



Australian
Orthopaedic
Association
National
Joint
Replacement
Registry

Automated Industry Report 11387

Zimmer Biomet Australia

MS 30 Total Conventional Hip

Report Generated: 8 September 2023

Data Period: 1 September 1999 - 7 September 2023

This report has been prepared by the Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR). The report provides information on the usage and outcomes of the MS 30 femoral stem compared to all other total conventional hip replacements, based on data collected by the AOANJRR.

Disclaimer

The AOANJRR has taken every care to ensure that the data supplied are accurate but does not warrant that the data are error free and does not accept any liability for errors or omissions in the data.

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Catalogue Numbers of MS 30 Femoral Stems included in this analysis

| Model | Catalogue Range | Range Description | No. of Primary Procedures |
|-------|-------------------------|--------------------------------------|---------------------------|
| MS 30 | 0100351001 - 0100351006 | Polished Taper Lateral Femoral Stem | 976 |
| MS 30 | 300049060 - 300049160 | Polished Taper Standard Femoral Stem | 5696 |

The AOANJRR also reports these catalogue numbers as MS 30 Femoral Stems. These are not included in the analysis.

| Model | Catalogue Range | Range Description |
|-------|-----------------------|-------------------|
| MS 30 | 300029060 - 300029160 | Femoral Stem |

Table 1: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Femoral Stem Catalogue Number Range (All Diagnoses)

| Femoral Stem Range | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|-------------------------|------------|-------------|--------------|------------------------------------|
| 0100351001 - 0100351006 | 26 | 976 | 5417 | 0.48 (0.31, 0.70) |
| 300049060 - 300049160 | 214 | 5696 | 45983 | 0.47 (0.41, 0.53) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

Table 2: Implant Usage of MS 30 in Primary Total Conventional Hip Replacement (All Diagnoses)

| | N |
|------------------------|-------------------|
| Implant Usage | |
| Date First Used | 13 September 1999 |
| Date Last Used | 2 August 2023 |
| N Procedures | 6672 |
| N Patients | 5961 |
| N Hospitals Implanting | 135 |
| N Surgeons Implanting* | 137 |
| Outcome | |
| N Revised | 240 |
| N Deceased** | 2438 |

*1922 MS 30 procedures have unknown surgeon

**'N Deceased' does not include patient deaths that occurred after the MS 30 implant was revised

Table 3: Follow Up Years of MS 30 in Primary Total Conventional Hip Replacement (All Diagnoses)

| Model | N | Minimum | Maximum | Median | Mean | Std Dev |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| MS 30 | 6672 | 0.00 | 24.0 | 6.50 | 7.70 | 5.63 |
| TOTAL | 6672 | 0.00 | 24.0 | 6.50 | 7.70 | 5.63 |

Table 4: Age and Gender of MS 30 Primary Total Conventional Hip Replacement (All Diagnoses)

| Gender | Number | Percent | Minimum | Maximum | Median | Mean | Std Dev |
|--------------|-------------|---------------|-----------|-----------|-----------|-------------|------------|
| Male | 2557 | 38.3% | 24 | 97 | 73 | 71.7 | 9.9 |
| Female | 4115 | 61.7% | 20 | 99 | 75 | 74.1 | 9.3 |
| TOTAL | 6672 | 100.0% | 20 | 99 | 74 | 73.2 | 9.6 |

Table 5: Primary Total Conventional Hip Replacement by Model and Age (All Diagnoses)

| Age | MS 30 | | Other Total Conventional Hip | |
|--------------|-------------|--------------|------------------------------|--------------|
| | N | Col% | N | Col% |
| <55 | 243 | 3.6 | 75069 | 12.0 |
| 55-64 | 926 | 13.9 | 145062 | 23.2 |
| 65-74 | 2251 | 33.7 | 216275 | 34.7 |
| ≥75 | 3252 | 48.7 | 187681 | 30.1 |
| TOTAL | 6672 | 100.0 | 624087 | 100.0 |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 6: Primary Total Conventional Hip Replacement by Model and Gender (All Diagnoses)

| Gender | MS 30 | | Other Total Conventional Hip | |
|--------------|-------------|--------------|------------------------------|--------------|
| | N | Col% | N | Col% |
| Male | 2557 | 38.3 | 279651 | 44.8 |
| Female | 4115 | 61.7 | 344436 | 55.2 |
| TOTAL | 6672 | 100.0 | 624087 | 100.0 |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 7: Primary Total Conventional Hip Replacement by Model and Approach (All Diagnoses)

| Approach | MS 30 | | Other Total Conventional Hip | |
|--------------|-------------|--------------|------------------------------|--------------|
| | N | Col% | N | Col% |
| Anterior | 379 | 12.6 | 88660 | 27.4 |
| Lateral | 776 | 25.7 | 50442 | 15.6 |
| Posterior | 1861 | 61.7 | 184120 | 57.0 |
| TOTAL | 3016 | 100.0 | 323222 | 100.0 |

Note: The AOANJRR commenced collection of approach data in 2012. 3656 MS 30 procedures with no approach recorded are excluded from this table

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 8: Primary Total Conventional Hip Replacement by Model and ASA Grade (All Diagnoses)

| ASA Grade | MS 30 | | Other Total Conventional Hip | |
|--------------|-------------|--------------|------------------------------|--------------|
| | N | Col% | N | Col% |
| 1 | 133 | 3.9 | 32411 | 8.5 |
| 2 | 1655 | 48.6 | 199009 | 52.3 |
| 3 | 1502 | 44.1 | 141535 | 37.2 |
| 4 | 113 | 3.3 | 7663 | 2.0 |
| 5 | . | . | 30 | 0.0 |
| TOTAL | 3403 | 100.0 | 380648 | 100.0 |

Note: The AOANJRR commenced collection of ASA data in 2013. 3269 MS 30 procedures with no ASA Grade recorded are excluded from this table

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 9: Primary Total Conventional Hip Replacement by Model and BMI (All Diagnoses)

| BMI | MS 30 | | Other Total Conventional Hip | |
|-----------------------------|-------------|--------------|------------------------------|--------------|
| | N | Col% | N | Col% |
| Underweight (<18.50) | 40 | 1.4 | 3257 | 1.0 |
| Normal (18.50-24.99) | 699 | 24.1 | 69018 | 22.2 |
| Pre Obese (25.00-29.99) | 1035 | 35.7 | 113321 | 36.4 |
| Obese Class 1 (30.00-34.99) | 683 | 23.6 | 77115 | 24.8 |
| Obese Class 2 (35.00-39.99) | 310 | 10.7 | 32524 | 10.5 |
| Obese Class 3 (≥40.00) | 129 | 4.5 | 15885 | 5.1 |
| TOTAL | 2896 | 100.0 | 311120 | 100.0 |

Note: The AOANJRR commenced collection of BMI data in 2015. 3776 MS 30 procedures with no BMI recorded are excluded from this table

