [1.1; 1.4] (13,093)	1.3 [1.2; 1.4] (7,229)
		PE	16,855	79 (76-83)	25/75	26.6	499	1.0 [0.9; 1.2] (15,636)	1.1 [0.9; 1.2] (15,086)	1.2 [1.0; 1.3] (13,758)	1.3 [1.1; 1.5] (10,833)	1.4 [1.2; 1.6] (7,942)	1.5 [1.3; 1.7] (4,983)
		hXLPE+antiox.	6,015	79 (75-82)	22/78	26.7	235	0.8 [0.6; 1.1] (5,505)	0.9 [0.7; 1.2] (5,174)	0.9 [0.7; 1.2] (4,448)	1.0 [0.7; 1.3] (2,909)	1.2 [0.9; 1.5] (1,702)	1.2 [0.9; 1.6] (832)
		mXLPE	5,031	79 (75-82)	23/77	26.5	204	0.9 [0.7; 1.3] (4,638)	1.0 [0.7; 1.3] (4,417)	1.0 [0.8; 1.3] (3,923)	1.2 [0.9; 1.5] (2,970)	1.3 [1.0; 1.7] (2,082)	1.3 [1.0; 1.7] (1,319)
		Ceramic	1,221	76 <sub>(71–79)</sub>	24/76	27.6	107	0.7 [0.3; 1.3] (1,153)	0.7 [0.3; 1.3] (1,135)	0.8 [0.4; 1.5] (1,058)	0.8 [0.4; 1.5] (870)	0.8 [0.4; 1.5] (684)	0.8 [0.4; 1.5] (428)
		Metal	611	56 (51-61)	94/6	27.8	28	0 (594)	0.2 [0.0; 1.2] (578)	0.2 [0.0; 1.2] (523)	0.2 [0.0; 1.2] (397)	0.2 [0.0; 1.2] (246)	0.2 [0.0; 1.2] (129)
	Head component	Ceramic	49,910	78 (74–82)	24/76	26.7	622	0.8 [0.8; 0.9] (45,951)	0.9 [0.8; 1.0] (43,809)	0.9 [0.9; 1.0] (38,749)	1.1 [1.0; 1.2] (28,189)	1.2 [1.1; 1.3] (19,139)	1.2 [1.1; 1.3] (11,153)
		Metal	16,000	80 (76-83)	29/71	26.6	516	1.0 [0.9; 1.2] (14,659)	1.1 [0.9; 1.3] (14,050)	1.2 [1.0; 1.4] (12,543)	1.3 [1.1; 1.5] (9,476)	1.4 [1.2; 1.6] (6,436)	1.5 [1.3; 1.7] (3,724)
		Ceramicised metal	688	79 (76–82)	24/76	27.0	50	2.1 [1.2; 3.5] (623)	2.3 [1.4; 3.7] (597)	2.3 [1.4; 3.7] (540)	2.3 [1.4; 3.7] (388)	2.3 [1.4; 3.7] (216)	2.7 [1.6; 4.7] <sub>(67)</sub>
	Head size	28 mm	4,202	79 (75-83)	12/88	26.1	410	1.1 [0.8; 1.5] (3,845)	1.1 [0.9; 1.5] (3,683)	1.2 [0.9; 1.6] (3,319)	1.3 [1.0; 1.7] (2,553)	1.5 [1.1; 2.0] (1,827)	1.6 [1.2; 2.1] (1,086)
		32 mm	43,678	79 (75-82)	21/79	26.6	614	0.9 [0.8; 1.0] (40,259)	1.0 [0.9; 1.1] (38,528)	1.1 [1.0; 1.2] (34,329)	1.2 [1.1; 1.3] (25,467)	1.3 [1.2; 1.4] (17,553)	1.3 [1.2; 1.4] (10,390)
		36 mm	17,893	78 (75–82)	37/63	27.0	460	0.8 [0.7; 1.0] (16,356)	0.9 [0.7; 1.0] (15,502)	0.9 [0.8; 1.1] (13,523)	1.0 [0.9; 1.2] (9,556)	1.2 [1.0; 1.4] (6,120)	1.3 [1.1; 1.5] (3,324)

Table 45 (continued)

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									Inf	fection-related revision	n probabilities following	<b>]</b>	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Head-neck length	XS	360	79 (75–83)	20/80	26.2	36	0 (339)	0 (328)	0 (294)	0 (208)	0 (125)	0 (65)
		S	21,321	79 (75–82)	18/82	26.4	579	0.8 [0.7; 0.9] (19,480)	0.8 [0.7; 1.0] (18,542)	0.9 [0.8; 1.0] (16,283)	1.0 [0.9; 1.2] (11,537)	1.1 [0.9; 1.2] (7,680)	1.1 [1.0; 1.3] (4,295)
		М	26,246	79 <sub>(75–82)</sub>	24/76	26.7	615	0.8 [0.7; 0.9] (24,223)	0.8 [0.7; 1.0] (23,133)	0.9 [0.8; 1.0] (20,548)	1.0 [0.9; 1.1] (15,247)	1.1 [1.0; 1.3] (10,422)	1.2 [1.0; 1.3] (6,185)
		L	13,360	78 (75–82)	32/68	27.1	565	1.2 [1.0; 1.4] (12,353)	1.2 [1.1; 1.4] (11,851)	1.3 [1.2; 1.6] (10,632)	1.5 [1.3; 1.8] (8,015)	1.6 [1.4; 1.9] (5,510)	1.7 [1.4; 1.9] (3,210)
		XL	2,572	78 <sub>(74–82)</sub>	42/58	27.4	413	1.4 [1.0; 2.0] (2,354)	1.5 [1.1; 2.1] (2,238)	1.5 [1.1; 2.1] (1,963)	1.8 [1.3; 2.4] (1,445)	2.1 [1.6; 2.9] (935)	2.3 [1.7; 3.1] (527)
		XXL	328	79 (73–82)	42/58	27.5	123	1.3 [0.5; 3.4] (287)	1.6 [0.7; 3.9] (275)	2.4 [1.1; 4.9] (253)	2.4 [1.1; 4.9] (205)	2.4 [1.1; 4.9] (168)	2.4 [1.1; 4.9] (103)
	Cup type	Modular cup	46,884	78 <sub>(74–82)</sub>	25/75	26.8	620	0.9 [0.8; 1.0] (43,040)	0.9 [0.8; 1.0] (40,981)	1.0 [0.9; 1.1] (36,055)	1.1 [1.0; 1.2] (26,023)	1.2 [1.1; 1.3] (17,310)	1.2 [1.1; 1.3] (9,733)
		Monobloc cup	17,828	80 (76-83)	24/76	26.6	510	0.9 [0.8; 1.1] (16,583)	1.0 [0.8; 1.1] (15,997)	1.0 [0.9; 1.2] (14,511)	1.2 [1.0; 1.4] (11,129)	1.3 [1.1; 1.5] (7,878)	1.4 [1.2; 1.6] (4,888)
		Dual mobility	1,129	80 (75-84)	26/74	25.9	194	1.0 [0.6; 1.9] (959)	1.1 [0.6; 2.0] (871)	1.1 [0.6; 2.0] (716)	1.1 [0.6; 2.0] (433)	1.5 [0.8; 2.9] (239)	1.5 [0.8; 2.9] (102)
		Revision cup	999	78 <sub>(73–82)</sub>	33/67	25.8	253	2.4 [1.6; 3.6] (828)	2.4 [1.6; 3.6] (762)	2.6 [1.8; 3.9] (653)	2.8 [1.9; 4.2] (448)	3.6 [2.4; 5.3] (266)	3.6 [2.4; 5.3] (161)
	Stem type	Femoral stem with modular head	65,918	79 <sub>(75–82)</sub>	25/75	26.7	645	0.9 [0.8; 1.0] (60,586)	1.0 [0.9; 1.0] (57,825)	1.0 [0.9; 1.1] (51,241)	1.1 [1.1; 1.2] (37,541)	1.2 [1.2; 1.3] (25,410)	1.3 [1.2; 1.4] (14,757)
		Surface replacement	611	56 (51-61)	94/6	27.8	28	0 (594)	0.2 [0.0; 1.2] (578)	0.2 [0.0; 1.2] (523)	0.2 [0.0; 1.2] (397)	0.2 [0.0; 1.2] (246)	0.2 [0.0; 1.2] (129)
	Reconstruction shell	Without reconstruction shell	66,649	79 (75–82)	25/75	26.7	650	0.9 [0.8; 1.0] (61,309)	0.9 [0.9; 1.0] (58,531)	1.0 [0.9; 1.1] (51,882)	1.1 [1.0; 1.2] (38,009)	1.2 [1.1; 1.3] (25,684)	1.3 [1.2; 1.4] (14,875)
		With reconstruction shell	451	79 (74-84)	35/65	24.6	171	3.0 [1.7; 5.2] (356)	3.0 [1.7; 5.2] (325)	3.6 [2.1; 6.0] (270)	4.1 [2.5; 6.8] (185)	4.7 [2.8; 7.8] (117)	4.7 [2.8; 7.8] (70)
	Fixation	Hybrid	50,195	78 (74–82)	26/74	26.8	631	0.9 [0.8; 1.0] (46,100)	0.9 [0.8; 1.0] (43,904)	1.0 [0.9; 1.1] (38,673)	1.1 [1.0; 1.2] (27,952)	1.2 [1.1; 1.3] (18,582)	1.2 [1.1; 1.3] (10,468)
		Cemented	16,905	80 (76-84)	23/77	26.4	536	1.0 [0.9; 1.2] (15,565)	1.1 [0.9; 1.2] (14,952)	1.1 [1.0; 1.3] (13,479)	1.3 [1.1; 1.5] (10,242)	1.4 [1.3; 1.7] (7,219)	1.5 [1.3; 1.7] (4,477)
Non-elective THAs			18,910	76 (69-82)	29/71	24.7	611	1.7 [1.5; 1.9] (15,985)	1.8 [1.6; 2.0] (14,719)	1.9 [1.7; 2.1] (12,430)	2.1 [1.9; 2.4] (8,359)	2.3 [2.0; 2.5] (5,082)	2.4 [2.2; 2.7] (2,590)
	Bearing	Ceramic / hXLPE	6,403	74 (66-79)	30/70	24.7	416	1.9 [1.6; 2.2] (5,454)	2.0 [1.6; 2.3] (4,992)	2.2 [1.9; 2.6] (4,143)	2.4 [2.0; 2.8] (2,689)	2.5 [2.1; 3.0] (1,590)	2.8 [2.3; 3.4] (819)
		Ceramic / hXLPE+antiox.	2,396	75 (67-80)	33/67	24.8	185	1.4 [1.0; 2.0] (2,051)	1.5 [1.1; 2.1] (1,854)	1.6 [1.1; 2.2] (1.518)	1.8 [1.3; 2.6] (947)	2.0 [1.4; 2.7] (503)	2.0 [1.4; 2.7] (236)
		Ceramic / PE	2,366	77 <sub>(70–82)</sub>	27/73	24.7	307	1.5 [1.1; 2.1] (2,027)	1.6 [1.2; 2.3] (1,893)	1.7 [1.2; 2.3] (1,664)	1.8 [1.3; 2.5] (1,206)	1.9 [1.4; 2.7] (797)	2.1 [1.5; 2.9] (430)
		Metal / PE	2,249	81 (76-86)	25/75	24.5	263	2.2 [1.6; 2.9] (1,816)	2.2 [1.6; 2.9] (1,681)	2.2 [1.7; 3.0] (1,436)	2.4 [1.8; 3.2] (1,001)	2.5 [1.9; 3.4] (632)	2.8 [2.0; 3.7] (336)
		Metal / hXLPE	2,046	79 <sub>(74–84)</sub>	26/74	24.5	223	1.4 [0.9; 2.0] (1,699)	1.6 [1.1; 2.3] (1,546)	1.7 [1.2; 2.4] (1,293)	1.9 [1.3; 2.6] (869)	2.1 [1.5; 3.0] (531)	2.1 [1.5; 3.0] (241)
		Ceramic / mXLPE	1,247	74 (67-79)	32/68	24.9	146	0.6 [0.3; 1.2] (1,103)	0.7 [0.3; 1.4] (1,062)	0.9 [0.5; 1.6] (924)	1.4 [0.8; 2.3] (680)	1.4 [0.8; 2.3] (415)	1.4 [0.8; 2.3] (210)
		Ceramic / ceramic	745	68 (61-76)	34/66	25.0	121	1.1 [0.6; 2.3] (654)	1.1 [0.6; 2.3] (604)	1.1 [0.6; 2.3] (545)	1.1 [0.6; 2.3] (401)	1.1 [0.6; 2.3] (297)	1.1 [0.6; 2.3] (168)
		Metal / mXLPE	645	79 (75-85)	29/71	25.0	96	2.2 [1.3; 3.8] (536)	2.4 [1.4; 4.0] (505)	2.4 [1.4; 4.0] (444)	2.6 [1.6; 4.3] (326)	3.0 [1.8; 4.9] (219)	3.5 [2.1; 5.9] (119)

Table 45 (continued)

