**Supplementary data S2– Coding of the risk factors and potential confounders**

| Risk factors | HDD codes used |
| --- | --- |
| Sex | Sex (information available in the arthroplasty stay summary) |
| Morbid obesity  (BMI ≥ 35 kg/m²) | Identified as PD or SD during the year before arthroplasty, and in the arthroplasty stay as SD. ICD-10 codes for obesity ≥ 35 kg/m² : *E66.05 Obesity due to excess calories with BMI ≥ 35 kg/m² and < 40 kg/m² E66.06 Obesity due to excess calories with BMI ≥ 40 kg/m² and < 50 kg/m²* E66.07 *Obesity due to excess calories with BMI ≥ 50 kg/m²*  E66.15 Drug-induced obesity with *BMI ≥ ≥ 35 kg/m² and < 40 kg/m²*  E66.16 Drug-induced obesity with *BMI ≥ with BMI ≥ 40 kg/m² and < 50 kg/m²*  *E66.17* Drug-induced obesity with *BMI ≥ 50 kg/m²* 66.25 Extreme obesity with alveolar hypoventilation *with BMI ≥ 35 kg/m² and < 40 kg/m²*  66.26 Extreme obesity with alveolar hypoventilation *with BMI ≥ 40 kg/m² and < 50 kg/m² E66.27* Extreme obesity with alveolar hypoventilation *with BMI ≥ 50 kg/m²*  *E66.85 Other obesity with BMI ≥ 35 kg/m² and < 40 kg/m²*  *E66.86 Other obesity with BMI ≥ 40 kg/m² and < 50 kg/m² E66.87 Other obesity with BMI ≥ 50 kg/m²* E66.95 Obesity, unspecified *with BMI ≥ 35 kg/m² and < 40 kg/m²*  E66.96 Obesity, unspecified *with BMI ≥ 40 kg/m² and < 50 kg/m²* E66.97 Obesity, unspecified *with BMI ≥ 50 kg/m²* |
| Malnutrition | Identified as PD or SD during the year before arthroplasty, and in the arthroplasty stay as SD. ICD-10 codes for malnutrition (E40-E46) :  E40 Kwashiorkor  E41 Nutritional marasmus  E42 Marasmic kwashiorkor  E43 Unspecified severe protein-energy malnutrition  E44 Protein-energy malnutrition of moderate (E44.0) or mild degree (E44.1)  E46 Unspecified protein-energy malnutrition |
| Diabetes | Identified as PD or SD during the year before arthroplasty, and in the arthroplasty stay as SD. ICD-10 codes for treated or diagnosed diabetes :  E10 Type 1 diabetes mellitus  E11 Type 2 diabetes mellitus  E12 Malnutrition-related diabetes mellitus  E13 Other specified diabetes mellitus  E14 Unspecified diabetes mellitus |
| Active malignant tumor | Identified as SD during the arthroplasty stay or as PD or SD in the follow-up stays. ICD-10 codes for malignant neoplasms : C00-C97; D37-D48  OR  by the ICD-10 code Z51.1 Chemotherapy session for tumor coded as PD |
| History of inflammatory polyarthritis | Identified as PD or SD during the year before arthroplasty, and in the arthroplasty stay as SD. ICD-10 codes for inflammatory polyarthropathies : M05-M14, except for : M06.2 Rheumatoid bursitis M06.3 Rheumatoid nodule M12.4 Intermittent hydrarthrosis  M12.5 Traumatic arthropathy and M45-M46.0, M46.1 M46.9 |
| Disease with immune deficiency and/or cirrhosis | Identified as PD or SD during the year before arthroplasty, and in the arthroplasty stay as SD. ICD-10 codes for immune abnormalities/diseases :  B20-B24 Human immunodeficiency virus (HIV) disease  D80-D84 Certain disorders involving the immune mechanism : immunodeficiencies  ICD-10 codes for cirrhosis :  K70.0 Alcoholic fatty liver  K70.3 Alcoholic cirrhosis of liver  K71.7 Toxic liver disease with fibrosis and cirrhosis of liver  K74 Fibrosis and cirrhosis of liver |
| History of osteo-articular infection | Identified as PD or SD during the year before arthroplasty.  ICD-10 codes for osteoarticular infection :  M00-M03 Infectious arthropathies  M86 Osteomyelitis  T845 Infection and inflammatory reaction due to internal joint prosthesis  T846 Infection and inflammatory reaction due to internal fixation device (any site)  T847 Infection and inflammatory reaction due to other internal orthopedic prosthetic devices, implants and grafts |
| History of hip/knee surgery or arthroscopy | Identified as PD or SD during the year before arthroplasty.  FCCMA codes for surgery, arthroplasty and interventional procedures (Annex bis 1 and 2). |
