Index

Achromobacter spp., 187
Acinetobacter anitratus, 95
Acinetobacter spp., 328, 329
Actinobacillus actinomycetemcomitans, 291
Actinomyces israelii, 294
Actinomyces odontolyticus, 103
Actinomyces spp.
  arthritis related to soil contact, 87
  chronic osteomyelitis, 268
  jaws osteomyelitis, 291, 292, 295
acute hematogenous
  ankle arthroplasty, PAJI, 192
  implant-associated osteomyelitis, 310
  infection duration, 199
  onset of symptoms, characteristics, 305
  osteoarticular infection, 207
  osteomyelitis, 200, 214, 236
PJII
  antibiotic therapy, 142
  implant retention, treatment, 115
  leukocyte counts, 142
  osteoarthritis, 142
  Streptococcus dysgalactiae, 142–3
  treatment algorithm, 139
acute odontogenic osteomyelitis, 298
acute osteomyelitis
  abnormal bone remodeling, 222
  antibiotic therapy, 199, 234, 235
  back pain, 228
  biopsy, 230
  blood cultures, 230
  bone edema, vascular congestion and small-vessel thrombosis, 223
  children, 5–6
  conservative therapy, 233–4
  diabetic foot osteomyelitis, 274
differential diagnosis, 232–3, 233
epidemiology, 223–4
exogenous/contiguous infection, local,
  221–2, 225, 226
formation, spinal epidural abscess, 228
gadolinium enhancement, 231, 232
hematogenous infection, distant source,
  226–7, 227
hematological and biochemical markers,
  229–30
heroin, 228, 229
microbiology, 5, 224–5
monitoring, 15–16
positron emission tomography (PET), 232
pyogenic complications, 231, 231
pyogenic infection, 222
signs and symptoms, 227–8
spinal deformity, 228
Staphylococcus aureus, 47, 222–3
subacute, 221
surgical treatment, 234
three-phase technetium-99m bone scans,
  231
underlying diseases impairing host defense,
  225, 225
vertebral osteomyelitis, microorganisms,
  222, 222
acute PSTOM
  early vs. delayed secondary wound closure,
    357–8
  exchange fixation wires, 357
  first revision, 356
  meticulous debridement, 356, 357
  prevention, surgical complications, 356–7
  risk factors, 360–361
acute rheumatic fever, 64
acute trauma-/fracture-related osteomyelitis, 297
acute vertebral osteomyelitis, 221, 222, 222, 226, 228, 229, 230, 241, 250
adjunctive anti-inflammatory therapy, 71
adult osteomyelitis, orthopedic surgery, 42
aerobic gram-negative bacilli, 8
age distribution, children with septic arthritis, 56
alcohol abuse, 96
alginate beads, 45
American Orthopedic Foot and Ankle Society scale, 184
American Shoulder and Elbow Society score (ASESS), 160
American Society of Anesthesiologists (ASA) score, 326
aminoglycosides, 83
amoxicillin
  bacterial native joint infections, 84
  beta-lactams, bone penetration, 26, 29
  shoulder arthroplasty, PJI, 162
  total hip and knee arthroplasty, PJI, 136, 137, 142
amoxicillin/clavulanate
  ankle arthroplasty, PJI, 193
  bacterial native joint infections, 84
  childhood OM, 215
  chronic osteomyelitis, 265
  elbow arthroplasty, PJI, 178
  jaws osteomyelitis, 268, 298, 299
  total hip and knee arthroplasty, PJI, 137
  total shoulder fracture-arthroplasty, 162
amphotericin B, chronic osteomyelitis, 266
ampicillin
  beta-lactams, bone penetration, 26, 29
  IA VO, 336, 341
  implant-associated infections, 136–7
  total hip and knee arthroplasty, PJI, 136
ampicillin/sulbactam
  β-lactams/β-lactamase inhibitors, 29
  IA VO, 341
  total hip and knee arthroplasty, PJI, 137
amputation
  after multiple treatment failures, 122
  long bones, implant-associated osteomyelitis, 315–16
  native joint arthritis, 82
anaerobes
  ankle arthroplasty, PJI, 187
  contiguous focus, 8
  osteomyelitis, antibiotic therapy, 235
  sternoclavicular septic arthritis, 95
  anaerobic osteomyelitis, 85
animal osteomyelitis models
  blunt impact guillotines, 46
  chronic osteomyelitis, 46–7
  in clinical medicine, 48
  deep bioluminescent imaging, 48
  ethical issues and complications, 46
  host response, 40
  injury mechanisms and fracture patterns, 46
  prophylactic implant coatings, 47
  rat femur models, 47
ankle arthroplasty
  acute hematogenous, 192, 192–3
  antimicrobial treatment, 192
  blood tests, 188
  chronic exogenous, 193, 193–4
  clinical features, 186–7, 188
  imaging procedures, 189
  implantation, 184
  intraoperative samples, 188–9
  knee and hip, 183
  laboratory investigation, 187
  microbiological findings, 186, 187
  osteoarthritis, 183–4
  posttraumatic etiology, 184
  primary and secondary arthritis, 183
  replacement, 184
risk factors
  patient-related, 185
  postoperative course, 186
  surgery-related, 185–6
surgical interventions
  debridement and implant retention, 190
  hip, 190
  implant removal without replacement, 191–2
  one-and two-stage exchange, 191
  types, 189–90
  synovial fluid leukocyte count, 188
  younger and older age, 183–4
ankylosing spondylitis, 102
ankylosing spondyloarthropathy, 105
ankylosis, 71
antibiotic(s)
  bone penetration
  beta-lactams, 26
  bone-to-serum concentration ratios, 24–5
  cephalosporins, 28–9
  clindamycin, 27–8
  daptomycin, 30
fluoroquinolones, 25–7
fosfomycin, 30–31
glycopeptides, 31
groups, 24–5
linezolid, 30
macrolides, 27
penicillins and β-lactamase inhibitors, 29–30
quinolones and macrolides, 25
representation, 24
rifampicin, 28
telithromycin, 27
tetracyclines and tigecycline, 28
chronic osteomyelitis in adults, 263–6
implant-associated infections, 135–6
native joint arthritis children, therapy
administration guidelines, 69
CA-MRSA, 69
ceftriaxone, 68
cephalosporin, 68
initial IV, 70
joint inflammation sign, 59
previous administration, 60
resistance in Staphylococcus aureus, administration, 70
shortened protocol, 64
osteomyelitis children, 214–16
pharmacodynamics (PD) and Monte Carlo simulations
amoxicillin/clavulanic acid, 33–4
moxifloxacin, 32, 32–3
naive pooling, 31
plasma and bone concentrations, 32
population modeling, 31–2
sampling time, 31
pharmacokinetics
AUC, 23
interpatient variability, 23
organic bone matrix, 22
pathogens site, 22
reactive hyperemia, 23–4
time course and drug concentration, 21
in uninfected bone, 23
rifampin therapy, 138
sample preparation and analysis, 22–3
THA PJI and TKA PJI, 135–8
antibiotic cement-coated nails, 315
antibiotic-laden PMMA, 48
antibiotic therapy
chronic osteomyelitis, 264–5
intravenous, 207, 214
native joint arthritis, children, 64, 68–71
osteomyelitis, 235
shoulder arthroplasty, PJI, 161
total hip and knee arthroplasty, PJI, 142
anti–Gram-positive bacteriostatic antibiotic, 83–4
anti–Gram-positive therapy, 79
antimicrobial therapy
acute osteomyelitis in adults, 233–4
chronic exogenous PAJI, 193–4
elbow arthroplasty, PJI, 177
IAOM
aminoglycoside and vancomycin, 316–17
bioabsorbable bone substitutes (BBS), 316, 317
biofilm infections, 316
delayed/late infections, 316
implantation, spacers, 316
long-term, 316
periprosthetic joint infection (PJI), 303–4, 316
polymethyl methacrylate (PMMA) cement, 316, 317
jaws osteomyelitis, 291, 297–9
native joint arthritis
aminoglycosides, 83
bacterial native joint infections, 84
clindamycin, 85
corticosteroids, 87
daptomycin, 83
duration, therapy and administration, 86–7
fluoroquinolones, 85
histamine-mediated “red man” syndrome, 83
intraavenous β-lactam antibiotics, 83
linezolid, 83–5
supportive therapy, 87
tetracyclines, 85
tigecycline, 83
trimethoprim/sulfamethoxazole, 85
vancomycin, 83
periprosthetic joint infection, 121, 122
postoperative sternal osteomyelitis, 359, 360
shoulder arthroplasty, 161
symphysis pubis, septic arthritis, 102
apathogenic bacteria, 116
area under concentration–time curve (AUC) ratios, 23, 24, 26–32
arthrocentesis, 13, 16, 82, 171
arthrodesis, 82
arthrotomy, in pediatric septic arthritis, 68
ASA score see American Society of Anesthesiologists (ASA) score
ASESS see American Shoulder and Elbow Society score (ASESS)
Aspergillus spp.
chronic granulomatous disease, 213
jaws osteomyelitis, 291
autoimmune arthritis, 67
autoimmune osteitis, 200
axial joints, septic arthritis see septic arthritis
azithromycin, antibiotics in bone, 25, 27
Bacillus Calmette-Guérin (BCG), 246
Bacillus spp., 79
back pain, 102, 104, 105, 206, 228, 229, 232, 233, 243, 331
BACTEC-MGIT, 246
bacteremia
acute osteomyelitis, 227
acute postoperative mediastinitis, 354
aminoglycosides, 83
attack rate, in early childhood, 55
brucellosis, 245
children, 206
hematogenous osteomyelitis, 47
IVDU, 199
meningitis and, 214
NICU, babies in, 207
in patients with brucellosis, 245
pediatric, 56
seeding microorganism, 225
Staphylococcus aureus, 23, 61, 118, 227
tuberculous and brucellar vertebral osteomyelitis, 245
bacterial adhesion, 48, 223
bacterial arthritis, 10, 63–4
Bacteroides forsythus, 291
Bacteroides fragilis, 6
Bacteroides spp., 235, 328, 329, 329
Bartonella henselae
associated with cat scratch, 212
native joint arthritis, 80
Bartonella spp.
acute osteomyelitis, children, 6
acute osteomyelitis in adults, 5
chronic osteomyelitis, 260
BCG see Bacillus Calmette-Guérin (BCG)
Behcet's disease, 105
B hemolytic streptococci, 267
bioabsorbable bone substitutes (BBS), 316, 317
bioassay
amoxicillin bone-to-serum concentration ratios, 29
beta-lactams, bone penetration, 26
cefazolin, 29
cloxacillin, 27–8
fosfomycin, 230
quinolones and macrolides, bone penetration, 25, 27
rifampicin, 28
biodegradable polymer beads, 45
biofilm
in bone and joint surgery, 45
chronic osteomyelitis, 260
forming bacteria, 48
periprosthetic joint infection, 117
producing organisms, 331
biological fixation methods, 185
bioluminescent bacteria, 39
biofilms, 42, 44
blood cultures, 16–17, 104–5, 208–9, 278
bone fixation devices, 1
bone infarction, 67
bone marrow edema, 105
bone matrix, antibiotics in bone, 22
bone scans, 66, 97, 101, 134, 210, 211, 231, 309
bone-to-serum concentration ratios, 24–9,
26, 34
Borrelia burgdorferi
antibiotic therapy, 68
native joint arthritis children, 60
pediatric septic arthritis and associated clinical conditions, 58
Brodie abscess, 206, 209
Brucella melitensis
septic arthritis, sternoclavicular joint, 94
sternoclavicular septic arthritis, 95
Brucella osteomyelitis
locations, 266
microbiology, 7, 8
sacroiliac joint, septic arthritis, 104
sacroiliitis, 266–7
surgical treatment, 267
vertebral osteomyelitis, 11
brucellar arthritis, 59
brucellar vertebral osteomyelitis (BVO), 242–4, 243, 244, 248
Brucella spp.
acute osteomyelitis in adults, 230
antibiotic therapy, 68
bacterial arthritis, 64
chronic osteomyelitis, 260, 265, 267
chronic vertebral osteomyelitis, 241
community-acquired vertebral
osteomyelitis, 241
elevated laboratory markers, 65
native joint arthritis, 80
newborns and young patients, 63
pediatric septic arthritis and associated
clinical conditions, 58
septic arthritis, sternoclavicular joint, 94
subacute osteomyelitis, 221, 241
