A
Abdominal resection, of rectum, 159–160
Acoustic impedance, 106
Adenocarcinoma, 4, 151
Agents
anesthetic, short-acting, 304–305
topical, 302–304
Age, prostate cancer relating to, 13–14, 172
Age-specific cutoffs, for PSA, 19–20
Alpha methylacyl-CoA racemase. See AMACR
AMACR (alpha methylacyl-CoA racemase), 291–292
American Cancer Society, 78, 143
American College of Preventive Medicine, 78
American Heart Association, 145, 261
American Urological Association, 78, 98, 261
Amoxicillin, 100, 102
Ampicillin, 100, 145
Amplification, 106
Analgesics, topical, 127–128, 263
Anastomotic site, after radical prostatectomy, prostate biopsy relating to, 157, 176
Anatomy
of anastomotic site, after radical prostatectomy, prostate biopsy relating to, 157, 176
of prostate, 294
Androgen deprivation therapy, 113
Anesthesia, for prostate biopsy, 182–183
alternative injection techniques, 135–137
intrarectal application of, 146–147
local, 146
options of, 128–129
PNB, 121, 122, 128, 129–135
probe associated with, 123–128
Anesthetic agents, short-acting, 304–305
Anesthetic jelly, 147
Anterior biopsies, 165, 169, 170
Anterior horn, 138, 139
Antibiotics
prophylactic, 259–262
for prostate biopsy, 98–100
in patients at risk for endocarditis, 100, 145
α-1-antichymotrypsin. See PSA-ACT
Anticoagulation, biopsy preparation for patients with, 123–137, 146
Antigen detection. See cPSA
API (α-1-protease inhibitor), 45
Apical biopsies, 149, 150, 151, 152, 175 pain of, 137–140
Appearance
normal, of prostate, 109–112
of prostate, after treatment, 113–114
Artifacts, ultrasound relating to, 114–118
Artificial neural networks, 88
ASAP (atypical small acinar proliferation), 153–154
alternate strategies for, 281
detection of, 289
HGPIN and, on prostate biopsy, management and controversies of, 269–286
potential misinterpretations of, 275–276
rebiopsy and surveillance, after diagnosis of, 278
Aspirin, 146
ATYP (atypical glands, suspicious for prostate cancer), 232, 244–245
Atypical glands, suspicious for prostate cancer. See ATYP
Atypical small acinar proliferation. See ASAP
Autoantibody signatures, 291–292
Autopsy, 1, 2
study relating to, 4–6
Bacteremia, 100, 101, 211, 259, 262
Bayer Immuno 1 cPSA, 33, 46
Benign prostatic hyperplasia. See BPH
Benzocaine, 147
Bilateral anterior horn biopsy, 170
Bilateral TZ biopsy, 170
Biomarker panel, ERG relating to, 292–293
Biomarker, PSA as, 72
Biopsy. See also Prostate biopsy;
   Rebiopsy and surveillance, after
diagnosis; TRUS-Bx
   lateral, 165, 167, 168, 169, 171, 175
Biopsy device, 144
Biopsy Gleason score, radical
prostatectomy Gleason score
with, correlation of, 238–239
Biopsy needles. See also Prostate
   needle biopsies
   Tru-Cut large-core, 72
Biopsy schemes. See Biopsy strategies
Biopsy strategies
   biopsy schemes
   8–12 core, 219
   8-core, 170
   11-core, 170
   extended, 165, 167–174, 175, 176
   five-region, 167, 168, 202, 256
   14–45 core biopsy schemes, 219
   sextant, 166–174, 176, 293
   6–12 core, 218
   6-core, 183–185, 188, 193, 203, 217
   10–12 core, 165, 293
   10-core, 169, 170, 173, 202, 257
   12–14 core, 218
   12-core, 171, 173, 175, 257
   24-core transrectal template, 219
   lesion-directed, 170
   systemic, 166, 168, 169, 170
   TZ, 165, 170, 175
Biopsy techniques, advances in, for
prostate cancer diagnosis, 293–307
3D MRS, 300–301
3D US, 295–296
   biopsy needles, 1, 86, 89, 183, 305
   CDU, 294, 296, 298, 305
   contrast-enhanced CDU, 296–297
individualized biopsy protocol, 301
   intermittent/harmonic imaging, 297–298
   MRI, 294, 298–300
   PNB, 264, 265, 293, 302
   prostate, anatomy of, 294
   prostate biopsy, pain during, 121–142, 302
   radiographic, 294
   short-acting anesthetic agents, 304–305
topical agents, 302–304
Bleeding. See Rectal bleeding
Blocks. See PNB
Bowel preparation, 145
BPH (benign prostatic hyperplasia),
   16, 64, 110, 118
   molecular markers relating to, 44,
   45, 48, 49–50, 52, 55, 56
BPSA, fPSA relating to, 49–50
Brachytherapy, 112, 113
Bupivacaine (Marcaine®), 129

