

AUSTRALIAN ORTHOPAEDIC ASSOCIATION



NATIONAL JOINT REPLACEMENT REGISTRY

1st Annual Report

2000

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1st ANNUAL REPORT

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INDEX

PARTICIPATING HOSPITALS - JUNE 2000	1
INTRODUCTION	2
ACKNOWLEDGEMENTS	2
BACKGROUND TO THE REGISTRY	2
SPECIFIC AIMS	3
REGISTRY OVERVIEW	3
REGISTRY IMPLEMENTATION.....	3
South Australia.....	3
Western Australia and Queensland.....	3
Victoria, Northern Territory, Tasmania, Australian Capital Territory and New South Wales.....	3
DATA COLLECTION METHOD.....	3
DATA VALIDATION.....	4
REPORT GENERATION.....	4
NATIONAL JOINT REPLACEMENT DATA 1998 – 1999	5
AUSTRALIAN ORTHOPAEDIC ASSOCIATION REGISTRY DATA	9
AOA NATIONAL JOINT REPLACEMENT REGISTRY HIP REPLACEMENT DATA	11
Incidence of Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	11
Demographic characteristics of patients undergoing Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	12
Prosthesis Fixation and Usage for Partial Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	15
Prosthesis Fixation and Usage for Primary Total Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	16
Prosthesis Fixation and Usage for Revision Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	18
Additional Components used in Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	21
Bilateral and Revision Hip Replacement in South Australia between the period 1/9/99 and 31/12/99.....	21
AOA NATIONAL JOINT REPLACEMENT REGISTRY KNEE REPLACEMENT DATA	22
Incidence of Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	22
Demographic characteristics of patients undergoing Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	23
Diagnosis for Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	25
Prosthesis Fixation and Usage for Patella only/and Femoral Trochlear Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	26
Prosthesis Fixation and Usage for Unicompartmental Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	26
Prosthesis Fixation and Usage for Primary Total Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	27
Prosthesis Fixation and Usage for Revision Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	29
Bilateral and Revision Knee Replacement in South Australia between the period 1/9/99 and 31/12/99.....	32

LIST OF TABLES

TABLE 1:	NUMBER OF HIP & KNEE REPLACEMENTS NATIONALLY 1998 – 1999	6
TABLE 2:	JOINT REPLACEMENT PERCENTAGE CHANGES 1998 - 1999 RELATIVE TO 1997 - 1998.....	6
TABLE 3:	STATE AND TERRITORIES PERCENTAGE CHANGES 1998 - 1999 RELATIVE TO 1997 - 1998.....	6
TABLE 4:	INCIDENCE OF HIP AND KNEE JOINT REPLACEMENT PER 100,000 OF POPULATION 1998-1999.....	7
TABLE 5:	NUMBER OF HIP REPLACEMENTS BY SEX.....	11
TABLE 6:	SUMMARY STATISTICS OF AGE (BY SEX) FOR ALL HIP REPLACEMENTS.....	12
TABLE 7:	SUMMARY STATISTICS OF AGE (BY SEX) FOR PRIMARY PARTIAL HIP REPLACEMENT	12
TABLE 8:	SUMMARY STATISTICS OF AGE (BY SEX) FOR PRIMARY TOTAL HIP REPLACEMENT	13
TABLE 9:	SUMMARY STATISTICS OF AGE (BY SEX) FOR REVISION HIP REPLACEMENT	13
TABLE 10:	DIAGNOSIS - PARTIAL HIP REPLACEMENT	14
TABLE 11:	DIAGNOSIS - PRIMARY TOTAL HIP REPLACEMENT	14
TABLE 12:	DIAGNOSIS - REVISION HIP REPLACEMENT	14
TABLE 13:	PROSTHESIS FIXATION - PARTIAL HIP REPLACEMENT	15
TABLE 14:	PROSTHESIS USAGE - PARTIAL HIP REPLACEMENT	15
TABLE 15:	PROSTHESIS FIXATION - PRIMARY TOTAL HIP REPLACEMENT	16
TABLE 16:	PROSTHESIS USAGE - PRIMARY TOTAL HIP REPLACEMENT WHERE BOTH THE FEMORAL AND ACETABULAR COMPONENTS WERE CEMENTED.....	16
TABLE 17:	PROSTHESIS USAGE - PRIMARY TOTAL HIP REPLACEMENT WHERE THE FEMORAL AND ACETABULAR COMPONENTS WERE CEMENTLESS.....	17
TABLE 18:	PROSTHESIS USAGE - HYBRID - PRIMARY TOTAL HIP REPLACEMENT WHERE THE FEMORAL COMPONENT WAS CEMENTED AND THE ACETABULAR COMPONENT WAS CEMENTLESS.....	17
TABLE 19:	COMPONENTS REVISED - MAJOR REVISION HIP	18
TABLE 20:	COMPONENTS REVISED - MINOR REVISION HIP	18
TABLE 21:	PROSTHESIS FIXATION - MAJOR REVISION HIP REPLACEMENT	18
TABLE 22:	PROSTHESIS FIXATION - MAJOR REVISION HIP REPLACEMENT	18
TABLE 23:	PROSTHESIS USAGE - CEMENTED MAJOR REVISION HIP REPLACEMENT	19
TABLE 24:	PROSTHESIS USAGE - CEMENTED MAJOR REVISION HIP REPLACEMENT	19
TABLE 25:	PROSTHESIS USAGE - CEMENTLESS MAJOR REVISION HIP REPLACEMENT	20
TABLE 26:	PROSTHESIS USAGE - HYBRID (STEM CEMENTED) MAJOR REVISION HIP REPLACEMENT	20
TABLE 27:	PROSTHESIS USAGE - HYBRID (CUP CEMENTED) MAJOR REVISION HIP REPLACEMENT	20
TABLE 28:	PROSTHESIS USAGE - MINOR COMPONENT EXCHANGE REVISION HIP REPLACEMENT	20
TABLE 29:	ADDITIONAL COMPONENTS USED IN HIP REPLACEMENT	21
TABLE 30:	BILATERAL HIP PROCEDURES.....	21
TABLE 31:	HIP PROCEDURES REVISED.....	21
TABLE 32:	NUMBER OF KNEE REPLACEMENTS BY SEX.....	22
TABLE 33:	SUMMARY STATISTICS OF AGE (BY SEX) FOR ALL KNEE REPLACEMENTS.....	23
TABLE 34:	SUMMARY STATISTICS OF AGE (BY SEX) FOR PATELLA ONLY/AND FEMORAL TROCHLEAR REPLACEMENT KNEE REPLACEMENT	23
TABLE 35:	SUMMARY STATISTICS OF AGE (BY SEX) FOR UNICOMPARTMENTAL KNEE REPLACEMENT	23
TABLE 36:	SUMMARY STATISTICS OF AGE (BY SEX) FOR PRIMARY TOTAL KNEE REPLACEMENT	24
TABLE 37:	SUMMARY STATISTICS OF AGE (BY SEX) FOR REVISION KNEE REPLACEMENT	24
TABLE 38:	DIAGNOSIS - PATELLA ONLY/AND FEMORAL TROCHLEAR REPLACEMENT	25
TABLE 39:	DIAGNOSIS - UNICOMPARTMENTAL KNEE REPLACEMENTS.....	25
TABLE 40:	DIAGNOSIS - PRIMARY TOTAL KNEE REPLACEMENTS.....	25
TABLE 41:	DIAGNOSIS - REVISION KNEE REPLACEMENTS.....	25
TABLE 42:	PROSTHESIS USAGE - PATELLA AND/OR FEMORAL TROCHLEAR REPLACEMENT	26
TABLE 43:	PROSTHESIS FIXATION - UNICOMPARTMENTAL KNEE REPLACEMENT	26
TABLE 44:	PROSTHESIS USAGE - UNICOMPARTMENTAL KNEE REPLACEMENT WHERE BOTH TIBIAL.....	26
TABLE 45:	PROSTHESIS USAGE - UNICOMPARTMENTAL KNEE REPLACEMENT WHERE THE TIBIAL	26
TABLE 46:	PROSTHESIS USAGE - UNICOMPARTMENTAL KNEE REPLACEMENT WHERE BOTH TIBIAL..... AND FEMORAL COMPONENTS WERE CEMENTLESS.....	27
TABLE 47:	PROSTHESIS USAGE - UNICOMPARTMENTAL KNEE REPLACEMENT WHERE THE TIBIAL COMPONENT WAS CEMENTED AND FEMORAL COMPONENT WAS CEMENTLESS.....	27

