

Index

- AACP. *See* American Association of Colleges of Pharmacy
- Abbott Total Quality Pain Management, 643
- Abbreviated New Drug Application, 380
- Aboriginal peoples, ethical issues, 879
- Abstracts, pharmaceutical. American Society of Health-System Pharmacists, 487
- ACA. *See* American College of Apothecaries
- Academia
- careers options, clinical pharmacy scientist, 179
 - clinical pharmacy careers in, 1–5
 - academic sites, description of, 3–4
 - activities, 1
 - career ladder, 4
 - degree, 4
 - experience required, 4
 - faculty, 3
 - options in, 1–3
 - reward system, changes in, 2
 - tenure system, changes in, 2
 - training, 4
 - transition in academia, 1–3
- drug information pharmacy practice in, 291
- Academy of Managed Care Pharmacy, 6–7, 231, 270, 496
- governance, 6
 - initiatives, 7
 - meetings, 7
 - mission statement, 6
 - organizational structure, 6
 - vision statement, 6–7
- Access to healthcare, 411
- Access to pharmaceuticals, 35
- Accidents, as cause of death, 404
- Account manager, professional opportunities, 502
- ACCP. *See* American College of Clinical Pharmacy
- Accreditation
- American Council on Pharmaceutical Education, 8
 - defined, 224, 230
- Accreditation of Health-Care Organizations. Joint Commission for, 493–495
- accreditation process standards, 495
 - accreditation status, 493–495
 - background, 493
- Acetaminophen
- adverse drug reactions, 29
 - cytochrome P450, 247
- Acetohexamide, adverse drug reaction, 30
- Acetylators, drug reaction, 29
- ACF. *See* Administration for Children and Families
- ACPE. *See* American Council on Pharmaceutical Education
- Acquired immunodeficiency syndrome. *See* AIDS
- ActiMed Laboratories, 141
- Acyclovir, 587
- resistant infection, with AIDS, 442
- Adenovirus, viral transfer techniques, 368
- Adherence in pharmaceutical care, 10–22
- assessing, 12–13
 - direct methods, 12
 - indirect methods, 12–13
 - children, 17–18
 - chronic diseases, 18–19
 - community resources, 17
 - cultural differences and, 17
 - ElderCare Patient Education Series, 15
 - elderly, 15–16
 - cognitive limitations, 15
 - limited access to health care, 15
 - physical impairments, 15
 - polypharmacy, 15
 - risk factors for nonadherence, 15
 - ethnic minorities, 16–17
 - factors affecting, 13
 - fear tactics, 14
 - follow-up, 14
 - hypertension, 18–19
 - implement reward system, 14
 - informed medication consumer, patient as, 14
 - low-literacy patients, 16
 - National Council on Patient Information and Education, 15
 - nonadherence
 - as behavioral disorder, 11
 - defined, 10–11
 - patient-focused interventions for, 13–14
 - risk factors for, 11
 - scope of problem, 10–11
 - patient goals, 14
 - patient-centered adherence paradigm, 11
 - payment for adherence services, 20
 - Pediatric Medication Text, 15
 - Peter Lamy Center for Drug Therapy and Aging, 15
 - pharmacotherapy, enhancing adherence to, 14–18
 - resources for improving, 15
 - self-efficacy, 14
 - space considerations, 20
 - special populations, 14–18
 - type 2 diabetes, 19
- Administration, drug, routes of, 85
- Administration for Children and Families, 254
- Administration on Aging, 254
- Advance Care, 141
- Advanced cardiac life support, 125
- Advanced professional educational programs, 556
- Adverse drug reactions, 23–34
- assessment of, 31–32
 - classification systems, 23–24
 - clinical pharmacy, economic analysis, 307–321
 - definitions, 23
 - drug-nutrient interactions, 30
 - factors predisposing to, 24–28
 - delivery system, 24
 - diseases, *influenza* of, 27
 - dosage form, 24
 - dose, 24
 - drug-related factors, 24–25
 - hypoalbuminemia, conditions associated with, 26
 - interactions between drugs, 24–25
 - patient-related factors, 25–28
 - concurrent diseases, 25
 - gender, 28
 - genetic factors, 26–28
 - geriatrics, 25
 - hepatic disease, 25–26
 - herbal therapies use, 28
 - multidrug use, 28
 - nutrition, 28
 - pediatrics, 25
 - renal disease, 26
 - pediatrics, 26
 - genetic factors, 29
 - geriatric age-related changes, pharmacokinetic, 25
 - herbal medicines, 31
 - human reliability
 - curve, 539
 - enhancing, 539–542
 - incidence, 24
 - manageable behaviors
 - at-risk behavior, 540–541
 - high-culpability behavior, 541–542

- Adverse drug reactions (*cont.*)
 imperfect behavior, 540
 Naranjo causality algorithm, 32
 pharmaco-epidemiologic studies, 30–31
 spontaneous reporting, 30–31
 prevention, 32–33, 533–544
 manageable behaviors, 540
 medication-use cycle, 533–535
 outcomes-measurement approach, 538–539
 preventable patient harm, scientific investigation, 536–539
 process-improvement approach, 536–538
 role of pharmacist, 542–543
 reporting systems, 28–32
 screening methods, 30
- Affordability of health care services, elderly and, 15
- African Americans, *Pharmacokinetics and Drug Interactions in Elderly and Special Issues in Elderly African-American Populations*, 481
- Agency for Health Care Policy and Research, 417
- Agency for Healthcare Research and Quality, 35–38, 254, 417, 621
- Agency for Toxic Substances and Disease Registry, 254
- Age-related changes
 geriatric, pharmacokinetic, 25
 pharmacokinetics and, 25
- Age-related risk factors, pediatrics adverse drug reactions, 26
- AHCPR. *See* Agency for Health Care Policy and Research
- AHRQ. *See* Agency for Healthcare Research and Quality
- AIDS
 as cause of death, 404
Confronting AIDS: Direction for Public Health, Health Care, and Research, 481
No Time to Lose: Getting More from HIV Prevention, 481
- AIDS group, Cochrane collaborative, 183
- Airways group, Cochrane collaborative, 183
- Alaska, pharmacy practice legislation, 272
- Albuterol, 671
- Alcohol
 drug reaction with, 30
 excipient in drug, 95
- Allergic reaction, to drug, 23
- Allergies, medication, 286–287
- All-inclusive care for elderly (PACE) programs, managed care, clinical pharmacy careers in, 504
- Allwin Data, software, 216, 218
- Aloe, adverse reaction to, 31
- Alzheimer's disease, 588
 gene therapy, 376
- Amantadine, 585, 588
- Ambulatory care
 clinical pharmacy careers in, 39–42
 degrees, 40
 job activities, 39–40
 long-term opportunities, 40–41
 salary range, 40
 site description, 41
 training, 40
 work settings, 39–40
 fellowships in, 356
- Ambulatory clinic, university-affiliated, clinical pharmacy, economic analysis, 307–321
- AMCP. *See* Academy of Managed Care Pharmacy
- American Academy of Clinical Toxicology, 761–762
- American Academy of Pain Management, 643
- American Academy of Pain Medicine, 643
- American Association of Colleges of Pharmacy, 210, 231, 270, 496
 appointed Commission to Implement Change, 210
 Commission to Implement Change, 210
 Janus Commission, 491–492
 history, 491
 members of, 492
 mission, 491–492
- American Association of Pharmaceutical Scientists
 Pharmacokinetics, Pharmacodynamics and Drug Metabolism Section, 166
 Population Pharmacokinetics and Pharmacodynamics Focus Group, 166
- American Association of Poison Control Centers, 761
- American Cancer Society, 621
- American Chronic Pain Association, 643
- American College of Apothecaries, 231, 496
- American College of Clinical Pharmacy, 43–44, 188–198, 231, 270, 475, 496
 clinical pharmacist evaluation, 154–160
 collaborative drug therapy management, 188–198
 Commission to Implement Change in Pharmacy Education, 210–213
 governance, 44
 organization, 43
 advocacy, 44
 education, 44
 membership, 43
 professional leadership, 44
 programs, 44
 publications, 44
 Pharmacokinetics Dynamics Practice Research Network, 166
 position statement, 188
- American Council on Pharmaceutical Education, 8–9, 45–47, 231, 270, 496
 accreditation, 8, 45
 continuing education accreditation program, 45–46
 current initiatives, 47
 meetings, 47
 mission, 46–47
 organizational structure, 46
 professional degree programs, 45
 "Standards 2000," 8–9
- American Journal of Health-System Pharmacy*, 48–49, 57
 history, 48–49
 objectives, 48
- American Journal of Pharmaceutical Education*, 50
- American Medical Informatics Association, 293
- American Pain Foundation, 643
- American Pain Society, 621, 643
- American Pain Society Bulletin*, 450
- American Pharmaceutical Association, 51–52, 231, 270, 496
 current major initiatives, 52
 history, 51
 meetings, 52
 mission, 52
 organizational structure, 51–52
- American Society for Clinical Pharmacology and Therapeutics, Pharmacokinetics and Drug Metabolism Section, 166–167
- American Society of Addiction Medicine, 643
- American Society of Anesthesiologists, 643
- American Society of Clinical Oncology, 621
- American Society of Consultant Pharmacists, 53–55, 232, 270, 496
 advocacy, 54–55
 consultant pharmacy practice, 53–54
 education, 54
 mission, 55
 practice resources, 55
 publications, 55
 senior care pharmacy, 53
- American Society of Health-System Pharmacists, 56–57, 232, 270, 496, 621, 622
- American Journal of Health-System Pharmacy*, 57
 best-practices documents, 79–81
 access to, 81
 Clinical Practice Section, 293
 clinical skills programs, 57
 educational resources, 57
Handbook on Injectable Drugs, 57
 history, 56
 International Pharmaceutical Abstracts, 57, 487
Medication Teaching Manual, 57
 membership, 56–57
 midyear clinical meeting, 475
 publications, 57
 Supplemental Standard and Learning Objectives for Residency Training, 166
- American Thoracic Society, 474
- American Zoo and Aquarium Association, 775
- AMIA. *See* American Medical Informatics Association
- Amikacin, AIDS, 442
- Aminoglycosides
 AIDS, 442
 drug reaction, 27
- Amphotericin B, AIDS, 442
- Amyotrophic lateral sclerosis, 585, 588
 gene therapy, 376