C
Cancer, of prostate. See Prostate
cancer
Carcinoma, 2
   foci of, 3–6
   latent, of prostate, 3
Catheterization, urethral, 16
cDNA coding, for PSA, 51
CDU (color Doppler ultrasound), 294,
   296, 298, 305
   contrast-enhanced, 296–297
Checkerboard TMA (tissue
   microarray) method, 306
Chemoprevention, HGPIN and, 269,
   278–281
Ciprofloxacin, 98, 99, 145, 260, 261, 262
Clinical implications and detection, of
   HGPIN, 271–273
Clinically insignificant cancer, diagnosis
   of, 225–226
Clinical studies, cPSA relating to, 33–36
Clinical trials, HGPIN associated with,
   280–281
Clopidogrel (Plavix), 146, 258
Color Doppler ultrasound. See CDU
Complexed PSA. *See* cPSA
Consent, for prostate biopsy, 101–102
Contrast-enhanced CDU, 296–297
Core labeling, risk stratification and, 175–176
Cores. *See* Biopsy strategies; Needle cores; Tru-Cut large core biopsy needle
Coumadin. *See* Warfarin
cPSA (complexed PSA), 20, 44. *See also* Bayer Immuno 1 cPSA antigen detection, 33
clinical studies relating to, 33–36
fPSA v., 46–47
future of, 38
measured v. calculated, 37
medical economic considerations relating to, 36–37
role of in nomograms predicting pathologic stage, 36
in prostate cancer screening, 29–41
Curative intervention. *See* PSA kinetics
Cystoscopy, 16

D
DD3, 288–289
Decision aids, 83–86
criteria for, 83–84
patient perspective relating to, 85
Density, PSA relating to. *See* PSAD; PSAD-TZ
Dentate line, 138–139, 140, 148
Detection antigen. *See* cPSA
of ASAP, 275
characterization and, of prostate cancer, saturation prostate biopsy used in, 217–229
clinical implications and, of HGPIN, 271–273
association and risk of prostate cancer after, 273
rates of for cancer, 188, 189, 200, 205–207, 270
PSA-stratified, 172
Detection nomograms, for prostate cancer, 86–88

Diclofenac, intrarectal, 129, 306
Digitally guided prostate biopsy, 156–157
Digital rectal examination. *See* DRE
Dimethyl sulfoxide (DMSO), 304, 306
DMSO. *See* Dimethyl sulfoxide
DRE (digital rectal examination), 16, 17, 18, 24, 86, 89, 288
HGPIN and ASAP relating to, 276–278
prostate cancer screening controversy relating to, 71, 74, 75, 76, 79
transperineal prostate biopsy relating to, 180, 186–187, 188, 190, 192

E
E2F3 gene, 306
Echoes, 109
Eiffel Tower sign, 111
8–12 core biopsy scheme, 219
8-core biopsy scheme, 170
18-gauge needle, 144–145
11-core biopsy scheme, 170
ELISA (enzyme-linked immunosorbent assay), 52
Emerging molecular markers, PSA and, 43–59
Emerging molecular prostatic markers, prostate needle biopsies relating to, 245–246
End-fire probes, 123–126, 149, 150
Endocarditis, 100, 145
Enemas, 98, 99, 100–101, 145, 260, 261, 262, 265
Enzyme-linked immunosorbent assay. *See* ELISA
Epitopes, of PSA, 45–46
Equipment, for prostate biopsy, 144
ERG (ETS-related gene), 292–293
ERSPC (European Randomized Study of Screening for Prostate Cancer), 24, 79
ETS-related gene. *See* ERG
European Prostate Cancer Detection Study, 203, 209
European Randomized Study of Screening for Prostate Cancer. *See* ERSPC
Extended biopsy schemes, 165, 167–174, 175, 176
PZ, 167
External irradiation, 113
Extraprostatic extension, seminal vesicle invasion and, prostate needle biopsies relating to, 240–241

