# Cormet 2000 HAP Total Resurfacing Hip Investigation

Note: This analysis compares the Cormet 2000 HAP head prosthesis with all other total resurfacing hip prostheses.

This prosthesis has been identified as having a significantly higher rate of revision. For a detailed explanation of the process used by the Registry that results in identification of prostheses that have a higher than anticipated rate of revision please refer to the Prostheses with Higher than Anticipated Rates of Revision chapter of the most recent AOANJRR Annual Report, https://aoanjrr.sahmri.com/annual-reports-2025.

Note: Procedures using prostheses with no recorded use in 2024 are excluded from the comparator.

## TABLE 1

### Revision Rate of Primary Total Resurfacing Hip Replacement

The revision rate of the Cormet 2000 HAP total resurfacing hip prosthesis is compared to all other total resurfacing hip prostheses.

### Table 1: Revision Rates of Primary Total Resurfacing Hip Replacement

| Component | N Revised | N Total | Obs. Years | Revisions/100 Obs. Yrs (95% CI) |
|---|---|---|---|---|
| Cormet 2000 HAP | 31 | 95 | 1537 | 2.02 (1.37, 2.86) |
| Other Total Resurfacing Hip | 1313 | 16808 | 215628 | 0.61 (0.58, 0.64) |
| **TOTAL** | **1344** | **16903** | **217165** | **0.62 (0.59, 0.65)** |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

## TABLE 2

### Yearly Cumulative Percent Revision of Primary Total Resurfacing Hip Replacement

The yearly cumulative percent revision of the Cormet 2000 HAP total resurfacing hip prosthesis is compared to all other total resurfacing hip prostheses.

**Table 2: Yearly Cumulative Percent Revision (95% CI) of Primary Total Resurfacing Hip Replacement**

| CPR | 1 Yr | 2 Yrs | 3 Yrs | 4 Yrs | 5 Yrs | 6 Yrs | 7 Yrs | 8 Yrs |
|---|---|---|---|---|---|---|---|---|
| Cormet 2000 HAP | 6.3 (2.9, 13.5) | 7.4 (3.6, 14.8) | 8.4 (4.3, 16.1) | 8.4 (4.3, 16.1) | 9.5 (5.0, 17.4) | 12.6 (7.4, 21.2) | 12.6 (7.4, 21.2) | 15.8 (9.8, 24.8) |
| Other Total Resurfacing Hip | 1.3 (1.2, 1.5) | 1.9 (1.7, 2.1) | 2.3 (2.1, 2.5) | 2.7 (2.5, 3.0) | 3.2 (2.9, 3.5) | 3.7 (3.4, 4.0) | 4.3 (4.0, 4.7) | 4.9 (4.6, 5.3) |

| CPR | 9 Yrs | 10 Yrs | 11 Yrs | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs |
|---|---|---|---|---|---|---|---|---|
| Cormet 2000 HAP | 18.9 (12.4, 28.4) | 21.1 (14.2, 30.7) | 21.1 (14.2, 30.7) | 23.3 (16.0, 33.2) | 24.4 (17.0, 34.5) | 25.6 (17.9, 35.7) | 25.6 (17.9, 35.7) | 29.0 (20.9, 39.4) |
| Other Total Resurfacing Hip | 5.4 (5.0, 5.8) | 6.1 (5.7, 6.5) | 6.6 (6.2, 7.0) | 7.1 (6.7, 7.6) | 7.8 (7.3, 8.2) | 8.3 (7.8, 8.8) | 8.8 (8.3, 9.3) | 9.3 (8.8, 9.8) |

| CPR | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs | 22 Yrs | 23 Yrs |
|---|---|---|---|---|---|---|---|
| Cormet 2000 HAP | 29.0 (20.9, 39.4) | 30.2 (21.9, 40.7) | 32.6 (24.0, 43.2) | 32.6 (24.0, 43.2) | 34.1 (25.3, 44.9) | | |
| Other Total Resurfacing Hip | 9.8 (9.3, 10.4) | 10.2 (9.7, 10.8) | 10.7 (10.1, 11.3) | 11.2 (10.6, 11.8) | 11.7 (11.0, 12.4) | 12.1 (11.4, 12.8) | 12.3 (11.6, 13.1) |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

