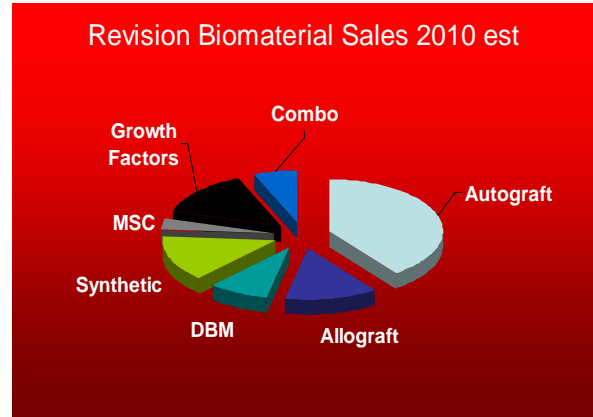


Large Joint Revision – Selected Excerpts

Large joint revision surgery is performed after joint reconstruction surgery to repair a previously implanted artificial joint (prosthesis) that has been damaged either due to infection or normal wear and tear. As artificial knee and hip joints are implanted in the body using various reconstruction procedures, the number of joint revision procedures performed is directly related to the number of reconstruction procedures performed. With an increase in the number of joint reconstruction procedures in the United States, a rising trend has also been witnessed in large joint revision procedures. Knee and hip joint revision surgeries are the most widely performed large joint revision procedures. The following exhibit shows the rise in the number of hip and knee revision procedures performed during 1991-2004.



Key Statistics – Hip and Knee Revision Surgeries in the United States				
Year	Average Hospitalization Costs		Total Hospitalization Costs (in billions)	
	Knee Revision Surgery	Hip Revision Surgery	Knee Revision Surgery	Hip Revision Surgery
1999	\$25,000	\$31,000	\$0.63	\$0.99
2000	\$30,000	\$32,000	\$0.70	\$1.04
2001	\$30,000	\$34,000	\$0.85	\$1.32
2002	\$35,000	\$39,000	\$1.01	\$1.47
2003	\$42,000	\$45,000	\$1.47	\$1.66

Source: American Academy of Orthopaedic Surgeons - Hip and Knee Facts

Procedure

Revision surgeries entail several unique challenges to the practitioner not the least of which is how to remove old hardware or old cement without excessive damage or destruction of bone and soft tissue. As a result, orthopedic manufacturers have developed entirely new sets of instruments and biomaterials to address these issues. To remove old cement, for example, many surgeons use ultrasonic instruments which have the effect of “melting” cement for easier removal.

Biomaterials as well are most prominent in these surgeries as methods for rebuilding and strengthening the patient’s bone stock. Presently, the most commonly used biomaterial is autograft and it is used in over 50% of large joint revision procedures. Occasionally, in the more difficult cases, surgeons may opt for the more expensive bone morphogenetic proteins like Stryker’s OP-1 or Medtronic’s InFuse (off-label). Stem Cells, particularly mesenchymal stem cells, make an appearance in this market beginning next year.

Hip Revision Surgery

It has been observed that after 10 years of hip replacement, there is a 90% chance that the implant will be functioning and working properly; after 20 years of surgery, the chance is 80%; and after 25–30 years, the chance is just 50%.

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