F
Fan technique, for transperineal prostate biopsy, 183–184, 190
FDA (Food and Drug Administration), 15, 17, 19, 45, 46, 75
Finasteride
prostate gland relating to, 75
risks and benefits of, 75–76
side effects of, 75–76
Five-region biopsy scheme, 167, 168, 202, 256
Fixation, of prostate biopsy, 233–234
Fluoroquinolone, 99, 102, 145, 211, 262
Focusing, ultrasound transmission relating to, 107
Food and Drug Administration. See FDA
14-45 core biopsy schemes, 219
fPSA (free PSA), 16, 31–32, 44, 45
BPSA relating to, 49–50
complexity of, 48
cPSA v., 46–47
internally cleaved forms of, 48–50
noncleaved forms of, 51–53
Free PSA. See fPSA
Frequency, 109

G
Generation of images, ultrasound relating to, 108–109, 114, 117
Genes
E2F3, 306
ERG, 292–293
Gentamicin, 100, 102, 145
Gleason grading system, modified, 236–237
Gleason score, 4, 5, 8, 10, 78, 301. See also Biopsy Gleason score, radical prostatectomy Gleason score with, correlation of used for grading of prostate cancer, 234–238
used in nomograms, 239
Glutathione S-transferase-p1. See GSTPI; GSYP1
Green tea catechins. See GTCs
Gross hematuria, 167
GSTPI (glutathione S-transferase-p1), 246
GTCs (green tea catechins), 280

H
Hematochezia, 132, 256, 257, 264
Hematospermia, 212, 255, 256, 257, 264–265
Hematuria, 97, 167, 255, 256, 258, 259, 264
HGPIN (high-grade PIN), 4, 5–6, 153–154
ASAP and
DRE relating to, 276–278
on prostate biopsy, management and controversies of, 269–286
chemoprevention and, 269, 278–281
clinical trials associated with, 280–281
detection and clinical implications of, 271–273
association and risk of prostate cancer after, 273
pathology complications, of prostate biopsy relating to, 233–234, 242–244, 245
rebiopsy and surveillance after diagnosis of, 276–277
risk factors, for development of prostate cancer in men with, 274
High-grade PIN. See HGPIN
HIP-1 (Huntington interacting protein-1), 291–292
Histologic variants, of prostate cancer, 238
hK2 (human glandular kallikrein), 23, 48, 49, 51
Hormone-refractory PCa, 83
Human glandular kallikrein. See hK2
Huntington interacting protein-1. See HIP-1
Hyperechoic line, 117
Imaging. See also MRI
  intermittent/harmonic, 297–298
Incidence, of prostate cancer, 72–74
Increased through-enhancement, ultrasound relating to, 115
Individualized biopsy protocol, 301
Infections, 259–262, 265. See also UTIs
Initial biopsy strategy, saturation prostate biopsy, 224
Injection techniques, anesthesia, for prostate biopsy, 135–137
Intermittent/harmonic imaging, 297–298
Internally cleaved forms, of fPSA, 49–50
Interpretation and reporting, of prostate needle biopsies, 234–246
Intrarectal application, of anesthesia, 146–147
Intrarectal diclofenac, 129, 306
Intrarectal lidocaine gel, 263–264, 302–304
Invasion
  perineural, prostate needle biopsies relating to, 241–242
  seminal vesicle, extraprostatic extension and, prostate needle biopsies relating to, 240–241
J
Jelly
  anesthetic, 147
  xylocaine, 147
K
Kinetics. See PSA kinetics
L
Laboratory processing, of prostate needle biopsies, 232–233
Latent subclinical disease, 2
Lateral biopsy, 165, 167, 168, 169, 171, 175
Lesion-directed biopsy strategies, 170
Levaquin, 99
LGPIN (low-grade PIN), 242–243, 271
Lidocaine, 102, 121, 122, 129, 146, 263–264
Lidocaine gel, intrarectal, 263–264, 302–304
Life-threatening disease prediction, PSA kinetics relating to, 65–68
Local anesthesia, for prostate biopsy, 146
Low-grade PIN. See LGPIN
Lubrication, of probes, 127
Lycopene, 279–280
M
α-2-macroglobulin. See PSA-AMG
Magnetic resonance imaging. See MRI
MALDI-TOF-MS (matrix-assisted laser desorption/ionization time-of-flight mass spectrometry), 289
Marcaine®. See Bupivacaine
Markers. See also Biomarker, PSA as molecular. See Molecular markers non-PSA-based, for prostate cancer, 44
  prostate cancer, mass spectrometry and, 53–55
  serum tumor, PSA as, 17, 30
Mass spectrometry, prostate cancer markers and, 53–55
Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry. See MALDI-TOF-MS
Medical economic considerations, cPSA relating to, 36–37
Methylation, 246
Metronidazole, 211
Midline biopsy, 168
Modified Gleason grading system, 236–237
Molecular derivatives, of PSA, 44–46
Molecular forms, of PSA in serum, 30–32
Molecular markers
  BPH relating to, 44, 45, 48, 49–50, 52, 55, 56
  emerging, PSA and, 43–59
  future directions of, 288, 291
  prognostic, 232
Molecular markers (Cont.)
prostatic, emerging, prostate needle biopsies relating to, 245–246
PSA and, 43–59
Mortality, of prostate cancer, 72–74
Mount Everest sign, 130, 131, 133, 140
Mount Everest technique, of periprostatic block, 129–133
MRI (magnetic resonance imaging), 294, 298–300, 305, 306