- Analgesia, 587, 754
 drug reaction, 27
- Analytical toxicology, 773
- Analyzing and Recording Drug Information Request*, 293
- ANDA. *See* Abbreviated New Drug Application
- Anemia of end-stage, gene therapy, 376
- Anesthesia group, Cochrane collaborative, 183
- Anesthetics
 adverse drug reaction, 29
 adverse drug reactions, 29
- Anthrax Vaccine Immunization Program, 776
- Antibiotic rotation, 58–62
 antimicrobial rotation, 58
 impact of, 59–61
 elements of, 58–59
 erythromycin, effect on group A streptococci, 60
 resistance
 pathways for, 59
 variables involved in, 59
 role of, 61
- Antibiotics, 587
- Antibodies, 870
- Anticholinergics, 587, 588
 drug reaction, 27
- Anticoagulants, drug reaction, 27
- Anticoagulation, 588
- Anticoagulation clinical pharmacy practice, 63–70
 British Committee for Standards in Haematology, guidelines, 67
 certification, 66–67
 Consensus Conferences on Antithrombotic Therapy, 67
Consensus Guidelines for Coordinated Outpatient Oral Anticoagulation Therapy Management, 67
 cost effectiveness, 65
 credentialing, 66–67
 deep vein thrombosis, 64
 description of, 64–65
 legal issues, 68
Managing Oral Anticoagulation Therapy, Clinical and Operational Guidelines, 67
 networking opportunities, 68
 opportunities in, 64–66
 patient satisfaction, 65
 resources, 67–68
 safety, 65
 training, 66–67
 in United Kingdom, 64
 in United States, 64
- Anticoagulation Forum, 232, 270
- Antidepressant medication management, effectiveness of, studies, 565
- Antiepileptic drug, 585, 587, 588
 therapy, 586
 toxicity, 586
- Antihypertensives, 588
- Antiinflammatory drugs, adverse drug reaction, 27
- Antilymphocyte gamma globulin
 horse, 870
 rabbit, 870
- Antimetabolites, 870
- Antimicrobial Agents and Chemotherapy*, 472
- Antimicrobial rotation, 58
 impact of, 59–61
- Antimicrobial Therapy and Vaccines*, 473
- Antineoplastics, unlabeled indications, drug use for, 551
- Antiplatelets, 587, 588
- Antipsychotics, 588
 unlabeled indications, drug use for, 551
- Antiretroviral Pregnancy Registry UCSF
 On-Line information, 896
- Antisecretory medication, 588
- Antispasmodics, 587, 588
- Antithrombosis, 122
- Antivenom Handbook for Australia, 775
- Anxiety and neurosis group, Cochrane collaborative, 183
- AOA. *See* Administration on Aging
- AppDC, software, 216, 218
- Approved Drug Products with Repetitive Equivalence Evaluations*, 380
- Arizona, pharmacy practice legislation, 272
- Arkansas
 pharmacy practice legislation, 272
 regulations governing prescribing, 190
- Arthritic joint pain, 585
- ASCCP. *See* American College of Clinical Pharmacy
- ASCO. *See* American Society of Clinical Oncology
- ASCP. *See* American Society of Consultant Pharmacists
- ASHSP. *See* American Society of Health-System Pharmacists
- Aspirin, 587
 adverse drug reactions, 29
 drug reaction, 27
- Asset forfeiture program, Drug Enforcement Agency, 282
- Assisted living facilities, diabetes care, 257–258
- Association Foundation Executive, Director of Research Institute Attorney, 819
- Association of Asthma Educators, 270
- Association of Faculties of Pharmacy of Canada, 71–74
 initiatives, 71
 meetings, 71–72
 mission, 71–72
 organization structure, 71
- Asthma, 814
 drug reactions and, 27
- ATIS. *See* HIV/AIDS Treatment Information Service
- Atrial fibrillation, 585
- ATS. *See* American Thoracic Society
- ATSDR. *See* Agency for Toxic Substances and Disease Registry
- Attention-deficit disorder, 585
- Audit, principal investigator, clinical pharmacist as, 153
- Australasian Cochrane Centre, 185
- Australia
 Pharmaceutical Benefits Scheme, 688–691
 approval of medicines, 688
 brand price premiums, 689
 medication management program, 690
 pharmacy development program, 690–691
 prescribing, 688–689
 prices, 689–690
 therapeutic group premiums, 689–690
 Society of Hospital Pharmacists of, 851–853
 Therapeutic Guidelines Limited, 857–859
 current initiatives, 858–859
 history, 857
 major directions, 859
 mission, 858
 objectives, 858
 organizational structure, 857–858
- Australian Adverse Drug Reaction Advisory Committee, 73–74
 data usage, 74
 membership, 73
 reporting reactions to, 73–74
- Australian Journal of Hospital Pharmacy, 852
- Australian Medicines Handbook*, 75–77
 content, 76–77
 content features, 76
 editorial advisory board, 77
 history, 75
 philosophy, 75
 review, 77
 types of information, 76
- Automated delivery, hospital pharmacy practice in, 456
- Avocet Medical, Inc., 141
- AvoSure Pro, 141
- Azathioprine, 870
- Back group, Cochrane collaborative, 183
- Back pain, 587
- Barbiturates, as cytochrome P450 inducer, 247
- Basiliximab, 870
- Bayer DCA 2000, 141
- Behavioral disorder, nonadherence in pharmaceutical care as, 11
- Bell's palsy, 587
- Benzocaine, adverse drug reaction, 29
- Best-practices documents, American Society of Health-System Pharmacists
 access to, 81
 development, 80–81
 guidelines, 80
 position statements, 80–81
 purpose, 79
 topics, 79
- Beta agonist, 585
 tremor, 585
- Beta blocker, 588
 after heart attack, effectiveness of, studies, 565
 drug reaction, 27
- Beta interferons, 587, 588
- Bioabsorption, oral drug, 88–92
 physiologic considerations, 88–92

- Bioavailability, 92–93
 bioequivalence, 97–98
- Bioequivalence, 97–98
- Biopharmaceuticals, 82–102
 bioavailability, 92–93
 bioequivalence, 97–98
 bioequivalence, 97
 biowaivers, 101
 cell membrane passage
 carrier-mediated transport, 88
 passive diffusion, 84–88
 vesicular transport, 88
 classification system, 99–101
 disintegration, 92–93
 dissolution, 101
 formulation factors, dissolution, 95–96
 generic drug products, 97–98
 oral drug absorption, 88–92
 blood perfusion, gastrointestinal tract, 89–91
 food, effect of, 91–92
 gastric emptying time, 89
 gastrointestinal motility, 89
 intestinal motility, 89
 physiologic considerations, 88–92
 rate-limiting, 84
 particle size, 94
 permeability class, 100
 pH, 93–94
 physiologic factors affecting, 84–88
 cell membrane passage, 84–88
 polymorphic crystals, 94–95
 postapproval change levels, 100
 postapproval changes, 101
 product design, 82–84
 scale-up, 101
 solubility, 93, 99–100
in vitro dissolution testing, 96–97
in vitro performance, 98–99
in vitro-in vivo correlation, 98–99
- Bioscanner 1000, cholesterol monitoring test, 466
- Biotechnology industry, careers options, clinical pharmacy scientist, 179
- Biowaivers, 101
- Bipolar disorder, 585
- Bleeding, limiting antiplatelet drug use, 585
- Bleeding disorders, drug reactions and, 27
- Blockers, cytochrome P450, 247
- Blood concentration curve, 381
- Blood dyscrasia, 585
- Blood perfusion, gastrointestinal tract, 89–91
- Blood pressure, controlling, effectiveness of, studies, 565
- Board certification. *See* Certification
- Board of Pharmaceutical Specialties, 103–105, 228, 232, 270
 added qualifications, 104
 certification, process, 104–105
 mission, 103–104
 specialties, 104
- Boehringer Mannheim Corp., 141
- Bone marrow transplant, 106–110
 clinical pharmacy opportunities, 106–108
 health outcome, 109
 model clinical practices, 108–109
 clinical-based practice, 109
 hematopoiesis chart, 109–110
 networking, 110
 research-based practice, 108–109
 tools, 109–110
 pharmacist's responsibilities, 107
- BPS. *See* Board of Pharmaceutical Specialties
- Bradycardia, drug reactions and, 27
- Breast cancer
 gene therapy trials, 374
 screening, effectiveness of, studies, 565
- Breast cancer group, Cochrane collaborative, 183
- British Committee for Standards in Haematology, guidelines, 67
- CA-A Cancer Journal for Clinicians*, 623
- Caffeine, 754
 cytochrome P450, 247
 drug reaction with, 30
- Calcineurin, 870
 inhibitors, drugs interacting with, 870
- Calcium channel blockers, 588
- Calcium regulation, abnormality of, drug reaction, 29
- California
 pharmacy practice legislation, 272
 regulations governing prescribing, 190
- Call center pharmacist, professional opportunities, 502
- Cam Commerce Solutions, software, 216, 218
- CAMIPR. *See* Consortium for Advancement of Information Policy and Research
- Campus, National Institutes of Health, 576
- Canada, health care systems, 390
- Canadian Cochrane Centre, 185
- Canadian Hospital Pharmacy Residency Board, 111
- Canadian Pharmacists Association/Association des Pharmaciens du Canada, 112–114
 e-business, 113–114
 initiatives, 113–114
 pharmacist shortage, 113
 prescribing authority, 113
 privacy legislation, 113
 third-party payer issues, 113
 meetings, 114
 mission, 112–113
 organizational structure, 112
 Pharmacy Electronic Communications Standard/National e-Claims Standard Initiative, 113
 publishing, 114
- Cancer
 as cause of death, 404
 gene therapy, 373
 specialty pharmacy practice, 611–626
 anticancer therapy, outcomes related to, 618
 chemotherapy order verification, 612
 clinical pharmacy opportunities, 611–614
 clinical research, 617–618
 documented benefits, 618–620
 drug administration policies, 613
 drug handling, 612–613
 drug information, 614, 617
 education, 614
 guidelines, 620–622
 inpatient care practice roles, 615–616
 investigational drug use, 617
 medication order review, 612
 model clinical practices, 614–618
 outpatient care practice roles, 616–617
 patient care problems, 613
 patient care services, 620
 patient education, 613
 patient monitoring, 613–614
 practice guideline development, 618–619
 reimbursement, 620
 resources for, 620–623
 roles, 612
 specialist interventions, 619–620
 summary of interventions, 619
 transitional patient care practice roles, 616
- Cancer Care Ontario, 621
- Cancer Chemotherapy and Biotherapy: Principles and Practice*, 622
- Cancer Chemotherapy Handbook*, 622
- Cancer Chemotherapy Pocket Guide*, 622
- Cancer Control Journal*, 623
- Cancer pain, Talarian map, 450
- Cancer Principles and Practice of Oncology*, 622
- Cancer Therapy Evaluation Program, 622
- Cancer Trials Support Unit of National Cancer Institute, 622
- Capsacian, 588
- Capsule, oral administration of, processes following, 86
- Carbamazepine, 870
 adverse drug response, 29
 pediatric pharmacokinetic data, 665
- Carbidopa, 588
- Cardiac arrest, 115–118
- Cardiology, 119–126, 356. *See also* Cardiac arrest
 acute care, 120–121
 acute coronary syndromes, 124–125
 advanced cardiac life support, 125
 antithrombosis, 122
 atrial fibrillation, 125
 chronic heart failure, 121–122
 clinical pharmacy guidelines, 124–125
 dyslipidemia, 121, 125
 fellowships in, 356
 gene therapy clinical trials, 375
 heart failure, 125
 home care, 442–443
 hypertension, 121, 125
 networking opportunities, 123–124
 outpatient, 121–123
 professional opportunities, 124
 stable angina, 125