TABLE 48: PROSTHESIS FIXATION - PRIMARY TOTAL KNEE REPLACEMENT	27
TABLE 49: PROSTHESIS USAGE - PRIMARY TOTAL KNEE REPLACEMENT WHERE BOTH TIBIAL AND FEMORAL COMPONENTS WERE CEMENTLESS.....	27
TABLE 50: PROSTHESIS USAGE - PRIMARY TOTAL KNEE REPLACEMENT WHERE BOTH TIBIAL AND FEMORAL COMPONENTS WERE CEMENTED.....	28
TABLE 51: PROSTHESIS USAGE - PRIMARY TOTAL KNEE REPLACEMENT WHERE THE TIBIAL COMPONENT WAS CEMENTED AND FEMORAL COMPONENT WAS CEMENTLESS	28
TABLE 52: PROSTHESIS USAGE - PRIMARY TOTAL KNEE REPLACEMENT WHERE THE TIBIAL COMPONENT WAS CEMENTLESS AND FEMORAL COMPONENT WAS CEMENTED	28
TABLE 53: COMPONENTS EXCHANGED - MAJOR REVISION KNEE REPLACEMENT	29
TABLE 54: COMPONENTS EXCHANGED - MINOR REVISION KNEE REPLACEMENT	29
TABLE 55: PROSTHESIS FIXATION - MAJOR REVISION KNEE REPLACEMENT	29
TABLE 56: PROSTHESIS USAGE - MAJOR REVISION KNEE REPLACEMENT WHERE BOTH THE TIBIAL AND FEMORAL COMPONENTS WERE CEMENTED	29
TABLE 57: PROSTHESIS USAGE - MAJOR REVISION KNEE REPLACEMENT WHERE BOTH THE TIBIAL AND FEMORAL COMPONENTS WERE CEMENTLESS	30
TABLE 58: PROSTHESIS USAGE - MAJOR REVISION KNEE REPLACEMENT WHERE THE TIBIAL WAS CEMENTLESS AND FEMORAL COMPONENTS WERE CEMENTED.....	30
TABLE 59: PROSTHESIS USAGE - MAJOR REVISION KNEE REPLACEMENT WHERE THE TIBIAL WAS CEMENTED AND FEMORAL COMPONENTS WERE CEMENTLESS	30
TABLE 60: PROSTHESIS USAGE - MAJOR REVISION KNEE REPLACEMENT WHERE THE TIBIAL COMPONENT ONLY WAS EXCHANGED AND WAS CEMENTED	30
TABLE 61: PROSTHESIS USAGE - MAJOR REVISION KNEE REPLACEMENT WHERE THE TIBIAL COMPONENT ONLY WAS EXCHANGED AND WAS CEMENTLESS	30
TABLE 62: PROSTHESIS USAGE - MINOR REVISION KNEE REPLACEMENT WHERE A PATELLA AND AN INSERT WERE EXCHANGED	31
TABLE 63: PROSTHESIS USAGE - MINOR REVISION KNEE REPLACEMENT WHERE A PATELLA ONLY WAS USED	31
TABLE 64: PROSTHESIS USAGE - MINOR REVISION KNEE REPLACEMENT WHERE AN INSERT ONLY WAS USED.....	31
TABLE 65: BILATERAL KNEE PROCEDURES	32
TABLE 66: KNEE PROCEDURES REVISED	32

LIST OF GRAPHS

GRAPH 1:	STATE & TERRITORIES TOTAL JOINT REPLACEMENTS 1997 - 1998 & 1998 - 1999	7
GRAPH 2:	HIP AND KNEE JOINT REPLACEMENT SURGERY PUBLIC & PRIVATE HOSPITALS 1998 - 1999.....	7
GRAPH 3:	INCIDENCE OF JOINT REPLACEMENT BY STATE & TERRITORIES 1998-1999.....	8
GRAPH 4:	TOTAL NUMBER &INCIDENCE OF PRIMARY THR & PRIMARY TKR FOR OSTEOARTHRITIS IN AUSTRALIA 1994 – 1998.....	8
GRAPH 5:	PERCENTAGE OF REVISION HIP REPLACEMENT 1998 – 1999.....	8
GRAPH 6:	PERCENTAGE OF REVISION KNEE REPLACEMENT 1998 - 1999.....	8
GRAPH 7:	AGE AND SEX - PARTIAL HIP REPLACEMENT	12
GRAPH 8:	AGE AND SEX - PRIMARY HIP REPLACEMENT	13
GRAPH 9:	AGE AND SEX - REVISION HIP REPLACEMENT	13
GRAPH 10:	AGE AND SEX - UNICOMPARTMENTAL KNEE REPLACEMENT	23
GRAPH 11:	AGE AND SEX - PRIMARY TOTAL KNEE REPLACEMENT	24
GRAPH 12:	AGE AND SEX - REVISION TOTAL KNEE REPLACEMENT	24

PARTICIPATING HOSPITALS - June 2000

SOUTH AUSTRALIA

Public Hospitals

Clare District Hospital
Flinders Medical Centre
Gawler Health Services
Lyell McEwin Hospital
Modbury Public Hospital
Mt Barker District Soldiers Memorial Hospital
Mt Gambier Regional Hospital
Murray Bridge Soldiers Memorial Hospital
Naracoorte Health Service
Noarlunga Hospital
Northern Yorke Peninsula Hospital
Port Augusta Hospital
Port Pirie Hospital
Queen Elizabeth Hospital
Repatriation General Hospital
Riverland Regional Hospital
Royal Adelaide Hospital
South Coast District Hospital
Whyalla Health Service
Women's and Children's Hospital

Private Hospitals

Abergeldie Hospital
Ashford Community Hospital
Burnside War Memorial Hospital
Calvary Hospital Adelaide Inc
Central Districts Private Hospital
Flinders Private Hospital
Glenelg Community Hospital
North Eastern Community Hospital
Parkwynd Private Hospital
Sportmed SA
St Andrew's Private Hospital
Stirling & District Hospital
The Memorial Hospital
Wakefield Hospital
Western Community Hospital

VICTORIA

Public Hospital

The Alfred

WESTERN AUSTRALIA

Public Hospitals

Albany Regional Hospital
Bunbury Regional Hospital
Fremantle Hospital
Geraldton Regional Hospital
Kalgoorlie Regional Hospital
Royal Perth Hospital
Sir Charles Gairdner Hospital

Private Hospitals

Fremantle Kayleeya Hospital
Gosnells Family Hospital
Hollywood Private Hospital
Joondalup Health Campus
Mount Hospital
Rockingham Hospital
St John of God, Subiaco
St John of God, Bunbury
St John of God, Geraldton
St John of God, Murdoch

QUEENSLAND

Public Hospitals

Bundaberg Hospital
Cairns Hospital
Gladstone Hospital
Hervey Bay Hospital
Mater Misericordiae Public Adults Hospital
Prince Charles Hospital
Princess Alexandra Hospital
Royal Brisbane Hospital
Toowoomba Hospital

Private Hospitals

Allamanda Private Hospital
Andrea Ahern Private Hospital
Calvary Private Hospital
Greenslopes Private Hospital
Hillcrest Private Hospital
Holy Spirit Hospital
John Flynn Hospital
Mater Misericordiae Private Hospital
Mater Misericordiae Hospital Mackay
Mater Misericordiae Hospital Townsville
Pindara Private Hospital
Pioneer Valley Hospital
Selangor Private Hospital
St Andrew's Private Hospital
St Andrew's Toowoomba Hospital
St Andrew's War Memorial Hospital
St Stephen's Private Hospital
St Vincent's Hospital
Sunnybank Private Hospital
The Sunshine Coast Private Hospital

INTRODUCTION

This is the first annual report of the Australian Orthopaedic Association National Joint Replacement Registry. Following a successful application in March 1998, the Federal Government provided funding to the Australian Orthopaedic Association (AOA) to establish the National Joint Replacement Registry. Prior to commencement of the registry a pilot study was undertaken in 1998 and completed in June 1999. The pilot study was funded by the Australian Orthopaedic Association and a number of orthopaedic companies, including: Depuy Australia Pty Ltd, Mathys Australia, Smith & Nephew Pty Ltd, Sulzer Orthopaedics and Zimmer. The results were published in a report released by the AOA in June of 1999. This study provided information essential to the successful implementation of the registry.

ACKNOWLEDGEMENTS

At the time of this report 85 hospitals have approved data collection. The registry would like to acknowledge the hospitals, orthopaedic surgeons, registrars and nursing staff for their co-operation. In addition, we have received continued support and co-operation from the Federal Government, State Health Departments and orthopaedic companies.

BACKGROUND TO THE REGISTRY

Joint replacement surgery is a common procedure in Australia, with more than 40,000 hip and knee replacements undertaken nationally each year. It has had considerable success in alleviating pain and disability in individuals suffering a variety of major joint disorders. Previously the procedure has been most commonly performed in the elderly. However, the success of the procedure has led to an increased use in younger individuals. This, combined with an ageing population will result in an increasing incidence of primary joint replacement. The rate of revision surgery is also expected to increase, as more patients survive longer than the life expectancy of the joint replacement. Revision surgery however is associated with increased morbidity and mortality and has a far less successful outcome than primary joint replacement.

A large variety of prostheses have been developed and are currently available on the Australian market. However the mid to long term survival rate of the majority of these prostheses remains unknown. It is well established that there is considerable variation in outcome for different prostheses. Surgical technique and specific patient characteristics also effect outcome. Inadequate outcomes data for the majority of prostheses, as well as variability related to different surgical techniques and diagnostic groups, has made it difficult for surgeons to identify the relative effectiveness of different prostheses and treatments.

A conservative estimate of the cost to the Australian community for the acute care of individuals undergoing joint replacement is between \$300 and \$350 million annually. Despite this, there has been no reliable information on the demographics of the population receiving joint replacement, the total number and type of joint replacements, the rate of revision surgery and importantly the results of this surgery within Australia. The establishment of a national joint replacement registry will provide this information which is necessary for improved outcomes and effective resource planning.

The AOA National Joint Replacement Registry will simultaneously monitor all types of prosthetic design. A registry is the most effective method of determining which prostheses and surgical techniques are most successful for given demographic and diagnostic sub-groups. A number of registries have been established in other countries. The ability to identify factors important in achieving successful outcomes has resulted in both improved standards and significant cost savings in those countries. In addition to the Australian Registry, the Canadian Orthopaedic Association and Canadian Government are currently cooperating to establish a registry. The New Zealand Orthopaedic Association has also recently commenced a national joint replacement registry. It is hoped that the formation of an international registry society to ensure effective cooperation and collaboration between existing and developing registries can be established.