N
National Cancer Institute, 14, 24, 78, 79, 279
National Comprehensive Cancer Network. See NCCN
NCCN (National Comprehensive Cancer Network), 276, 277, 278, 282
Needle cores, 165, 166, 175–176
Needles
biopsy, 1, 86, 89, 183, 305
Tru-Cut large-core, 72
18-gauge, 144–145
Negative prostate biopsy, 174–175
Negative saturation prostate biopsy, 224–225
Nerve block. See PNB
Neural networks
application concerns of
faulty comparisons, 93
inappropriate, 93
incorrect/incomplete description, 92–93
mistakes, 91–92
overfitting, 92
artificial, 88
nomograms v., 83–96
Nomograms
accuracy of, 84
cPSA relating to, 36
Gleason score used in, 239
neural networks v., 83–96
predictions relating to, 84–85
prostate cancer detection, 86–88
Vienna, repeat prostate biopsy and, 199–216
Noncleaved forms, of fPSA, 50–53
Non-PSA-based markers, for prostate cancer, 44
Nonsteroidal antiinflammatory drugs, 146
Norfloxacin, 99

O
Ofloxacin, 99
Oncology, urologic, 179

P
Pain
of apical biopsy, 137–140
during prostate biopsy, 121–142, 302
TRUS-Bx associated with, 263–264
Pathologic features, of prostate biopsy, 205–207, 246
Pathologic implications, of prostate biopsy, 231–254
Pathologic stage, of cPSA, 36
Pathology complications, of prostate biopsy, 233–234, 242–244, 245
Pathology review, second-opinion, of prostate needle biopsies, 246
Patients
after abdominal resection of rectum, prostate biopsy relating to, 159–160
with anticoagulation, biopsy preparation for, 123–137, 146
improved experience of through patient positioning, 123–127, 147
trough probe placement optimization, 127–128
through room set-up, 122–123
perspective of, decision aids relating to, 85
positioning of, 123–127, 147
after radical prostatectomy, prostate biopsy relating to, 157, 176
at risk for endocarditis, 100, 145
PCa (prostate cancer) outcomes
decision aids relating to, 83–86
hormone-refractory, 83
prediction of, 83–85, 93–94
PCPT (Prostate Cancer Prevention Trial), 74, 75
PDU (Power Doppler ultrasound), 296
Penicillin allergies, 100
Percent free PSA, 19, 212
Perineum, 121
Perineural invasion, prostate needle biopsies relating to, 241–242
Peripheral zone. See PZ
Periprostatic nerve block. See PNB
Phase cancellation, 116–118
PIN (prostatic intraepithelial neoplasia), 1, 4, 153–154. See also HGPIN; LGPIN
prostate biopsy and, 209–217, 212, 271
prostate needle biopsy and, 242–244
Plavix. See Clopidogrel
PLCO (Prostate, Lung, Colorectal, Ovarian) Cancer Screening Trial, 24, 78, 79
PNB (periprostatic nerve block), 146
complications of, 134–135
Mount Everest technique of, 129–133
for prostate biopsy, 121, 122, 128, 129–135
for prostate cancer diagnosis, 264, 265, 293, 302
results of, 133–134
Positioning, of patient, 123–127, 147
Posterior shadowing, 114–115
Power Doppler ultrasound. See PDU
Prediction
life-threatening disease, PSA kinetics relating to, 65–68
nomograms relating to, 84–85
of PCa outcomes, 83–85, 93–94
of prostate cancer, PSA kinetics relating to, 63–64
Pre-pro-peptide, 48
Preventative Service Task Force, U.S., 78