vertebral osteomyelitis, 223, 243
brucellosis, 60, 212, 266–7
Burkholderia pseudomallei, 95
Calcaneal osteomyelitis, 207
calcification, symphysis pubis, 102, 248, 249
calcium phosphate pellets, 45
Campylobacter rectus, 103, 104
cancellous bone
antibiotic distribution and, 24
bone sample preparation and analysis, 22
bone surgery in patients, 26–7
bone-to-serum AUC ratios, 29, 31
cephalosporin, 28
cortical and, 28
HPLC analysis, 29
moxifloxacin, 27
moxifloxacin population model, 32
PK/PD targets, 33
Candida albicans
childhood OM, 212
knee arthroplasty, 8
spinal deformity, 228, 229
sternoclavicular septic arthritis, 95
Candida spp.
acute osteomyelitis in adults, 5
DFO, 6
native joint arthritis children, 57, 60
NICU, babies in, 207
symphysis pubis, septic arthritis, 100
vertebral osteomyelitis, 7, 8
cardiopulmonary bypass (CPB), 350
catheter-related infection, 59
ciaequina syndrome, 228
C57BL/6 mice, 41
cefamandole, 28–9
Cefazolin
antibiotics in bone, 29
chronic osteomyelitis, 265, 267
IAVO, 327, 336, 339
Cefepime
beta-lactams, bone penetration, 26
chronic osteomyelitis, 265, 267
osteomyelitis, antibiotic therapy, 235
total hip and knee arthroplasty, PJI
Cefotaxime
jaws osteomyelitis, 297
native joint arthritis, children, 68, 69
cefotiam, 26
Ceftriaxone
antibiotics in bone, 28
axetil, 142
chronic osteomyelitis, 265
native joint arthritis, 69
osteomyelitis, antibiotic therapy, 235
total hip and knee arthroplasty, PJI, 136
Cefuroxime
antibiotics in bone, 28
chronic osteomyelitis, 265
elbow arthroplasty, PJI, 173
native joint arthritis, children, 68
osteomyelitis, antibiotic therapy, 235
total hip and knee arthroplasty, PJI, 136
Cellulitis
pediatric septic arthritis, 58
septic arthritis, children, 96
cementless arthroplasty, 45
dactylitis, 293
chronic contiguous neck infection, 290, 298
chronic granulomatous disease (CGD), 58, 213
chronic hepatitis C, 101
chronic infectious arthritis, 80
chronic osteomyelitis
  acute and secondary, 289–91
  in adults
    bacterial infections, 258
    bone penetration, selected antibiotics, 265, 265
*Brucella*, 266–7
Cierny–Mader classification, 257–8, 258
  clinical and laboratory diagnostics, 260, 260–261
  clinical follow-up, 268
  curative approach, 262
  diabetic foot osteomyelitis (DFO), 262, 266, 267
  epidemiology and pathogenesis, 259, 259–60
  hyperbaric oxygen therapy, 266
  intravenous drug users (IVDU), 258
  jaw, 268
*Kingella kingae*, 259
  local antibiotic-releasing delivery systems, 265–6
  *per continuitatem*, 257, 258
  phage therapy, 268
  pharmacokinetic and pharmacodynamics, antibiotic treatment, 263–4
*Pseudomonas aeruginosa*, 258
  radiological diagnosis, 261, 261–2
  sacral, 267–8
  sacroiliitis, 266–7
  sickle cell disease, 267
*Staphylococcus aureus*, 258
  surgical treatment, 263
  symptoms, 257
  time limit, antibiotic treatment, 264–5
biopsies and, 295
C-reactive protein sensitivity, 295
CT scan, 293
definition, 257
DFO, 274
microbiology, 6
odontogenic secondary, 298
preclinical models, 44
PSTOM, 348
time limit, 199
trauma-/fracture-related secondary, 297–8
Zurich classification, 289, 290
chronic PJ, 115, 133, 155
chronic polymicrobial PSJI, 163
chronic posttraumatic osteomyelitis, 200
chronic PSTOM
  comorbidities, 358–9
  complex management, 361
  deep SWI, 348
  extensive mediastinal wound, 358, 358
  meticulous debridement, 358
  removal, foreign body materials, 358
  soft tissue reconstruction, 359
  surgical intervention, 358
chronic recurrent multifocal osteomyelitis, 67, 200
chronic renal failure, 96
chronic septic arthritis, 80
chronic sinusitis, 212
ciprofloxacin
  antibiotics in bone, 25, 25
  childhood OM, 215
  chronic osteomyelitis, 265, 267
  osteomyelitis, antibiotic therapy, 235
  synovial and bone infections, 86
  total hip and knee arthroplasty, PJ1, 136, 137
*Citrobacter diversus*, 95
*Citrobacter* species, 8
clavulanic acid see also amoxicillin/clavulanate beta-lactams, bone penetration, 26
jaws osteomyelitis, 298, 299
clindamycin
  antibiotics in bone, 25
  in arthritis, 85
  bacterial native joint infections, 84
  childhood OM, 215
  chronic exogenous PAJI, 193–4
  chronic osteomyelitis, 264, 265, 267
  elbow arthroplasty, PJ1, 173, 178
  high bone penetration, 27–8, 265
IAVO, 327, 336–7
initial administration, 70
jaws osteomyelitis, 298
  native joint arthritis, 85
  native joint arthritis, children, 69
  osteomyelitis, antibiotic therapy, 235
  shoulder arthroplasty, PJ1, 163
  total hip and knee arthroplasty, PJ1, 136, 137
closed-suction drains, 327
*Clostridium difficile*
  childhood OM, 215
  diabetic foot osteomyelitis (DFO), 282
Clostridium spp.
- arthritis related to soil contact, 87
  IAVO, 329
- native joint arthritis, 79
- cloxacillin, 69
- coagulase-negative staphylococci (CNS)
  - acute vertebral osteomyelitis, 222, 222
  - ankle arthroplasty, PJI, 186, 187
- chronic PJI, 133
- contiguous focus, 8
- deep sternal wound infections, 352
- delayed implant-associated infections, 199
- diabetic foot osteomyelitis (DFO), 276
- elbow PJI, 168, 169
  IAVO, 328, 329, 330
- low-virulent pathogen, 154
- NICU, babies in, 207
- periprosthetic knee and hip infection, 9
- periprosthetic shoulder joint infection, 153, 160
- polymicrobial infection, 178–9
- pyogenic vertebral osteomyelitis, 7
- spondylodiskitis, 224–5
- subacute osteomyelitis, 221
- THA and TKA, 132
- vertebral osteomyelitis, 8
- coating implants, 48
Coccidioides immitis, 291
- collagen sheets, 45
- colony forming units (CFU), 45, 47, 115, 118, 123, 157, 178
- community-associated MRSA (CA-MRSA), 57, 69, 211, 212
- comorbidities, IIAOM, 310
- computed tomography (CT) scan
  - diabetic foot osteomyelitis (DFO), 277
  - IIAOM, 309
  - IAVO, 333
- jaws osteomyelitis, 296, 296
- postoperative sternal osteomyelitis, 354, 355
- sacroiliac joint, septic arthritis, 105, 106
- sternoclavicular septic arthritis, 97
- symphysis pubis, septic arthritis, 101, 102
- confined focus osteomyelitis, 258
- Constant–Murley score (CMS), 158–60, 159, 160
- contiguous focus, 8
- continuous infection, 94
- conventional orthopantomography, 296
- Coombs anti-Brucella test, 245
- Coonrad–Morrey prosthesis, 173
- cortical bone, 22
corticosteroids
- elbow arthroplasty, PJI, 169
- native joint arthritis, 87
- septic arthritis, axial joints, 96
Corynebacterium spp.
- diabetic foot osteomyelitis (DFO), 276, 278
- IIAOM, 305
- IAVO, 328, 329
- native joint arthritis, 79
- co-trimoxazole, 69
Coxiella burnetii
- acute osteomyelitis, 5, 6
- chronic osteomyelitis, 265
- native joint arthritis, 80
Coxiella spp., 260
C-reactive protein (CRP) levels
- ankle arthroplasty, PJI, 188
- childhood OM, 207, 208, 211
- chronic exogenous PAJI, 193–4
- chronic osteomyelitis, 268
- elbow PJI, 170
- erosive osteochondrosis, 232, 233
- IIAOM, 332
- inflammatory parameters, 11
- native (septic) joint arthritis, 80
- osteomyelitis, children, 208
- periprosthetic joint infection, 13, 120
- PJI after THA and TKA, 133–4
- postoperative sternal osteomyelitis, 354
- pyogenic infection, 229–30
- shoulder arthroplasty, PJI, 155
- symphysis pubis, septic arthritis of axial joints, 100
- cryptococcal antigen test, 12
- crystal arthropathy, 16
- culture-negative
  - osteoarticular infection, 208
  - periprosthetic knee and hip infection, 9
  - PJI, 14–15, 114, 120, 123
  - septic arthritis, 60–61
cytokine nanocoating, 45
DAIR see debridement and implant retention (DAIR)
dalbavancin, 268
daptomycin
- bone penetration, 30
- childhood OM, 215
- chronic osteomyelitis, 267
- elbow arthroplasty, 173–4
- IAVO, antibiotic treatment, 336
- implant-associated infections, treatment, 136
daptomycin (cont’d)
  native joint arthritis, 83
  osteomyelitis, adults, 235
  osteomyelitis, children, 215
  PSJI, rifampin combination therapy, 161
  rifampin resistance, 44
  total hip and knee arthroplasty, PJI, 136
DASH score, 158, 160
debridement and implant retention (DAIR)
  ankle arthroplasty, PJI, 189
  in hip and knee arthroplasties, 190
  IAOM, early infections, 311
  in PAJI, 190
  rifampin combination therapy, administration, 161
  shoulder arthroplasty, 158
  total hip and knee arthroplasty, 138, 139
deep surgical site infection (SSI), 325, 347
delayed-onset IAVO, 338–9
dental implants, 290, 291–2, 298–9
Dermabacter hominis, 278
devascularized bone segment, 44
DFI see diabetic foot infection (DFI)
DFO see diabetic foot osteomyelitis (DFO)
diabetes mellitus, 96
diabetic foot infection (DFI), 281
  diabetic foot osteomyelitis (DFO)
  acute, 274
  blood cultures, 278
  bone biopsy, cultures and histopathology, 276–8, 277
  bone exposure and ulcer area, 279
  chronic, adults, 262, 266, 267
  classes, 274
  description, 273
  diagnostic criteria, 275, 275
  hematogenous origin, 274
  imaging procedures, 280, 280–281
  inflammatory parameters, 279
  international working group on the diabetic foot (IWGDF), 274–5
malleoli, 273
management
  antibiotics, 283–4
  deep infection, 281
  diabetic foot infection (DFI), 281
  Infectious Diseases Society of America (IDSA) guidelines, 281, 283
  removal, infected bone, 282
  soft tissue infection, 282
toe amputation, 282
microbiology, 6, 276, 276
  osseous fragmentation, 273
  PEDIS classification, 257
  peripheral ischemic vascular disease (PIVD), 274
  physiology, 274
  prevention, 284
  puncture wound, 274
  risk factors, 278–9
  skeletal architecture destruction, 273
  skin and soft tissue cultures, 278
  spectrum, microorganisms, 276
  systemic inflammatory response syndrome (SIRS), 275
diabetic foot syndrome, 199
dicloxicillin, 69
diffuse osteomyelitis, 201
direct prosthesis exchange, 158
disabilities of the arm, shoulder and hand (DASH) score, 158, 160
diskitis, 206–7
doxycycline
  native joint arthritis, 85
  rifampicin combination, 250, 267
  shoulder arthroplasty, 161
  streptomycin combination, 250
  subacute osteomyelitis, 250–251
  total hip and knee arthroplasty, 137
early-onset IAVO, 334–8
echinococcosis, 258
elavancin, 268
elbow arthroplasties (EA), 141, 169, 190
elbow periprosthetic joint infection
  autoimmune rheumatic disorders, 168
  clinical features, 168
  Coonrad–Morrey prostheses, 167
  elbow revision surgery, 179
  emergence of resistance, 176–7
  Gschwend–Scheier–Bähler III (GSB III), 167
  infected elbow prosthesis, exchanging, 176
  late infections treatment, delayed diagnosis, 177–8
  late polymicrobial infection treatment, 178–9
management
  debridement and retention, 176
  IV pathogen-specific treatment, staphylococcal PJI, 175
  pathogen-specific intravenous (IV) antimicrobial therapy, 175
  prosthesis removal, 173
  radial nerve, functional consequences, 173
  surgical procedures and success rates, 173, 175
Index