									Inf	ection-related revision	n probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Acetabular articu- lating surface	hXLPE	8,665	75 <sub>(68–81)</sub>	29/71	24.7	448	1.8 [1.5; 2.1] (7,335)	1.9 [1.6; 2.2] (6,702)	2.1 [1.8; 2.4] (5,572)	2.3 [2.0; 2.6] (3,634)	2.4 [2.1; 2.8] (2,153)	2.6 [2.3; 3.1] (1,069)
		PE	4,885	<b>79</b> <sub>(73–85)</sub>	26/74	24.5	391	1.9 [1.6; 2.4] (4,046)	2.0 [1.6; 2.4] (3,763)	2.0 [1.7; 2.5] (3,259)	2.2 [1.8; 2.7] (2,280)	2.3 [1.9; 2.8] (1,444)	2.5 [2.0; 3.1] (769)
		hXLPE+antiox.	2,661	<b>75</b> <sub>(67–81)</sub>	33/67	24.8	206	1.5 [1.1; 2.1] (2,257)	1.6 [1.2; 2.2] (2,038)	1.7 [1.3; 2.3] (1,656)	2.0 [1.5; 2.6] (1,028)	2.2 [1.6; 2.9] (549)	2.2 [1.6; 2.9] (253)
		mXLPE	1,894	76 (69-81)	31/69	25.0	171	1.1 [0.7; 1.7] (1,641)	1.2 [0.8; 1.9] (1,569)	1.4 [0.9; 2.1] (1,369)	1.8 [1.2; 2.6] (1,006)	1.9 [1.3; 2.8] (634)	2.1 [1.5; 3.1] (329)
		Ceramic	748	68 (61-76)	34/66	25.0	121	1.1 [0.6; 2.3] (657)	1.1 [0.6; 2.3] (607)	1.1 [0.6; 2.3] (548)	1.1 [0.6; 2.3] (401)	1.1 [0.6; 2.3] (297)	1.1 [0.6; 2.3] (168)
	Head component	Ceramic	13,186	75 (67-80)	30/70	24.8	588	1.6 [1.3; 1.8] (11,315)	1.7 [1.4; 1.9] (10,427)	1.8 [1.6; 2.1] (8,807)	2.0 [1.8; 2.3] (5,926)	2.1 [1.9; 2.4] (3,604)	2.3 [2.0; 2.6] (1,864)
		Metal	5,226	80 (75-85)	26/74	24.6	403	1.9 [1.5; 2.3] (4,275)	2.0 [1.6; 2.4] (3,929)	2.1 [1.7; 2.5] (3,320)	2.3 [1.9; 2.7] (2,283)	2.5 [2.1; 3.0] (1,430)	2.7 [2.2; 3.3] (714)
	Head size	28 mm	2,083	78 (70-83)	16/84	23.9	360	1.8 [1.3; 2.5] (1,713)	1.9 [1.4; 2.7] (1,567)	1.9 [1.4; 2.7] (1,313)	2.1 [1.5; 2.9] (902)	2.4 [1.7; 3.3] (571)	2.8 [2.0; 4.0] (307)
		32 mm	10,889	76 (69-82)	24/76	24.7	573	1.5 [1.3; 1.8] (9,335)	1.6 [1.4; 1.9] (8,672)	1.8 [1.6; 2.1] (7,439)	2.1 [1.8; 2.4] (5,151)	2.2 [1.9; 2.5] (3,246)	2.3 [2.0; 2.6] (1,704)
		36 mm	5,518	76 (68-81)	44/56	25.0	405	1.7 [1.4; 2.1] (4,613)	1.8 [1.5; 2.2] (4,183)	2.0 [1.6; 2.4] (3,439)	2.0 [1.7; 2.5] (2,205)	2.1 [1.8; 2.6] (1,247)	2.4 [1.9; 3.0] (573)
	Head-neck length	S	4,832	76 (69-82)	23/77	24.4	502	1.5 [1.2; 1.9] (4,140)	1.7 [1.3; 2.1] (3,782)	1.7 [1.4; 2.2] (3,187)	1.9 [1.5; 2.3] (2,087)	2.1 [1.7; 2.6] (1,255)	2.2 [1.7; 2.7] (635)
		М	7,149	76 (69-82)	27/73	24.7	559	1.5 [1.2; 1.8] (6,072)	1.5 [1.3; 1.9] (5,592)	1.7 [1.4; 2.0] (4,684)	1.9 [1.6; 2.3] (3,181)	2.0 [1.7; 2.4] (1,935)	2.2 [1.8; 2.7] (1,017)
		L	4,536	76 <sub>(68–81)</sub>	35/65	25.0	520	2.0 [1.6; 2.4] (3,850)	2.1 [1.7; 2.5] (3,582)	2.2 [1.8; 2.7] (3,079)	2.5 [2.0; 3.0] (2,119)	2.5 [2.1; 3.1] (1,346)	2.7 [2.2; 3.3] (680)
		XL	1,313	<b>75</b> (67–81)	44/56	25.1	366	2.0 [1.3; 3.0] (1,070)	2.2 [1.5; 3.2] (990)	2.4 [1.7; 3.5] (841)	2.6 [1.8; 3.7] (585)	2.9 [2.0; 4.2] (352)	3.2 [2.2; 4.6] (181)
	Cup type	Modular cup	13,271	75 <sub>(67–80)</sub>	31/69	24.8	587	1.5 [1.3; 1.8] (11,377)	1.7 [1.5; 1.9] (10,508)	1.8 [1.6; 2.1] (8,879)	2.0 [1.8; 2.3] (6,009)	2.2 [1.9; 2.4] (3,647)	2.3 [2.0; 2.6] (1,885)
		Monobloc cup	4,437	80 (75-85)	25/75	24.5	372	1.7 [1.4; 2.2] (3,674)	1.8 [1.4; 2.2] (3,373)	1.9 [1.5; 2.3] (2,898)	2.0 [1.6; 2.6] (1,972)	2.2 [1.7; 2.7] (1,253)	2.3 [1.8; 2.8] (632)
		Dual mobility	930	80 (74-86)	32/68	24.5	161	3.3 [2.3; 4.7] (711)	3.3 [2.3; 4.7] <sub>(633)</sub>	3.3 [2.3; 4.7] (488)	3.5 [2.4; 5.0] (269)	3.5 [2.4; 5.0] (120)	
	Stem type	Femoral stem with modular head	18,178	76 (69-82)	29/71	24.7	609	1.6 [1.5; 1.8] (15,402)	1.7 [1.5; 1.9] (14,194)	1.9 [1.7; 2.1] (11,992)	2.1 [1.9; 2.3] (8,063)	2.2 [2.0; 2.4] (4,897)	2.3 [2.1; 2.6] (2,497)
		Revision or tumour stem	362	79 (72–86)	26/74	25.4	185	4.2 [2.4; 7.1] <sub>(264)</sub>	4.5 [2.7; 7.5] (236)	5.0 [3.0; 8.1] (202)	5.9 [3.7; 9.5] <sub>(137)</sub>	6.7 [4.2; 10.6] <sub>(87)</sub>	
	Reconstruction shell	Without reconstruction shell	18,844	76 (69-82)	29/71	24.7	610	1.7 [1.5; 1.9] (15,935)	1.8 [1.6; 2.0] (14,671)	1.9 [1.7; 2.1] (12,393)	2.1 [1.9; 2.3] (8,337)	2.2 [2.0; 2.5] (5,069)	2.4 [2.1; 2.7] (2,582)
	Fixation	Uncemented	8,482	72 (64–78)	34/66	24.8	570	1.6 [1.4; 1.9] (7,287)	1.7 [1.5; 2.1] (6,744)	1.9 [1.6; 2.2] (5,762)	2.0 [1.7; 2.3] (3,983)	2.1 [1.8; 2.5] (2,444)	2.3 [1.9; 2.7] (1,260)
		Hybrid	5,797	<b>77</b> <sub>(72–82)</sub>	27/73	24.7	495	1.5 [1.2; 1.9] (4,951)	1.6 [1.3; 2.0] (4,557)	1.8 [1.5; 2.2] (3,797)	2.1 [1.8; 2.6] (2,498)	2.3 [1.9; 2.8] (1,496)	2.6 [2.1; 3.2] (753)
		Cemented	4,071	81 (76-86)	24/76	24.5	370	1.9 [1.5; 2.4] (3,305)	1.9 [1.5; 2.4] (3,018)	2.0 [1.6; 2.5] (2,539)	2.1 [1.7; 2.7] (1,651)	2.2 [1.8; 2.8] (1,005)	2.2 [1.8; 2.8] (502)
		Reverse-hybrid	454	77 (67-83)	28/72	25.4	185	2.4 [1.3; 4.4] (368)	2.7 [1.5; 4.8] (335)	2.7 [1.5; 4.8] (276)	2.7 [1.5; 4.8] (189)	2.7 [1.5; 4.8] (110)	2.7 [1.5; 4.8] (58)

Table 45 (continued)

									Inf	ection-related revision	n probabilities following	]	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
Hip hemiarthropla	sties		37,875	84 (80-89)	28/72	24.2	533	2.1 [1.9; 2.2] (28,129)	2.2 [2.0; 2.3] (24,773)	2.3 [2.1; 2.4] (19,605)	2.3 [2.2; 2.5] (11,845)	2.4 [2.2; 2.6] (6,229)	2.5 [2.3; 2.7] (2,737)
	Head component	Metal	34,519	84 (80-89)	28/72	24.2	507	2.1 [1.9; 2.2] (25,593)	2.2 [2.0; 2.3] (22,544)	2.3 [2.1; 2.4] (17,900)	2.3 [2.1; 2.5] (10,909)	2.4 [2.2; 2.6] (5,845)	2.4 [2.2; 2.6] (2,588)
		Ceramic	1,438	84 (79-89)	28/72	24.7	197	2.3 [1.6; 3.3] (1,108)	2.3 [1.6; 3.3] (976)	2.4 [1.7; 3.4] (769)	2.6 [1.8; 3.6] (453)	2.9 [2.0; 4.2] (244)	3.3 [2.2; 5.0] (100)
	Head size	28 mm	33,552	84 (80-89)	27/73	24.2	515	2.1 [1.9; 2.2] (24,903)	2.1 [2.0; 2.3] (21,958)	2.2 [2.1; 2.4] (17,471)	2.3 [2.1; 2.5] (10,705)	2.4 [2.2; 2.6] (5,752)	2.4 [2.2; 2.6] (2,526)
		32 mm	2,088	84 (79-88)	48/52	24.8	93	2.4 [1.8; 3.2] (1,571)	2.5 [1.9; 3.4] (1,390)	2.5 [1.9; 3.4] (1,094)	2.8 [2.1; 3.8] (649)	2.8 [2.1; 3.8] (357)	3.2 [2.3; 4.3] (162)
	Head-neck length	XS	300	84 (80-89)	31/69	23.7	22	1.5 [0.6; 4.0] (231)	1.5 [0.6; 4.0] (213)	1.5 [0.6; 4.0] (173)	1.5 [0.6; 4.0] (108)		
		S	12,064	84 (80-89)	24/76	24.0	445	1.9 [1.6; 2.1] (8,979)	2.0 [1.7; 2.2] (7,826)	2.0 [1.8; 2.3] (6,114)	2.1 [1.8; 2.4] (3,528)	2.2 [1.9; 2.5] (1,806)	2.2 [1.9; 2.5] (786)
		М	16,886	84 (80-89)	29/71	24.3	486	2.1 [1.9; 2.3] (12,539)	2.2 [1.9; 2.4] (11,077)	2.3 [2.0; 2.5] (8,804)	2.3 [2.1; 2.6] (5,436)	2.4 [2.1; 2.7] (2,982)	2.4 [2.2; 2.7] (1,328)
		L	3,662	84 (79-89)	34/66	24.6	396	2.6 [2.1; 3.3] (2,680)	2.8 [2.2; 3.4] (2,400)	2.8 [2.3; 3.5] (1,953)	2.9 [2.4; 3.6] (1,302)	2.9 [2.4; 3.6] (771)	3.1 [2.5; 4.0] (334)
		XL	591	83 (79-89)	35/65	25.4	192	2.9 [1.8; 4.8] (439)	2.9 [1.8; 4.8] (392)	3.2 [2.0; 5.2] (324)	3.2 [2.0; 5.2] (222)	3.7 [2.2; 6.0] <sub>(135)</sub>	3.7 [2.2; 6.0] <sub>(55)</sub>
	Stem type	Femoral stem with modular head	37,220	84 (80-89)	28/72	24.2	528	2.1 [1.9; 2.2] (27,678)	2.1 [2.0; 2.3] (24,377)	2.3 [2.1; 2.4] (19,302)	2.3 [2.2; 2.5] (11,669)	2.4 [2.2; 2.6] (6,145)	2.5 [2.3; 2.7] (2,700)
		Revision or tumour stem	412	84 (79-89)	27/73	24.9	153	5.0 [3.1; 8.0] (276)	5.4 [3.4; 8.4] (242)	5.4 [3.4; 8.4] (193)	5.4 [3.4; 8.4] (113)	5.4 [3.4; 8.4] <sub>(53)</sub>	
	Fixation	Cemented	32,881	84 (80-89)	27/73	24.2	514	2.0 [1.8; 2.1] (24,489)	2.0 [1.9; 2.2] (21,547)	2.1 [2.0; 2.3] (17,070)	2.2 [2.0; 2.4] (10,338)	2.3 [2.1; 2.5] (5,448)	2.3 [2.2; 2.6] (2,414)
		Uncemented	4,820	83 (78-88)	33/67	24.7	296	2.9 [2.4; 3.5] (3,508)	3.0 [2.5; 3.6] (3,109)	3.2 [2.7; 3.8] (2,451)	3.3 [2.8; 3.9] (1,455)	3.3 [2.8; 4.0] (755)	3.3 [2.8; 4.0] (311)
Standard TKAs			245,263	70 (62–77)	34/66	30.1	662	0.4 [0.4; 0.5] (231,263)	0.5 [0.5; 0.6] (222,611)	0.7 [0.7; 0.7] (194,943)	0.9 [0.8; 0.9] (142,956)	1.0 [1.0; 1.1] (95,181)	1.1 [1.1; 1.2] (54,087)
	Bearing mobility	Fixed bearing	203,464	70 (62–77)	34/66	30.1	637	0.4 [0.4; 0.5] (191,479)	0.5 [0.5; 0.6] (184,033)	0.7 [0.6; 0.7] (160,276)	0.9 [0.8; 0.9] (116,314)	1.0 [1.0; 1.1] (76,626)	1.1 [1.1; 1.2] (43,360)
		Mobile bearing	41,799	71 (63–77)	34/66	30.0	314	0.4 [0.4; 0.5] (39,784)	0.6 [0.5; 0.6] (38,578)	0.7 [0.6; 0.8] (34,667)	0.9 [0.8; 1.0] (26,642)	1.1 [1.0; 1.2] (18,555)	1.2 [1.1; 1.3] (10,727)
	Bearing	Uncoated metal / PE	104,648	71 (63–77)	35/65	30.1	471	0.4 [0.4; 0.5] (99,013)	0.5 [0.5; 0.6] (95,507)	0.7 [0.6; 0.7] (84,042)	0.9 [0.8; 0.9] (62,781)	1.0 [0.9; 1.1] (42,560)	1.1 [1.0; 1.2] (25,012)
		Uncoated metal / mXLPE	90,086	71 (63–77)	35/65	30.1	417	0.5 [0.4; 0.5] (85,225)	0.6 [0.5; 0.6] (82,304)	0.7 [0.7; 0.8] (72,565)	1.0 [0.9; 1.0] (53,307)	1.1 [1.0; 1.2] (35,601)	1.2 [1.1; 1.3] (20,165)
		Uncoated metal / hXLPE	18,865	69 (61-76)	30/70	30.4	324	0.4 [0.3; 0.5] (17,645)	0.5 [0.4; 0.6] (16,882)	0.6 [0.5; 0.7] (14,745)	0.8 [0.6; 0.9] (10,542)	0.8 [0.7; 1.0] (6,721)	0.8 [0.7; 1.0] (3,644)
		Uncoated metal / hXLPE+antiox.	12,457	69 (61-76)	38/62	30.4	163	0.4 [0.3; 0.5] (11,358)	0.5 [0.4; 0.6] (10,584)	0.6 [0.5; 0.8] (8,629)	0.7 [0.6; 0.9] (5,535)	0.8 [0.7; 1.1] (3,491)	1.0 [0.8; 1.3] (1,878)
		Coated metal / mXLPE	7,143	66 (58-74)	14/86	30.9	307	0.4 [0.3; 0.6] (6,697)	0.5 [0.3; 0.7] (6,453)	0.6 [0.4; 0.8] (5,471)	0.9 [0.7; 1.2] (3,825)	1.1 [0.8; 1.4] (2,380)	1.1 [0.8; 1.4] (1,192)
		Ceramicised metal / PE	5,100	66 (58-73)	17/83	31.4	209	0.4 [0.3; 0.6] (4,757)	0.4 [0.3; 0.7] (4,561)	0.5 [0.3; 0.7] (3,914)	0.7 [0.5; 1.0] (2,795)	0.7 [0.5; 1.0] (1,828)	0.8 [0.5; 1.1] (1,067)
		Ceramicised metal / hXLPE	2,957	66 (59-74)	31/69	30.4	86	0.6 [0.4; 1.0] (2,820)	0.7 [0.5; 1.1] (2,725)	0.9 [0.6; 1.3] (2,395)	1.1 [0.7; 1.5] (1,723)	1.1 [0.7; 1.5] (972)	1.3 [0.8; 1.9] (342)
		Coated metal / PE	2,329	68 (60-76)	22/78	30.9	128	0.7 [0.4; 1.1] (2,159)	0.7 [0.4; 1.2] (2,067)	1.0 [0.7; 1.5] (1,783)	1.5 [1.0; 2.1] (1,278)	1.8 [1.3; 2.6] (831)	2.4 [1.6; 3.5] (405)

Table 45 (continued)