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 10: Primary Total Conventional Hip Replacement by Model and Primary Diagnosis

| Primary Diagnosis | MS 30 | | Other Total Conventional Hip | |
|------------------------------|-------------|--------------|------------------------------|--------------|
| | N | Col% | N | Col% |
| Osteoarthritis | 5779 | 86.6 | 548959 | 88.0 |
| Fractured Neck Of Femur | 493 | 7.4 | 31895 | 5.1 |
| Osteonecrosis | 215 | 3.2 | 20009 | 3.2 |
| Developmental Dysplasia | 12 | 0.2 | 8385 | 1.3 |
| Rheumatoid Arthritis | 85 | 1.3 | 5154 | 0.8 |
| Tumour | 32 | 0.5 | 3437 | 0.6 |
| Other Inflammatory Arthritis | 17 | 0.3 | 2610 | 0.4 |
| Failed Internal Fixation | 23 | 0.3 | 2547 | 0.4 |
| Fracture/Dislocation | 15 | 0.2 | 820 | 0.1 |
| Arthrodesis Takedown | . | . | 138 | 0.0 |
| Other | 1 | 0.0 | 133 | 0.0 |
| TOTAL | 6672 | 100.0 | 624087 | 100.0 |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 11: Revision Rates of Primary Total Conventional Hip Replacement by Model (All Diagnoses)

| Model | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|------------------------------|--------------|---------------|----------------|---------------------------------|
| MS 30 | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |
| Other Total Conventional Hip | 26543 | 624087 | 4592929 | 0.58 (0.57, 0.58) |
| TOTAL | 26783 | 630759 | 4644328 | 0.58 (0.57, 0.58) |

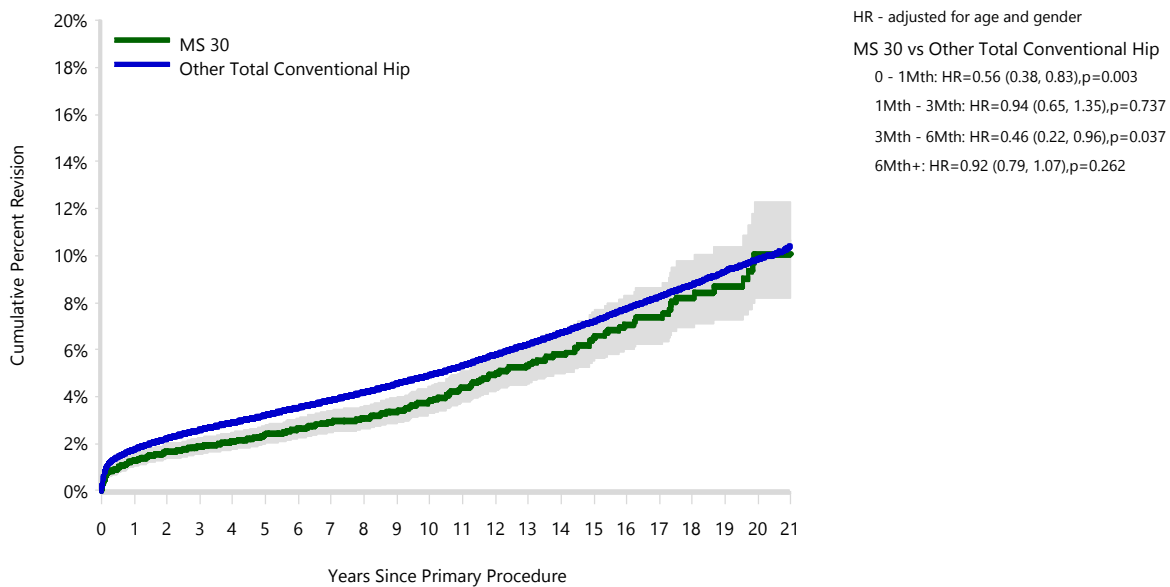
Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 12: Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses)

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|-----------------|------------------|-------------------|
| MS 30 | 1.3 (1.1, 1.6) | 1.7 (1.4, 2.0) | 1.9 (1.6, 2.2) | 2.1 (1.7, 2.5) | 2.4 (2.0, 2.8) | 2.6 (2.2, 3.1) | 2.9 (2.5, 3.4) |
| Other Total Conventional Hip | 1.8 (1.7, 1.8) | 2.2 (2.2, 2.3) | 2.6 (2.5, 2.6) | 2.9 (2.9, 2.9) | 3.2 (3.2, 3.3) | 3.5 (3.5, 3.6) | 3.9 (3.8, 3.9) |
| CPR | 8 Yrs | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs |
| MS 30 | 3.1 (2.6, 3.6) | 3.4 (2.9, 3.9) | 3.8 (3.3, 4.4) | 4.4 (3.8, 5.1) | 5.0 (4.3, 5.8) | 5.3 (4.6, 6.2) | 5.8 (5.0, 6.8) |
| Other Total Conventional Hip | 4.2 (4.1, 4.2) | 4.6 (4.5, 4.6) | 4.9 (4.8, 5.0) | 5.3 (5.2, 5.4) | 5.8 (5.7, 5.9) | 6.2 (6.1, 6.3) | 6.7 (6.6, 6.8) |
| CPR | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
| MS 30 | 6.5 (5.5, 7.6) | 7.1 (6.0, 8.3) | 7.3 (6.2, 8.7) | 8.2 (6.9, 9.7) | 8.7 (7.3, 10.4) | 10.1 (8.2, 12.3) | 10.1 (8.2, 12.3) |
| Other Total Conventional Hip | 7.2 (7.1, 7.3) | 7.8 (7.6, 7.9) | 8.3 (8.1, 8.4) | 8.8 (8.6, 8.9) | 9.3 (9.2, 9.5) | 9.8 (9.6, 10.0) | 10.4 (10.2, 10.6) |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Figure 1: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses)



| Number at Risk | 0 Yr | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs | 9 Yrs | 10 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 6672 | 6099 | 5628 | 5080 | 4589 | 4105 | 3565 | 3122 | 2684 | 2303 | 1998 |
| Other Total Conventional Hip | 624087 | 567480 | 517923 | 465955 | 420574 | 374022 | 329323 | 286993 | 247293 | 211332 | 178910 |
| Number at Risk | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
| MS 30 | 1751 | 1490 | 1275 | 1061 | 878 | 705 | 570 | 445 | 331 | 243 | 140 |
| Other Total Conventional Hip | 149763 | 123683 | 100497 | 80421 | 64071 | 50982 | 39998 | 30446 | 21713 | 14241 | 7998 |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

TABLE 13

Reasons for Revision

This is reported in two ways: a percentage of primaries revised and as a percentage of all revision procedures.

% Primaries Revised: This shows the proportional contribution of each revision diagnosis as a percentage of the total number of primaries. This percentage can be used to approximate the risk of being revised for that diagnosis. Differing percentages between groups, with the same distribution of follow up time, may identify problems of concern.

% Revisions: The number of revisions for each diagnosis is expressed as a percentage of the total number of revisions. This shows the distribution of reasons for revision within a group but cannot be used as a comparison between groups.

