



\_\_\_\_\_ P A K I S T A N  
**NATIONAL JOINT REGISTRY**  
**SIXTH ANNUAL REPORT**  
2019 - 2020



## **PNJR 6<sup>th</sup> year of trailblazing: Setting the bar for healthcare registries in Pakistan 6<sup>th</sup> Annual report of Pakistan National Joint Registry**

From the volcanic beauty of Fuji to the snow capped peaks of the majestic Himalayas. **Pakistan** is blessed with the highest mountains vosges.

# Partners of Pakistan Arthroplasty Society (PAS)



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## President APAS



It is a distinct honor for me to write the foreword for the 6th Annual Report of Pakistan National Joint Registry (PNJR). As the concurrent President of 3 Asia Pacific arthroplasty societies, I am very proud of Pakistan for their advance in Orthopaedic Community, especially having published 6 annual reports consecutively, which is not an easy feat and is much ahead than many countries in Asia Pacific. I am also grateful to call both Prof. Syed Shahid Noor and Prof. Mohammad Amin Chinoy my good friends for their active involvement and contributions during Orthopaedic meetings all over the world. They are excellent mentors and leaders to learn from. As the years pass, the number of orthopaedic surgeries in Pakistan and registry data collected will continue to grow along with the increased number of surgeons each year. The Pakistan National Joint Registry will be very useful to keep track of what works and what does not so surgeons can use the data as a guideline in their practice. After all, Orthopaedic, like any field of Medicine, should be evidence based rather than following the latest marketing trends.

Total hip and knee arthroplasties are successful procedures that had been proven to help patients regain their daily living activities with success rates over 90%. However, we still see many dissatisfied patients out there since their definition of success might be different from their surgeons. Therefore, it is of utmost importance to align the patients' perspective with the surgeons before surgery, on the definition of successful surgeries so the patients are prepared to face further challenges they will encounter during rehabilitation before they actually gain back their functionality.

Quality of a national joint registry report is very important since it will be the benchmark of the nation's performance. The data provided will enable surgeons to improve and optimize their patients outcomes. These data are also important to keep patients informed so they can discuss with their surgeons on the best available options. I hope this year's annual report will provide the insights for surgeons to make wise decision for their patients, either in Pakistan or anywhere around the world.

Sincerely yours

**Nicolaas C. Budhiparama, M.D., PhD.**

**President of Asia Pacific Arthroplasty Society (APAS) 2020 – 2022**

**President of Arthroplasty Society in Asia and Middle East (ASIA) 2019 – 2021**

**President of Asia Pacific Knee Society (APKS) 2019 – 2021**

**Founding Godfather of ISAKOS Global Connection Campaign**

**Board of Director & Executive Committee of ISAKOS**

**Global Chair for International Congress of Joint Reconstruction (ICJR)**

**Global Faculty for AO Recon**

**Founder & Chairman of Nicolaas Institute of Constructive Orthopedic Research & Education**

**Foundation for Arthroplasty & Sports Medicine**

**Founding Father of Indonesian Hip & Knee Society**







## Director PNJR



It is a matter of immense pleasure and pride for me to present to you this 6th Annual Report of Pakistan National Joint Registry (PNJR). It is the continuous zeal, effort and commitment of the executive board of Pakistan Arthroplasty Society (PAS), the authors of this report and more importantly the contributors who have registered their cases into the database that has made us proud by lifting the standard of our registry for the 5th consecutive year, to produce a world class report.

We have strived hard to control the problems encountered every year in production of this report and one of the major work has been on cleaning of data for which I would like to praise the work put in by our official research partners-Metrics Research. We have chosen a unique theme of introducing Pakistani scientists. This shows the immense talent that our beautiful country cultivates and that presents the hard work of many scientists in austere circumstances. Our registry is akin to such work of scientific relevance that puts us right on top with other countries of the developed world who have national joint registries. Though far from being perfect, we are well on track in the quest to join the elite of the world of arthroplasty.

You can also see that with each passing year we are gaining popularity and this is reflected in the continuous growth of centers, PI's and the number of joints registered. I am hopeful that this effort of the Pakistan Arthroplasty Society will go a long way in shaping the future of joint replacement surgery in Pakistan and affect many scientific databases in collaborative research across the region and the globe.

The board of PNJR has been successful in guiding and developing many surgical and medical national registries in Pakistan including cardiology registry of Pakistan, diabetic registry of Pakistan, stroke registry of Pakistan and hepatitis registries of Pakistan. We are encouraging our colleagues and subspecialty orthopedic societies to develop national registries.

Sincerely yours

**Prof. Syed Shahid Noor MD, FRCS(Tr&Orth)**

**Director, Pakistan National Joint Registry.**

**President, Pakistan Arthroplasty Society.**

**President, Pakistan Orthopaedic Association (2017-2018)**

**Founder Principal and project director, Liaquat National Medical College.**

**Chairman Registry Committee, Health Research Advisory Board.**

**Head, Department of Orthopaedic, Liaquat National Hospital and Medical College.**





## K2

K2, at 8,611 metres above sea level, is the second-highest mountain on Earth, after Mount Everest. It lies in the Karakoram range, partially in the Gilgit-Baltistan region of Pakistan-administered



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President, Pakistan Arthroplasty Society (PAS)  
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MBBS, FCPS (Trauma & orthopaedics)  
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Liaquat National Hospital and Medical College Karachi





## Gasherbrum I

Gasherbrum I, surveyed as K5 and also known as Hidden Peak, is the 11th highest mountain in the world at 8,080 metres above sea level. It is located in Shigar District in the Gilgit–Baltistan region of Pakistan-administered Kashmir.

# Steering Committee



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## Research Partner

1. Health Reserch Advisory Board (HRAB)
2. Metrics Research





## Broad Peak

Broad Peak is a mountain in the Karakoram on the border of Pakistan and China, the twelfth-highest mountain in the world at 8,051 metres above sea level. It was first ascended in June 1957 by Fritz Wintersteller, Marcus Schmuck, Kurt Diemberger, and Hermann Buhl of an Austrian expedition.

INTRODUCING  
PART 1  
PNJR 6<sup>th</sup> Annual Report





## **Gasherbrum IV**

Gasherbrum IV, surveyed as K3, is the 17th highest mountain on Earth and the 6th highest in Pakistan. It is one of the peaks in the Gasherbrum massif. The Gasherbrums are a remote group of peaks located at the northeastern end of the Baltoro Glacier in the Karakoram range of the Himalaya.

Journey of  
AS and PNJR  
SECTION I







## Rakaposhi

Rakaposhi is a mountain in the Karakoram mountain range in the Gilgit-Baltistan territory of Pakistan. With its front side situated in the Bagrote valley, Nagar valley and danyor, about 100 km (62 mi) north of the city of Gilgit. It is ranked 27th-highest in the world. Rakaposhi is the only mountain in the world with more than 5,000 meters height between base camp and the summit; by contrast all of the other tallest mountains in the world have less than 5,000 meters from base camp to top.



## Broadening Partnerships with Health Registeries

PNJR has been setting the bar in many areas of registry development in the field of healthcare in Pakistan. Our partnership with health registry advisory board (HRAB) has led us to become leaders in the field in the country, Through this platform, we have partnered with multiple healthcare registries in the last 5 years.

We have introduced the concept of disease specific registries, emphasized the use of ICH-GCP guidelines in establishing and conducting health registries across the board as well as the culture of regularly updating and modifying data entry according to end user feedback mechanisms.

The next logical step for us now is to start formulating a governing body for all health care associated registries to ensure compliance to the highest standards by all steering committees and their registered investigator. This is as anticipated a daunting task since all registries currently operating under HRAB umbrella are voluntary and improving compliance is difficult. Yet our partnerships with other fields of medicine have enabled us to set an example and most other registry steering committees are in direct contact with us to broaden the partnership, Share technical knowledge in order to improve their data collection. We learn from our mistakes and successes and want to collaborate in every aspect. We are positive that these partnerships can lead to a unified drive to setting up a voluntary governing body for healthcare registries in Pakistan.

At some point in time when our successful model is robust enough to be self-sustainable, we envision that these registries become associated with local health authorities and become compulsory rather than voluntary. For this we will have to demonstrate a successful running model to the government which we shall achieve in the near future and hopefully in the upcoming issues of the PNJR annual report, we shall tell our readers how the PNJR has literally been the matchstick to light up the fire of national healthcare database collection.

Upgrades in Data Collection  
Model to address Data Completeness

## SECTION II





## Upgrades in Data Collection Model to address Data Completeness

The registry has constantly been subject to improvement with the passage of time. The most recent addition to the online CRF is introduction of option for entry of bilateral simultaneous joint arthroplasty. The users do not have to enter everything and the system retrieves the patients information for the second side automatically. The surgeon can then modify data entries to select the type of implant used and any other variables that needs to be changed.

Data entries are constantly monitored for completeness and cleanliness of data and a three monthly review is carried out. Users are informed about missing entries or erroneous data entries and the data is periodically modified. Data entry is being facilitated by the hiring of even more data collection officers. We have fully functional data collection teams who regularly collect paper based CRF's from hospitals across the country. Our main centers are

1. Karachi
2. Lahore
3. Islamabad/Rawalpindi
4. Peshawar

PI training for entering data is an ongoing process. Most of our original users are now very comfortable with the data entry interface. New users are constantly being trained to use the interface properly.

### Appendices:

1. Total Knee Arthroplasty CRF
2. Total Knee Arthroplasty Follow up Form
3. Total Hip Arthroplasty CRF
4. Total Hip Arthroplasty Follow up Form





## Saltoro Kangri

Saltoro Kangri, formerly known as Peak 36, is the highest peak of the Saltoro Mountains subrange of Karakoram range, also known as the Saltoro Range, which is a part of the Karakoram. Saltoro Kangri is a name generally used for the twin peaks, Saltoro Kangri I and Saltoro Kangri II.



PNJR No.....

**1. PATIENT DETAILS**

Surname ..... Given Names .....  
☐ Female ☐ Male DOB ..... Age .....  
 Weight.....(Kg) Height.....(Feet) BMI.....  
 Address ..... Post Code .....  
 CNIC # ..... Tel: ..... Mobile No: .....

**2. HOSPITAL & CONSULTANT DETAIL**

Hospital ..... Province.....  
 Consultant Surgeon.....Asst. Surgeon.....  
 Date of Admission ..... Date of Operation.....  
 Date of Discharge ..... Hosp Registration No.....

**3. PRE OPERATIVE DEFORMITY**

☐ Varus (degree)..... ☐ Recurvatum (degree).....  
☐ Valgus (degree)..... ☐ Extra articular deformity ☐ No ☐ Yes  
☐ FFD (degree)..... (Specify) .....

**4. PRE OPERATIVE RANGE OF MOTION**

☐ Extension (degree)..... ☐ Flexion (degree) .....

**5. COMORBIDITIES**

☐ DM ☐ Asthma ☐ HTN ☐ IHD ☐ CKD  
☐ Previous knee surgery ☐ Hepatitis Others .....

**6. AMBULATORY STATUS**

☐ Community Ambulator ☐ With support ☐ Without support  
☐ Home Ambulator ☐ With support ☐ Without support  
☐ Non Ambulator

**7. ANAESTHESIA DETAILS**

**ASA GRADE**

☐ 1 ☐ 2 ☐ 3 ☐ 4

**TYPE OF ANAESTHESIA**

☐ General  
☐ Spinal  
☐ Epidural  
☐ General + Epidural  
☐ Spinal + Epidural

**8. KNEE SOCIETY SCORE**

Knee Score (0 - 100) .....  
 Functional Score (0 - 100) .....

**9. DIAGNOSIS AND PROCEDURE DETAIL**

**Primary TKA**

☐ R ☐ L

**Diagnosis**

☐ Osteoarthritis  
☐ Secondary Osteoarthritis  
☐ Rheumatoid Arthritis  
☐ Other Inflammatory Arthritis  
☐ Osteonecrosis/Avascular Necrosis  
☐ Tumour (Specify) .....  
☐ Other (Specify) .....

**Revision TKA**

☐ R ☐ L

**Diagnosis**

☐ Aseptic Loosening ☐ Tibia ☐ Femur  
☐ Osteolysis ☐ Tibia ☐ Femur  
☐ Infection  
☐ Instability ☐ Anteroposterior ☐ Varus / Valgus ☐ Multi Planar  
☐ Periprosthetic Fracture  
☐ Femur ☐ Tibia ☐ Patella  
☐ Implant Breakage  
☐ Femur ☐ Tibia ☐ Patella  
☐ Previous Implant Used (Specify) .....

**10. SURGICAL DETAILS**

**INCISION**

☐ Midline (Standard)  
☐ Medial Parapatellar  
☐ MIS (midline/medial)

**TOURNIQUET**

☐ No ☐ Yes

**DRAIN**

☐ No ☐ Yes

**BONE GRAFT**

☐ No ☐ Yes

**CEMENTING TECHNIQUE**

☐ Vacuum mixing ☐ No ☐ Yes  
☐ Pulse lavage ☐ No ☐ Yes  
☐ Application of cement on implant (pre insert) ☐ No ☐ Yes

**APPROACHES**

☐ Medial Parapatellar  
☐ Sub Vastus  
☐ Mid vastus  
☐ Lateral Parapatellar  
☐ Quadriceps Snip  
☐ ETTO  
 Other .....

**11. ADVERSE INTRA OPERATIVE EVENT**

☐ No ☐ Yes

☐ Fracture ☐ Nerve Injury ☐ Patella Tendon Avulsion  
☐ Vascular Injury ☐ Ligament Injury Others .....

PNJR-Protocol V 1.0-Knee form-version# 2.0-Date: January 25th, 2014



PNJR No.....

**12. THROMBOPROPHYLAXIS**

**CHEMICAL**

☐ NO ☐ Yes

☐ LMWH ☐ Pentasaccharide ☐ Warfarin  
☐ Direct Thrombin Inhibitor ☐ Aspirin  
 Other .....

**MECHANICAL**

☐ NO ☐ Yes

☐ Foot Pump ☐ T.E.D Stocking  
☐ Intermittent Calf Compression  
 Other .....

**13. ANTIBIOTIC**

Generic	Route	Duration (Days)
1 .....	IV / Oral	.....
2 .....	IV / Oral	.....

**14. POST-OP PAIN MANAGEMENT**

☐ PCA (days)..... ☐ Epidural (days)..... ☐ Nerve Block (days).....  
☐ Intra-Op Local..... ☐ IV.....(days).....  
☐ IM.....(days)..... ☐ Oral.....(days).....

**15. CLINICAL & RADIOLOGICAL IMAGE**

☐ Clinical Image ☐ Radiological Image

**16. IMPLANT DETAILS**

**IMPLANT DESIGN**

☐ CR ☐ PS ☐ Fixed Bearing ☐ Mobile Bearing  
☐ High Flex ☐ CCK ☐ RHK ☐ LPS  
☐ Metaphyseal Sleeve ☐ Trabecular Metal Cone

**A - FEMORAL COMPONENT**

☐ NONE ☐ FEMORAL ☐ STEM

Company ..... Prosthesis Name.....  
 Cat/Ref #..... Cat/Ref #.....  
 Size ..... Size .....

**FEMORAL AUGMENTS** (Complete details by marking boxes) ☐ No ☐ Yes

☐ Distal femoral ☐ Medial ☐ Lateral  
☐ Posterior condyle ☐ Medial ☐ Lateral

**FEMORAL CEMENT:** ☐ No ☐ Yes

CEMENT NAME: .....

**B - TIBIAL COMPONENTS**

(Mark relevant box, place company labels or complete details by hand)

☐ NONE ☐ All POLY ☐ BASE PLATE ☐ INSERT ☐ STEM

Company ..... Company .....  
 Prosthesis Name..... Prosthesis Name.....  
 Cat/Ref #..... Cat/Ref #.....  
 Size ..... Size .....

**TIBIAL CEMENT:** ☐ No ☐ Yes

CEMENT NAME: .....

**TIBIAL AUGMENTS**

☐ Step Wedge ☐ Medial ☐ Lateral ☐ Full  
☐ Hemi Wedges ☐ Medial ☐ Lateral ☐ Full  
☐ Screws ☐ No ☐ Yes Number.....

**C - PATELLA COMPONENT**

☐ No ☐ Yes

Company ..... Prosthesis Name.....  
 Cat/Ref #..... Size .....

**PATELLA CEMENT:** ☐ No ☐ Yes

CEMENT NAME: .....

**17. COMPUTER ASSISTED**

☐ No ☐ Yes

System Used .....

**18. POST-OP REHABILITATION PROTOCOL**

☐ Full weight bearing ☐ Non weight bearing

Knee Range of motion started at day .....

☐ CPM used ☐ No ☐ Yes Days from \_\_\_\_\_ to \_\_\_\_\_

Completed by: ..... Date .....

Signature: .....

PNJR-Protocol V 1.0-Knee form-version# 2.0-Date: January 25th, 2014



Date:...../...../.....

## KNEE FOLLOW-UP FORM

### PATIENT DETAILS

PNJR No.....

Surname..... Given Name..... CNIC #.....

Tel / Cell #..... Hospital..... Surgeon.....

Date of Surgery..... TKR (L/R)..... Hospital Reg. #.....

### FOLLOW-UP VISIT

- |                                   |                                  |                                   |                                   |
|-----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> 2 Weeks  | <input type="checkbox"/> 6 Weeks | <input type="checkbox"/> 3 Months | <input type="checkbox"/> 6 Months |
| <input type="checkbox"/> 1 Year   | <input type="checkbox"/> 5 Years | <input type="checkbox"/> 10 Years | <input type="checkbox"/> 15 Years |
| <input type="checkbox"/> 20 Years | Others.....                      |                                   |                                   |

FUNCTIONAL SCORE ( 0-100).....

KNEE SOCIETY SCORE ( 0-100).....

### COMPLICATIONS

- |   |                                    |                                 |
|---|------------------------------------|---------------------------------|
| <input type="checkbox"/> Hematoma         | <input type="checkbox"/> DVT       | <input type="checkbox"/> PE     |
| <input type="checkbox"/> Nerve Palsy      | <input type="checkbox"/> Fracture  | <input type="checkbox"/> Others |
| <input type="checkbox"/> Wound Dehiscence | <input type="checkbox"/> Infection |                                 |

Surgeon Comments.....

.....

.....

Completed by:.....

Signature: .....



PNJR No.....

**1. PATIENT DETAILS**

Surname ..... Given Names .....  
☐ Female ☐ Male DOB ..... Age .....  
 Weight..... (Kg) Height..... (Feet) BMI.....  
 Address ..... Post Code .....  
 CNIC # ..... Tel: ..... Mobile No: .....

**2. HOSPITAL & CONSULTANT DETAIL**

Hospital ..... Province.....  
 Consultant Surgeon...../Asst. Surgeon.....  
 Date of Admission ..... Date of Operation.....  
 Date of Discharge ..... Hosp Registration No.....

**3. PRE OPERATIVE DEFORMITY**

☐ Fixed flexion deformity (degree) .....  
☐ Abduction deformity (degree) .....  
☐ Adduction deformity (degree) .....  
 Ankylosis ☐ No ☐ Yes

**4. PRE OPERATIVE RANGE OF MOTION**

☐ Flexion (degree) ..... ☐ Extension (degree) .....  
☐ Abduction (degree) ..... ☐ Adduction (degree) .....  
☐ Internal Rotation (degree) ..... ☐ External Rotation (degree) .....

**5. COMORBIDITIES**

☐ DM ☐ Asthma ☐ HTN ☐ IHD ☐ CKD  
☐ Previous hip surgery ☐ Hepatitis Others .....

**6. AMBULATORY STATUS**

☐ Community Ambulator ☐ With support ☐ Without support  
☐ Home Ambulator ☐ With support ☐ Without support  
☐ Non Ambulator

**7. HARRIS HIP SCORE**

(0 - 100) .....

**8. CLINICAL & RADIOLOGICAL IMAGE**

☐ Clinical Image ☐ Radiological Image

**9. DIAGNOSIS AND PROCEDURE DETAIL**

**Primary THA**

☐ R ☐ L  
**Diagnosis**  
☐ Osteoarthritis  
☐ Secondary Osteoarthritis  
☐ Rheumatoid Arthritis  
☐ Other Inflammatory Arthritis  
☐ Osteonecrosis/Avascular Necrosis  
☐ Tumour (Specify) .....  
 Other (Specify) .....

**Revision THA**

☐ R ☐ L  
**Diagnosis**  
☐ Osteolysis ☐ Infection  
☐ Instability ☐ Dislocation  
☐ Aseptic Loosening  
☐ Acetabulum ☐ Femur  
☐ Periprosthetic Fracture  
☐ Implant Breakage  
☐ Acetabulum ☐ Femur  
☐ Previous Implant Used (Specify) .....

**10. ANAESTHESIA DETAILS**

**ASA GRADE**

☐ 1 ☐ 2 ☐ 3 ☐ 4

**11. SURGICAL DETAILS**

**POSITION**

☐ Supine  
☐ Lateral

**INCISION**

☐ Standard  
☐ MIS

**DRAIN** ☐ No ☐ Yes

**BONE GRAFT** ☐ No ☐ Yes

**TYPE OF ANAESTHESIA**

☐ General ☐ Spinal ☐ Epidural  
☐ General + Epidural  
☐ Spinal + Epidural

**APPROACHES**

☐ Extended Trochanteric Osteotomy  
☐ Extensile Approach  
☐ Anterior (Smith Peterson)  
☐ Anterolateral (Watson Jones)  
☐ Lateral (Hardinge)  
☐ Posterior (Southern)

**12. ADVERSE INTRA OPERATIVE EVENT**

☐ Fracture ☐ Nerve Injury  
☐ Vascular Injury ☐ Abductor avulsion injury Others .....

**13. THROMBOPROPHYLAXIS**

**CHEMICAL** ☐ NO ☐ YES

☐ LMWH ☐ Pentasaccharide ☐ Warfarin  
☐ Direct Thrombin Inhibitor ☐ Aspirin  
 Other .....