Enterococcus spp.
- acute osteomyelitis in adults, 5
- ankle arthroplasty, PJI, 187, 187
- contiguous focus, 8
- diabetic foot osteomyelitis (DFO), 276
- difficult-to-treat microorganism, 139
- IAVO, 325, 328, 329, 329, 330
- pathogen-specific therapy, 136
- penicillin resistant, IAVO, 336
- penicillin susceptible, IAVO, 336
- periprosthetic knee and hip infection, 9
- periprosthetic shoulder joint infection, 153
- THA and TKA, 132
- vertebral osteomyelitis, 8

enzyme-linked immunosorbent assay (ELISA), 245
erosive osteochondroses, 232, 233, 247
erapenem, 265, 267
erysipela, 58
Erysipelothrix rhusiopathiae, 79
erythema migrans, 58
erythrocyte sedimentation rate (ESR)
- acute osteomyelitis in adults, 229
- childhood OM, 207, 208
- DFO, 279
- elbow arthroplasty, 170
- IAVO, 332
- inflammatory parameters, 11
- osteomyelitis, children, 208
- PAJI, 188
- in pediatric patients with septic joints, 65
- periprosthetic joint infection, 13, 14, 120
- in PSJI, 155
- spondylodiskitis, 229–30
- subacute osteomyelitis, 244
- THA and TKA, 133–4

erythromycin
- childhood OM, 215
- chronic exogenous PAJI, 193–4
- native joint arthritis, 85

Escherichia coli
- acute vertebral osteomyelitis, 222, 222
- in bone and joint surgery, 46
- diabetic foot osteomyelitis (DFO), 276
- IAVO, 328, 329, 329
- jaws osteomyelitis, 291
- native joint arthritis, children, 59
- periprosthetic joint infection, 114
- premature babies, risk, 207
- sternoclavicular septic arthritis, 95
- symphysis pubis, septic arthritis, 100
- vertebral osteomyelitis, 7, 231

ESR see erythrocyte sedimentation rate (ESR)
Ewing’s sarcoma, 208
experimental osteomyelitis models, 42
extended-spectrum beta-lactamase (ESBL), 214

FABERE (flexion, abduction, external
rotation, extension) test
native joint arthritis, children, 63
sacroiliac joint, septic arthritis, 104
familial Mediterranean fever, 67
F-18 FDG PET/CT, 105
fibrosis, 261
F. magna, 9
fluclaxillin
childhood OM, 215
chronic osteomyelitis, 265
β-lactamase–resistant β-lactam, 69
total hip and knee arthroplasty, PJI, 143
fluconazole, 214, 216, 266
fluocaxillin, 267
fluorodeoxyglucose positron emission
tomography (18F-FDG–PET), 105,
170, 172, 281
fluoroquinolone(s)
antibiotics in bone, 25–7
bacterial native joint infections, 84
bone penetration
bone-to-serum concentration ratios, 24,
25–6
ciprofloxacin, 25
in infected bone, 26
levofloxacin, 26–7
moxifloxacin, 27
quinolones, 25
chronic osteomyelitis, 264, 266
gram-negative infections, 85
periprosthetic joint infection, 122
total hip and knee arthroplasty, PJI, 138