Table 13: Revision Diagnosis of Primary Total Conventional Hip Replacement by Model (All Diagnoses)

| Revision Diagnosis | Number | MS 30 | | Other Total Conventional Hip | | |
|------------------------------------|-------------|---------------------|--------------|------------------------------|---------------------|--------------|
| | | % Primaries Revised | % Revisions | Number | % Primaries Revised | % Revisions |
| Loosening | 45 | 0.7 | 18.8 | 5956 | 1.0 | 22.4 |
| Fracture | 52 | 0.8 | 21.7 | 5773 | 0.9 | 21.7 |
| Prosthesis Dislocation | 70 | 1.0 | 29.2 | 5405 | 0.9 | 20.4 |
| Infection | 49 | 0.7 | 20.4 | 5228 | 0.8 | 19.7 |
| Lysis | 4 | 0.1 | 1.7 | 561 | 0.1 | 2.1 |
| Pain | 4 | 0.1 | 1.7 | 481 | 0.1 | 1.8 |
| Instability | | | | 385 | 0.1 | 1.5 |
| Leg Length Discrepancy | 3 | 0.0 | 1.3 | 381 | 0.1 | 1.4 |
| Malposition | 2 | 0.0 | 0.8 | 361 | 0.1 | 1.4 |
| Implant Breakage Stem | 3 | 0.0 | 1.3 | 319 | 0.1 | 1.2 |
| Metal Related Pathology | | | | 282 | 0.0 | 1.1 |
| Wear Acetabular Insert | 1 | 0.0 | 0.4 | 230 | 0.0 | 0.9 |
| Implant Breakage Acetabular Insert | | | | 211 | 0.0 | 0.8 |
| Implant Breakage Acetabular | | | | 167 | 0.0 | 0.6 |
| Incorrect Sizing | 2 | 0.0 | 0.8 | 145 | 0.0 | 0.5 |
| Wear Head | | | | 97 | 0.0 | 0.4 |
| Tumour | | | | 63 | 0.0 | 0.2 |
| Implant Breakage Head | | | | 62 | 0.0 | 0.2 |
| Heterotopic Bone | 1 | 0.0 | 0.4 | 39 | 0.0 | 0.1 |
| Wear Acetabulum | | | | 20 | 0.0 | 0.1 |
| Synovitis | | | | 4 | 0.0 | 0.0 |
| Progression Of Disease | | | | 2 | 0.0 | 0.0 |
| Osteonecrosis | | | | 1 | 0.0 | 0.0 |
| Other | 4 | 0.1 | 1.7 | 370 | 0.1 | 1.4 |
| N Revision | 240 | 3.6 | 100.0 | 26543 | 4.3 | 100.0 |
| N Primary | 6672 | | | 624087 | | |

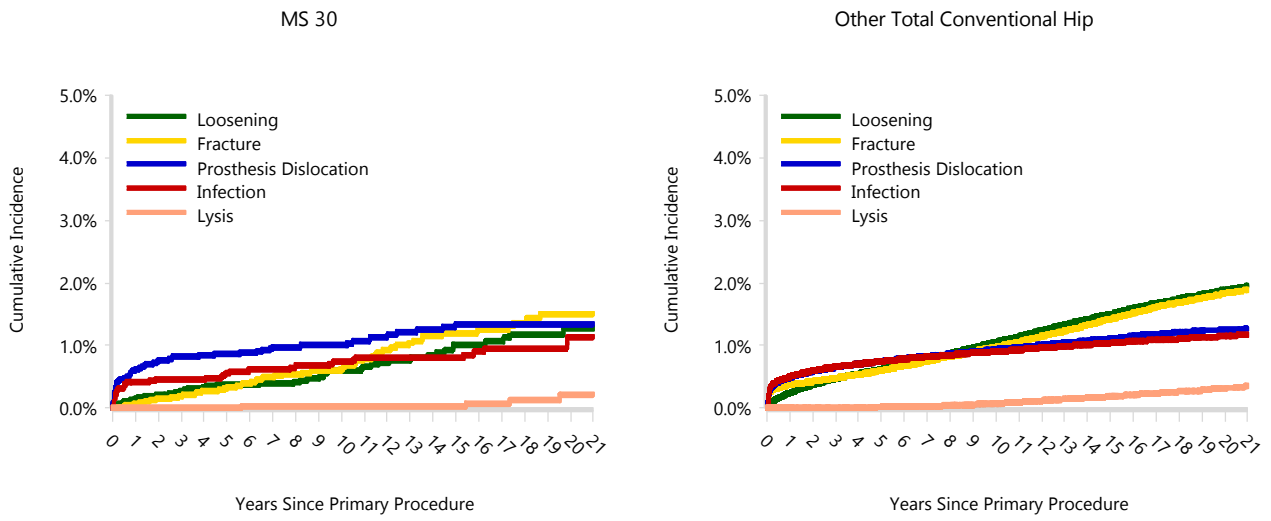
Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 14: Yearly Cumulative Incidence Revision Diagnosis of Primary Total Conventional Hip Replacement by Model (All Diagnoses)

| Model | Event | N Events | 1 Yr | 2 Yrs | 3 Yrs | 5 Yrs | 10 Yrs | 15 Yrs |
|------------------------------|------------------------|------------|----------------|----------------|----------------|-------------------|-------------------|-------------------|
| MS 30 | Loosening | 45 | 0.2 (0.1, 0.3) | 0.2 (0.1, 0.3) | 0.3 (0.2, 0.4) | 0.4 (0.2, 0.5) | 0.6 (0.4, 0.8) | 1.0 (0.7, 1.4) |
| | Fracture | 52 | 0.1 (0.0, 0.2) | 0.1 (0.1, 0.3) | 0.2 (0.1, 0.3) | 0.3 (0.2, 0.5) | 0.6 (0.4, 0.9) | 1.2 (0.9, 1.6) |
| | Prosthesis Dislocation | 70 | 0.6 (0.5, 0.8) | 0.8 (0.6, 1.0) | 0.8 (0.6, 1.1) | 0.9 (0.7, 1.1) | 1.0 (0.8, 1.3) | 1.3 (1.0, 1.7) |
| | Infection | 49 | 0.4 (0.3, 0.6) | 0.5 (0.3, 0.6) | 0.5 (0.3, 0.6) | 0.6 (0.4, 0.8) | 0.7 (0.5, 1.0) | 0.8 (0.6, 1.1) |
| | Lysis | 4 | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.1) | 0.0 (0.0, 0.1) |
| | Other | 20 | 0.0 (0.0, 0.1) | 0.1 (0.0, 0.2) | 0.1 (0.0, 0.2) | 0.2 (0.1, 0.3) | 0.4 (0.2, 0.6) | 0.4 (0.3, 0.7) |
| | Deceased | 2438 | 2.3 (1.9, 2.7) | 4.4 (3.9, 5.0) | 7.2 (6.6, 7.9) | 13.5 (12.6, 14.4) | 33.4 (32.0, 34.8) | 56.0 (54.3, 57.8) |
| | All Revision | 240 | 1.3 (1.0, 1.6) | 1.6 (1.3, 2.0) | 1.8 (1.5, 2.2) | 2.3 (1.9, 2.7) | 3.4 (2.9, 3.9) | 4.8 (4.2, 5.5) |
| Other Total Conventional Hip | Loosening | 5956 | 0.2 (0.2, 0.3) | 0.4 (0.4, 0.4) | 0.5 (0.5, 0.5) | 0.6 (0.6, 0.6) | 1.1 (1.0, 1.1) | 1.5 (1.5, 1.5) |
| | Fracture | 5773 | 0.4 (0.4, 0.4) | 0.4 (0.4, 0.4) | 0.5 (0.5, 0.5) | 0.6 (0.6, 0.6) | 1.0 (0.9, 1.0) | 1.4 (1.4, 1.5) |
| | Prosthesis Dislocation | 5405 | 0.5 (0.5, 0.5) | 0.6 (0.6, 0.6) | 0.7 (0.6, 0.7) | 0.7 (0.7, 0.8) | 0.9 (0.9, 1.0) | 1.1 (1.1, 1.1) |
| | Infection | 5228 | 0.5 (0.5, 0.5) | 0.6 (0.6, 0.6) | 0.7 (0.6, 0.7) | 0.7 (0.7, 0.8) | 0.9 (0.9, 0.9) | 1.0 (1.0, 1.1) |
| | Lysis | 561 | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.1 (0.1, 0.1) | 0.2 (0.2, 0.2) |
| | Other | 3620 | 0.1 (0.1, 0.2) | 0.2 (0.2, 0.2) | 0.3 (0.3, 0.3) | 0.4 (0.4, 0.4) | 0.6 (0.6, 0.7) | 0.9 (0.9, 0.9) |
| | Deceased | 12591 6 | 1.4 (1.4, 1.4) | 2.8 (2.7, 2.8) | 4.5 (4.4, 4.5) | 8.5 (8.4, 8.5) | 21.9 (21.8, 22.1) | 37.7 (37.5, 37.9) |
| | All Revision | 26543 | 1.7 (1.7, 1.8) | 2.2 (2.2, 2.2) | 2.6 (2.5, 2.6) | 3.1 (3.1, 3.2) | 4.6 (4.5, 4.6) | 6.1 (6.1, 6.2) |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Figure 2: Cumulative Incidence Revision Diagnosis of Primary Total Conventional Hip Replacement by Model (All Diagnoses)



Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

TABLE 15

Type of Revision

This is reported in two ways: a percentage of primary procedures revised and as a percentage of all revision procedures.

% Primaries Revised: This shows the proportional contribution of each type of revision as a percentage of the total number of primary procedures. This percentage can be used to approximate the risk of having that type of revision. Differing percentages between groups, with the same distribution of follow up time, may identify problems of concern.

% Revisions: The number of revisions for each type of revision is expressed as a percentage of the total number of revisions. This shows the distribution of types of revision within a group but cannot be used as a comparison between groups.

Table 15: Type of Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses)

| Type of Revision | Number | MS 30 | | Other Total Conventional Hip | | |
|---------------------------|-------------|---------------------|--------------|------------------------------|---------------------|--------------|
| | | % Primaries Revised | % Revisions | Number | % Primaries Revised | % Revisions |
| Femoral Component | 53 | 0.8 | 22.1 | 8898 | 1.4 | 33.5 |
| Head/Insert | 51 | 0.8 | 21.3 | 5787 | 0.9 | 21.8 |
| Acetabular Component | 68 | 1.0 | 28.3 | 5420 | 0.9 | 20.4 |
| THR (Femoral/Acetabular) | 44 | 0.7 | 18.3 | 3281 | 0.5 | 12.4 |
| Head Only | 11 | 0.2 | 4.6 | 1207 | 0.2 | 4.5 |
| Cement Spacer | 9 | 0.1 | 3.8 | 908 | 0.1 | 3.4 |
| Minor Components | 4 | 0.1 | 1.7 | 444 | 0.1 | 1.7 |
| Insert Only | | | | 248 | 0.0 | 0.9 |
| Removal of Prostheses | | | | 145 | 0.0 | 0.5 |
| Head/Neck/Insert | | | | 84 | 0.0 | 0.3 |
| Head/Neck | | | | 59 | 0.0 | 0.2 |
| Reinsertion of Components | | | | 32 | 0.0 | 0.1 |
| Total Femoral | | | | 12 | 0.0 | 0.0 |
| Neck Only | | | | 6 | 0.0 | 0.0 |
| Bipolar Head and Femoral | | | | 5 | 0.0 | 0.0 |
| Bipolar Only | | | | 4 | 0.0 | 0.0 |
| Cement Only | | | | 1 | 0.0 | 0.0 |
| Neck/Insert | | | | 1 | 0.0 | 0.0 |
| Saddle | | | | 1 | 0.0 | 0.0 |
| N Revision | 240 | 3.6 | 100.0 | 26543 | 4.3 | 100.0 |
| N Primary | 6672 | | | 624087 | | |

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 16: Revision Rates of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Femoral Stem Revisions)

| Model | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|------------------------------|--------------|---------------|----------------|---------------------------------|
| MS 30 | 97 | 6672 | 51399 | 0.19 (0.15, 0.23) |
| Other Total Conventional Hip | 12179 | 624087 | 4592929 | 0.27 (0.26, 0.27) |
| TOTAL | 12276 | 630759 | 4644328 | 0.26 (0.26, 0.27) |

Note: Femoral Stem Revisions include both THR (femoral/acetabular) and stem only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 17: Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Femoral Stem Revisions)

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 0.3 (0.2, 0.4) | 0.4 (0.2, 0.6) | 0.4 (0.3, 0.7) | 0.6 (0.4, 0.8) | 0.8 (0.6, 1.1) | 0.9 (0.7, 1.2) | 1.0 (0.8, 1.3) |
| Other Total Conventional Hip | 0.7 (0.6, 0.7) | 0.9 (0.8, 0.9) | 1.0 (1.0, 1.1) | 1.2 (1.2, 1.2) | 1.4 (1.3, 1.4) | 1.6 (1.5, 1.6) | 1.7 (1.7, 1.8) |

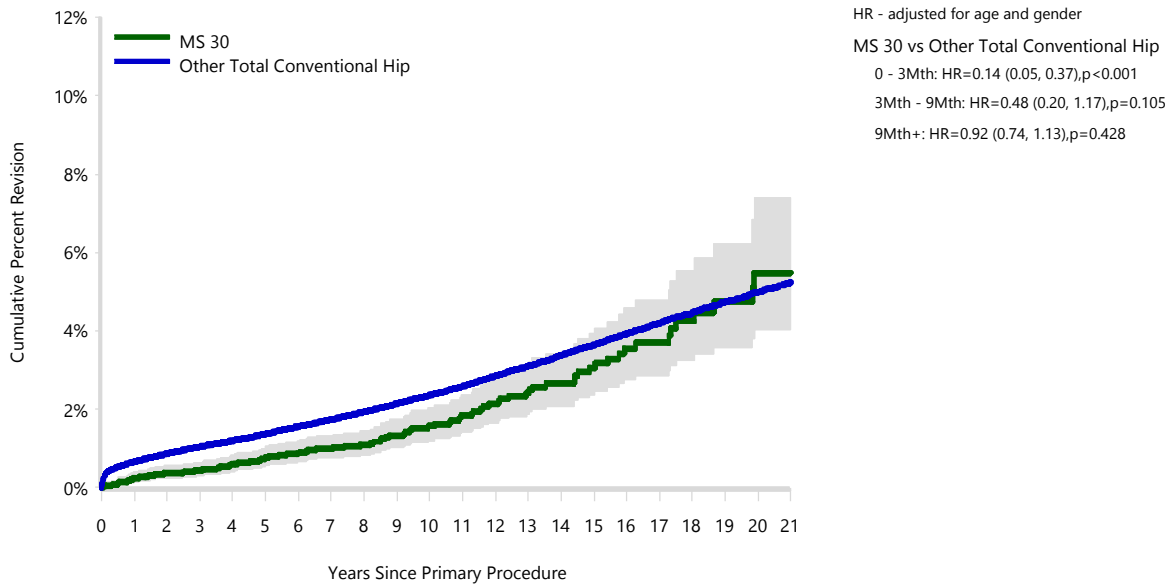
| CPR | 8 Yrs | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 1.1 (0.8, 1.4) | 1.3 (1.0, 1.7) | 1.6 (1.2, 2.0) | 1.8 (1.4, 2.4) | 2.1 (1.7, 2.8) | 2.4 (1.9, 3.1) | 2.7 (2.1, 3.4) |
| Other Total Conventional Hip | 1.9 (1.9, 2.0) | 2.1 (2.1, 2.2) | 2.4 (2.3, 2.4) | 2.6 (2.5, 2.6) | 2.9 (2.8, 2.9) | 3.1 (3.0, 3.2) | 3.4 (3.3, 3.5) |