- Cardiovascular disease
 drug reactions and, 27
 gene therapy, 375
- Cardiovascular system, neurology specialty
 pharmacy practice, 585
- Career opportunities, 428–431. *See also under*
 specific career
- in academic clinical pharmacy, 1–5
 academic sites, description of, 3–4
 activities, 1
 career ladder, 4
 degree, 4
 experience required, 4
 faculty, 3
 training, 4
 transition in, 1–3
 academicians, evolution of, 3
 higher education, 2
 reward system, changes in, 2
 tenure system, changes in, 2
- acute care, 428
- ambulatory care, 40–41, 428
- anticoagulation, 64–66
- bone marrow transplant, 106–108
- cardiology, 124
- clinical pharmaceutical sciences, 179
- in clinical pharmacy, long-term care, 498–499
 consultant pharmacist services, 498
 history, 498–499
 job settings, 499
 professional opportunities, 499
 role of consultant pharmacists, 498
 training, certification requirements, 499
- clinical pharmacy careers, 40–41
- community pharmacy, 428
- drug information pharmacy practice, 290
- drug information service, 428
- government, 385–388
- home care, 428, 437–438
- hospice, 449
- infectious diseases, 470–471
- long-term care, 428
- managed care pharmacy practice, 506–509
- management of pharmacy services, 428–429
- palliative care, 449
- primary care, 40–41
- range of, 428–429
- scientist, clinical pharmacy, 179–180
- specialty practice, clinical pharmacokinetics,
 161–164
- therapeutic drug monitoring service, 428
- work settings, 429
 general clinical practice model, 429
 outpatient pharmacy, 429
- CarePoint, Inc., software, 216, 218
- Carrier-mediated transport process, 88
- Causes of death in U.S., 404
- CBIAC. *See* Chemical and Biological Defense
 Information Analysis Center
- CCGP. *See* Commission for Certification in
 Geriatric Pharmacy
- CDC. *See* Centers for Disease Control
- Cell membrane passage, 84–88
 carrier-mediated transport, 88
 passive diffusion, 84–88
 vesicular transport, 88
- Cellulose acetate phthalate, excipient in drug, 95
- Centers for Disease Control, 252, 474, 896
 careers, 179, 386
 research and research policy, 179
- Centers for Medicare and Medicaid Services,
 254
- Centre Cochrane Francais, 185
- Centro Cochrane do Brasil, 185
- Centro Cochrane Iberoamericano, 185
- Centro Cochrane Italiano, 185
- Cerebrovascular disease, drug reactions and, 27
- Certificate, defined, 224, 230
- Certificate training program, defined, 230
- Certification
 anticoagulation clinical pharmacy practice,
 66–67
 Board of Pharmaceutical Specialties,
 104–105
 defined, 224, 230
 disease management, 268–269
 infectious diseases, 469
 long-term care, clinical pharmacy careers in,
 training, 499
- Certification bodies, 231
- Certified, defined, 230
- Certified Regional Poison Information Center,
 762
- Cervical cancer
 gene therapy trials, 374
 screening, effectiveness of, studies, 565
- Charcoal-broiled meat, as cytochrome P450
 inducer, 247
- Chemical and Biological Defense Information
 Analysis Center, 776
- Chemical Weapons Conventions Web Site—
 Organizations for Prohibition of
 Chemical Weapons, 777
- Chemotherapy Sourcebook*, 622
- ChemTrack AccuMeter, 141
- Chicken pox, 712
- Childhood Vaccine Injury Act of 1986,
 559–563
 adverse events, vaccine, 559
 childhood diseases, vaccination against, 559
 documentation, 561
 historical advancements, 559
 immunization practice, pharmacy-based, 561
 liability, 561
 manufacturer liability, 559–560
 National Vaccine Injury Compensation
 Program, 560–561
 protection under NCVIA, 561
 reporting, 561
 Vaccine Injury Act of 1986, 560–561
 vaccine injury table, 560
- Children, nonadherence to medical care, 17–18
- Chinese Cochrane Centre, 186
- Chloramphenicol, adverse drug reaction, 29
- Chloroquine, adverse drug reaction, 29
- Chlorpropamide, adverse drug reactions, 30
- Choice, Medicare, 514
- Cholestech, 141, 466
- Cholesterol monitor
 CLIA waived status, 466
 Lifestream Technologies, 141
- Cholestyramine, 870
- Cholinesterase inhibitors, 588
- Chronic diseases, nonadherence to medical care
 in, 18–19
- Chronic heart failure, 121–122
- Chronic medical problems, 287–289
- Chronic pain services, pain management,
 639–641
- Cidofovir, AIDS, 442
- City of Hope Palliative Care Resource Center,
 643
- Claims manager, professional opportunities, 502
- Clarithromycin, 870
- Clinical evaluation, drugs, 127–138
 drug development team members
 nonscientific personnel, 130
 pharmacists, 129–130
 physicians, 128–129
 roles of, 128–130
 scientists, 129
 ethical issues, 136–137
 global planning, 135–136
 marketing input, 135
 protocol, 133–134
 stages in, 130–133
 phase 1, 131–132
 phase 2, 132
 phase 3, 132–133
 phase 4, 133
- Clinical Infectious Diseases*, 472
- Clinical Laboratory Improvement Amendments
 of 1988, 139–143
 history, 139–140
 regulatory framework, 140–142
 moderate-, high-complexity tests,
 141–142
 patient test management, 142
 personnel, 142
 proficiency testing, 142
 quality assurance, 142
 quality control, 142
 waived tests, 141
 relationship to pharmacy, 140
- Clinical Oncology*, 622
- Clinical Pharmacology Drug Database, 774
- Clinical Pharmacy Practice Guidelines,
 Society of Hospital Pharmacists
 of Australia, 170–173
- Clinical privileges, defined, 230
- Clinical specialist, professional opportunities,
 502
- Clinical trial
 design, ethical issues, research, 339–340
 ethical issues, 879–880
- ClinicalTrials.gov, 582
- Clinician's Guide to Chemotherapy Pharmacokinetics and Pharmacodynamics*,
 622
- Clinics, diabetes care, 257
- Clonazepam, pediatric pharmacokinetic data,
 665

- Clopidogrel, 587
- CMS. *See* Centers for Medicare and Medicaid Services
- CoaguChek PST, 141
- CoaguChek S Systems Test, Roche Diagnostics, 141
- Coccidiomycosis, with AIDS, 442
- Cochrane centers, 181–182
information on, 185–186
- Cochrane Library, 181–187
Cochrane centers, 181–182
Cochrane collaborative review groups, 182–184
Cochrane methods group, 184
collaboration structure, 181–186
history, 181
steering group, 181
subscribing to, 184
- Cochrane methods group, 184
- Cognitive impairment group, Cochrane collaborative, 183
- Cognitive limitations, in elderly, adherence and, 15
- Collaborative drug therapy management, 192
access to patients, 196
American College of Clinical Pharmacy, 188–198
position statement, 188
collaborative relationships, defining, 195
compensation, 196–197
credentialing, 197
documentation of activities, 196
environment, 195–196
federal government, regulations governing prescribing, 191
health care, evolving view of, 193–194
medical records, access to, 196
pharmacist prescribing in U.S., history of, 188–192
prescribing
defined, 194
evolving view of, 194–195
regulations governing pharmacist prescribing, 190–191
requirements for, 195–197
- Collaborative partnerships, 693
- Collaborative practice agreements, 199–206
current pharmacy practice environment, 199–201
definitions, 199
types of, 201–206
- Collaborative relationships, defining, 195
- College of Psychiatric and Neurologic Pharmacists, 207–209
initiatives, 208
meetings, 208–209
membership, 208
mission, 208
organizational structure, 207–208
- Colon, drug absorption in, 90
- Colon cancer, gene therapy trials, 374
- Colorectal cancer group, Cochrane collaborative, 183
- ComCo Tec, software, 216, 218
- Commission for Certification in Geriatric Pharmacy, 229, 232, 270
- Commission to Implement Change, 210–213
- Commissioned Officer Student Training and Extern Program, 387
- Committee involvement, medical information, industry-based, labeling, promotional review committee, 528
- Communication skills, scientist, clinical pharmacy, 178
- Communications, medical, clinical pharmacy careers in, 519–524
income, 519–521
training, 522–523
- Community hospital
clinical pharmacy, economic analysis, 307–321
university-affiliated, economic analysis, 307–321
- Community pharmacy
clinical pharmacy, economic analysis, 307–321
diabetes care, 256–257
- Community pharmacy practice, hyperlipidemia, 462–463
- Community-based home care, 440
- Competence
defined, 230
ethical issues, 878
- Competency, defined, 231
- Compliance, counseling for, 650
- Computer links, hospice, 450
- Computer software, 214–222, 456
associated performance-enhancement tools, 221
clinical software attributes, 221
confidentiality, 222
documentation, 220–221
hardware array, 215–220
hospital pharmacy practice, 456
InfoWin, 456
point-of-care software, 220
privacy, 222
recommendations, 222
security, 222
- Confidentiality
ethical issues, 878–879
software, 222
- Conflict of interest, ethical issues, 879
- Confronting AIDS: Direction for Public Health, Health Care, and Research*, 481
- Confusion, agents causing, 586
- Congestive heart failure, 754
- Consensus Conferences on Antithrombotic Therapy, 67
- Consensus Guidelines for Coordinated Outpatient Oral Anticoagulation Therapy Management*, 67
- Consortium for Advancement of Information Policy and Research, 293
- Consortium of Academic Health Centers for Integrative Medicine, 484
- Constipation, 585
- Consumer, informed, patient as, 14
- Consumer behavior, health services research, 412
- Consumers group, Cochrane collaborative, 183
- Contact information program, Drug Enforcement Agency, 282
- Continuing education
defined, 231
medical information, industry-based, 529
- Contraceptives, drug reaction, 27
- Contract research organization, infectious diseases, 471
- Contracting, professional opportunities, 502
- Corn oil, excipient in drug, 95
- Coronary artery disease, 585, 814
- Coronary syndromes, 124–125
- Corticosteroids, 870
adverse drug reaction, 27
drug reaction, 27
- COSTEP. *See* Commissioned Officer Student Training and Extern Program
- Cost-minimization analysis, 307–321
- Costs
analysis, 307–321
anticoagulation therapy, 65
clinical pharmacy, economic analysis, 307–321
clinical pharmacy services, evaluations of, 301–325
Spain, 459
- Cranial nerves, 586
- Credential, defined, 224, 231
- Credentialing, 223–232
American College of Clinical Pharmacy, 197
anticoagulation clinical pharmacy practice, 67
certificate training programs, 227
certification, 228–229, 230
certification bodies, 232
certifying agencies, 228–229
collaborative drug therapy management, 197
Council on Credentialing in Pharmacy, 223
defined, 224, 231
disease management, 268–269
education, 230
entering practice, and updating professional knowledge and skills, 226
fellowships, 227
importance of credentials, 224
knowledge, enhancing, 226–227
Millis Commission and, 557
multidisciplinary certification programs, 229
pharmacy supportive personnel, 229–230
preparing for pharmacy profession, 225–226
regulation, 230
residencies, 227
skills, enhancing, 226–227
traineeships, 228
training, 230
updating professional knowledge, 226
- Credentials, U.S. pharmacy, 225
- Crime Drug Enforcement Task Forces, Drug Enforcement Agency, 282
- Critical care, 837
fellowships in, 356

- Critical care pharmacy, 233–239, 240–245
 activities, 237, 242–244
 challenges of, 237–238
 components of, 235
 current practice, 234–235
 historical background, 240–241
 history of, 233–234
 hospital services, 244
 impact of, 236–237
 knowledge base, 235–236
 methods, 241–242
 purpose, 241
 research in critical care, 235
- Cryptococcosis, with AIDS, 442
- CTEP. *See* Cancer Therapy Evaluation Program
- Cultural differences, adherence to medical care and, 17
- Curricula, pharmacy, design of, 555–556
- Cyclosporine, 870
 cytochrome P450, 247
- Cystic fibrosis
 gene therapy, 373
 home care, 442
- Cystic fibrosis group, Cochrane collaborative, 183
- Cytochrome P450, 246–250
 in drug-drug interaction, 248–249
 gene polymorphism, drug response, differences, 246–248
 isoenzymes, 246
 nomenclature, 246
 noninvasive measurement of, 249
 in systemic availability of drug, 248
- Cytomegalovirus infection, with AIDS, 442
- DAA Enterprises, software, 216, 218
- Daclizumab, 870
- Dairy products, drug reaction with, 30
- Dapsone
 adverse drug reaction, 29
 hydroxychloroquine, adverse drug reaction, 29
- Data collection forms, patient drug history, 289
- Database manager, professional opportunities, 502
- Data/population manager, professional opportunities, 502
- Declaration of Helsinki, 341–342, 755
- Deep vein thrombosis, anticoagulation, 64
- Degrees
 academic clinical pharmacy, 4
 clinical pharmacy careers, 40
- Dehydrogenase deficiency, drug reaction, 29
- Delerium, 586
- Delivery system, adverse drug reactions and, 24
- Delphi, software, 216, 218
- Dementia group, Cochrane collaborative, 183
- Dementias, 586
- Dental care, Medicaid usage, 516
- Department of Health and Human Services, 251–255
 agencies of, 251–254
 Agency for Healthcare Research and Quality, 254
 Agency for Toxic Substances and Disease Registry, 254
 Centers for Disease Control and Prevention, 252
 Food and Drug Administration, 251–252
 Health Resources and Services Administration, 253
 Indian Health Services, 252–253
 National Institutes of Health, 251
 Substance Abuse and Mental Health Services Administration, 253–254
 human services operating divisions, 254
 Administration for Children and Families, 254
 Administration on Aging, 254
 Centers for Medicare and Medicaid Services, 254
 Office of Secretary of Health and Human Services, 254
 Program Support Center, 254–255
 Department of Veterans Affairs, careers in, 385
- Depression, 585, 815
 anxiety, neurosis group, Cochrane collaborative, 183
- Deutsches Cochrane Zentrum, 185
- Development, drug, team members
 nonscientific personnel, 130
 pharmacists, 129–130
 physicians, 128–129
 roles of, 128–130
 scientists, 129
- Developmental, psychosocial, learning problems, Cochrane collaborative, 183
- Dexamethasone, 870
- DIA. *See* Drug Information Association
- Diabetes, 256–259, 585, 586, 813
 assisted living facilities, 257–258
 as cause of death, 404
 clinics, 257
 community pharmacy, 256–257
 documentation forms, 258
 drug reactions and, 27
 effectiveness of, studies, 565
 hospital pharmacy, 257
 managed care, 258
 nursing homes, 257–258
 physicians' offices, 257
 prescription drug benefit administrators, 258
 private practice, 257
 product sales, 258
- Dibasic calcium phosphate, excipient in drug, 95
- Dietary Supplement Health and Education Act, 260–264
 administration (Sections 8-13), 262–263
 history of, 260
 introductory sections (Sections 1-4), 260–261
 marketing, labeling of dietary supplements (Sections 5-7), 261–262
- Dietary supplements, 774
 categories of, 604
 drug regulation, comparison of, 261
- Diffusion, molecules, 87
- Digital Simplistics, software, 216, 218
- Digoxin, drug reaction, 27
- Diphtheria, 712
- Dipyridamole, 587
- Direct patient care, professional opportunities, 503
- Directions in clinical practice in pharmacy (Hilton Head Conference), 265–266
- Disease management, 267–275
 certification, 268–269
 credentialing, 268–269
 reimbursement, 269–271
 resources, 270
 scope of practice, 267–268
- Disease Management Association of America, 270
- Disease Management Purchasing Consortium and Advisory Council, 270
- Disintegration, absorption and, 92–93
- Disposable IV equipment, pediatric dosing, 667–668
- Dissolution, bioavailability and, 101
- Disulfiram
 adverse drug reaction, 30
 as cytochrome P450 inhibitor, 247
- Diuretics, drug reaction, 27
- Divalproex sodium, 588
- Diversion control program, Drug Enforcement Agency, 282
- DNA, viral transfer techniques, 368
- Doctor of Pharmacy, 276–281
 career opportunities, 280–281
 curriculum, 278–280
 history of, 276–278
- Documentation
 diabetes care, 258
 from hospice care providers, 452
 hyperlipidemia, 466
 software, 220–221
- Dopamine agonists, 588
- Dopaminergic agents, 585
- Dosage form, adverse drug reactions and, 24
- Dose, adverse drug reactions and, 24
- D.P. Hamacher, software, 216, 218
- Drug Database at Pharmaceutical Information Association, 774
- Drug Enforcement Agency, 282–283
 history, 282
 programs, 282–283
- Drug history, 284–289
 compliance aids, 287
 components of, 286–287
 financial/insurance information, 286
 patient, 284–289
 acute, chronic medical problems, 287–289
 caregiver/family member, 285
 compliance, barriers to, 287
 components of, 286–287
 data collection forms, 289
 healthcare providers, 285
 immunizations, 287
 interviewing patient, 285–286
 medical records, 285