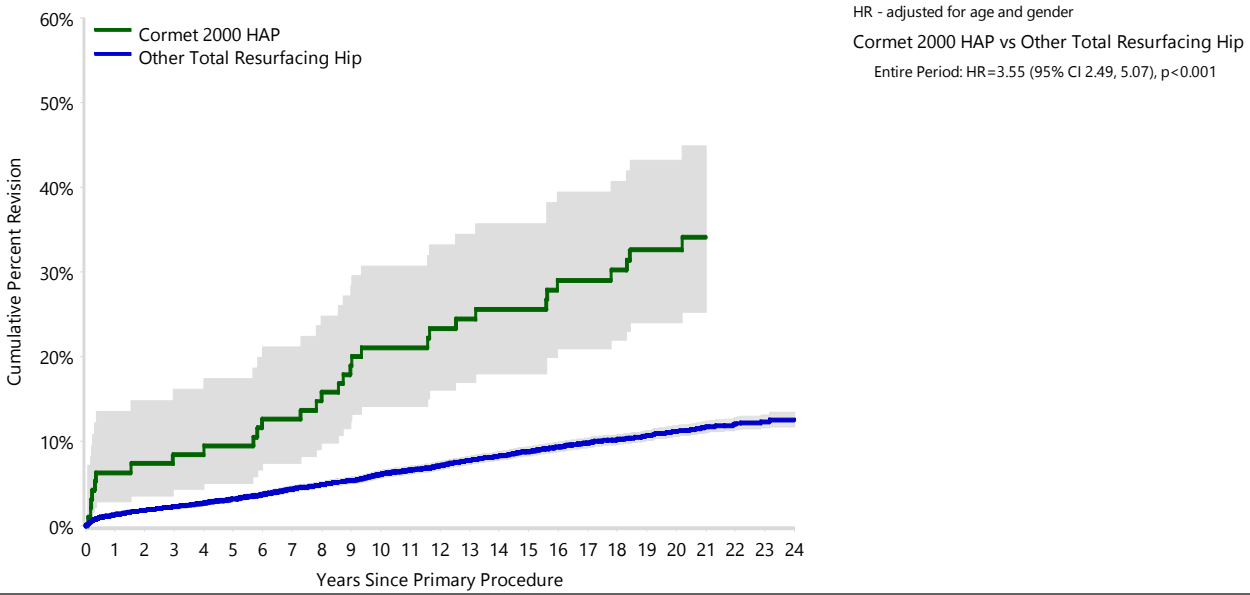
FIGURE 1

## Yearly Cumulative Percent Revision of Primary Total Resurfacing Hip Replacement

The yearly cumulative percent revision of the Cormet 2000 HAP total resurfacing hip prosthesis is compared to all other total resurfacing hip prostheses. In addition, hazard ratios are reported.

Hazard ratios are reported for specific time periods during which the hazard ratio is constant. This is done to enable more specific and valid comparisons of the risk of revision over time. The pattern of variation in risk has important implications with respect to the underlying reasons for any difference.

### Figure 1: Cumulative Percent Revision of Primary Total Resurfacing Hip Replacement




| 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 | 11 Yrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cormet 2000 HAP | 95 | 89 | 88 | 87 | 87 | 86 | 83 | 83 | 80 | 77 | 72 | 72 |
| Other Total Resurfacing Hip | 16808 | 15920 | 15198 | 14609 | 13946 | 13279 | 12645 | 12146 | 11637 | 11126 | 10632 | 10160 |

| Number at Risk | 12 Yrs | 13 Yrs | 14 Yrs | 15 Yrs | 16 Yrs | 17 Yrs | 18 Yrs | 19 Yrs | 20 Yrs | 21 Yrs | 22 Yrs | 23 Yrs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cormet 2000 HAP | 68 | 66 | 65 | 65 | 61 | 61 | 59 | 55 | 54 | 24 | 8 | 1 |
| Other Total Resurfacing Hip | 9676 | 9128 | 8564 | 7830 | 7080 | 6287 | 5383 | 4410 | 3408 | 2454 | 1465 | 527 |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 3