Prevention, of prostate cancer, 74–76
Probes
anesthesia associated with, 123–128
end-fire, 123–126, 149, 150
lubrication of, 127
movement of, 125
placement optimization of, 127–128
side-fire, 123–125
transrectal, 181
ultrasound, 303
visualization with, 123–127
Prognostic molecular markers, 232
Prognostics, 83
Prophylactic antibiotics, 259–262
Pro-PSA, 23
Prostate
anatomy of, 294
appearance of, 109–114
latent carcinoma of, 3
transurethral resection of. See TUR-P
transverse ultrasound image of, 110, 111, 112, 113, 116–118
ultrasound of, 105–119
Prostate biopsy, 13, 72, 79. See also TRUS-Bx
after abdominal resection of rectum, 159–160
anterior, 165, 169, 170
apical, 137–140, 149, 150, 151, 152, 175
bilateral anterior horn, 170
bilateral TZ, 170
consent for, 101–102
equipment for biopsy device, 144
transrectal ultrasound device, 144
future directions for, 160
HGPIN and ASAP on, management and controversies of, 269–286
history of, 144, 165–167
lateral, 165, 167, 168, 169, 171, 175
midline, 168
morbidity of first and repeat, 210–212
negative, 174–175
pain associated with, 121–142, 302
pathologic features of, 205–207, 246
pathologic implications of, 231–254
pathology complications of, 232–233, 242–244, 245
PIN and, 209–217, 271
PNB for, 121, 122, 128, 129–135
preparation for, 97–104
anesthesia for, 121, 122, 123–137, 146–147, 182–183
antibiotics, 98–100, 145
bowels, 145
Prostate biopsy (Cont.)
enemas, 98, 99, 100–101, 145, 260, 261, 262, 265
for patients with anticoagulation, 123–137, 146
practice patterns, 98
procedures for
digitally guided prostate biopsy, 156–157
in special populations, 157–160, 176
transperineal prostate biopsy, 155–156, 166, 179–197
transrectal prostate biopsy, 123–127, 147–155
transurethral biopsy, 156
prostate needle relating to, 1, 86, 89, 183, 305
radical prostatectomy relating to, 157, 176
repeat. See Repeat prostate biopsy saturation. See Saturation prostate biopsy
sextant method of, 147
techniques for, 143–163
Prostate cancer, 1–11, 16, 143
age relating to, 13–14, 172
death relating to, 13–14
detection nomograms for, 86–88
detection rate of, 188, 189, 200, 205–207, 270
future directions in diagnosis of, 287–312
biopsy technique, advances in, 1, 86, 89, 121–142, 183, 264, 265, 293–307
new screening tools, 287–293
Gleason score used for grading of, 234–238
HGPIN relating to, 273, 274
histologic variants of, 238
incidence and mortality of, 72–74
management of suspicion of, after negative saturation prostate biopsy, 224–225
non-PSA-based markers for, 44
prediction of, PSA kinetics relating to, 63–64
prevention of, 74–76
PSAV used in diagnosis and management of, 61–70
saturation prostate biopsy for detection and characterization of, 217–229
in management of candidates for active surveillance for, 226–227
subclinical, 1–10
Prostate cancer markers, mass spectrometry and, 53–55
Prostate cancer outcomes. See PCa outcomes
Prostate Cancer Prevention Trial. See PCPT
Prostate cancer screening arguments against, 77–78
in favor of, 76–77
controversy about, 71–82