- Drug history (*cont.*)
 medication allergies, 286–287
 medications, 287
 patient data records, 284
 patients, 285
 pharmacy dispensing records, 285
 setting, 285
 social history, 287
 sources of patient data, 285
 special patient populations, 285–286
 types of data, 284–285
 objective data, 285
 subjective data, 284–285
 pharmacist-conducted, rationale, 284
- Drug Information Association, 294
- Drug Information Framework, 360
 software, 360
- Drug information pharmacy practice, 290–294
 academic practice, 291
 associations, 292
 community, 290–291
 government, 292
 industry, 291–292
 managed care, insurance companies, 292
 model clinical practices, 290–292
 networking opportunities, 293–294
 professional opportunities, 290
 resources, 292–293
- Drug information specialist, professional opportunities, 502
- Drug Information—A Guide to Current Resources*, 293
- Drug Information/Pharmacoeconomics Network, 293
- Drug intolerance, defined, 23
- Drug Price Competition and Patent Term Restoration Act, 380
- Drug samples, 295–299
 alternatives to, 298
 JCAHO criteria, compliance, 296
 regulatory issues, 295
- Drug surveillance, Spain, 459
- Drug use evaluation, clinical pharmacy, economic analysis, 307–321
- Drug-nutrient interactions, 30
- Dry eyes, caused by anticholinergic medication effect, 586
- Duke University, health outcomes reasearch, 36
- Duodenum, drug absorption in, 90
- Dutch Association of Hospital Pharmacists, 825
- Dutch Cochrane Centre, 185
- Dynamics Practice Research Network, American College of Clinical Pharmacy Pharmacokinetics, 166
- Dyskinesias, 588
- Dyslipidemia, 121
- Ear, nose, throat disorders group, Cochrane collaborative, 183
- Eatonform, software, 218
- ECDIN. *See* Environmental Chemicals Data and Information Network
- Echinacea, adverse reaction to, 31
- Economic evaluations of clinical pharmacy services, 301–325
 analytic methods, 304
 cost-justification studies, 303
 methods, 301–302
 type of analysis, 302
- Economic value, of clinical pharmacy services, 307–321
- Edema, 585
- Education, 556
 home care, 437
 hyperlipidemia, 464–465
 infectious diseases, 469
 medical information, industry-based, 529
- Education, Pharmaceutical, American Council on, 496
- ElderCare Patient Education Series, 15
- Elderly
 adherence to medical care, 15–16
 cognitive limitations, 15
 physical impairments, 15
 polypharmacy, 15
 risk factors for nonadherence, 15
 flu shots, effectiveness of, studies, 565
 home care, 443
 pain management, 641
Pharmacokinetics and Drug Interactions in Elderly and Special Issues in Elderly African-American Populations, 481
- Electrolyte/nutritional status, neurology specialty pharmacy practice, 585
- Electronic prescribing, 326–329
 advantages of, 327
 description of, 326
 disadvantages of, 327–328
 impact on practice, 328–329
 information available, 326–327
 prescription destination, 327
- Emergency pharmacy services, 115–118
- Emergency room, clinical pharmacy, economic analysis, 307–321
- EmergencyNET, 776
- Emerging Infections: Microbial Threats to Health in United States*, 481
- Employee education, medical information, industry-based, 529
- ENA.C.T. Total Cholesterol Test, cholesterol monitoring test, 466
- Encainide, cytochrome P450, 247
- Encephalopathies, 586
- Endocrine disorders, drug reactions and, 27
- Endocrine disorders group, Cochrane collaborative, 183
- Endocrine system, neurology specialty pharmacy practice, 585
- Enteral nutrition, 458
 drug reaction with, 30
- Environmental Chemicals Data and Information Network, 774
- Environmental Protection Agency, careers options, clinical pharmacy scientist, 179
- Epilepsy, drug reactions and, 27
- Epilepsy group, Cochrane collaborative, 183
- Epoxide hydrolase, deficiency of, drug reaction, 29
- Ergotamine, 588
 drug reaction, 27
- Erythromycin
 as cytochrome P450 inhibitor, 247
 effect on group A streptococci, 60
- Esophagus, drug absorption in, 90
- Essential Drug List, World Health Organization, 908–909
- Estrogen replacement therapy, 815
- Ethanol, cytochrome P450, 247
- Ethical Conduct for Research Involving Humans, Tri-Council Policy Statement, 876–881
- Ethical issues, 330–334
 aboriginal peoples, 879
 classification of, 332–333
 clinical evaluation, drugs, 136–137
 clinical trials, 879–880
 competence, 878
 conflict of interest, 879
 data collection, 878–879
 decision making and, 330–331
 definition of, 332
 discrimination, 333
 disease management, 271–273
 ethical problems, 331–333
 ethics review procedures, 877
 gene therapy, 376–377
 human genetics research, 880–881
 inclusion/exclusion of populations, 879
 informed consent, 877–878
 informing potential subjects, 878
 medication assistance programs, pharmaceutical company-sponsored, 532
 negative discrimination, 333
 personal interviews, 878–879
 pharmaceutical outcomes, 704
 pharmacotherapeutic decisions, 332
 physician, pharmacist, patient, relationship among, 331–332
 positive discrimination, 333
 privacy, confidentiality, 878–879
 rationing, 333
 relationship, between health professional, patient, 330
 research, 335–343
 clinical trial design, 339–340
 Declaration of Helsinki, World Medical Association, 341–342
 drug therapy, 337
 in emergency health situations, 878
 historical perspective, 335–336
 human subjects, protection of, 336
 individual, *vs.* social interest, 339
 informed consent, 336–337
 investigator independence, 340
 moral principles, 337–339
 Nuremberg Code, 341
 scientific integrity, 340
 study volunteers, payment to, 337

- Ethical issues (*cont.*)
 secondary use of data, 879
 unavailability of medication, 332–333
- Ethnic minorities, adherence to medical care, 16–17
- Ethosuximide, pediatric pharmacokinetic data, 665
- Etreby Computer, software, 216, 218
- European Association of Poisons Centres and Clinical Toxicologists, 762
- European Society of Clinical Pharmacy, 344–347
 activities of, 345–346
 calendar of events, 347
 clinical pharmacy, 345
 conferences, 345
 education, 345
 executive committee, 346
 general committee members, 346
 goal, 344–345
 international office, 347
 members, 347
 organization of, 346–347
 related organizations, 345–346
 research, 345
 research and education committee, 347
 special interest groups, 347
 symposia, 345
- Evaluating Drug Literature*, 293
- Evaluation, clinical pharmacist, American College of Clinical Pharmacy, 154–160
- Evaluations of Drug Interactions*, 360
- Evidence-based practice, 348–354
 applying evidence, 350
 challenges of, 351
 clinical effectiveness, 351–352
 criticisms of, 350–351
 implementation, 352–353
 incomplete evidence, 351
 number needed to treat, 350
 pharmacist's role, 352
 relative risk, 349
 resources for, 352
 understanding evidence, 349–350
 web sites, 352
- Evolution, of academicians, 3
- Excipients
 effect on pharmacokinetics, 95
 in liquid drug products, 95
 solid drug products, 95
- Exclusion of populations, ethical issues, 879
- Expenditures for pharmaceuticals, reduction of, 35
- Experience required, in academic clinical pharmacy, 4
- Faculty, academic clinical pharmacy, 3
- Family environment, home care, 440
- Family medicine, fellowships in, 356
- Family planning, Medicaid usage, 516
- FDA. *See* Food and Drug Administration
- FDAMA. *See* Food and Drug Modernization Act
- Fear tactics, nonadherence in pharmaceutical care and, 14
- Federal Bureau of Prisons, careers in, 387
- Federal government regulations governing prescribing, 191
- Fellowships, 355–357
 applicant requirements, 356
 in clinical pharmacology, 356
 defined, 231
 definitions, 355
 experience of, 356
 fellowship, defined, 355
 guidelines, 355–356
 preceptor qualifications, 356
 resource, 356–357
 training program requirements, 356
- FEMA Rapid Response Information System, 776
- Fertility group, Cochrane collaborative, 183
- Fertility regulation group, Cochrane collaborative, 183
- Financial information, patient drug history, 286
- Financing
 health care, 401–403
 healthcare, 410–411
- First DataBank, Inc., 358–361
 drug knowledge bases, 359
 drug interactions, 359
 patient education, 359
 prescriber order entry, 359
- Evaluations of Drug Interactions*, 360
- future needs, 361
- integrated content software, 359–360
- Drug Information Framework, 360
- Rx InHand, 360
- RxWeb, 360
- locations, 361
- mission statement, 358–359
- Nutritionist Pro, software, 360–361
- reference products, 360
- software, 216, 218
- specialty software, 360–361
- Florida
 pharmacy practice legislation, 272
 regulations governing prescribing, 190
- Flu, as cause of death, 404
- Flu shots, for older adults, effectiveness of, studies, 565
- Fluid, neurology specialty pharmacy practice, 585
- Fluvoxamine, as cytochrome P450 inhibitor, 247
- Folic acid during pregnancy, 585
- Follow-up, in adherence in pharmaceutical care, 14
- Food, effect on absorption, 91–92
- Food and Drug Administration, 251–252, 785–786, 896
 careers, 179, 386
 policies, 148–149
- Food and Drug Modernization Act, 36
- Foodborne Pathogenic Microorganisms and Natural Toxins Handbook, 775
- Formulary manager, professional opportunities, 502
- Formulary systems, 362–365
 drug selection, 363–364
 ethical issues, 364–365
 formulary maintenance, 364
 history, 362–363
 history of, 860–861
 medication use evaluation, 364
 positive, negative outcomes, 364
 structure of, 363–364
- Foscarnet, AIDS, 442
- Freedom Data Systems, software, 216, 218
- Functional foods, 603–607
 categorizing, 605
 challenges facing, 604
 examples, 603–604, 605
 guidelines, 606–607
 healthful foods, categories of, 604
- Funding, National Institutes of Health, 576–577
- Fungi images on net, 775
- Furosemide, drug reaction, 27
- Future directions in clinical practice in pharmacy (Hilton Head Conference), 265–266
- Future of Public Health*, 481
- Gabapentin, 588
- Gait, 586
- Ganciclovir IV, AIDS, 442
- Garlic, adverse reaction to, 31
- Gastric emptying time, 89
- Gastrointestinal, pancreatic diseases group, Cochrane collaborative, 184
- Gastrointestinal absorption, drug, 25
- Gastrointestinal complaints, 588
- Gastrointestinal disease, drug reactions and, 27
- Gastrointestinal motility, 89
- Gastrointestinal system
 blood perfusion, 89–91
 drug absorption in, 90–91
 neurology specialty pharmacy practice, 585
- Gender, adverse drug reactions and, 28
- Gene therapy, 367–378
 cancer, 373
 cardiology, clinical trials, 375
 cystic fibrosis, 373
 definition, 367–368
 ethical issues, 376–377
 gene therapy clinical trials, 373
 monogenic disorders, 373
 severe combined immunodeficiency syndrome, 373
 herpesvirus thymidine kinase, 373
 HSV-TK, 373–374
 infectious disease, clinical trials, 375
 multidrug resistance, 376
 oncology, clinical trials, 375
 patient monitoring, 372–373
 SCIDS, 373
 vector production and administration, 371–372
 vectors, 368–371
 adenoviral vectors, 369–370
 plasmid-based vectors, 371