									Inf	ection-related revision	n probabilities following	<b>]</b>	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Bearing	Uncoated metal / mXLPE + antiox.	1,280	71 (63–77)	35/65	31.2	17	0.5 [0.2; 1.1] (1,222)	0.6 [0.3; 1.3] (1,179)	0.6 [0.3; 1.3] (1,091)	0.7 [0.4; 1.4] (948)	0.9 [0.5; 1.6] (657)	1.0 [0.6; 1.9] (312)
	Femoral articulat- ing surface	Uncoated metal	227,336	71 (63–77)	35/65	30.1	657	0.4 [0.4; 0.5] (214,463)	0.5 [0.5; 0.6] (206,456)	0.7 [0.7; 0.7] (181,072)	0.9 [0.8; 0.9] (133,113)	1.0 [1.0; 1.1] (89,030)	1.1 [1.1; 1.2] (51,011)
		Coated metal	9,624	66 (59-74)	16/84	30.9	391	0.5 [0.3; 0.6] (8,995)	0.5 [0.4; 0.7] (8,650)	0.7 [0.5; 0.9] (7,368)	1.0 [0.8; 1.3] (5,178)	1.3 [1.0; 1.5] (3,255)	1.4 [1.1; 1.7] (1,622)
		Ceramicised metal	8,057	66 (58-74)	22/78	31.0	226	0.5 [0.4; 0.7] (7,577)	0.5 [0.4; 0.7] (7,286)	0.6 [0.5; 0.8] (6,309)	0.8 [0.6; 1.1] (4,518)	0.8 [0.6; 1.1] (2,800)	0.9 [0.7; 1.2] (1,409)
	Tibial articulating surface	PE	112,323	71 (63–77)	34/66	30.1	527	0.4 [0.4; 0.5] (106,157)	0.5 [0.5; 0.6] (102,354)	0.7 [0.6; 0.7] (89,933)	0.9 [0.8; 0.9] (67,001)	1.0 [0.9; 1.1] (45,315)	1.1 [1.0; 1.2] (26,529)
		mXLPE	97,229	71 (63–77)	34/66	30.1	438	0.5 [0.4; 0.5] (91,922)	0.6 [0.5; 0.6] (88,757)	0.7 [0.7; 0.8] (78,036)	0.9 [0.9; 1.0] (57,132)	1.1 [1.0; 1.2] (37,981)	1.2 [1.1; 1.3] (21,357)
		hXLPE	21,822	68 (60-76)	31/69	30.4	338	0.4 [0.3; 0.5] (20,465)	0.5 [0.4; 0.6] (19,607)	0.6 [0.5; 0.7] (17,140)	0.8 [0.7; 0.9] (12,265)	0.9 [0.7; 1.0] (7,693)	0.9 [0.8; 1.0] (3,986)
		hXLPE+antiox.	12,609	68 (61-76)	38/62	30.4	167	0.4 [0.3; 0.5] (11,497)	0.5 [0.4; 0.6] (10,714)	0.6 [0.5; 0.8] (8,743)	0.7 [0.6; 0.9] (5,610)	0.8 [0.7; 1.0] (3,535)	1.0 [0.8; 1.3] (1,903)
		mXLPE+antiox.	1,280	71 (63–77)	35/65	31.2	17	0.5 [0.2; 1.1] (1,222)	0.6 [0.3; 1.3] (1,179)	0.6 [0.3; 1.3] (1,091)	0.7 [0.4; 1.4] (948)	0.9 [0.5; 1.6] (657)	1.0 [0.6; 1.9] (312)
	Knee system	CR	112,227	70 (62–77)	35/65	30.3	588	0.4 [0.4; 0.5] (106,034)	0.5 [0.5; 0.5] (102,232)	0.6 [0.6; 0.7] (89,719)	0.8 [0.8; 0.9] (66,036)	1.0 [0.9; 1.0] (43,951)	1.0 [1.0; 1.1] (25,410)
		PS	45,889	70 (62–77)	32/68	30.1	470	0.5 [0.4; 0.5] (42,920)	0.5 [0.5; 0.6] (41,052)	0.7 [0.6; 0.8] (35,253)	0.9 [0.8; 1.0] (24,579)	1.1 [1.0; 1.2] (15,570)	1.1 [1.0; 1.3] (8,673)
		CR/CS	45,689	70 (63–77)	34/66	30.0	302	0.4 [0.4; 0.5] (43,488)	0.5 [0.5; 0.6] (42,033)	0.6 [0.6; 0.7] (37,454)	0.8 [0.8; 0.9] (28,248)	0.9 [0.8; 1.0] (19,454)	1.0 [0.9; 1.1] (11,057)
		CS	37,963	71 (63–77)	31/69	30.1	416	0.5 [0.4; 0.6] (35,651)	0.6 [0.5; 0.7] (34,305)	0.8 [0.7; 0.9] (30,150)	1.1 [1.0; 1.2] (22,700)	1.2 [1.1; 1.4] (15,470)	1.4 [1.3; 1.6] (8,666)
		Pivot	3,495	69 (61-76)	38/62	30.0	63	0.6 [0.4; 1.0] (3,170)	0.7 [0.5; 1.1] (2,989)	0.9 [0.6; 1.3] (2,367)	1.0 [0.7; 1.4] (1,393)	1.1 [0.8; 1.6] (736)	1.1 [0.8; 1.6] (281)
	Patella	Without patellar resurfacing	219,823	70 (62–77)	34/66	30.1	660	0.4 [0.4; 0.5] (207,439)	0.5 [0.5; 0.6] (199,805)	0.7 [0.6; 0.7] (174,849)	0.9 [0.8; 0.9] (128,204)	1.0 [1.0; 1.0] (85,477)	1.1 [1.0; 1.1] (48,598)
		With patellar resurfacing	25,440	70 (62–77)	31/69	30.5	427	0.5 [0.4; 0.6] (23,824)	0.6 [0.5; 0.7] (22,806)	0.8 [0.7; 0.9] (20,094)	1.0 [0.9; 1.2] (14,752)	1.2 [1.0; 1.3] (9,704)	1.3 [1.2; 1.5] (5,489)
	Fixation	Cemented	226,703	70 (62–77)	34/66	30.1	659	0.4 [0.4; 0.5] (213,453)	0.5 [0.5; 0.6] (205,240)	0.7 [0.6; 0.7] (179,189)	0.9 [0.8; 0.9] (130,453)	1.0 [1.0; 1.1] (86,282)	1.1 [1.1; 1.2] (48,795)
		Hybrid	14,940	69 (62-76)	39/61	30.2	174	0.5 [0.4; 0.7] (14,359)	0.6 [0.5; 0.8] (14,029)	0.8 [0.7; 1.0] (12,772)	1.1 [0.9; 1.3] (10,243)	1.2 [1.0; 1.4] (7,386)	1.4 [1.2; 1.6] (4,441)
		Uncemented	3,183	69 (61-76)	31/69	30.5	169	0.4 [0.2; 0.7] (3,035)	0.6 [0.3; 0.9] (2,944)	0.7 [0.5; 1.1] (2,637)	1.0 [0.7; 1.4] (2,015)	1.1 [0.8; 1.6] (1,384)	1.1 [0.8; 1.6] (802)
Constrained TKAs			12,667	74 (66-80)	24/76	29.1	596	1.5 [1.3; 1.7] (11,578)	1.7 [1.5; 2.0] (11,037)	2.1 [1.9; 2.4] (9,561)	2.6 [2.4; 3.0] (6,778)	3.0 [2.7; 3.4] (4,414)	3.2 [2.8; 3.6] (2,379)
	Bearing mobility	Fixed bearing	12,651	74 <sub>(66–80)</sub>	24/76	29.1	596	1.5 [1.3; 1.7] (11,565)	1.7 [1.5; 2.0] (11,024)	2.1 [1.9; 2.4] (9,548)	2.6 [2.4; 3.0] (6,769)	3.0 [2.7; 3.4] (4,411)	3.2 [2.8; 3.6] <sub>(2,379)</sub>
	Bearing	Uncoated metal / PE	8,197	<b>75</b> <sub>(67–80)</sub>	24/76	28.7	486	1.3 [1.1; 1.6] (7,534)	1.5 [1.3; 1.8] (7,213)	2.0 [1.7; 2.3] (6,274)	2.4 [2.1; 2.8] (4,495)	2.8 [2.4; 3.2] (2,989)	2.9 [2.5; 3.3] (1,601)
		Uncoated metal / mXLPE	2,821	74 (66–79)	26/74	29.1	251	1.8 [1.4; 2.4] (2,583)	2.1 [1.6; 2.7] (2,446)	2.4 [1.9; 3.0] (2,151)	2.9 [2.4; 3.7] (1,564)	3.2 [2.6; 4.0] (1,030)	3.5 [2.8; 4.4] (620)
		Coated metal / PE	554	73 (64–79)	20/80	29.3	120	1.7 [0.9; 3.2] (488)	2.3 [1.3; 4.1] (458)	3.2 [2.0; 5.2] (382)	3.5 [2.2; 5.6] (252)	4.6 [2.8; 7.5] (133)	
		Uncoated metal / hXLPE	489	72 (62-79)	27/73	30.1	51	1.3 [0.6; 2.9] (435)	1.5 [0.7; 3.2] (412)	1.5 [0.7; 3.2] (347)	2.8 [1.5; 5.0] (209)	2.8 [1.5; 5.0] (114)	

Table 45 (continued)

									Inf	ection-related revision	probabilities following	<b>]</b>	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Femoral articulat- ing surface	Uncoated metal	11,665	75 (66-80)	25/75	29.0	585	1.5 [1.3; 1.7] (10,679)	1.7 [1.5; 1.9] (10,189)	2.0 [1.8; 2.3] (8,856)	2.6 [2.3; 2.9] (6,305)	2.9 [2.6; 3.3] (4,145)	3.1 [2.7; 3.5] (2,269)
		Coated metal	790	72 (63–78)	18/82	29.4	190	1.7 [1.0; 3.0] (704)	2.4 [1.5; 3.8] (659)	3.5 [2.4; 5.2] <sub>(555)</sub>	4.0 [2.7; 5.8] <sub>(372)</sub>	4.7 [3.2; 6.9] (210)	5.3 [3.6; 8.0] <sub>(80)</sub>
	Tibial articulating surface	PE	8,963	75 (66-80)	24/76	29.0	504	1.4 [1.1; 1.6] (8,217)	1.6 [1.3; 1.9] (7,860)	2.0 [1.8; 2.4] (6,806)	2.5 [2.2; 2.9] (4,848)	2.9 [2.5; 3.3] (3,181)	3.0 [2.6; 3.4] (1,674)
		mXLPE	3,057	73 (65-79)	25/75	29.2	267	1.8 [1.4; 2.4] (2,799)	2.1 [1.6; 2.7] (2,647)	2.5 [2.0; 3.2] (2,324)	3.1 [2.5; 3.8] (1,684)	3.3 [2.7; 4.1] (1,107)	3.6 [2.9; 4.5] <sub>(657)</sub>
		hXLPE	489	72 (62–79)	27/73	30.1	51	1.3 [0.6; 2.9] (435)	1.5 [0.7; 3.2] (412)	1.5 [0.7; 3.2] (347)	2.8 [1.5; 5.0] (209)	2.8 [1.5; 5.0] (114)	
	Knee system	Hinged	7,682	76 (68–81)	22/78	28.4	535	1.7 [1.5; 2.1] (7,015)	2.0 [1.7; 2.4] (6,680)	2.5 [2.2; 2.9] (5,817)	3.1 [2.7; 3.6] (4,187)	3.6 [3.1; 4.1] (2,764)	3.8 [3.3; 4.3] (1,502)
		Varus-valgus-stabilised	4,985	72 (63–78)	28/72	29.7	362	1.1 [0.8; 1.4] (4,563)	1.2 [0.9; 1.6] (4,357)	1.5 [1.2; 1.9] (3,744)	1.9 [1.5; 2.4] (2,591)	2.1 [1.7; 2.6] (1,650)	2.3 [1.8; 2.8] (877)
	Patella	Without patellar resurfacing	10,890	75 (66-80)	24/76	29.0	586	1.4 [1.2; 1.7] (9,934)	1.6 [1.4; 1.9] (9,479)	2.0 [1.8; 2.3] (8,211)	2.6 [2.3; 2.9] (5,805)	3.0 [2.6; 3.4] (3,788)	3.1 [2.8; 3.6] (2,036)
		With patellar resurfacing	1,777	73 (64–79)	25/75	29.6	197	1.8 [1.3; 2.5] (1,644)	2.3 [1.7; 3.2] (1,558)	2.7 [2.0; 3.6] (1,350)	3.2 [2.4; 4.2] (973)	3.3 [2.5; 4.4] (626)	3.5 [2.6; 4.6] (343)
	Fixation	Cemented	12,513	74 (66-80)	24/76	29.1	596	1.5 [1.3; 1.7] (11,454)	1.7 [1.5; 2.0] (10,934)	2.1 [1.9; 2.4] (9,486)	2.6 [2.3; 2.9] (6,732)	2.9 [2.6; 3.3] (4,391)	3.1 [2.8; 3.5] (2,366)
Unicondylar knee	arthroplasties		35,495	64 (57-72)	44/56	29.6	570	0.3 [0.2; 0.3] (33,363)	0.3 [0.2; 0.4] (31,806)	0.4 [0.4; 0.5] (27,166)	0.6 [0.5; 0.6] (19,232)	0.7 [0.6; 0.8] (12,258)	0.7 [0.6; 0.8] (6,619)
	Bearing mobility	Mobile bearing	21,975	64 (57-73)	44/56	29.7	382	0.3 [0.2; 0.4] (20,742)	0.3 [0.3; 0.4] (19,841)	0.4 [0.3; 0.5] (17,090)	0.5 [0.4; 0.6] (12,340)	0.6 [0.5; 0.8] (7,996)	0.7 [0.6; 0.9] (4,434)
		Fixed bearing	13,520	63 (57-72)	43/57	29.4	375	0.2 [0.1; 0.3] (12,621)	0.3 [0.2; 0.4] (11,965)	0.5 [0.4; 0.6] (10,076)	0.6 [0.5; 0.8] (6,892)	0.7 [0.6; 0.9] (4,262)	0.8 [0.6; 1.0] (2,185)
	Bearing	Uncoated metal / mXLPE	23,955	65 (58-73)	45/55	29.5	406	0.3 [0.2; 0.3] (22,636)	0.3 [0.2; 0.4] (21,650)	0.4 [0.3; 0.5] (18,618)	0.5 [0.4; 0.6] (13,441)	0.6 [0.5; 0.7] (8,619)	0.7 [0.6; 0.8] (4,712)
		Uncoated metal / PE	5,676	64 (57-72)	46/54	29.4	218	0.2 [0.1; 0.4] (5,339)	0.3 [0.2; 0.5] (5,103)	0.6 [0.4; 0.8] (4,480)	0.8 [0.5; 1.0] (3,331)	0.8 [0.6; 1.1] (2,247)	0.8 [0.6; 1.1] (1,216)
		Coated metal / mXLPE	2,938	61 (55-68)	27/73	30.0	270	0.4 [0.2; 0.7] (2,756)	0.5 [0.3; 0.8] (2,621)	0.7 [0.4; 1.0] (2,164)	0.8 [0.5; 1.2] (1,424)	0.9 [0.6; 1.4] (833)	1.1 [0.7; 1.9] (435)
	Bearing	Uncoated metal / hXLPE+antiox.	1,525	63 (56-71)	47/53	29.4	73	0.2 [0.1; 0.6] (1,318)	0.2 [0.1; 0.6] (1,181)	0.3 [0.1; 0.8] (824)	0.3 [0.1; 0.8] (267)		
		Ceramicised metal / PE	661	60 (54-66)	32/68	30.1	105	0 (617)	0.2 [0.0; 1.2] (584)	0.2 [0.0; 1.2] (502)	0.2 [0.0; 1.2] (325)	0.2 [0.0; 1.2] (194)	0.2 [0.0; 1.2] (92)
		Uncoated metal / hXLPE	426	62 (56-70)	46/54	29.3	30	0 (401)	0 (389)	0.5 [0.1; 2.1] (347)	0.5 [0.1; 2.1] (275)	0.5 [0.1; 2.1] (198)	0.5 [0.1; 2.1] (109)
		Coated metal / PE	306	61 (55-69)	19/81	29.4	63	0.3 [0.0; 2.3] (288)	0.3 [0.0; 2.3] (270)	0.8 [0.2; 3.1] (224)	0.8 [0.2; 3.1] (164)	0.8 [0.2; 3.1] (123)	1.7 [0.5; 5.6] (54)
	Femoral articulat- ing surface	Uncoated metal	31,582	64 (57-73)	46/54	29.4	543	0.2 [0.2; 0.3] (29,694)	0.3 [0.2; 0.4] (28,323)	0.4 [0.3; 0.5] (24,269)	0.5 [0.5; 0.6] (17,314)	0.6 [0.5; 0.8] (11,104)	0.7 [0.6; 0.8] (6,037)
		Coated metal	3,244	61 (55-68)	26/74	30.0	313	0.4 [0.2; 0.7] (3,044)	0.4 [0.3; 0.7] (2,891)	0.7 [0.4; 1.0] (2,388)	0.8 [0.5; 1.1] (1,588)	0.9 [0.6; 1.4] (956)	1.2 [0.8; 1.9] (489)
		Ceramicised metal	661	60 (54-66)	32/68	30.1	105	0 (617)	0.2 [0.0; 1.2] (584)	0.2 [0.0; 1.2] (502)	0.2 [0.0; 1.2] (325)	0.2 [0.0; 1.2] (194)	0.2 [0.0; 1.2] (92)
	Tibial articulating surface	mXLPE	26,893	64 (57-73)	43/57	29.6	428	0.3 [0.2; 0.3] (25,392)	0.3 [0.3; 0.4] (24,271)	0.4 [0.3; 0.5] (20,782)	0.5 [0.4; 0.6] (14,865)	0.7 [0.5; 0.8] (9,452)	0.7 [0.6; 0.9] (5,147)
		PE	6,651	63 (57-72)	43/57	29.7	267	0.2 [0.1; 0.3] (6,252)	0.3 [0.2; 0.4] (5,965)	0.6 [0.4; 0.8] (5,213)	0.7 [0.5; 0.9] (3,825)	0.8 [0.6; 1.0] (2,568)	0.8 [0.6; 1.1] (1,363)

Table 45 (continued)