**MECHANICAL** ☐ NO ☐ YES

☐ Foot Pump ☐ T.E.D Stocking  
☐ Intermittent Calf Compression  
 Other .....



PNJR No.....

**14. ANTIBIOTIC**

Generic	Route	Duration (Days)
1 .....	IV / Oral	.....
2 .....	IV / Oral	.....

**15. POST-OP PAIN MANAGEMENT**

☐ PCA (days)..... ☐ Epidural (days)..... ☐ Nerve Block (days).....  
☐ Intra-Op Local ..... ☐ IV ..... (days).....  
☐ IM ..... (days)..... ☐ Oral ..... (days).....

**16. IMPLANT DETAILS**

**IMPLANT DESIGN**

☐ All Cement ☐ Hybrid ☐ Uncemented ☐ Resurfacing ☐ Dual Mobility

**HEAD SIZE**

☐ 22 ☐ 28 ☐ 32 ☐ 36 ☐ Large head

**BEARING SURFACE**

☐ Metal on poly ☐ Metal on crosslink poly ☐ Ceramic on poly ☐ Dual Mobility  
☐ Ceramic on ceramic ☐ Metal on metal ☐ Ceramic on crosslink poly

**CEMENTED CUP**

☐ All poly ☐ Long posterior wall ☐ Constrained ☐ Dual Mobility

**CEMENTED FEMORAL COMPONENT**

☐ Modularity ☐ Non modular ☐ Modular  
☐ Collar ☐ Collared ☐ Collar less  
☐ Surface ☐ Smooth ☐ Coated  
☐ Shape ☐ Straight ☐ Double tapered ☐ Flanged

**CEMENTING TECHNIQUE**

☐ Vacuum mixing ☐ Cement restrictor ☐ Stem centralizer  
☐ Pulse lavage ☐ Cement gun ☐ Proximal pressurizer

**UNCEMENTED CUP**

☐ Hemisphere ☐ Porous coated ☐ HA coated ☐ With spikes ☐ Dual Mobility  
☐ Double cup ☐ Jumbo cup ☐ Screw ☐ No ☐ Yes No. ....

**UNCEMENTED FEMORAL COMPONENT**

☐ Press fit ☐ Porous coated ☐ HA coated ☐ Plasma coated  
☐ Wagner ☐ Modular ☐ Fiber metal mesh ☐ Small stem

**ACCESSORIES COMPONENT**

☐ Reconstruction ring ☐ Burch-Schneider cage  
☐ Greater trochanteric grip ☐ Cable ☐ Wire  
☐ Trabecular metal augment Others.....

**A - FEMORAL HEAD COMPONENT**

☐ No ☐ Yes  
 Company .....  
 Prosthesis Name.....  
 Cat/Ref #..... Size .....

**A - FEMORAL STEM COMPONENT**

☐ No ☐ Yes  
 Company .....  
 Prosthesis Name.....  
 Cat/Ref #..... Size .....

**FEMORAL CEMENT:** ☐ No ☐ Yes

CEMENT NAME: .....

**B - ACETABULUM COMPONENTS**

☐ No ☐ Yes  
 Company .....  
 Prosthesis Name.....  
 Cat/Ref #..... Size .....

**ACETABULUM CEMENT:** ☐ No ☐ Yes

CEMENT NAME: .....

**17. COMPUTER ASSISTED**

☐ No ☐ Yes System Used .....

**18. POST-OP REHABILITATION PROTOCOL**

☐ Non weight bearing ☐ Full weight bearing ☐ Death.....

Completed by: ..... Date .....

Signature: .....



Date:...../...../.....

## HIP FOLLOW-UP FORM

### PATIENT DETAILS

PNJR No.....

Surname..... Given Name..... CNIC #.....

Tel / Cell #..... Hospital..... Surgeon.....

Date of Surgery..... THR (L/R)..... Hospital Reg. #.....

### FOLLOW-UP VISIT

- |                                   |                                  |                                   |                                   |
|-----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> 2 Weeks  | <input type="checkbox"/> 6 Weeks | <input type="checkbox"/> 3 Months | <input type="checkbox"/> 6 Months |
| <input type="checkbox"/> 1 Year   | <input type="checkbox"/> 5 Years | <input type="checkbox"/> 10 Years | <input type="checkbox"/> 15 Years |
| <input type="checkbox"/> 20 Years | Others.....                      |                                   |                                   |

HARRIS HIP SCORE ( 0-100).....

### COMPLICATIONS

- |                                      |   |                                    |
|--------------------------------------|---|------------------------------------|
| <input type="checkbox"/> Hematoma    | <input type="checkbox"/> Wound Dehiscence | <input type="checkbox"/> Infection |
| <input type="checkbox"/> Dislocation | <input type="checkbox"/> DVT              | <input type="checkbox"/> PE        |
| <input type="checkbox"/> Nerve Palsy | <input type="checkbox"/> Fracture         | <input type="checkbox"/> Others    |

Surgeon Comments.....

.....

.....

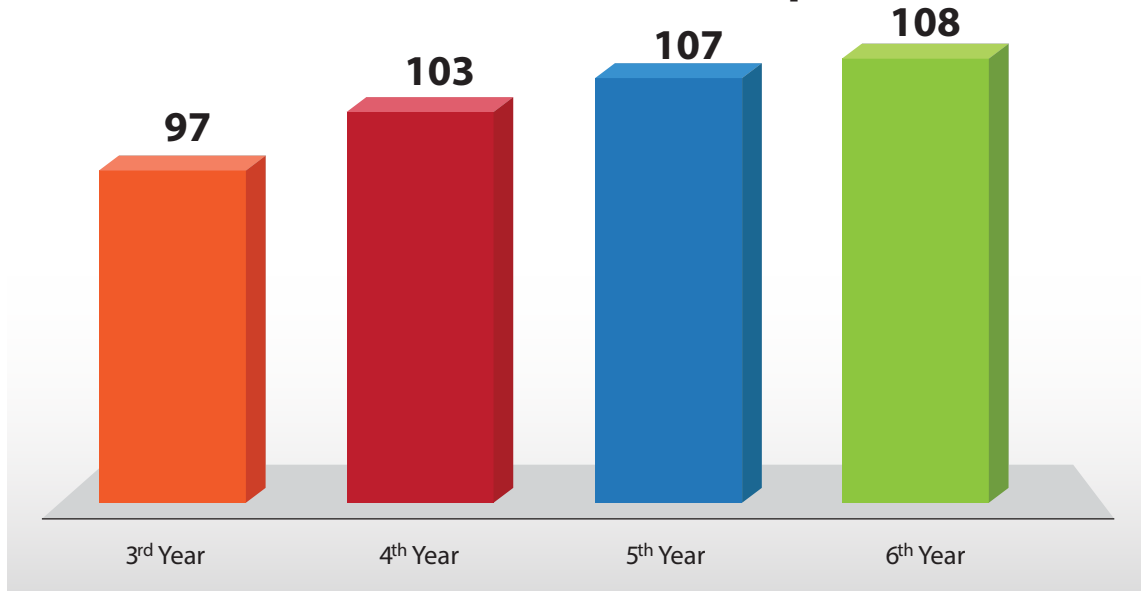
Completed by:.....

Signature: .....

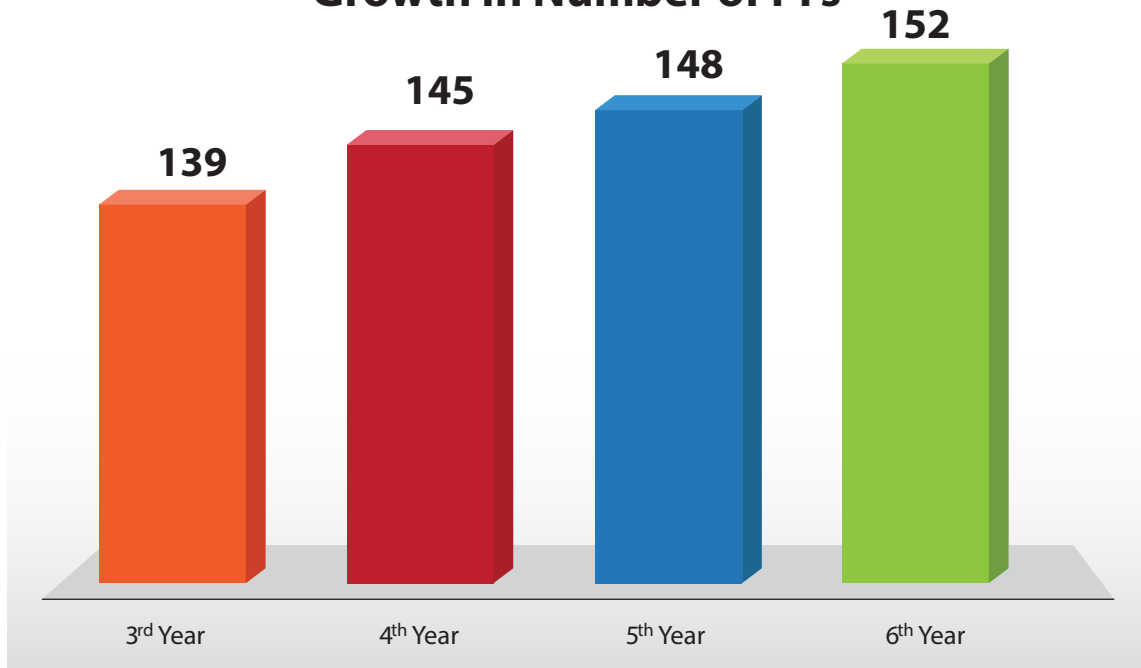


### Upgrades in the Data Collection

**Growth in Number of Hospitals**



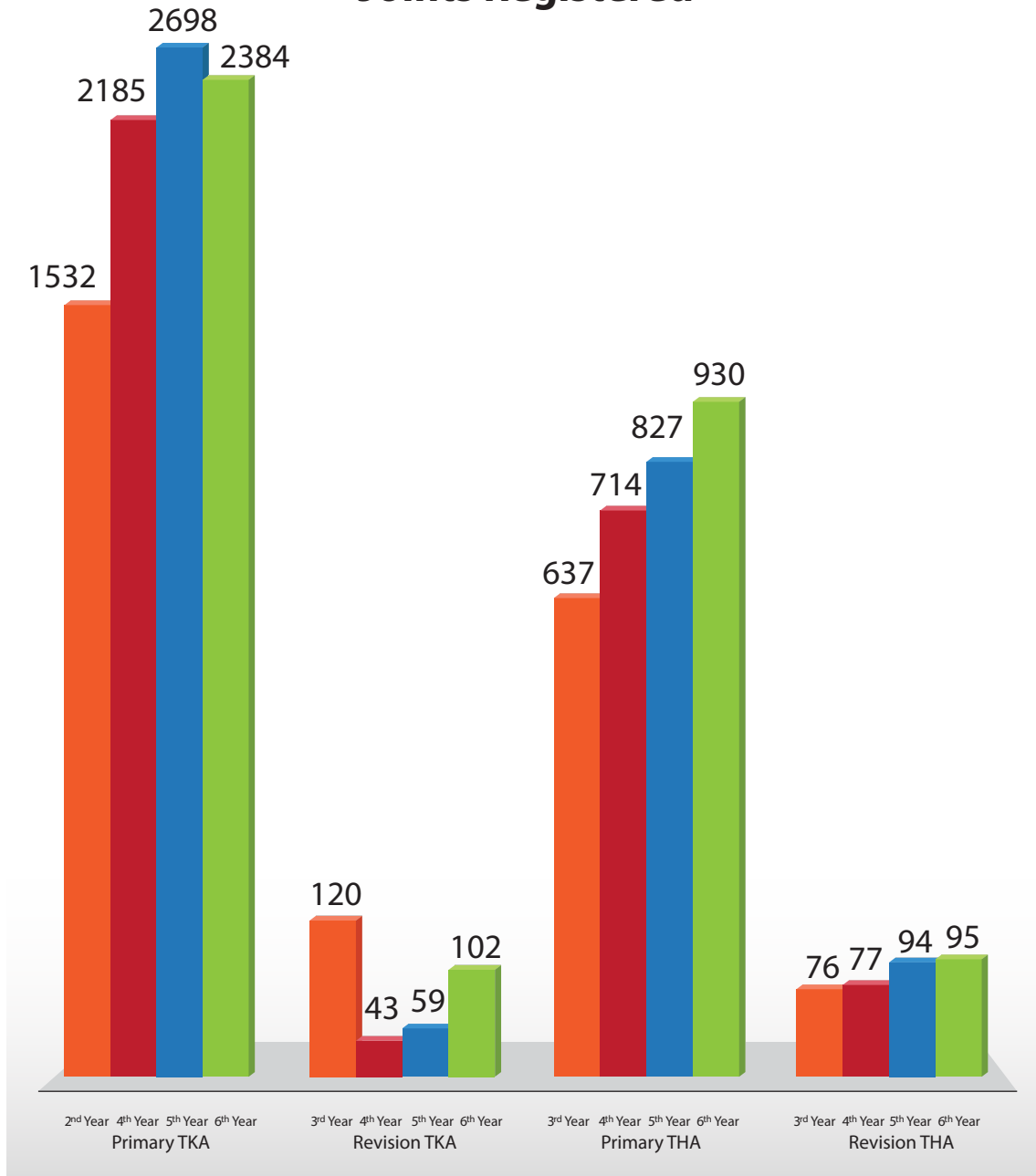
**Growth in Number of PI's**





## Upgrades in the Data Collection

**Growth in Total Number of Joints Registered**



PNJR Clinical  
Coordinator Network  
SECTION III







## **Masherbrum**

Masherbrum is a mountain located in the Ghanche District, Gilgit Baltistan, Pakistan. At 7,821 metres, it is the 22nd highest mountain in the world and the 9th highest in Pakistan. It was the first mapped peak in the Karakoram mountain range, hence the designation "K1".



## PNJR Clinical Coordinator Network

"Metrics Research Pvt. Ltd. is a reputed Clinical Research Organization established since 2003, providing Clinical Research Services to well recognized medical societies, hospitals, pharmaceutical and clinical research companies all across the globe. Metrics Research specializes in Clinical Registries, Surveillance studies, Statistical analysis through SPSS and SAS with professional writings, Phase Trials from Phase I to Phase IV and as well as Bio-Equivalence Studies.

Metrics have highly qualified, trained and experienced clinical research professionals for the execution of services that they offer to their respective clients. Metrics Research took PNJR registry as a challenge and with the experience and qualified professional including CRA's, Coordinator and Medical writers made this dream true. Metrics Research is responsible for training of new PI or Co-PI, Data entry facilitators and Also responsible for the monitoring of data. Metrics Research experienced and qualified medical writers are involved in data analysis and annual report writing as per international guide lines."

### Supporting Team

#### Muhammad Asim

Lead Developer and  
PNJR Application Manager



#### Ms. Yasmeen Fazal

CRC Team Lead



### Team Members

#### Dr. Kamlesh

Supporting Team  
Consultant Anaesthetist  
Surgical ICU Civil Hospital Karachi



#### Mr. Faisal Farooq

Supporting Team



#### Mr. Ali Hyder Qureshi

Supporting Team



#### Mr. Naeem Khan

Supporting Team



PNJR  
Partnership with HRAB  
SECTION IV





## PNJR Partnership with HRAB

**Health Research Advisory Board (HealthRAB)** a registered society, is a “think tank” of senior clinicians, researchers & academicians who are committed to the mission of HealthRAB which is to **“Develop the Research Ecosystem of Pakistan”**.

### The main objectives of HealthRAB are to:

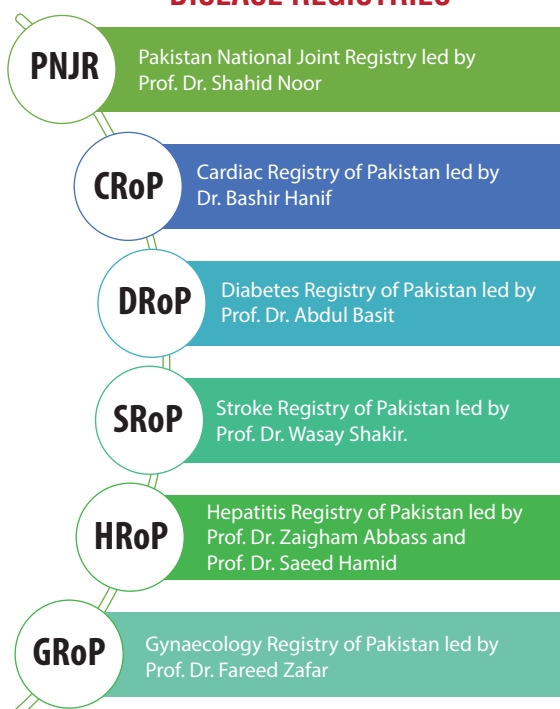
- Provide leadership for developing the medical research ecosystem of Pakistan
- Create synergy among the existing stakeholders and bring them together
- Build capacity of the healthcare professionals involved in conducting research
- Collaborate & network locally as well as globally to initiate research activities
- Facilitate the development and implementation of a national research policy

### Leadership:

- |                                 |                             |
|---------------------------------|-----------------------------|
| • Prof. Dr. Abdul Gaffar Billoo | Chairman                    |
| • Prof. Dr. Abdul Basit         | Vice Chairman               |
| • Dr. Zakiuddin Ahmed           | General Secretary           |
| • Prof. Syed Shahid Noor        | Chairman Registry Committee |

Projects & Activities:	
1	Online Research Course (ORC).
2	Research Reference Guide (RRG).
3	Research Assembly (RA).
4	National Research Policy Document.
5	Disease Registries.
6	MLS, RM and SPSS Workshops.
7	Research Webinars.
8	Clinical Research Center Workshop (CRC).
9	Student Chapters.
10	Research Fund (RF).

### DISEASE REGISTRIES







## PNJR Partnership with HRAB



1<sup>st</sup> Research Excellence Award at CardioCon 2016 at Hotel Serena, Faisalabad on 25<sup>th</sup> -27<sup>th</sup> Nov, 16.



Poster Competition at 11<sup>th</sup> SAFOG Conference at Lahore on 17<sup>th</sup> – 19<sup>th</sup> March, 2017.



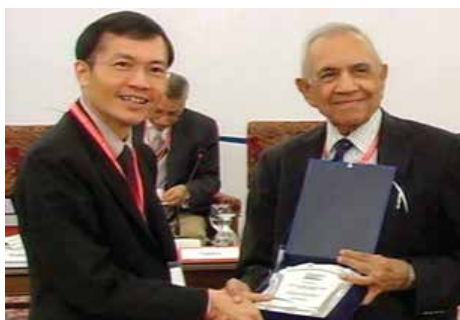
Clinical Research Center Workshop (CRCs) at Mohtarma Benazir Bhutto Medical College.



Joint Technical Working Group for Medical Research Activities



Webinar by Prof. Dr. Syed Shahid Noor held on 4<sup>th</sup> March, 17.



Prof. Dr. Abdul Ghaffar Billoo presenting shield to Prof. Dr. Lawrence



HealthRAB's Board Meeting



1<sup>st</sup> International Medical Research Conference - IMRC

PNJR  
Stake Holders Network  
SECTION V





## PNJR Stake Holders Network

Pakistan National Joint Registry could not have been formed without the commitments of its valuable stake holders. Each stake holder support and cooperation has enabled us to achieve our 1st year targets. There are number of stake holders but the following few are most significant:

The board and members of Pakistan Arthroplasty Society take full ownership of PNJR project and have extended their extensive human and financial resources for the realization of this project. All financial funding for PNJR is exclusively supported by PAS.

Patients are at the center of all we do. Without the contribution of our patients, we would not have achieved this 1st annual report. We believe that their contribution will take us to newer heights in scientific research to benefit the masses in general. PNJR steering committee extends their thanks to all those patients who have contributed to this first annual report.

### Metrics Research Pvt. Ltd

Metrics Research took this project as a challenge and devotedly provided its services in designing of protocol, CRF, ICF, data entry and data analysis. The experienced trained team members assisted PNJR in every step of development and publication

### Collage Solutions

Collage Solutions with an extensive knowledge and experience in data management, EDC, eCRF, CTMS design and development provided the expertise to develop PNJR registry database. These provide services

from data management, data tracking, data backup and cleaning to complete audit trails, reports/graph generation, dataset building for SAS/SPSS analysis. They also help in resolving technical site issues and provide training and support to maintain "Data Quality".

Institutes are the back bone of any clinical research activity. All our registered hospitals are supporting us in providing: access to patient data, logistics for data entry, utilities and use of their valuable and reputable name.

