Index

Abdominocentesis
  complications, 219
  indications, 219
  restraint and positioning, 220
Activated clotting time (ACT), 301
  aims, 302
  equipment, 302–303
  indications, 302
  procedure, 303–304
  restraint and positioning, 303
Ambu bag, 174f
Ampoules, injections using, 33
Anal sac cannulation, 155
  aims, 155
  complications, 155
  equipment, 155–156
  indication, 155
  procedure, 158
  restraint and positioning, 156
Anal sac expression, 155
  aims, 155
  complications, 155
  equipment, 155–156
  indication, 155
  procedure, 156
  restraint and positioning, 156
Arterial blood collection
  arterial catheter placement, 337–340
  arterial puncture, 333–336
Arterial blood pressure measurement
  Doppler method, 305
  Doppler method complications, 306
  Doppler method equipment, 306
  Doppler method procedure, 306–308
  manometer arterial method equipment, 313–314
  manometer arterial method procedure, 314
  manometer method, 313
  manometer method complications, 310
  oscillometric method, 308
  oscillometric method complications, 309
  oscillometric method equipment, 309
  oscillometric method procedure, 309–310
  pressure transducer method, 311
  pressure transducer method complications, 310
  pressure transducer method equipment, 311
  pressure transducer method procedure, 311–313
  restraint and positioning, 305, 310
Arterial catheter blood sampling
  equipment, 341
  procedure, 341
Arterial catheter placement
  aims, 337
  complications, 337
  equipment, 337
  procedure, 338–340
  restraint and positioning, 337–338
Arterial puncture
  aims, 333
  complications, 333
  equipment, 333–334
  procedure, 334–336
  restraint and positioning, 334
Arthrocentesis
  complications, 221
  equipment, 221
  indications, 221
  restraint and positioning, 221
  site, 221, 222f
Artificial insemination, 266
  aims, 266
  complication, 266
  equipment, 266
  indications, 266
  preparation, 267
  procedure, 267–268
  restraint, 267
Bacterial culture of skin pustules, 80
Biopsies see specific types
Bleeding time, 297
  aims, 297
  blotting blood droplets, 301f

Companion Website: www.wiley.com/go/boyle/manual4e
Bleeding time (cont.)
  complications, 298
  contraindications, 298
  equipment, 298, 299f
  indications, 297
  making skin incision, 300f
  procedure, cuticle, 301
  procedure, template, 298–300
  restraint and positioning, 298

Blood collection
  arterial
    arterial catheter placement, 337–340
    arterial puncture, 333–336
    bandaging site following needle/catheter removal, 27f
  coagulation studies, 28
  rabbits, intravenous, 371–374
  rabbits, jugular vein, 376–377
  rabbits, saphenous vein, 377–378
  syringe stabilization, 26f
  transfusion collection, 28
    complications, 29
    equipment, 29
    procedure, 29–30
    restraint and positioning, 29
  venipuncture, 17
    cephalic vein, 20f, 21
    complications, 17
    equipment, 17–18
    femoral vein, 22, 23f
    jugular vein, 18
    lateral saphenous vein, 21
    medial saphenous vein, 22
    restraint, 18, 19f, 20f, 22f

Blood pressure measurement
  aims, 305
  arterial blood pressure measurement, 305
  central venous blood pressure (CVP) measurement, 314
  Doppler method, 305
  Doppler method complications, 305
  Doppler method equipment, 305–306
  manometer arterial method equipment, 313–314
  manometer arterial method procedure, 314
  manometer central venous (CVP) method equipment, 317
  manometer central venous (CVP) method procedure, 317–319
  manometer method, 313
  oscilometric method, 308
  oscilometric method complications, 309
  oscilometric method equipment, 309
  oscilometric method procedure, 309–310
  pressure transducer method, 311
  pressure transducer method complications, 310
  pressure transducer method equipment, 311
  pressure transducer method procedure, 311–313
  restraint and positioning, 305, 310

Blood sampling from arterial catheter
  equipment, 341
  procedure, 341

Blood transfusion
  aims, 321
  complications, 321
  equipment, 321
  procedure, 323–325
  setup, 322–323

Bone marrow aspiration and biopsy, 275
  aims, 275
  complications, 276
  equipment, 276–277
  humeral head aspiration and biopsy, 285–287
  iliac crest aspiration and biopsy, 278–282
  Illinois needle, 276f
  indications, 275
  Jamshidi needles, 277f
  preparation, 277–278
  Rosenthal needle, 276f
  trochanteric fossa aspiration and biopsy, 282–285

Break-away needle catheter insertion, 57–61
  Bulb syringes, 126f

Capsules, oral administration, 74–76
  pilling device, 76f

Cardiopulmonary resuscitation (CPR), 349
  aims, 349–350
  algorithm, 352f
  complications, 349
  crash cart, 350f
  emergency drugs and doses, 357f
  equipment, 349–351
  large dogs, 355–359
  restraint and positioning, 351
  small dogs and cats, 351–355