									Int	fection-related revision	probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Tibial articulating surface	hXLPE+antiox.	1,525	63 (56-71)	47/53	29.4	73	0.2 [0.1; 0.6] (1,318)	0.2 [0.1; 0.6] (1,181)	0.3 [0.1; 0.8] (824)	0.3 [0.1; 0.8] (267)		
		hXLPE	426	62 (56-70)	46/54	29.3	30	0 (401)	0 (389)	0.5 [0.1; 2.1] (347)	0.5 [0.1; 2.1] (275)	0.5 [0.1; 2.1] (198)	0.5 [0.1; 2.1] (109)
	Fixation	Cemented	30,876	64 (57-72)	42/58	29.6	567	0.2 [0.2; 0.3] (28,977)	0.3 [0.2; 0.4] (27,587)	0.4 [0.4; 0.5] (23,483)	0.5 [0.5; 0.6] (16,544)	0.7 [0.6; 0.8] (10,501)	0.7 [0.6; 0.9] (5,603)
		Uncemented	4,177	63 (57-71)	55/45	29.8	78	0.3 [0.2; 0.6] (3,966)	0.4 [0.2; 0.6] (3,807)	0.4 [0.2; 0.6] (3,308)	0.5 [0.3; 0.8] (2,387)	0.6 [0.4; 1.0] (1,539)	0.6 [0.4; 1.0] (902)
		Hybrid	396	66 (60-75)	36/64	28.4	37	0.5 [0.1; 2.1] (379)	0.8 [0.3; 2.4] (372)	1.1 [0.4; 2.8] (346)	1.1 [0.4; 2.8] (282)	1.1 [0.4; 2.8] (205)	1.1 [0.4; 2.8] (104)
Patellofemoral arth	nroplasties		542	54 (48-61)	26/74	27.8	155	0 (516)	0 (489)	0.7 [0.2; 2.1] (407)	0.7 [0.2; 2.1] (285)	0.7 [0.2; 2.1] (182)	1.5 [0.4; 4.7] (87)
	Femoral articulat- ing surface	Uncoated metal	307	55 <sub>(47-62)</sub>	26/74	27.6	91	0 (291)	0 (277)	0.4 [0.1; 3.0] (233)	0.4 [0.1; 3.0] (175)	0.4 [0.1; 3.0] (115)	1.7 [0.4; 7.6] (55)
	Patella	With patellar resurfacing	448	54 (48-61)	25/75	28.0	129	0 (428)	0 (404)	0.8 [0.3; 2.5] (337)	0.8 [0.3; 2.5] (227)	0.8 [0.3; 2.5] (140)	1.9 [0.6; 6.3] (58)

Table 45 (continued)

#### 5.4.2 Impact of non-implantrelated factors on the incidence of periprosthetic joint infection

One rather significant parameter affecting the risk of infection is severe obesity. Patients with a high body mass index carry a markedly increased risk of infection for most types of arthroplasties. This is particularly evident for total hip arthroplasties, see Figure 29.

The probabilities of infection are also strongly linked to the patient's sex. For example, male patients have a markedly higher risk of infection in hip (see Figure 30) and, even more clearly, in knee (Figure 31) arthroplasties. In female patients with standard total knee arthroplasty, the probability of revision due to infection within two years after the first operation is 0.7 %. At 1.3 %, men are almost twice as likely to undergo such revisions. While males tend to have larger components implanted than females, the differences in implant size between males and females do not fully explain the differences in infection probabilities. Also, regarding comorbidities and other risk factors, the data available to the EPRD do not provide any adequate explanations. It should therefore not be disregarded that there are immunological differences between the sexes that might affect the post-arthroplasty risk of infection [8, 9, 10].

Comorbidities not only have a general impact on the probability of revision surgery (see Figure 20), but also on the risk of infection in particular. Patients with at least five documented comorbidities (based on the diseases represented in the Elixhauser comorbidity index) always suffer from a manifold increase in the infection-related revision probability, see Table 46. The outcomes presented in this table also show that for all elective types of arthroplasty infections are significantly less common in high-volume hospitals. Thus, the institutional experience of the hospital also significantly impacts the probability of infection.

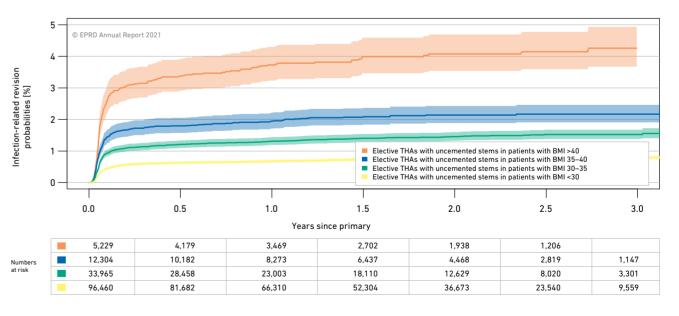


Figure 29: Infection-related uncemented elective hip arthroplasty revision probabilities by BMI (p < 0.0001)

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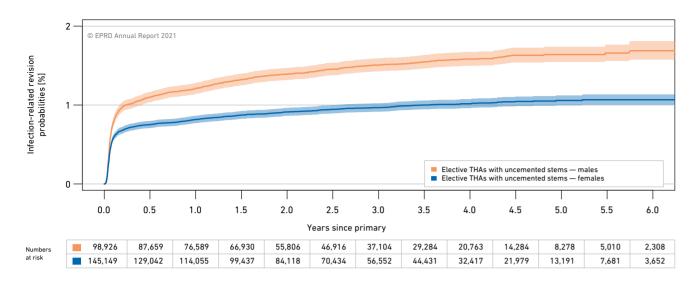


Figure 30: Infection-related uncemented elective total hip arthroplasty revision probabilities by sex (p < 0.0001)

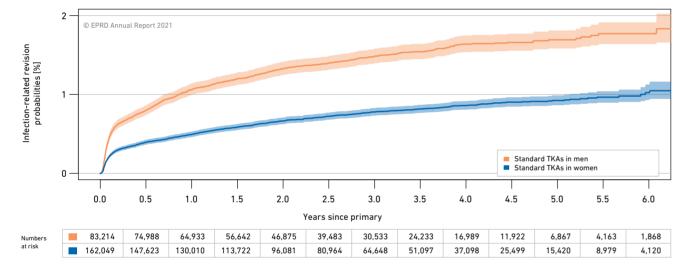


Figure 31: Infection-related standard total knee arthroplasty revision probabilities by sex (p < 0.0001)

#### In brief:

- Infections within the first two years after the primary arthroplasty are responsible for up to 50 % of revisions, depending on the type of arthroplasty
- Smaller arthroplasty systems tend to have lower probabilities of infectionrelated revisions
- Patient-specific parameters such as age, sex, BMI, and comorbidities have a significant impact on the infectionrelated probability of revision surgery
- Men in particular have a significantly higher risk of infection-related revision than women — especially in knee arthroplasty

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									Inf	ection-related revision	n probabilities following	J	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
Elective THAs with	n uncemented stems		244,075	67 (59-75)	40/60	27.8	673	0.8 [0.8; 0.9] (226,363)	0.9 [0.9; 0.9] (216,701)	1.0 [0.9; 1.0] (190,644)	1.1 [1.1; 1.2] (139,924)	1.2 [1.1; 1.2] (93,656)	1.2 [1.2; 1.3] (53,180)
	Hospital size*	Hospitals with low annual case volumes	50,453	69 (61–76)	40/60	28.1	339	1.0 [0.9; 1.1] (46,583)	1.1 [1.0; 1.2] (44,624)	1.2 [1.1; 1.3] (39,210)	1.4 [1.3; 1.5] (28,778)	1.4 [1.3; 1.6] (18,931)	1.5 [1.4; 1.7] (10,274)
		Hospitals with average annual case volumes	100,102	67 (60-75)	41/59	27.9	244	0.9 [0.8; 1.0] (92,758)	0.9 [0.9; 1.0] (88,812)	1.0 [1.0; 1.1] (78,171)	1.2 [1.1; 1.2] (57,478)	1.2 [1.2; 1.3] (38,420)	1.3 [1.2; 1.4] (21,751)
		Hospitals with high annual case volumes	89,482	66 (58-73)	40/60	27.6	66	0.6 [0.6; 0.7] (83,229)	0.7 [0.6; 0.8] (79,571)	0.8 [0.7; 0.8] (69,964)	0.9 [0.8; 1.0] (51,086)	1.0 [0.9; 1.1] (34,489)	1.0 [1.0; 1.1] (20,071)
	Age group	≤54 years	32,973	50 (46-53)	50/50	28.3	659	0.6 [0.5; 0.7] (30,960)	0.7 [0.6; 0.8] (29,687)	0.8 [0.7; 0.9] (26,255)	1.0 [0.9; 1.1] (19,429)	1.1 [1.0; 1.2] (13,132)	1.2 [1.0; 1.3] (7,671)
		55-64 years	67,366	60 (58-62)	44/56	28.5	665	0.7 [0.7; 0.8] (62,861)	0.8 [0.7; 0.9] (60,003)	0.9 [0.8; 1.0] (52,365)	1.1 [1.0; 1.2] (38,394)	1.2 [1.1; 1.2] (25,785)	1.2 [1.1; 1.3] (14,666)
		65-74 years	81,518	69 (67-72)	38/62	28.1	664	0.8 [0.7; 0.9] (75,688)	0.8 [0.8; 0.9] (72,632)	0.9 [0.9; 1.0] (64,067)	1.0 [1.0; 1.1] (47,358)	1.1 [1.0; 1.2] (32,204)	1.2 [1.1; 1.2] (18,718)
		75-84 years	57,870	78 (76-80)	36/64	27.0	661	1.1 [1.0; 1.2] (53,001)	1.2 [1.1; 1.2] (50,733)	1.2 [1.1; 1.3] (44,840)	1.3 [1.2; 1.4] (32,602)	1.4 [1.3; 1.5] (21,230)	1.4 [1.3; 1.6] (11,482)
		85 years and older	4,348	86 (85-88)	33/67	25.8	506	1.2 [0.9; 1.6] (3,853)	1.3 [1.0; 1.6] (3,646)	1.3 [1.0; 1.6] (3,117)	1.3 [1.0; 1.7] (2,141)	1.3 [1.0; 1.7] (1,305)	1.3 [1.0; 1.7] (643)
	Sex	Male	98,926	66 (58-74)	100/0	28.4	669	1.0 [0.9; 1.1] (91,708)	1.1 [1.0; 1.2] (87,659)	1.2 [1.1; 1.3] (76,589)	1.4 [1.3; 1.5] (55,806)	1.5 [1.4; 1.6] (37,104)	1.6 [1.5; 1.7] (20,763)
		Female	145,149	68 (60-75)	0/100	27.5	668	0.7 [0.7; 0.7] (134,655)	0.8 [0.7; 0.8] (129,042)	0.8 [0.8; 0.9] (114,055)	0.9 [0.9; 1.0] (84,118)	1.0 [0.9; 1.0] (56,552)	1.0 [1.0; 1.1] (32,417)
	Body Mass Index	≤25	38,809	68 (60-76)	30/70	23.2	641	0.4 [0.4; 0.5] (35,072)	0.5 [0.4; 0.5] (32,745)	0.5 [0.5; 0.6] (26,572)	0.6 [0.5; 0.7] (14,602)	0.6 [0.5; 0.7] (3,782)	
		>25 to ≤30	57,656	68 (60-76)	46/54	27.4	647	0.7 [0.6; 0.8] (52,117)	0.7 [0.7; 0.8] (48,941)	0.8 [0.7; 0.9] (39,741)	0.9 [0.8; 1.0] (22,074)	0.9 [0.8; 1.0] (5,778)	
		>30 to ≤35	33,961	66 (59-73)	44/56	31.9	641	1.1 [1.0; 1.2] (30,510)	1.2 [1.1; 1.3] (28,455)	1.3 [1.2; 1.4] (23,001)	1.5 [1.3; 1.6] (12,627)	1.5 [1.4; 1.7] (3,300)	
		>35 to ≤40	12,321	64 (57-70)	41/59	36.8	614	1.7 [1.5; 2.0] (10,920)	1.8 [1.6; 2.1] (10,194)	1.9 [1.7; 2.2] (8,282)	2.1 [1.9; 2.4] (4,474)	2.2 [1.9; 2.5] (1,149)	
		>40	5,211	61 (55-67)	33/67	42.5	584	3.1 [2.7; 3.7] (4,496)	3.4 [2.9; 3.9] (4,166)	3.7 [3.2; 4.3] (3,459)	4.1 [3.6; 4.7] (1,931)	4.3 [3.7; 5.0] (494)	
	Comorbidities	W/o comorbidities	57,858	62 (55-70)	43/57	25.9	662	0.4 [0.3; 0.4] (54,464)	0.4 [0.3; 0.4] (52,252)	0.5 [0.4; 0.5] (45,769)	0.6 [0.5; 0.6] (33,788)	0.6 [0.6; 0.7] (22,835)	0.7 [0.6; 0.7] (12,956)
		1-4 comorbidities	178,338	68 (61-75)	40/60	28.5	672	0.8 [0.8; 0.9] (165,105)	0.9 [0.9; 1.0] (158,011)	1.0 [1.0; 1.1] (139,237)	1.1 [1.1; 1.2] (102,175)	1.2 [1.2; 1.3] (68,269)	1.3 [1.2; 1.4] (38,828)
		More than 4 comorbidities	7,879	74 (66-79)	40/60	31.6	598	3.8 [3.4; 4.3] (6,794)	3.9 [3.5; 4.4] (6,438)	4.1 [3.6; 4.5] (5,638)	4.3 [3.8; 4.8] (3,961)	4.4 [3.9; 4.9] (2,552)	4.6 [4.1; 5.1] (1,396)
Elective THAs with	n cemented stems		67,100	79 (75-82)	26/74	26.7	651	0.9 [0.8; 1.0] (61,665)	1.0 [0.9; 1.0] (58,856)	1.0 [0.9; 1.1] (52,152)	1.1 [1.1; 1.2] (38,194)	1.2 [1.2; 1.3] (25,801)	1.3 [1.2; 1.4] (14,945)
	Hospital size**	Hospitals with low annual case volumes	13,397	79 (75–83)	26/74	26.9	327	1.1 [0.9; 1.3] (12,303)	1.2 [1.0; 1.4] (11,711)	1.2 [1.1; 1.4] (10,270)	1.3 [1.2; 1.6] (7,403)	1.5 [1.3; 1.8] (4,946)	1.6 [1.3; 1.8] (2,748)
		Hospitals with average annual case volumes	29,053	<b>79</b> <sub>(75–82)</sub>	26/74	26.8	237	1.0 [0.9; 1.1] (26,697)	1.0 [0.9; 1.2] (25,550)	1.1 [1.0; 1.2] (22,863)	1.2 [1.1; 1.4] (17,131)	1.3 [1.2; 1.4] (11,716)	1.3 [1.2; 1.5] (6,908)
		Hospitals with high annual case volumes	22,811	78 <sub>(75–82)</sub>	25/75	26.4	66	0.7 [0.6; 0.8] (20,934)	0.7 [0.6; 0.8] (19,907)	0.8 [0.7; 0.9] (17,458)	0.9 [0.8; 1.1] (12,430)	1.0 [0.9; 1.1] (8,222)	1.0 [0.9; 1.2] (4,670)

<sup>\* \*\*</sup> For classification see legend in Figure 20

Table 46: Table of infection-related revision probabilities for different types of arthroplasties and non-implant-related factors. The table is continued on the following pages.