SPECIFIC AIMS

The specific aims of the AOA National Joint Replacement Registry include:

- Determining demographic and diagnostic characteristics of patients undergoing joint replacement surgery nationally
- Providing accurate information on the use of different types of prostheses in both primary and revision joint replacements
- Evaluate the effectiveness of different types of joint replacement prostheses and surgical techniques at a national level
- Compare the Australian joint replacement experience to that of other countries
- Provide confidential data to individual surgeons and hospitals to audit their joint replacement surgery
- Educate Australian orthopaedic surgeons in the most effective prostheses and surgical techniques to achieve successful outcomes

REGISTRY OVERVIEW

Following the completion of the pilot study, implementation of the registry began in mid 1999. At this time the AOA contracted the Data Management and Analysis Centre, University of Adelaide, to provide data management services. Surgeons and Hospital Administrations are contacted on a state by state basis regarding implementation of the registry. Details of data collection and validation methods and the planned progression of the registry are outlined below.

Registry Implementation

Hospitals in South Australia, Western Australia and Queensland have been contacted to participate in data collection. The remaining states and territories will be contacted in a staged manner. An Information Collection Document was prepared to allow hospital administrations the choice of presenting the document to either an ethics or quality assurance committee.

South Australia

The registry commenced data collection in nine South Australian hospitals in September 1999. The remaining SA hospitals were phased in over the following 3 months. This report has been prepared using data collected from SA hospitals from the period September 1999 to December 1999.

Western Australia and Queensland

The registry began contacting Western Australian and Queensland hospitals both public and private that undertake joint replacement in December 1999. Currently, all but one of the eighteen Western Australian hospitals has commenced submitting data. Of the fifty-one identified hospitals in Queensland, twenty-nine hospitals have approved data collection. It is anticipated that the remaining hospitals will commence data collection within the next few months.

Victoria, Northern Territory, Tasmania, Australian Capital Territory and New South Wales

The registry is now in a position to commence contacting orthopaedic surgeons and hospitals in Victoria, Northern Territory and Tasmania. It is planned to have most of the hospitals in these states and territory participating by the end of the year. Implementation of the registry in the Australian Capital Territory and New South Wales will begin in January 2001. The registry will be fully implemented by July 2001.

Data Collection Method

Initial discussions with hospitals indicated that most hospitals would prefer to send the information to the registry electronically. However, the majority of hospitals contacted do not collect all of the information required by the registry on either theatre or hospital information systems. Therefore all hospitals participating in the registry at this stage are providing data on the registry forms. The forms are returned to the registry on a monthly basis.

All hospitals are provided with the electronic file formats of the complete data set. This allows registry requirements to be facilitated when computer or software systems are enhanced or updated in the future. Several hospitals in Western Australia are working towards modification of their systems for future electronic data collection. It is planned to trial these systems when they become available.

Data Validation

An essential feature of the Registry is the necessity to validate collected data. The pilot study identified three sources of information that could be used for this purpose. Information from hospitals and State Health Departments is used to validate patient and procedure information. The validation of the components used is undertaken by comparison of Registry information with data received from orthopaedic companies. The pilot study was able to demonstrate that this combination produced data with an accuracy approaching 100%.

Report Generation

The function of the Registry is to disseminate information. This is the first annual report and, as such, demonstrates some of the information that will be available. Both demographic and outcome data are presented.

The importance and effectiveness of the Registry will be enhanced greatly by time. The accumulation of data allows for more meaningful outcome analysis to be undertaken. The Registry information presented in this report represents approximately 2.5% of joint replacement procedures undertaken nationally in 1999. It is anticipated that the reports in 2001, 2002 and 2003 will contain information on 37.5%, 87% and 100% of joint replacements respectively. In five years, outcomes will be monitored on 180,000 joint replacement procedures, increasing at approximately 50,000 per year.

The importance of this report is that it establishes that it is possible to collect detailed, useful and accurate information on joint replacement surgery. In addition, it demonstrates a method of presenting some of that data. In so doing, it provides the opportunity for interested parties to comment on the presentation and provide much welcomed feedback. Through this process it will be possible to enhance both the quality of information provided as well as the presentation style.

The annual report is only one way in which the Registry intends to provide information. As the appropriate computing systems are developed, information will also be provided through the Internet. In this manner, with appropriate security, information can be made available to surgeons, hospitals, orthopaedic manufacturers and government. It will be possible for reports to be tailored to the specific requirements of individuals and organizations.

NATIONAL JOINT REPLACEMENT DATA 1998 – 1999

This information was obtained from State and Territory health departments. It includes data on the number of joint replacement procedures undertaken for the period 1st July 1998 to 30th June 1999 in both public and private hospitals. The information is provided by each hospital to their relevant health departments. Although the accuracy is likely to be high we are not aware that any validation has been undertaken. The data provides general information on the frequency of joint replacement but is unable to provide any outcomes information. It is presented as part of this report as an overview of joint replacement surgery nationally.

Analysis compared to 1997-1998 data indicates an overall increase of 4.7% in joint replacement surgery during 1998-1999. This comprises a 1.5% increase in hip procedures and an 8.5% increase in knee procedures. The increase has not been uniform, varying from 25.7% in WA to 1.5% in SA. Both Victoria and Tasmania went against the trend and recorded a decrease in the overall incidence. The reasons for this variation remain to be determined.

There is little information on what the ideal frequency of primary joint replacement surgery for the Australian population should be. It is an area that requires considerable further study. It is certain that the frequency will increase as the population ages and it could be argued that the current frequency is less than optimal. In a recent publication from the Swedish Total Hip Replacement Register a rate of 100/10⁵ inhabitants was reported for primary total hip replacement. It was also suggested that a rate of 130/10⁵ was necessary to meet the needs of the Swedish population (Acta Orthop Scand 71 (2) 111-121). Currently in Australia the incidence of primary total hip replacement is 72.8/10⁵ with considerable regional variation (QLD 54.5/10⁵ to SA 94.8/10⁵).

The frequency of primary knee replacement in most western countries has increased significantly over the last decade and often exceeds the frequency of primary total hip replacement. We have included information on the frequency and incidence of primary knee and primary total hip replacements undertaken for osteoarthritis during the five-year period 1994-1998. Primary knees increased by 42.8% and primary total hips by 25.8%. The overall rate of primary knee replacements undertaken for any diagnosis in 1998-1999 was 89.8/10⁵ population. Again there were significant regional differences (VIC 69.3/10⁵ to SA 112.3/10⁵). It is not possible to determine the frequency of unicompartmental knee replacement as government figures do not distinguish between this and primary total knee replacement.

The percentage of hip replacements that are revision procedures is 13.2%. Knee revision procedures account for 9.2% of all knee replacements. It is important to highlight that these figures do not indicate the revision rate. This rate is the percentage of primary replacements that have had subsequent removal or exchange of one or more components. The most common reason for this is loosening which occurs most frequently 10 years after implantation. Considering the marked increase in the frequency of primary replacement surgery the revision rates for both hip and knees is likely to be well in excess of the percentage revision figures. It is known that prosthesis type, patient related factors and surgical technique are important influences on the rate of revision. The AOA National Joint Replacement Registry will be able to establish revision rates as well as identify prostheses and other factors associated with both good and bad outcomes.

Table 1: Number of Hip & Knee Replacements Nationally 1998 – 1999

<i>Type of joint replacement</i>	<i>NSW</i>	<i>VIC</i>	<i>QLD</i>	<i>WA</i>	<i>SA</i>	<i>TAS</i>	<i>ACT/NT</i>	<i>Aust. total</i>
<u>Hip replacement</u>								
Partial	1586	1283	1000	464	499	138	15	4985
Primary total	4569	3732	1922	1400	1417	413	395	13848
Revision	901	766	471	287	294	92	53	2864
<u>Knee replacement</u>								
Primary total	6642	3276	2938	1792	1679	362	396	17085
Revision	570	362	317	208	214	36	27	1734
State total	14268	9419	6648	4151	4103	1041	886	40516

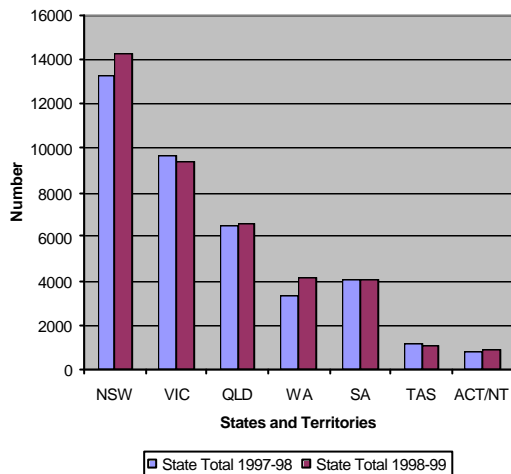
Table 2: Joint Replacement Percentage Changes 1998 - 1999 Relative to 1997 - 1998

<i>Type of joint replacement</i>	Aust. Total 1997-98	Aust. Total 1998-99	Percentage change relative to 1997-98
<u>Hip replacement</u>			
Partial	4940	4985	0.9
Primary total	13545	13848	2.2
Revision	2894	2864	-1.0
<u>Knee replacement</u>			
Primary total	15599	17085	9.5
Revision	1718	1734	0.9
National Total	38696	40516	4.7