| CPR | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 3.1 (2.4, 3.9) | 3.6 (2.8, 4.6) | 3.7 (2.9, 4.8) | 4.3 (3.3, 5.5) | 4.7 (3.6, 6.2) | 5.5 (4.0, 7.4) | 5.5 (4.0, 7.4) |
| Other Total Conventional Hip | 3.6 (3.6, 3.7) | 3.9 (3.8, 4.0) | 4.2 (4.1, 4.3) | 4.5 (4.3, 4.6) | 4.7 (4.6, 4.9) | 5.0 (4.8, 5.1) | 5.2 (5.1, 5.4) |

Note: Femoral Stem Revisions include both THR (femoral/acetabular) and stem only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Figure 3: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Femoral Stem Revisions)



| Number at Risk | 0 Yr | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs | 9 Yrs | 10 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 6672 | 6099 | 5628 | 5080 | 4589 | 4105 | 3565 | 3122 | 2684 | 2303 | 1998 |
| Other Total Conventional Hip | 624087 | 567480 | 517923 | 465955 | 420574 | 374022 | 329323 | 286993 | 247293 | 211332 | 178910 |

| Number at Risk | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 1751 | 1490 | 1275 | 1061 | 878 | 705 | 570 | 445 | 331 | 243 | 140 |
| Other Total Conventional Hip | 149763 | 123683 | 100497 | 80421 | 64071 | 50982 | 39998 | 30446 | 21713 | 14241 | 7998 |

Note: Femoral Stem Revisions include both THR (femoral/acetabular) and stem only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 18: Revision Rates of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Acetabular Component Revisions)

| Model | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|------------------------------|-------------|---------------|----------------|---------------------------------|
| MS 30 | 112 | 6672 | 51399 | 0.22 (0.18, 0.26) |
| Other Total Conventional Hip | 8701 | 624087 | 4592929 | 0.19 (0.19, 0.19) |
| TOTAL | 8813 | 630759 | 4644328 | 0.19 (0.19, 0.19) |

Note: Acetabular Component Revisions include both THR (femoral/acetabular) and acetabular only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

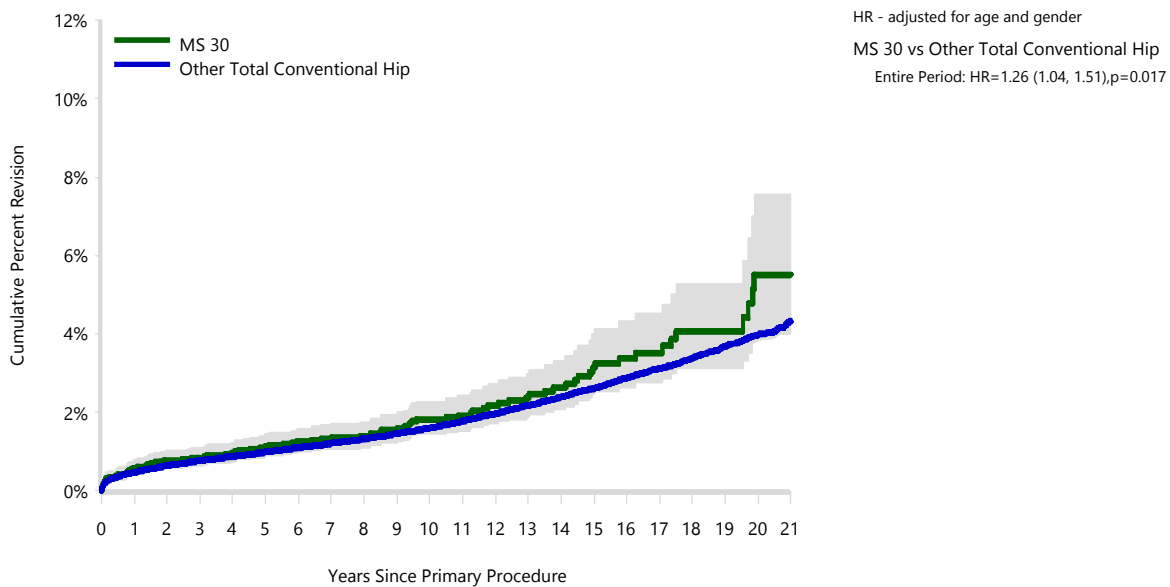
Table 19: Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Acetabular Component Revisions)

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 0.6 (0.4, 0.8) | 0.8 (0.6, 1.0) | 0.8 (0.6, 1.1) | 0.9 (0.7, 1.2) | 1.1 (0.9, 1.4) | 1.3 (1.0, 1.6) | 1.4 (1.1, 1.7) |
| Other Total Conventional Hip | 0.5 (0.5, 0.5) | 0.6 (0.6, 0.7) | 0.8 (0.7, 0.8) | 0.9 (0.8, 0.9) | 1.0 (1.0, 1.0) | 1.1 (1.1, 1.1) | 1.2 (1.2, 1.2) |
| CPR | 8 Yrs | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs |
| MS 30 | 1.4 (1.1, 1.8) | 1.5 (1.2, 1.9) | 1.8 (1.4, 2.3) | 1.9 (1.5, 2.4) | 2.2 (1.7, 2.7) | 2.4 (1.9, 3.0) | 2.6 (2.1, 3.3) |
| Other Total Conventional Hip | 1.3 (1.3, 1.4) | 1.5 (1.4, 1.5) | 1.6 (1.6, 1.6) | 1.8 (1.7, 1.8) | 2.0 (1.9, 2.0) | 2.2 (2.1, 2.2) | 2.4 (2.3, 2.5) |
| CPR | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
| MS 30 | 3.1 (2.5, 4.0) | 3.4 (2.6, 4.3) | 3.5 (2.7, 4.5) | 4.1 (3.1, 5.3) | 4.1 (3.1, 5.3) | 5.5 (4.0, 7.6) | 5.5 (4.0, 7.6) |
| Other Total Conventional Hip | 2.6 (2.5, 2.7) | 2.9 (2.8, 3.0) | 3.1 (3.0, 3.2) | 3.4 (3.3, 3.5) | 3.7 (3.6, 3.8) | 4.0 (3.8, 4.1) | 4.3 (4.1, 4.5) |