cPSA and
fPSA v., 46–47
role of, 29–41
PSA and, 15–30, 179, 231, 288
Prostate gland, finasteride relating to size of, 75
Prostate, Lung, Colorectal, Ovarian Cancer Screening Trial. See PLCO Cancer Screening Trial
Prostate needle biopsies, 1, 86, 89, 183
diagnostic categories in, 234
interpretation and reporting of, 234–246
ATYP, 232, 244–245
biopsy Gleason score, radical prostatectomy Gleason score with, correlation of, 238–239
emerging molecular prostatic markers, 245–246
extraprostatic extension and seminal vesicle invasion, 240–241
Gleason grading of prostate cancer, 234–238
Gleason score’s use in nomograms, 239
histologic variants of prostate cancer, 238
perineural invasion, 241–242
PIN, 242–244
quantification of amount of cancer on, 239–240
second-opinion pathology review of, 246
laboratory processing of fixation of, 232–233
specimens, submission of, 232–233
Prostate-specific antigen testing. See PSA
Prostate volume
impact of, 200–203
TZ relating to, 201
Prostatic intraepithelial neoplasia. See PIN
Prostatic malignancy, ultrasonography of, 112
Prostatitis, 16
α-1-protease inhibitor. See API
PSA (prostate-specific antigen). See also cPSA; tPSA; Non-PSA-based markers, for prostate cancer; Pro-PSA; Serum PSA; tPSA
age-specific cutoffs for, 19–20
as biomarker, 72
cDNA coding for, 51
complexed. See cPSA
derivatives, 30, 203–205
emerging molecular markers and, 43–59
epitopes of, 45–46
free. See fPSA
isoforms, 16, 17, 32
levels of, 1, 2, 10, 63, 152, 153, 165–177
molecular derivatives of, 44–46
percent free, 19, 212
prostate cancer screening and, 15–30, 179, 231, 288
recommendations for, 24–25
results of, 23–24
uses of, 17–19
variations of, 19
repeat biopsies and, 199–200
saturation biopsy relating to, 224
secretion of, 43–44
in serum, molecular forms of, 30–32
as serum tumor marker, 17, 30
testing, 1, 2, 6–9
zymogen forms of, 51
PSA-ACT (PSA complexed with α-1-antichymotrypsin), 44–45
PSA-AMG (PSA complexed with α-2-macroglobulin), 44–45
PSAD (PSA density), 20–21, 165, 176–177, 204–205, 212
PSA density. See PSAD
PSA doubling time. See PSADT
PSADT (PSA doubling time), 22, 25, 62, 67–68
PSAD-TZ (PSA transition zone density), 21, 176–177, 212
PSA kinetics, 61, 274
definition of, 62
life-threatening disease prediction relating to before curative intervention, 65–66
after failed curative intervention, 66–68
prostate cancer prediction relating to, 63–64
PSA-specific antisera, 15, 16
PSA-stratified detection rates, 172
PSA transition zone density. See PSAD-TZ
PSA-TZ, 204–205, 219
PSAV (PSA velocity), 21–22, 25
diagnosis and management of prostate cancer relating to, 61–70
studies relating to, 64
PSA velocity. See PSAV
PZ (peripheral zone), 109, 126, 166, 167, 170
repeat biopsies relating to, 201, 202, 208
Q
Quantification, of amount of cancer, prostate needle biopsies relating to, 239–240
R
Radical prostatectomy analyses of, 167
prostate biopsy relating to, 157, 176
Radical prostatectomy Gleason score, biopsy Gleason score with, correlation of, 238–239