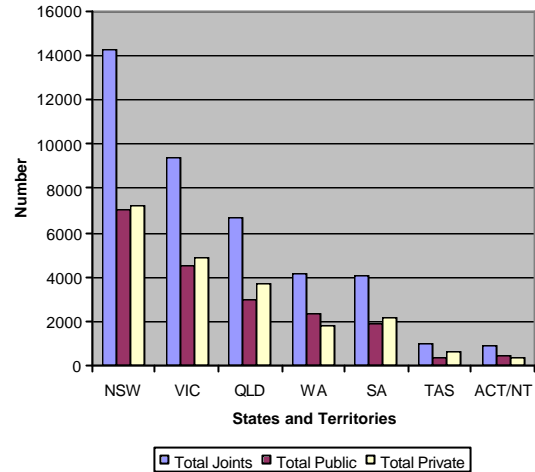
Table 3: State and Territories Percentage Changes 1998 - 1999 Relative to 1997 - 1998

<i>State and Territories</i>	State Total 1997 – 1998	State Total 1998 - 1999	Percentage change relative to 1997 - 1998
NSW	13277	14268	7.5
VIC	9612	9419	-2.0
QLD	6493	6648	2.4
WA	3301	4151	25.7
SA	4037	4103	1.6
TAS	1164	1041	-10.6
ACT/NT	812	886	9.1
National Total	38696	40516	4.7

Graph 1: State & Territories Total Joint Replacements 1997 - 1998 & 1998 - 1999



Graph 2: Hip and Knee Joint Replacement Surgery Public & Private Hospitals 1998 - 1999



Graph 1 represents the number of total joint replacements undertaken for each state and territories for 1997 - 1998 and 1998 - 1999

Graph 2 represents the number of hip and knee replacements undertaken in both public and private hospitals 1998 - 1999

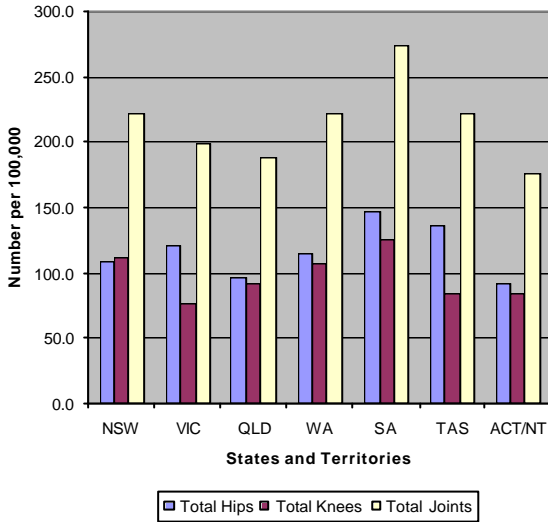
Table 4: Incidence of Hip and Knee Joint Replacement per 100,000 of Population 1998-1999

Type of joint replacement	NSW	VIC	QLD	WA	SA	TAS	ACT/NT
	Pop. 6428721	Pop. 4726609	Pop. 3525636	Pop. 1868182	Pop. 1494773	Pop. 470137	Pop. 504207
Hip replacement							
Partial	24.7	27.1	28.4	24.8	33.4	29.4	3.0
Primary total	71.1	79.0	54.5	74.9	94.8	87.8	78.3
Revision	14.0	16.2	13.4	15.4	19.7	19.6	10.5
Total hips	109.8	122.3	*96.2	115.1	*147.8	136.8	91.8
Knee replacement							
Primary total	103.3	69.3	83.3	95.9	112.3	77.0	78.5
Revision	8.9	7.7	9.0	11.1	14.3	7.7	5.4
Total knees	112.2	77.0	92.3	*107.1	126.6	84.7	83.9
State total	*221.9	199.3	*188.6	222.2	*274.5	*221.4	175.7

*The displayed value of the total hip and knee replacement rate per 100,000 population may not equal the sum of the displayed figures due to rounding.

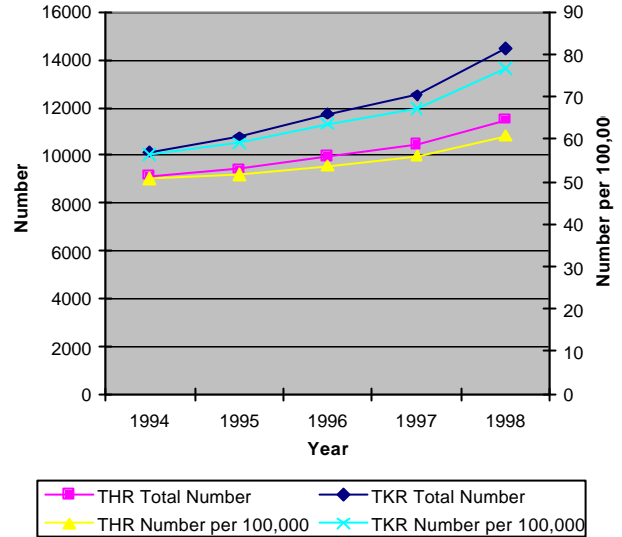
These calculations are based on preliminary figures provided by the state and territories health departments. Partial hip replacements for ACT/NT is considerably lower than the previous year and is not consistent with what would be expected. The reason for this remains to be determined.

Graph 3: Incidence of Joint Replacement by State & Territories 1998-1999



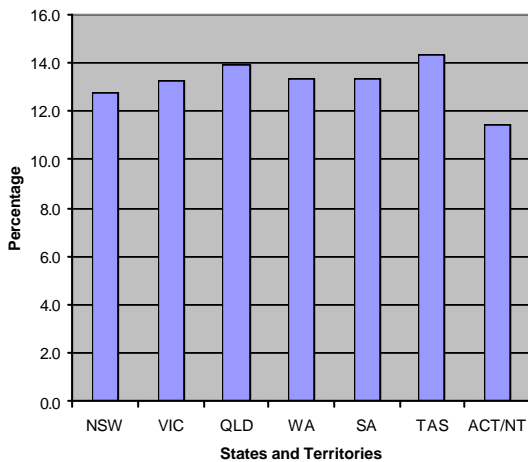
Graph 3 represents the incidence of joint replacements for total hip and knee replacement and total joints 1998 – 1999.

Graph 4: Total Number & Incidence of Primary THR & Primary TKR for Osteoarthritis in Australia 1994 – 1998



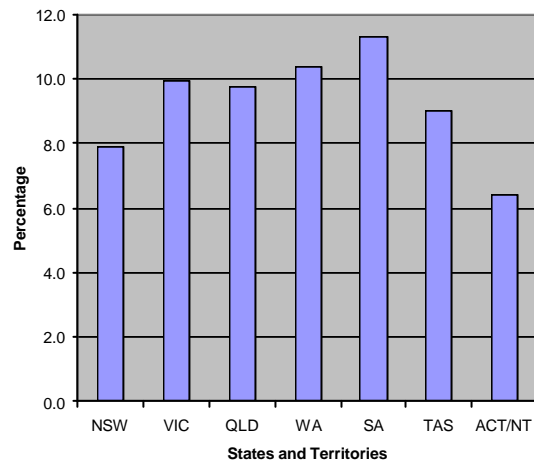
Graph 4 represents the total number and incidence of primary total hip and knee replacement undertaken from 1994 – 1998 nationally for osteoarthritis. This represents an increase of 25.8% for primary hip replacement and an increase of 42.8% for primary knee replacement.

Graph 5: Percentage of Revision Hip Replacement 1998 – 1999



Graph 5 represents the percentage of hip revision surgery for 1998 – 1999. It was not possible to determine the type of hip replacement revised. Partial, primary total or revision hip replacements may have been revised.

Graph 6: Percentage of Revision Knee Replacement 1998 - 1999



Graph 6 represents the percentage of knee revision surgery for 1998 – 1999. Primary total or uni as well as revision knee replacements may have been revised.

The registry would like to thank Vanessa Wells, Research Physiotherapist, Department of Orthopaedics, Repatriation General Hospital, for the information provided in Graph 4.

AUSTRALIAN ORTHOPAEDIC ASSOCIATION REGISTRY DATA

The information presented in this section of the report is the data collected by the Registry. As mentioned previously it represents only a small proportion of joint replacement surgery undertaken in 1999. It is data collected from South Australian hospitals for the period 1st September to 31st December of that year. It represents approximately 25% of all joint replacement surgery undertaken in South Australia for 1999.

It is not possible to draw significant conclusions from such a small data set, particularly as it has been collected over such a short period. It is however worthwhile to highlight a number of points.

1. There was little age difference between primary total hip replacement and primary total knee replacements (Tables 8 and 36).
2. The median age for primary patella and unicompartmental knee replacement was less than the median age for primary total knee replacement (Tables 34, 35 and 36).
3. The median age for revision hip replacement was greater than the median age for primary total hip procedures (Tables 8 and 9). The median age for revision knee replacement however was less than the median age for primary total knee replacement (Tables 36 and 37).
4. More females than males had total primary hip replacement. Equal numbers had revision hip replacement (Tables 5 and 9).
5. More females than males had total knee replacement. Equal numbers had revision knee replacement (Tables 36 and 37).
6. More males than females had primary patella or unicompartmental knee procedures (Tables 34 and 35).
7. The most common diagnoses for primary and revision procedures for hip and knee replacement were as expected, although revision hip was undertaken for dislocation 8.6% of the time (Tables 11, 12, 40 and 41).
8. Bipolar replacement accounts for 20% of all partial hip procedures (Tables 13 and 14).
9. Cemented, cementless and hybrid total primary hip replacements were performed in similar numbers (Table 15).
10. A considerable number of different prostheses and prostheses combinations were used in all procedures performed. For example over 50 different combinations were used in 371 primary total hip operations.
11. A number of cementless acetabular components have undergone cement fixation (Table 16).