### Karachi

1. Liaquat National Hospital & Medical College
2. The Aga Khan University and Hospital
3. The Indus Hospital
4. Institute of Orthopaedic & Surgery
5. Ziauddin University and Hospital Clifton
6. Jinnah Postgraduate Medical Centre
7. Civil Hospital, Dow University of Health Sciences
8. Abbasi Shaheed Hospital
9. Dow International Medical College, DUHS
10. Medicare Cardiac & General Hospital
11. South City Hospital
12. AO Clinic
13. Ashfaq Memorial Hospital
14. Combined Military Hospital
15. Darul Sehat Hospital
16. National Medical Center
17. Orthopaedic & Medical Institute OMI
18. Fatimiyah Hospital
19. Hamdard Hospital
20. TO Clinic
21. Hill Park General Hospital
22. Jinnah Medical & Dental Hospital
23. KPT Hospital
24. Ankle Saria Hospital
25. Mamji Hospital
26. Burhani Hospital
27. Memon Medical Institute Hospital
28. Neurospinal & Cancer Care Institute
29. Park Lane Hospital



## PNJR Stake Holders Network

30. Patel Hospital
31. PNS Shifa – Bahria University Medical & Dental College
32. Saifee Hospital
33. Karachi Adventist Hospital (7th Day Hospital)
34. Zubaida Medical Centre
35. The SNBB Truma Centre
36. Imam Clinic
37. Lyari General Hospital
38. Aiwan-e-Tijarat-o-Sanat Hospital Trust
39. Dr. Ziauddin Hospital (North)
40. Chiniot Hospital Korangi

### Hyderabad

41. Bone and Joints Hospital
42. LUMHS Hospital Jamshoro

### Larkana

43. Chandka Medical College & Shaheed Benazir Bhutto Medical Institute

### Nawabshah

44. Nawabshah Medical College & Hospital
45. Shafique Medical Center
46. Mastoi Medicare

### Sukkur

47. Bhatti Hospital
48. Sukkur Blood Bank Hospital
49. Gambat Pir Abdul Qadir Shah Jilani Institute of Medical Sciences

### Lahore

50. Ghurki Trust Teaching Hospital
51. King Edward Medical University (KEMU)
52. Combine Military Hospital
53. Doctors Hospital
54. Shalamar Medical College
55. Jinnah Hospital
56. Allama Iqbal Medical College
57. Lahore General Hospital

58. Sheikh Zayed Hospital
59. Shoukat Khanum Hospital
60. Services Institute of Medical Sciences (SIMS)
61. Horizon Hospital
62. Sir Ganga Ram Hospital
63. Masood Hospital
64. Govt. Nawaz Sharif Hospital
65. Family Hospital
66. Mid City Hospital Jail Road
67. National Hospital Defence Lahore
68. Services Hospital
69. Wapda Teaching Hospital
70. Wah Medical College & POF Hospital

### Islamabad / Rawalpindi

71. Shifa International Hospital
72. Quaid-e-Azam International Hospital
73. Combined Military Hospital
74. Shaheed Zulfikar Ali Bhutto Medical University
75. Kulsum International Hospital
76. Ali Medical Centre
77. Maroof International
78. NESCOM Hospital
79. KRL Hospital
80. Benazir Bhutto Hospital
81. Capital Hospital
82. DHQ Hospital
83. Fauji Foundation Hospital
84. National Institute of Rehabilitation Medicine
85. OGDCL Medical Centre
86. Rawalpindi Medical College

### Multan

87. Nishtar Medical College & Hospital
88. Combined Military Hospital
89. Fatima Medical Center

### Bahawalpur

90. Bahawal Victoria Hospital
91. Cheema Hospital

### Faisalabad

92. Allied Hospital







## PNJR Stake Holders Network

### Gujranwala

- 93. Chattha Hospital
- 94. District Head Quarter Hospital
- 95. Med Care Hospital

### Sialkot

- 96. Combined Military Hospital

### Kharian

- 97. Combined Military Hospital

### Rahim Yar Khan

- 98. Sheikh Zayed Medical College and Hospital

### Peshawar

- 99. Hayatabad Medical Complex
- 100. Khyber Teaching Hospital
- 101. North West General Hospital, Hayatabad
- 102. Rehman Medical Institute
- 103. Aman Hospital, Civil Quarters

### Abbottabad

- 104. Ayub Medical College

### Quetta

- 105. Bolan Medical College
- 106. Doctors Hospital
- 107. Akram Hospital

## V Principal Investigators

Surgeons who strive hard to enter the data and keep the registry ticking are what keeps this registry alive. Following is the list of our registered investigators.

### Karachi

1. Prof. Syed Shahid Noor
2. Prof. Muhammad Umar
3. Prof. Zaki Idrees
4. Prof. Muhammad Amin Chinoy
5. Prof. Mansoor Ali Khan
6. Prof. Anisuddin Bhatti
7. Prof. Maratib Ali
8. Prof. Pervez Anjum
9. Prof. Intikhab Taufiq
10. Prof. Imtiaz Ahmed Hashmi
11. Prof. Syed Kamran Ahmad
12. Prof. Ghulam Mustafa Kaim Khani
13. Prof. Asif Qureshi
14. Prof. A R Jamali
15. Dr. Masood Umer
16. Dr. Riaz Hussain Lakdawala
17. Dr. Pervaiz Hashmi
18. Dr. Sharyar Noordin
19. Dr. Mujahid Jamil
20. Dr. Nasir Ahmad
21. Dr. Aslam Pervez
22. Dr. Imran Ali Shah
23. Dr. Sohail Rafi
24. Dr. Tashfeen Ahmed
25. Dr. M. Ather Siddiqi
26. Dr. M. Asif Peracha
27. Dr. Syed Amir Ali Shah
28. Dr. S. Ghazanfar Ali Shah
29. Dr. M. Kazim R. Najjad
30. Dr. Muhammad Sufyan
31. Dr. Arshad Qamar
32. Dr. Idrees Shah
33. Dr. Farooq Mamji
34. Dr. Iqbal Malik
35. Dr. Syed Itaat Zaidi
36. Dr. Syed Muhammad Khalid Karim



## PNJR Stake Holders Network

- 37. Dr. Lt. Col Waris Ali Shah
- 38. Dr. Lt. Col Syed Faraz Anwar
- 39. Dr. Mirza Mohsin Ali Jah
- 40. Dr. Jagdesh Kumar
- 41. Dr. Arshad Jamil
- 42. Dr. Akram M. Aliuddin
- 43. Dr. Syed Danish Ali
- 44. Dr. Sabih Nasar

### Hyderabad

- 45. Dr. Rais Parvaiz

### Larkana

- 46. Prof. Asadullah Mahar
- 47. Dr. Zamir Soomro
- 48. Dr. Azizullah Bhayo
- 49. Dr. Abdul Malik Shaikh

### Nawabshah

- 50. Prof. Zulfiqar Ali Mastoi
- 51. Dr. Saeed Samo

### Sukkur

- 52. Prof. Anisuddin Bhatti
- 53. Dr. Zulfiqar Ali Soomro
- 54. Dr. Sohail Jokhyo

### Lahore

- 55. Prof. Ghazanfar Ali Shah
- 56. Prof. Amer Aziz
- 57. Prof. S. Muhammad Awais
- 58. Prof. Abu Bakar Siddiq
- 59. Prof. Rana Dilawaiz Nadeem
- 60. Brig. Prof. Sohail Amin
- 61. Prof. Muhammad Abdul Wajid
- 62. Prof. Naeem Ahmed
- 63. Prof. Shahzad Javed
- 64. Prof. Irfan Mehboob
- 65. Prof. Yawar Anis

- 66. Prof. Shafique Ahmad Shafaq
- 67. Prof. Rana M. Arshad
- 68. Prof. Ali Raza Hashmi
- 69. Prof. Tahseen Riaz
- 70. Dr. Ahsan Shamim
- 71. Dr. Mian Muhammad Hanif
- 72. Dr. Faisal Qamar
- 73. Dr. Syed Kashif Mehdi
- 74. Dr. Sher Afgan
- 75. Dr. Rizwan Akram
- 76. Dr. Muhammad Naveed
- 77. Dr. Muhammad Akhtar Malik
- 78. Dr. Mohammad Fahim Iqbal
- 79. Dr. Khurram Sadat
- 80. Dr. Javed Iqbal
- 81. Dr. Ijaz Ahmad
- 82. Dr. Faisal Masood
- 83. Dr. Atiquz Zaman
- 84. Dr. Abdullah Shah
- 85. Dr. Rashid

### Islamabad / Rawalpindi

- 86. Prof. Maj. Gen. Sohail Hafeez
- 87. Prof. Khalid Aslam
- 88. Prof. Riaz Ahmed Shaikh
- 89. Prof. Nayyar Qayyum
- 90. Prof. Muhammad Salim
- 91. Brig. Dr. Syed Arsalan Haider Bukhari
- 92. Dr. Aamir Nabi Nur
- 93. Dr. Farid Ullah Khan Zimri
- 94. Dr. Irfan Masood
- 95. Dr. Syed Shujaat Ali Shah
- 96. Dr. Shaheen Iqbal
- 97. Dr. Sajjad Orakzai
- 98. Dr. Rizwan Hameed Malik
- 99. Dr. Riffat Mehmood
- 100. Dr. Nouman Maqbool
- 101. Dr. Moghees Ikram Ameen
- 102. Dr. Ali Shami
- 103. Dr. Ali Khokhar
- 104. Dr. Ali Akhter



## PNJR Stake Holders Network

- 105. Dr. Abidullah Khan Niazi
- 106. Dr. Obaid-ur-rehman
- 107. Dr. Asim Niaz Naqvi
- 108. Dr. Abdul Basit
- 109. Dr. Syed Sajid Hussain
- 110. Dr. Faheem Khan

### Multan

- 111. Dr. Khalil Ahmed Gill
- 112. Dr. Col. Sohail Muzammil
- 113. Dr. Mohammad Kamran Siddiqi
- 114. Dr. Muhammad Jehangir Riaz

### Bahawalpur

- 115. Prof. Tehseen Cheema
- 116. Prof. Rafiq Sabir
- 117. Dr. Hafiz Muhammad Akram

### Faisalabad

- 118. Prof. Ajmal Yasin
- 119. Dr. Khurram Habib

### Gujranwala

- 120. Dr. Hafiz Ahmad Fayyaz
- 121. Dr. Ahmed Masood Ghumman
- 122. Dr. Faisal Iqbal Chaudhry

### Sialkot

- 123. Dr. Shahid Munir

### Kharian

- 124. Dr. Nisar Ahmed

### Rahim Yar Khan

- 125. Prof. Muhammad Azeem
- 126. Dr. Abdul Rauf Chaudhry

### Peshawar

- 127. Prof. Zafar Durrani
- 128. Prof. Muhammad Arif Khan
- 129. Prof. Zahid Askar
- 130. Prof. Raja Irfan Qadir
- 131. Prof. Khushnood Ali Baz
- 132. Prof. Malik Javed
- 133. Prof. Ayaz Khan
- 134. Dr. Zeeshan Khan
- 135. Dr. Syed Imran Bukhari
- 136. Dr. Israr Ahmad
- 137. Dr. Ghulam Atiq
- 138. Dr. Awal Hakeem
- 139. Dr. Waseem Anwer

### Abbottabad

- 140. Dr. Alamzeb Khan

### Quetta

- 141. Prof. Qazi Masood
- 142. Dr. Saleh Muhammad Tareen
- 143. Dr. Muhammad Baksh Shahwani
- 144. Dr. Attiq Ur Rehman
- 145. Dr. M. Tariq Hasni



## PNJR Stake Holders Network

### Implant Suppliers



Consolidating Performance  
and Compliance  
**SECTION VI**







## Consolidating Performance and Compliance

We are proud of our achievements over the past 6 years. PNJR has been the jewel of our eyes and seeing it prosper and grow is very near and dear to the founding members of PAS and PNJR. Nevertheless, It is easy to become complacent and we shall lost on what has been achieved in a very short span of time. Therefore, we have started focusing on sustainability. We are taking the following steps in training and development to make this registry self sustainable.

In future, the steering committee has the following vision for the growth of the PNJR.

1. Leadership training. We are training the next generation of arthroplasty surgeons to take up leadership roles in PAS and PNJR steering committee. Change of leadership is inevitable and the earlier the new leaders are identified, the sooner they can be groomed to take up leading positions and continue the good work set up by the ofunding members.

2. Data entry and quality management. Automated enrty of implant data using bar code readers is established in high volume centers. Automatically generated performace reports on quarterly basis are issued to users and the steering committee on as need basis for monitoring and quality assurance. We have a quality control and monitoring cell. With the ever increasing number of users, and upgradation of the registry. A monitoring unit is essential to ensure that the data being entered is of sufficient quality to merit analysis. Without this we believe that the registry will cease to have scientific value over time

3. Elevating the status of PNR to a compulsory national register. Currently we are a voluntary register. The next step is to get a government approval for conversion of this registry to a national government run and funded compulsory register. This will elevate not the only status but the credibility of the data and we would then truly represent all joint surgeons in Pakistan. As mentioned before, we envision to establish a governing body. This will enable us in making not only PNJR but also other healthcare registries compulsory so that we can produce credible national data on disease prevalence, treatment modalities and patient outcomes.

We sincerely hope and pray that our concerted effort continues to bear fruit in the future and help develop the culture of research and innovation in the country that we originally planned for.

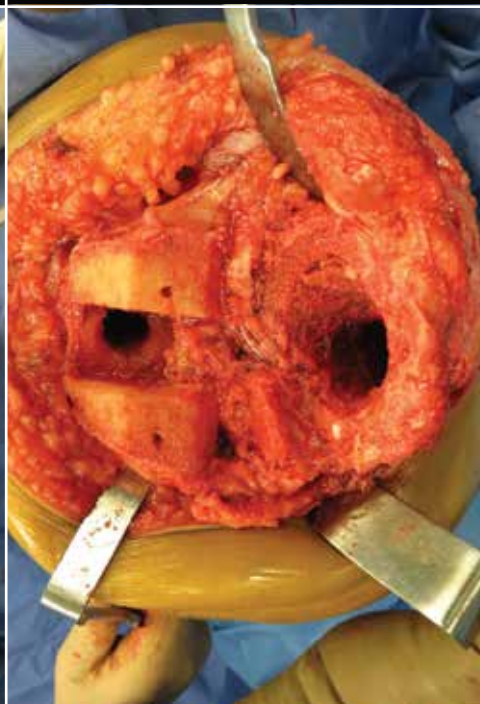
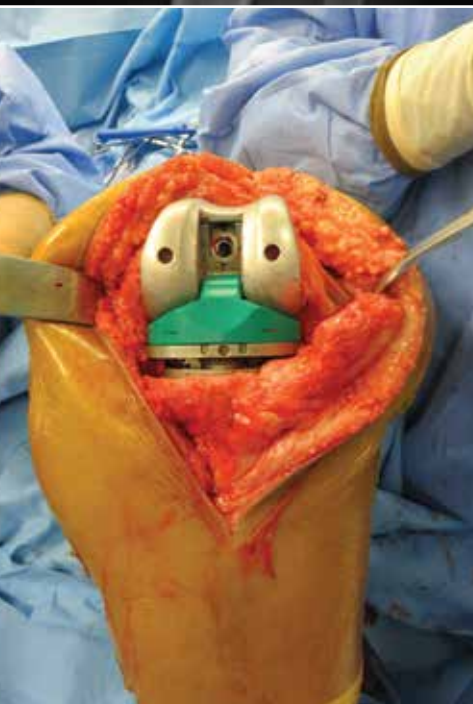




Data Analysis and Reporting  
**PART 2**  
PNJR 7<sup>th</sup> Annual Report

Primary  
Total Knee Arthroplasty  
SECTION I



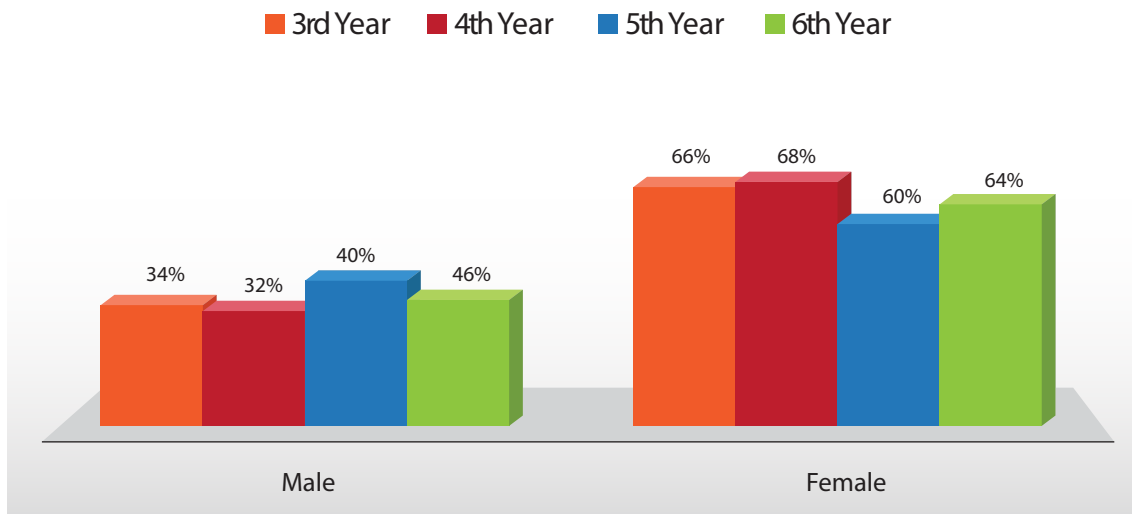


## SECTION I

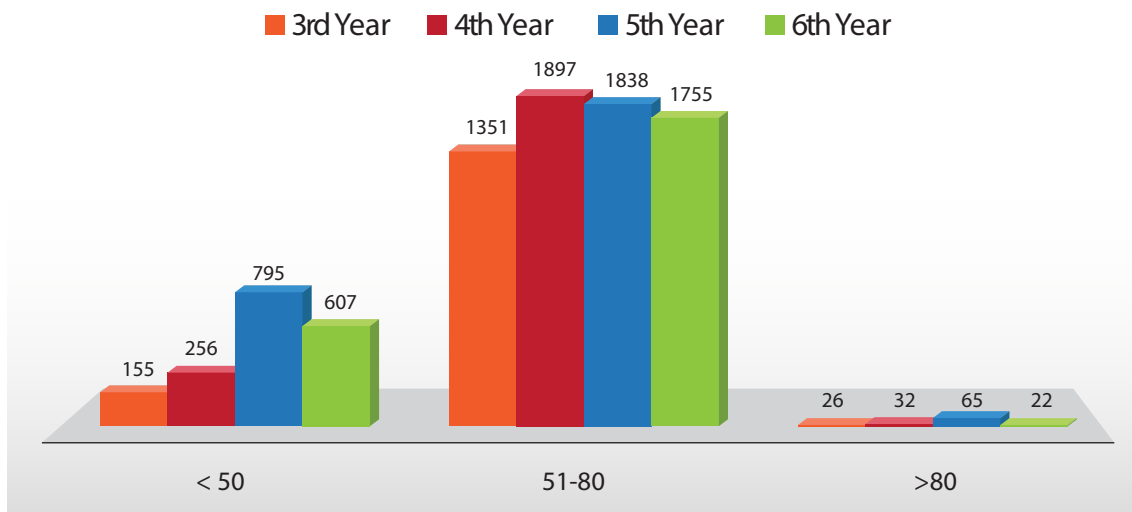


# Primary Total Knee Arthroplasty

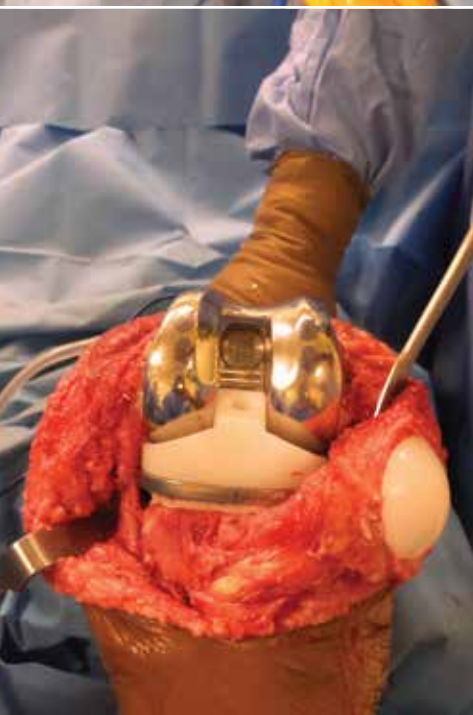
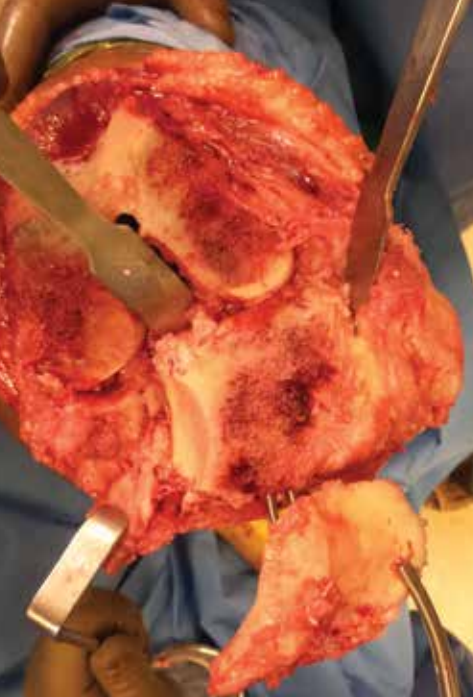
## Gender Distribution