Cat bag restraint of rabbits, 369

Catheter placement, arterial
  aims, 337
  complications, 337
  equipment, 337
  procedure, 338–340
  restraint and positioning, 337–338

Catheter placement, intravenous, 43
  aims, 43
  break-away needle catheter insertion, 57–61
  complications, 43
  cut-down catheter insertion, 68–71
  equipment, 44
  multiple lumen catheter insertion, 61–67
  over-the-needle catheter (needle inside) insertion, 47–52
  preparation, 44–45
  rabbits, 371–374
  recommended catheter sizes for cats, 45t
  recommended catheter sizes for dogs, 45t
  restraint and positioning, 44
  through-the-needle catheter insertion, 53–57
  winged infusion set (butterfly) insertion, 45–47

Catheter placement, urethral, 135
  aims, 135
  complications, 135
  equipment, 135–136
management of indwelling catheters and closed urine drainage system, 148–149
preparation, 137
procedures
  female cat, 147–148
  female dog tactile technique, 142–144
  female dog visual technique, 140–142
  male cat, 144–146
  male dog, 138–140, 138f
recommended catheter sizes for dogs and cats, 137f
restraint and positioning, 136
Catheterization
management of indwelling catheters, 148–149
peritoneal, 227–228
Cats
blood transfusion collection, 28–30
cardiopulmonary resuscitation (CPR), 351–355
clipping toenails with human toenail clippers, 132f
cogulation studies, 28
muzzling, 8f
nasogastric intubation, 184–187
oral administration of medications
  pilling device, 75f, 76f
positioning
  blood transfusion collection, 29
  venipuncture, cephalic, 20f, 21
  venipuncture, femoral vein, 22, 23f
  venipuncture, lateral saphenous vein, 21
  venipuncture, medial saphenous vein, 22
recommended endotracheal tube sizes, 170t
recommended intravenous catheter sizes, 45t
recommended urethral catheter sizes, 137t
restraint, 3
  blood transfusion collection, 29
  lateral recumbancy, 11–12, 19f
moderately fractious, 13–15
pharmacologic, 15–16
sternal recumbancy, 13
urethral catheterization
  females, 147–148
  males, 144–146
venipuncture
  positioning, 18–22
  procedure, 22–27
  restraint, 18f, 19f, 20f
Cellophane tape preparation
  aims, 83
  definition, 83
  equipment, 83
  procedure, 83–84, 84f
  restraint and positioning, 83
Centesis
abdominocentesis, 219–220
  aims, 217
  arthrocentesis, 221–223
  cystocentesis, 220–221
percutaneous, 218–219
principles, 217
procedure, 223
thoracentesis, 217–218
types, 217
Central venous blood pressure (CVP) measurement, 314
complications, 314
manometer method equipment, 317
manometer method procedure, 317–319
restraint and positioning, 315
transducer method equipment, 315
transducer method procedure, 315–316
Cephalic vein blood collection
recommended catheter sizes, 45t
restraint and positioning, 20–21
procedure, 22–27
through-the-needle catheter insertion, 53f
Cerebrospinal fluid (CSF) collection, 289
  aims, 289
  cisternal puncture procedure, 292–293
  complications, 290
  contraindications, 290
  equipment, 290
  indications, 289–290
  lumbar puncture procedure, 293–294
  restraint and positioning, 290–291
  sites, 292
Check pouch for liquid medication administration, 77f
Chest tube placement, 176
  aims, 176
  chest aspiration, 180f
  complications, 177
  passing, 181f
  equipment, 177
  indications, 176
  procedure, 178–182
  restraint and positioning, 177
  second hemostat insertion into thorax, 180f
  subcutaneous tube formation, 178f
  suturing, 181f
Chinchilla
  blood volume, 395t
  moving/carrying, 386–389
  respiratory rate, 390t
  weight, 395t
Cisternal puncture
  292
  positioning, 291f
  procedure, 292–293
Clinical procedures, specialized, 163–164
Clippers
guillotine-type, 130f
human toenail, 132f
scissors-type, 131f, 133f
Coagulation studies blood collection, 28
Complete blood count (CBC), 17
Complications
abdominocentesis, 219
anal sac cannulation, 155
anal sac expression, 155
arterial catheter placement, 337
arterial puncture, 333
arthrocentesis, 221
artificial insemination, 266
bleeding time, 298
blood collection, 17
bone marrow aspiration and biopsy, 276
cardiopulmonary resuscitation (CPR), 349
catheter placement, arterial, 337
catheter placement, intrasosseous, 327
Complications (cont.)
cerebrospinal fluid (CSF) collection, 290
chest tube placement, 177
cystocentisis, 220
gastric lavage, 207
intravenous catheter placement, 327
needle core biopsy of cutaneous or subcutaneous mass, 251
percutaneous biopsy, 219
percutaneous gastrostomy tube placement, 193
percutaneous kidney biopsy, 243
percutaneous liver biopsy, 238
peritoneal catheterization and lavage, 225
pharmacologic restraint of dogs and cats, 15
physical restraint of dogs and cats, 3
restraint, pharmacologic, 15
restraint, physical, 3
thoracentesis, 218
thoracic lung aspiration biopsy, 232
tracheostomy, 343
transperineal prostate biopsy, 247
transtracheal wash, 211
vaginal examination and specimen collection, 270