| Chronic renal failure | Identified as PD or SD during the year before arthroplasty, and in the arthroplasty stay as SD by the ICD-10 code for chronic renal failure N18 OR  Identified during the year before arthroplasty (TH/KP) stay by the Homogeneous Group of Patients code «GHM 11K02» (Renal failure, with dialysis). |
| History of non-surgical hospital stay ≥ 4 days | Identified during the year before arthroplasty : at least 1 stay lasting 4 days or more |
| Prosthesis location | During the arthroplasty hospital stay  Procedure codes: NEKA010, NEKA012, NEKA013, NEKA014, NEKA015, NEKA016, NEKA017, NEKA019, NEKA020, NEKA021/ NFKA007, NFKA008, NFKA009 |
| Socio economic factor of precarity | Identified during the year before arthroplasty or in the arthroplasty stay as SD by the ICD-10 code Z59 Difficulties related to housing and economic conditions |

## Annex bis. FCCMA codes for hip or knee surgery, arthroplasty and interventional procedures

### Annex 1 : Surgical and interventional procedures on the hip

| FCCMA code | Label |
| --- | --- |
| NEDA001 | Coxofemoral arthrodesis by arthrotomy |
| NEDA002 | Stabilization of a coxofemoral joint total prosthesis by fitting a supraacetabular strop in inert material, and lowering greater trochanter and/or changing head or removable neck |
| NEEA001 | Reduction of a coxofemoral joint traumatic dislocation, by arthrotomy |
| NEEA002 | Reduction of a coxofemoral prosthesis dislocation, by arthrotomy, with or without changing of the femoral head |
| NEEA003 | Reduction of a coxofemoral joint traumatic dislocation with fracture osteosynthesis of the femoral head, by arthrotomy |
| NEEA004 | Reduction of a non-traumatic unstable hip, by arthrotomy |
| NEFA001 | Coxofemoral joint resection with trochantero-iliac or femoro-iliac coaptation |
| NEFA003 | Coxofemoral synovectomy, by arthrotomy using 2 approaches including a posterior approach |
| NEFA004 | Coxofemoral synovectomy, by arthrotomy using one approach |
| NEFC001 | Coxofemoral synovectomy, by arthroscopy |
| NEGA001 | Removal of a total hip prosthesis with acetabulum and/or femur bone reconstruction |
| NEGA002 | Removal of a total hip prosthesis |
| NEGA003 | Removal of a total hip prosthesis with trochantero-iliac |
| NEGA004 | Removal of the intermediate insert of a coxofemoral joint prosthesis, with placement of an acetabular piece |
| NEGA005 | Removal of a cervicocephalic femoral prosthesis |
| NEJA001 | Cleaning of the coxofemoral joint, by arthrotomy |
| NEJA002 | Collection evacuation of the coxofemoral joint, by arthrotomy |
| NEJA004 | Periprosthetic collection evacuation (coxofemoral joint), by arthrotomy |
| NEJB001 | Coxofemoral joint collection evacuation, transcutaneously |
| NEJC001 | Cleaning of the coxofemoral joint, by arthroscopy |
| NEKA001 | Change of the acetabular and femoral parts of a total hip prosthesis, with reconstruction by compacted grafts without osteosynthesis |
| NEKA002 | Change of the acetabular or femoral part of a total hip prosthesis, with acetabulum or femur bone reconstruction |
| NEKA003 | Change of the acetabular and femoral parts of a total hip prosthesis, without bone reconstruction |
| NEKA004 | Change of the acetabular insert of a total hip prosthesis |
| NEKA005 | Change of the acetabular or femoral part of a total hip prosthesis, with acetabulum or femur osteosynthesis |
| NEKA006 | Change of the acetabular and femoral parts of a total hip prosthesis, with acetabulum and/or femur reconstruction and osteosynthesis |
| NEKA007 | Change of the acetabular or femoral part of a total hip prosthesis, with bone reconstruction by compacted grafts without osteosynthesis |
| NEKA008 | Change of the acetabular and femoral parts of a total hip prosthesis with acetabulum or femur osteosynthesis or reconstruction |
| NEKA009 | Change of the acetabular or femoral part of a total hip prosthesis, without bone reconstruction |
| NEKA010 | Coxofemoral joint replacement with a total prosthesis, with acetabular metal reinforcement and femoral reconstruction by graft |
| NEKA011 | Coxofemoral joint replacement with a cervicocephalic femoral prosthesis and a movable cup |