									Inf	ection-related revision	n probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Age group	≤54 years	703	51 (47-53)	62/38	27.5	213	0.9 [0.4; 1.9] (646)	0.9 [0.4; 1.9] (614)	1.0 [0.5; 2.2] (547)	1.0 [0.5; 2.2] (403)	1.7 [0.8; 3.3] (238)	1.7 [0.8; 3.3] <sub>(129)</sub>
		55-64 years	2,254	61 (59-63)	39/61	27.9	425	1.1 [0.7; 1.6] (2,074)	1.2 [0.8; 1.7] (1,966)	1.3 [0.9; 1.8] (1,747)	1.6 [1.1; 2.3] (1,277)	1.8 [1.3; 2.6] (868)	1.8 [1.3; 2.6] (498)
		65-74 years	13,082	72 (69-73)	24/76	27.7	556	0.8 [0.6; 0.9] (12,151)	0.8 [0.7; 1.0] (11,682)	0.9 [0.7; 1.1] (10,402)	1.0 [0.9; 1.2] (7,944)	1.2 [1.0; 1.4] (5,658)	1.3 [1.1; 1.6] (3,501)
		75-84 years	42,425	79 (77-81)	25/75	26.6	627	0.9 [0.8; 1.0] (39,087)	1.0 [0.9; 1.1] (37,350)	1.0 [0.9; 1.1] (33,166)	1.1 [1.0; 1.2] (24,198)	1.2 [1.1; 1.3] (16,260)	1.3 [1.1; 1.4] (9,346)
		85 years and older	8,636	87 (85-88)	24/76	25.6	587	1.1 [0.9; 1.3] (7,707)	1.1 [0.9; 1.3] (7,244)	1.2 [1.0; 1.4] (6,290)	1.3 [1.0; 1.5] (4,372)	1.3 [1.1; 1.6] (2,777)	1.3 [1.1; 1.6] (1,471)
	Sex	Male	17,114	78 (74-82)	100/0	27.1	586	1.0 [0.9; 1.2] (15,675)	1.1 [1.0; 1.3] (14,949)	1.2 [1.0; 1.4] (13,184)	1.4 [1.2; 1.6] (9,574)	1.5 [1.3; 1.7] (6,409)	1.6 [1.4; 1.8] (3,705)
		Female	49,986	79 (75-82)	0/100	26.6	641	0.9 [0.8; 0.9] (45,990)	0.9 [0.8; 1.0] (43,907)	0.9 [0.9; 1.0] (38,968)	1.1 [1.0; 1.2] (28,620)	1.2 [1.1; 1.3] (19,392)	1.2 [1.1; 1.3] (11,240)
	Body Mass Index	≤ 25	14,356	80 (76-83)	21/79	23.0	583	0.7 [0.6; 0.8] (12,682)	0.7 [0.6; 0.9] (11,758)	0.8 [0.7; 1.0] (9,550)	0.9 [0.7; 1.1] (5,206)	1.0 [0.8; 1.2] (1,452)	
		>25 to ≤30	15,777	79 <sub>(76–82)</sub>	29/71	27.3	587	0.9 [0.7; 1.0] (14,142)	0.9 [0.8; 1.1] (13,161)	1.0 [0.8; 1.2] (10,889)	1.1 [0.9; 1.3] (6,024)	1.2 [1.0; 1.4] (1,754)	
		>30 to ≤35	7,404	78 (74-82)	27/73	31.6	539	1.2 [1.0; 1.5] (6,576)	1.3 [1.1; 1.6] (6,143)	1.4 [1.1; 1.7] (5,091)	1.5 [1.3; 1.9] (2,833)	1.6 [1.3; 2.0] (825)	
		>35 to ≤40	2,186	77 (71–80)	22/78	36.7	423	2.3 [1.8; 3.1] (1,914)	2.4 [1.9; 3.2] (1,807)	2.5 [1.9; 3.3] (1,480)	2.7 [2.0; 3.5] (859)	2.7 [2.0; 3.5] (274)	
		>40	808	72 (66-78)	22/78	42.2	295	3.3 [2.3; 4.8] (699)	3.5 [2.4; 5.0] (637)	3.6 [2.5; 5.2] <sub>(530)</sub>	3.8 [2.7; 5.5] (302)	3.8 [2.7; 5.5] <sub>(92)</sub>	
	Comorbidities	W/o comorbidities	8,059	77 (73–81)	26/74	24.8	535	0.5 [0.4; 0.7] (7,548)	0.5 [0.4; 0.7] (7,232)	0.5 [0.4; 0.7] (6,426)	0.6 [0.5; 0.8] (4,844)	0.7 [0.5; 0.9] (3,340)	0.7 [0.5; 1.0] (1,927)
		1-4 comorbidities	53,719	79 (75-82)	25/75	26.8	645	0.8 [0.7; 0.9] (49,566)	0.8 [0.8; 0.9] (47,359)	0.9 [0.8; 1.0] (41,971)	1.0 [0.9; 1.1] (30,774)	1.1 [1.0; 1.2] (20,828)	1.2 [1.1; 1.3] (12,093)
		More than 4 comorbidities	5,322	80 (76-83)	29/71	29.0	537	2.8 [2.4; 3.3] (4,551)	2.9 [2.5; 3.4] (4,265)	3.0 [2.5; 3.5] (3,755)	3.2 [2.7; 3.7] (2,576)	3.3 [2.8; 3.8] (1,633)	3.4 [2.9; 4.0] (925)
Non-elective THAs			18,910	76 (69-82)	29/71	24.7	611	1.7 [1.5; 1.9] (15,985)	1.8 [1.6; 2.0] (14,719)	1.9 [1.7; 2.1] (12,430)	2.1 [1.9; 2.4] (8,359)	2.3 [2.0; 2.5] (5,082)	2.4 [2.2; 2.7] (2,590)
	Hospital size*	Hospitals with low annual case volumes	7,867	76 (68-82)	29/71	24.8	310	1.6 [1.3; 1.9] (6,672)	1.7 [1.4; 2.0] (6,176)	1.9 [1.6; 2.2] (5,250)	2.1 [1.8; 2.5] (3,587)	2.3 [1.9; 2.7] (2,185)	2.4 [2.0; 2.8] (1,057)
		Hospitals with average annual case volumes	8,555	76 (68-82)	30/70	24.7	226	1.7 [1.4; 2.0] (7,236)	1.8 [1.5; 2.1] (6,624)	1.9 [1.6; 2.2] (5,572)	2.0 [1.7; 2.4] (3,716)	2.2 [1.8; 2.5] (2,212)	2.3 [2.0; 2.7] (1,169)
		Hospitals with high annual case volumes	1,993	78 (70-84)	29/71	24.4	58	1.8 [1.3; 2.6] (1,658)	1.9 [1.4; 2.7] (1,525)	2.1 [1.5; 2.9] (1,266)	2.2 [1.6; 3.0] (806)	2.5 [1.8; 3.5] (505)	3.0 [2.1; 4.3] (261)
	Age group	≤54 years	564	51 (48-53)	54/46	23.9	303	2.0 [1.1; 3.6] (513)	2.0 [1.1; 3.6] (483)	2.0 [1.1; 3.6] (411)	2.0 [1.1; 3.6] (288)	2.0 [1.1; 3.6] (179)	2.7 [1.4; 5.2] (83)
		55-64 years	2,335	61 (58-63)	39/61	24.2	489	2.1 [1.6; 2.8] (2,023)	2.2 [1.7; 2.9] (1,850)	2.4 [1.8; 3.1] (1,554)	2.7 [2.1; 3.6] (1,028)	2.9 [2.3; 3.8] (644)	3.2 [2.4; 4.2] (359)
		65–74 years	5,110	70 (67-72)	30/70	25.0	556	1.5 [1.2; 1.8] (4,503)	1.6 [1.3; 2.0] (4,166)	1.7 [1.4; 2.1] (3,580)	2.0 [1.6; 2.5] (2,481)	2.2 [1.8; 2.7] (1,559)	2.4 [2.0; 3.0] (832)
		75-84 years	7,905	79 (77-81)	26/74	24.8	561	1.7 [1.5; 2.0] (6,695)	1.8 [1.5; 2.1] (6,208)	2.0 [1.7; 2.4] (5,259)	2.2 [1.8; 2.5] (3,562)	2.3 [1.9; 2.7] (2,162)	2.3 [2.0; 2.7] (1,075)
		85 years and older	2,996	88 (86-90)	25/75	24.3	413	1.5 [1.1; 2.1] (2,251)	1.6 [1.2; 2.2] (2,012)	1.7 [1.2; 2.2] (1,626)	1.7 [1.2; 2.2] (1,000)	1.7 [1.2; 2.2] (538)	1.9 [1.3; 2.7] (241)

<sup>\*</sup> For classification see legend in Figure 20

Table 46 (continued)

									Inf	ection-related revision	n probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Sex	Male	5,551	74 (66-81)	100/0	25.2	543	2.0 [1.7; 2.5] (4,535)	2.2 [1.8; 2.6] (4,158)	2.4 [2.0; 2.9] (3,452)	2.6 [2.2; 3.1] (2,270)	2.8 [2.3; 3.3] (1,346)	2.9 [2.4; 3.5] (659)
		Female	13,359	77 (70-82)	0/100	24.4	603	1.5 [1.3; 1.8] (11,450)	1.6 [1.4; 1.8] (10,561)	1.7 [1.5; 2.0] (8,978)	1.9 [1.7; 2.2] (6,089)	2.0 [1.8; 2.3] (3,736)	2.2 [1.9; 2.5] (1.931)
	Body Mass Index	≤25	6,534	76 (68-82)	26/74	22.5	533	1.3 [1.1; 1.6] (5,358)	1.4 [1.1; 1.7] (4,762)	1.5 [1.2; 1.9] (3,705)	1.8 [1.4; 2.2] (1,838)	1.8 [1.5; 2.2] (492)	
		>25 to ≤30	4,152	77 (70-82)	34/66	26.9	517	1.7 [1.3; 2.1] (3,475)	1.9 [1.5; 2.3] (3,107)	2.0 [1.6; 2.5] (2,488)	2.3 [1.8; 2.8] (1,325)	2.4 [1.9; 3.1] (367)	
		>30 to ≤35	1,184	75 (68-81)	29/71	31.6	380	2.5 [1.7; 3.6] (971)	2.5 [1.7; 3.6] (883)	2.5 [1.7; 3.6] (694)	2.5 [1.7; 3.6] (338)	2.8 [1.9; 4.2] (74)	
	Comorbidities	W/o comorbidities	2,540	72 (64–78)	30/70	23.9	481	0.9 [0.6; 1.4] (2,293)	0.9 [0.6; 1.4] (2,126)	1.1 [0.7; 1.6] (1,817)	1.2 [0.8; 1.8] (1,262)	1.3 [0.9; 1.9] (816)	1.5 [1.0; 2.1] (417)
		1-4 comorbidities	13,797	76 (69-82)	29/71	24.8	600	1.5 [1.3; 1.7] (11,857)	1.6 [1.4; 1.8] (10,957)	1.7 [1.5; 2.0] (9,248)	1.9 [1.7; 2.1] (6,265)	2.0 [1.8; 2.3] (3,772)	2.2 [1.9; 2.5] (1,945)
		More than 4 comorbidities	2,573	79 (73–85)	32/68	25.6	451	3.8 [3.1; 4.7] (1,835)	3.8 [3.1; 4.7] (1,636)	4.0 [3.3; 4.9] (1,365)	4.5 [3.7; 5.6] (832)	4.8 [3.9; 5.9] (494)	5.1 [4.1; 6.5] (228)
Hip hemiarthropla	sties		37,875	84 (80–89)	28/72	24.2	533	2.1 [1.9; 2.2] (28,129)	2.2 [2.0; 2.3] (24,773)	2.3 [2.1; 2.4] (19,605)	2.3 [2.2; 2.5] (11,845)	2.4 [2.2; 2.6] (6,229)	2.5 [2.3; 2.7] (2,737)
	Hospital size*	Hospitals with low annual case volumes	19,270	84 (79-89)	28/72	24.3	296	1.9 [1.7; 2.1] (14,362)	2.0 [1.8; 2.2] (12,624)	2.1 [1.9; 2.3] (9,997)	2.2 [2.0; 2.4] (6,032)	2.2 [2.0; 2.5] (3,209)	2.3 [2.0; 2.6] (1,398)
		Hospitals with average annual case volumes	15,830	85 (80-89)	28/72	24.2	194	2.2 [2.0; 2.5] (11,695)	2.3 [2.1; 2.6] (10,310)	2.5 [2.2; 2.8] (8,122)	2.5 [2.3; 2.8] (4,883)	2.6 [2.3; 2.9] (2,464)	2.7 [2.4; 3.0] (1,056)
		Hospitals with high annual case volumes	1,234	85 (79-89)	27/73	24.0	28	2.5 [1.7; 3.6] (907)	2.5 [1.7; 3.6] (783)	2.5 [1.7; 3.6] (601)	2.8 [1.9; 4.1] (351)	2.8 [1.9; 4.1] (198)	2.8 [1.9; 4.1] (97)
	Age group	55-64 years	665	61 (58-63)	50/50	24.2	260	3.5 [2.3; 5.4] (502)	3.9 [2.6; 5.9] (442)	4.2 [2.8; 6.2] <sub>(339)</sub>	4.2 [2.8; 6.2] (210)	4.2 [2.8; 6.2] <sub>(120)</sub>	5.1 [3.2; 8.2] (66)
		65-74 years	2,890	71 (69-73)	42/58	24.5	420	2.3 [1.8; 3.0] (2,218)	2.6 [2.0; 3.3] (1,974)	2.7 [2.2; 3.5] (1,603)	2.9 [2.3; 3.7] (1,022)	3.1 [2.5; 4.0] (575)	3.1 [2.5; 4.0] (297)
		75-84 years	15,676	81 (78–83)	29/71	24.7	509	2.2 [2.0; 2.5] (12,237)	2.3 [2.1; 2.6] (10,885)	2.4 [2.2; 2.7] (8,753)	2.5 [2.3; 2.8] (5,441)	2.6 [2.4; 2.9] (2,926)	2.7 [2.4; 3.0] (1,307)
		85 years and older	18,466	89 (87-92)	24/76	23.9	498	1.9 [1.7; 2.1] (13,033)	1.9 [1.7; 2.2] (11,345)	2.0 [1.8; 2.2] (8,813)	2.0 [1.8; 2.2] (5,097)	2.0 [1.8; 2.2] (2,563)	2.0 [1.8; 2.2] (1,042)
	Sex	Male	10,583	83 (78-88)	100/0	24.7	502	2.4 [2.1; 2.8] (7,215)	2.6 [2.3; 2.9] (6,230)	2.7 [2.4; 3.1] (4,750)	2.8 [2.5; 3.2] (2,662)	2.9 [2.5; 3.3] (1,296)	3.0 [2.6; 3.4] (542)
		Female	27,292	85 (80-89)	0/100	24.0	520	2.0 [1.8; 2.1] (20,914)	2.0 [1.9; 2.2] (18,543)	2.1 [1.9; 2.3] (14,855)	2.2 [2.0; 2.4] (9,183)	2.3 [2.1; 2.5] (4,933)	2.3 [2.1; 2.5] (2,195)
	Body Mass Index	≤25	14,145	85 (80-90)	26/74	22.3	490	1.9 [1.7; 2.2] (10,069)	2.1 [1.8; 2.3] (8,558)	2.2 [1.9; 2.4] (6,154)	2.2 [1.9; 2.5] (2,848)	2.3 [2.0; 2.6] (605)	
		>25 to ≤30	7,607	84 (80-88)	32/68	26.9	469	2.0 [1.7; 2.3] (5,682)	2.1 [1.8; 2.5] (4,875)	2.2 [1.9; 2.6] (3,650)	2.2 [1.9; 2.6] (1,751)	2.2 [1.9; 2.6] (390)	
		>30 to ≤35	2,001	83 (79–87)	24/76	31.2	405	2.9 [2.2; 3.8] (1,495)	3.1 [2.4; 4.0] (1,297)	3.1 [2.4; 4.0] (985)	3.1 [2.4; 4.0] (483)	3.6 [2.6; 4.9] (115)	
		>35 to ≤40	381	81 (77-85)	23/77	36.5	222	6.3 [4.1; 9.4] (268)	6.3 [4.1; 9.4] (232)	6.8 [4.5; 10.1] (169)	6.8 [4.5; 10.1] (89)		
	Comorbidities	W/o comorbidities	2,091	83 (78-88)	26/74	23.7	380	1.2 [0.8; 1.8] (1,730)	1.2 [0.8; 1.8] (1,574)	1.2 [0.8; 1.8] (1,297)	1.2 [0.8; 1.8] (850)	1.2 [0.8; 1.8] (486)	1.2 [0.8; 1.8] (222)
		1-4 comorbidities	26,754	84 (80-89)	27/73	24.2	522	1.7 [1.6; 1.9] (20,496)	1.8 [1.7; 2.0] (18,159)	1.9 [1.8; 2.1] (14,502)	2.0 [1.8; 2.2] (8,844)	2.1 [1.9; 2.3] (4,680)	2.2 [2.0; 2.4] (2,082)

<sup>\*</sup> For classification see legend in Figure 20

Table 46 (continued)