- Gene therapy (*cont.*)
 retroviral vectors, 368–369
 viral transfer techniques, compared, 368
- General Medical and Clinical Toxicology Guide to Internet, 773
- Generic Drug Bureau within Food and Drug Administration, 380
- Generic drugs, 97–98, 379–384
 Abbreviated New Drug Application, 380
Approved Drug Products with therapeutic Equivalence Evaluations, 380
 Drug Price Competition and Patent Term Restoration Act, 380
 Generic Drug Bureau within Food and Drug Administration, 380
 legislation, 379–380
 measurement, 381
 political economy of, 382–384
 regulation, 379–380
 scientific basis, 380–381
- Genetic disorders group, Cochrane collaborative, 183
- Genetic factors
 adverse drug reactions, 29
 adverse drug reactions and, 26–28
- Gentamicin, pediatric pharmacokinetic data, 665
- Georgetown University, health outcomes research, 36
- Georgia, pharmacy practice legislation, 272
- Geriatric age-related changes
 pharmacokinetic, 25
 pharmacokinetics and, 25
- Geriatrics
 adverse drug reactions and, 25
 fellowships in, 357
 flu shots, effectiveness of, studies, 565
 pain management, 641
Pharmacokinetics and Drug Interactions in Elderly and Special Issues in Elderly African-American Populations, 481
- Germany, health care systems, 394–395
- Gingival hyperplasia, caused by phenytoin, 586
- Ginkgo biloba, adverse reaction to, 31
- Ginseng, adverse reaction to, 31
- Glatiramer acetate, 587, 588
- Glaucoma, drug reactions and, 27
- Glioblastoma, gene therapy trials, 374
- Global planning, clinical evaluation, drugs, 135–136
- Glucocorticoids, 588
- Glucose 6-phosphate, drug reaction, 29
- Gluteal-area intramuscular injection, 673
- Goldenseal, adverse reaction to, 31
- Government
 clinical pharmacy careers in, 385–388
 Centers for Disease Control and Prevention, 386
 Commissioned Officer Student Training and Extern Program, 387
 Department of Veterans Affairs, 385
 Federal Bureau of Prisons, 387
 Food and Drug Administration, 386
 Indian Health Service, 386
 National Institutes of Health, 386–387
 U.S. Armed Services, 385–386
 U.S. Coast Guard, 387
 U.S. Public Health Service, 386–387
 infectious diseases opportunities in, 471
- Government hospital
 clinical pharmacy, economic analysis, 307–321
 university-affiliated, economic analysis, 307–321
- Government regulatory agencies, careers options, clinical pharmacy scientist, 179
- Government-affiliated ambulatory clinic, clinical pharmacy, economic analysis, 307–321
- Graduate, advanced professional educational programs, 556
- Graduate professional educational programs, 556
- Grants, National Institutes of Health, 578
- Grapefruit juice, as cytochrome P450 inhibitor, 247
- Group A streptococci, effect of erythromycin, 60
- Group practice pharmacist, professional opportunities, 502
- Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youths*, 481, 892
- Guillain barre, 587
- GVP Medicare Billing, software, 216, 218
- Gynecological cancers group, Cochrane collaborative, 183
- Haematological malignancies group, Cochrane collaborative, 183
- Haemophilus influenzae type b, 712
- Hair loss, that could be, 586
- Halcion: An Independent Assessment of Safety and Efficacy Data*, 481
- Hallucinations, 585, 588
- Haloperidol, 671
- Halothane, adverse drug reaction, 29
- Handbook on Injectable Drugs*, American Society of Health-System Pharmacists, 57
- Hardware array, 215–220
- Harvard University, health outcomes research, 36
- Hawaii, pharmacy practice legislation, 272
- HBS, Inc., software, 216, 218
- HCC, software, 216, 218
- Head cancer, gene therapy trials, 374
- Headaches, 587, 588
- Health care
 evolving view of, 193–194
 financing, 401–403
 policy, careers options, clinical pharmacy scientist, 179
- Health care systems outside U.S., 389–396
 Canada, 390
 Germany, 394–395
 Japan, 391–392
 Mexico, 395
 National Institute for Clinical Excellence, 393–394
 Republic of South Africa, 390–391
 United Kingdom, 392–394
- Health care systems within U.S., 397–407
 access to health care, 403–405
 health care financing, 401–403
 organization of, 399–400
 trends in, 400–401
- Health maintenance organization clinic, clinical pharmacy, economic analysis, 307–321
- Health outcomes research, 35
- Health Plan Employer Data and Information Set, model clinical practices, managed care, 510
- Health Resources and Services Administration, 556
- Health services research, 408–414
 access to healthcare, 411
 clinical evaluation, 411–412
 consumer behavior, 412
 data sources, 409
 definition of, 408–409
 financing of healthcare, 410–411
 health policy, relationship between, 409–410
 informatics, 412
 publications, 413
 quality of care, 411
 role of pharmacy profession in, 410–412
 study setting, 408
 subject selection, 408–409
 work force, 412
- Health status assessment, 415–427
 advantage of, 423
 Agency for Health Care Policy and Research, 417
 definitions, 418–419
 International Quality of Life Assessment Project, 422
 measuring health, 419–422
 Medical Outcomes Study, 417
 outcome measures, 416–417
 psychometric theory, 417–418
 Rand HIE, 416–417
 reliability, 418
 validity, 418
- Healthful foods, categories of, 604
- Health-systems, clinical pharmacy careers in, 428–431
 career ladders, 430
 education, 429–430
 range of career activities, 428–429
 acute care, 428
 ambulatory care, 428
 community pharmacy, 428
 drug information service, 428
 home care services, 428
 long-term care, 428
 management of pharmacy services, 428–429

- Health-systems, clinical pharmacy careers in
(*cont.*)
therapeutic drug monitoring service, 428
sites, 430
work settings, 429
 general clinical practice model, 429
 outpatient pharmacy, 429
- Healthy People 2010*, 432–434
- Heart attack, beta blocker treatment after,
 effectiveness of, studies, 565
- Heart disease, as cause of death, 404
- Heart failure, drug reactions and, 27
- Heart group, Cochrane collaborative, 183
- HEDIS. *See* Health Plan Employer Data and
 Information Set
- Hematologic disease, drug reactions and, 27
- Hematology: Basic Principles and Practice*, 622
- Hematology, home care, 442
- Hematology system, neurology specialty
 pharmacy practice, 585
- Hematopoiesis chart, 109–110
- Hemophilia, drug reactions and, 27
- Hemorrhage, with routine medical care, *vs.*
 pharmacist-managed
 anticoagulation, 65
- Heparin, 587
- Hepatic disease, adverse drug reactions and,
 25–26
- Hepatic system, neurology specialty pharmacy
 practice, 585
- Hepatitis A, 712
- Hepatitis B, 712
- Hepato-biliary group, Cochrane
 collaborative, 183
- Herbal medicines, adverse drug reactions, 31
- Herbal therapies, adverse drug reactions and, 28
- Herpes simplex, with AIDS, 442
- Herpes zoster, with AIDS, 442
- Herpesvirus thymidine kinase, gene
 therapy, 373
- High blood pressure, controlling, effectiveness
 of, studies, 565
- Higher education, academic clinical
 pharmacy, 2
- Hilton Head Conference, directions in clinical
 practice in pharmacy, 265–266
- Hip fracture, gene therapy, 376
- Histamine-receptor antagonist, clinical phar-
 macy, economic analysis, 307–321
- Histoplasmosis, with AIDS, 442
- History form, patient, 288
- HIV, 586
 *Confronting AIDS: Direction for Public
 Health, Health Care, and
 Research*, 481
 *No Time to Lose: Getting More from HIV
 Prevention*, 481
 post-exposure prophylaxis, 891–898
 transmission, occupational, risk of, following
 exposure, 892
 universal precautions, 891–898
 unlabeled indications, drug use for, 551
- HIV/AIDS group, Cochrane
 collaborative, 183
- HIV/AIDS Treatment Information
 Service, 896
- Holistic medicine, 774
- Home care practice, 435–438, 502
 activities, 436–437
 career options, 437–438
 education-related issues, 437
 Medicaid usage, 516
 patient database, 436
 preadmission criteria, 436
 Spain, 439–446
 advantages, 439
 AIDS, 441–443
 antibiotic therapy, cost savings, 441
 classification, 439–440
 community-based, 440
 family environment, 440
 home environment, 440
 hospital-based, 439–440
 infections, 441
 organization, 439–440
 parenteral antibiotics, 441
 patient selection, 440–441
 type of interventions, 441
 web sites, 444
 work environments, 435–436
- Home monitoring, 287
- Hospice, 447–452
 computer links, 450
 documentation, from care providers, 452
 Hospice Foundation of America, 450
 Hospice Hands, web site, 450
 managed care, clinical pharmacy
 careers, 504
 marketing pharmaceutical care, 451–452
 National Hospice and Palliative Care
 Organization, 450
 Open Society Institute, Project Death in
 America, 450
 Palliative Medicine Program, 450
 professional opportunities, 449
 Purdue Pharma Pain and Palliative Care
 Information, 450
 resources, 450
 Talarian map, cancer pain, 450
 Hospice Foundation of America, 450
- Hospice Hands, web site, 450
- Hospice interdisciplinary team, 448
- Hospital inpatient, Medicaid usage, 516
- Hospital outpatient, Medicaid usage, 516
- HRSA. *See* Health Resources and Services
 Administration
- HSV-TK. *See* Herpesvirus thymidine kinase
- Human genetics research, ethical issues,
 880–881
- Human immunodeficiency virus. *See* HIV
- Human subjects, protection of, 336
- Huntington's chorea, 585
- Hydralazine, adverse drug response, 29
- Hydrogenated vegetable oil, excipient in
 drug, 95
- Hydroxypropylmethylcellulose, excipient in
 drug, 95
- Hyperlipidemia, 461–468, 585
- cholesterol monitoring tests, CLIA waived
 status, 466
- clinic models, 463
- communication, 466
- community pharmacy practice, 462–463
- documentation, 466
- institutional pharmacy model, 464
- lipid management practices, 463
- lipid measurement devices, 466–467
- outcomes, 813
- patient education, 466
- pharmacist education, 464–465
- practice models, 462–464
- reimbursement strategy, 467
- screening programs, 462–463
- Hypersensitivity reaction, to drug, 23
- Hypertension, 121, 754, 812
 drug reactions and, 27
 nonadherence to medical care in, 18–19
- Hypertension group, Cochrane
 collaborative, 183
- Hyperthyroidism, drug reactions and, 27
- Hyperuricemia, drug reactions and, 27
- Hypoalbuminemia, adverse drug reactions
 and, 26
- Hypothyroidism, drug reactions and, 27
- ICAAC. *See* Interscience Conference for
 Antimicrobial Agents and
 Chemotherapy
- ICC. *See* International Conference of
 Chemotherapy
- ICMASKO. *See* International Conference
 on Macrolides, Azalides,
 Streptogramins, and Ketolides
- Idaho, pharmacy practice legislation, 272
- Idiosyncratic reaction to drugs, defined, 23
- IDSA. *See* Infectious Diseases Society
 of America
- Ileum, drug absorption in, 90
- Imipramine, cytochrome P450, 247
- Immunization practice, pharmacy-based, 561
 documentation, 561
 liability, 561
 reporting, 561
- Immunosuppressants, 588, 870
 complications, 870
 outpatient, Medicare Benefits and
 Improvement Act of 2000, 530
 Medicare coverage under, 530
 solid organ transplant, 530
 transplant facility, Medicare-
 approved, 530
- In vitro* dissolution testing, 96–97
- Incontinence group, Cochrane
 collaborative, 183
- Independent consultant, infectious
 diseases, 471
- Indian Health Service, 252–253
 careers in, 386
- Indiana, regulations governing prescribing,
 190
- Indinavir, 895