## Primary Diagnosis for Revised Primary Total Resurfacing Hip Replacement

This table identifies the diagnosis of the primary procedure which was subsequently revised. This information is provided as there is a variation on outcome depending on the primary diagnosis. It is therefore important when considering the reasons for a higher than anticipated rate of revision that there is identification of the primary diagnosis. This information should be compared to the primary diagnosis for the revisions of all other total resurfacing hip prostheses.

### Table 3: Primary Diagnosis for Revised Primary Total Resurfacing Hip Replacement

| | Cormet 2000 HAP | | Other Total Resurfacing Hip | |
|---|---|---|---|---|
| Primary Diagnosis | Number | Percent | Number | Percent |
| Osteoarthritis | 31 | 100.0 | 1205 | 91.8 |
| Developmental Dysplasia | | | 52 | 4.0 |
| Osteonecrosis | | | 39 | 3.0 |
| Other Inflammatory Arthritis | | | 10 | 0.8 |
| Rheumatoid Arthritis | | | 6 | 0.5 |
| Other | | | 1 | 0.1 |
| **TOTAL** | **31** | **100.0** | **1313** | **100.0** |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 4

## Reasons for 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 revision diagnosis as a percentage of the total number of primary procedures. 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 4: Primary Total Resurfacing Hip Replacement - Reason for Revision

| | Cormet 2000 HAP | | | Other Total Resurfacing Hip | | |
|---|---|---|---|---|---|---|
| Revision Diagnosis | Number | % Primaries Revised | % Revisions | Number | % Primaries Revised | % Revisions |
| Loosening | 15 | 15.8 | 48.4 | 347 | 2.1 | 26.4 |
| Metal Related Pathology | 4 | 4.2 | 12.9 | 278 | 1.7 | 21.2 |
| Fracture | 7 | 7.4 | 22.6 | 261 | 1.6 | 19.9 |
| Lysis | 2 | 2.1 | 6.5 | 138 | 0.8 | 10.5 |
| Infection | 2 | 2.1 | 6.5 | 87 | 0.5 | 6.6 |
| Pain | 1 | 1.1 | 3.2 | 74 | 0.4 | 5.6 |
| Prosthesis Dislocation/Instability | | | | 34 | 0.2 | 2.6 |
| Osteonecrosis | | | | 33 | 0.2 | 2.5 |
| Malposition | | | | 22 | 0.1 | 1.7 |
| Tumour | | | | 7 | 0.0 | 0.5 |
| Wear Acetabulum | | | | 3 | 0.0 | 0.2 |
| Implant Breakage Acetabular | | | | 2 | 0.0 | 0.2 |
| Leg Length Discrepancy | | | | 2 | 0.0 | 0.2 |
| Heterotopic Bone | | | | 1 | 0.0 | 0.1 |
| Implant Breakage Stem | | | | 1 | 0.0 | 0.1 |
| Incorrect Sizing | | | | 1 | 0.0 | 0.1 |
| Synovitis | | | | 1 | 0.0 | 0.1 |
| Other | | | | 21 | 0.1 | 1.6 |
| **N Revision** | **31** | **32.6** | **100.0** | **1313** | **7.8** | **100.0** |
| **N Primary** | **95** | | | **16808** | | |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

FIGURE 2

## Cumulative Incidence Revision Diagnosis of Primary Total Resurfacing Hip Replacement

This figure details the cumulative incidence of the most common reasons for revision. The five most common reasons for revision are included as long as each of these reasons account for more than 10 procedures or at least 5% of all revisions for the Cormet 2000 HAP total resurfacing hip prosthesis. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other total resurfacing hip prostheses.