									Int	ection-related revision	probabilities following	J	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Comorbidities	More than 4 comorbidities	9,030	84 (80-89)	32/68	24.8	481	3.4 [3.0; 3.9] (5,903)	3.6 [3.2; 4.0] (5,040)	3.7 [3.3; 4.2] (3,806)	3.8 [3.4; 4.3] (2,151)	3.8 [3.4; 4.3] (1,063)	3.8 [3.4; 4.3] (433)
Standard TKAs			245,263	70 (62-77)	34/66	30.1	662	0.4 [0.4; 0.5] (231,263)	0.5 [0.5; 0.6] (222,611)	0.7 [0.7; 0.7] (194,943)	0.9 [0.8; 0.9] (142,956)	1.0 [1.0; 1.1] (95,181)	1.1 [1.1; 1.2] (54,087)
	Hospital size*	Hospitals with low annual case volumes	99,849	71 (63–77)	34/66	30.2	474	0.4 [0.4; 0.5] (94,217)	0.5 [0.5; 0.6] (90,912)	0.7 [0.7; 0.8] (79,230)	0.9 [0.9; 1.0] (57,646)	1.1 [1.0; 1.2] (37,678)	1.2 [1.1; 1.3] (20,951)
		Hospitals with average annual case volumes	87,286	71 (63–77)	34/66	30.1	134	0.4 [0.4; 0.5] (82,298)	0.5 [0.5; 0.6] (79,105)	0.7 [0.6; 0.7] (69,463)	0.9 [0.8; 0.9] (51,003)	1.0 [0.9; 1.1] (33,787)	1.1 [1.0; 1.2] (18,973)
		Hospitals with high annual case volumes	53,467	69 (61-76)	35/65	30.0	31	0.4 [0.3; 0.4] (50,288)	0.5 [0.4; 0.5] (48,236)	0.6 [0.5; 0.7] (42,340)	0.8 [0.7; 0.9] (31,208)	0.9 [0.8; 1.0] (21,462)	1.0 [0.9; 1.1] (12,791)
	Age group	≤54 years	17,918	51 (49-53)	36/64	33.0	635	0.4 [0.3; 0.5] (16,972)	0.6 [0.5; 0.7] (16,244)	0.8 [0.7; 1.0] (14,251)	1.1 [1.0; 1.3] (10,370)	1.4 [1.2; 1.6] (6,907)	1.5 [1.3; 1.8] (3,878)
		55-64 years	58,898	60 (58-62)	38/62	32.0	655	0.4 [0.3; 0.4] (55,574)	0.4 [0.4; 0.5] (53,188)	0.6 [0.6; 0.7] (46,164)	0.9 [0.8; 1.0] (33,415)	1.0 [0.9; 1.1] (22,101)	1.2 [1.1; 1.3] (12,524)
		65-74 years	82,251	70 (67-72)	33/67	30.8	656	0.4 [0.4; 0.4] (77,769)	0.5 [0.5; 0.6] (75,105)	0.7 [0.6; 0.7] (65,716)	0.8 [0.8; 0.9] (48,700)	0.9 [0.9; 1.0] (32,849)	1.0 [1.0; 1.1] (19,068)
		75-84 years	79,715	78 (76–80)	32/68	28.4	655	0.5 [0.5; 0.6] (74,961)	0.6 [0.6; 0.7] (72,363)	0.7 [0.7; 0.8] (63,819)	0.9 [0.8; 1.0] (46,930)	1.0 [0.9; 1.1] (31,098)	1.1 [1.0; 1.2] (17,413)
		85 years and older	6,481	86 (85-88)	30/70	26.8	606	0.6 [0.4; 0.8] (5,987)	0.7 [0.5; 0.9] (5,711)	0.8 [0.6; 1.0] (4,993)	0.8 [0.6; 1.1] (3,541)	1.0 [0.8; 1.3] (2,226)	1.0 [0.8; 1.3] (1,204)
	Sex	Male	83,214	69 (62-76)	100/0	29.6	652	0.7 [0.6; 0.7] (78,158)	0.8 [0.7; 0.9] (74,988)	1.1 [1.0; 1.1] (64,933)	1.3 [1.2; 1.4] (46,875)	1.5 [1.4; 1.6] (30,533)	1.6 [1.5; 1.7] (16,989)
		Female	162,049	71 (63–77)	0/100	30.5	659	0.3 [0.3; 0.3] (153,105)	0.4 [0.4; 0.4] (147,623)	0.5 [0.5; 0.5] (130,010)	0.7 [0.6; 0.7] (96,081)	0.8 [0.7; 0.8] (64,648)	0.9 [0.8; 0.9] (37,098)
	Body Mass Index	≤25	20,973	75 <sub>(67–80)</sub>	31/69	23.6	615	0.3 [0.2; 0.4] (19,183)	0.3 [0.3; 0.4] (18,134)	0.5 [0.4; 0.6] (14,613)	0.6 [0.5; 0.7] (8,153)	0.7 [0.6; 0.9] (2,072)	
		>25 to ≤30	51,103	73 (65-78)	41/59	27.7	629	0.4 [0.3; 0.4] (47,053)	0.4 [0.4; 0.5] (44,485)	0.6 [0.5; 0.6] (35,920)	0.7 [0.6; 0.8] (19,816)	0.8 [0.7; 1.0] (5,143)	
		>30 to ≤35	43,279	69 (62-76)	36/64	32.0	625	0.4 [0.4; 0.5] (39,703)	0.5 [0.5; 0.6] (37,423)	0.7 [0.6; 0.8] (30,169)	0.9 [0.8; 1.0] (16,689)	1.0 [0.9; 1.1] (4,247)	
		>35 to ≤40	21,512	66 (60-72)	29/71	37.0	620	0.6 [0.5; 0.7] (19,722)	0.7 [0.6; 0.8] (18,570)	0.8 [0.7; 1.0] (14,958)	1.1 [0.9; 1.2] (8,194)	1.2 [1.0; 1.3] (2,094)	
		>40	12,052	62 (57-69)	22/78	42.9	608	0.8 [0.6; 1.0] (10,989)	0.9 [0.8; 1.1] (10,330)	1.1 [0.9; 1.3] (8,362)	1.3 [1.1; 1.6] (4,595)	1.4 [1.2; 1.7] (1,150)	
	Comorbidities	W/o comorbidities	35,470	67 (59-75)	40/60	27.5	648	0.3 [0.2; 0.3] (33,658)	0.3 [0.3; 0.4] (32,334)	0.5 [0.4; 0.6] (28,145)	0.7 [0.6; 0.8] (20,738)	0.8 [0.7; 0.9] (14,004)	0.9 [0.8; 1.0] (7,849)
		1-4 comorbidities	198,230	71 (63-77)	33/67	30.5	660	0.4 [0.4; 0.4] (186,971)	0.5 [0.5; 0.5] (180,098)	0.7 [0.6; 0.7] (157,880)	0.9 [0.8; 0.9] (115,770)	1.0 [0.9; 1.0] (76,962)	1.1 [1.0; 1.1] (43,844)
		More than 4 comorbidities	11,563	74 (67-79)	30/70	33.5	619	1.3 [1.1; 1.5] (10,634)	1.5 [1.3; 1.8] (10,179)	1.8 [1.6; 2.1] (8,918)	2.2 [1.9; 2.5] (6,448)	2.3 [2.0; 2.6] (4,215)	2.5 [2.2; 2.9] (2,394)
Constrained TKAs			12,667	74 (66–80)	24/76	29.1	596	1.5 [1.3; 1.7] (11,578)	1.7 [1.5; 2.0] (11,037)	2.1 [1.9; 2.4] (9,561)	2.6 [2.4; 3.0] (6,778)	3.0 [2.7; 3.4] (4,414)	3.2 [2.8; 3.6] (2,379)
	Hospital size**	Hospitals with low annual case volumes	6,496	75 (67-80)	24/76	29.1	419	1.5 [1.3; 1.9] (5,927)	1.8 [1.5; 2.2] (5,680)	2.2 [1.9; 2.6] (4,899)	2.7 [2.4; 3.2] (3,511)	3.3 [2.8; 3.8] (2,287)	3.4 [2.9; 4.0] (1,258)
		Hospitals with average annual case volumes	4,222	74 (65–80)	25/75	28.9	127	1.6 [1.3; 2.0] (3,850)	1.7 [1.4; 2.2] (3,638)	2.2 [1.8; 2.8] (3,161)	2.8 [2.3; 3.4] (2,169)	3.1 [2.5; 3.7] (1,358)	3.2 [2.6; 3.8] (680)
		Hospitals with high annual case volumes	1,743	73 (64-79)	26/74	29.0	30	1.0 [0.6; 1.6] (1,608)	1.4 [1.0; 2.1] (1,528)	1.5 [1.0; 2.2] (1,332)	1.8 [1.3; 2.6] (963)	2.0 [1.4; 2.8] (669)	2.4 [1.6; 3.5] (377)

<sup>\* \*\*</sup> For classification see legend in Figure 21

Table 46 (continued)

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									Inf	ection-related revision	probabilities following	g	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Age group	≤54 years	760	51 (47-53)	35/65	33.2	265	1.5 [0.8; 2.7] (710)	2.0 [1.2; 3.4] (672)	2.7 [1.7; 4.1] (584)	3.7 [2.5; 5.4] (422)	4.7 [3.2; 6.7] (275)	4.7 [3.2; 6.7] (148)
		55-64 years	2,008	60 (58-63)	32/68	32.0	419	1.8 [1.3; 2.5] (1,834)	2.0 [1.5; 2.7] (1,746)	2.4 [1.8; 3.2] (1,505)	3.0 [2.3; 3.9] (1,059)	3.4 [2.6; 4.5] (692)	3.8 [2.9; 4.9] (381)
		65-74 years	3,608	70 (67-72)	24/76	30.8	494	1.7 [1.3; 2.1] (3,305)	1.9 [1.5; 2.4] (3,176)	2.4 [2.0; 3.0] (2,763)	3.0 [2.4; 3.6] (1,992)	3.3 [2.7; 4.0] (1,337)	3.6 [2.9; 4.4] (751)
		75-84 years	5,304	79 (77-82)	21/79	27.7	534	1.3 [1.0; 1.6] (4,869)	1.5 [1.2; 1.9] (4,635)	1.8 [1.5; 2.2] (4,026)	2.2 [1.9; 2.7] (2,824)	2.6 [2.2; 3.1] (1,804)	2.7 [2.2; 3.2] (953)
		85 years and older	987	87 (85-89)	18/82	26.0	362	1.1 [0.6; 2.0] (860)	1.4 [0.8; 2.5] (808)	1.9 [1.2; 3.1] (683)	2.1 [1.3; 3.3] (481)	2.1 [1.3; 3.3] (306)	2.1 [1.3; 3.3] (146)
	Sex	Male	3,071	72 (63-79)	100/0	28.7	474	1.8 [1.4; 2.4] (2,799)	2.1 [1.6; 2.6] (2,658)	2.9 [2.3; 3.5] (2,274)	3.5 [2.8; 4.2] (1,615)	4.2 [3.4; 5.1] (1,034)	4.4 [3.6; 5.4] <sub>(534)</sub>
		Female	9,596	75 (67-80)	0/100	29.2	587	1.4 [1.1; 1.6] (8,779)	1.6 [1.4; 1.9] (8,379)	1.9 [1.6; 2.2] (7,287)	2.4 [2.1; 2.7] (5,163)	2.6 [2.3; 3.0] (3,380)	2.8 [2.4; 3.2] (1.845)
	Body Mass Index	≤25	1,806	78 (71-82)	21/79	23.1	423	1.2 [0.7; 1.8] (1,588)	1.5 [1.0; 2.2] (1,453)	1.7 [1.2; 2.4] (1,161)	2.6 [1.9; 3.6] (618)	3.0 [2.2; 4.3] (161)	
		>25 to ≤30	2,588	77 (69-81)	30/70	27.5	459	1.5 [1.1; 2.0] (2,311)	1.6 [1.2; 2.2] (2,158)	2.0 [1.5; 2.7] (1,724)	2.3 [1.7; 3.0] (937)	2.3 [1.7; 3.0] (276)	
		>30 to ≤35	1,835	73 (66-79)	24/76	32.0	410	1.4 [1.0; 2.1] (1,648)	1.5 [1.1; 2.2] (1,558)	1.9 [1.4; 2.7] (1,246)	2.1 [1.5; 2.9] (666)	2.6 [1.6; 4.1] (194)	
		>35 to ≤40	936	69 (61-76)	22/78	37.0	316	2.2 [1.4; 3.4] (832)	2.8 [1.9; 4.2] (774)	3.1 [2.1; 4.5] (624)	3.9 [2.7; 5.6] <sub>(334)</sub>	4.5 [3.0; 6.8] <sub>(107)</sub>	
		>40	645	64 (57-70)	18/82	43.8	257	3.0 [1.9; 4.7] (574)	3.2 [2.1; 4.9] (540)	4.4 [3.0; 6.4] (437)	5.3 [3.7; 7.6] (248)	6.8 [4.5; 10.3] <sub>(58)</sub>	
	Comorbidities	W/o comorbidities	1,410	71 (62-78)	30/70	26.6	371	0.4 [0.2; 1.0] (1,321)	0.7 [0.3; 1.3] (1,264)	0.8 [0.4; 1.4] (1,101)	1.2 [0.7; 2.0] (814)	1.4 [0.9; 2.4] (512)	1.4 [0.9; 2.4] (279)
		1-4 comorbidities	10,068	74 (66-80)	24/76	29.3	582	1.5 [1.3; 1.7] (9,249)	1.7 [1.5; 2.0] (8,816)	2.1 [1.8; 2.4] (7,661)	2.6 [2.3; 2.9] (5,417)	3.0 [2.6; 3.4] (3,566)	3.2 [2.8; 3.7] (1.923)
		More than 4 comorbidities	1,189	78 <sub>(71–82)</sub>	21/79	31.1	379	2.8 [2.0; 3.9] (1,008)	3.0 [2.1; 4.2] (957)	4.1 [3.0; 5.5] (799)	5.2 [3.9; 6.8] (547)	5.2 [3.9; 6.8] (336)	5.2 [3.9; 6.8] (177)
Unicondylar knee	arthroplasties		35,495	64 (57-72)	44/56	29.6	570	0.3 [0.2; 0.3] (33,363)	0.3 [0.2; 0.4] (31,806)	0.4 [0.4; 0.5] (27,166)	0.6 [0.5; 0.6] (19,232)	0.7 [0.6; 0.8] (12,258)	0.7 [0.6; 0.8] (6,619)
	Hospital size*	Hospitals with low annual case volumes	9,393	62 (56-70)	45/55	29.4	411	0.3 [0.2; 0.5] (8,774)	0.4 [0.3; 0.5] (8,357)	0.6 [0.4; 0.7] (7,080)	0.7 [0.5; 0.9] (5,125)	0.8 [0.6; 1.0] (3,293)	0.9 [0.7; 1.2] (1,737)
		Hospitals with average annual case volumes	12,059	64 (57-72)	44/56	29.7	117	0.3 [0.2; 0.4] (11,263)	0.3 [0.2; 0.4] (10,695)	0.5 [0.4; 0.6] (8,970)	0.6 [0.4; 0.7] (5,999)	0.8 [0.6; 1.0] (3,627)	0.9 [0.7; 1.2] (1,843)
		Hospitals with high annual case volumes	13,328	66 (58-74)	42/58	29.6	24	0.2 [0.1; 0.3] (12,643)	0.2 [0.2; 0.3] (12,083)	0.3 [0.2; 0.4] (10,533)	0.4 [0.3; 0.6] (7,661)	0.5 [0.4; 0.6] (5,036)	0.5 [0.4; 0.6] (2,866)
	Age group	≤54 years	5,906	51 (49-53)	41/59	31.2	492	0.2 [0.1; 0.3] (5,591)	0.2 [0.1; 0.4] (5,313)	0.3 [0.2; 0.5] (4,520)	0.5 [0.3; 0.7] (3,216)	0.6 [0.4; 0.9] (2,062)	0.7 [0.5; 1.0] (1,127)
		55-64 years	12,633	60 (57-62)	48/52	30.4	535	0.2 [0.1; 0.3] (11,863)	0.2 [0.2; 0.3] (11,278)	0.4 [0.3; 0.6] (9,524)	0.6 [0.5; 0.8] (6,639)	0.7 [0.6; 0.9] (4,209)	0.8 [0.6; 1.1] (2,238)
		65-74 years	10,183	69 (67-72)	41/59	29.4	487	0.3 [0.2; 0.4] (9,561)	0.3 [0.2; 0.5] (9,156)	0.5 [0.3; 0.6] (7,873)	0.6 [0.4; 0.7] (5,643)	0.6 [0.5; 0.8] (3,656)	0.7 [0.5; 0.9] (2,033)
		75-84 years	6,391	78 (76-80)	42/58	27.8	402	0.4 [0.3; 0.6] (5,998)	0.4 [0.3; 0.6] (5,724)	0.5 [0.4; 0.7] (4,967)	0.6 [0.4; 0.8] (3,543)	0.7 [0.5; 0.9] (2,214)	0.7 [0.5; 0.9] (1,148)