foot osteomyelitis, 199, 257
fusidic acid
antibiotics in bone, 25
chronic osteomyelitis, 265
osteomyelitis, antibiotic therapy, 235
with rifampin, chronic osteomyelitis, 264
total hip and knee arthroplasty, PJI, 136
Fusobacterium necrophorum
childhood OM, 212
sternoclavicular joint arthritis, 96
Fusobacterium spp., 294
gadolinium, 198, 209, 210, 231, 232, 232, 249
gas chromatography, 26
GAS disease see group-A Streptococcus
(GAS) disease
Gaucher crisis, 199
Gaucher’s disease, 197, 199
gentamicin
bacterial native joint infections, 84
chronic osteomyelitis, 266
subacute osteomyelitis, 251
gentamicin-impregnated poly(lactic-co-
glycolic acid) microspheres, 327
Gibbus deformity, 214
Girdlestone procedure, 140
glycopeptides, 25, 31, 215, 350
gonococcal arthritis, 10, 17, 96
gonococcal disease, 80
gout, 81, 98, 102, 261
Grade II open femur fracture, 319–20
gram-negative anaerobes
acute vertebral osteomyelitis, 241
ankle arthroplasty, PJI, 187
childhood OM, 214
chronic osteomyelitis, 258, 265
diabetic foot osteomyelitis (DFO), 276
difficult-to-treat microorganism, 139
Enterobacteriaceae, 266
IAOM, 307
IAVO, 337
low-virulent pathogen, 154
native joint arthritis, 86
osteomyelitis, antibiotic therapy, 234, 235
periprosthetic joint infection, 122
periprosthetic shoulder joint infection, 153
PJI, 133, 138
postoperative sternal osteomyelitis, 350
THA and TKA, 132, 137
gram-positive anaerobes
childhood OM, 214
chronic osteomyelitis, 265, 266
IAVO, 337
osteomyelitis, antibiotic therapy, 235
gram staining sensitivity, 80–81
group-A Streptococcus (GAS) disease, 207, 208, 211–12, 213
gram staining sensitivity, 80–81
Haemophilus aphrophilus, 95
Haemophilus influenzae
experimental animal models, 71
native joint arthritis, children, 57
native joint infection, children, 10
Haemophilus influenzae type b
acute osteomyelitis, children, 6
childhood OM, 206, 208
hematogenous long bones, 8
native joint arthritis, children, 55
pediatric septic arthritis, 58
polyarticular septic arthritis, 62
septic arthritis, children, 59
sternoclavicular septic arthritis, 95
in young children, 2
Haemophilus spp., 292
Haversian and Volkmann canals, 22, 206
hematogenous long bones, 8
hematogenous osteomyelitis
incidence, 223
long bones, 221
preclinical models, 43, 47–8
hematogenous PJI, 118, 132, 133, 143
hemoglobinopathies, 58
β-hemolytic streptococci, 133
hemophilia, 67, 183
Henoch–Schonlein purpura, 67
hepatic dysfunction, 96
high-performance liquid chromatography (HPLC)
beta-lactams, bone penetration, 26
cancellous bone concentrations, 29
ceftriaxone concentrations, 28
glycopeptides, 31
linezolid, 30
piperacillin/tazobactam penetration, 29
quinolones and macrolides, 25
sensitivity and specificity, 23
hip/knee joint arthroplasty, 190 see also total hip and knee arthroplasty (THA and TKA)
hip/knee osteoarthritis, 183–4
hip prosthesis, 168
histamine-mediated “red man” syndrome, 83
HPLC see high-performance liquid chromatography (HPLC)
human immunodeficiency virus (HIV) infection children, 206
infection, acute vertebral osteomyelitis, 226
pediatric septic arthritis and associated clinical conditions, 58
sacroiliac joint, septic arthritis, 104
sternoclavicular septic arthritis, 96
symphysis pubis, septic arthritis, 101
hyperparathyroidism, 105
IAOM see implant-associated osteomyelitis (IAOM), long bones
IAVO see implant-associated vertebral osteomyelitis (IAVO)
IDSA guidelines see Infectious Diseases Society of America (IDSA)
Ilizarov frame, 314
Imipenem
bacterial native joint infections, 84
implant-associated infections, 137
osteomyelitis without implant in adults, 235
total hip and knee arthroplasty, PJI, 144
imipenem
bacterial native joint infections, 84
osteomyelitis, antibiotic therapy, 235
total hip and knee arthroplasty, PJI, 137, 144
immunocapture–agglutination test, 245
immunodeficiency, 57
immunodeficient children, 59
implant-associated bone and joint infection long bones see implant-associated osteomyelitis (IAOM), long bones microorganisms, 7–10
periprosthetic see periprosthetic joint infection (PJI)
spinal implant–associated infection, 10
implant-associated osteomyelitis (IAOM), long bones
antimicrobial suppression, 310
antimicrobial treatment see antimicrobial therapy
implant-associated osteomyelitis (IAOM), long bones (cont’d)
- bacterial/fungal agent, 306
  - blood tests, 307–8
  - classification, open fracture, 304, 305
  - clinical presentation, 306–7
  - comorbidities, 310
  - complication after bone fixation, 303
  - definition, 304
  - diagnosis, 310
  - early infection, 307
  - fractures and fixation devices, 303
  - Gustilo–Anderson grade IIIB open tibia fracture, 317–18, 318
  - histopathology and microbiology, 308–9
  - imaging procedures, 309
  - infected diaphyseal fractures, 310
  - intravenous drug users (IVDU), 305
  - late infection, 307
  - methicillin-resistant S. aureus (MRSA), 306
  - microbiological isolates, 306, 306
  - multidrug-resistant Gram-negative bacilli, 306
  - open trauma, 303
  - prepared instrument set, biopsy sampling, 308, 309
  - septic nonunion after grade II open femur fracture, 319, 319–20
  - smoking, 304–5
  - soft tissue damage, 304
  - stable and unstable bone components, 310
  - surgical interventions
    - amputation, 315–16
    - antibiotics, 311
    - cement-coated nails, 315
    - clinical examination, 311
    - consolidated fracture with surrounding infection, 312
    - early and late infections, 311
    - external fixation pin sites, 315
    - Ilizarov method, 314
    - infected nonunions and bone defects, 314
    - soft tissue management, 311–12
    - staged reconstruction, 315
    - treatment timing, 311
    - unhealed fracture with stable implant, 312–13
    - unhealed fracture with unstable fixation, 313
    - vascularized bone segment transfer, 314
  - therapeutic, 309

implant-associated vertebral osteomyelitis (IAVO)
- algorithm, management, 333, 334
- antibiotic treatment, common organisms, 335, 336–7
- biofilms, 325
- closed-suction drains, 327
- congenital L2 hemivertebra abnormality, L1-L3 fusion, 339–40, 340
- deep surgical site infection (SSI), 325–7
- delayed-onset infections
  - clinical features, 331
  - diagnostic procedures, 333
  - management, 338–9
  - microorganisms isolation, 331
- description, 325–6
- early-onset infections
  - clinical features, 331
  - diagnostic procedures, 332–3
  - management, 334–8
  - microorganisms isolation, 327, 328, 329
- late-onset infections
  - clinical features, 333
  - diagnostic procedures, 332
  - management, 338
  - microorganisms isolation, 329–31, 330
- minimally invasive spine surgery (MISS) techniques, 326–7
- neuromuscular scoliosis, 326
- pathogens, 326
- risk factors, 326, 327
- spinal fusion surgery, 325
- substantial morbidity, 325
- surgical wound, 331
- symptom, 331
- thoracolumbosacral posterior fusion, 340–341
- wound drainage, 331

implant-related osteomyelitis, 43
- infected central line, 96

Infectious Diseases Society of America (IDSA), 114, 275, 281, 283

inflammatory arthritis, 77

in situ implants, IAVO, 325

interferon-gamma release assays (IGRAs) test, 213, 246

interleukin-6, PJI, 14

internal fixation plate, 43

internal mammary artery (IMA), 350

International Working Group on the Diabetic Foot (IWGDF), 274–5, 275, 283

intracellular bacteria, 45
intramedullary nail-associated osteomyelitis, 200

intravenous β-lactam antibiotics, 83

intravenous drug user (IVDU)
  acute hematogenous osteomyelitis, 200
  acute osteomyelitis in adults, 224–6
  axial joint involvement, 94
  chronic osteomyelitis, 258
  chronic osteomyelitis in adults, 258
  exogenous infection, 93
  HIV infection and, 199
  IAOM, 305
  microorganism in bloodstream infections, 95
  native joint arthritis, children, 59
  osteomyelitis, 197
  P. aeruginosa, 63
  pentazocine, 100
  Pseudomonas infection, 100
  sacroiliac joint, septic arthritis, 103
  in septic arthritis, 93–4, 96, 98
  septic axial arthritis, 99
  involucrum, 259, 259
  isoniazid
    childhood OM, 216
    subacute osteomyelitis, 246–7, 251
  IV antimicrobial therapy, 86
  IVDU see intravenous drug user (IVDU)
  IWGDF see International Working Group on
    the Diabetic Foot (IWGDF)

jaws osteomyelitis
  actinomycosis and tuberculosis, 293
  acute
    odontogenic, 298
    and secondary chronic, 289–90, 292
    trauma-/fracture, 297
  antibiotics, 289
  bisphosphonate, 291
  cervicofacial, 293
  chronic mandibular, 268
  empirical therapy, 297
  eradication, meticulous debridement, 297
  etiologies, 294
  imaging procedures, 296–7
  infection
    chronic contiguous neck, 290, 298
    cranio-maxillofacial, 289
    sequesters/sinus tracts, 290
  inflammatory parameters, 293
  maxillar, 293
  microbiology, 295
  microorganisms, 291–2
  neonatal, 292, 297

odontogenic secondary chronic, 298
  peri-implantitis, 298–9
  peri-implant mucositis, 294
  periostal reaction, 296, 296
  right mandible pain, 293, 293
  risk factors, 292
  swelling, tooth extraction, 293, 294
  tooth germ-associated, 292
  trauma-/fracture-related secondary chronic, 297–8
  types, 292
  Zurich classification, 289, 290
  joint space drainage, native joint arthritis, 67–8
  juvenile idiopathic arthritis, 64

Kingella kingae
  acute osteomyelitis, children, 5
  arthritis diagnosis, 62
  bacterial arthritis, 64
  childhood OM, 208
  children, 2
  chronic osteomyelitis, 259, 260
  elevated laboratory markers, 65
  IV antibiotic therapy, 214
  native joint arthritis, 78, 80
  native joint arthritis, children, 56, 57, 61–3
  native joint infection, children, 10, 11
  pediatric septic arthritis, 72
  pediatric septic arthritis and associated
    clinical conditions, 58
  in pharynx, 211
  sternoclavicular joint, 63
  in young children, 65
  Kirschner wire, in bone and joint surgery, 45–7

Klebsiella pneumoniae
  diabetic foot osteomyelitis (DFO), 276
  native joint arthritis, children, 59
  premature babies, risk, 207
  symphysis pubis, septic arthritis, 100

Klebsiella spp.
  acute vertebral osteomyelitis, 222, 222
  ankle arthroplasty, PJ[, 187, 187
  IAVO, 328, 329, 329
  jaws osteomyelitis, 291
  vertebral osteomyelitis, 7

β-lactam, 136
β-lactamase inhibitors, bone penetration, 26, 29–30
late-onset IAVO, 338
latissimus dorsi (LAT) flap, postoperative sternal osteomyelitis, 359

*Legionella*, 132

leukemia, 67

leukocyte counts, 65
  - culture-negative disease, 61
  - Lyme arthritis, 60
  - in pediatric patients with septic joints, 65
  - septic arthritis, 64

leukocytosis, 104

levofoxacin
  - antibiotics in bone, 25
  - chronic osteomyelitis, 265
  - elbow arthroplasty, PJI, 178
  - osteomyelitis, antibiotic therapy, 235
  - total hip and knee arthroplasty, PJI, 136, 143

linezolid
  - antibiotics in bone, 24, 27
  - bone penetration, 30, 265
  - childhood OM, 215
  - chronic osteomyelitis, 264, 265, 267
  - for chronic osteomyelitis, 267
  - chronic osteomyelitis in adults, 264
  - clindamycin and, 27
  - implant-associated infections, treatment, 136–7
  - native joint arthritis, 83–4, 83–5
  - osteomyelitis, children, 215
  - total hip and knee arthroplasty, PJI, 136

liquid chromatography-tandem mass spectrometry (LC–MS/MS), 23

liver cirrhosis, 96

local antibiotic prophylaxis, 351

localized osteomyelitis, 201

long bone osteomyelitis, 223, 257

lumbar epidural abscesses, 228

lumbar osteomyelitis, 228

Lyme disease, 60

macrolides
  - antibiotics in bone, 24, 25
  - and telithromycin, 27

magnetic resonance imaging (MRI)
  - diabetic foot osteomyelitis (DFO), 281–2
  - IAOM, 309
  - IAVO, 332, 339
  - native joint arthritis, children, 66
  - sacroiliac joint, septic arthritis, 105
  - sternoclavicular septic arthritis, 97
  - symphysis pubis, septic arthritis, 101