- Individual, vs. social interest, ethical issues, 339
- Industry, drug information pharmacy practice, 291–292
- Infection
- Emerging Infections: Microbial Threats to Health in United States*, 481
 - home care pharmacy, 441
- Infectious disease, 469–475, 837
- board certification, 469
 - books, 473
 - contract research organization, 471
 - education, 469
 - fellowships in, 357
 - gene therapy clinical trials, 375
 - government, 471
 - guidelines, 473–474
 - hospital practice, 470
 - hospital setting, 471–472
 - independent consultant, 471
 - industry consultantships, 475
 - journals, 472–473
 - model clinical practice settings, 471–472
 - networking opportunities, 474–475
 - outpatient practice, 470
 - outpatient setting, 472
 - pharmaceutical industry, 470
 - postgraduate training, 469
 - professional opportunities, 470–471
 - professional societies, 474–475
 - training, 469
- Infectious Diseases Clinics of North America*, 473
- Infectious diseases group, Cochrane collaborative, 183
- Infectious Diseases in Clinical Practice*, 473
- Infectious Diseases Society of America, 474
- Inflammatory bowel disease group, Cochrane collaborative, 183
- Influenza, 712
- Information, medical, industry-based, 525–529
- careers in, 525–529
 - committee involvement, 528–529
 - daily work flow management, 526–527
 - customer base, 526
 - documentation, 527
 - triage procedures, 527
 - volume, type of requests, 526–527
 - drug product information dissemination, 525–526
 - data on file, 526
 - drug information resources, 525–526
 - guidelines, limitations, 525
 - package labeling, 525–526
 - references, 526
 - education, 529
 - academic rotation site, 529
 - continuing education, 529
 - employee education, 529
 - global medical information, 528–529
 - internal support functions, 527–528
 - clinical research, 528
 - marketing, 527–528
 - quality assurance, 528
 - regulatory affairs, 528
 - safety reporting, 528
 - sales, 527
- Information technology/database manager, professional opportunities, 502
- Informed consent, 336–337, 877–878
- InfoWin, 456
- Inhalers, pediatric dosing, 675
- Injuries group, Cochrane collaborative, 183
- Innovation Associates, software, 216, 218
- Institute for Safe Medication Practices, 476–477
- mission, 476
 - objectives, 476–477
 - analysis-based ISMP initiatives, 476
 - communication-based ISMP initiatives, 477
 - cooperation-based ISMP initiatives, 477
 - education-based ISMP initiatives, 477
 - knowledge-based ISMP initiatives, 476
 - Spain, 478–479
 - future goals, 479
 - medication errors reporting program, 478–479
 - mission, 478
 - objectives, 478
 - projects, 479
- Institute for Safe Medication Practices—Spain, 478–479
- future goals, 479
 - medication errors reporting program, 478–479
 - mission, 478
 - objectives, 478
 - projects, 479
- Institute of Medicine, 480–481
- activities, 480–481
 - Confronting AIDS: Direction for Public Health, Health Care, and Research*, 481
 - Emerging Infections: Microbial Threats to Health in United States*, 481
 - To Err is Human: Building Safer Health Care System*, 480
 - Future of Public Health*, 481
 - Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youths*, 481
 - Halcion: An Independent Assessment of Safety and Efficacy Data*, 481
- National Academy of Sciences, chartering by, 480
- No Time to Lose: Getting More from HIV Prevention*, 481
- Pharmacokinetics and Drug Interactions in Elderly and Special Issues in Elderly African-American Populations*, 481
- Insurance companies, managed care, 292
- Insurance information, patient drug history, 286
- Integrative medicine, 482–486
- challenges to, 484–485
 - clinical model, 484
 - Consortium of Academic Health Centers for Integrative Medicine, 484
 - definition of, 483
 - future trends, 485
- Intelligence program, Drug Enforcement Agency, 282
- Intensive care unit, clinical pharmacy, economic analysis, 307–321
- Interactions between drugs, 24–25
- Interactive patient counseling, 649
- Interactive Systems, software, 216, 218
- Interdisciplinary team, hospice, 448
- Internal medicine, fellowships in, 357
- International Association for Study of Pain, 643
- International Association for Study of Pain Newsletter*, 450
- International Conference of Chemotherapy, 475
- International Conference on Macrolides, Azalides, Streptogramins, and Ketolides, 475
- International Conference on Retroviruses, 475
- International Pharmaceutical Abstracts*, 57, 487
- International Quality of Life Assessment Project, 422
- International Society for Pharmacoeconomics and Outcomes Research, 488–489
- International Society of Antiinfective Pharmacology, 474
- International Technidyne Corp., 141
- Internet Grateful Med, 582
- Interscience Conference for Antimicrobial Agents and Chemotherapy, 474

- Interviewing patient, drug history, 285–286
 communication, 285
 setting, 285
 special patient populations, 285–286
- Intestinal motility, 89
- Intramuscular administration, pediatric dosing, 673–674
- Intravenous administration, pediatric dosing, 666–670
- Investigator, principle, clinical pharmacist as, 144–153
 American College of Clinical Pharmacy, clinical pharmacist evaluation, 154–160
 assessment methods, 154–159
 budget, 151
 current industry, 145–148
 FDA policies, 148–149
 FDA regulations, 148–149
 history, 144–145
 publication rights, 151–152
 qualifications, 152–153
 access to patients, 153
 audits, 153
 command of research process, 152
 experience, 152
 human resources, 152
 local leadership, 153
 local resources, 152
 responsibilities of, 149–150
 template, 154, 155–159
- Investigator independence, ethical issues, research, 340
- IQOLA Project. *See* International Quality of Life Assessment Project
- ISAP. *See* International Society of Antiinfective Pharmacology
- Ischemic stroke, 587
 prevention, 588
- Isoniazid, 870
 adverse drug response, 29
 as cytochrome P450 inducer, 247
- ITC Protime Microcoagulation System, 141
- JAG Group, software, 216, 218
- Janus Commission (American Association of Colleges of Pharmacy), 491–492
 history, 491
 members of, 492
 mission, 491–492
- Japan, health care systems, 391–392
- jASCorp, software, 216, 218
- JCAHO. *See* Joint Commission for Accreditation of Healthcare Organizations
- JCPP. *See* Joint Commission of Pharmacy Practitioners
- Jejunum, drug absorption in, 90
- Johns Hopkins Center for Civilian Biodefense Studies, 777
- Johnson & Johnson, 141
- Joint Commission for Accreditation of Healthcare Organizations, 493–495
 accreditation process standards, 495
 accreditation status, 493–495
 background, 493
 Joint Commission of Pharmacy Practitioners, 496–497
 history, 496
 member organizations, 496–497
 Academy of Managed Care Pharmacy, 496
 American Association of Colleges of Pharmacy, 496
 American College of Apothecaries, 496
 American College of Clinical Pharmacy (American Association of Colleges of Pharmacy), 496
 American Council on Pharmaceutical Education, 496
 American Pharmaceutical Association (APhA), 496
 American Society of Consultant Pharmacists, 496
 American Society of Health-System Pharmacists, 496
 National Association of Boards of Pharmacy, 496
 National Community Pharmacists Association, 496
 National Council of State Pharmacy Association Executives, 496
 programs, 497
Journal of Antimicrobial Chemotherapy, 472
Journal of Infectious Diseases, 472
Journal of Infectious Diseases Pharmacotherapy, 473
Journal of Pain, 450
Journal of Pain and Palliative Care Pharmacotherapy, 450
 Journal of Pain and Symptom Management, 450
- Kansas, pharmacy practice legislation, 272
- Karolinska Institute–Poisoning Information, 774
- Kentucky
 pharmacy practice legislation, 272
 regulations governing prescribing, 190
- Ketoconazole, as cytochrome P450 inhibitor, 247
- Labeling
 dietary supplements, 261–262
 package, medical information, industry-based, 525–526
- Laboratories program, Drug Enforcement Agency, 282
- Laboratory tests, Medicaid usage, 516
- Lactose, excipient in drug, 95
- Ladder, career, academic clinical pharmacy, 4
- Lamivudine, 895
- Language barriers, drug history-taking, 286
- LDL. *See* Low-density lipoprotein
- Learning problems, Cochrane collaborative, 183
- Legislation, generic drugs, 379–380
- Length of hospital stay, clinical pharmacy, economic analysis, 307–321
- Leukemias, gene therapy trials, 374
- Levodopa, 588
- Lewy body disease, 585
- Liability, manufacturer, vaccines, 559–560
- Liberty Computer, software, 216, 218
- License, defined, 231
- Licensure, defined, 231
- Lidocaine, drug reaction, 27
- Lifestream Technologies, 141, 466
- Lipid management practices, 463
- Lipid measurement devices, 466–467
- Lipid monitoring form, 465
- Lipid-lowering agents, 588
- Liposome, viral transfer techniques, 368
- Liquid drug products, excipients used in, 95
- Literature search method, 303
- Lithium, 585
- Liver disease, as cause of death, 404
- Liver function tests, 588
- Long-term care, clinical pharmacy careers in, 498–499
 consultant pharmacist services, 498
 history, 498–499
 job settings, 499
 professional opportunities, 499
 role of consultant pharmacists, 498
 training, certification requirements, 499
- Louisiana, pharmacy practice legislation, 272
- Low plasma pseudocholinesterase, drug reaction, 29
- Low-density lipoprotein receptor, gene therapy, 375–376
- Low-literacy patients, adherence with, 16
- Lowy Report, *Prescriptions for Health*, 791–793
- Lung cancer group, Cochrane collaborative, 183
- Lupus, drug reactions and, 27
- LXN Corp., 141
- LXN Duet Glucose Control Monitoring System, 141
- LXN Fructosamine Test System, 141
- LXN IN CHARGE Diabetes Control System, 141
- Lymphoma, gene therapy trials, 374
- Magnesium stearate, excipient in drug, 95
- Malignant pain, 639–640
- Managed care, 506–511
 assertiveness, 507
 care, clinic coordinators, 507
 case studies
 all-inclusive care for elderly (PACE) programs, 504
 hospice, 504
 specialty clinics, 504–505
 utilization management, 504
 clinical pharmacy careers in, 501–505
 case studies, 504–505
 preparing for, 501–503
 professional opportunities, 503–504
 settings, 501
 skills, 503
 communication, mediation skills, 507
 diabetes care, 258