Contraindications
bleeding time, 298
cerebrospinal fluid (CSF) collection, 290
digital rectal examination, 151
enema, 159
needle core biopsy of cutaneous or subcutaneous mass, 250
percutaneous kidney biopsy, 243
percutaneous liver biopsy, 238
thoracic lung aspiration biopsy, 232
transperineal prostate biopsy, 247
vaginal examination and specimen collection
Cook needle, 237f,
Cope needle, 234f, 235f
Cornea staining
aims, 108
equipment, 108
fluorescein staining, 109f
procedure, 108–109
Corneoneconjunctival culture
aims, 107
complication, 107
equipment, 107
procedure, 107
sampling, 108f
Corneoneconjunctival smear and scraping
aims, 111
applying specimen to slide, 113f
complication, 111
equipment, 111
procedure, 111–113
removing mucus of exudate from eyelids, 112f
scraping method, 112f
Crash cart, 350f
Cricothyroid membrane, puncturing, 213f
Cutaneous punch biopsy, 88–90, 89f
Cutaneous wedge biopsy (elliptical incisional biopsy), 90, 91f
Cut-down catheter insertion, 68–71
suturing, 69f, 70f
Cuticle bleeding time, 301
clipping nail, 302f
Cystocentisis
complications, 220
indications, 220
restraint and positioning, 221
site, 220
Dermatologic procedures, 79
bacterial culture of a skin pustule, 80
cellophane tape preparation, 83–84
dermatophytes, 80–81
skin biopsy, 87–88
cutaneous punch biopsy, 88–90, 89f
cutaneous wedge biopsy (elliptical incisional biopsy), 90, 91f
skin culture, 79–80
skin scraping, 81–85
skin vacuuming, 84–86
Dermatophytes, 80
Digital rectal examination, 151
aims, 151
contraindications, 151
equipment, 152
indications, 151
procedure, 152–153
restraint and positioning, 152
vaginal examination of pelvic and perineal organs, 153f
Dogs
blood transfusion collection, 28–30
cardiopulmonary resuscitation (CPR) for large dogs, 355–359
cardiopulmonary resuscitation (CPR) for small dogs, 351–355
clipping toenails with dremel drill, 132f, 133f
cocainization studies, 28
Elizabethan collar, 10–11
muzzling, 7–10
application of gauge muzzle, 9–10
oral administration of medications
cheek pouch, 77f
liquid medication, 77f, 78f
manual placement, 75f
positioning
blood transfusion collection, 29
venipuncture, cephalic vein, 20f, 21
venipuncture, femoral vein, 22, 23f
venipuncture, jugular vein, 18, 19f
venipuncture, lateral saphenous vein, 21
venipuncture, medial saphenous vein, 22
recommended endotracheal tube sizes, 170t
recommended intravenous catheter sizes, 45t
recommended urethral catheter sizes, 137t
restraint, 3
Elizabethan collar, 10–11
lateral recumbency, 6–7
muzzle, use of, 7–10
pharmacologic, 15–16
sitting or sternal recumbency, 5–6, 19f
standing position, 4–5
venipuncture, cephalic, 20f
venipuncture, jugular vein, 19f
semen collection, 263–266
skin vacuuming, 84–86, 86f
urethral catheterization
  females using tactile technique, 142–144
  females using visual technique, 140–142
insertion into penile urethra, 139f
males, 138–140, 138f
prepuce retraction, 139f
venipuncture
  positioning, 18, 21, 21f, 22
  restraint, 19f, 20f
Doppler blood pressure measurement, 305
  complications, 306
  equipment, 306
  procedure, 306–308
Dremel drill, 132f, 133f
Ear care, 123
  aims, 123
  cleaning interior folds of pinna, 127f
  complications, 123
  equipment, 123
  examination, 125f
  liquid agent instillation, 126f
  procedure, 124–128
  removing external hair, 125f
  removing loosened debris, 127f
  restraint and positioning, 124
Ectoparasites, skin vacuuming removal, 84–86
Eld gastrostomy tube applicator, 195f
  line capture, 198–200
Elizabethan collar, 3, 10–11, 18
Elliptical incisional biopsy (cutaneous wedge biopsy), 90, 91f
Emergency drugs and doses, 357f
Emergency procedures, 295
Endotracheal intubation, 169
  aims, 169
  complications, 160
  cuff inflation, 175f
  equipment, 170
  procedure, 171–176
  rabbits, 380–381
  recommended tube sizes, 170t
  restraint and positioning, 170
Enema, 159
  aims, 159
  complications, 159
  equipment, 160
  indications, 159
  procedure, 160–162
  rectal tube insertion, 161f
  restraint and positioning, 160
Equipment
  activated clotting time (aCT), 302–303
  anal sac cannulation, 155–156
  anal sac expression, 155–156
  arterial catheter placement, 337
  arterial puncture, 333–334
  artificial insemination, 266
  bleeding time, 298
  bone marrow aspiration and biopsy, 276–277
  cardiopulmonary resuscitation (CPR), 349–351
  catheter placement, arterial, 397
  catheter placement, intraosseous, 328
  cerebrospinal fluid (CSF) collection, 290
  chest tube placement, 177
digital rectal examination, 152
  enema, 160
  gastric lavage, 207–208
  intravenous catheter placement, 328
  percutaneous gastrostomy tube placement, 193–194
  percutaneous kidney biopsy, 243
  percutaneous liver biopsy, 238–239
  pleural biopsy, 234
  thoracic lung aspiration biopsy, 232
  tracheostomy, 343–344
  transperineal prostate biopsy, 247
  transtracheal wash, 212
  vaginal examination and specimen collection, 270
Esophagostomy tube placement, 187
  aims, 187
  complications, 187
  dressing, 192f
  equipment, 187–188
  procedure, 187–192
  radiographs, 192f
  restraint and positioning, 188
Eyes see Ophthalmic procedures
Feet see Pedicure
Femoral vein blood collection, 22–27
  recommended catheter sizes, 45t
Fine-needle aspiration biopsy, 97
  aims, 97
  complications, 97
  equipment, 97
  procedure, 98–102, 98f, 99f, 100f, 101f
  Five Rights of medications, 32, 74
Fluorescein
  cornea staining, 109f
  applicator, 110f
French-pezzar mushroom-tip catheter, 194f, 202f
  removal, 204f
Gastric lavage, 207
  complications, 207
  equipment, 207–208
  indications, 207
  procedure, 208–209
  restraint and positioning, 208
Gerbil
  blood volume, 395t
  gender determination, 391f
  moving/carrying, 386–389
  respiratory rate, 390t
  weight, 395t
Glottis, laryngoscopic view, 172f, 173f
Guillotine-type clippers, 130f
Guinea pig
  blood volume, 395t
  moving/carrying, 386–389
  respiratory rate, 390t
  weight, 395t
Hamster
  blood volume, 395t
  intraperitoneal injection, 393f
  moving/carrying, 389
  oral medication administration, 395f
  respiratory rate, 390t
Index

