

Supplementary article data

Mixing of components from different manufacturers in total hip arthroplasty: prevalence and comparative outcomes

A study of over 90,000 cases of mixed components in the National Joint Registry for England and Wales

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Submitted 2015-02-10. Accepted 2015-06-07.

Table 2. Mixed stem and head manufacturers in cemented modular stem used with cemented polyethylene cups

Mix-and-match status	n (%)	Men (%)	Age at primary operation median (IQR)	Observed revisions	Expected revisions ^a	Approximate patient-years (x100)	PTIR ^b [95% CI] per 100 patient-years
Matched	180,778 (99.7)	34	74 (68–80)	2,265	2,274	7,500	0.30 [0.29–0.31]
Different stem and head	527 (0.3)	28	75 (69–82)	15	6	20	0.75 [0.45–1.24]
Undetermined ^c	2,218	34	74 (68–79)	34			

^a Calculated under the assumption of no difference in implant survival between the 2 mix-and-match subgroups, correcting for differences in group size and sex/age composition.

^b PTIR: patient-time incidence rates.

^c Unable to determine, as data not recorded

Table 4. Mix-and-match between specific brands: (I) cemented Stryker Exeter V40 stem and (II) uncemented DePuy Corail stems, both with metal heads, used in conjunction with mix-and-matched metal shells with polyethylene liners

Stem Cup	n	Men (%)	Age at primary operation median (IQR)	Observed revisions	Expected revisions ^a	Approximate patient-years (x100)	PTIR ^b [95% CI] per 100 patient-years
(i) Cemented Stryker Exeter V40 stem with a metal head							
Stryker Trident	16,897	37	74 (68–79)	180	176	529	0.34 [0.29–0.39]
DePuy Duraloc Cementless cup	1,081	34	72 (67–76)	25	20	67	0.38 [0.25–0.56]
DePuy Pinnacle	2,529	31	74 (68–80)	25	25	74	0.34 [0.23–0.50]
Zimmer Trilogly	8,496	40	72 (67–77)	109	119	369	0.30 [0.24–0.36]
(ii) Uncemented DePuy Corail stem with a metal head							
DePuy Duraloc Cementless cup	3,625	39	71 (65–76)	100	82	212	0.47 [0.39–0.57]
DePuy Pinnacle	27,227	40	71 (66–77)	346	361	784	0.44 [0.40–0.49]
Zimmer Trilogly	1,777	41	71 (65–77)	27	31	72	0.38 [0.26–0.55]

^a Calculated under the assumption of no difference in implant survival between the 2 mix-and-match subgroups, correcting for differences in group size and sex/age composition.

^b PTIR: patient-time incidence rates.

Table 5. Mixed stem, metal head, and cup in modular stem used with an all-metal acetabulum (all-metal cup or metal shell with a metal liner)

Stem fixation Mix-and-match status	n (%)	Men (%)	Age at primary operation median (IQR)	Observed revisions	Expected revisions ^a	Approximate patient-years (x100)	PTIR ^b [95% CI] per 100 patient-years
Uncemented (n = 15,913)							
All matched	15,862 (99.7)	47	66.3 (59.6–73.1)	1,009	1,009	823	1.23 [1.15–1.30]
Different cup	17 (0.1)	35	72.8 (66.3–82.8)	2	1	0.5	4.11 [1.03–16.45]
Different stem	23 (0.1)	48	59.5 (51.1–66.6)	1	2	1	0.74 [0.10–5.28]
All mixed	11 (0.1)	64	70.6 (59.7–74.4)	0	0.3	0.3	

^a Calculated under the assumption of no difference in implant survival between the 2 mix-and-match subgroups, correcting for differences in group size and sex/age composition.

^b PTIR: patient-time incidence rates.

Table 7. Mix and match between specific brands: (i) cemented Stryker Exeter V40 stem and (ii) uncemented DePuy Corail stems, both with ceramic heads, used in conjunction with mix-and-matched metal shells with ceramic liners

Stem Cup	n	Men (%)	Age at primary operation median (IQR)	Observed revisions	Expected revisions ^a	Approximate patient-years (x100)	PTIR ^b [95% CI] per 100 patient-years
(i) Cemented Stryker Exeter V40 stem with a ceramic head							
Stryker ABG II							
Cementless cup	1,255	34	62 (56–68)	15	19	67	0.22 [0.13–0.37]
Stryker Trident	9,719	42	60 (54–66)	126	121	422	0.30 [0.25–0.36]
Biomet Exceed ABT	207	55	56 (49–61)	0	2	4	Can't do
ZimmerTrilogy	132	58	65 (60–68)	2	2	5	0.45 [0.11–1.79]
(ii) Uncemented DePuy Corail stem with a ceramic head							
DePuy Duraloc Option	1,054	45	60 (54–65)	33	29	62	0.54 [0.38–0.75]
DePuy Pinnacle	25,744	46	61 (54–67)	430	434	734	0.59 [0.53–0.64]
Corin Trinity	389	40	67 (61–72)	2	4	5	0.44 [0.11–1.77]
JRI Ltd. CSF Plus	241	37	60 (53–66)	4	4	7	0.57 [0.21–1.52]
Lima Delta TT	696	39	66 (58–73)	8	7	8	0.97 [0.48–1.94]

^a Calculated under the assumption of no difference in implant survival between the 2 mix-and-match subgroups, correcting for differences in group size and sex/age composition.

^b PTIR: patient-time incidence rates.