malignancy, 96

mandibular osteomyelitis, 199, 200

Mantoux test, 213

Marshall–Marchetti–Krantz urethropexy, 100

Masquelet’s technique, IAOM, 315

matrix-assisted laser desorption ionization time-of-flight (MALDI-TOF), 1

matrix-assisted laser desorption ionization time-of-flight analysis mass spectrometry (MALDI–TOF MS), 1, 17

maxillary osteomyelitis, 293

MBC see minimal bactericidal concentration (MBC)

medullary osteomyelitis, 201, 258

meningitis
  - childhood OM, 207
  - pediatric septic arthritis and associated clinical conditions, 58
  - septic arthritis, children, 59
  - meningococcal disease, 59
  - Mennell test, 104, 106
  - meropenem, 136, 137

metastatic carcinoma, 105

methicillin-resistant *Staphylococcus aureus* (MRSA) strains
  - acute osteomyelitis in adults, 5
  - bacterial native joint infections, 84
  - childhood OM, 206, 211, 212, 215
  - chronic osteomyelitis, 266
  - community-associated (CA)-MRSA infections, 41, 57
  - diabetic foot osteomyelitis (DFO), 6, 266, 276
  - implant-associated osteomyelitis of long bones, 306
  - jaws osteomyelitis, 295
  - native joint arthritis, children, 57
  - osteomyelitis, antibiotic therapy, 235
  - osteomyelitis, children, 206, 211–12, 214
  - preclinical models, 41

methicillin-sensitive *Staphylococcus aureus* (MSSA)
  - childhood OM, 205, 211, 212, 215
  - IAVO, 339
  - osteomyelitis, antibiotic therapy, 235
  - methicillin susceptible *S. aureus*, 84
  - methotrexate, 176
  - metronidazole, 137
  - anaerobic osteomyelitis, 85
  - bacterial native joint infections, 84
  - osteomyelitis, antibiotic therapy, 235

*Micrococcus* spp., 177, 329
migratory arthralgia, 60
minimal bactericidal concentration (MBC), 122
minimally invasive spine surgery (MISS) techniques, 326–7
minimum inhibitory concentration (MIC), 123, 161, 178, 265
minocycline, 136
molecular diagnostic procedures, 1
monoarticular, concomitant septic, 81
monoclonal gammopathy, 97
Monte Carlo simulations see pharmacokinetics (PK)
Monte Carlo simulations and pharmacodynamics (PD) see antibiotic(s)
Morganella morganii, 328
moxifloxacin, 25, 27
MRSA see methicillin-resistant
Staphylococcus aureus (MRSA) strains
Mucor spp., 291
multidrug-resistant Gram-negative bacilli, 306
multifocal hemogenous osteomyelitis, 200
murine models, 41
Musculus iliaca abscess, 105
Musculus pterygoideus medialis, 293
Musculus vastus lateralis, 141
mycobacteria
chronic osteomyelitis, 265
jaws osteomyelitis, 295
native joint arthritis, 87
pediatric septic arthritis and associated clinical conditions, 58
Mycobacterium avium complex, 95
Mycobacterium leprae, 265
Mycobacterium marinum, 79
Mycobacterium tuberculosis (TB) infection
childhood OM, 213
chronic osteomyelitis, 260
community-acquired vertebral osteomyelitis, 241
jaws osteomyelitis, 291, 295
multidrug-resistant, 251
native joint arthritis, 80
native joint arthritis, children, 60
in osteomyelitis, 7
Pott’s disease, 7
sacroiliac joint, septic arthritis, 104
sternoclavicular septic arthritis, 95
subacute/chronic vertebral osteomyelitis, 241
subacute osteomyelitis, 221, 247
tuberculous osteomyelitis, 7
vertebral osteomyelitis, 223
Mycobacterium ulcerans
chronic osteomyelitis, 260, 265
native joint arthritis, 80
Mycoplasma hominis, 58
Mycoplasma spp., 58, 60, 132
nafcillin
bacterial native joint infections, 84
β–lactamase–resistant β-lactam, 69
implant-associated infections, 136
osteomyelitis, antibiotic therapy, 235
native joint arthritis in adults, 10
algorithm, diagnosis, 16
blood cultures, 16–17
children
adjunctive anti-inflammatory therapy, 71
age distribution, 56
antibiotic therapy, 64, 68–71
associated clinical conditions, 58
bone scans, 66
brucellosis, 59–60
clinical presentation, 62, 62–3, 64
community-associated MRSA (CA-MRSA), 57
culture-negative, 60–61
differential diagnosis, 66, 67
etiology, 57
Haemophilus influenzae type b, 55, 59
intra-articular invasion, 57
joint space drainage, 67–8
Kingella kingae, 59
laboratory investigation, 63–6
Lyme disease, 60
magnetic resonance imaging (MRI), 66
methylene-resistant strains of S. aureus (MRSA), 57
Mycobacterium tuberculosis, 60
Neisseria gonorrhoeae, 59
pathogenesis, 61–2
pediatric joint infections, 55
pediatric septic arthritis, 55
prognosis, 71
Pseudomonas aeruginosa, 59
rat-bite fever, 60
Salmonella enterica, 59
septic joints, anatomical distribution, 56
Staphylococcus aureus, 56
Streptobacillus moniliformis, 60
Streptococcus agalactiae, 59
native joint arthritis (cont’d)
Streptococcus pneumoniae, 59
Streptococcus pyogenes, 57
tubercular arthritis, 60
ultrasound, 66
inflammatory parameters, 15–16
molecular studies, 17
synovial fluid studies, 16
native (septic) joint arthritis
antimicrobial therapy
choice of antibiotic agents, 83–6
duration, therapy and administration, 86–7
supportive therapy, 87
arthrocentesis, 81
arthrodesis, 82
diagnosis
blood chemistry, 80
erthrocyte sedimentation rate, elevation, 80
serum C-reactive protein (CRP) level, elevation, 80
signs and symptoms, 79
synovial fluid analysis, 80–81
joint drainage, 81
microbiological diagnosis
eubacterial polymerase chain reaction (PCR), 79
identical pathogen, from synovia, 79
polyneuropathic foot infections, 80
viral arthritis, 80
outcome
bite-inflicted cases, 87
immune suppression, 88
related to soil contact, 87
sequels after microbiological cure, 88
steroid administration and organ transplantation, 88
pathogenesis, epidemiology and microbiology
Clostridium spp., 79
commensals of the natural environment, 79
Erysipelothrix rhusiopathiae, zoonotic agent, 79
fungi, 79
Gram-positive cocci, 77
Kingella kingae (Gram-negative rod), 77
morbidity and mortality, 77
Mycobacterium kansasii, 79
Mycobacterium marinum, water-related injuries, 79
nontuberculous mycobacteria, 79
origin, 78
posttraumatic joint infection, 78
traumatic accidental injury, 78
radiology, 81
resection, 82
surgical drainage, 81
treatment
amputation, 82
antibiotic treatment of bacterial native joint infections, 84
necrotizing pneumonia, 58
Neer score, 158
negative pressure wound therapy (NPWT), 48–9
Neisseria gonorrhoeae
bacterial arthritis, 64
native joint arthritis, children, 57, 59
native joint infection in adults, 10
pediatric septic arthritis and associated clinical conditions, 58
sternoclavicular septic arthritis, 95
Neisseria meningitidis
native joint arthritis, children, 59
pediatric septic arthritis and associated clinical conditions, 58
neonatal intensive care (NICU), 214
neonatal osteomyelitis, 291–2, 297
neonatal osteomyelitis, jaws osteomyelitis, 292
nerve root compression, 228
neuroblastoma, 67
neuropathic osteoarthropathy, 261
Nocardia spp.
arthitis related to soil contact, 87
chronic granulomatous disease (CGD), 213
chronic osteomyelitis, 265
jaws osteomyelitis, 295
pediatric septic arthritis and associated clinical conditions, 58
nocardiosis, 87
nongonococcal septic arthritis, 80
nonmedullary osteomyelitis, 258
nonspecified streptococcus, 95
nontuberculous mycobacteria, 132
nosocomial MRSA infections, 57
odontogenic osteomyelitis, 200
odontogenic secondary chronic osteomyelitis, 298
ofloxacin, 25
one-stage exchange arthroplasty
chronic infection/loose implant, 140
chronic THA infection, 145–6
periprosthetic joint infection after ankle arthroplasty, 191
shoulder arthroplasty, 159
open surgical intervention, 106–7
oral bioavailability, 86
oral fusidic acid, 85
oritavancin, 268
orthopedic implants, sonication, 332
osteitis pubis, 99, 102, 200
osteoarticular (orthopedic infections), 77
osteoblasts, 22
osteomyelitis
acute, 199
chronic, 199
pubis, 200
sternal, 198
vertebral, 198, 199
osteomyelitis (OM)
acute, 5–6 see also acute osteomyelitis
animal models, incorporating trauma, 46–7
antigen and antibody testing, 12
brucellosis, 7
chronic, 6 see also chronic osteomyelitis
classification
 guideline, 197
 hematogenous, 197–8, 198
 implant, 200
 infection duration, 199
 localization, 200
 secondary to contiguous source, 198
 secondary to vascular insufficiency, 198–9
 special host, 199
 staging system, 200–201, 201
 diabetic foot, 6 see also diabetic foot
 osteomyelitis (DFO)
diseases and, 2
histopathological studies, 11
implant-associated osteomyelitis of long bones, 303–20
implant-associated vertebral, 325–41
inflammatory parameters, 11
jaw, 289–99
long bones, implant-associated, 303–20
microbiological studies, 11
microbiology, 5–7, 8
pediatric septic arthritis, differential diagnosis, 67
postoperative sternal, 347–61
subacute see tuberculous and brucellar vertebral osteomyelitis
tuberculous, 7
vertebral, 6–7
osteomyelitis, children
complications, bone and joint infections, 217
epidemiology, 205–6
greater than 5 years, 212, 214–15
neonates
antibiotic treatment, 214
cephalohematoma, 207
differential diagnoses, 207
magnetic resonance imaging (MRI) scan, 208
management, 207
risk factors, 207
“septic screen”, 207
symptoms/signs, 207
X-rays, 208
3 months to 5 years
antibiotic treatment, 214–15
blood cultures, 208–9
computed tomography (CT), 209
CRP and ESR, 208
diagnosis, tuberculosis osteomyelitis, 209, 210
differential diagnosis, 208
epiphyseal and growth plate, 209
Ewing’s sarcoma, 208
group-A Streptococcus (GAS) disease, 211–12
H. influenzae type b, 208
Kingella kingae, 208, 211
periosteal elevation and lytic change, tibia, 209, 209
pseudoparalysis, pain and lethargy, 208
“short tau-inversion recovery” (STIR) sequences, 209
Staphylococcus aureus, 208
Streptococcus pneumoniae, 208
 Streptococcus pyogenes, 208
technetium bone scan, 210, 211
T2-weighted magnetic resonance image, 209, 210
pathophysiology, 206–7
postoperative infection, 213
primary immunodeficiency, 213
sickle cell disease (SCD), 212–13
surgical treatment, 216, 216–17
tuberculous bone infection, 213–14
osteonecrosis, 200
otitis media, 59
oxacillin
chronic exogenous PAJI, 193–4
ear arthroplasty, PJ1, 178
implant-associated infections, 136
PAJI see periprosthetic ankle joint infection (PAJI)