## Age Category



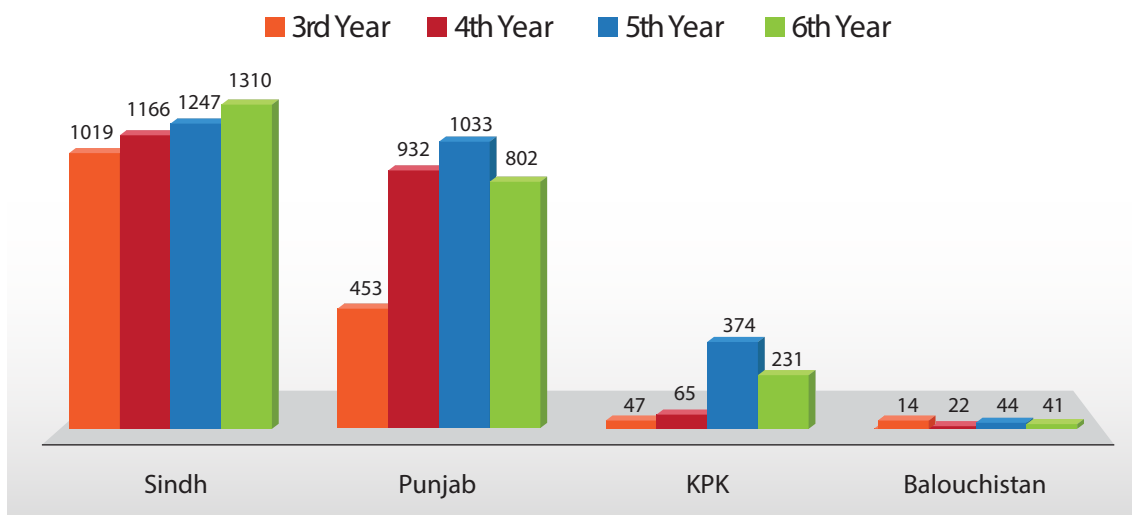




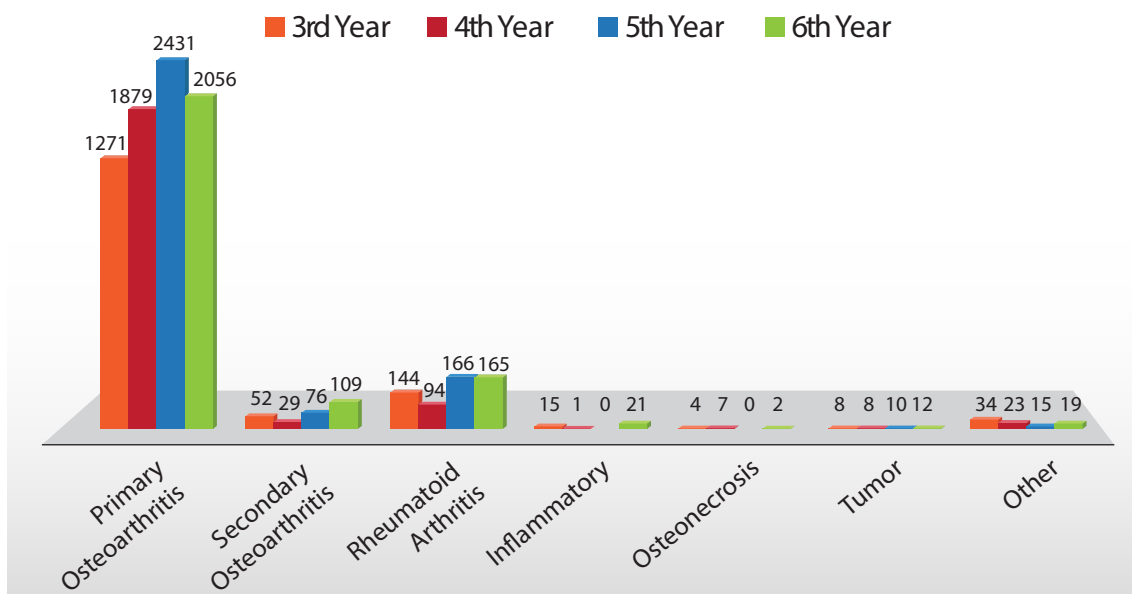


## Primary Total Knee Arthroplasty

### Geographical Distribution



### Diagnosis





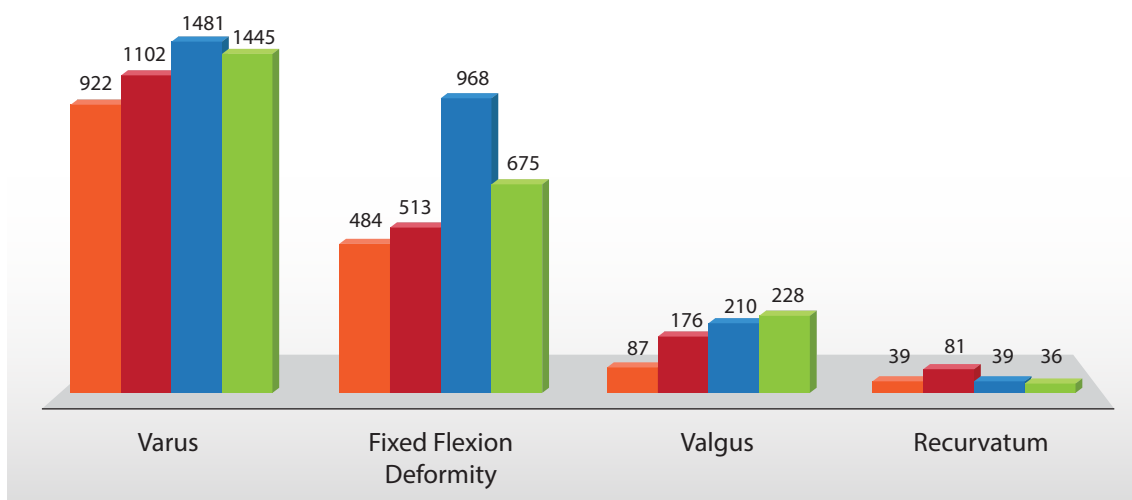
# SECTION I



## Primary Total Knee Arthroplasty

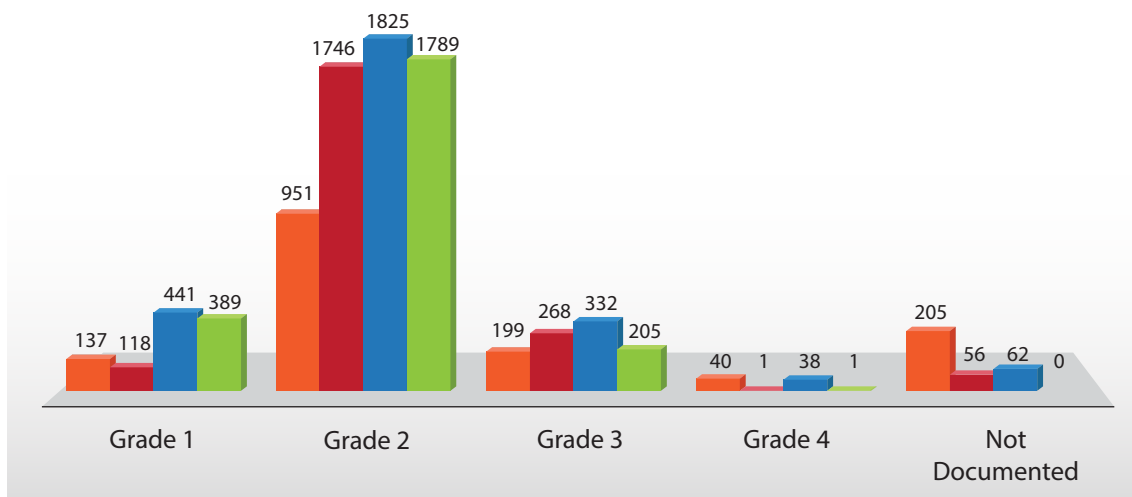
### Pre-operative deformity

3rd Year 4th Year 5th Year 6th Year

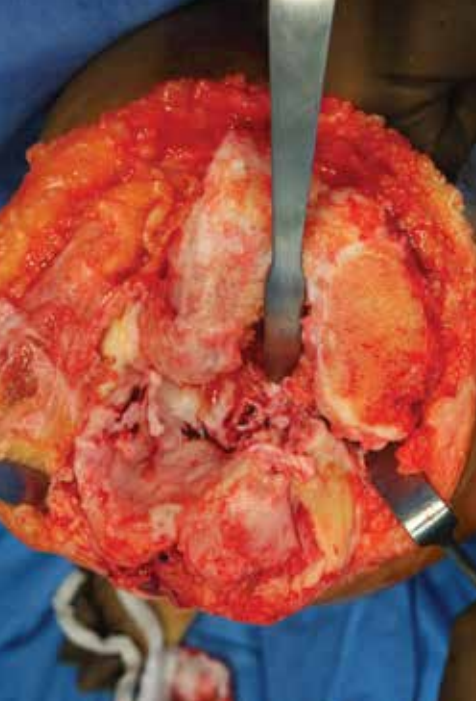


### ASA Grading

3rd Year 4th Year 5th Year 6th Year





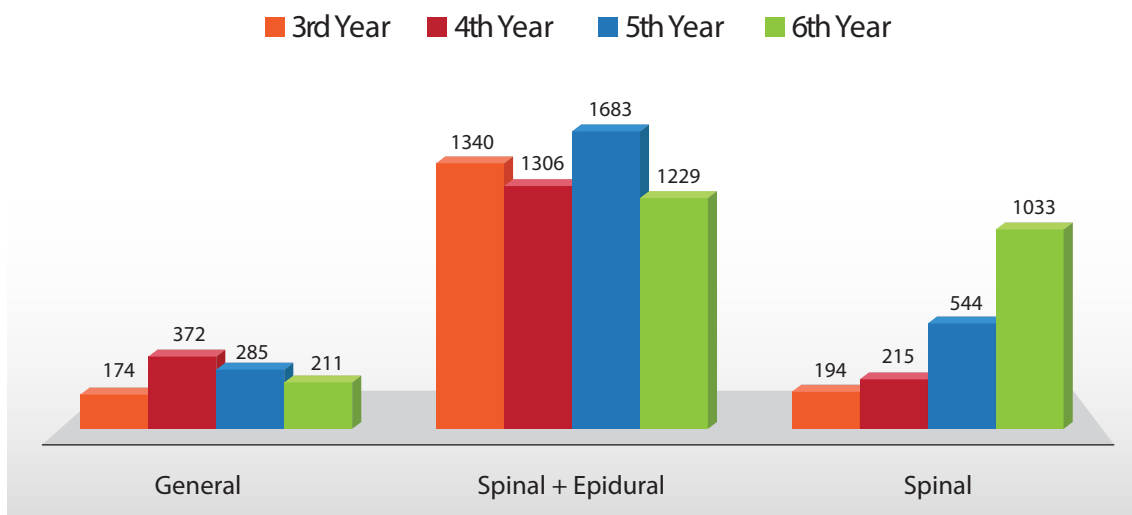




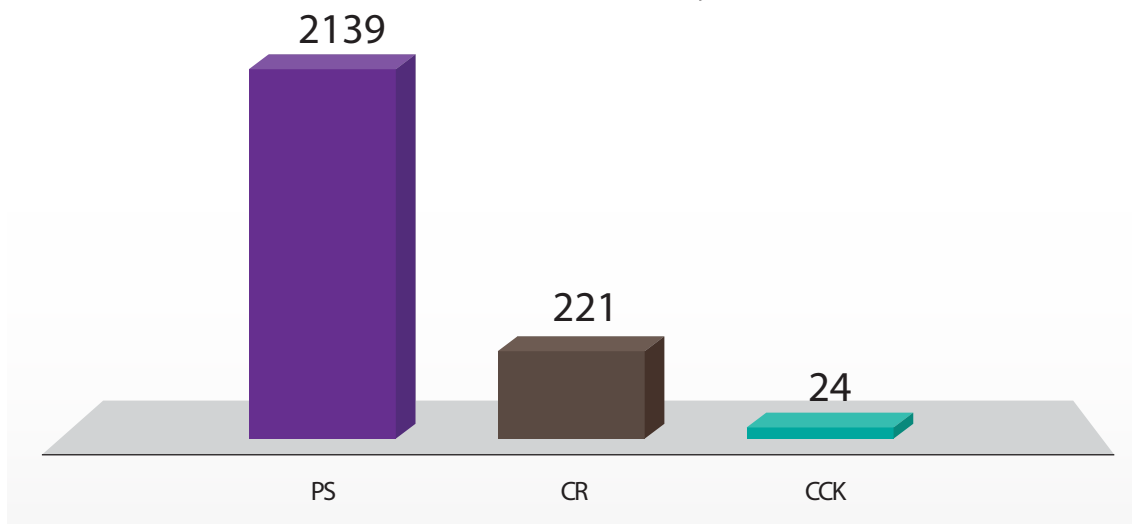


## Primary Total Knee Arthroplasty

### Anaesthesia



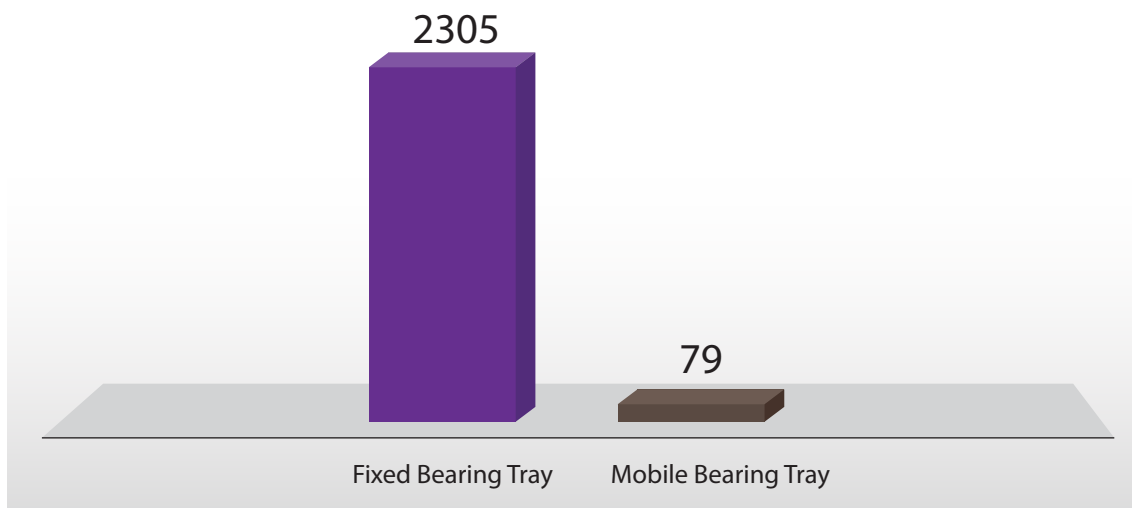
### Implant Types according to level of constraint with year



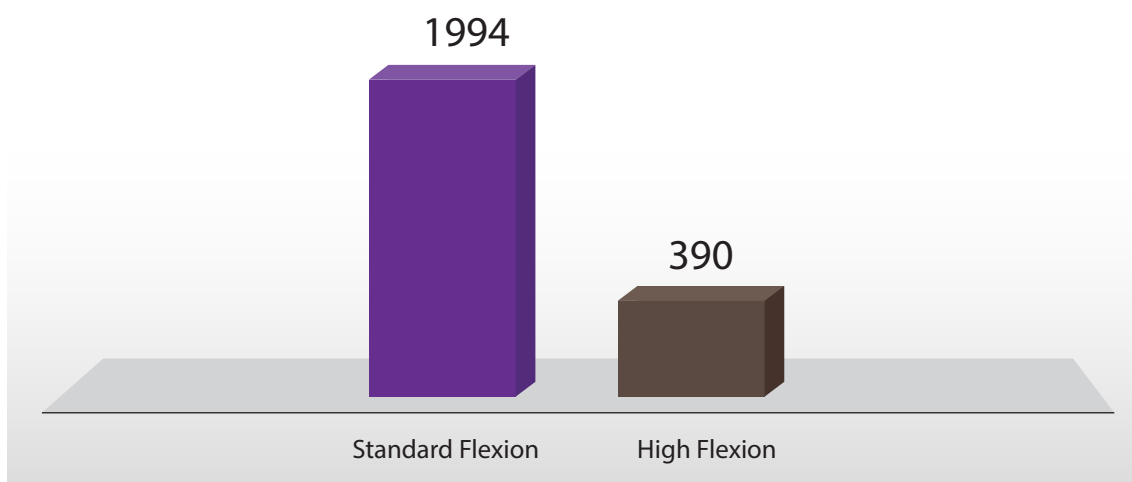


## Primary Total Knee Arthroplasty

### Implant Types according to Fixation of Tibial Insert with year



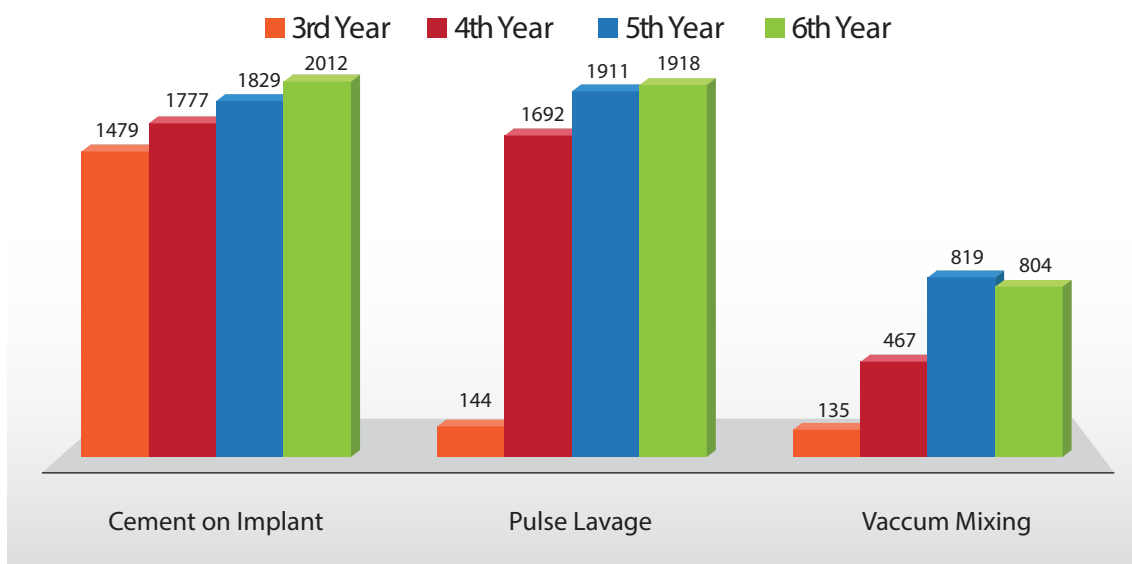
### Implant Types according to built in flexion with year