- Managed care (*cont.*)
 disease management, 507–508
 drug information knowledge, 507
 evaluating clinical, economic data, 508–509
 fellowships in, 357
 health, managing, 508
 innovative positions, 507
 insurance companies, 292
 opportunities available, 506–509
 outcomes, measuring, 509
 skills, 506
 strengths of pharmacy, 506
 work in teams, ability to, 507
- Manager of clinical initiatives, professional opportunities, 502
- Managing Oral Anticoagulation Therapy, Clinical and Operational Guidelines*, 67
- Manufacturer liability, vaccines, 559–560
- Marijuana eradication program, Drug Enforcement Agency, 282
- Marketing
 dietary supplements, 261–262
 input, clinical evaluation, drugs, 135
 of pharmaceutical care, 451–452
- Martindale Health Science Guide–Virtual Pharmacy Center, 774
- Masked facies, 586
- Matching program, resident, 841
- Mayday Upper Peninsula Project, 643
- McKessonHBOC, software, 216, 218
- MDR. *See* Multidrug resistance
- Measles, 712
- Medicaid, 512–518
 administration of drug benefit, 515
 clinical pathways, 515
 drug benefit coverage, 514–515
 drug coverage, 514–516
 drug evaluation, 515
 extending drug coverage, 514–515
 financial conundrum, 514
 formulary coverage, 515
 healthcare coverage options, 513–514
 history, 512–513
 individuals utilizing, 516
 Medicare, description, 512–514
 Medicare participation, 514
 Medicare program, 513
 original Medicare plan, 513–514
 pharmaceutical care, disease management and, 515
 pharmacy benefit, tools to manage, 515
 reimbursement, 516–518
 resource-based relative value system, 515–516
- Medical Botany Library, 775
- Medical College of Wisconsin Palliative Care Medical Program, 643
- Medical communications, clinical pharmacy careers in, 519–524
 income, 519–521
 training, 522–523
- Medical information, industry-based, 525–529
 academic rotation site, 529
 committee involvement, 528–529
 global medical information, 528–529
 labeling, promotional review committee, 528
 publications committee, 528
 daily work flow management, 526–527
 customer base, 526
 documentation, 527
 triage procedures, 527
 volume, type of requests, 526–527
 drug product information dissemination, 525–526
 data on file, 526
 drug information resources, 525–526
 guidelines, limitations, 525
 package labeling, 525–526
 references, 526
 education, 529
 academic rotation site, 529
 continuing education, 529
 employee education, 529
 internal support functions, 527–528
 clinical research, 528
 marketing, 527–528
 quality assurance, 528
 regulatory affairs, 528
 safety reporting, 528
 sales, 527
- Medical NBC Online Information Server, 776
- Medical outcomes study, health status assessment, 417
- Medical records, access to, 196
- Medicare, 513
 contact points, 512–514
 description, 512–514
 and contact points, 512–514
 pharmaceutical programs, 512–518
- Medicare Benefits and Improvement Act of 2000 for outpatient immunosuppressive agents, 530
- Medicare coverage under, 530
 solid organ transplant, 530
 transplant facility, Medicare-approved, 530
- Medicare+Choice, 514
 drug step therapy, 515
- Medication assistance programs, pharmaceutical company-sponsored, 531–532
 enrollment, 531–532
 ethical issues, 532
 information frequently requested, 532
 internet sites, 531
 medication, 532
 pharmacists' role, 532
- Medication errors, 533–544
 human reliability
 curve, 539
 enhancing, 539–542
 manageable behaviors, 540
 at-risk behavior, 540–541
 high-culpability behavior, 541–542
 imperfect behavior, 540
 medication-use cycle, 533–535
 outcomes-measurement approach, 538–539
 preventable patient harm, scientific investigation, 536–539
 process-improvement approach, 536–538
 reporting program, Institute for Safe Medication Practices, 478–479
 role of pharmacist, 542–543
Medication Teaching Manual, American Society of Health-System Pharmacists, 57
- Medication use evaluation, 545–549
 approaches to, 547–548
 goals of, 546
 limitations, pitfalls of, 548
 priority setting, 546–547
 process, 547
 role of pharmacist, 546
 scope, 546
 tools, resources, 548
 value of, 548
- Medication use for unapproved indications, 550–553
 liability, 552
 patient safety, 550–552
 reimbursement, 552
 unlabeled indications, drug use for, 551
 antineoplastics, 551
 antipsychotics, 551
 HIV, 551
 metoclopramide, 551
 ondansetron, 551
- MEDLINE, 580–581, 582, 773
- MEDLINEplus, 582
- MedMARx, 889
- MedNet, 774
- Melanoma, gene therapy trials, 374
- Menstrual disorders, Cochrane collaborative, 183
- Mental health facility, clinical pharmacy, economic analysis, 307–321
- Mental health scale, 423
- Mental status, 586
- Mentally retarded, Medicaid usage, 516
- Mephenytoin, cytochrome P450, 247
- Mesothelioma, gene therapy trials, 374
- Metabolic, endocrine disorders group, Cochrane collaborative, 183
- Metastatic cancer, gene therapy trials, 374
- Methemoglobin reductase deficiency, drug reaction, 29
- Methyl propylparaben, excipient in drug, 95
- Methylcellulose, excipient in drug, 95
- Methylprednisolone, 587, 870
- Metoclopramide, unlabeled indications, drug use for, 551
- Metopronolol, cytochrome P450, 247
- Metrika, Inc., 141
- Metrika DRx HbA1c, 141
- Metronidazole, adverse drug reaction, 30
- Mexico, health care systems, 395
- Mexilitine, 588
- Michigan
 pharmacy practice legislation, 272
 regulations governing prescribing, 190
- Microcrystalline cellulose, excipient in drug, 95
- Micromedex, software, 216, 218
- Midrin, 588
- Millis Commission, 554–557
 clinical scientists, concept of, 556

- Millis Commission (*cont.*)
 credentialing, 557
 graduate, advanced professional educational programs, 556
 organization, 554–557
 pharmacy, defining, 555
 pharmacy curricula, design of, 555–556
 preparation of pharmacists, environment for, 556
 providers of drug information, pharmacists as, 554–555
- Mini Mental Status Examination, 588, 741–748
- Minnesota, pharmacy practice legislation, 272
- Minorities, adherence to medical care, 16–17
- Mission statement, Academy of Managed Care Pharmacy, 6
- Mississippi
 pharmacy practice legislation, 272
 regulations governing prescribing, 190
- Mitretek Systems, 776
- Model clinical practices, managed care, 509–510
 Health Plan Employer Data and Information Set, 510
 Joint Commission on Accreditation of Healthcare Organizations, 509
 National Committee for Quality Assurance, 509
 networking opportunities, 510
- Molecules, passive diffusion of, 87
- Monogenic disorders, gene therapy, 373
- Montana, pharmacy practice legislation, 272
- Motor function, 586
- Movement disorders group, Cochrane collaborative, 183
- MTM Bioscanner 1000, 141
- Multicenter, clinical pharmacy, economic analysis, 307–321
- Multidrug resistance, gene therapy, 376
- Multidrug use, adverse drug reactions and, 28
- Multiple sclerosis, 587, 588
- Multiple sclerosis group, Cochrane collaborative, 183
- Muscle relaxants, adverse drug reaction, 29
- Musculoskeletal group, Cochrane collaborative, 183
- Musculoskeletal injuries group, Cochrane collaborative, 183
- Musculoskeletal system, neurology specialty pharmacy practice, 585
- Myasthenia gravis, 586, 588
 drug reactions and, 27
- Mycobacterium, with AIDS, 442
- Myocardial ischemia, drug reactions and, 27
- Narcotic analgesics, drug reaction, 27
- Narrow-angle glaucoma
 Cochrane collaborative, 27
 drug reactions and, 27
- Nasal administration, pediatric dosing, 675
- National Academy of Sciences, chartering of Institute of Medicine, 480
- National Academy Press, 773
- National Association of Boards of Pharmacy, 232, 270, 496
- National Association of Chain Drug Stores, 232, 270
- National Asthma Educator Certification Board, American Lung Association, 232
- National Cancer Institute, 621
- National Certification Board for Diabetes Educators, 232, 270
- National Childhood Vaccine Injury Act of 1986, 559–563
 adverse events, vaccine, 559
 childhood diseases, vaccination against, 559
 documentation, 561
 historical advancements, 559
 immunization practice, pharmacy-based, 561
 liability, 561
 manufacturer liability, 559–560
 National Vaccine Injury Compensation Program, 560–561
 protection under NCVIA, 561
 reporting, 561
 Vaccine Injury Act of 1986, 560–561
 vaccine injury table, 560
- National Chronic Pain Outreach Association, 643
- National Clinicians' Postexposure Hotline, 896
- National Committee for Quality Assurance, model clinical practices, managed care, 509
- National Community Pharmacists Association, 232, 270, 496, 568–571
 governance, 569
 historical overview, 568–569
 initiatives, 569–571
 mission, 569
 organizational structure, 569
- National Comprehensive Cancer Network, 621
- National Council of State Pharmacy Association Executives, 496
- National Council on Patient Information and Education, 15
- National Formulary, *United States Pharmacopeia*, 887–889
- National Foundation for Treatment of Pain, 643
- National HIV/AIDS Clinician's Consultation Center, 896
- National Hospice and Palliative Care Organization, 450
- National Institute for Clinical Excellence, 393–394
- National Institute for Standards in Pharmacist Credentialing, 229, 232, 270, 572–574
 activities, 573–574
 exam registration process, 573
- examination eligibility requirements, 573
 NISPC DSM examinations, 573
 organizational structure/meetings, 572–573
- National Institutes of Health, 251, 575–579
 campus, 576
 facilities, 576
 careers, 179, 386–387
 centers, 576–578
 clinical studies, 577
 contracts, 578
 events, 579
 extramural research, 578
 funding, 576–577
 general information, 579
 grants, 578
 health information resources, 578–579
 institutes, 576–578
 mission, 577
 offices, 576–578
 public health, contributions to, 575–576
 research and research policy, 179
 scientific resources, 578
 training, 577–578
- National Library of Medicine, 580–583, 773
 contacting, 583
 databases, 582
 ClinicalTrials.gov, 582
 Internet Grateful Med, 582
 MEDLINE, 582
 MEDLINEplus, 582
 PubMed, 582
 PubMed Central, 582
 TOXNET, 582
 electronic publishing, 583
 highlights of, 581
 history, 580
 MEDLINE, 580–581
 pharmacy practice, research, 581–582
 PubMed, vs. Internet Grateful Med, 582
 telemedicine, 583
- National Vaccine Injury Compensation Program, 560–561
- NCBDE. *See* National Certification Board for Diabetes Educators
- NCCN. *See* National Comprehensive Cancer Network
- NCPA. *See* National Community Pharmacists Association
- NCPIE. *See* National Council on Patient Information and Education
- NCQA. *See* National Committee for Quality Assurance
- NCSPA. *See* National Council of State Pharmacy Association Executives
- Nebraska, pharmacy practice legislation, 272
- Neck cancer, gene therapy trials, 374
- Nelfinavir, 895
- Nephrology, fellowships in, 357
- Networking opportunities
 anticoagulation, 68
 bone marrow transplant, 110
 cardiology, 123–124
 drug information pharmacy practice, 293–294
 infectious diseases, 474–475