12. Three primary hip procedures (0.8%) were revised in this period. These consisted of two Austin-Moore prostheses (one for dislocation and the other for “failure”) and one Exeter primary total hip for dislocation (Table 31).
13. Three bilateral hip procedures were performed (Table 30).
14. Bilateral knee procedures were more common than bilateral hip replacements (Table 65).
15. No primary knee replacements undertaken were revised in this period. One knee was re-operated on. This was a planned two-stage revision for infection. The initial cement spacer was exchanged for a total knee prosthesis (Table 66).

As can be seen from a close examination of the data, only a small number of the points that could be made have been presented in this summary. In addition, there is a large amount of data that has not been presented in this report. This includes cement type, head size, bearing surfaces, material combinations, and mortality data.

The database has been designed in a manner that allows analysis to be undertaken on any prosthesis feature or combination of features. The ability to relate this to diagnosis and mode of failure allows the Registry to undertake survival analysis not only for specific prostheses, but also for generic features common to different types of prostheses.

AOA National Joint Replacement Registry Hip Replacement Data

Incidence of Hip Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 5: Number of Hip Replacements by sex

<i>Type of hip replacement</i>	<i>Female</i>		<i>Male</i>		<i>Total</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Primary Partial Hip	112	19.1	28	4.8	140	23.9
Primary Total Hip	202	34.5	169	28.9	371	63.4
Revision Hip	42	7.2	32	5.5	74	12.6
Total	356	60.9	229	39.1	585	100.0

Note: percents shown are cell percents out of 585

Definitions

Partial: *includes either unipolar or bipolar hip replacement*

Primary total: *primary total hip replacement*

Revision: *re-operation for exchange or removal of one or more components*

Demographic characteristics of patients undergoing Hip Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 6: Summary statistics of age (by sex) for All Hip Replacements

	<i>Female</i> <i>N=356 (60.9%)</i>	<i>Male</i> <i>N=229 (39.1%)</i>	<i>All Patients</i> <i>N=585 (100%)</i>
Median	76	71	75
Minimum	30	33	30
Maximum	99	92	99
Mean	74.6	69.8	72.7
Standard Deviation	11.3	11.2	11.5

Table 7: Summary statistics of age (by sex) for Primary Partial Hip Replacement

	<i>Female</i> <i>N=112 (80.0%)</i>	<i>Male</i> <i>N=28 (20.0%)</i>	<i>All Patients</i> <i>N=140 (100%)</i>
Median	82	80	82
Minimum	61	56	56
Maximum	99	88	99
Mean	81.3	79.0	80.8
Standard Deviation	7.2	7.6	7.3

Graph 7: Age and Sex - Partial Hip Replacement

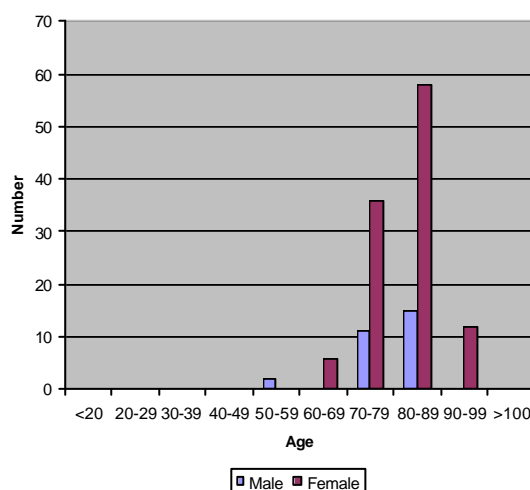


Table 8: Summary statistics of age (by sex) for Primary Total Hip Replacement

	<i>Female</i> <i>N=202 (54.4%)</i>	<i>Male</i> <i>N=169 (45.6%)</i>	<i>All Patients</i> <i>N=371 (100%)</i>
Median	72	69	70
Minimum	30	39	30
Maximum	92	90	92
Mean	70.0	68.1	69.1
Standard Deviation	11.2	10.7	11.0

Graph 8: Age and Sex - Primary Hip Replacement

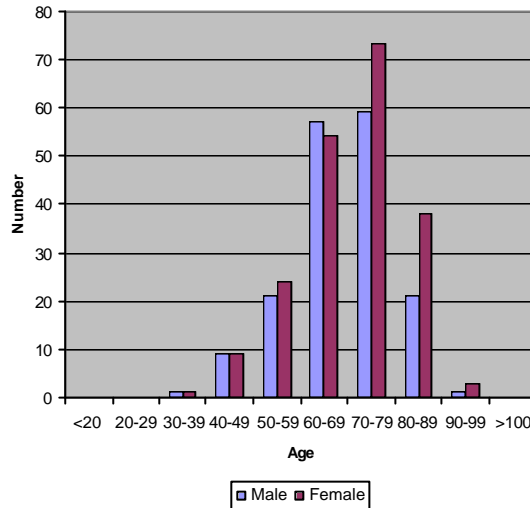
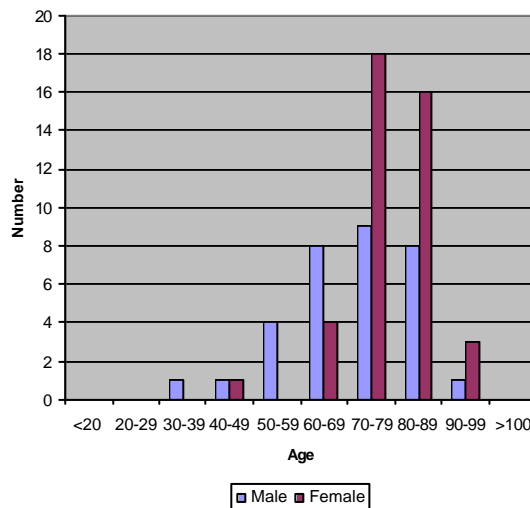


Table 9: Summary statistics of age (by sex) for Revision Hip Replacement

	<i>Female</i> <i>N=32 (43.2%)</i>	<i>Male</i> <i>N=32 (43.2%)</i>	<i>All Patients</i> <i>N=74 (100%)</i>
Median	78	71	78
Minimum	41	33	33
Maximum	97	92	97
Mean	78.8	70.7	75.3
Standard Deviation	9.9	12.5	11.7

Graph 9: Age and Sex - Revision Hip Replacement



**Diagnosis for Hip Replacement in South Australia between the period
1/9/99 and 31/12/99**

Table 10: Diagnosis - Partial Hip Replacement

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Fractured Neck of Femur	134	93.7
Failed internal fixation	5	3.5
Osteoarthritis	2	1.4
Rheumatoid Arthritis	1	0.7
Tumour	1	0.7
Total	143	100.0

Note: some patients had multiple diagnoses

Table 11: Diagnosis - Primary Total Hip Replacement

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Osteoarthritis	335	85.7
Avascular Necrosis	20	5.1
Rheumatoid Arthritis	10	2.6
Fractured Neck of Femur	8	2.0
Other Inflammatory Arthritis	7	1.8
Developmental Dysplasia	4	1.0
Protrusio	2	0.5
Pagets Disease	2	0.5
Arthrodesis takedown	2	0.5
Tumour	1	0.3
Total	390	100.0

Note: some patients had multiple diagnoses

Table 12: Diagnosis - Revision Hip Replacement

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Loosening	57	61.3
Lysis	12	12.9
Dislocation	8	8.6
Fracture	4	4.3
Implant Breakage/Wear		
Acetabular	4	4.3
Pain	4	4.3
Infection	3	3.2
Implant Breakage Stem	1	1.1
Total	93	100.0

Note: some patients had multiple diagnoses

Prosthesis Fixation and Usage for Partial Hip Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 13: Prosthesis fixation - Partial Hip Replacement

<i>Fixation</i>	<i>Unipolar</i>		<i>Bipolar</i>		<i>All Patients</i>
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>N</i>
Cementless	111	79.3	3	2.1	114
Cemented Stem	1	0.7	25	17.9	26
Total	112	80.0	28	20.0	140

Table 14: Prosthesis Usage - Partial Hip Replacement

<i>Prosthesis</i>		<i>Number</i>	<i>%</i>
Stem	Unipolar		
	Austin-Moore	111	99.1
Matrix	S & N Unipolar Head	1	0.9
Total Unipolar		112	100.0
Stem	Bipolar		
Exeter	Centrax Bipolar	17	60.7
Mallory-Head	Centrax Bipolar	3	10.7
Definition	Centrax Bipolar	2	7.1
Omnifit C	UHR BiPolar	2	7.1
ODC	UHR BiPolar	1	3.6
BiMetric	Biomet Bi-polar	1	3.6
Omnifit	UHR BiPolar	1	3.6
Ominfit Plus	UHR BiPolar	1	3.6
Total Bipolar		28	100.0
Total		140	100.0

Prosthesis Fixation and Usage for Primary Total Hip Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 15: Prosthesis Fixation - Primary Total Hip Replacement

<i>Prosthesis Fixation</i>	<i>Number</i>	<i>%</i>
Cemented	121	32.8
Cementless	115	30.9
Hybrid	135	36.3
Total	371	100.0

Table 16: Prosthesis Usage - Primary Total Hip Replacement where both the Femoral and Acetabular components were Cemented

<i>Stem</i>	<i>Cup/Shell</i>	<i>Number</i>
MS-30	Protek Low Profile Cup	24
Exeter	Contemporary	11
Exeter	Exeter	11
ODC	Concentric	11
Exeter	Vitalock ¹	9
Spectron	Sulzer All Poly	9
Charnley	Charnley	8
Spectron	Reflection	6
Charnley	Charnley Ogee	6
Omnifit	Concentric	5
Definition	Contemporary	3
Natural-Hip	Sulzer All Poly	3
Spectron	Reflection/Interfit	2
Charnley	Charnley Flanged	2
Perfecta	Duramer All Poly	2
Elite Plus	Charnley	2
MS-30	Metasul	1
Spectron	Reflection All-poly	1
Omnifit	Secur-Fit	1
Definition	Vitalock ¹	1
C-Stem	Charnley	1
C-Stem	Elite-Plus LPW	1
Integral	Mallory-Head ¹	1
Total		121

Note: 1. cementless shells that were cemented.