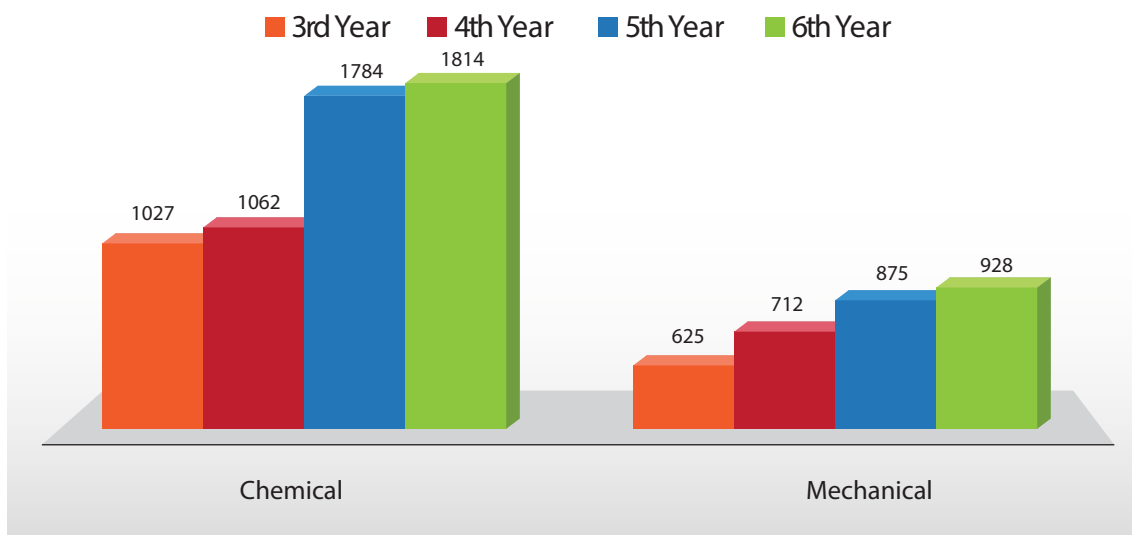


## Primary Total Knee Arthroplasty

### Cementing Techniques



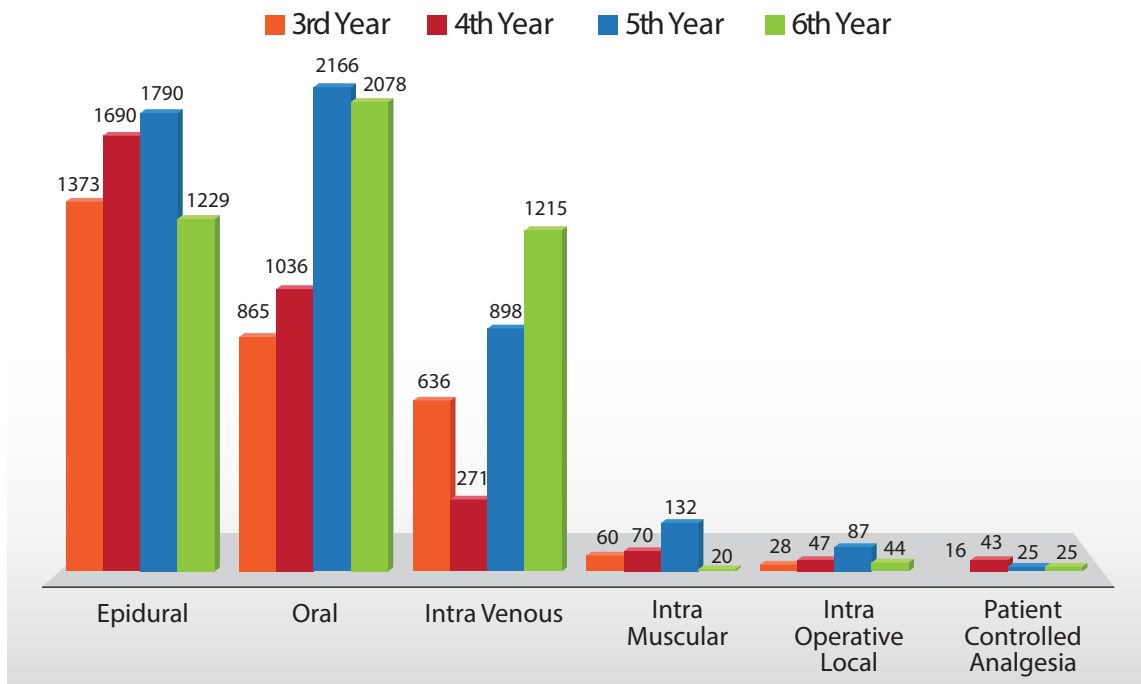
### Thromboprophylaxis



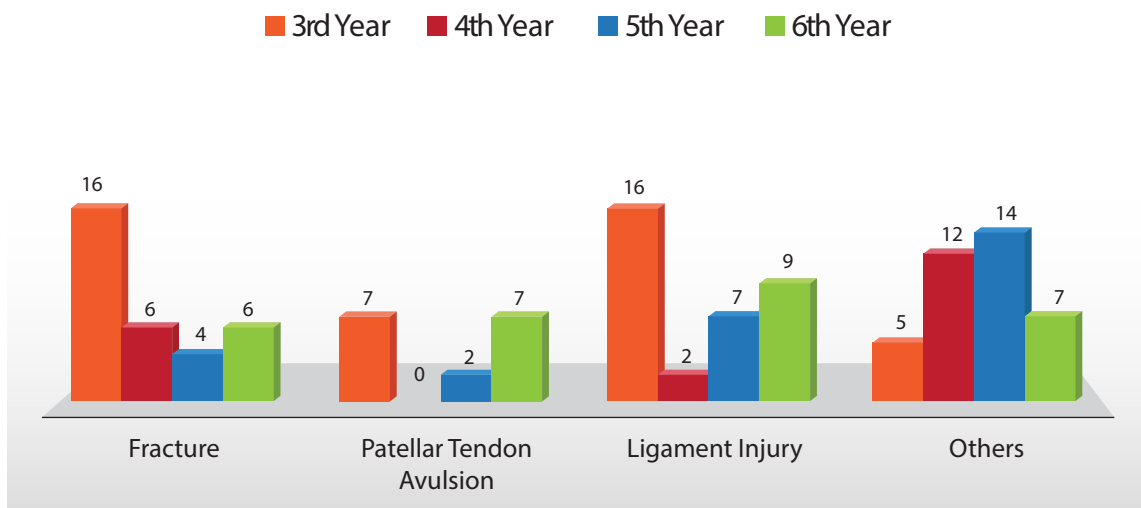


## Primary Total Knee Arthroplasty

### Post operative Analgesia



### Adverse intraoperative events



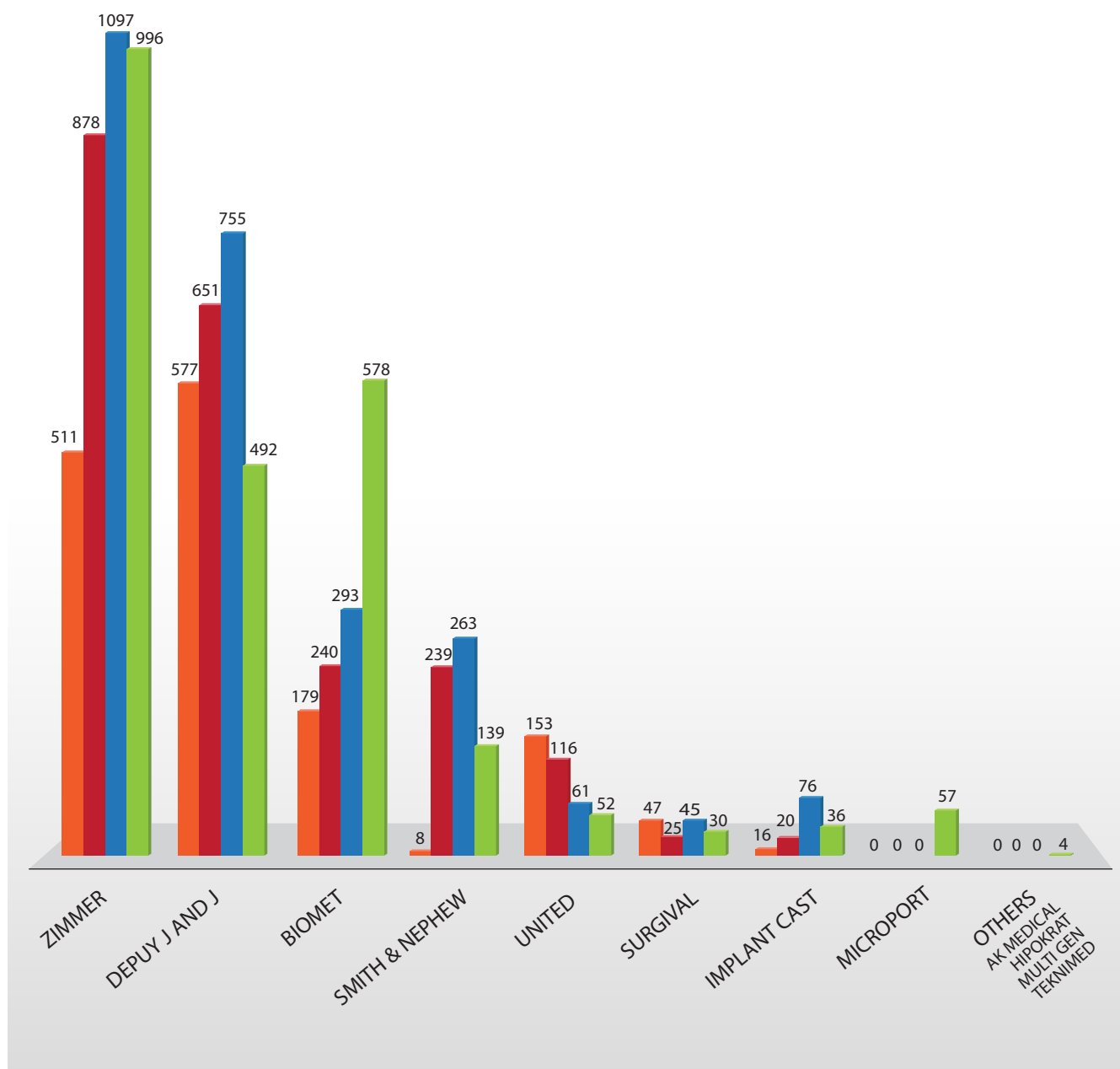
# SECTION I



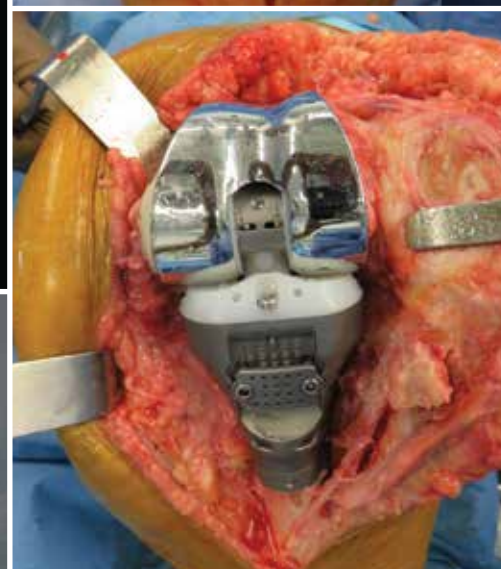
## Primary Total Knee Arthroplasty

### Implant Details

3rd Year 4th Year 5th Year 6th Year



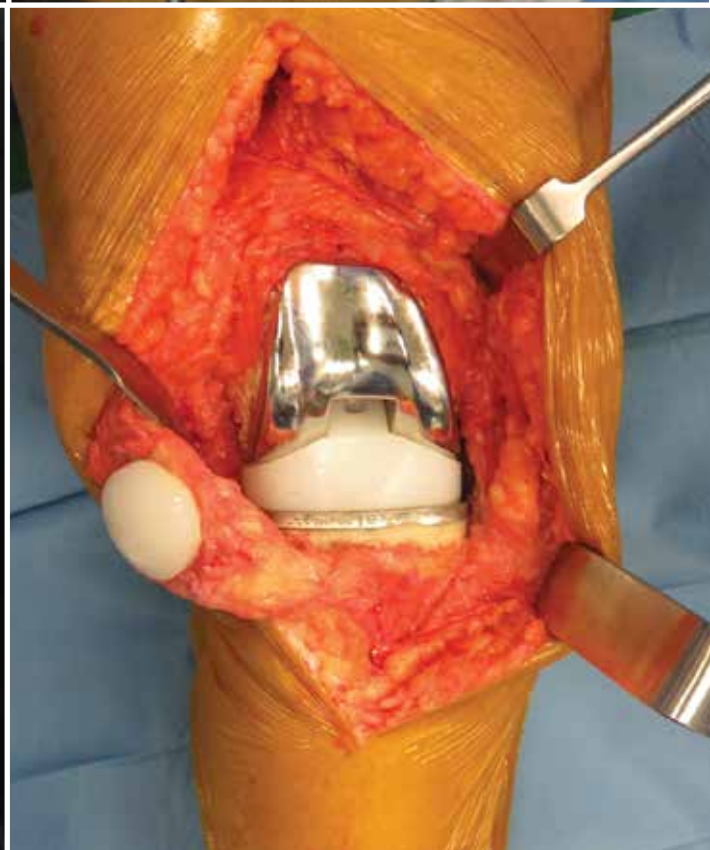
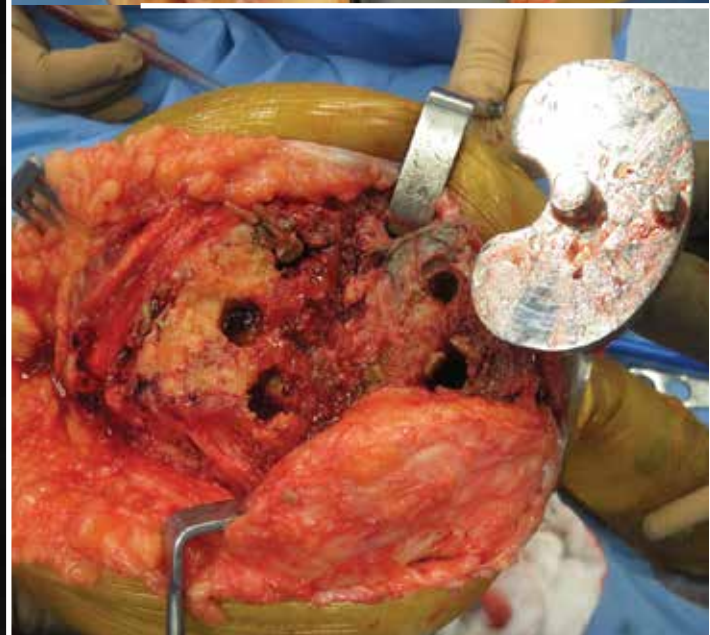




Revision  
Total Knee Arthroplasty  
SECTION II







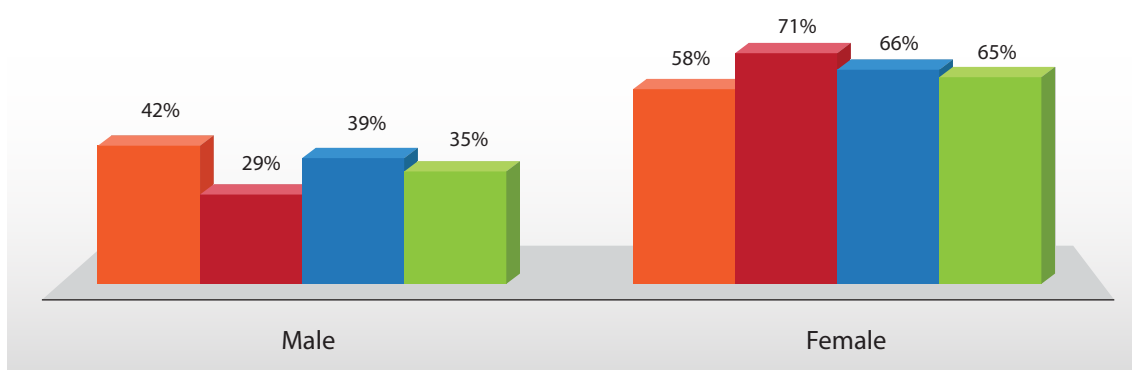
## SECTION II



# Revision Total Knee Arthroplasty

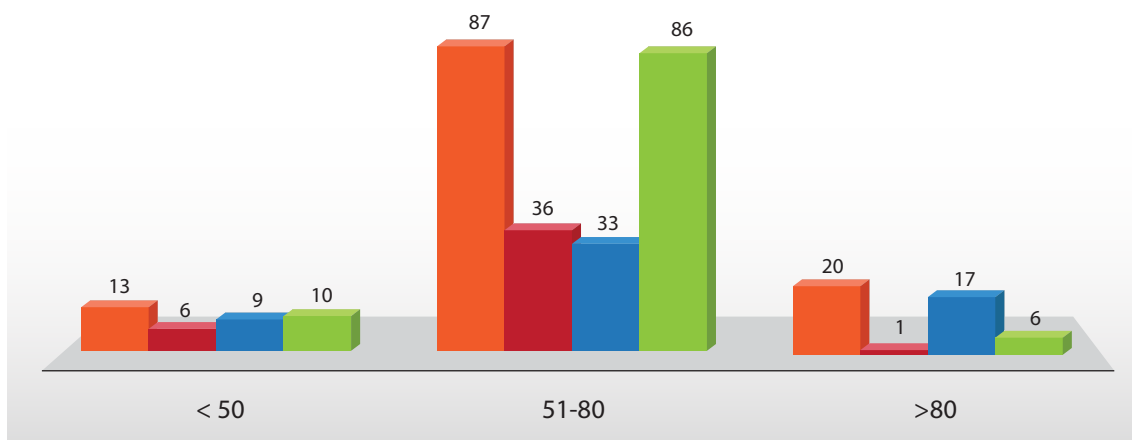
## Gender Distribution

3rd Year 4th Year 5th Year 6th Year

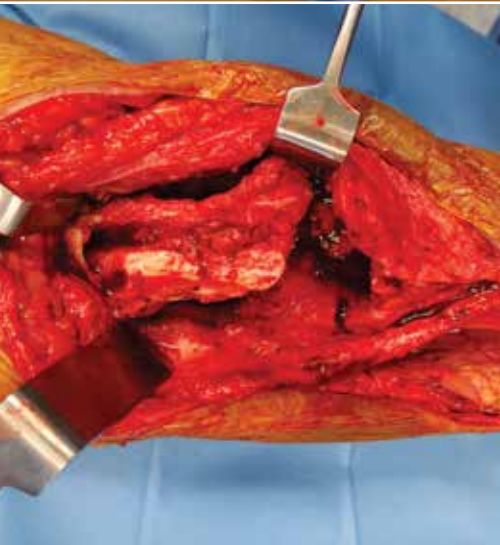
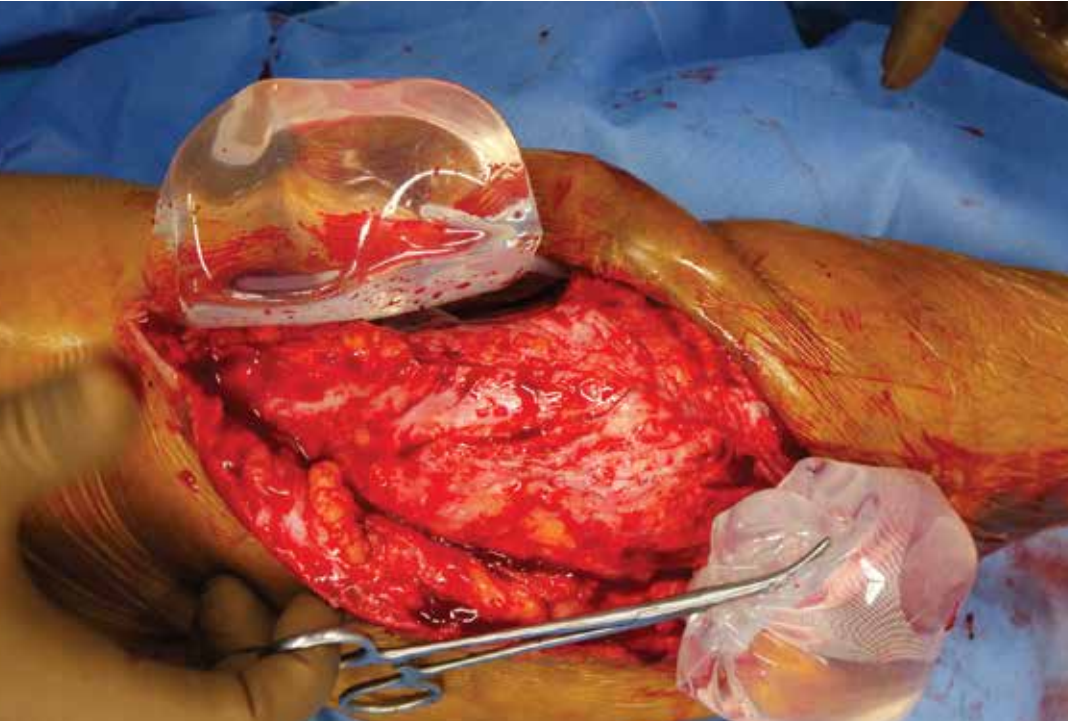


## Age Category

3rd Year 4th Year 5th Year 6th Year







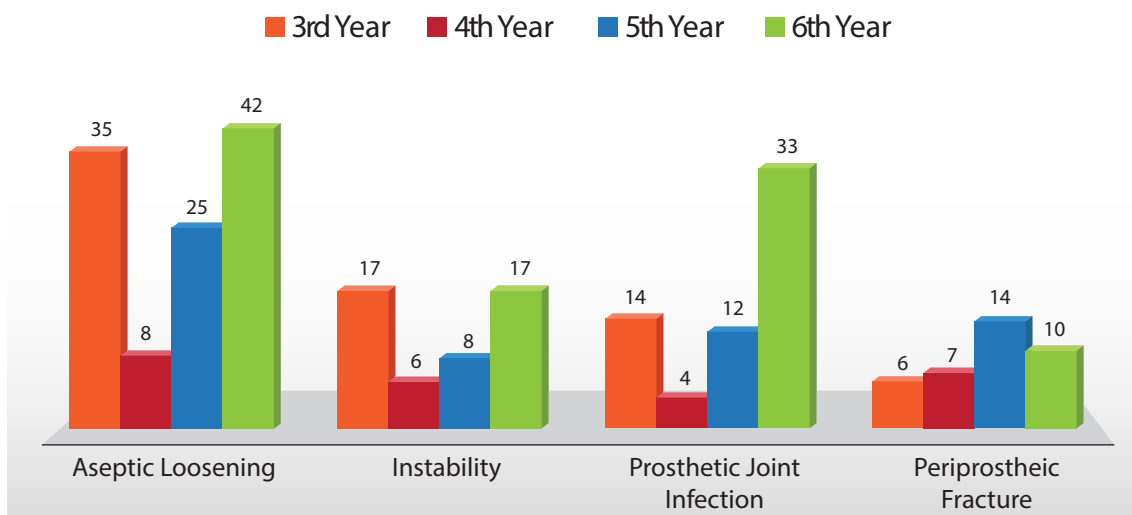


## SECTION II

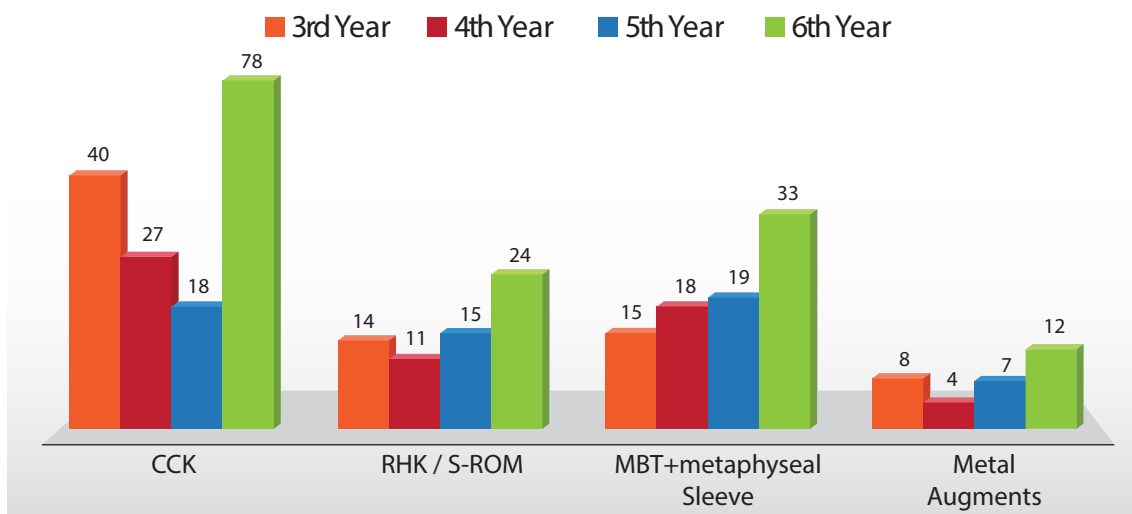


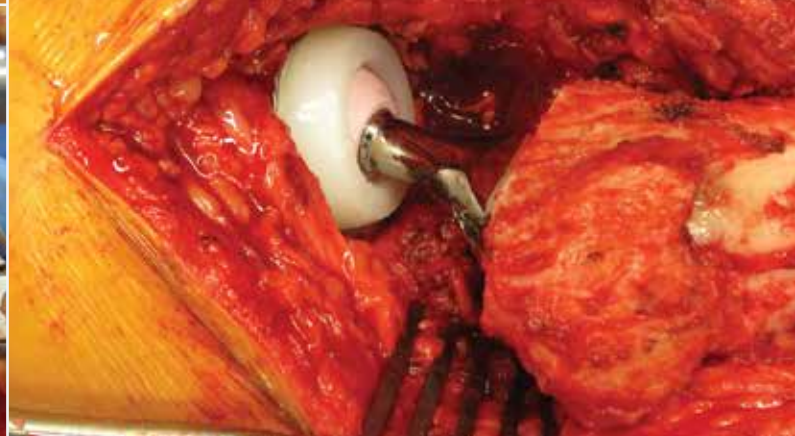
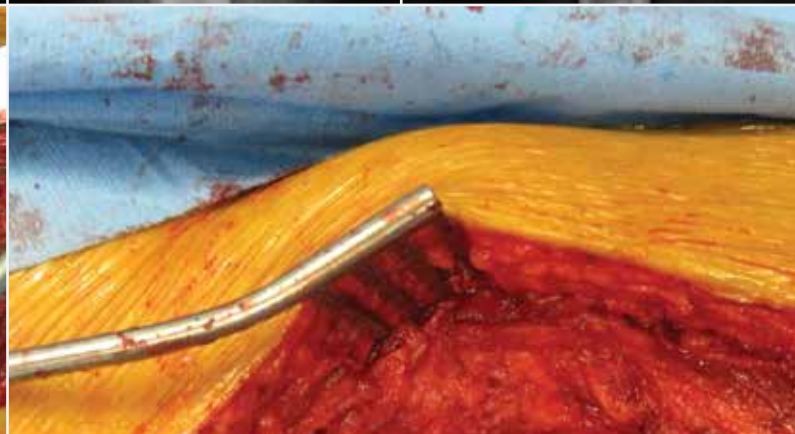
# Revision Total Knee Arthroplasty