Radiographic advances, in prostate cancer diagnosis, 294

Rebiopsy and surveillance, after diagnosis of ASAP, 278
  of HGPIN, 276–277

Rectal bleeding, 97, 255, 256–259

Rectal examination. See DRE

Rectal flora, 261

Rectum, abdominal resection of, 159–160

Refraction, 114

Repeat prostate biopsy, 174–175, 177
dilemmas associated with, 200
  PSA and, 199–200
  PZ relating to, 201, 202, 208
  techniques of, 208–209
  transrectal, 152–153
  TRUS-BX and, 210–212
  TZ relating to, 202, 208–209
  Vienna nomograms and, 199–216

Resolution, 109

Reverberation, 115–116

Risk
  benefits and, of finasteride, 75–76
  of diagnosing clinically insignificant cancer, with saturation prostate biopsy, 225–226
  for endocarditis, antibiotics relating to, 100, 145
  of prostate cancer, after HGPIN, 273

Risk factors, for development of prostate cancer, HGPIN relating to, 274

Risk stratification, core labeling and, 175–176

Routine sextant biopsy schemes, 167, 169

S

Saturation biopsy templates, 220, 221

Saturation prostate biopsy, 175
definition of, 218
  for detection and characterization of prostate cancer, 217–229

history of, 219
  as initial biopsy strategy, 224
  in management of candidates for active surveillance for prostate cancer, 226–227
  negative, management of suspicion of prostate cancer after, 224–225
  PSA relating to, 224
  rationale for, 218–219
  results of, 223–224
  risk of diagnosing clinically insignificant cancer with, 225–226
  techniques for, 219–222
  transperineal, 191–193

Scanning apparatus, ultrasound
transmission relating to, 107–108

Screening, for prostate cancer. See Prostate cancer screening

Screening tools, new, for prostate cancer diagnosis, 287–293

SEER (United States Surveillance, Epidemiology and End Results), 23


Seminal vesicle biopsy, 154–155

Seminal vesicle invasion and extraprostatic extension, prostate needle biopsies relating to, 240–241

Septicemia, 145

Serine proteases, 43

Serum protein profiling, 289–291

Serum PSA, 63, 166

Serum, PSA in, molecular forms of, 30–32

Serum tumor marker, PSA as, 17, 30

Sextant biopsy schemes, 168, 173, 174, 293
  routine, 167, 169
  standard, 166, 167, 171, 172, 176
  systemic, 166, 168, 169, 170