Table 17: Prosthesis Usage - Primary Total Hip Replacement where the Femoral and Acetabular components were Cementless

<i>Stem</i>	<i>Cup/Shell</i>	<i>Number</i>
Mallory-Head	Mallory-Head	47
CLS	CLS	14
APR	Metasul artek	12
S-ROM	Duraloc	12
Citation	Vitalock	10
VERSYS	Trilogy	4
Secure-Fit	Secur-Fit	3
APR	Allofit	2
Perfecta	Transcend	2
Perfecta	Interseal	2
Meridian ST	Vitalock	2
Matrix Opti	Reflection	1
PFM-R	CLS	1
Spectron	Reflection/Interfit	1
Omnifit	Omnifit PSL	1
Synergy	Reflection/Interfit	1
Total		115

Table 18: Prosthesis Usage - Hybrid - Primary Total Hip Replacement where the Femoral component was Cemented and the Acetabular component was Cementless

<i>Stem</i>	<i>Cup/Shell</i>	<i>Number</i>
Exeter	Vitalock	75
Definition	Vitalock	18
Spectron	Reflection/Interfit	14
Mallory-Head	Mallory-Head	6
Elite Plus	Duraloc	5
Omnifit	Secur-Fit	3
Omnifit C	Secur-Fit	3
Perfecta	Interseal	2
Ominfit Plus	Secur-Fit	2
Exeter	Protek Press Fit Cup	1
Spectron	Secur-Fit	1
VERSYS	Trilogy	1
ODC	Omnifit PSL	1
C-Stem	Duraloc	1
Integral	Mallory-Head	1
Matrix Mirror	Reflection	1
Total		135

Prosthesis Fixation and Usage for Revision Hip Replacement in South Australia between the period 1/9/99 and 31/12/99

Note: one patient had an excision arthroplasty

Table 19: Components Revised - Major Revision Hip

<i>Component Revised</i>	<i>Number</i>	<i>%</i>
Femoral and acetabular component	38	55.1
Femoral component only	11	15.9
Acetabular component and femoral head	11	15.9
Femoral component and acetabular liner	5	7.2
Bipolar head and stem	2	2.9
Acetabular component only	2	2.9
Total	69	100.0

Table 20: Components Revised - Minor Revision Hip

<i>Component Revised</i>	<i>Number</i>	<i>%</i>
Femoral head and acetabular liner	4	100.0
Total	4	100.0

Table 21: Prosthesis Fixation - Major Revision Hip Replacement

<i>Component Revised</i>	<i>Cementless</i>		<i>Cemented</i>		<i>Hybrid</i>		<i>Total N</i>
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	
Femoral and acetabular component	7	10.4	14	20.9	17	25.4	38
Femoral component only	7	10.4	4	6.0			11
Acetabular component and femoral head	9	13.4	2	3.0			11
Femoral component and acetabular liner	3	4.5	2	3.0			5
Acetabular component only	1	1.5	1	1.5			2
Total	27	40.3	23	34.3	17	25.4	67

Table 22: Prosthesis Fixation - Major Revision Hip Replacement

<i>Component Revised</i>	<i>Stem Cemented</i>	
	<i>Number</i>	<i>%</i>
Bipolar head and stem	2	100.0
Total	2	100.0

Table 23: Prosthesis Usage - Cemented Major Revision Hip Replacement

<i>Stem</i>	<i>Cup/Shell</i>	<i>Stem/ Head/ Cup</i>	<i>Stem/ Head</i>	<i>Stem/ Head/ Liner</i>	<i>Cup/ Head</i>	<i>Stem/ Cup no Head*</i>	<i>Stem (Mono- block) Cup</i>	<i>Stem only (Mono- block)</i>	<i>Stem/ Head/ Shell</i>	<i>Cup only</i>
		<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
Exeter	Exeter**	3								
Exeter	Contemporary	2								
MS-30	Protek Low Profile Cup	1				1				
Charnley	Charnley						1			
Definition	Contemporary	2								
Spectron	Sulzer All Poly	1								
ODC	Concentric	1								
Elite Plus	Elite-Plus LPW	1								
Impact Modular	Mallory-Head								1	
	Contemporary				1					1
	Exeter				1					
Exeter			2	2						
Charnley								1		
Spectron			1							
Total		11	3	2	2	1	1	1	1	1

Note: ** one of these procedures also used a Smith & Nephew Contour Acetabular Reconstruction Ring
* no head was recorded for this procedure

Table 24: Prosthesis Usage - Cemented Major Revision Hip Replacement

<i>Stem</i>	<i>Bipolar</i>	<i>Head</i>	<i>Bipolar head and stem Number</i>
Exeter	Centrax Bipolar	Exeter Universal	2
Total			2

Table 25: Prosthesis Usage - Cementless Major Revision Hip Replacement

<i>Stem</i>	<i>Cup/Shell</i>	<i>Cup/Shell Head</i> N	<i>Stem/Head</i> N	<i>Stem/Head Cup/Shell</i> N	<i>Stem/Head Liner</i> N	<i>Shell only</i> N
Mallory-Head	Mallory-Head			3		
Solution	Duraloc			3		
PFM-R	CLS			1		
	Mallory-Head	2				
	Vitalock	1				
	Vitalock	1				
	Vitalock	1				
	Duraloc	1				
	Trilogy	1				
	Reflection/Interfit	1				
	APR	1				
	Vitalock					1
Mallory-Head			3		2	
Solution			1			
SL			1			
Echelon			1			
Howmedica Revision					1	
Osteonics Restoration HA			1			
Total		9	7	7	3	1

Table 26: Prosthesis Usage - Hybrid (stem cemented) Major Revision Hip Replacement

<i>Stem</i>	<i>Shell</i>	<i>Stem/Shell Number</i>
Exeter	Vitalock	10
Mallory-Head	Mallory-Head	2
Matrix Mirror	Reflection	1
Perfecta	Interseal	1
Spectron	Spectron	1
Elite Plus	Duraloc	1
Total		16

Table 27: Prosthesis Usage - Hybrid (cup cemented) Major Revision Hip Replacement

<i>Stem</i>	<i>Cup</i>	<i>Stem/Head/Cup Number</i>
Osteonics Restoration HA	Concentric *	1
Total		1

Note: * this procedure also used a Smith & Nephew Contour Acetabular Reconstruction ring

Table 28: Prosthesis Usage - Minor component exchange Revision Hip Replacement

<i>Head only</i>	<i>Liner only</i>	<i>Head/Liner</i>
Biomet Modular	Ring Loc	1
Howmedica Ceramic	Reflection	1
Howmedica Modular	PCA	1
Anatomic	HGP II	1
Total		4

**Additional Components used in Hip Replacement in South Australia
between the period 1/9/99 and 31/12/99**

Table 29: Additional components used in Hip Replacement

<i>Type of hip replacement</i>	<i>Acetabular</i>		<i>Screw</i> <i>N</i>	<i>Femoral</i> <i>Cable</i> <i>N</i>
	<i>Reconstruc. Ring</i> <i>N</i>	<i>Mesh</i> <i>N</i>		
Primary Partial Hip				5
Primary Total Hip			35	4
Revision Hip	2	3	31	9
Total	2	3	66	18

**Bilateral and Revision Hip Replacement in South Australia between the
period 1/9/99 and 31/12/99**

Table 30: Bilateral Hip Procedures

<i>Procedure Combination</i>	<i>N</i>	<i>Interval</i>	<i>Components</i>	
			<u>First Procedure</u>	<u>Second Procedure</u>
Primary Total / Primary Total	1	7 days	CLS / Metasul	CLS / Metasul
	1	66 days	S-Rom / Duraloc	S-Rom / Duraloc
Primary Total / Minor Revision	1	7 days	Elite Plus / Duraloc	Anatomic Head, HGP II Liner

Table 31: Hip Procedures Revised

<i>Components</i>		<i>Interval</i>	<i>Diagnosis</i>
<u>Initial</u>	<u>Subsequent</u>		
Exeter, Exeter	Exeter Cup and Head	18 days	Dislocation
Austin-Moore	Exeter Stem, Centrax Bipolar	20 days	“Failed” AMP
Austin-Moore	Exeter Stem, Centrax Bipolar	13 days	Dislocation