| NEKA012 | Coxofemoral joint replacement with a total hip prosthesis with acetabular or femoral reconstruction by graft |
| NEKA013 | Coxofemoral joint replacement with a total prosthesis after coxofemoral arthrodesis |
| NEKA014 | Coxofemoral joint replacement with a total prosthesis with acetabular metal reinforcement |
| NEKA015 | Coxofemoral joint replacement with a total prosthesis after osteosynthesis, osteotomy or femoral cervicocephalic prosthesis, with or without removal of prosthetic material |
| NEKA016 | Coxofemoral joint replacement with a total prosthesis with femoral diaphysis osteotomy |
| NEKA017 | Coxofemoral joint replacement with a total prosthesis with lowering femoral head in the paleoacetabulum [paleocotyle]Total prosthesis placement for congenital upper or intermediate dislocation of the hip, with or without acetabular reconstruction by graft or prosthetic reinforcement |
| NEKA018 | Coxofemoral joint replacement with a cervicocephalic femoral prosthesis |
| NEKA019 | Coxofemoral joint replacement with a total prosthesis after coxofemoral arthrodesis with acetabular metal reinforcement |
| NEKA020 | Coxofemoral joint replacement with a total prosthesis. Total hip prosthesis placement. |
| NEKA021 | Coxofemoral joint replacement with a total prosthesis with lowering femoral head in the paleoacetabulum [paleocotyle] and femoral reorientation or alignment osteotomy. Total prosthesis placement with or without acetabular reconstruction by graft or prosthetic reinforcement |
| NEKA022 | Change of a cervicocephalic femoral prosthesis for a total hip prosthesis |
| NELA001 | Refitting of a total prosthesis of the coxofemoral joint, with bone reconstruction |
| NELA002 | Refitting of a total prosthesis of the coxofemoral joint, without bone reconstruction |
| NELA003 | Placement of an acetabular piece in a cervicocephalic femoral prosthesis. Totalization of an unipolar hip prosthesis |
| NEMA003 | Supraacetabular osteoplasty of the coxal bone by abutment with extraarticular osteotomy of the proximal end of the femur |
| NEMA011 | Reconstruction of the coxofemoral joint by massive or custom prosthesis, after loss of segmental substance in the hip or coxal bone |
| NEMA013 | Bone reconstruction of the hip after coxal bone block cutting with fixation of the femur to coxal bone |
| NEMA017 | Supraacetabular osteoplasty of the coxal bone by abutment with greater trochanter osteotomy |
| NEMA018 | Coxofemoral arthroplasty using a femoral cup |
| NEMA020 | Acetabuloplasty with femoral osteotomy |
| NEMA021 | Supraacetabular osteoplasty of the coxal bone by abutment, or acetabuloplasty |
| NEPA001 | Mobilizing release of the coxofemoral joint, by arthrotomy |

### Annex 2: Surgical and interventional procedures on the knee

| FCCMA code | Label |
| --- | --- |
| NFCA001 | Suture or reinsertion of the anterior cruciate ligament of the knee, by arthrotomy |
| NFCA002 | Suture or reinsertion of the knee joint capsule, by direct approach |
| NFCA003 | Suture or reinsertion of the cruciate ligaments and periarticular capsuloligamentary element of the knee, by arthrotomy |
| NFCA004 | Suture or reinsertion of the anterior cruciate ligament and periarticular capsuloligamentary element of the knee, by arthrotomy |
| NFCA005 | Suture or reinsertion of the posterior cruciate ligament and periarticular capsuloligamentary element of the knee, by arthrotomy |
| NFCA006 | Suture or reinsertion of the posterior cruciate ligament by arthrotomy |
| NFCC001 | Suture or reinsertion of the posterior cruciate ligament by arthroscopy |
| NFCC002 | Suture or reinsertion of the anterior cruciate ligament by arthroscopy |
| NFDA002 | Femorotibial arthrodesis by arthrotomy |
| NFDA003 | Proximal fibulotibial arthrodesis by arthrotomy |
| NFEA001 | Reinsertion or suture of the 2 knee menisci by arthrotomy |
| NFEA002 | Reinsertion or suture of one knee menisci by arthrotomy |
| NFEC001 | Reinsertion or suture of the 2 knee menisci by arthroscopy |
| NFEC002 | Reinsertion or suture of one knee menisci by arthroscopy |