<sup>\*</sup> For classification see legend in Figure 22

Table 46 (continued)

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									Inf	ection-related revision	probabilities following	]	
Type of arthroplasty	Category	Туре	Number	Age	m/f	ВМІ	Hosp.	3 months	6 months	1 year	2 years	3 years	4 years
	Age group	85 years and older	382	86 (85-88)	39/61	26.3	134	0.3 [0.0; 2.0] (350)	0.3 [0.0; 2.0] (335)	0.3 [0.0; 2.0] (282)	0.3 [0.0; 2.0] (191)	0.3 [0.0; 2.0] (117)	0.3 [0.0; 2.0] (73)
	Sex	Male	15,454	63 (57-72)	100/0	29.4	540	0.4 [0.3; 0.5] (14,515)	0.5 [0.4; 0.6] (13,806)	0.7 [0.6; 0.8] (11,744)	0.8 [0.7; 1.0] (8,225)	0.9 [0.8; 1.1] (5,197)	1.0 [0.8; 1.2] (2,771)
		Female	20,041	64 (57-73)	0/100	29.8	542	0.1 [0.1; 0.2] (18,848)	0.2 [0.1; 0.2] (18,000)	0.2 [0.2; 0.3] (15,422)	0.4 [0.3; 0.5] (11,007)	0.4 [0.4; 0.6] (7,061)	0.5 [0.4; 0.7] (3,848)
	Body Mass Index	≤25	3,114	67 (59-76)	37/63	23.7	410	0.3 [0.1; 0.5] (2,819)	0.4 [0.2; 0.7] (2,631)	0.5 [0.3; 0.8] (2,039)	0.6 [0.3; 0.9] (1,099)	0.6 [0.3; 0.9] (306)	
		>25 to ≤30	8,062	66 (59-74)	50/50	27.7	488	0.3 [0.2; 0.4] (7,371)	0.3 [0.2; 0.5] (6,888)	0.4 [0.3; 0.6] (5,366)	0.6 [0.4; 0.8] (2,912)	0.7 [0.5; 1.0] (765)	
		>30 to ≤35	6,242	63 (57-70)	46/54	32.1	466	0.3 [0.2; 0.5] (5,713)	0.4 [0.3; 0.6] (5,333)	0.5 [0.4; 0.7] (4,181)	0.6 [0.4; 0.8] (2,256)	0.7 [0.5; 1.1] (585)	
		>35 to ≤40	2,691	60 (55-67)	39/61	36.9	385	0.2 [0.1; 0.5] (2,440)	0.2 [0.1; 0.5] (2,262)	0.5 [0.3; 0.8] (1,754)	0.6 [0.3; 1.0] (938)	0.7 [0.4; 1.3] (231)	
		>40	1,079	58 (52-63)	31/69	42.5	274	0.7 [0.3; 1.4] (970)	0.7 [0.3; 1.4] (906)	0.8 [0.4; 1.6] (725)	0.8 [0.4; 1.6] (410)	0.8 [0.4; 1.6] (97)	
	Comorbidities	W/o comorbidities	8,168	61 (55-69)	48/52	27.5	499	0.2 [0.1; 0.3] (7,730)	0.3 [0.2; 0.4] (7,366)	0.4 [0.3; 0.6] (6,290)	0.7 [0.5; 0.9] (4,529)	0.7 [0.5; 1.0] (3,013)	0.8 [0.6; 1.1] (1,724)
		1-4 comorbidities	26,563	65 (58-73)	42/58	30.3	558	0.3 [0.2; 0.3] (24,930)	0.3 [0.2; 0.4] (23,778)	0.4 [0.4; 0.5] (20,303)	0.5 [0.4; 0.6] (14,300)	0.6 [0.5; 0.8] (9,014)	0.7 [0.6; 0.9] (4,768)
		More than 4 comorbidities	764	70 (62-76)	38/62	33.5	211	0.5 [0.2; 1.4] (703)	0.7 [0.3; 1.6] (662)	0.7 [0.3; 1.6] (573)	0.7 [0.3; 1.6] (403)	0.7 [0.3; 1.6] (231)	0.7 [0.3; 1.6] (127)
Patellofemoral art	throplasties		542	54 (48-61)	26/74	27.8	155	0 (516)	0 (489)	0.7 [0.2; 2.1] (407)	0.7 [0.2; 2.1] (285)	0.7 [0.2; 2.1] (182)	1.5 [0.4; 4.7] (87)
	Sex	Female	404	54 (48-61)	0/100	27.9	133	0 (383)	0 (364)	0.6 [0.1; 2.3] (304)	0.6 [0.1; 2.3] (213)	0.6 [0.1; 2.3] (133)	1.6 [0.4; 6.3] (62)
	Comorbidities	1-4 comorbidities	342	56.5 (49-63)	25/75	29.1	116	0 (327)	0 (308)	0.3 [0.0; 2.4] (261)	0.3 [0.0; 2.4] (187)	0.3 [0.0; 2.4] (116)	1.7 [0.3; 8.1] (50)

Table 46 (continued)

## 5.5 Re-revision probability of hip and knee arthroplasties

The previous sections in this chapter have primarily looked at the time period between the primary arthroplasty and its first revision. This section now looks at the period following the first revision and considers the future prospects for first revision arthroplasties.

About 21,200 of the 664,000 primary arthroplasties, currently documented in the EPRD and available for arthroplasty survival analyses, have already required at least one revision arthroplasty. Figures 32 and 33 below illustrate how likely repeat revision arthroplasty depends on the type of primary arthroplasty and the time that has passed since the first revision. In principle, repeat revisions after the first revision are much more likely than first revisions. The reason for the first revision strongly influences this probability: if it was infection-related (see Figure 32), the

probability of a repeat revision within two years ranges from 24 % to 36.2 %, depending on the original type of arthroplasty; if it was due to another reason (see Figure 33), the probability is approximately halved and ranges from 11.2 % to 17.4 %. This highlights how serious periprosthetic joint infections can be for the patient, especially as these patients also experience increased mortality rates.

The second revision arthroplasty often follows the first revision very quickly, especially if the first revision procedure was infection-related. 23.2 % of all patients that underwent a first revision due to a periprosthetic joint infection were operated on again within 90 days, – this does not include the time interval between explantation and re-implantation of any two-stage revision procedures. In case of revisions for other reasons, only 5 % of patients had a second revision within 90 days of the first revision.

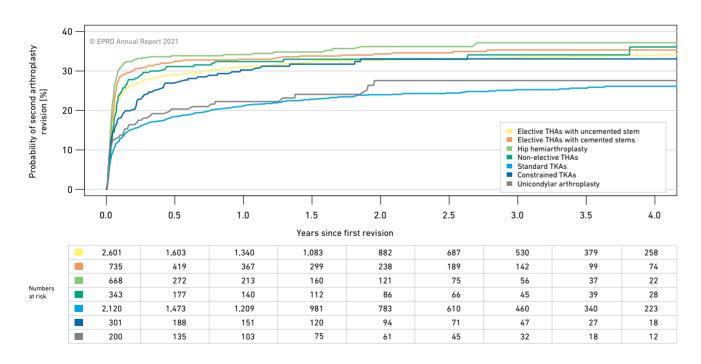


Figure 32: Probability of second revision following primary revision for infection by type of primary arthroplasty

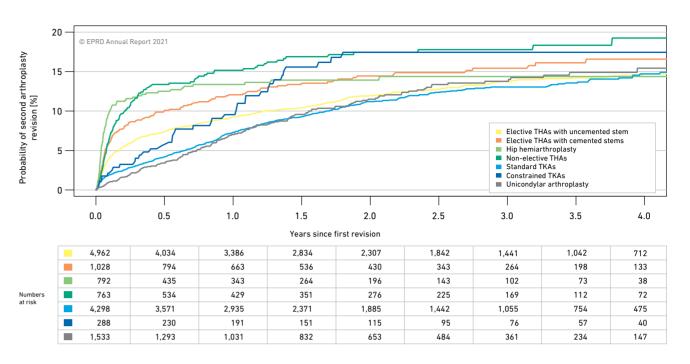


Figure 33: Probability of second revision following primary revision for reasons other than infection by type of primary arthroplasty

#### In brief:

Probability of second revision arthroplasty within two years of the first-time revision is:

- 24 % to 36.2 % after periprosthetic joint infection
- 11.2 % to 17.4 % in non-infection-related cases

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## 6 Mismatch detection in the EPRD



## 6 Mismatch detection in the EPRD

In 2020, the EPRD documented about one quarter of a million primary hip or knee arthroplasties. For some of these operations there are concerns that the patient received a combination of components that was not intended to be implanted together. Although in some revision cases the surgeon may be able to deliberately select different component combinations for medical reasons, this is not necessary for primary arthroplasties which may result in complications sooner or later. The number of identified "mismatch" cases is low, but unacceptable due to the potentially serious consequences for the patient and how easily they may be prevented. In order to prevent mismatch cases, the EPRD is trying to establish a system that will inform hospitals at an early stage — ideally while the patient is still in the operating theatre — about any potential problems with the selected component. This chapter presents the current state of this effort.

At present, the EPRD estimates that in the past year, a three-digit number of documented primary arthroplasties suffered from component mismatches or at least deviated markedly from the manufacturer's specifications:

• In 52 total hip arthroplasties, the size of the head differed from the inner diameter of the insert or acetabular component (in monobloc cups). The selected head was too large in 13 cases and too small in 39 cases (Table 47). If the head is too large, this increases the offset and leg length and facilitates dislocation. With ceramic bearings, there may also be acoustic phenomena. If the head is too small, this reduces the offset and leg length and increases the risk of impingement.

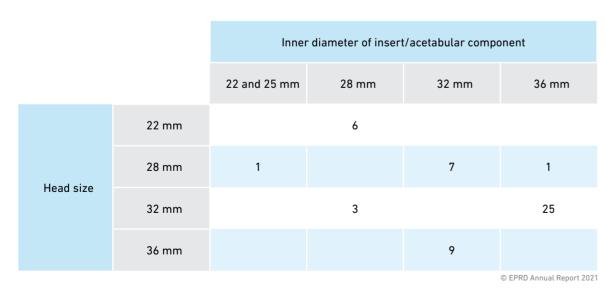


Table 47: Number of mismatches due to deviations between head size and inner diameter of the insert or cup in 2020

- In three cases, the taper of the femoral stem did not match the head. In two of these three cases, the stem and head components came from different manufacturers. In the third case, a stem with a 12/14 taper was combined with a head from the same manufacturer, but with a 14/16 taper. In metal heads, taper mismatch always results in increased metal ion release, while in ceramic heads it increases the risk of fracture.
- In 15 total knee arthroplasties, a component intended solely for the left knee was combined with a component intended solely for the right knee. The consequences of such a mismatch are design-specific and not necessarily always fraught with problems, especially when such a combination is deliberately selected for medical reasons.
- In 476 total knee arthroplasties, components intended for one specific side of the body were documented, but the procedure was documented in the registry for the contralateral knee. The EPRD believes that in most of these cases it is not a real mismatch, but simply the wrong side in the documentation.
- In 16 unicondylar arthroplasties, components intended by the manufacturer solely for medial implantation were combined with components approved solely for lateral use.
- In twelve total knee arthroplasties a posterior-stabilised insert component was documented, although the femoral component listed for this operation was not designed for this type of stabilisation. Depending on the design, this may result in impingement problems and partial dislocation upon leg extension.

The basis for detection of these mismatch cases is the EPRD's own product database,

which is maintained and continuously expanded by the manufacturers. At present, however, not every type of mismatch can be identified:

- Most femoral stems can be implanted on both sides of the body. In the EPRD product database, it is therefore not yet possible to specify the side of the body for which each femoral stem is designed. However, there are anatomical femoral stems designed solely for one side of the body. This information will be added to the product database in the future
- While in hip arthroplasties the insert and head must always be identical in size, knee arthroplasties usually allow several size combinations. The manufacturers therefore provide compatibility tables for possible combinations of tibial and femoral components. Since these compatibility tables are not available in the product database, it is not yet possible to systematically verify component sizes in knee arthroplasties. For some widely used knee systems, the EPRD has analysed how often cases documented in the EPRD deviated from the manufacturer's specifications. The deviation rate was mostly in the low thousands or even less. However, the highest value recorded for a system was rather high at 0.6 %. As these cases were more common in some hospitals, the question arises whether all surgeons are aware of the manufacturers' specifications.

The EPRD is working towards further improving the product database and closing such existing gaps to allow for the most complete verification of arthroplasty implants.

Currently, the hospitals receive feedback on any mismatch cases in two ways. For one, at the beginning of each month they receive a standard report on any problems with the documentation of the previous

month. And since 2019 a mismatch check is performed directly by the data entry software (Example 3). Feedback should not be limited to the EPRD's own data entry software, EPRD-Edit, but should also be available in the software solutions of other providers. With prompt documentation of the procedure in the EPRD, best while the procedure is ongoing, the surgeon is informed immediately of any incompatible components. This allows immediate correction of the present selection. For this reason, documentation during surgery would be the ideal situation for the EPRD to aim for.



Example 3: An EPRD-Edit software mismatch notification during data entry

## 7 Summary



### 7 Summary

The COVID-19 pandemic also struck the registry: for 2020, hospitals provided the EPRD with data sets totalling 290,420 operations. This corresponds to a decline of 9 % compared to the previous year, which is mostly due to the first lockdown period in March/April 2020. However, there were large differences between different regions and hospitals: some states were more severely affected than others, and while most hospitals experienced a decline in cases overall, some hospitals were nevertheless able to increase their number of arthroplasty procedures.

The effect of the restrictions on elective surgery in 2020 is particularly evident in the treatment of hip fractures: while elective surgery was temporarily postponed or suspended, fractures were still being treated. This is why their percentage in the EPRD has increased from 9.9 % in 2019 to 11.5 % in the 2020 operating year. It is also interesting to note the decrease in documented reoperations of about 7 % compared to 2019.

#### The 2020 operating year

For last year, the EPRD registered 147,739 primary hip arthroplasties. At 77.6 %, the standard in Germany is still the uncemented arthroplasty, while the percentage of fully cemented arthroplasties has continuously decreased in recent years to represent some 4.3% of primary total hip arthroplasties in 2020. The use of short femoral stems, currently at 11 %, continues to increase as does the use of highly cross-linked PE insert components, which has increased by 24 percentage points since 2014. The tendency

to use ceramic heads and large heads with a diameter of 36 mm still continues. As in previous years, the most common reasons documented in the EPRD for the 17,212 reoperations in 2020 were loosening (24.7 %), infections (15.8 %), periprosthetic fractures (13.4 %), and dislocations (13.0 %). In 27.5 % of the revisions, both the stem and the acetabular component were re-implanted, and in 73.9 % at least one component with bony fixation was replaced. Interestingly, in periprosthetic joint infections, there has been a decline in the revision of components with bony fixation: in 2014, the stem or acetabular component was still replaced in 67.2 % of periprosthetic joint infections, while in 2020 this was true only in 52.1 % of cases. By now almost 30 % of acetabular revisions rely on dual mobility

In 2020, the EPRD registered 111,365 primary knee arthroplasties. Compared to patients with hip arthroplasty, these patients are somewhat younger, but have a higher body mass index. Almost half of the knee arthroplasty patients have a BMI over 30, which is considered obese by the WHO. The standard in both total and unicondylar knee arthroplasties is fully cemented components, accounting for 94 % and 90 % of primary arthroplasties respectively. While the percentage of unicondylar knee arthroplasties has increased steadily in recent years, in 2020 it plateaued at 13.2 %, the same level as the previous year. Posteriorstabilised systems have increased in use in recent years (from 12.9 % to 19.2 %), as has the share of highly cross-linked polyethylenes (from 10.7 % to 20.5 % for total knee arthroplasties since 2014 and from 1.8 % to 11.5 % for unicondylar replacements). In contrast, the use of mobile bearings continues to decline in both total and unicondylar knee arthroplasties. Primary patellar resurfacing was performed in 11.8 % of the primary total knee arthroplasties documented for the year 2020. However, hospital philosophy regarding this apparently varies widely: some hospitals never perform primary patellar resurfacing, while others do it every other operation. In 55 % of the 13,767 reoperations of knee arthroplasties documented for 2020, all components of the knee implant were replaced. Hinged or varus-valgus-stabilised knee systems were implanted in 59 % of these total revisions. Reasons for knee revisions primarily included loosening (23.4 %) and infection (14.8 %).