AOA National Joint Replacement Registry Knee Replacement Data

Incidence of Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 32: Number of Knee Replacements by sex

<i>Type of knee replacement</i>	<i>Female</i>		<i>Male</i>		<i>Total</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Patella only/femoral trochlear	2	0.4	4	0.9	6	1.3
Unicompartmental Knee	10	2.2	14	3.1	24	5.3
Primary Total Knee	200	43.9	166	36.4	366	80.3
Revision Knee	30	6.6	30	6.6	60	13.2
Total	242	53.1	214	46.9	456	100.0

Note: percents shown are cell percents out of 456

Definitions

Patella only/femoral trochlear: *patella only or patella and femoral trochlear replacement*

Unicompartmental: *either medial or lateral unicompartmental knee replacement*

Primary total: *primary total knee replacement*

Revision: *re-operation for exchange or removal of one or more components*

Demographic characteristics of patients undergoing Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 33: Summary statistics of age (by sex) for All Knee Replacements

	<i>Female</i> <i>N=242 (53.1%)</i>	<i>Male</i> <i>N=214 (39.1%)</i>	<i>All Patients</i> <i>N=456 (100%)</i>
Median	72	70	71
Minimum	22	47	22
Maximum	96	88	96
Mean	70.4	69.2	69.8
Standard Deviation	10.7	8.4	9.7

Table 34: Summary statistics of age (by sex) for Patella only/and Femoral Trochlear Replacement Knee Replacement

	<i>Female</i> <i>N=2 (33.3%)</i>	<i>Male</i> <i>N=4 (66.7%)</i>	<i>All Patients</i> <i>N=6 (100%)</i>
Median	52	54	54
Minimum	48	53	48
Maximum	56	61	61
Mean	52.0	55.5	54.3
Standard Deviation	5.7	3.8	4.3

Table 35: Summary statistics of age (by sex) for Unicompartmental Knee Replacement

	<i>Female</i> <i>N=10 (41.7%)</i>	<i>Male</i> <i>N=14 (58.3%)</i>	<i>All Patients</i> <i>N=24 (100%)</i>
Median	74	64	66
Minimum	39	50	39
Maximum	81	78	81
Mean	69.9	63.1	65.9
Standard Deviation	12.5	8.5	10.7

Graph 10: Age and Sex - Unicompartmental Knee Replacement

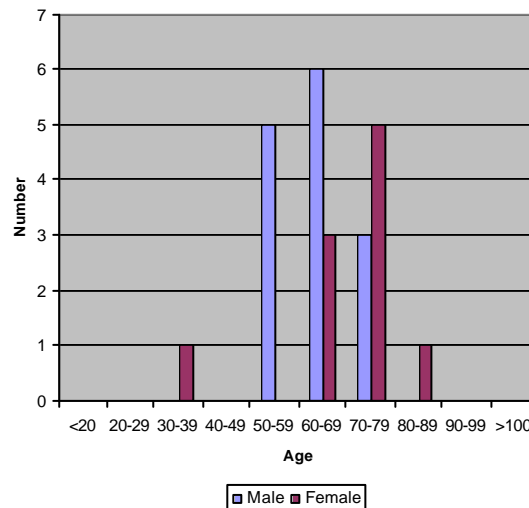


Table 36: Summary statistics of age (by sex) for Primary Total Knee Replacement

	<i>Female</i> <i>N=200 (54.6%)</i>	<i>Male</i> <i>N=166 (45.4%)</i>	<i>All Patients</i> <i>N=366 (100%)</i>
Median	72	72	72
Minimum	36	47	36
Maximum	96	88	96
Mean	70.5	70.3	70.4
Standard Deviation	10.3	8.2	9.4

Graph 11: Age and Sex - Primary Total Knee Replacement

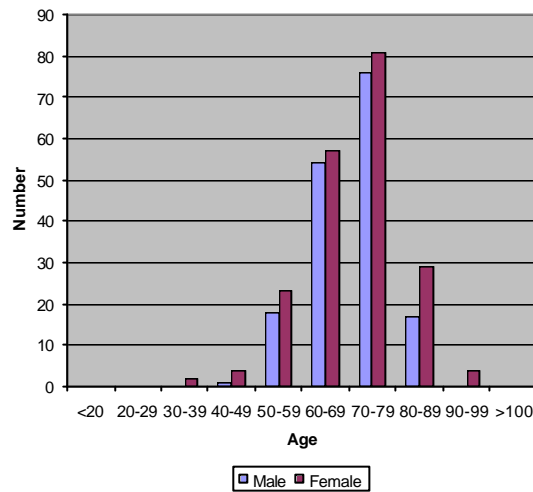
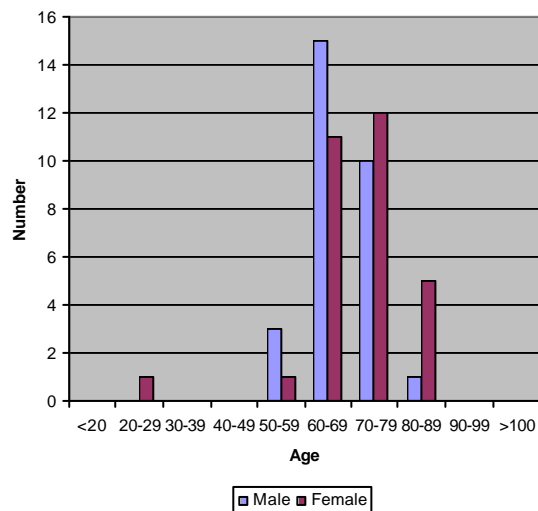


Table 37: Summary statistics of age (by sex) for Revision Knee Replacement

	<i>Female</i> <i>N=30 (50.0%)</i>	<i>Male</i> <i>N=30 (50.0%)</i>	<i>All Patients</i> <i>N=60 (100%)</i>
Median	71	68	69
Minimum	22	54	22
Maximum	87	81	87
Mean	70.7	68.0	69.3
Standard Deviation	12.0	6.4	9.7

Graph 12: Age and Sex - Revision Total Knee Replacement



**Diagnosis for Knee Replacement in South Australia between the period
1/9/99 and 31/12/99**

Table 38: Diagnosis - Patella only/and Femoral Trochlear Replacement

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Osteoarthritis	5	83.3
Patella Chondrolysis	1	16.7
Total	6	100.0

Note: some patients had multiple diagnoses

Table 39: Diagnosis - Unicompartmental Knee Replacements

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Osteoarthritis	23	95.8
Avascular Necrosis	1	4.2
Total	24	100.0

Note: some patients had multiple diagnoses

Table 40: Diagnosis - Primary Total Knee Replacements

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Osteoarthritis	346	93.3
Rheumatoid Arthritis	19	5.1
Other Inflammatory Arthritis	4	1.1
Tumour	1	0.3
Chondrocalcinosis	1	0.3
Total	371	100.0

Note: some patients had multiple diagnoses

Table 41: Diagnosis - Revision Knee Replacements

<i>Diagnosis</i>	<i>Number</i>	<i>%</i>
Loosening	23	29.9
Implant Breakage/Wear Tibial	19	24.7
Lysis	8	10.4
Infection	7	9.1
Pat. Femoral Pain/Maltracking	7	9.1
Implant Breakage/Wear Patella	4	5.2
Other	3	3.9
Pain	2	2.6
Instability	2	2.6
Heterotropic bone	1	1.3
Fracture	1	1.3
Total	77	100.0

The **Other** diagnoses consisted of: 1 arthrofibrosis, 1 deformity, 1 haemorrhagic chronic synovitis

Note: some patients had multiple diagnoses

Prosthesis Fixation and Usage for Patella only/and Femoral Trochlear Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 42: Prosthesis Usage - Patella and/or Femoral Trochlear Replacement

<i>Patella</i>	<i>Femoral Trochlear Replacement</i>	<i>Number</i>
Arcom All Poly		1
Interax		1
Pat2-Mod3	Pat Mod3	4
Total		6

note: cement was used in the patella and in both the patella and femoral trochlear replacement.