Note: Acetabular Component Revisions include both THR (femoral/acetabular) and acetabular only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Figure 4: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Acetabular Component Revisions)



| Number at Risk | 0 Yr | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs | 9 Yrs | 10 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 6672 | 6099 | 5628 | 5080 | 4589 | 4105 | 3565 | 3122 | 2684 | 2303 | 1998 |
| Other Total Conventional Hip | 624087 | 567480 | 517923 | 465955 | 420574 | 374022 | 329323 | 286993 | 247293 | 211332 | 178910 |
| Number at Risk | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
| MS 30 | 1751 | 1490 | 1275 | 1061 | 878 | 705 | 570 | 445 | 331 | 243 | 140 |
| Other Total Conventional Hip | 149763 | 123683 | 100497 | 80421 | 64071 | 50982 | 39998 | 30446 | 21713 | 14241 | 7998 |

Note: Acetabular Component Revisions include both THR (femoral/acetabular) and acetabular only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 20: Revision Rates of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Femoral Stem Revisions for Loosening)

| Model | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|------------------------------|-------------|---------------|----------------|---------------------------------|
| MS 30 | 20 | 6672 | 51399 | 0.04 (0.02, 0.06) |
| Other Total Conventional Hip | 3636 | 624087 | 4592929 | 0.08 (0.08, 0.08) |
| TOTAL | 3656 | 630759 | 4644328 | 0.08 (0.08, 0.08) |

Note: Femoral Stem Revisions include both THR (femoral/acetabular) and stem only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 21: Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Femoral Stem Revisions for Loosening)

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 0.0 (0.0, 0.2) | 0.0 (0.0, 0.2) | 0.0 (0.0, 0.2) | 0.1 (0.0, 0.2) | 0.1 (0.1, 0.3) | 0.1 (0.1, 0.3) | 0.1 (0.1, 0.3) |
| Other Total Conventional Hip | 0.1 (0.1, 0.1) | 0.2 (0.2, 0.2) | 0.3 (0.3, 0.3) | 0.3 (0.3, 0.4) | 0.4 (0.4, 0.4) | 0.5 (0.4, 0.5) | 0.5 (0.5, 0.6) |

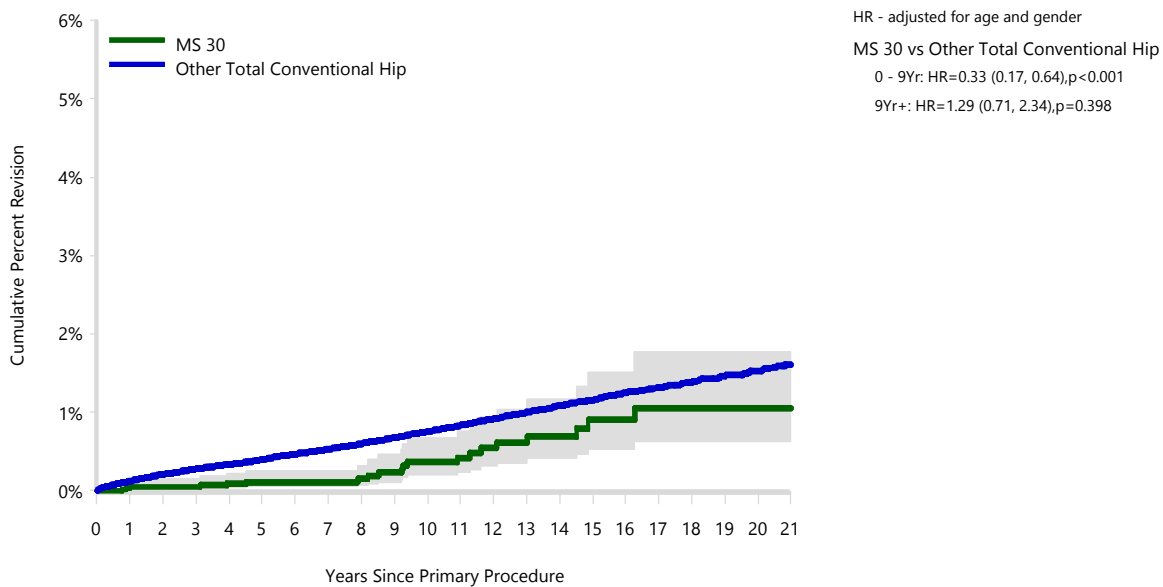
| CPR | 8 Yrs | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 0.1 (0.1, 0.3) | 0.2 (0.1, 0.5) | 0.4 (0.2, 0.7) | 0.4 (0.2, 0.8) | 0.5 (0.3, 0.9) | 0.6 (0.4, 1.0) | 0.7 (0.4, 1.2) |
| Other Total Conventional Hip | 0.6 (0.6, 0.6) | 0.7 (0.7, 0.7) | 0.8 (0.7, 0.8) | 0.8 (0.8, 0.9) | 0.9 (0.9, 1.0) | 1.0 (1.0, 1.0) | 1.1 (1.0, 1.1) |

| CPR | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 0.9 (0.5, 1.5) | 0.9 (0.5, 1.5) | 1.1 (0.6, 1.8) | 1.1 (0.6, 1.8) | 1.1 (0.6, 1.8) | 1.1 (0.6, 1.8) | 1.1 (0.6, 1.8) |
| Other Total Conventional Hip | 1.2 (1.1, 1.2) | 1.2 (1.2, 1.3) | 1.3 (1.3, 1.4) | 1.4 (1.3, 1.4) | 1.5 (1.4, 1.5) | 1.5 (1.4, 1.6) | 1.6 (1.5, 1.7) |

Note: Femoral Stem Revisions include both THR (femoral/acetabular) and stem only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Figure 5: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Femoral Stem Revisions for Loosening)



| Number at Risk | 0 Yr | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs | 9 Yrs | 10 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 6672 | 6099 | 5628 | 5080 | 4589 | 4105 | 3565 | 3122 | 2684 | 2303 | 1998 |
| Other Total Conventional Hip | 624087 | 567480 | 517923 | 465955 | 420574 | 374022 | 329323 | 286993 | 247293 | 211332 | 178910 |

| Number at Risk | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 1751 | 1490 | 1275 | 1061 | 878 | 705 | 570 | 445 | 331 | 243 | 140 |
| Other Total Conventional Hip | 149763 | 123683 | 100497 | 80421 | 64071 | 50982 | 39998 | 30446 | 21713 | 14241 | 7998 |

Note: Femoral Stem Revisions include both THR (femoral/acetabular) and stem only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 22: Revision Rates of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Acetabular Component Revisions for Loosening)

| Model | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|------------------------------|-------------|---------------|----------------|---------------------------------|
| MS 30 | 39 | 6672 | 51399 | 0.08 (0.05, 0.10) |
| Other Total Conventional Hip | 2816 | 624087 | 4592929 | 0.06 (0.06, 0.06) |
| TOTAL | 2855 | 630759 | 4644328 | 0.06 (0.06, 0.06) |

Note: Acetabular Component Revisions include both THR (femoral/acetabular) and acetabular only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