| NFEP002 | Orthopedic reduction of a dislocation or dislocation-fracture of the femorotibial joint |
| NFFA001 | Lateral and medial meniscectomies of the knee by arthrotomy |
| NFFA002 | Synovectomy of the knee, by anterior arthrotomy and by posterior arthrotomy without changing patient’s position |
| NFFA003 | Lateral or medial meniscectomy of the knee, by arthrotomy |
| NFFA004 | Anterior synovectomy of the knee, by arthrotomy |
| NFFA005 | Anterior synovectomy of the knee, by arthroscopy with posterior synovectomy by arthrotomy without changing position |
| NFFA006 | Synovectomy of the knee, by anterior arthrotomy and by posterior arthrotomy with changing patient’s position |
| NFFC001 | Synovectomy of the knee, by anterior arthroscopy and by posterior arthroscopy |
| NFFC002 | Anterior synovectomy of the knee, by arthroscopy |
| NFFC003 | Lateral and medial meniscectomies of the knee by arthroscopy |
| NFFC004 | Lateral or medial meniscectomy of the knee by arthroscopy |
| NFGA001 | Removal of a knee prosthesis with arthrodesis |
| NFGA002 | Removal of a knee prosthesis |
| NFJA001 | Cleaning of the knee joint by arthrotomy |
| NFJA002 | Knee collection evacuation by arthrotomy |
| NFJC001 | Cleaning of the knee joint by arthroscopy |
| NFJC002 | Cleaning of the knee joint by arthroscopy |
| NFKA001 | Change of a tricompartmental knee prosthesis without bone reconstruction |
| NFKA002 | Change of a tricompartmental knee prosthesis with bone reconstruction |
| NFKA003 | Change of a unicompartmental knee prosthesis |
| NFKA004 | Change of the insert of a unicompartmental or tricompartmental knee prosthesis |
| NFKA005 | Change of a unicompartmental knee prosthesis for a tricompartmental prosthesis |
| NFKA006 | Knee joint replacement with a unicompartmental femorotibial or femoropatellar prosthesis |
| NFKA007 | Knee joint replacement with a tricompartmental prosthesis on a deformation less than or equal to 10° in the frontal plane |
| NFKA008 | Knee joint replacement with a tricompartmental prosthesis on a deformation less than or equal to 10° in the frontal plane |
| NFKA009 | Knee joint replacement with a fixed or rotary hinge prosthesis |
| NFLA001 | Refitting of a knee joint prosthesis with bone reconstruction |
| NFLA002 | Refitting of a knee joint prosthesis without bone reconstruction |
| NFMA002 | Lateral extraarticular ligament plasty of the knee with fascia lata, by direct approach |
| NFMA004 | Reconstruction of the anterior cruciate ligament of the knee by autograft, by arthrotomy |
| NFMA005 | Knee capsulo-myo-tenoplasty for patella refocusing |
| NFMA006 | Knee joint reconstruction by a massive or custom prosthesis after loss of segmental substance |
| NFMA008 | Iterative reconstruction of the posterior cruciate ligament of the knee by synthetic ligament, by arthrotomy |
| NFMA010 | Iterative reconstruction of the posterior cruciate ligament by autograft without synthetic reinforcement by arthrotomy |
| NFMA011 | Knee cruciate ligaments reconstruction by arthrotomy |
| NFMA013 | Knee bone reconstruction after loss of segmental substance with arthrodesis and osteosynthesis |
| NFMC001 | Knee cruciate ligaments reconstruction by arthroscopy |
| NFMC002 | Reconstruction of the posterior cruciate ligament by autograft without synthetic reinforcement, by arthroscopy |
| NFMC003 | Reconstruction of the anterior cruciate ligament by autograft, by arthroscopy |
| NFMC005 | Iterative reconstruction of the posterior cruciate ligament by synthetic ligament, by arthroscopy |
| NFPA001 | Mobilizing release of the knee joint, by arthrotomy |
| NFPA002 | Lateral patellar retinaculum section (external patellar fin) by arthrotomy |
| NFPA003 | Mobilizing release of the knee joint by arthroscopy or arthrotomy, with complete quadriceps release |
| NFPA004 | Lateral patellar retinaculum section (external patellar fin) with osteotomy of the patellar surface of the femur |
| NFPC001 | Lateral patellar retinaculum section (external patellar fin) by arthroscopy |
| NFPC002 | Mobilizing release of the knee joint by arthroscopy |