## Diagnosis



## Implant Detail

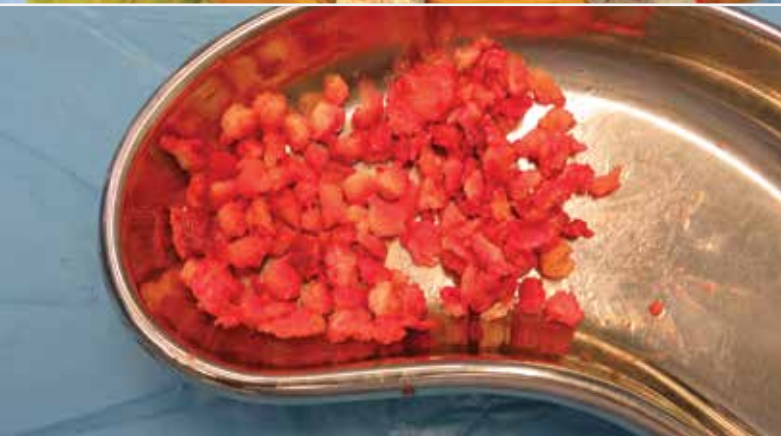
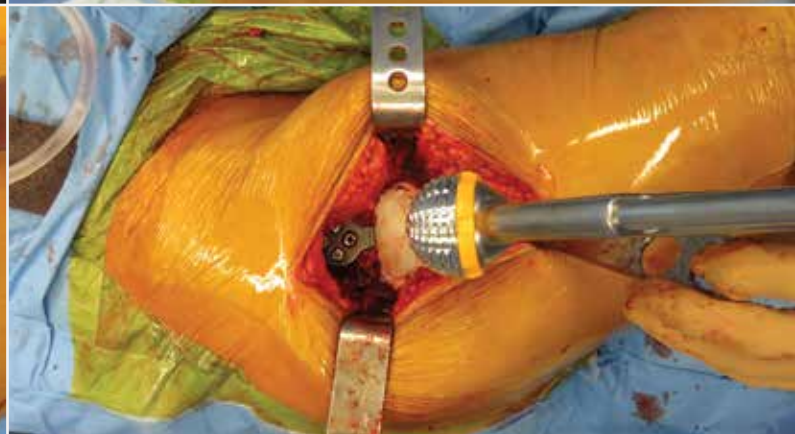




Primary  
Total Hip Arthroplasty  
SECTION III







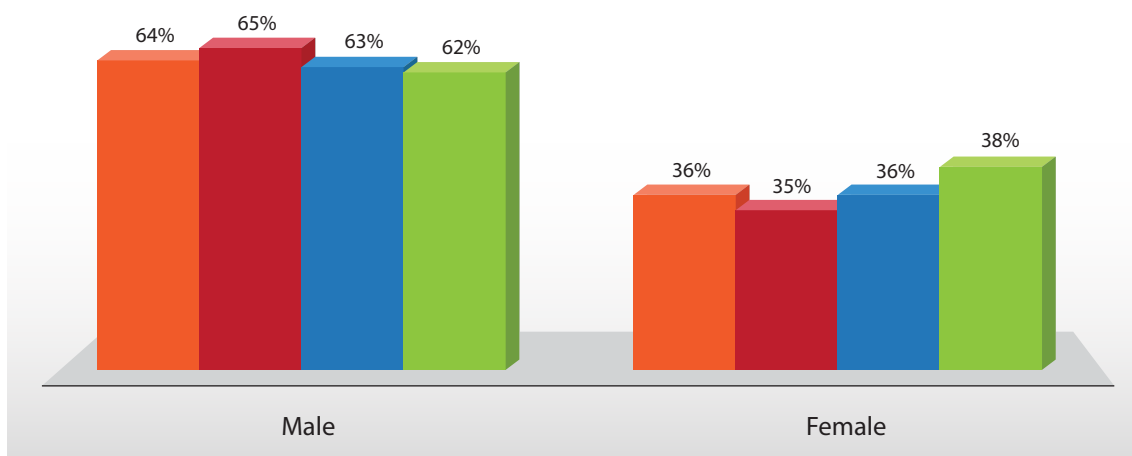
## SECTION III



# Primary Total Hip Arthroplasty

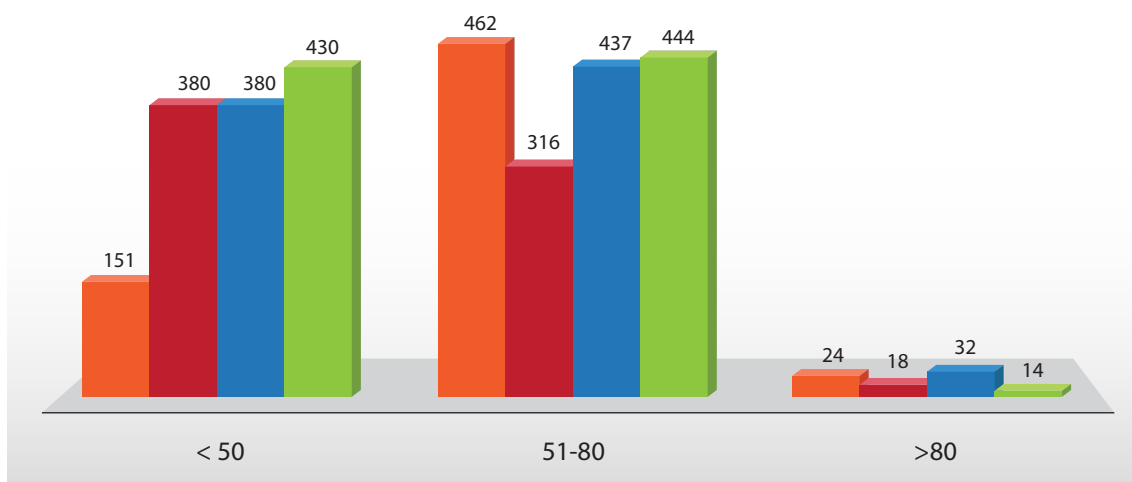
### Gender Distribution

3rd Year 4th Year 5th Year 6th Year

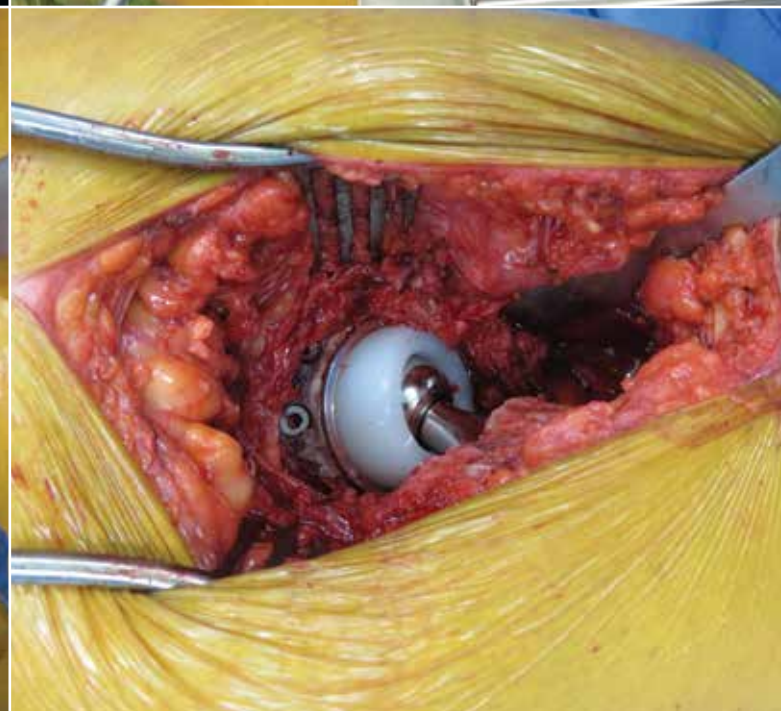
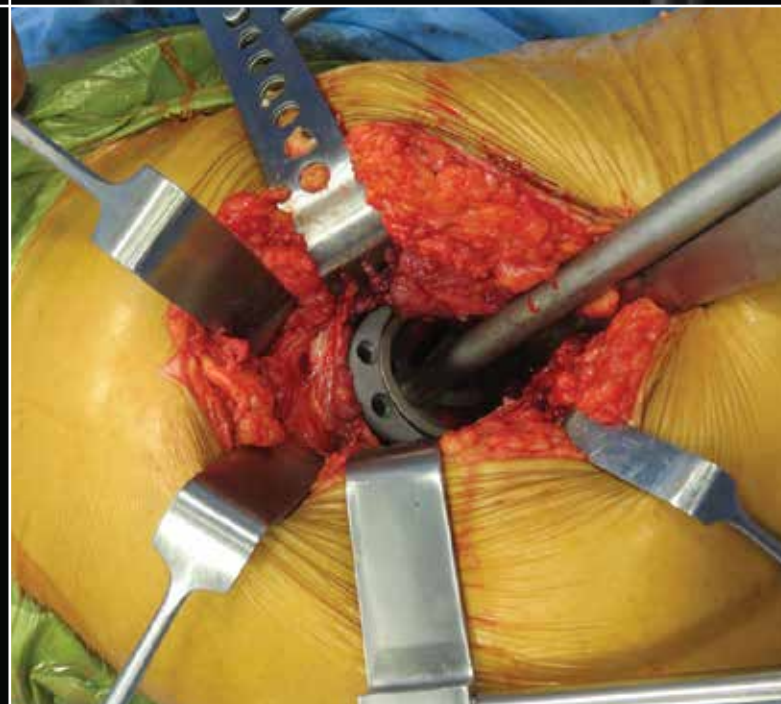