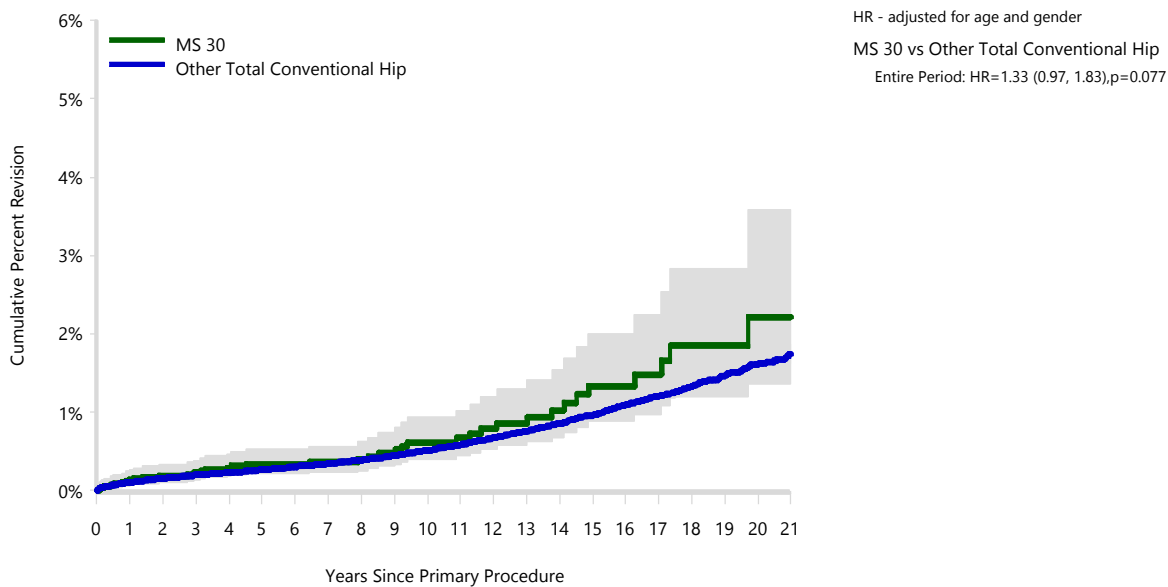
Table 23: Yearly Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Acetabular Component Revisions for Loosening)

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs |
|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| MS 30 | 0.1 (0.1, 0.3) | 0.2 (0.1, 0.3) | 0.2 (0.1, 0.4) | 0.3 (0.2, 0.5) | 0.3 (0.2, 0.5) | 0.3 (0.2, 0.5) | 0.4 (0.2, 0.6) |
| Other Total Conventional Hip | 0.1 (0.1, 0.1) | 0.2 (0.1, 0.2) | 0.2 (0.2, 0.2) | 0.2 (0.2, 0.2) | 0.3 (0.3, 0.3) | 0.3 (0.3, 0.3) | 0.3 (0.3, 0.4) |
| CPR | 8 Yrs | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs |
| MS 30 | 0.4 (0.3, 0.6) | 0.5 (0.3, 0.7) | 0.6 (0.4, 0.9) | 0.7 (0.4, 1.0) | 0.8 (0.5, 1.2) | 0.9 (0.6, 1.3) | 1.0 (0.7, 1.5) |
| Other Total Conventional Hip | 0.4 (0.4, 0.4) | 0.4 (0.4, 0.5) | 0.5 (0.5, 0.5) | 0.6 (0.6, 0.6) | 0.7 (0.6, 0.7) | 0.8 (0.7, 0.8) | 0.9 (0.8, 0.9) |
| CPR | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
| MS 30 | 1.3 (0.9, 2.0) | 1.3 (0.9, 2.0) | 1.5 (1.0, 2.2) | 1.8 (1.2, 2.8) | 1.8 (1.2, 2.8) | 2.2 (1.4, 3.6) | 2.2 (1.4, 3.6) |
| Other Total Conventional Hip | 1.0 (0.9, 1.0) | 1.1 (1.0, 1.2) | 1.2 (1.1, 1.3) | 1.3 (1.3, 1.4) | 1.5 (1.4, 1.6) | 1.6 (1.5, 1.7) | 1.7 (1.6, 1.9) |

Note: Acetabular Component Revisions include both THR (femoral/acetabular) and acetabular only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Figure 6: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Model (All Diagnoses, Acetabular Component Revisions for Loosening)



| Number at Risk | 0 Yr | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs | 9 Yrs | 10 Yrs |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MS 30 | 6672 | 6099 | 5628 | 5080 | 4589 | 4105 | 3565 | 3122 | 2684 | 2303 | 1998 |
| Other Total Conventional Hip | 624087 | 567480 | 517923 | 465955 | 420574 | 374022 | 329323 | 286993 | 247293 | 211332 | 178910 |
| Number at Risk | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs |
| MS 30 | 1751 | 1490 | 1275 | 1061 | 878 | 705 | 570 | 445 | 331 | 243 | 140 |
| Other Total Conventional Hip | 149763 | 123683 | 100497 | 80421 | 64071 | 50982 | 39998 | 30446 | 21713 | 14241 | 7998 |

Note: Acetabular Component Revisions include both THR (femoral/acetabular) and acetabular only revisions

Note: Procedures using metal/metal prostheses with head size larger than 32mm are excluded from the comparator

Table 24: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Fixation (All Diagnoses)

| Fixation | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|-----------------------------------|------------|-------------|--------------|------------------------------------|
| Cemented | 60 | 1360 | 12179 | 0.49 (0.38, 0.63) |
| Cementless | 1 | 2 | 4 | 22.52 (0.57, 125.5) |
| Hybrid (Femur Cemented) | 179 | 5309 | 39208 | 0.46 (0.39, 0.53) |
| Reverse Hybrid (Femur Cementless) | 0 | 1 | 8 | 0.00 (0.00, 47.31) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

Table 25: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Bearing Surface (All Diagnoses)

| Bearing Surface | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|----------------------------|------------|-------------|--------------|------------------------------------|
| Ceramic/Ceramic | 2 | 68 | 514 | 0.39 (0.05, 1.41) |
| Ceramic/Non XLPE | 8 | 150 | 1394 | 0.57 (0.25, 1.13) |
| Ceramic/XLPE | 20 | 746 | 4870 | 0.41 (0.25, 0.63) |
| Ceramic/XLPE + Antioxidant | 19 | 962 | 2627 | 0.72 (0.44, 1.13) |
| Metal/Metal | 12 | 181 | 2427 | 0.49 (0.26, 0.86) |
| Metal/Non XLPE | 78 | 1373 | 14351 | 0.54 (0.43, 0.68) |
| Metal/XLPE | 89 | 2458 | 23248 | 0.38 (0.31, 0.47) |
| Metal/XLPE + Antioxidant | 12 | 727 | 1928 | 0.62 (0.32, 1.09) |
| Ceramicised Metal/XLPE | 0 | 1 | 3 | 0.00 (0.00, 114.3) |
| Unknown | 0 | 6 | 36 | 0.00 (0.00, 10.20) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

Table 26: Yearly Cumulative Percent Revision of MS 30 Primary Total Conventional Hip Replacement by Bearing Surface (All Diagnoses)