Hamster (cont.)
  subcutaneous injection, 392f
  weight, 395t
Hemostat insertion into thorax, 179f, 180f
Human toenail clippers, 132f
Humeral head aspiration and biopsy, 285–287
Iliac crest aspiration and biopsy, 278–282
Illinois needle, 276f
Impression preparations, 93
  aims, 93
  equipment, 93
  procedure, 94, 94f, 95f
Indications
  abdominocentesis, 219
  activated clotting time (ACT), 302
  anal sac cannulation, 155
  anal sac expression, 155
  arthrocentesis, 221
  artificial insemination, 266
  bleeding time, 297
  bone marrow aspiration and biopsy, 275
  catheter placement, intraosseous, 327
  cerebrospinal fluid (CSF) collection, 289–290
  chest tube placement, 176
  cystocentesis, 220
  digital rectal examination, 151
  enema, 159
  gastric lavage, 207
  intraosseous catheter placement, 327
  needle core biopsy of cutaneous or subcutaneous
    mass, 250
  percardiocentesis, 218
  percutaneous gastrostomy tube placement, 193
  percutaneous kidney biopsy, 245
  percutaneous liver biopsy, 238
  peritoneal catheterization and lavage, 225
  pleural biopsy, 233
  thoracentesis, 217
  thoracic lung aspiration biopsy, 231
  transperineal prostate biopsy, 247
  transtracheal wash, 211
  vagal examination and specimen collection, 269
Injection techniques, 31
  aims, 31
  complications, 31
  equipment, 32
  intradermal injection, 40–42
  intramuscular injection, 35–37
  intraperitoneal injection, 38–40
  intravenous injection, 34–35
  preparation, 32–33
  recommended routes, 32t
  restraint and positioning, 32
  subconjunctival injection, 117–118
  subcutaneous injection, 37–38
  Intradermal injection, 40–42
  Intramuscular injection, 35–37
  quadriceps, 36
  rabbits, 380
  suitable muscle groups, 35f
Intraocular pressure measurement
  aims, 113
  equipment, 113
  procedure, 114–115
  rebound technique, 115
Intraosseous catheter placement, 327
  aims, 327
  complications, 327
  equipment, 328
  indications, 327
  procedure, 329–331
  restraint and positioning, 328
Intraperitoneal injection, 38–40
  hamster, 393f
  mouse, 392f
  rat, 392f
Intravenous catheter placement, 43
  aims, 43
  break-away needle catheter insertion, 57–61
  complications, 43
  cut-down catheter insertion, 68–71
  equipment, 44
  multiple lumen catheter insertion, 61–67
  over-the-needle catheter (needle inside) insertion, 47–50
  recommended catheter sizes for cats, 45t
  recommended catheter sizes for dogs, 45t
  restraint and positioning, 44
  through-the-needle catheter insertion, 53–57
  through-the-needle catheter insertion, 45–47
  intravenous injection, 34–35
  rabbits, 380
Intubation, 169
  chest tube placement, 176–182
  endotracheal intubation, 169–176
  esophagostomy tube placement, 187–192
  nasogastric intubation of cat, 184–187
  orogastric intubation, 182–184
  percutaneous gastrostomy tube placement, 192–204
Jamshidi needles, 277f
Jugular vein blood collection, 18–19
  break-away needle catheter insertion, 57f, 58f
  multiple lumen catheter insertion, 63f, 64f, 66f, 67f
  rabbits, 376–377
  recommended catheter sizes, 45t
  through-the-needle catheter insertion, 54f
Jugular vein distension, 24f
Kidney see Percutaneous kidney biopsy
Laryngoscopy, 172–173
Lateral saphenous vein blood collection, 21
Liquid medication, oral administration, 77–78
Lumbar puncture, 292
  positioning, 291f
  procedure, 293–294
Manometer arterial blood pressure measurement, 313
  equipment, 313–314
  procedure, 314
Manometer central venous blood pressure (CVP)
  measurement
  equipment, 317
  procedure, 317–319
Mean arterial blood pressure (MaP), 305
Medial saphenous vein blood collection, 22
Medications
emergency drugs and doses, 357f
ophthalmic medication, 115–117
oral administration, 73–74
capsules or tablets, 74–76
liquid medication, 77–78
pilling device, 75f, 76f
topical administration of ophthalmic medication, 115–117
Mouse
blood volume, 395t
intraperitoneal injection, 392f
moving/carrying, 384–385
respiratory rate, 390f
weight, 395t
Mouth speculum, 184f
Multiple lumen catheter insertion, 61–67
suturing, 67f
Muscles suitable for intramuscular injections, 35f
Muzzling of dogs, 7–10
gauze muzzle application 9–10
Nasogastric intubation of cats, 184
aims, 185
complications, 185
dressing, 187f
equipment, 185
insertion into nostril, 187f
procedure, 185–186
restraint and positioning, 185
Nasolacrimal duct flushing
aims, 118
complication, 119
dilating puncta, 120f
equipment, 119
procedure, 119
technique, 120f
Needle biopsy of masses and viscera, 231
needle core biopsy, 250–254
percutaneous kidney biopsy, 243–246
percutaneous liver biopsy, 236–243
pleural biopsy, 233–236
thoracic lung aspiration biopsy, 231–233