Prosthesis Fixation and Usage for Unicompartmental Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 43: Prosthesis Fixation - Unicompartmental Knee Replacement

<i>Fixation</i>	<i>Number</i>	<i>%</i>
Tibial and femoral cemented	8	33.3
Femoral only cemented	7	29.2
Tibial and femoral cementless	6	25.0
Tibial only cemented	3	12.5
Total	24	100.0

Table 44: Prosthesis Usage - Unicompartmental Knee Replacement where both Tibial and Femoral components were Cemented

<i>Tibial</i>	<i>Femoral</i>	<i>Number</i>
Miller Galante	Miller Galante	1
Oxford	Oxford	4
PFC	PFC	1
Repicci II	Repicci II	2
Total		8

Table 45: Prosthesis Usage - Unicompartmental Knee Replacement where the Tibial component was Cementless and Femoral component was Cemented

<i>Tibial</i>	<i>Femoral</i>	<i>Number</i>
Genesis	Genesis	1
Miller Galante	Miller Galante	4
Oxford	Oxford	2
Total		7

Table 46: Prosthesis Usage - Unicompartmental Knee Replacement where both Tibial and Femoral components were Cementless

<i>Tibial</i>	<i>Femoral</i>	<i>Number</i>
LCS	LCS	5
Oxford	Oxford	1
Total		6

Table 47: Prosthesis Usage - Unicompartmental Knee Replacement where the Tibial component was cemented and Femoral component was cementless

<i>Tibial</i>	<i>Femoral</i>	<i>Number</i>
Oxford	Oxford	3
Total		3

Prosthesis Fixation and Usage for Primary Total Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 48: Prosthesis Fixation - Primary Total Knee Replacement

<i>Fixation</i>	<i>Patella not used</i>		<i>Patella used</i>			
	<i>Number</i>	<i>%</i>	<i>Patella cementless</i>		<i>Patella cemented</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Tibial and femoral cementless	112	30.4	7	1.9	3	0.8
Tibial and femoral cemented	98	26.6	2	0.5	20	5.5
Tibial only cemented	99	27.0	1	0.3	8	2.2
Femoral only cemented	10	2.7	3	0.8	3	0.8
Total	319	87.2	13	3.6	34	10.0

Table 49: Prosthesis Usage - Primary Total Knee Replacement where both Tibial and Femoral components were Cementless

<i>Tibial</i>	<i>Femoral</i>	<i>Total</i>	<i>Patella not used</i>	<i>Patella used</i>
AMK	AMK	3	3	
Advantim	Advantim	12	12	
Coordinate Revision	AMK	6	5	1
Duracon	Duracon	13	13	
Interax	Interax	8	6	2
LCS	LCS	43	41	2
Maxim	Maxim	12	12	
Natural Knee II	Natural Knee II	2	2	
Nexgen	Nexgen	16	16	
PFC	PFC	5		5
Series 7000	Scorpio	2	2	
Total		122	112	10

Table 50: Prosthesis Usage - Primary Total Knee Replacement where both Tibial and Femoral components were Cemented

<i>Tibial</i>	<i>Femoral</i>	<i>Total</i>	<i>Patella not used</i>	<i>Patella used</i>
AGC	AGC	30	27	3
AMK	AMK	8	7	1
Advantim	Advantim	5	5	
Duracon	Duracon	3	2	1
Genesis II	Genesis II	18	13	5
Interax	Interax	1	1	
Kinemax	Kinemax	3	2	1
LCS	LCS	3	2	1
Natural Knee II	Natural Knee II	1	1	
Nexgen	Nexgen	20	16	4
Oxford	Finn	1		1
PFC	PFC	5	4	1
Series 7000	Scorpio	10	10	
Series 7000	Series 7000	8	8	
Trac Knee	Trac Knee	4		4
Total		120	98	22

Table 51: Prosthesis Usage - primary total knee replacement where the tibial component was cemented and femoral component was cementless

<i>Tibial</i>	<i>Femoral</i>	<i>Total</i>	<i>Patella not used</i>	<i>Patella used</i>
AGC	AGC	21	19	2
AMK	AMK	22	20	2
Duracon	Duracon	18	17	1
Genesis II	Genesis II	2	2	
Interax	Interax	1	1	
LCS	LCS	14	14	
Natural Knee II	Natural Knee II	1		1
Nexgen	Nexgen	6	6	
PFC	PFC	5	3	2
Series 7000	Scorpio	16	15	1
Trac Knee	Trac Knee	2	2	
Total		108	99	9

Table 52: Prosthesis Usage - Primary Total Knee Replacement where the Tibial component was Cementless and Femoral component was Cemented

<i>Tibial</i>	<i>Femoral</i>	<i>Total</i>	<i>Patella not used</i>	<i>Patella used</i>
Coordinate Revision	AMK	1	1	
Duracon	Duracon	2	2	
Genesis II	Genesis II	2	1	1
LCS	LCS	2		2
Natural Knee II	Natural Knee II	4	2	2
Nexgen	Nexgen	1	1	
Series 7000	Scorpio	3	3	
Trac Knee	Trac Knee	1		1
Total		16	10	6

Prosthesis Fixation and Usage for Revision Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 53: Components Exchanged - Major Revision Knee Replacement

<i>Component Revised</i>	<i>Patella not used</i>		<i>Patella used</i>			
	<i>Number</i>	<i>%</i>	<i>Patella cementless</i>		<i>Patella cemented</i>	
			<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Tibial + femoral components + patella					12	37.5
Tibial + femoral components	12	37.5				
Tibial component + patella			1	3.1	3	9.4
Tibial component	4	12.5				
Total	16	50.0	1	3.1	15	46.9

Table 54: Components Exchanged - Minor Revision Knee Replacement

<i>Component Revised</i>	<i>Number</i>	<i>%</i>
Patella + Insert	13	46.6
Patella only	8	28.6
Insert only	5	17.9
Cement spacer only (2-stage revision)	2	7.2
Total	28	100.0

Table 55: Prosthesis Fixation - Major Revision Knee Replacement

<i>Component Revised</i>	<i>Cemented</i>		<i>Cementless</i>		<i>Tibial cementless Femoral cemented</i>		<i>Tibial cemented Femoral cementless</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
	Tibial + femoral components + patella	11	34.4			1	3.1	
Tibial + femoral components	7	21.9	3	9.4	1	3.1	1	3.1
Tibial component + patella	4	12.5						
Tibial component	3	9.4	1	3.1				
Total	25	78.1	4	12.5	2	6.3	1	3.1

Table 56: Prosthesis Usage - Major Revision Knee Replacement where both the Tibial and Femoral components were Cemented

<i>Tibial</i>	<i>Femoral</i>	<i>Total Number</i>	<i>Patella not used Number</i>	<i>Patella used Number</i>
Coordinate Revision	Coordinate Revision	2	2	
Duracon	Duracon	1		1
Maxim	Maxim	2		2
Nexgen	Nexgen	6	3	3
Oxford	Finn	1		1
PFC	PFC	2	1	1
Series 7000	Scorpio	1	1	
Series 7000	Series 7000	3		3
Total		18	7	11

Table 57: Prosthesis Usage - Major Revision knee replacement where both the tibial and femoral components were cementless

<i>Tibial</i>	<i>Femoral</i>	<i>Total Number</i>	<i>Patella not used Number</i>	<i>Patella used Number</i>
Advantim	Advantim	1	1	
LCS	LCS	1	1	
Natural Knee II	Natural Knee II	1	1	
Total		3	3	0

Table 58: Prosthesis Usage - Major Revision Knee Replacement where the Tibial was Cementless and Femoral components were Cemented

<i>Tibial</i>	<i>Femoral</i>	<i>Total Number</i>	<i>Patella not used Number</i>	<i>Patella used Number</i>
Advantim	Advantim	1	1	
Duracon	Duracon	1		1
Total		2	1	1

Table 59: Prosthesis Usage - Major Revision Knee Replacement where the Tibial was Cemented and Femoral components were Cementless

<i>Tibial</i>	<i>Femoral</i>	<i>Total Number</i>	<i>Patella not used Number</i>	<i>Patella used Number</i>
LCS	LCS	1	1	
Total		1	1	

Table 60: Prosthesis Usage - Major Revision Knee Replacement where the Tibial component only was exchanged and was Cemented

<i>Tibial</i>	<i>Total Number</i>	<i>Patella not used Number</i>	<i>Patella used Number</i>
Coordinate Revision	1	1	
Duracon	2	1	1
LCS	1	1	
MG II	1		1
PFC	2		2
Total	7	3	4

Table 61: Prosthesis Usage - Major Revision Knee Replacement where the Tibial component only was exchanged and was Cementless

<i>Tibial</i>	<i>Total Number</i>	<i>Patella not used Number</i>	<i>Patella used Number</i>
MG II	1	1	
Total	1	1	0

Table 62: Prosthesis Usage - Minor Revision Knee Replacement where a Patella and an Insert were exchanged

<i>Patella</i>	<i>Insert</i>	<i>Total Number</i>
Advantim	Advantim	1
Arcom All Poly	AGC	1
Insall/Burstein II	Miller Galante	6
PCA	PCA	2
PFC	PFC	3
Total		13

Table 63: Prosthesis Usage - Minor Revision Knee Replacement where a Patella only was used

<i>Patella</i>	<i>Total Number</i>
AMK	1
Arcom All Poly	2
Duracon	2
PCA	1
PFC	1
Series 7000	1
Total	8

Table 64: Prosthesis Usage - Minor Revision knee replacement where an insert only was used

<i>Insert</i>	<i>Total Number</i>
Kinemax	1
Miller Galante	1
Nexgen	1
PCA	2
Total	5

Two of the revision knee replacements were planned two-stage revisions. Cement spacers were used in the first stage (Table 54).

Bilateral and Revision Knee Replacement in South Australia between the period 1/9/99 and 31/12/99

Table 65: Bilateral Knee Procedures

<i>Procedure Combination</i>	<i>N</i>	<i>Interval</i>
Primary Total / Primary Total	11	Same day
Primary Patella / Primary Patella	1	Same day
Primary Total / Revision Patella	2	Same day
Primary Total / Revision Tibial Insert + Patella	1	Same day
Revision Tibial Component + Patella / Revision Tibial Component + Patella	1	Same day

Table 66: Knee Procedures Revised

No knee replacements were revised during this period. There was one case of a 2 staged revision for infection listed below.

<i>Revision Knees</i>	<i>N</i>	<i>Interval</i>	<i>Components</i>	
Revision/Revision	1	46 days	<u>First Procedure</u> Cement spacer	<u>Second Procedure</u> Femoral, Tibial & Patella PFC, PFC, PFC