### Age Category

3rd Year 4th Year 5th Year 6th Year





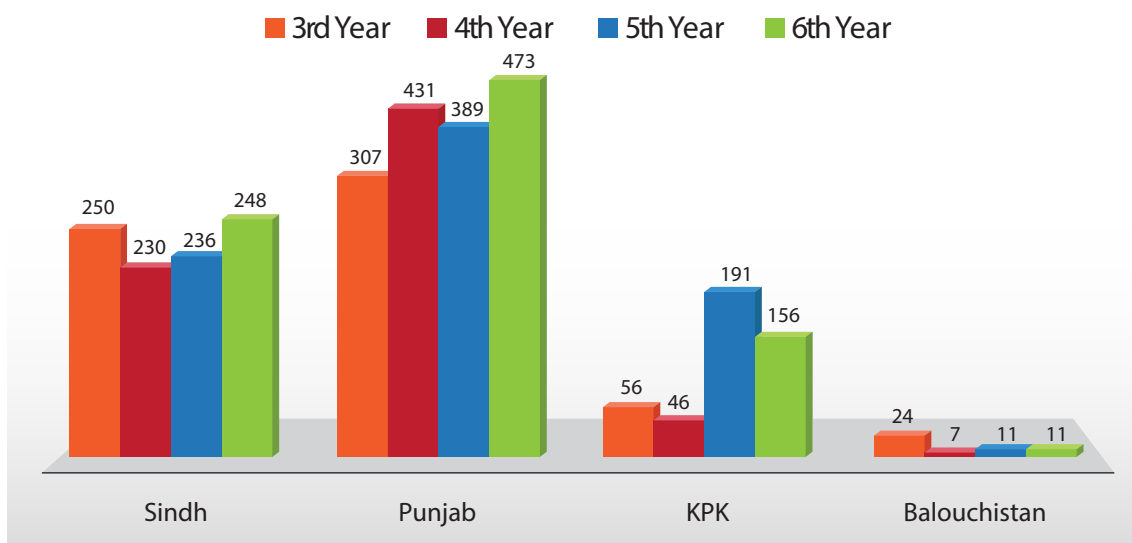


## SECTION III

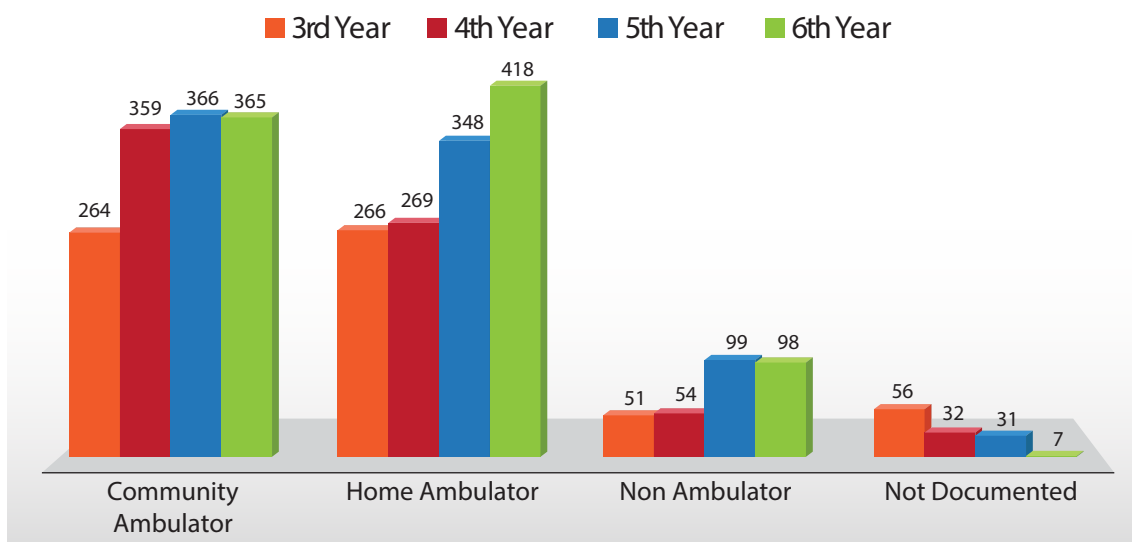


# Primary Total Hip Arthroplasty

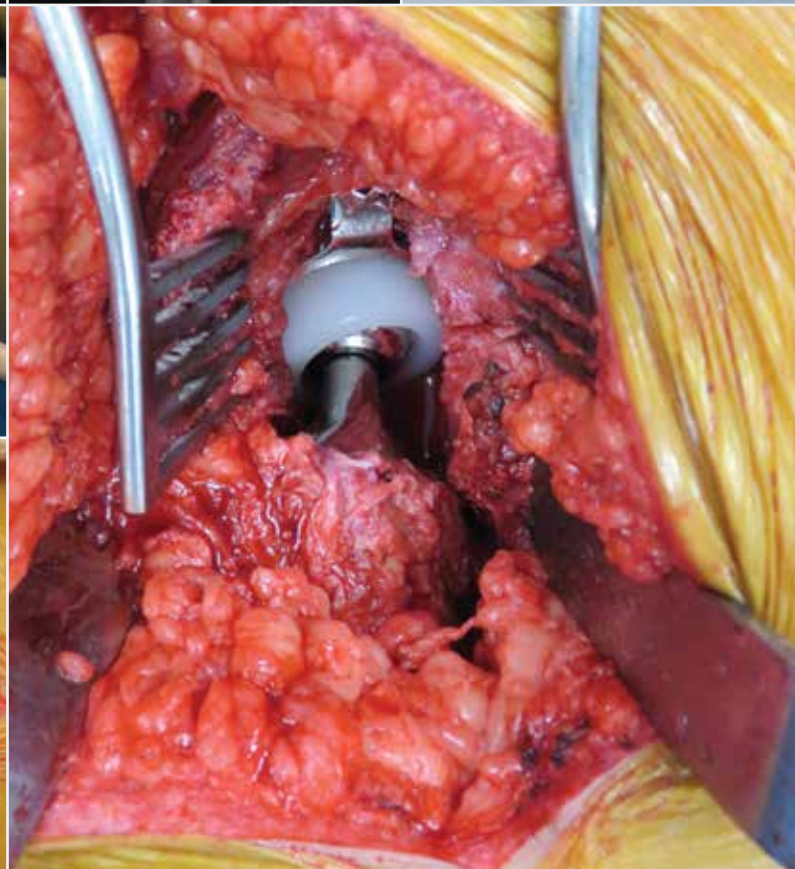
## Geographical Distribution



## Pre Operative Ambulatory Status





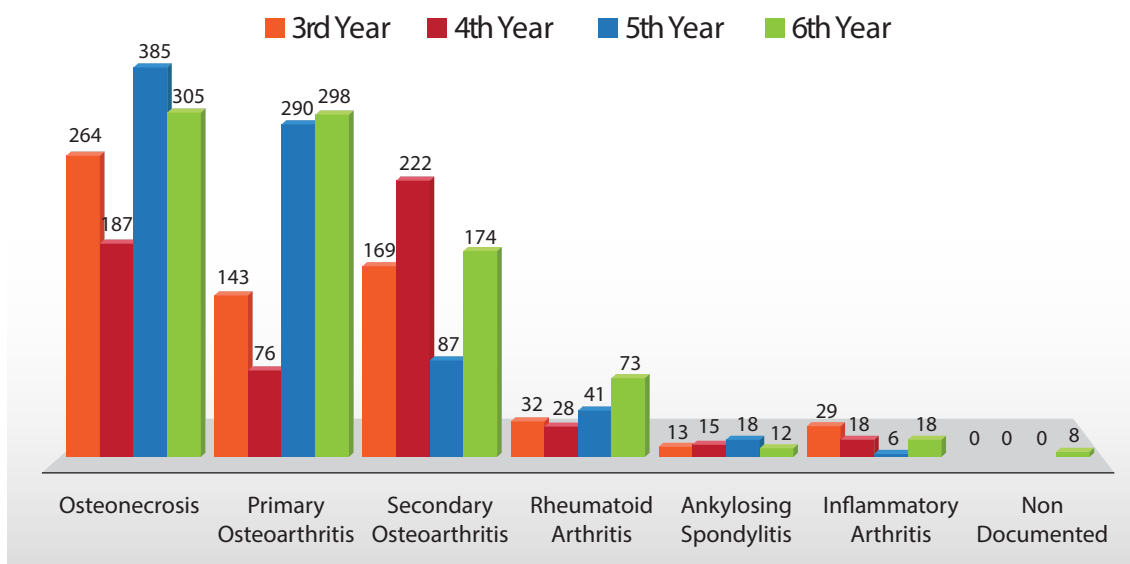


## SECTION III

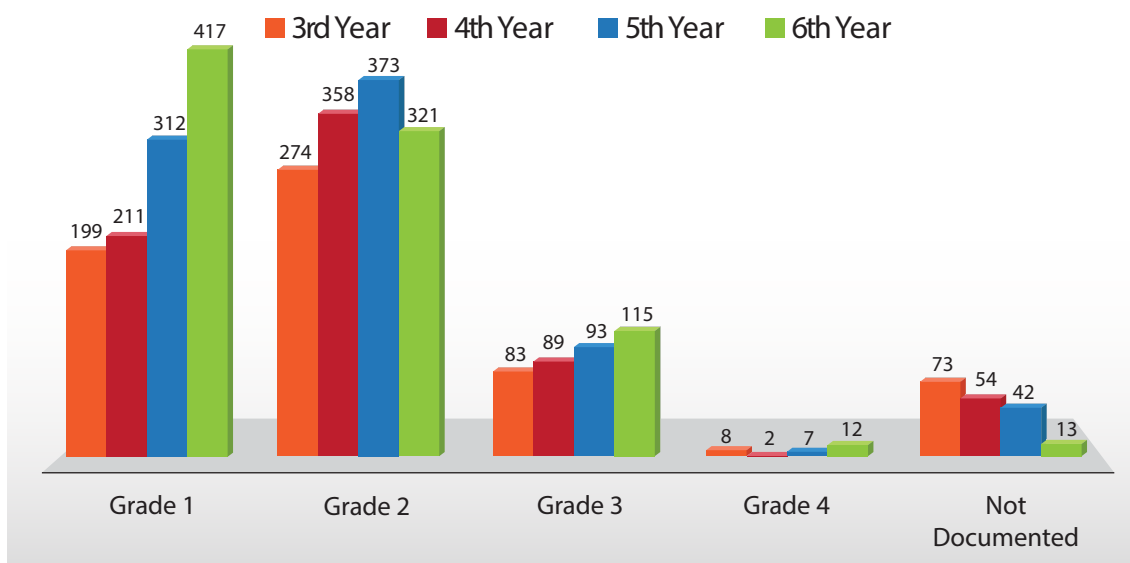


### Primary Total Hip Arthroplasty

#### Diagnosis



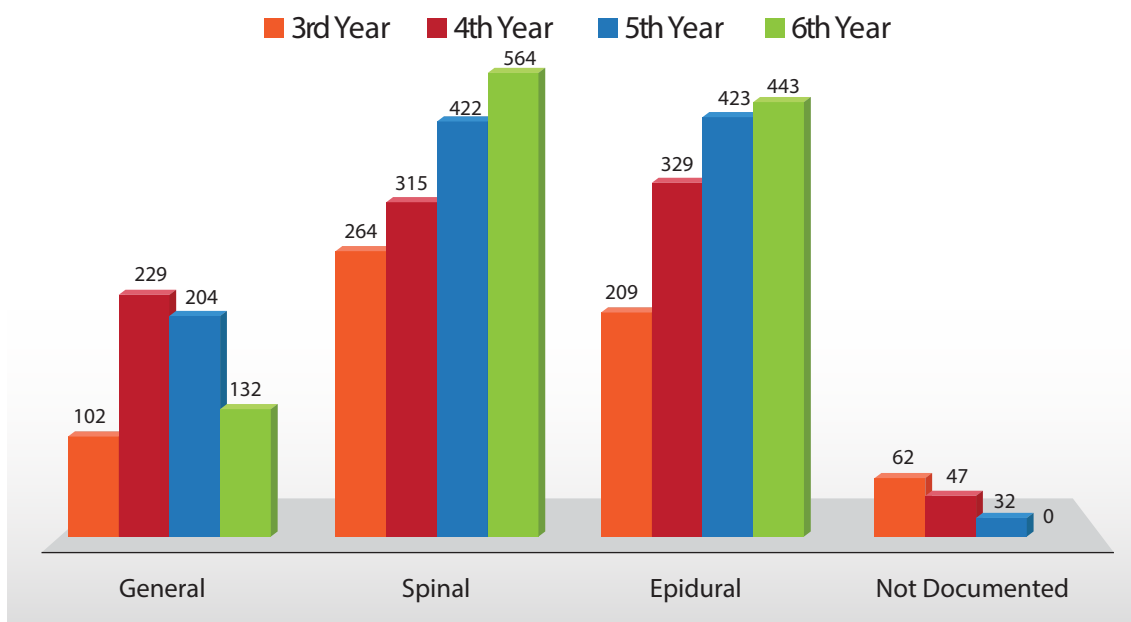
#### ASA Grading



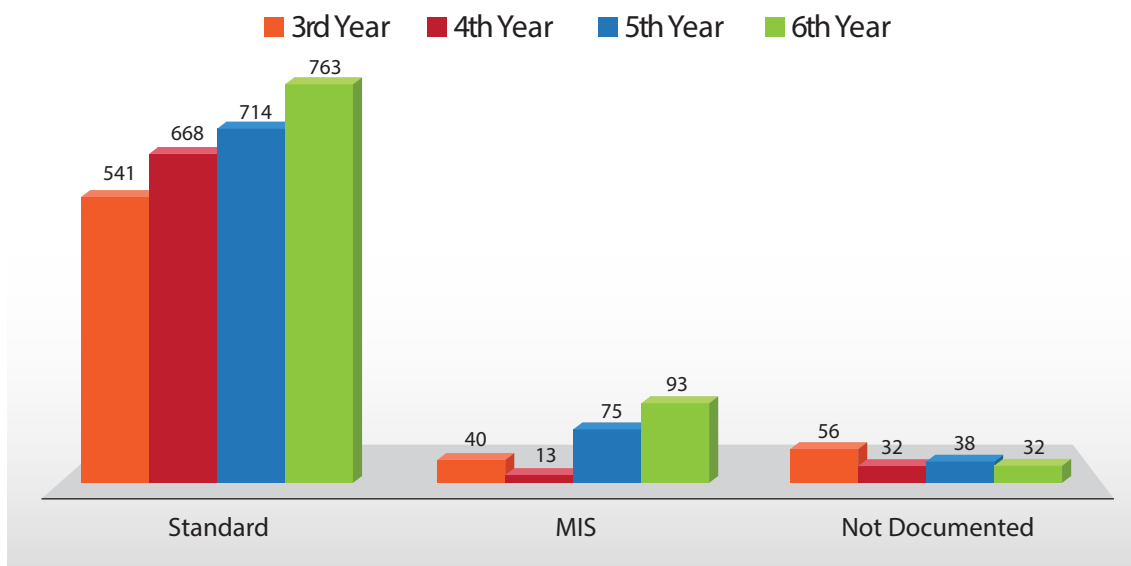


## Primary Total Hip Arthroplasty

### Types of Anesthesia



### Surgical Incisions



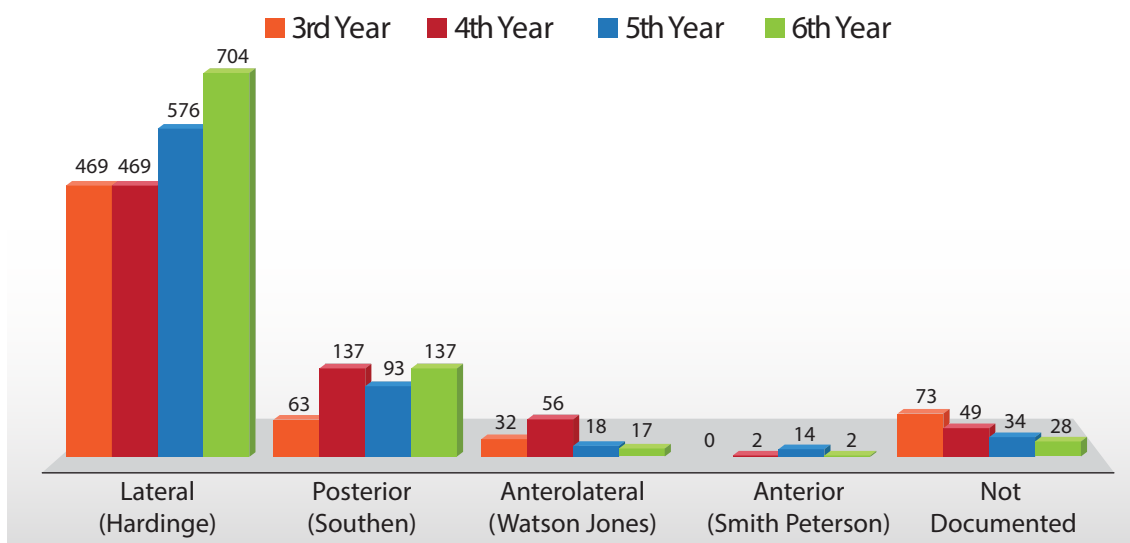


## SECTION III

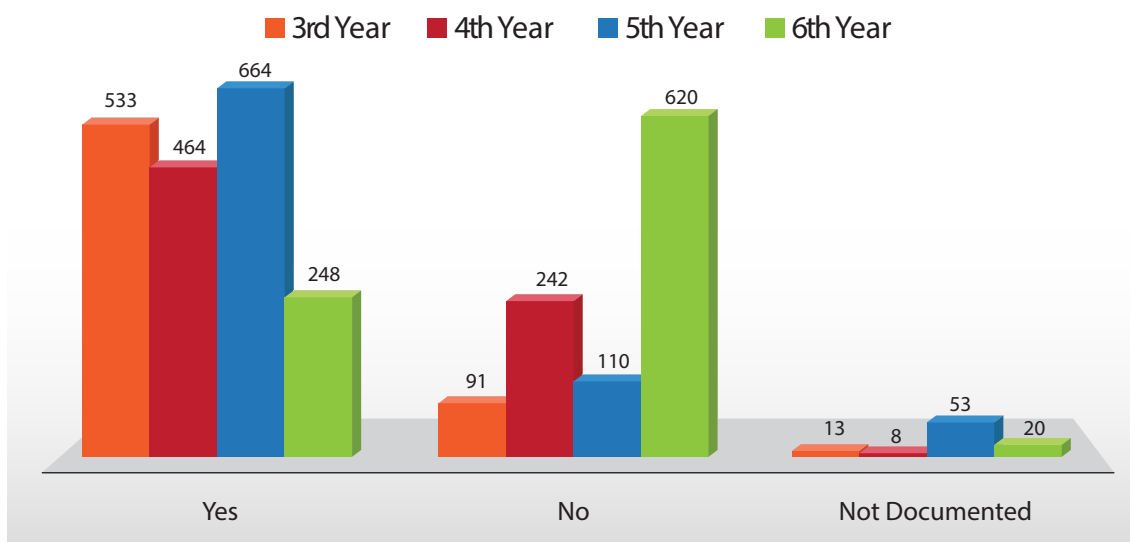


### Primary Total Hip Arthroplasty

#### Surgical Approaches



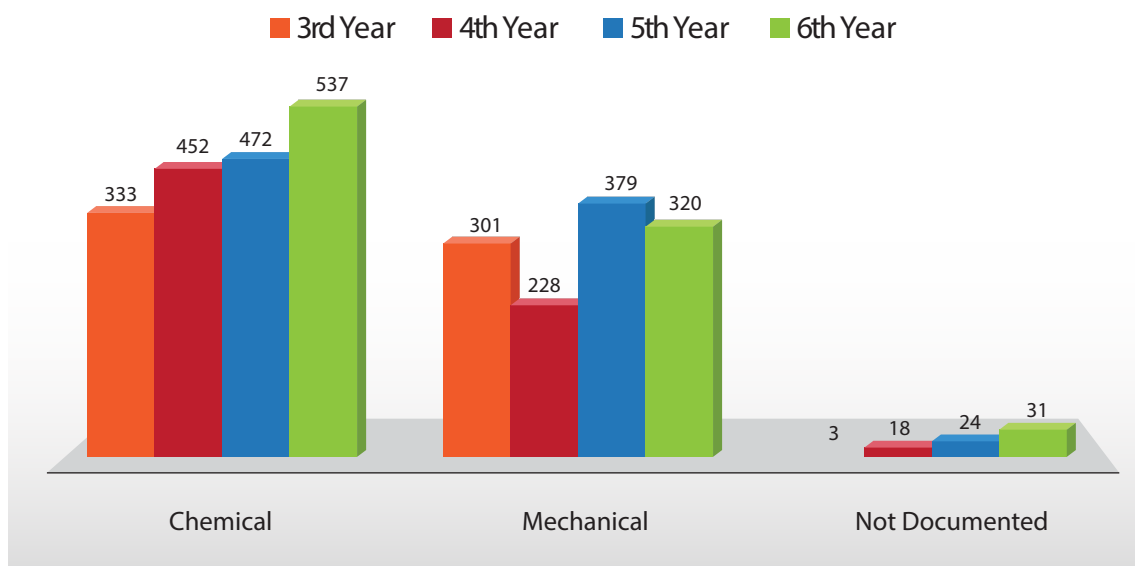
#### Drain Used



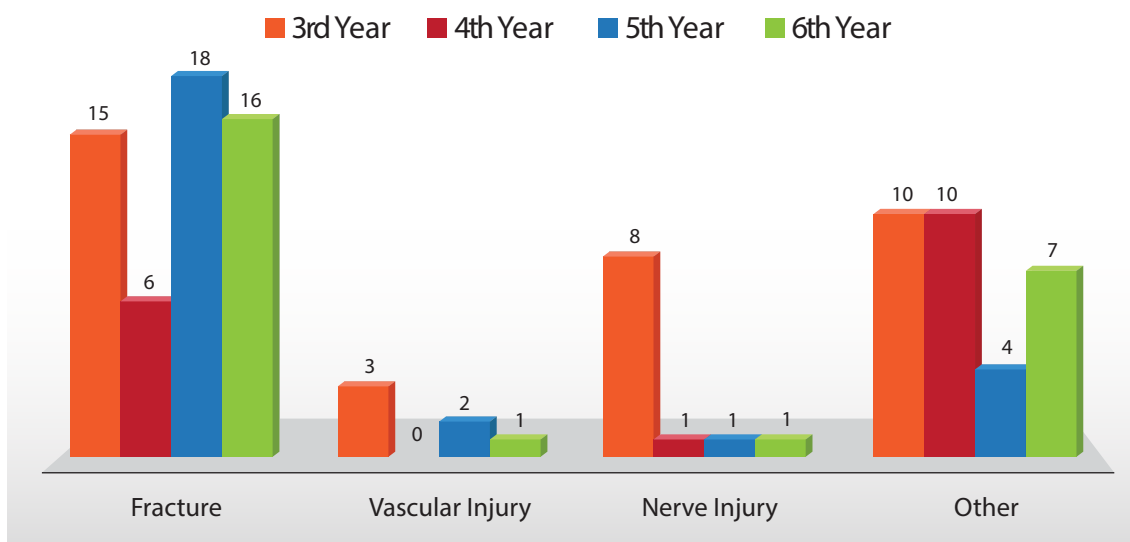


## Primary Total Hip Arthroplasty

### Thromboprophylaxis



### Adverse Intraoperative Events

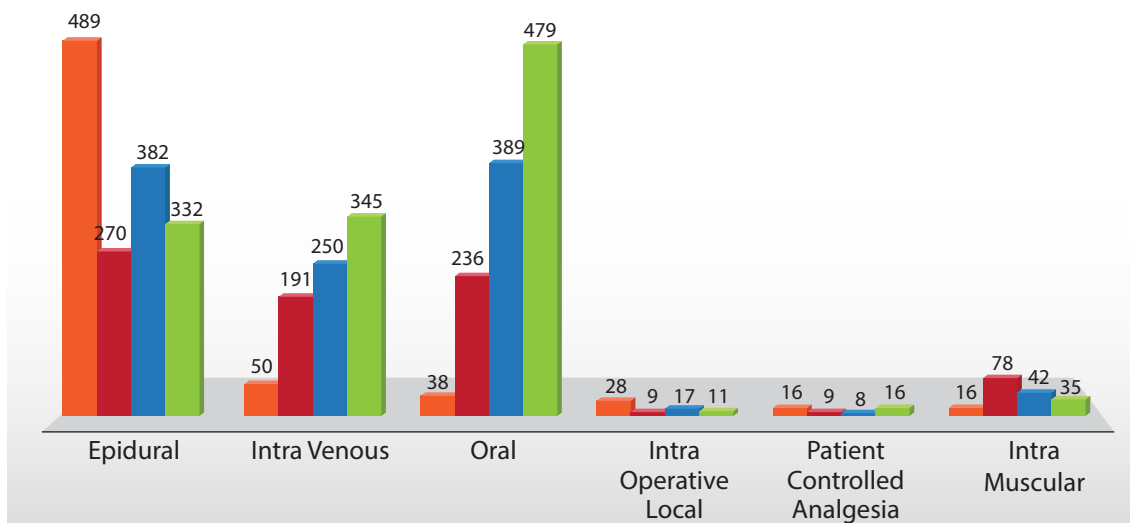




## Primary Total Hip Arthroplasty

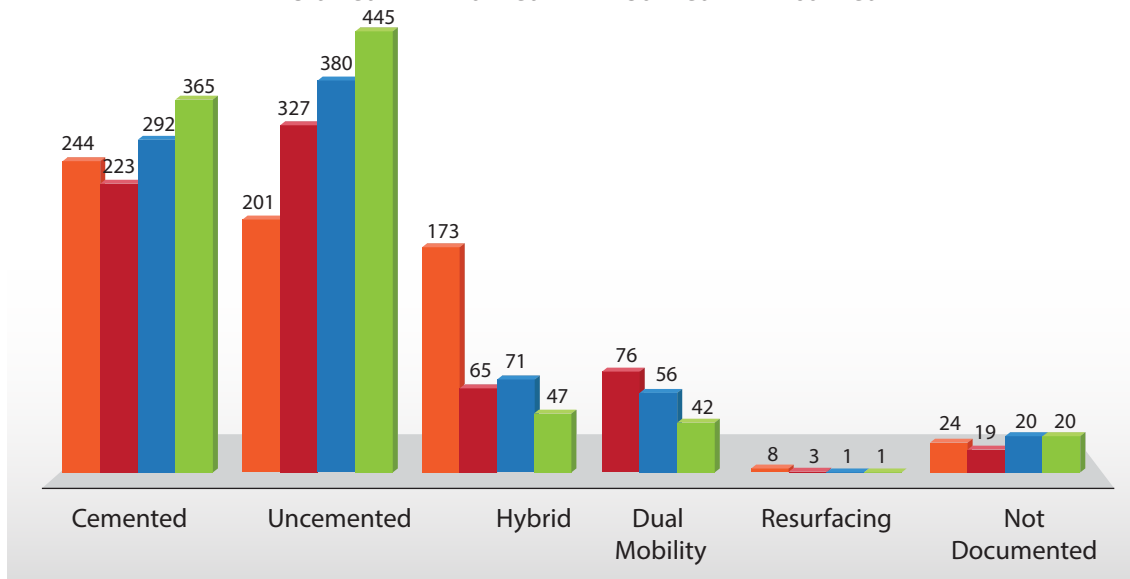
### Post operative Analgesia

3rd Year 4th Year 5th Year 6th Year



### Implant Details

3rd Year 4th Year 5th Year 6th Year