transperineal prostate biopsy, 246–250
 Needle core biopsy of cutaneous or subcutaneous mass, 250
complications, 251
contraindications, 250
indications, 250
needle position, 253f
postbiopsy considerations, 254
prebiopsy considerations, 251
procedure, 251–253
restraint and positioning, 251
sites, 251
Needle guards, 56f
Obturator tip, 237f
Ophthalmic medication, topical administration
aims, 115
complication, 116
equipment, 116
ointments, 117f
procedure, 116–117
Ophthalmic procedures, 103
cornea staining, 108–110
corneoconjunctival culture, 107–108
corneoconjunctival smear and scraping, 111–113
diagnostic procedures, 103
intraocular pressure measurement, 113–115
nasolacrimal duct flushing, 118–120
restraint and positioning, 103–104
Schirmer tear test, 104–106
subconjunctival injection, 117–118
therapeutic procedures, 103
topical administration of medication, 115–117
Oropharyngeal intubation, 182
aims, 182
complications, 182
equipment, 182
procedure, 183–184
restraint and positioning, 182
Orogastric tube method for line capture, 196–198
Oscillometric blood pressure measurement, 308
complications, 309
equipment, 309
procedure, 309–310
Otoscope usage, 124
Over-the-needle catheter (needle inside) insertion, 47–52
dressing, 51f
T-port, 50f, 52f
Paws see Pedicure
Pedicure, 129
aims, 129
cauterizing bleeding toenail matrix, 131f
complications, 129
equipment, 129
procedure, 130–133
restraint and positioning, 130
toenail clipping
with guillotine-type clippers, 130f
with human toenail clippers, 132f
with scissors-type clippers, 131f, 133f
Percardiocentesis
complications, 219
indication, 218
restraint and positioning, 219
site, 219
Percutaneous gastrostomy tube placement, 192
aims, 193
catheter/tube assembly insertion, 201f
complications, 193
Eld gastrostomy tube applicator method for line capture, 198–200
equipment, 193–194
full abdominal bandage, 203f
indications, 193
oro gastric tube method for line capture, 196–198
Percutaneous gastrostomy tube placement (cont.)
preparation, 194–196
procedure, 196–203
removal, 203–204
restraint and positioning, 196
suturing introduction line, 201f
Percutaneous kidney biopsy, 243
complications, 243
contraindications, 243
equipment, 243
indications, 243
needle positioning, 245f
postbiopsy considerations, 246
prebiopsy considerations, 244
procedure, 244–246
restraint and positioning, 244
site, 243
Percutaneous liver biopsy, 236
complications, 238
contraindications, 238
Cook needle, 237f
core needle technique, 242f
equipment, 238–239
indications, 238
obturator tip, 237f
postoperative care, 241, 243
procedure, 239–241
restraint, 239
site, 239
Temno needle, 237f
Peritoneal catheterization and lavage, 225
aims, 225
catheter set, 226f
complications, 225
equipment, 226
indications, 225
restraint and positioning, 226
Peritoneal catheterization procedure, 227–229
Peritoneal lavage procedure, 228–230
Pharmacologic restraint of dogs and cats, 15–16
complications, 15
Phosphate enema solutions, 160
Physical restraint
cats
lateral recumbancy, 11–12, 19f
moderately fractious, 13–15
sternal recumbancy, 13
dogs
lateral recumbancy, 6–7
sitting or sternal recumbancy, 5–6, 19f
standing position, 4–5
Pilling device, 75f, 76f
Pinna, cleaning interior folds, 127f
Pleureral biopsy, 235
Cope needle, 234f, 235f
equipment, 234
indications, 234
postoperative care, 236
procedure, 235–236
site, 234
Positioning
abdominocentesis, 220
activated clotting time (ACT), 303
anal sac cannulation, 156
anal sac expression, 156
arterial blood pressure measurement, 305
arterial catheter placement, 337–338
arterial puncture, 334
arthrocentesis, 221
bleeding time, 298
blood collection
cephalic, 20f, 21
cephalic vein, 21
femoral vein, 22, 23f
jugular vein, 18
lateral saphenous vein, 21
medial saphenous vein, 22
blood transfusion, 29
cardiopulmonary resuscitation (CPR), 351
catheter placement, arterial, 337–338
catheter placement, intraosseous, 328
catheter placement, intravenous, 44
catheter placement, urethral, 136
central venous blood pressure (CVP) measurement, 315
cerebrospinal fluid (CSF) collection, 290–291
chest tube placement, 177
diagnostic studies, 28
eosinophilic catarrhal rhinitis, 221
digital rectal examination, 152
digit, 124
endotracheal intubation, 170
ema, 160
esophagostomy tube placement, 188
gastric lavage, 208
injections, 32
intraosseous catheter placement, 328
intravenous catheter placement, 44
nasogastric intubation of cats, 185
needle core biopsy of cutaneous or subcutaneous
mass, 251
ophthalmic procedures, 103–104
orogastric intubation, 182
pedicure, 130
percutaneous biopsies, 219
percutaneous gastrostomy tube placement, 196
percutaneous kidney biopsy, 244
percutaneous catheterization and lavage, 226