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 5 Yrs | 10 Yrs | 15 Yrs | 17 Yrs |
|----------------------------|----------------|----------------|----------------|-----------------|----------------|-----------------|-----------------|
| Ceramic/Ceramic | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 0.0 (0.0, 0.0) | 1.5 (0.2, 10.3) | | | |
| Ceramic/Non XLPE | 0.0 (0.0, 0.0) | 2.0 (0.7, 6.2) | 3.4 (1.4, 8.0) | 3.4 (1.4, 8.0) | 3.4 (1.4, 8.0) | | |
| Ceramic/XLPE | 1.3 (0.7, 2.5) | 1.8 (1.0, 3.0) | 2.4 (1.5, 3.8) | 2.7 (1.7, 4.2) | 3.5 (2.0, 6.3) | | |
| Ceramic/XLPE + Antioxidant | 1.6 (1.0, 2.6) | 2.2 (1.4, 3.4) | 2.2 (1.4, 3.4) | 2.2 (1.4, 3.4) | | | |
| Metal/Metal | 1.1 (0.3, 4.4) | 2.2 (0.8, 5.8) | 2.8 (1.2, 6.6) | 3.4 (1.5, 7.4) | 4.9 (2.5, 9.6) | 5.8 (3.0, 11.0) | 5.8 (3.0, 11.0) |
| Metal/Non XLPE | 1.2 (0.7, 1.9) | 1.4 (0.9, 2.2) | 1.5 (1.0, 2.3) | 2.2 (1.5, 3.2) | 4.1 (3.0, 5.5) | 8.1 (6.3, 10.4) | 9.9 (7.7, 12.6) |
| Metal/XLPE | 1.3 (0.9, 1.9) | 1.6 (1.1, 2.2) | 1.7 (1.3, 2.3) | 2.2 (1.7, 2.9) | 3.6 (2.8, 4.5) | 5.7 (4.4, 7.2) | 6.0 (4.6, 7.6) |
| Metal/XLPE + Antioxidant | 1.5 (0.8, 2.7) | 1.5 (0.8, 2.7) | 1.8 (1.0, 3.2) | 2.2 (1.2, 3.9) | | | |

Table 27: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Computer Navigation (All Diagnoses)

| Computer Navigation | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|---------------------|------------|-------------|--------------|------------------------------------|
| Computer Navigated | 7 | 386 | 1378 | 0.51 (0.20, 1.05) |
| Non-Navigated | 233 | 6286 | 50021 | 0.47 (0.41, 0.53) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

Table 28: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by IDI Usage (All Diagnoses)

| IDI Usage | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|--------------|------------|-------------|--------------|------------------------------------|
| IDI Used | 0 | 1 | 8 | 0.00 (0.00, 48.55) |
| IDI Not Used | 240 | 6671 | 51392 | 0.47 (0.41, 0.53) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

Table 29: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Robotic Assistance (All Diagnoses)

| Robotic Assistance | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|----------------------|------------|-------------|--------------|------------------------------------|
| Robotically Assisted | 0 | 1 | 1 | 0.00 (0.00, 585.8) |
| Non-Robotic | 240 | 6671 | 51399 | 0.47 (0.41, 0.53) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

Table 30: Number of Revisions of MS 30 Primary Total Conventional Hip Replacement by Year of Implant (All Diagnoses)

| Year of Implant | Number Revised | Total Number |
|-----------------|----------------|--------------|
| 1999 | 2 | 21 |
| 2000 | 12 | 133 |
| 2001 | 12 | 357 |
| 2002 | 23 | 386 |
| 2003 | 25 | 358 |
| 2004 | 23 | 276 |
| 2005 | 13 | 297 |
| 2006 | 10 | 262 |
| 2007 | 12 | 193 |
| 2008 | 7 | 219 |
| 2009 | 5 | 149 |
| 2010 | 7 | 179 |
| 2011 | 6 | 131 |
| 2012 | 6 | 194 |
| 2013 | 5 | 165 |
| 2014 | 5 | 237 |
| 2015 | 11 | 332 |
| 2016 | 9 | 357 |
| 2017 | 9 | 394 |
| 2018 | 11 | 394 |
| 2019 | 7 | 324 |
| 2020 | 4 | 367 |
| 2021 | 12 | 368 |
| 2022 | 3 | 365 |
| 2023 | 1 | 214 |
| TOTAL | 240 | 6672 |

Table 31: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Acetabular Component (All Diagnoses)

| Acetabular | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|------------------------------|------------|-------------|--------------|------------------------------------|
| Allofit | 76 | 1664 | 18128 | 0.42 (0.33, 0.52) |
| Apollo | 8 | 143 | 1478 | 0.54 (0.23, 1.07) |
| Artek | 2 | 3 | 32 | 6.28 (0.76, 22.69) |
| Avantage | 0 | 16 | 38 | 0.00 (0.00, 9.61) |
| Continuum | 21 | 1015 | 5504 | 0.38 (0.24, 0.58) |
| Durasul | 0 | 3 | 21 | 0.00 (0.00, 17.41) |
| Exceed | 0 | 19 | 89 | 0.00 (0.00, 4.13) |
| Fitek | 0 | 5 | 111 | 0.00 (0.00, 3.32) |
| Fitmore | 39 | 934 | 8159 | 0.48 (0.34, 0.65) |
| G7 | 22 | 1265 | 3143 | 0.70 (0.44, 1.06) |
| Low Profile Cup | 30 | 710 | 7360 | 0.41 (0.28, 0.58) |
| Mallory-Head | 1 | 18 | 169 | 0.59 (0.02, 3.30) |
| Metasul | 1 | 4 | 21 | 4.75 (0.12, 26.45) |
| Morscher | 1 | 7 | 49 | 2.03 (0.05, 11.32) |
| Trabecular Metal (Cup) | 0 | 4 | 25 | 0.00 (0.00, 14.72) |
| Trabecular Metal (Shell) | 4 | 43 | 266 | 1.50 (0.41, 3.84) |
| Tri-Flange | 0 | 1 | 3 | 0.00 (0.00, 132.4) |
| Trilogy | 3 | 107 | 956 | 0.31 (0.06, 0.92) |
| ZCA | 19 | 420 | 2803 | 0.68 (0.41, 1.06) |
| Other Acetabular Components* | 13 | 291 | 3044 | 0.43 (0.23, 0.73) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |

*denotes acetabular components distributed by other companies

Table 32: Revision Rates of MS 30 Primary Total Conventional Hip Replacement by Femoral Stem Catalogue Number (All Diagnoses)

| Femoral Stem Catalogue Number | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|-------------------------------|------------|-------------|--------------|---------------------------------|
| 0100351001 | 2 | 115 | 585 | 0.34 (0.04, 1.24) |
| 0100351002 | 7 | 300 | 1705 | 0.41 (0.17, 0.85) |
| 0100351003 | 11 | 357 | 1852 | 0.59 (0.30, 1.06) |
| 0100351004 | 5 | 146 | 909 | 0.55 (0.18, 1.28) |
| 0100351005 | 1 | 47 | 304 | 0.33 (0.01, 1.84) |
| 0100351006 | 0 | 11 | 62 | 0.00 (0.00, 5.99) |
| 300049060 | 32 | 662 | 4545 | 0.70 (0.48, 0.99) |
| 300049080 | 83 | 2434 | 20767 | 0.40 (0.32, 0.50) |
| 300049100 | 69 | 1835 | 14857 | 0.46 (0.36, 0.59) |
| 300049120 | 25 | 594 | 4498 | 0.56 (0.36, 0.82) |
| 300049140 | 4 | 137 | 1061 | 0.38 (0.10, 0.97) |
| 300049160 | 1 | 34 | 255 | 0.39 (0.01, 2.19) |
| TOTAL | 240 | 6672 | 51399 | 0.47 (0.41, 0.53) |