Pantoea agglomerans
- arthritis related to soil contact, 87
- childhood OM, 212
- native joint arthritis, 78

Panton–Valentine Leukocidin (PVL)
- preclinical models, 41
- virulence gene, 206

Pantoea agglomerans
- arthritis related to soil contact, 87
- childhood OM, 212
- native joint arthritis, 78

Pasteurella multocida, 95, 96

pathogen-specific intravenous (IV) antimicrobial therapy, 175

PCR–electrospray ionization mass spectrometry, 17

pediatric osteomyelitis, 257

pediatric septic arthritis
- native joint arthritis, children, 57
- risk factors for poor prognosis, 71

pelvic malignancy, 100

penicillin
- antibiotics in bone, 25
- bacterial native joint infections, 84
- bone penetration, 29–30
- elbow arthroplasty, PJI, 173
- total hip and knee arthroplasty, 142

penicillin G
- chronic osteomyelitis, 267
- implant-associated infections, 136
- osteomyelitis, antibiotic therapy, 235
- shoulder arthroplasty, PJI, 162

Peptostreptococcus spp.
- IAVO, 328, 329, 329
- periprosthetic knee and hip infection, 9
- percutaneous bone biopsy, 277
- percutaneous IV central catheter (PICC), 216

Perfusion, Extent, Depth, Infection, Sensation (PEDIS) classification, 257

periarticular osteomyelitis, 145, 200

peripheral ischemic vascular disease (PIVD), 274

peripheral neuropathy and vascular disease (PVD), 284

periprosthetic ankle joint infection (PAJI)
- acute hematogenous, 192
- antimicrobial therapy, 194
- clindamycin, 194
- C-reactive protein (CRP) levels, 193
- debridement and implant retention (DAIR), 190

erythrocyte sedimentation rate (ESR), 188

erythromycin, 194
- oxacillin, 194
- Staphylococcus epidermidis, 194
- total ankle arthroplasty (TAA), 188, 191
- total hip and knee arthroplasties, 183
- vancomycin, 194
- white cell count (WCC) count, 188

periprosthetic joint infection (PJI)
- after ankle arthroplasty, 9 see also ankle arthroplasty
- after elbow arthroplasty, 9 see also elbow periprosthetic joint infection
- after shoulder arthroplasty, 9 see also shoulder arthroplasty
- after THA and TKA, 8–9 see also total hip and knee arthroplasty
classification, 115
culture-negative PJI, 14–15
definition, 7, 12
definition, 114
diagnosis, 12, 13
diagnostic algorithm, 117, 118
hematogenous infection prevention, 123
histopathological studies, 12
implant-adhering (biofilm)
- microorganisms, 13
inflammatory parameters, 14
knee and hip infection, microbiology, 8, 9
laboratory investigation
- blood, infectious parameters, 120
- cultures, 120–121
- histopathology, 120
- molecular diagnosis, 121
- sonication, 121
- synovial cells, 120
management errors, 123
microbiological studies, 12–14
multiplex PCR, 15
pathogenesis
- apathogenic bacteria, 116
- implant–associated infection, 116
- implant interaction with granulocytes, 116
- innate/nonspecific host defense mechanisms, 116
- local defense mechanism interaction, 115
- microorganisms role, 117
- route of infection, 117–18
- wear particles interaction with phagocytes, 117
- PCR sensitivity, 15
perioperative prophylaxis, 122–3
sonicate fluid, 14
16S ribosomal RNA (rRNA) gene, 15
synovial fluid studies, 14
therapeutic management
antimicrobial therapy, 122
surgical interventions, 122
periprosthetic shoulder joint infection (PSJI)
see shoulder arthroplasty
Perthes disease, 67, 209
pharmacodynamics (PD)
antibiotics, 2
antibiotics in bone
amoxicillin/clavulanic acid, 33–4
moxifloxacin, 32–3
naïve pooling, 31
plasma and bone concentrations, 32
population modeling, 31, 32
sampling time, 31
chronic osteomyelitis, 263–4
pharmacokinetics (PK)
antibiotics, 2
antibiotics in bone
AUC, 23
interpatient variability, 23
organic bone matrix, 22
pathogens site, 22
reactive hyperemia, 23–4
time course and drug concentration, magnitude, 21
in uninfected bone, 23
chronic osteomyelitis, 263–4
piperacillin
antibiotics in bone, 29
bacterial native joint infections, 84
piperacillin/tazobactam
aminoglycoside combination, 235
chronic osteomyelitis, 265
elbow arthroplasty, PJI, 178
implant-associated infections, 137
PIVD see peripheral ischemic vascular disease (PIVD)
PJI see periprosthetic joint infection (PJI)
plain radiographs
diabetic foot osteomyelitis (DFO), 280
IAVO, 332
sternoclavicular septic arthritis, 97
symphysis pubis, septic arthritis, 100
plate-associated osteomyelitis, 200
PMMA see polymethylmethacrylate (PMMA)
pneumonia
septic arthritis, children, 59
sternoclavicular septic arthritis, 96
poly-D,L-lactic acid (PDLLA)—coated nail, 45
polymerase chain reaction (PCR) analysis
broad-range, 15
childhood OM, 211
chronic osteomyelitis, 260
ebacterial, 79
IAVO, 332
multiplex, 15, 80
in osteomyelitis, 7
periprosthetic joint infection, 121
postoperative sternal osteomyelitis, 354–5
sensitivity, 15
shoulder arthroplasty, PJI, 156, 157
sonicate fluid, 15
subacute osteomyelitis, 246–7
polymethylmethacrylate (PMMA)
antibiotic-laden, 48
cement, 44, 316, 317
spacer, 140, 141, 160
temporary, 141
polymicrobial infections
periprosthetic hip and knee infection, 9, 132
periprosthetic shoulder joint infection, 153
sternoclavicular septic arthritis, 95
polysaccharide (chitosan) beads, 45
population PK analysis, 23, 27, 29
Porphyromonas gingivalis, 291
positive Gram staining, 81
positron emission tomography (PET)
acute osteomyelitis, 232
chronic osteomyelitis in adults, 262
IAOM, 309
long bones, implant-associated osteomyelitis, 309
total hip and knee arthroplasty (THA and TKA), 135
postoperative sternal osteomyelitis (PSTOM)
acute see acute PSTOM
antimicrobial treatment, 359–60
blood tests, 354
causative pathogen, 356
chronic see chronic PSTOM
classification, 348, 349
deep sternal wound infections (SWI)
epidemiological data, 348
microbiological findings, 351–2, 352
pre-and retrosternal anatomical structures, 347
surgery, 347
diagnostics, 356
epidemiological data, 348
postoperative sternal osteomyelitis (PSTOM) (cont’d)
estimation, disease duration, 356
imaging procedures, 355
intraoperative findings, 354
patient-related risk factors, 348, 350
primary and secondary, 347
sampling
microbiological, 354–5
preoperative, 354
surgery-related factors see surgery-related risk factors, PSTOM
≤4 weeks after sternotomy, 352, 353
≥4 weeks after sternotomy, 352–4, 353
posttraumatic osteoarthritis, 167, 168, 183
posttraumatic osteomyelitis, 43, 262, 264
Pott’s disease, 214
preclinical models
animal models, 42, 43
animal osteomyelitis (trauma) models, 46–7
direct inoculation, minimal trauma
antibiotic-loaded bone cement, 45
antibiotic-loaded calcium hydroxyapatite implants, 45
antibiotics therapy, 44–5
biofilm formation, 45–6
canine bone infection model, 45
colony forming units (CFU), 45
devascularized bone segment, 44
foreign body placement, 42–3
gentamicin-impregnated poly-D, L-lactic acid (PDLLA)–coated nail, 45
osteomyelitis, in vivo models, 43
poly(methylmethacrylate) (PMMA), 44
sodium morrhuate (SM), sclerosing agent, 43–4
hematogenous models, 47–8
species, influence
animal osteomyelitis models, 40
bacterial toxins, species-specific activity, 41–2
bone composition and micro- and macrostructure, 40
host response to infection, 40
in vivo trial, 40
implant systems, 42
interspecies differences, 41
murine models, host response to infection, 41
test microorganism, infection capability, 40–41
T helper (TH)–type responses, 41
prednisone, 176
Prevotella intermedia, 291
primary immunodeficiency, 206
primary septic arthritis, 80
pristinamycin, 85
probe-to-bone (PTB) test, 279
procalcitonin, 15, 65, 80
Propionibacterium acnes
anaerobic thioglycollate broth, 13
ankle arthroplasty, PJI, 187
chronic PJI, 133
delayed implant-associated infections, 199
diabetic foot osteomyelitis (DFO), 278
ear arthroplasty, PJI, 168
IAOM, 305, 320, 331
IAVO, 325, 337, 338
implant interaction, 116
osteoarticular infection, children, 213
ostomyelitis, antibiotic therapy, 235
postoperative sternal osteomyelitis, 350
spinal implant-associated infection, 10
sternoclavicular septic arthritis, 95
vertebral osteomyelitis, 7, 8
Propionibacterium spp.
IAVO, 328, 329, 332
low-virulent pathogen, 154, 155
minimum inhibitory concentration, 161
pathogen-specific therapy, 136
periprosthetic knee and hip infection, 9
periprosthetic shoulder joint infection, 153, 154, 156, 157, 160, 162
postoperative sternal osteomyelitis, 355
rifampin combination therapy, 161–2
THA and TKA, 132
prosthetic hip infection, 14
prosthetic joints, 1, 2, 113, 131
prosthetic knee infection, 14
Proteus mirabilis
knee arthroplasty, 8
sternoclavicular septic arthritis, 95
Proteus spp.
acute vertebral osteomyelitis, 222, 222
diabetic foot osteomyelitis (DFO), 276
IAVO, 328, 329, 339
jaws osteomyelitis, 291
symphysis pubis, septic arthritis, 100
Providencia spp., 329
Pseudomonas aeruginosa
acute osteomyelitis in adults, 5
acute vertebral osteomyelitis, 222, 222
childhood OM, 212, 215
chronic osteomyelitis, 258
DFO, 6
Diabetic foot osteomyelitis (DFO), 276
fluoroquinolone resistance, 85
IAVO, 325, 337
jaws osteomyelitis, 295
knee arthroplasty, 8
native joint arthritis, children, 59
osteomyelitis, antibiotic therapy, 235
pathogen-specific therapy, 136, 137
pediatric septic arthritis and associated clinical conditions, 58
periprosthetic knee and hip infection, 9
periprosthetic joint infection, 121, 122
septic arthritis, sternoclavicular joint, 98
vertebral osteomyelitis, 8