prostatic massage/washing, 260
skin culture, 80
skin scraping, 82–83
skin biopsy, 88
thoracentesis, 218
thoracic lung aspiration biopsy, 232
toenail care, 130
transperineal prostate biopsy, 247
transtracheal wash, 212
urethral catheterization, 136
venipuncture
cephalic vein, 20f, 21
femoral vein, 22, 23f
jugular vein, 18
lateral saphenous vein, 21
medial saphenous vein, 22
Pressure transducer blood pressure measurement, 310
complications, 310
equipment, 314
procedure, 311–313
Procedures
activated clotting time (ACT), 303–304
anal sac cannulation, 158
anal sac expression, 156–157
arterial catheter blood sampling, 341
arterial catheter placement, 338–340
arterial puncture, 334–336
artificial insemination, 267–268
bleeding time, cuticle, 301
bleeding time, template, 298–300
blood collection
transfusion collection, 29–30
blood collection from rabbits, intravenous, 371–374
blood collection from rabbits, jugular vein, 376–377
blood collection from rabbits, saphenous vein, 377–378
blood sampling from arterial catheter, 341
blood transfusion, 323–325
catheter placement, arterial, 338–340
catheter placement, intraosseous, 329–331
catheter placement, intravenous rabbits, 372–374
cellophane tape preparation, 83–84
centesis, 223
chest tube placement, 178–182
cisternal puncture for CSF collection, 292–293
corneal tear test, 104–106
corneoconjunctival smear and scraping, 111–113
digital rectal examination, 152–153
Doppler blood pressure measurement, 306–308
car care, 124–128
endotracheal intubation, 171–176
enema, 160–162
esophagostomy tube placement, 188–191
fine-needle aspiration biopsy, 98–102
gastric lavage, 208–209
humeral head aspiration and biopsy, 285–287
iliac crest aspiration and biopsy, 278–282
impression preparations, 94
intracaudal pressure measurement, 113
intracaudal catheter placement, 325–327
intravenous catheter placement
break-away needle catheter insertion, 57–61
cut-down catheter insertion, 61–67
over-the-needle catheter (needle inside) insertion, 47–52
rabbits, 372–374
winged infusion set (butterfly) insertion, 45–47
intravenous fluid administration for rabbits, 374–376
lumbar puncture for CSF collection, 293–294
manometer arterial blood pressure measurement, 314
manometer central venous blood pressure (CVP) measurement, 317–319
nasogastric intubation of cats, 185–186
nasolacrimal duct flushing, 119
needle core biopsy of cutaneous or subcutaneous mass, 251–253
ophthalmic medication, topical administration, 116–117
oral administration of fluid medication in rabbits, 378–379
oral administration of tablets in rabbits, 379
orogastric intubation, 183–184
oscillometric blood pressure measurement, 309–310
pedicure, 130–133
percutaneous gastrostomy tube placement, 200–203
percutaneous kidney biopsy, 244–246
percutaneous liver biopsy, 239–241
peritoneal catheterization, 227–228
peritoneal lavage, 228–230
pleural biopsy, 235–236
pressure transducer blood pressure measurement, 311–313
prostatic massage/washing, 260–261
restraint of aggressive rabbits, 369–370
Schirmer tear test, 104–106
semen collection, 264–266
skin preparation, 82–83
skin vacuuming, 85–86
subconjunctival injection, 118
thoracic lung aspiration biopsy, 232–233
toenail care, 130–133
towel restraint of rabbits, 366–369
tracheostomy, 344–348
transendoscopic prostate biopsy, 248–250
transnasal wash, 212–216
trocchoantric fossa aspiration and biopsy, 282–285
urethral catheterization of female cats, 147–148
urethral catheterization of female dogs using tactile technique, 142–144
urethral catheterization of female dogs using visual technique, 140–142
urethral catheterization of male cats, 144–146
urethral catheterization of male dogs, 138–140
urethral catheterization preparation, 137
urohydropropulsion, 256–257
vaginal examination and specimen collection, 271–273
venipuncture, 22–27
Prostatic massage/washing, 259
aims, 259
complications, 259
equipment, 260
indicator, specific, 259
procedure, 260–261
restraint and positioning, 260
transrectal prostate digital massage, 261f
Push smear technique, 101f
Quadriceps intramuscular injection, 36
Rabbits
blood collection, intravenous, 371–374
blood collection, jugular vein, 376–377
blood collection, saphenous vein, 377–378
central artery of ear, 373f
donor blood, 341–344
diaphragmatic injection, 390
intravenous catheterization, 371–374
intravenous fluid administration, 374–376
intravenous injection, 380
marginal vein of ear, 373f
moving/carrying, 364–366
oral administration of fluid medication, 378–379
oral administration of tablets, 379
restraint, 363
aggressive, 369–370
Rabbits (cont.)
cat bag restraint, 369
towel restraint, 366–369
subcutaneous injection, 380
urine collection, 380