#### Hip and knee arthroplasty survival

In this annual report, the EPRD focuses on two aspects of implant survival. The "Specific analysis" section looks at patients aged 75 and older and studies whether cementing the stem is advisable in hip arthroplasties. After statistical adjustment of the groups to be compared, there were no significant differences in postoperative patient mortality. However, the cumulative revision probabilities differ markedly. In both elective and non-elective arthroplasties, the risk of revision and, in particular, of a periprosthetic fracture is increased in patients with an uncemented stem. The EPRD therefore recommends that the stems be cemented in elderly patients.

joint infections reveals that for elective total hip arthroplasties the probability of an infection-related revision after two years is 1.1 %. For non-elective total arthroplasties and hemiarthroplasties of the hip, this is about twice as high, at 2.1 % and 2.3 %

third of all total arthroplasties and half of all hemiarthroplasties during this period are due to infection. Studies of statistically matched comparison groups in the EPRD have shown that short stems suffer significantly fewer infections, as do ceramic-on-ceramic bearings. In knee arthroplasties, unicondylar procedures have a lower infection-related revision probability than total knee arthroplasties. In total knee arthroplasty, the higher the degree of coupling, the higher the risk of infection. Male patients suffer postoperative infections markedly more often, especially in total knee arthroplasty, but also in hip arthroplasty. High BMI and other concomitant conditions also have a significant impact on the probability of infection-related hip and knee revisions.

One of the reasons why infections are so serious is that they often cannot be controlled with a single revision procedure. About 21,200 of the 664,000 primary arthroplasties currently documented in the EPRD and available for arthroplasty survival analyses, already needed at least one revision arthroplasty. In cases where the first revision was indicated by a periprosthetic joint infection, repeat revision is much more likely and occurs earlier than after aseptic revisions. For example, the probabilities of repeat revision within two years of the first revision range from 24 % to 36.2 % for periprosthetic joint infections and from 11.2 % to 17.4 % for non-infection-related revision procedures, depending on the type of arthroplasty.

#### Mismatch detection in the EPRD

Detailed analysis of this year's periprosthetic 2020 is the first year that the EPRD addresses the topic of hip and knee arthroplasty mismatch in its annual report. A mismatch is defined as the implantation of incompatible components which may result in discomfort or mechanical complications later on. For 2020, the EPRD identified a respectively. In other words, revisions in one three-digit number of alleged mismatches

and in most cases reported these back to the hospitals. For example, the EPRD noted cases with head and insert mismatches in hip arthroplasties and mixed up sides in knee arthroplasties. The EPRD is working hard to analyse such mismatch combinations and hopes to contribute to their prevention in the future by providing timely direct feedback during the arthroplasty surgery.

# 8 Appendix



Appendix 8 Glossary

## 8 Glossary

The following summary explains the terms and designations used in the tables and text.

Term	Description
Acetabular component	Part of the hip arthroplasty that replaces the acetabulum. The acetabular component can either consist of one part (monobloc) or of several parts (modular acetabular component). Typically, a modular acetabular component consists of a metal cup and an acetabular insert.
Acetabular cup	See: "Acetabular component".
Antioxidant	Additive/chemical compound, such as Vitamin E, which reduces oxidation of the polyethylene used in arthroplasty.
Bicondylar knee arthroplasty	Replacement of the articular surfaces of both femoral condyles and the tibial plateau of the knee joint, with or without simultaneous replacement of the posterior patella surface. Also refer to "Unicondylar knee arthroplasty" and "Total knee arthroplasty".
Body Mass Index (acronym: BMI)	Ratio between the height and weight of a person, defined as their weight (in kilograms) divided by their squared height (in metres).
Censoring events	Events such as patient death mean that a complete follow-up from the index operation to its subsequent revision is not possible. As far as the EPRD is concerned such censoring events may also include patients that are lost to further follow-up as a result of changing health insurer. In such cases arthroplasties are considered to have reached a premature end of service life, but are not considered to have failed.
Ceramicised metal	Implant components that consist of a zirconium alloy substrate and a ceramic surface modification — oxidised zirconium alloy.
Coated metal	Implant components that have been coated with ceramics (e.g., titanium nitride).
Complementary surgery	Patella resurfacing following primary bicondylar knee arthroplasty on the same joint affected by "normal" progression of the disease, is a complementary operation, rather than a revision operation.
Confidence interval	Interval that contains the true value within a specified probability range (confidence level).
Constraint	Knee replacements are characterised by their level of constraint (stabilisation). In this report, we define "unconstrained/minimally stabilised" knee systems as cruciate-retaining, cruciate-retaining/sacrificing, pure cruciate-sacrificing and also posterior-stabilised systems without varus-valgus stabilisation. Varus-valgus-stabilised and (rigid/rotational) hinge systems are considered as "constrained".
Cruciate-retaining	Design preserving the posterior cruciate ligament without constraining knee motion/kinematic.

<b>-</b>	D
Term	Description
Cruciate-retaining/sacrificing	The design is suitable for both a cruciate ligament-retaining or a replacement procedure.
Cruciate-sacrificing	Design replacing the posterior cruciate ligament with kinematic, which partially permits a limited relative motion in all three planes.
Cup	See: "Acetabular component".
Dual mobility	In case of a dual mobility arthroplasty the acetabular insert is designed (convex surface) to articulate with a dual mobility acetabular component. It is inserted into the concave surface of this bone facing shell. The femoral head is usually inserted into the dual mobility insert which is in turn inserted into the bone facing shell.
Elixhauser Comorbidity Score	The Elixhauser Comorbidity Score measures patient health status, based on diagnosis codes from the billing data, and substantiates the presence of specific comorbidities. The higher the value, the worse the patient's state of health and the greater the risk of death.
Femoral component (hip)	Arthroplasty component inserted into the proximal femur. It is either already inseparably connected to the femoral head (monobloc) or a modular head can be attached to obtain a complete femoral component (modular head stem), it can also include a modular structure with a modular neck or proximal section (modular stem).
Femoral component (knee)	Arthroplasty component inserted onto the distal femur. It can form either one single femoral condyle or both femoral condyles, and the femoral trochlear.
Femoral neck prosthesis	A hip stem component that is primarily fixed in the femoral neck. This also includes large head mid neck resection "resurfacing" prosthesis.
Fixed bearing	Monobloc design of the tibial tray or modular connection between the tibial tray and the tibial insert without permitting any relative movement between these components. As opposed to a mobile bearing.
German ICPM code	German hospitals use the German ICPM (International Classification of Procedures in Medicine) codes for reimbursement with the health insurance providers to document which procedures have been carried out during the patient's stay. Each procedure has been assigned a numerical code. For example, code 5-820.01 refers to cemented total hip arthroplasty.
Head (component)	See: "Modular head".
Head-neck length	Describes the distance between the centre of the head and a reference point on the taper in the direction of the taper axis. The size specifications which range from XS to XXXL vary between manufacturers.
Hemiarthroplasty	In contrast to a total arthroplasty, a hemiarthroplasty (hemi = half) does not replace the entire joint but only part of it. A typical example is a dual-head arthroplasty, in which only the femoral component of the hip joint is replaced with the head, but not the acetabular component.
Hinge	Describes coupled knee systems with lateral joint stability and with a simple (single degree of mobility = a "rigid hinge") or a rotating hinge joint between the femoral component and the tibial tray.
Hip stem	See: "Femoral component (hip)".
hXLPE	Highly cross-linked polyethylene (UHMWPE). Also refer to "Polyethylene (PE)".

Appendix 8 Glossary

Term	Description
Hybrid	Arthroplasty in which one component is cemented while the other is not cemented. In hip replacement, "hybrid" refers to the combination of a cemented stem and an uncemented acetabular component, while "reverse-hybrid" refers to the combination of an uncemented stem and a cemented acetabular component. In the case of knee arthroplasty, "hybrid" refers to the combination of cemented tibial support and uncemented femoral component and "reverse-hybrid" the reverse combination.
ICD-10 code	The International Statistical Classification of Diseases and Related Health Problems (Version 10) is an internationally accepted system for documenting principal diagnoses and concomitant diseases. German hospitals use the German ICD-10 codes to document to the health insurance providers the diagnoses during the patient's stay in hospital. For example, S72.0 codes for "fracture of neck of femur".
Impingement	Mechanical complication due to inappropriate contact of implant components and/or bone.
Insert	Tibial inserts are part of a knee replacement and are attached to the superior surface of the tibial tray and provide the articulating surface with the femoral component. Acetabular Inserts are part of a hip replacement and are inserted inside of a modular acetabular component.
Kaplan-Meier estimator	Statistical methodology to determine the probability that a given event of interest will not occur within a specified time interval. Events that make it impossible to observe the occurrence of the given events can be taken into account in the calculation and can be censored.
Matching	Statistical procedure to reduce the bias introduced by confounding factors. One of these techniques is propensity score matching which models the probability of belonging to the treatment group of interest by accounting for covariate factors that may predict outcome.
Mismatch	Arthroplasty involving a combination of components that are either incompatible or a component that is incompatible with existing components.
Mobile bearing	Mobile connection between the tibial tray and the tibial insert. As opposed to a fixed bearing.
Modular cup	An acetabular component designed to accommodate a separate bearing surface within its internal diameter. Also refer to "Monobloc cup" and "Acetabular component".
Modular head	Femoral head with an upper convex surface which articulates with the acetabular articular surface. At its distal aspect, there is a female taper which is designed to engage with the male taper of a modular femoral stem or modular femoral neck. Heads are available in varying sizes to match the internal diameter of the acetabular articulating surface.
Modular stem	A femoral stem component that is composed of several parts and which also requires a modular head. Also refer to "Monobloc stem" and "Femoral component (hip)".
Monobloc	A component consisting of one part, e.g., for hip replacement a stem component with an integrated head or a polyethylene cup that does not require a separate insert.
Monobloc cup	An acetabular component, which usually consists of one part or parts that have been "inseparably" pre-assembled/connected. In contrast, modular cups consist of at least two parts, which are usually only connected to one another during the implantation. Also refer to "Modular cup" and "Femoral component (hip)".

Term	Description
Monobloc stem	A femoral stem component that consists of one part and which does not require a separate head component. In contrast, other stems consist of at least two parts. Also refer to "Modular stem" and "Femoral component (hip)".
mXLPE	Moderately cross-linked polyethylene (UHMWPE).
Offset	The distance from the centre of rotation of the femoral head to a line bisecting the long axis of the femoral stem.
Partial knee arthroplasty	In a partial knee prosthesis only part of the joint surface is replaced. A typical example is a unicondylar prosthesis in which only the medial/lateral part of the knee joint is replaced, but not the entire knee joint. Also refer to "Total knee arthroplasty".
Partially cemented	Partially cemented indicates that one component is not cemented and the other is. Also refer to "Hybrid".
Patellar component	Component of the retropatellar replacement. While this often only consists of a polyethylene cap, which is cemented into the posterior surface of the patella, there are also designs in which a polyethylene cap is fixed to a metal base plate. Also refer to "Patellar resurfacing".
Patellar resurfacing	Use of an implant replacing the articulation surface of the kneecap. Also refer to "Complementary surgery".
Patellofemoral arthroplasty	Artificial replacement of the patella surface and the trochlea (groove in the thighbone). $ \\$
Pivot	Describes knee systems designed to support natural rotation/translation kinematics. $ \\$
Polyethylene (PE)	Polyethylene (abbreviation PE) is a thermoplastic made by chain polymerisation of ethene [CH2=CH2], from which prosthetic components (e.g., inserts) can be produced. In arthroplasty, ultra-high molecular weight polyethylene (UHMWPE) is usually used. This can subsequently be modified by irradiating and coupling to antioxidants. Also refer to "hXLPE or mXLPE".
Posterior-stabilised	Design allowing the posterior cruciate ligament to be replaced with a mechanical element such as an articulated polyethylene extension which controls and limits anterior and/or posterior movement.
Primary implantation	See: "Primary surgery".
Primary surgery/arthroplasty	The primary implantation of one or more arthroplasty components in a particular joint.
Prosthetic joint infection	These infections are generally a bacterial colonisation of an implanted endoprosthesis. This is a particularly dreaded complication, which is difficult and time-consuming to treat surgically. Typically, the infection is caused by pathogens that are part of the normal human skin and mucosal flora.
p-value	Lowest significance level at which a statistical test would still reject the null hypothesis. Values below $0.05$ are usually referred to as being statistically significant.
Reconstruction shell	A device to provide structural stability to the pelvis prior to implanting the definitive acetabular articular component. Such a device may be required in bony defect situations. This may be the case in revision surgery, but also in primary surgery where pelvic discontinuity arises secondary to bony loss, e.g., tumour or post-traumatic reconstructions.

Term	Description
Reoperation	Umbrella term including revision arthroplasty, where components are exchanged and complementary surgery where further arthroplasty components are added to compensate for natural disease progression.
Reverse-hybrid	See: "Hybrid".
Revision cup	Monobloc or modular acetabulum component with added design characteristics for bridging acetabular bone defects or for added bony fixation (e.g., additional screw hole).
Revision stem	A hip stem component that is specifically designed for revision hip arthroplasties.
Revision surgery	Surgery referring to the removal and, if necessary, the replacement of previously implanted hip or knee arthroplasty components. Revision surgery may or may not be followed by re-implantation of new arthroplasty components during the same operation (one-stage revision) or at a later date (multi-stage revision) and is interpreted as failure of the index arthroplasty. In contrast, the reoperation of a knee replacement with patellofemoral-resurfacing as a consequence of progressive patellofemoral arthrosis is not interpreted as failure of the initial arthroplasty. Also refer to "Reoperation" and "Complementary surgery".
Routine data	Data stored by public health insurance companies, in particular for administrative and billing purposes, in accordance with §301 SGB V (German Social Code, Book V). This data, which includes ICD codes for main and secondary diagnoses as well as OPS codes for treatments, is delivered to the EPRD together with the vital status of the participating patients twice a year. The data is used to supplement the case documentation submitted directly to the registry from participating hospitals.
Short stem	Hip stem components that are specified by the manufacturer as anchoring in the metaphyseal area. These include: femoral neck-preserving systems, in which only the femoral head is removed and the femoral neck is left intact, femoral neck-preserving systems, in which parts of the femoral neck are also removed, and femoral neck-resecting systems, in which the femoral neck is also completely removed.
Standard TKA	Describes "unconstrained/minimally stabilised" knee systems such as cruciate-retaining/sacrificing, pure cruciate-sacrificing and also posterior stabilised systems without varus-valgus stabilisation.
Surface replacement (hip)	Surface replacement of the femoral head (resurfacing head) and/or the acetabular cup (surface replacement cup). The "resurfacing head" is used to describe a femoral component that is designed only to cover the patient's own femoral head. There may be an anchoring device which is integral to the component and which extends into the femoral neck. It is used with a corresponding "surface replacement cup" which is made of one piece of material (monobloc).
Tibial tray	The component that replaces/resurfaces the upper tibia can be modular (more than one piece and accepts an insert, monobloc (one piece), preassembled (the insert and tibial tray are assembled by the manufacturer but can be separated) or prefixed (where the tibial tray and insert are assembled by the manufacturer and cannot be separated).
Total hip arthroplasty (acronym: THA)	Orthopaedic implant intended to replace a hip joint within the body. In contrast to a hemiarthroplasty, a total hip arthroplasty replaces the entire joint.

Term	Description
Total knee arthroplasty (acronym: TKA)	A knee arthroplasty replacing all three compartments of the knee joint (medial and lateral compartment of the tibiofemoral joint, and the patellofemoral compartment). Current practice in knee arthroplasty in Germany rarely includes patellar resurfacing. Strictly speaking, these cases should therefore not be classified as total knee arthroplasties, but rather as bicompartmental arthroplasties. However, the term "total knee arthroplasty" for bicompartmental knee arthroplasties is used widely in Germany.
Tribological bearing	Describes the materials of the two surfaces that move against each other in a joint replacement. Examples are: metal/polyethylene, metal/metal, ceramic/polyethylene, ceramic/ceramic. In this report, the first mentioned material always refers to the femoral component of the articulation.
Tumour stem	Primarily modular stem system, which can be implanted as reconstruction option in extensive bony defects after femoral tumour resection or repeated revision surgery.
Uncoated metal	Implant components that have not been ceramic coated.
Unicondylar knee arthroplasty	Replacement of only one femoral condyle and the corresponding portion of the tibial plateau of the knee joint, with or without simultaneous patella resurfacing. Also refer to "Bicondylar knee arthroplasty".

Appendix 9 References

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