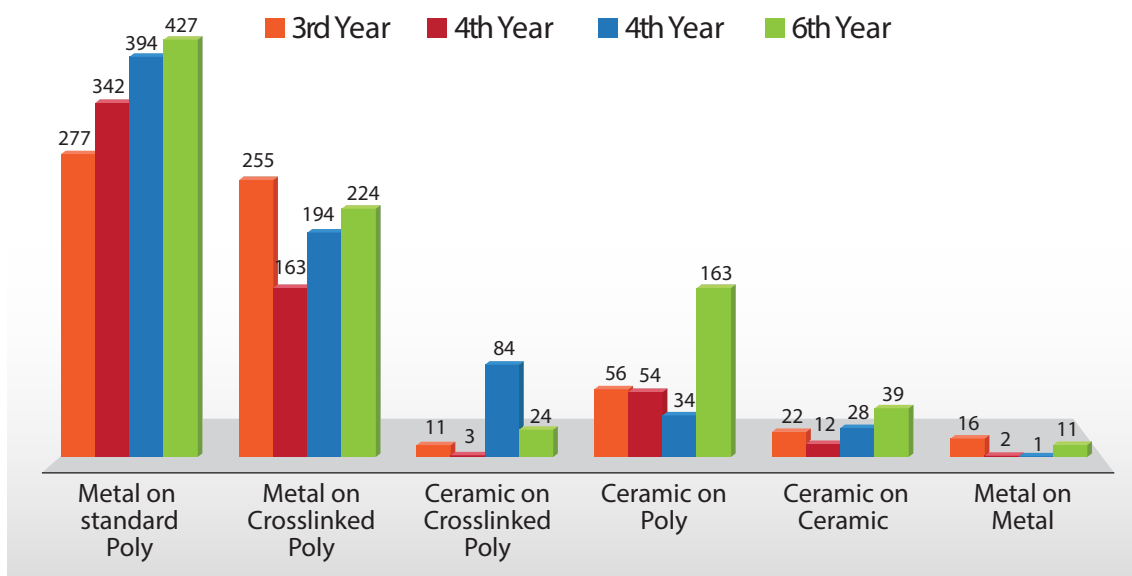


## SECTION III

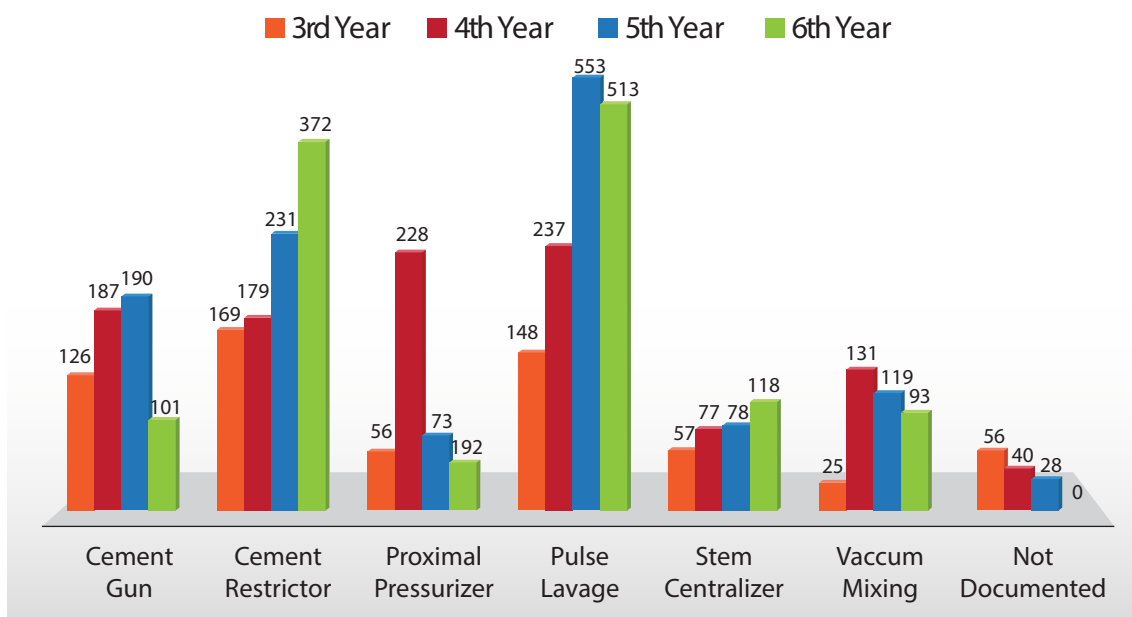


# Primary Total Hip Arthroplasty

## Bearing Surfaces



## Cementing Technique

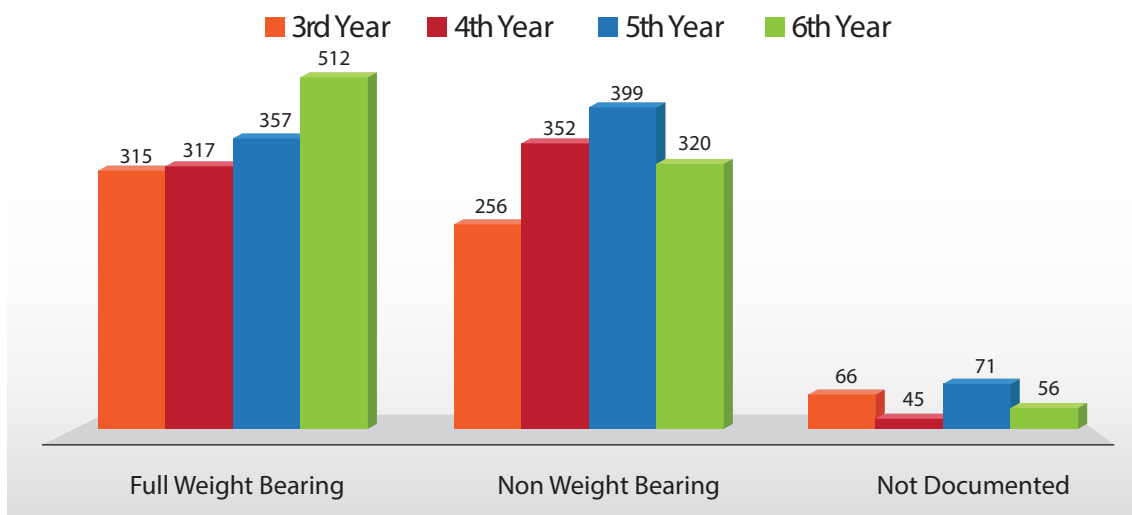


## SECTION III

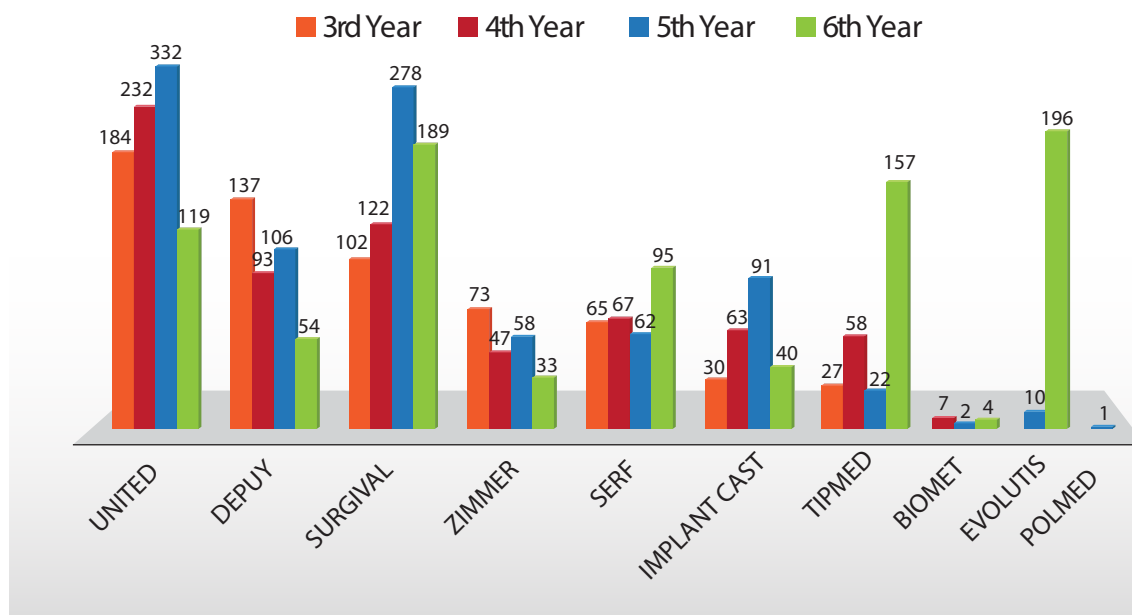


### Primary Total Hip Arthroplasty

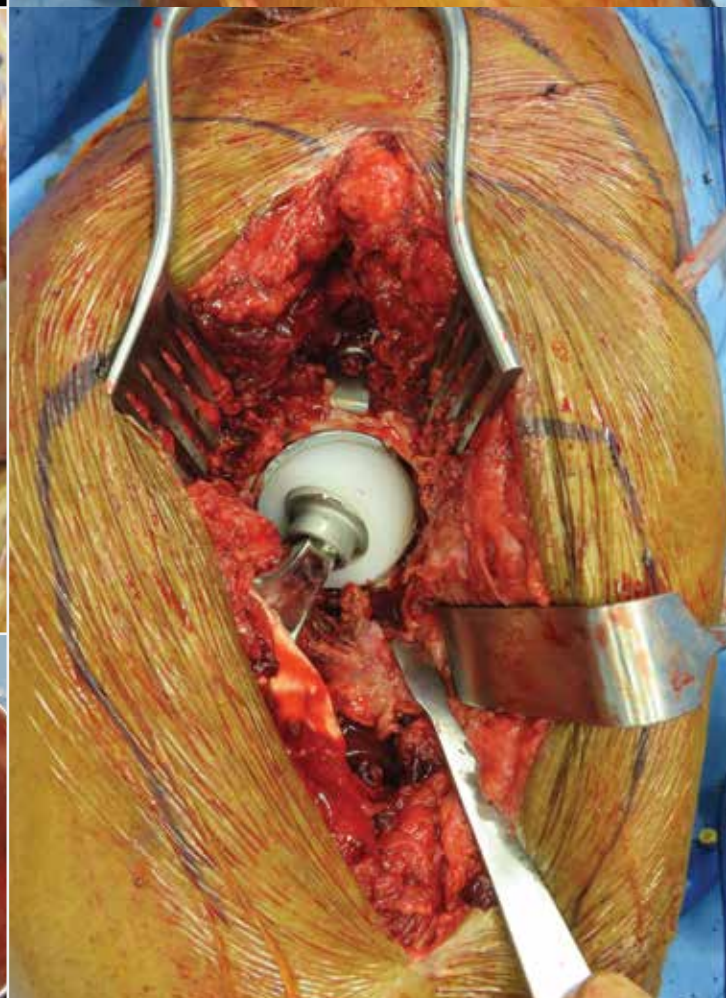
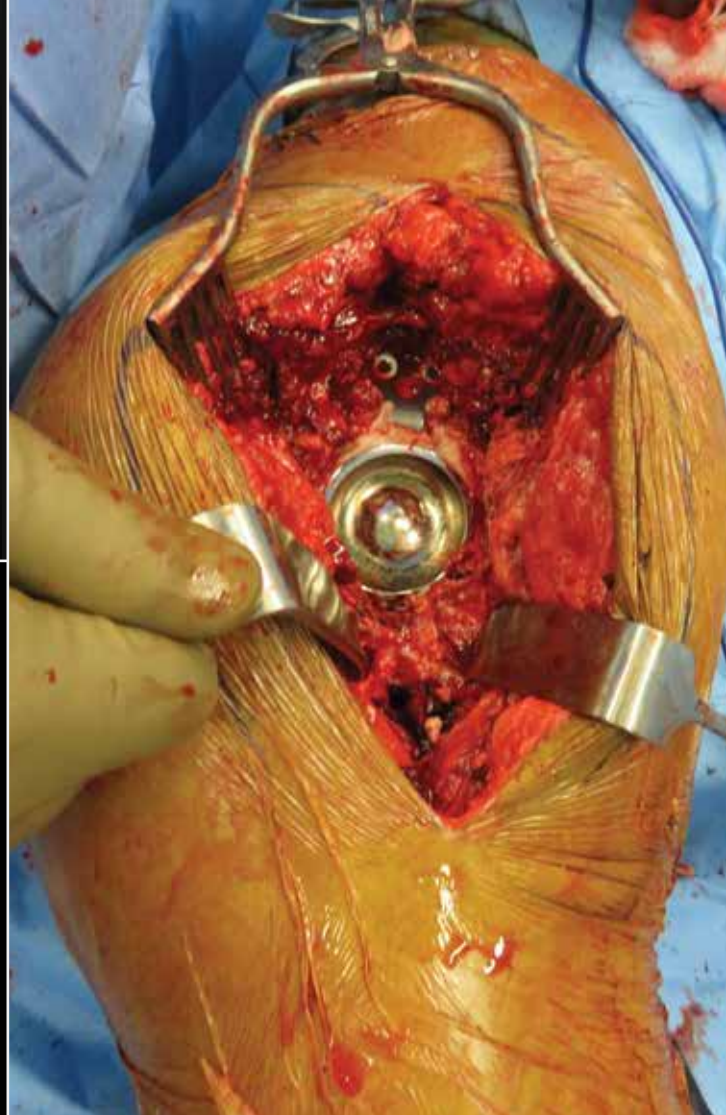
#### Post Op Weight Bearing



#### Type of Implant



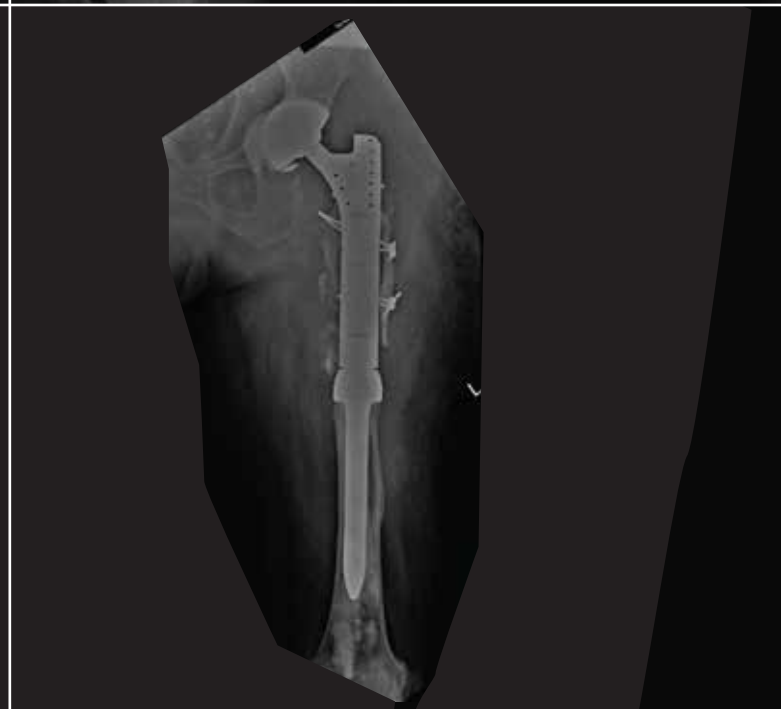




Revision  
Total Hip Arthroplasty  
SECTION III







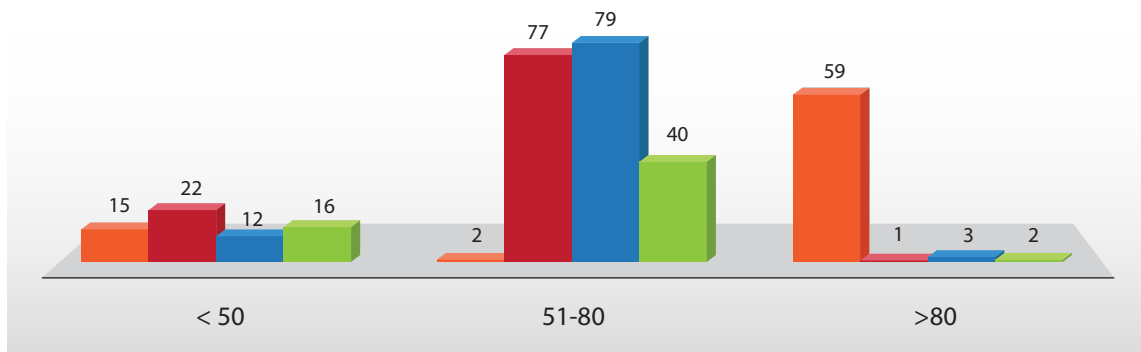
## SECTION IV



### Revision Total Hip Arthroplasty

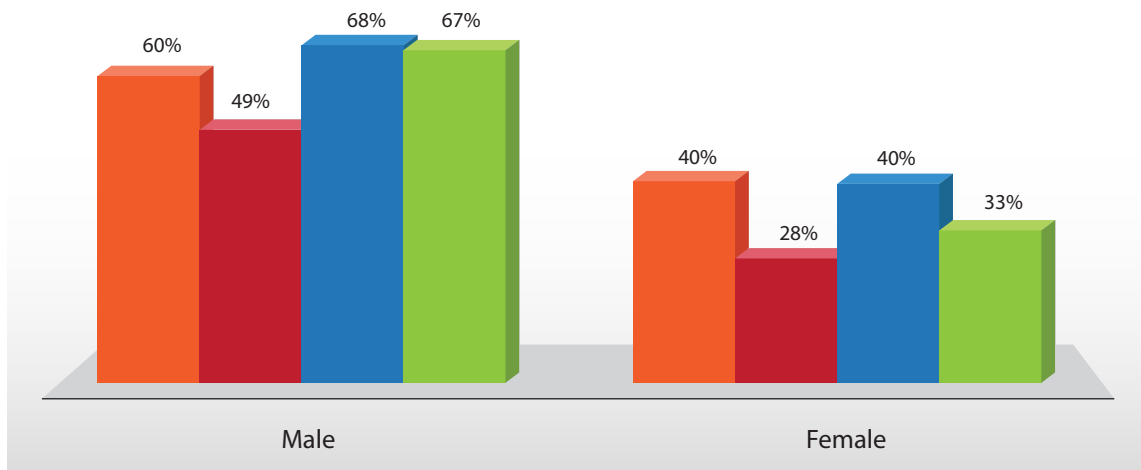
#### Age Category

3rd Year 4th Year 5th Year 6th Year

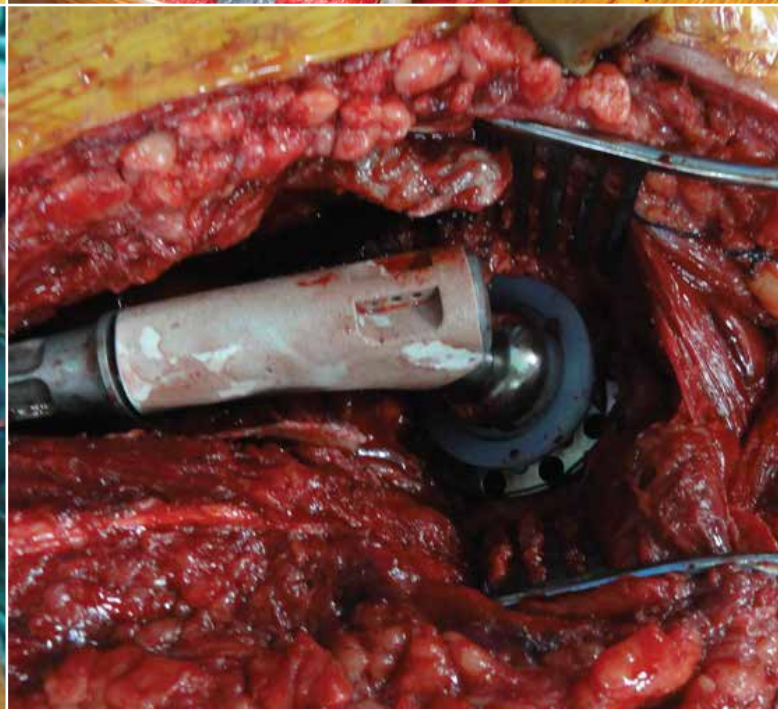
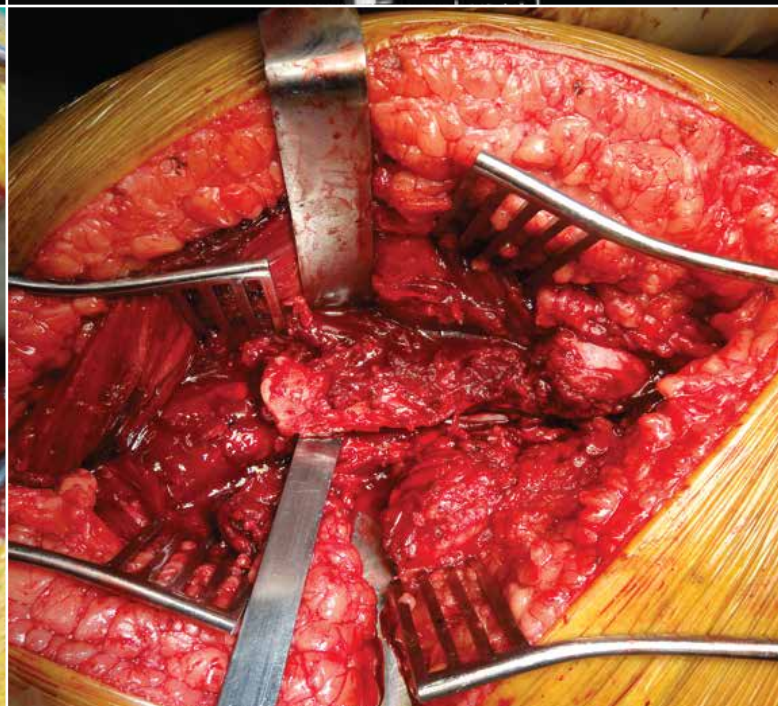
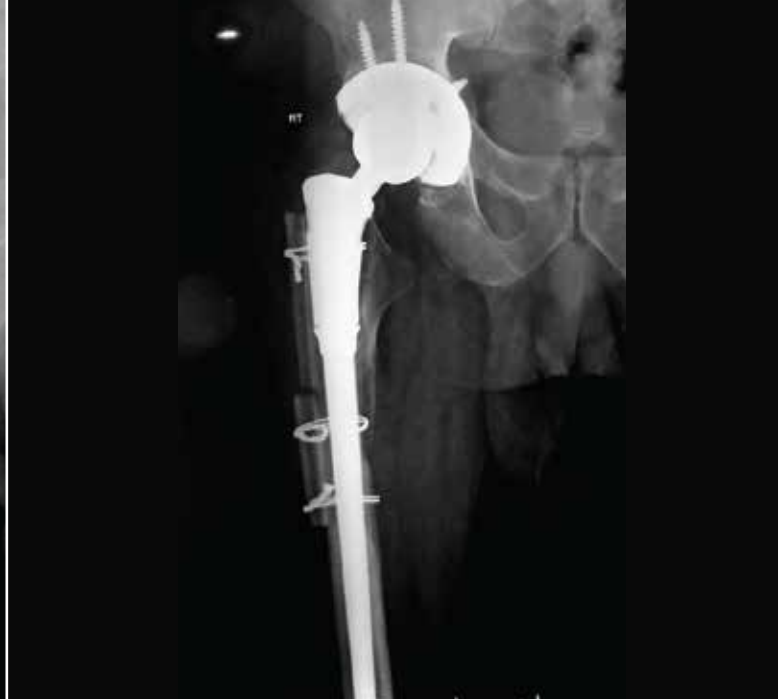


#### Gender Distribution

3rd Year 4th Year 5th Year 6th Year









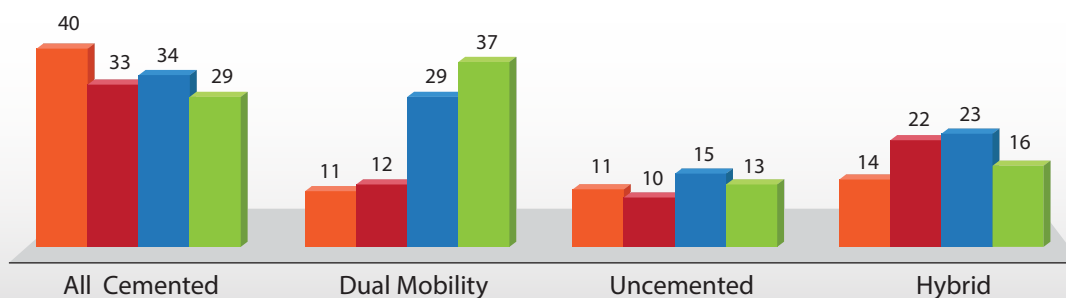
## SECTION IV



# Revision Total Hip Arthroplasty

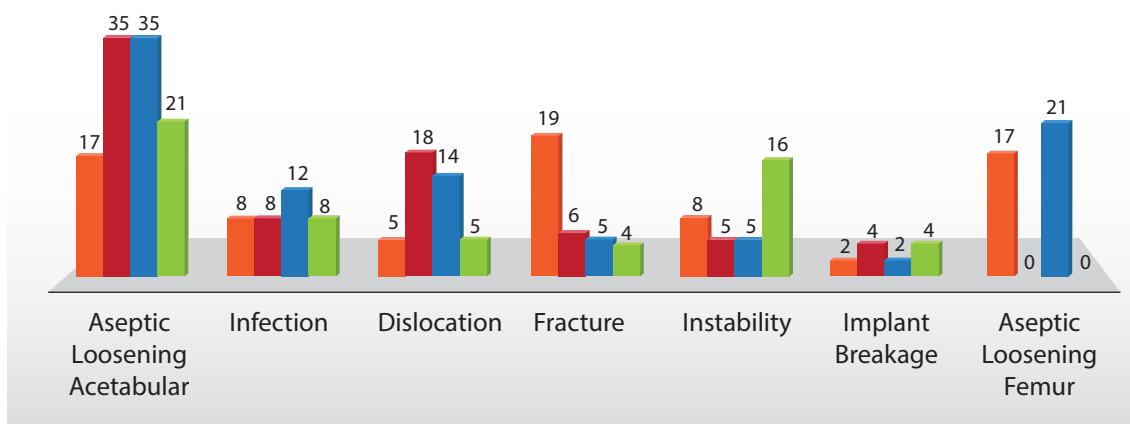
## Implant Detail

3rd Year 4th Year 5th Year 6th Year



## Diagnosis

3rd Year 4th Year 5th Year 6th Year



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