Pseudomonas spp.
ankle arthroplasty, PJ1, 187, 187
IAVO, 328, 329
native joint arthritis, 78
total hip and knee arthroplasty, 137
pseudoparalysis, 207
psoas abscess, 67, 226, 228, 231, 247, 248
psoriatic arthritis, 102, 105
PSTOM see postoperative sternal osteomyelitis (PSTOM)
pubic osteomyelitis, 200
PubMed search, 99
PVD see peripheral neuropathy and vascular disease (PVD)
PVL Staphylococcus aureus (PVL-SA), 211, 212
pyogenic complications, 97
pyogenic infection, 222
pyrazinamide
childhood OM, 216
subacute osteomyelitis, 251
pyrexia of unknown origin (PUO), 205
quetapine
antibiotics in bone, 24, 25, 27
antimicrobial and surgical therapy, 250
bacterial native joint infections, 84
and macrolides, bone penetration, 25
quinupristin–dalfopristin (IV), 85
quorum sensing, 48, 117
radioisotope scans, 281
rapid IV antimicrobial therapy, 106
rat-bite fever, 60
rat femur models, 47
reactive arthritis, 64, 67
reconstructive ladder, 311
recurrent multifocal osteomyelitis, 257
Reiter’s disease, 64
resection arthroplasty
infected area, 82
periprosthetic joint infection, 121, 122
shoulder arthroplasty, 152, 160–161
sterneoclavicular joint arthritis, 98
THA and TKA, 140–141
rheumatic fever, 67
rheumatoid arthritis, 169
rifampicin
antibiotics in bone, 25
in bone and joint surgery, 44, 46
bone penetration, 265, 265
brucellosis treatment, 250–251
childhood OM, 216
chronic osteomyelitis, 265
DFO, antibiotic regimens, 283
fluoroquinolones and, 85
median concentration ratios, 25
pharmacokinetics and pharmacodynamics, 28
preclinical models, infection in bone and joint surgery, 45
subacute osteomyelitis, 246–7, 250, 251
tuberculous OM, four drug therapy, 216
rifampin
bactericidal activity against staphylococci, 85
chronic osteomyelitis, 267
ciprofloxacin combination, 267
combination therapy, 161
epel arthroplasty, PJ1, 177, 178
fusidic acid combination, 267
implant-associated infections, treatment, 136
implant-associated vertebral osteomyelitis (IAVO) treatment, 336
osteomyelitis without implant in adults, treatment, 235
periprosthetic joint infection, 122
resistant staphylococci, 177
THA and TKA, 138, 143, 145
therapy, inappropriate, 174, 176–7,
rifamycins, 122
Rose Bengal test, 245
sacral osteomyelitis, 257
sacroiliac joint, septic arthritis
Campylobacter rectus and Actinomyces odontolyticus, double infection, 103
differential diagnosis, 105–6
sacroiliac joint, septic arthritis (cont’d)
epidemiology, 103
FABER, 104
features, clinical and laboratory, 104–5
imaging
F-18 FDG PET/CT, 105
SPECT–CT, 105, 106
incidence, 103
IV drug use, 104
location, 103
Mennell test, 104
*Mycobacterium tuberculosis*, 104
open surgical intervention, 106–7
rapid IV antimicrobial therapy, 106
risk factors, 104
Salmonella enterica
native joint arthritis, children, 59
pediatric septic arthritis and associated
clinical conditions, 58
subsp enterica Tennessee, 198
Salmonella spp.
childhood OM, 215
chronic osteomyelitis, 267
sacroiliac joint, septic arthritis, 104, 106
symphysis pubis, septic arthritis, 100
SAPHO (synovitis, acne, pustulosis,
hyperostosis, and osteitis) syndrome,
98, 200, 257, 290
sarcoma, 105, 208
SCD see sickle cell disease (SCD)
Scedosporiose family, 79
sclerosing agent, 43–4
Secec Elbow score (SES), 160
secondary arthritis, 183
secondary chronic osteomyelitis, 289
sepsis syndrome, 118, 120, 133, 156
septic arthritis
axial joints
sacroiliac joint, 103–7
sternoclavicular joint (SCJ), 93–8
symphysis pubis, 98–102
native joint arthritis, 55, 78
native joint infection
diagnostic approach, 15–17
gonococcal infection, 10
joint infections, 2
novel diagnostic procedures, 17
synovial fluid studies, 16
septic bursitis, 67, 168
septic diskitis, 221
septic multifocal hematogenous osteomyelitis, 200
seronegative spondyloarthropathies, 102, 105
*Serratia marcescens*
chronic granulomatous disease, 213
jaws osteomyelitis, 291
sternoclavicular septic arthritis, 95
vertebral osteomyelitis, 8
*Serratia* spp.
IAVO, 328, 329
vertebral osteomyelitis, 7
serum bactericidal levels, 70
serum procalcitonin, 65–6
serum sickness, 67
“Short tau-inversion recovery” (STIR)
sequences, 209
shoulder arthroplasty
anatomical total shoulder arthroplasty
implantation, 162
chronic polymicrobial PSJI, 163
clinical features, 154–5
fracture with osteosynthesis, stabilization,
162
imaging procedures, 157
laboratory investigation
blood tests, 155
histopathological, 156
intraoperative findings and biopsies, 155
microbiological culture, 156
molecular, 156
removed implants sonication, 156–7
synovial fluid leukocyte count, 155
management
antimicrobial treatment, 161
debridement and implant retention, 158
one-stage exchange, 159
resection arthroplasty, 160–161
spacers, 160
surgical interventions, 158
two-stage exchange, 159–60, 162
microorganisms, 153–4
pathogenesis
acute/chronic infection, 154
exogenous/hematogenous infection
route, 154
virulent/low-virulent pathogens, 154
plate dislocation, 162
risk factors
age and trauma, 152
arthroplasty types, 152–3
cement with/without antibiotic
impregnation, 152
infection/wound complications, 151
intra-articular injections, 151
revision surgery and hematoma, 152
spacer implantation, 162
sickle cell anemia, 59, 67, 104, 197
sickle cell disease (SCD)
  bone problems, 199
  children, 206, 212–13, 215
  osteomyelitis associated, 267
single-photon emission computed
  tomography/computed tomography
  (SPECT–CT), 105, 106, 296, 299
sinus tract, periprosthetic joint infection, 13
SIRS see systemic inflammatory response
  syndrome (SIRS)
slipped capital femoral epiphysis, 67
sodium morrhuate (SM), 43–4, 47
soft tissue trauma
  in bone and joint surgery, 46
  postoperative sternal osteomyelitis, 359
sonication, 13, 172–3, 194
spacers
  antibiotic-loaded, native joint arthritis, 82
  implant-associated osteomyelitis of long
  bones, 316
  shoulder arthroplasty, 160
  temporary PMMA, 141
  two-stage exchange, infected THA, 141
SPECT–CT see single-photon emission
  computed tomography/computed
  tomography (SPECT–CT)
spinal deformity, 228
spinal osteomyelitis, 221
spondylodiscitis, 6, 67, 262
spondylodiskitis, 221, 224–9, 232
16S rDNA gene, 65, 156
16S ribosomal RNA (rRNA)
  gene, 156
  PCR, 332
  in PJ, 15
SSI see deep surgical site infection (SSI)
stable implant, IAOM, 312
Staphylococcus aureus
  acute osteomyelitis in adults, 5
  acute vertebral osteomyelitis, 222, 222, 224, 227, 228, 241
  ankle arthroplasty, PJ, 186, 187, 188, 193
  antibiotics in bone, 22, 25, 70
  arthritis and sequels recurrence, 88
  bacteremia, 118, 123, 132, 185, 227, 227
  bone and joint infections, 41
  in bone and joint surgery, 44, 45, 47
  childhood OM, 208, 211
  chronic granulomatous disease, 213
  chronic osteomyelitis, 258, 259
  contiguous focus, 8
  culture of synovia, 143
deep sternal wound infections, 352
diabetic foot osteomyelitis (DFO), 276, 276, 278
elbow PJ, 168, 169
endocarditis, 101, 227
experimental animal models, 71
experimental implant–associated infection, 116
granulocytes, role, 116
hematogenous infections, 187
hematogenous long bones, 8
hematogenous osteomyelitis, 222, 222–3
hematogenous PJI, 133
IAOM, 306
IAVO, 325, 327, 328, 329, 330
implant-associated infections, 213
IV antibiotic therapy, 214
jaws osteomyelitis, 291, 297
knee arthroplasty, 8
long-bone osteomyelitis, 223
low-virulent pathogen, 154
methicillin-resistant S. aureus (MRSA), 5, 206, 267
methicillin-susceptible S. aureus (MSSA), 177, 267
native joint arthritis, 56, 57, 57, 61–2, 68, 78
native joint infection, 10, 11
NICU, babies in, 207
non-PVL, 212
osteointerarticular infection, 207
pediatric septic arthritis, 58, 72
periprosthetic joint infection, 114, 115
periprosthetic knee and hip infection, 9
periprosthetic shoulder joint infection, 153
polymicrobial infection, 144, 178–9
postoperative sternal osteomyelitis,
  350, 356
prescribed therapeutic courses, 70
PVL virulence gene, 206
risk for sepsis, 199
sacroiliac joint, septic arthritis, 104, 106, 106
SCD, 213
sepsis, 227
septic arthritis, sternoclavicular joint, 94
spinal implant-associated infection, 10
spondylodiskitis, 225, 227
sternoclavicular septic arthritis, 95, 96
symphysis pubis, septic arthritis, 99
THA and TKA, 132
trimethoprim/sulfamethoxazole, 85
vertebral osteomyelitis, 6–7, 8
Staphylococcus capitis, 177
Staphylococcus caprae, 144
Staphylococcus epidermidis