Sextant method, of prostate biopsy, 147


Short-acting anesthetic agents, 304–305
Side-fire probes, 123–125
6–12 core biopsy schemes, 218
6-core biopsy scheme, 183–185, 188, 193, 203, 217
Sonographic images, 113–114
Sound waves, 108, 114, 117
Special populations, prostate biopsy procedures in
anatomy of anastomotic site after radical prostatectomy, 157, 176
biopsy technique for, 157–158
patients
after abdominal resection of rectum, 159–160
after radical prostatectomy, 157, 176
Specimens, prostate needle biopsies, submission of, 232–233
Standard sextant biopsy schemes, 166, 167, 171, 172, 176
Subclinical disease, latent, 2
Subclinical prostate cancer prevalence of, 1, 2–9
studies relating to, 2–9
summary of, 9–10
Submission, of prostate needle biopsies specimens, 232–233
Surface-enhanced laser desorption and ionization time-of-flight mass spectrometry. See SELDI-TOF-MS
Surveillance
for prostate cancer, saturation prostate biopsy relating to, 226–227
rebiopsy and, after diagnosis of ASAP, 278
of HGPIN, 276–277
Systemic biopsy strategies, 166, 168, 169, 170
Testing, for prostate cancer. See PSA
3D MRS (three-dimensional magnetic resonance spectroscopy), 300–301
3D US (three-dimensional ultrasound), 294, 295–296
Three-dimensional magnetic resonance spectroscopy. See 3D MRS
Three-dimensional ultrasound. See 3D US
Ticlid. See Ticlopidine hydrochloride
Ticlopidine hydrochloride (Ticlid), 258
Tinidazole, 98
Topical agents, 302–304
Topical analgesics, 127–128, 263
Toremifene citrate, 279
Total PSA. See tPSA
tPSA (total PSA), 31, 33–36
Tramadol, 304
Transducer, ultrasound transmission relating to, 106–108
Transition zone. See TZ
Transmission, of ultrasound, 106–108
Transmitting element, ultrasound transmission relating to, 107
Transperineal prostate biopsy, 155–156, 166, 179–197
advantages and disadvantages of, 193
DRE relating to, 180, 186–187, 188, 190, 192
fan technique for, 183–184, 190
results of, 186–187
saturation, 191–193
technique of, 180–186
transrectal prostate biopsy v., 187–191
TZ relating to, 190–192
Transrectal probe, 181
Transrectal prostate biopsy
HGPIN and ASAP, strategies for, 153–154
location of, 147–150
number of, 150–151
patient positioning for, 123–127, 147
repeat, 152–153
seminal vesicle, 154–155
Transrectal prostate biopsy (Cont.)
transperineal prostate biopsy v., 187–191
TZ, 151–152
Transrectal template, 24-core, 219
Transrectal ultrasonography. See TRUS
Transrectal ultrasound device, 144
Transrectal ultrasound-guided biopsy of prostate. See also TRUS-Bx
10- to 12-core biopsy scheme, 165, 293
Transurethral biopsy, 156
Transurethral resection of prostate. See TUR-P
Transverse ultrasound image, of prostate
after brachytherapy, 112, 113
normal, 110, 111
phase cancellation relating to, 116–118
Treatment, of prostate, appearance after, 113–114
Tru-Cut large-core biopsy needle, 72
TRUS (transrectal ultrasonography), 16, 17, 20–21, 179, 294, 296, 301
prostate biopsy techniques relating to, 143, 144, 147, 148, 152, 155–156, 157, 176
TRUS-Bx (transrectal ultrasound-guided biopsy of prostate), 97–98, 100, 101, 102, 121
complications of, 255–268
bleeding, 256–259
infections, 259–262, 265
overview of, 256
pain, 263–264
urinary retention, 262–263
vasovagal episodes, 263
refinements in, 255–256
repeat biopsies and, 210–212
Tumors
grades of, 73
higher-grade, 74, 75
stage of, 72
volume of, 79
TUR-P (transurethral resection of prostate), 156
12–14 core biopsy scheme, 218
12-core biopsy scheme, 171, 173, 175, 257
24-core transrectal template, 219
TZ (transition zone), 166, 187, 188, 222
biopsy relating to
bilateral, 170
strategies of, 165, 170, 175
transperineal, 190–192
transrectal prostate, 151–152
prostate volumes, 201
repeat biopsy relating to, 202, 208–209
ultrasound relating to, 110, 116, 126, 138
U
Ultrasonography
of prostatic malignancy, 112
transrectal. See TRUS
Ultrasound. See also 3D US; CDU; PDU; Transverse ultrasound image, of prostate; TRUS-Bx
artifacts relating to
increased through-enhancement, 115
phase cancellation, 116–118
posterior shadowing, 114–115
refraction, 114
reverberation, 115–116
concepts of
acoustic impedance, 106
amplification, 106
velocity, 105–106
wavelength, 105–106
definition of, 105
generation of images relating to
echoes, 109
frequency, 109
resolution, 109
sound waves, 108, 114, 117
of prostate, 105–119
PZ relating to, 109, 126
transmission
focusing relating to, 107
scanning apparatus, 107–108
transducer, 106–108
transmitting element, 107
TZ relating to, 110, 116, 126, 138
Ultrasound probe, 303
United States Surveillance, 
Epidemiology and End Results. 
See SEER 
uPM3, 288–289, 291 
Urethral catheterization, 16 
Urinary retention, 262–263 
Urinary tract infections. See UTIs 
Urologic oncology, 179 
Utah Cancer Registry, 7 
UTIs (urinary tract infections), 98, 99, 
211, 260

V 
VAS (visual analog scale), 127, 134, 
139 
Vasovagal episodes, 263 
Velocity, 105–106 
PSA. See PSAV

Vienna nomograms, repeat prostate 
biopsy and, 199–216
Virus, XMRV, 306 
Visual analog scale. See VAS 
Visualization, with probes, 123–127

W 
Warfarin (Coumadin), 258 
Wavelength, 105–106 
Wayne State autopsy study, 4–6

X 
XMRV virus, 306 
Xylocaine jelly, 147

Z 
Zones. See PZ; TZ 
Zymogen forms, of PSA, 51–52