**Figure 2: Cumulative Incidence Revision Diagnosis for Primary Total Resurfacing Hip Replacement**

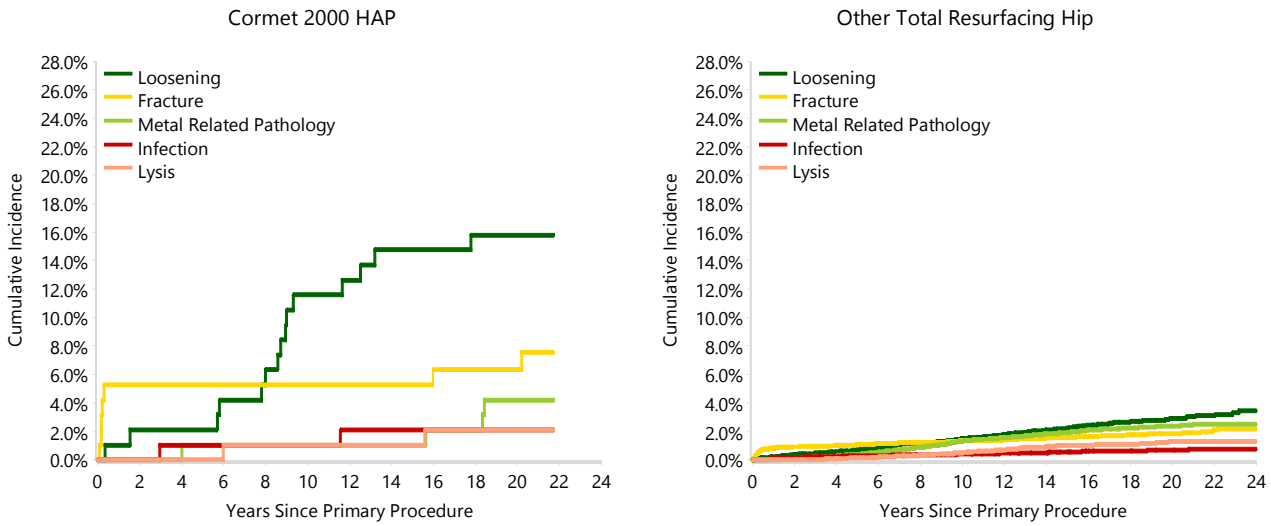


TABLE 5

## Type of Revision Performed for Primary Total Resurfacing Hip Replacement

This analysis identifies the components used in the revision of the Cormet 2000 HAP total resurfacing hip prosthesis and compares it to the components used in the revision of all other total resurfacing hip prostheses.

The reason this analysis is undertaken is to identify whether there is one or more components which are being replaced that differ from the components replaced for revisions of all other total resurfacing hip prostheses i.e. is there a difference in the type of revision undertaken for the Cormet 2000 HAP total resurfacing hip prosthesis compared to all other total resurfacing hip prostheses.

**Table 5: Primary Total Resurfacing Hip Replacement - Type of Revision**

| | Cormet 2000 HAP | | Other Total Resurfacing Hip | |
|---|---|---|---|---|
| Type of Revision | Number | Percent | Number | Percent |
| THR (Femoral/Acetabular) | 21 | 67.7 | 877 | 66.8 |
| Femoral Component | 9 | 29.0 | 360 | 27.4 |
| Acetabular Component | 1 | 3.2 | 39 | 3.0 |
| Cement Spacer | | | 28 | 2.1 |
| Removal of Prostheses | | | 7 | 0.5 |
| **N Major** | **31** | **100.0** | **1311** | **99.8** |
| Head/Insert | | | 1 | 0.1 |
| Minor Components | | | 1 | 0.1 |
| **N Minor** | | | **2** | **0.2** |
| **TOTAL** | **31** | **100.0** | **1313** | **100.0** |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

## TABLE 6

### Revision Rates of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Fixation

This analysis is provided as some prostheses have more than one fixation option. Additionally there are prostheses where an alternative to the recommended approach to fixation was used e.g. a cementless prosthesis that has been cemented or vice-versa.