Rats
blood volume, 395t
intraperitoneal injection, 392f
moving/carrying, 385–386
respiratory rate, 390f
weight, 395t

Rebound technique (IOP), 115
Recurrent tarsal vein blood collection, 21

Red blood cells, 321

Restraint
abdominocentesis, 220
activated clotting time (ACT), 303
aims, 3
anal sac cannulation, 156
anal sac expression, 156
arterial blood pressure measurement, 305
arterial catheter placement, 337–338
arterial puncture, 334
arthrocentesis, 224
artificial insemination, 267
bleeding time, 298
blood collection, 18, 19f
blood transfusion, 29

Cardiopulmonary resuscitation (CPR), 351
catheter placement, 337–338
catheter placement, intravenous, 44
catheter placement, urethral, 136
cats, 3
lateral recumbancy, 11–12, 19f
moderately fractious, 13–15
pharmacologic, 15–16
sternal recumbancy, 13
central venous blood pressure (CVP) measurement, 315
cerebrospinal fluid (CSF) collection, 200–201
chest tube placement, 177
coagulation studies, 28
complications, 3
cystocentesis, 224
definition, 3
digital rectal examination, 152
dogs, 3
lateral recumbancy, 6–7
muzzle, use of, 7–10
pharmacologic, 15–16
sitting or sternal recumbancy, 5–6, 19f
standing position, 4–5
core biopsy of cutaneous or subcutaneous mass, 251
ophthalmic procedures, 103–104
orogastric intubation, 182
pedicure, 130
pericardiocentesis, 219
percutaneous gastrostomy tube placement, 196
percutaneous kidney biopsy, 244
percutaneous liver biopsy, 239
peritoneal catheterization and lavage, 226
pharmacologic, 15–16
physical
cats in lateral recumbancy, 11–12, 19f
cats in sternal recumbancy, 13
cats, moderately fractious, 13–15
dogs in lateral recumbancy, 6–7
dogs in sitting or sternal recumbancy, 5–6, 19f
dogs in standing position, 4–5
prostatic massage/washing, 260
rabbits, 363
aggressive, 368–370
cat bag restraint, 369
towel restraint, 367–369
semen collection, 364
skin biopsy, 88
skin culture, 80
skin scraping, 82–83
small rodents, 383