biofilm-formation, 115
in bone and joint surgery, 46
chronic exogenous PAJI, 193–4
diabetic foot osteomyelitis (DFO), 276, 278
knee arthroplasty, 8
methicillin-resistant, 169
methicillin-susceptible, 169
periprosthetic joint infection, 116
poly microbial growth, 144
spinal implant-associated infection, 10
sternoclavicular septic arthritis, 95
symphysis pubis, septic arthritis, 101
vertebral osteomyelitis, 7
Staphylococcus pseudintermedius
bone and joint infections, 41
preclinical models, 41
Staphylococcus spp.
ankle arthroplasty, 186
diabetic foot osteomyelitis, 266
osteomyelitis, antibiotic therapy, 235
periprosthetic joint infection, 114
rifamycins against, 122
total hip and knee arthroplasty, PJJ, 136
starch implants, 45
sternal bone stability, 351
sternal osteomyelitis, 198, 199, 200
sternoclavicular joint (SCJ)
classification, 99
resection, 98
septic arthritis of axial joints
antibiotics, 98
case series with, 94
chest pain, 96
classification modified, 99
differential diagnosis, 98
epidemiology, 94
eradication of infection, 98
Fusobacterium necrophorum, 96
imaging procedures, 97
location, 93
management
microorganisms, 95
monoclonal gammopathy, 97
Pseudomonas aeruginosa, 95
sternoclavicular arthritis, 95
tuberculous sternoclavicular arthritis, 93
venous catheter-related infections, 96
Streptobacillus moniliformis
native joint arthritis, children, 60
sternoclavicular septic arthritis, 95
Streptococcus agalactiae
acute osteomyelitis, children, 5–6
hematogenous long bones, 8
knee arthroplasty, 8
native joint arthritis, children, 57, 61
native joint infection, children, 10
in neonates, 2
pediatric septic arthritis and associated
clinical conditions, 58
Streptococcus dysgalactiae, 142, 143
Streptococcus milleri
ankle arthroplasty, PJI, 187, 187
group, 95
jaws osteomyelitis, 291
Streptococcus mitis, 8
Streptococcus pneumoniae
acute osteomyelitis, children, 6
childhood OM, 208
implant-associated infections, 213
native joint arthritis, children, 10, 11, 57, 59
pediatric septic arthritis and associated
clinical conditions, 58
sternoclavicular septic arthritis, 94, 95
symphysis pubis, septic arthritis, 100
Streptococcus pyogenes
acute osteomyelitis, children, 6
childhood OM, 208
hematogenous long bones, 8
native joint arthritis, children, 10, 11, 57, 57
pediatric septic arthritis and associated
clinical conditions, 58
Streptococcus spp.
acute vertebral osteomyelitis, 222, 222, 241
chronic vertebral osteomyelitis, 258, 266
contiguous focus, 8
diabetic foot osteomyelitis (DFO), 276
elbow PJI, 169
group A, 57
IAOM, 307
IAVO, 328, 329, 330, 337
native joint infection in adults, 10
osteomyelitis, antibiotic therapy, 234, 235
periprosthetic knee and hip infection, 9
periprosthetic shoulder joint infection, 153
poly microbial infections, 169
THA and TKA, 132, 136
vertebral osteomyelitis, 8, 225
streptomycin
chronic osteomyelitis, 267
subacute osteomyelitis, 250, 251
subacute osteomyelitis, 221, 224
subclavian venous catheterization, 94
sulbactam, 26 see also ampicillin/sulbactam
sulfamethoxazole
implant-associated infections, 136
native joint arthritis, 85
sulfamethoxazole/trimethoprim
elbow arthroplasty, PJI, 178
native joint arthritis, 85
subacute osteomyelitis, 250
superficial osteomyelitis, 201
surgery-related risk factors, PSTOM
intraoperative
emergency surgery and blood
transfusion, 350
internal mammary artery (IMA)
mobilization, 350
local antibiotic prophylaxis, 351
operation and bypass time, 350–351
sternal bone stability, 351
postoperative, 351
preoperative
nasal Staphylococcus aureus carriage,
350
timing and duration, systemic antibiotic
prophylaxis, 350
surgical drainage
vs. arthrocentesis, 82
native joint arthritis in children, 68
surgical site infections (SSIs)
classification, 114
osteomyelitis from, 259
primary septic arthritis and, 88
Staphylococcus aureus, 88
surrogate markers, in synovia, 80
symphyseal widening, 101
symphysis pubis, septic arthritis of axial
joints
anaerobic/aerobic mixed infection, 100
calcification, 102
definition, 98
diagnosis, 99
epidemiology, 99
imaging procedures
MRI, 101
99mTc-MDP bone scan, 101
management, antimicrobial therapy, 102
osteitis pubis, athletes, 99
pathological findings, 102
pentazocine, 100
risk factors, 100
sedimentation rate and C-reactive protein
(CRP), 100
Staphylococcus aureus, 99
synovectomy, 138, 177
synovial cells
bacteria in joints, 61
PJI after THA and TKA, 134
PJI rapid confirmation, 118, 120
THA and TKA, 134
systemic inflammatory response syndrome
(SIRS), 275
tazobactam, 29
99mTc-MDP bone scan, 101
teicoplanin
glycopeptide antibiotic, 83
total hip and knee arthroplasty, PJI, 136,
137
telithromycin, 25, 27
tetracyclines
bactericidal activity against staphylococci,
85
native joint arthritis, antimicrobial therapy,
83, 85
postoperative sternal osteomyelitis, 361
and tigecycline, 28
THA see total hip and knee arthroplasty
(THA and TKA)
thymidine, 85
tigecycline
native joint arthritis, 83
tetracyclines and, 28
TKA see total hip and knee arthroplasty
(THA and TKA)
tobramycin, 266
total ankle arthroplasty (TAA)
cement fixation, 184
eyear 1970s, 184
history, 183, 184–5
modern/third generation, 185
PAJI, 188, 191
replacement, 1980s, 184
second generation, 184–5
soft tissue conditions, 191
total hip and knee arthroplasty (THA and
TKA)
acute hematogenous PJI, 142–3
chronic THA infection after ossifications
removal, 145–6
clinical features, 133
CRP and ESR, 133–4
imaging procedures
computed tomography (CT), 134
magnetic resonance imaging
(MRI), 134
positron emission tomography
(PET), 135
tuberculous and brucellar vertebral osteomyelitis
acut e infection, 242
 antimicrobial and surgical therapy
caseous necrotic sequestrum, 251
 chemotherapy, 252
efficacy, 251–2
isoniazid, 251
radical debridement, 252
rifampicin, 250–251
backache, 243
bacteremia, 245
bone regeneration, 244
*Bucella melitensis*, 248
clinical characteristics, 243, 243
C-reactive protein, 244–5
duplication, imaging techniques, 250
epidemiology, 241–2
expression, 242
granulomatous inflammation, 247
hematological and biochemical parameters, 244, 245
interferon-gamma release assays (IGRAs), 246
microbiological data, 245
microscopic examination, 246
molecular techniques, 246–7
*M. tuberculosis* infection
microbiology, 7
*Treponema whippelii*, 230
tuberculosis, 87, 224, 242, 251 see also
*Mycobacterium tuberculosis* (TB)
infection
*Tropheryma whippelii*, 230
tuberculosis, 87, 224, 242, 251 see also
*Mycobacterium tuberculosis* (TB)
infection
osteomyelitis in children, 205–6, 210, 216
  treatment, 298
tuberculous pubic arthritis, 100
tuberculous spondylodiskitis, 224, 228
tuberculous sternoclavicular arthritis, 94
tuberculous vertebral osteomyelitis (TVO), 242–4, 243, 244, 248
two-stage exchange arthroplasty
  chronic infection/loose implant, 140
  infected TKA, 143
  periprosthetic joint infection after ankle arthroplasty, 191
  shoulder arthroplasty, 159–60, 162
  spacers and, 141
  total hip and knee arthroplasty (THA and TKA), 139, 140, 143–5
ultrasound
  native joint arthritis, 81
  native joint arthritis, children, 66
  osteomyelitis in children, 217
  in premature neonates, 208
  shoulder arthroplasty, 157
_Ureaplasma_ spp.
  native joint arthritis, children, 60
  pediatric septic arthritis and associated clinical conditions, 58
urethritis, 58, 104

vancomycin
  bacterial native joint infections, 84
  childhood OM, 214
  chronic exogenous PAJI, 193–4
  chronic osteomyelitis, 265, 266, 267
  elbow arthroplasty, PJI, 173, 174
  IA VO, 327
  native joint arthritis, children, 69
  nephrotoxic side effects, 83
  osteomyelitis, antibiotic therapy, 235
  total hip and knee arthroplasty, PJI, 136, 137
  vancomycin–gentamicin–loaded spacer, 162
  varicella lesions, 58
  vascularized bone segment, IAOM, 314
_Veillonella_ spp., 329
venous catheter-related infections, 96
vertebral osteomyelitis, 6–7, 8, 11, 198, 199, 200, 221, 222, 224, 257
villonodular synovitis, 67
viral arthritis, 67
visual analogue scale, 160
WBC-labeled imaging, 333
Whipple’s disease, 105
white cell count (WCC) count
  childhood OM, 207, 211
  PAJI, 188, 193
  PJI, 14
  postoperative sternal osteomyelitis, 354
  shoulder arthroplasty, PJI, 155
widespread (circumferential) osteomyelitis, 258

X-linked agammaglobulinemia, 58
zoonotic agent, 79
Zurich classification system, 289, 290