### Table 6: Revised Number of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Fixation

| Fixation | N Revised | N Total |
|---|---|---|
| Cementless | 30 | 92 |
| Hybrid (Femur Cemented) | 1 | 3 |
| **TOTAL** | **31** | **95** |

## TABLE 7

### Revision Rates of Primary Total Resurfacing Hip Replacement by State

This enables a state by state variation to be identified for the Cormet 2000 HAP total resurfacing hip prosthesis and provides the comparative data for each of the states for all other total resurfacing hip prostheses.

The purpose of this analysis is to determine if the higher than anticipated rate of revision has widespread distribution between states. If there is widespread distribution then the reason for the higher than anticipated rate of revision is unlikely to be surgeon specific. If the prosthesis has been used in only a small number of states it is not possible to distinguish if the higher than anticipated rate of revision is related to the prosthesis, surgeon, technique or patient.

**Table 7: Revised Number of Primary Total Resurfacing Hip Replacement by State**

| Component | State | N Revised | N Total |
|---|---|---|---|
| Cormet 2000 HAP | NSW | 17 | 60 |
| | VIC | 11 | 31 |
| | TAS | 3 | 4 |
| Other Total Resurfacing Hip | NSW | 322 | 4366 |
| | VIC | 471 | 5313 |
| | QLD | 296 | 4465 |
| | WA | 67 | 1297 |
| | SA | 96 | 655 |
| | TAS | 1 | 36 |
| | ACT/NT | 60 | 676 |
| **TOTAL** | | **1344** | **16903** |

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 8

## Number of Revisions of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Year of Implant

This analysis details the number of prostheses reported each year to the Registry for the Cormet 2000 HAP total resurfacing hip prosthesis. It also provides the subsequent number of revisions of the primaries reported in that year.

Primary procedures performed in later years have had less follow up time therefore the number revised is expected to be less than the number revised in earlier years. For example, a primary procedure performed in 2024 has a maximum of one year to be revised, whereas a primary procedure performed in 2022 has a maximum of three years to be revised.

### Table 8: Number of Revisions of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Year of Implant

| Year of Implant | Number Revised | Total Number |
|---|---|---|
| 2001 | 0 | 1 |
| 2002 | 9 | 17 |
| 2003 | 13 | 38 |
| 2004 | 9 | 39 |
| **TOTAL** | **31** | **95** |

TABLE 9

## Revision Rates of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Catalogue Number Range

Many prostheses have a number of catalogue ranges. The catalogue range is specific to particular design features; more than one catalogue range usually indicates a minor difference in design in a particular Cormet 2000 HAP prosthesis.

This analysis has been undertaken to determine if the revision rate varies according to the catalogue number range.

| Model | Catalogue Range | Catalogue Description | Cement | Material |
|---|---|---|---|---|
| **Head** | | | | |
| Cormet 2000 HAP | A179040H-A179056H | COCR HAP RESURFACING HEAD | NO | METAL |

### Table 9: Revised Number of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Catalogue Number Range

| Head Range | N Revised | N Total |
|---|---|---|
| A179040H-A179056H | 31 | 95 |
| **TOTAL** | **31** | **95** |

## TABLE 10

### Revision Rates of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Component

A prosthesis may be combined with multiple components. This analysis has been undertaken to determine if the revision rate varies according to the component with which it is combined.

### Table 10: Revised Number of Cormet 2000 HAP Primary Total Resurfacing Hip Replacement by Acetabular Component

| Acetabular Component | N Revised | N Total |
|---|---|---|
| Cormet | 31 | 95 |
| **TOTAL** | **31** | **95** |