Tracheostomy, 218
Thoracic lung aspiration biopsy, 232
toenail care, 130
transperineal prostate biopsy, 247
transtracheal wash, 212
urethral catheterization, 136
vaginal examination and specimen collection, 270
venipuncture, 18, 19f

Veterinary endoscopy, 267

Semen collection, 263
aims, 263
complications, 263
equipment, 263
preparation, 264
procedure, 264–266
restraint, 264

Simpal-II bleeding time device, 299f
Skin biopsy
aims, 87
complications, 87
cutaneous punch biopsy, 88–90, 89f
cutaneous wedge biopsy (elliptical incisional biopsy), 90, 91f
definition, 87
equipment, 87–88
preparation, 88
restraint and positioning, 88
Skin culture
aims, 79
definition, 79
equipment, 79
restraint and positioning, 80
Skin preparation, 165
equipment, 165
procedure, 165–166
Skin pustules, bacterial culture of, 80
Skin scraping
aims, 81
complications, 81
development, 81
equipment, 81
procedure, 82–83
restraint and positioning, 82–83
Skin vacuuming
aims, 84
development, 84
equipment, 85
procedure, 85–86, 86f
Small rodents
examination, 389–390
gender determination, 391
husbandry, 390
restraint, 383
ventilation and fluid administration, 391–395
Sovereign catheter, 197f, 198f
Specialized clinical procedures, 163–164
Squash smear technique, 101f
Subconjunctival injection
aims, 117
complications, 117
equipment, 117
procedure, 118
technique, 118f
Subcutaneous injection, 37–38
hamster, 392f
rabbits, 389
Subcutaneous tube formation, 173
Syringe stabilization during blood collection, 26f
Tablets
oral administration, 74–76
pilling device, 75f, 76f
rabbits, 379
Temno needle, 237f
Template bleeding time, 298–300
blotting blood droplets, 301f
making skin incision, 300f
Thoracentesis
complications, 218
indications, 217
restraint and positioning, 218
sites, 218
Thoracic lung aspiration biopsy, 231
complications, 232
contraindications, 232
equipment, 232
indications, 231
postoperative care, 233
procedure, 232–233
restraint and positioning, 232
site, 232
Through-the-needle catheter insertion, 53–57
needle guards, 56f
transtracheal aspiration, 212
Toenail care, 129
aims, 129
cauterizing bleeding matrix, 131f
cutting with guillotine-type clippers, 130f, 132f
cutting with scissors-type clippers, 131f, 133f
complications, 129
equipment, 129
procedure, 130–133
restraint and positioning, 130
TonoPen® 114, 115
Total parental nutrition (TPN), 61
Towel restraint of rabbits, 366–369
T-ports, 50f, 52f
Trachea, puncturing, 213f
Tracheostomy, 343
aims, 343
complications, 343
dressing, 347f
equipment, 343–344
longitudinal incision in trachea, 346f
midline ventral cervical skin incision, 345f
procedure, 344–348
tube formation, 346f
Transfusion collection, 28
complications, 29
equipment, 29
procedure, 29–30
restraint and positioning, 29
Transperineal prostate biopsy, 246–247
complications, 247
contraindications, 247
equipment, 247
indications, 247
postbiopsy considerations, 250
procedure, 248–250
restraint and positioning, 247
site, 247
Transtracheal wash, 211
aims, 211
catheter threading, 214f
complications, 211
equipment, 212
fluid aspiration, 216f
indications, 211
needle withdrawal, 215f
procedure, 212–216
restraint and positioning, 212
saline infusion, 215f
Trochanteric fossa aspiration and biopsy, 282–285
leg restraint, 283f
Urethral catheterization, 135
aims, 135
complications, 135
equipment, 135–136
management of indwelling catheters and closed
urine drainage system, 148–149
preparation, 137
Urethral catheterization (cont.)
  procedures
    female cat, 147–148
    female dog tactile technique, 142–144
    female dog visual technique, 140–142
    male cat, 144–146
    male dog, 138–140, 138f
    recommended catheter sizes for dogs and cats, 137f
  restraint and positioning, 136

Urine drainage, closed systems, 148–149

Urohydropropulsion, 255
  equipment, 255
  forces and fluid flow, 256f
  indicator, specific, 255
  procedure, 256–257
  restraint and positioning, 255

Vaginal examination and specimen collection, 269
  aims, 269
  complications, 270
  contraindication, 270
  digital examination, 272f
  equipment, 270
  indications, 269
  preparation, 270
  procedure, 271–273
  restraint, 270
  speculum insertion, 273f
  swab specimen, 271f

Venipuncture, 17
  bandaging site following needle/catheter removal, 27f
  complications, 17
  equipment, 17–18
  positioning
    cephalic vein, 20f, 21
    femoral vein, 22, 23f
    jugular vein, 18
    lateral saphenous vein, 21
    medial saphenous vein, 22
  restraint, 18f, 19f, 20f, 22f
  syringe stabilization, 26f
  Verbal restraint
  Winged infusion set (butterfly) insertion, 45–47