- Networking opportunities (*cont.*)
 model clinical practices, managed care, 510
 neurology specialty pharmacy practice, 589–590
 specialty practice, clinical pharmacokinetics, 166–167
- Neurological disorders, drug reactions and, 27
- Neurological system, neurology specialty pharmacy practice, 585
- Neurology, fellowships in, 357
- Neurology specialty pharmacy practice, 584–590
 cardiovascular system and, 585
 educational opportunities, 589–590
 EENT, 586
 endocrine system and, 585
 fluid/electrolyte/nutritional status, 585
 gastrointestinal system, 585
 guidelines used in, 589
 GU/reproductive system, 585
 hematology system, 585
 hepatic system, 585
 inpatient neurology specialty practice, 586–587
 musculoskeletal system, 585
 networking opportunities, 589–590
 neurologic patient, approach to, 584
 neurological system, 585
 outpatient neurology specialty practice, 587–589
 pharmacotherapy history, 584
 psychological exam, 585
 pulmonary system, 585
 renal system, 585
 review of systems, 584–586
 vital signs, 585
 skin, 586
 targeted neurological exam, 586
 vital signs, 585
- Neuropathic pain, 641–642, 754
- Neuropathy, 586
- Neurosis, Cochrane collaborative, 183
- Neutraceuticals, 603–607
 categorizing, 605
 challenges facing, 604
 examples, 603–604, 605
 guidelines, 606–607
 healthful foods, categories of, 604
- Nevada
 pharmacy practice legislation, 272
 regulations governing prescribing, 191
- New business developer, professional opportunities as, 502
- New England Cochrane Center, 185
- New Mexico
 pharmacy practice legislation, 272
 regulations governing prescribing, 191
- Nicotine addiction, *Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youths*, 481
- Nifedipine, cytochrome P450, 247
- NIH. *See* National Institutes of Health
- Nimodipine, 587
- NISPC. *See* National Institute for Standards in Pharmacist Credentialing
- Nitrates, drug reaction, 27
- Nitrites, adverse drug reaction, 29
- Nitrofurantoin, adverse drug reaction, 29
- No Time to Lose: Getting More from HIV Prevention*, 481
- Nonadherence in pharmaceutical care
 assessing, 12–13
 direct methods, 12
 indirect methods, 12–13
 as behavioral disorder, 11
 children, 17–18
 chronic diseases, 18–19
 community resources, 17
 cultural differences and, 17
 defined, 10–11
 ElderCare Patient Education Series, 15
 elderly, 15–16
 cognitive limitations, 15
 limited access to or affordability of health care services, 15
 physical impairments, 15
 polypharmacy, 15
 risk factors for nonadherence, 15
 ethnic minorities, 16–17
 factors affecting, 13
 fear tactics, 14
 follow-up, 14
 hypertension, 18–19
 implement reward system, 14
 informed medication consumer, patient as, 14
 low-literacy patients, 16
 National Council on Patient Information and Education, 15
 patient goals, 14
 patient-centered adherence paradigm, 11
 patient-focused interventions for, designing, 13–14
 payment for adherence services, 20
 Pediatric Medication Text, 15
 Peter Lamy Center for Drug Therapy and Aging, 15
 pharmacotherapy, enhancing adherence to, 14–18
 resources for improving, 15
 risk factors for, 11
 scope of problem, 10–11
 self-efficacy, 14
 space considerations, 20
 special populations, 14–18
 type 2 diabetes, 19
- Nonalignment pain, pain management, 640–641
- Nonsteroidal anti-inflammatory drugs
 adverse drug reaction, 27
 clinical pharmacy, economic analysis, 307–321
- Nontraditional Pharm.D., 591–602
 admission requirements for, 592–593, 594
 background information, 591–593
 degree transfer mechanisms, 591
 didactic instructional methods, 594–595
 distance learning, 595
 Doctor of Pharmacy degree programs, 591
 prior learning, assessment of, 595–599
 videotaped lectures, 594–595
 web-based coursework, 595
- Nordic Cochrane Centre, 185
- North American Mycological Association, 775
- North Carolina, pharmacy practice legislation, 272
- North Dakota
 pharmacy practice legislation, 272
 regulations governing prescribing, 191
- Nuremberg Code, 341
- Nursing facility
 diabetes care, 257–258
 Medicaid usage, 516
- Nutraceuticals, categories of, 604
- Nutrients, adverse drug reaction, 30
- Nutrition
 adverse drug reactions and, 28
 status, neurology specialty pharmacy practice, 585
 support, home care, 443
- Nutritionist Pro, software, 360–361
- Nystagmus, 586
- Obstetric patients, home care, 443
- Occupational HIV transmission, risk of, following exposure, 892
- Octreotide, 870
- Ocular disease, drug reactions and, 27
- Oddis, Joseph A., 609–610
 accomplishments, 609–610
 education, 609
 influence on clinical pharmacy practice, 610
 positions, 609
 professional involvement, 609
 training, 609
- Office of Secretary of Health and Human Services, 254
- Ohio, pharmacy practice legislation, 272
- Omeprazole, cytochrome P450, 247
- Omniceil, 456
 automated delivery, 456
- OmniSYS, software, 216, 218
- Oncolink, 643
- Oncology, 611–626
 anticancer therapy, outcomes related to, 618
 chemotherapy order verification, 612
 clinical pharmacy opportunities, 611–614
 clinical research, 617–618
 documented benefits, 618–620
 drug administration policies, 613
 drug handling, 612–613
 drug information, 614, 617
 education, 614
 fellowships in, 357
 gene therapy clinical trials, 375
 guidelines, 620–622
 home care, 442
 inpatient care practice roles, 615–616
 investigational drug use, 617

- Oncology (*cont.*)
 medication order review, 612
 model clinical practices, 614–618
 outpatient care practice roles, 616–617
 patient care problems, 613
 patient care services, 620
 patient education, 613
 patient monitoring, 613–614
 practice guideline development, 618–619
 reimbursement, 620
 resources for, 620–623
 roles, 612
 specialist interventions, 619–620
 summary of interventions, 619
 transitional patient care practice roles, 616
- Ondansetron, unlabeled indications, drug use for, 551
- Open Society Institute, Project Death in America, 450
- Ophthalmic administration, pediatric dosing, 675
- Opiates, 588
- Opportunistic disease, with AIDS, 442
- Opportunities, networking. *See* Networking opportunities
- OPUS Core Corporation, software, 216, 218
- Oral administration, tablet, capsule, 86
- Oral anticoagulants, drug reaction, 27
- Oral cavity, drug absorption in, 90
- Oral contraceptives, drug reaction, 27
- Oral drug absorption, 88–92
 blood perfusion, gastrointestinal tract, 89–91
 food, effect of, 91–92
 gastric emptying time, 89
 gastrointestinal motility, 89
 intestinal motility, 89
 physiologic considerations, 88–92
 rate-limiting, 84
- Orange Book. *See* *Approved Drug Products with Therapeutic Equivalence Evaluations*
- Oregon
 pharmacy practice legislation, 272
 regulations governing prescribing, 191
- Organ transplant
 pharmacy practice, 869–875
 solid, Medicare Benefits and Improvement Act of 2000, 530
- Organization of care group, Cochrane collaborative, 183
- Organizational structure, Academy of Managed Care Pharmacy, 6
- Orphan Drug Law, 627–634
- Orphan drugs, 627–634
 approved, 632
 current status of, 631–632
- Orthostatic hypotension, 585, 588
- Otic administration, pediatric dosing, 675
- Outcomes, pharmaceutical, 702–706
- Outcomes research, fellowships in, 357
- Outcomes Research, International Society for Pharmacoeconomics and, 488–489
- Outcomes researcher, professional opportunities, 502
- Outpatient cardiology, 121–123
- Outpatient pharmacist, professional opportunities, 503
- Outpatient practice, infectious diseases, 470
- Ovarian cancer, gene therapy trials, 374
- Oversight bodies, U.S. pharmacy, 225
- Oxford Textbook of Palliative Medicine, 450
- Oxidation drugs, 25
- PACE programs, managed care, clinical pharmacy careers in, 504
- Package labeling, medical information, industry-based, 525–526
- Pain, 450
- Pain management, 635–646. *See also* Palliative care
 acute pain services, 637–639
 barriers to pain control, 636
 chronic pain services, 639–641
 elderly, 641
 malignant pain, 639–640
 neuropathic pain management, 641–642
 nonalignment pain, 640–641
 nonpharmacologic measures, 637
 organizations for, 642–643
 pain assessment, 637
 patient assistance programs, 642
 types of pain, 636–637
- Pain Net, 643
- Palliative care, 447–452
 computer links, 450
 documentation, from care providers, 452
 home care, 442
 Hospice Foundation of America, 450
 Hospice Hands, web site, 450
 marketing pharmaceutical care, 451–452
 National Hospice and Palliative Care Organization, 450
- Open Society Institute, Project Death in America, 450
- Palliative Medicine Program, 450
- professional opportunities, 449
- Purdue Pharma Pain and Palliative Care Information, 450
- resources, 450
- Palliative Medicine Program, 450
- Palsy, 586
- Pancreatic diseases group, Cochrane collaborative, 184
- Paralytic poliomyelitis, 712
- Parenteral nutrition, 458
- Parkinson's disease, 585, 586, 588, 754
- Pharmacist prescribing, 718–723
 evolving role of pharmacist, 718
 liability, 719–721
 policy issues, 721–722
 prescriptive authority, 718–719
- Particle size, absorption and, 94
- Passive diffusion, molecules, 87
- Patient, physician, pharmacist, relationship among, 331
- Patient compliance, barriers to, 287
- Patient data records, drug history, 284
- Patient database, home care, 436
- Patient drug history, 284–289
 acute, chronic medical problems, 287–289
 compliance, barriers to, 287
 components of, 286–287
 data collection forms, 289
 financial/insurance information, 286
 home monitoring, 287
 immunizations, 287
 interviewing patient, 285–286
 communication, 285
 setting, 285
 special patient populations, 285–286
 language barriers, 286
 medication allergies, 286–287
 medications, 287
 patient data records, 284
 pharmacist-conducted, rationale, 284
 social history, 287
 sources of patient data, 285
 caregiver/family member, 285
 healthcare providers, 285
 medical records, 285
 patients, 285
 pharmacy dispensing records, 285
 types of data, 284–285
 objective data, 285
 subjective data, 284–285
 vs. patient medical history, 284
- Patient education, hyperlipidemia, 466
- Patient education/counseling, 647–650
 communication skills, 649–650
 compliance, counseling for, 650
 interactive patient counseling, 649
 medication counseling, 647–650
 skills, 648–649
- Patient history, drug history, 284
- Patient history form, 288
- Patient satisfaction, 651–655
 tools to measure, 653
- Patient-centered medication adherence paradigm, 11
- Patient-focused interventions for adherence in pharmaceutical care, designing, 13–14
- PDQ. *See* *Physician Data Query*
- PDQ-NCI's Comprehensive Cancer Database, 621
- PDX-NHIN, software, 216, 218
- PECS. *See* Pharmacy Electronic Communications Standard
- Pediatric Medication Text, 15
- Pediatric pharmacy, 679–684
 documenting benefit, 680
 dosing handbooks, 681–682
 journals, 682
 pediatric pharmacy resources, 680–682
 practice models, 679–680
 professional organizations, 682–683
 reference texts, 680–681
 web sites, 682
 websites, 683
- Pediatrics, 656–678
 absorption
 absorptive surface area, 658

- Pediatrics (*cont.*)
- endotracheal, 661
 - enzyme activity, 658
 - gastric emptying, 658
 - gastric pH, 658
 - intramuscular, 658–659
 - intraosseous, 659
 - percutaneous, transdermal, 659–660
 - rectal, 661
 - subcutaneous, 659
 - administration techniques, 672–673
 - adverse drug reactions, 26
 - adverse drug reactions and, 25, 26
 - body composition, differences in, 661–662
 - central nervous system, drug penetration into, 662
 - density, 668
 - developmental physiologic changes, 657–658
 - disposable IV equipment, 667–668
 - dosage forms, 670–671
 - dosing regimens
 - drug administration, mechanical system for, 669–670
 - excipients, in medications, 664–666
 - extemporaneous liquid preparations, 671
 - fellowships in, 357
 - frequency, duration of drug administration, 669
 - hepatic metabolism, 662–663
 - historical background, 656–657
 - inhalers, 675
 - intramuscular administration, 673–674
 - intravenous administration, 666–670
 - types of, 669–670
 - manual administration, 669
 - metabolism, 662–663
 - nasal administration, 675
 - ophthalmic administration, 675
 - oral absorption, 658
 - oral liquids, 670–671, 672
 - oral medications, 670–673
 - oral solid dosage forms, 672–673
 - osmolality, 668
 - otic administration, 675
 - patient age, 660
 - percutaneous administration, 674
 - pharmacokinetics, 657–663
 - product selection, 671–672
 - protein binding, 662
 - rectal administration, 674
 - renal elimination, 663
 - subcutaneous administration, 674
 - sustained-release preparations, 671–672
 - therapeutic drug monitoring, 663–664
 - sample size, 664
 - serum drug concentrations, 663–664
 - technical factors, 664
 - tissue binding, 662
 - transdermal drug-delivery systems, 660–661
- Pentamidine, AIDS, 442
- Peptic ulcer, drug reactions and, 27
- Peptic ulcer disease, 754, 815
- Peripheral neuropathy, 585, 588
- Permeability class, bioavailability and, 100
- Personal interviews, ethical issues, 878–879
- Peter Lamy Center for Drug Therapy and Aging, 15
- Pew Health Professions Commission reports, 685–687
 - pharmacy, 686–687
 - reports, 685–686
- Pharmaceutical Abstracts, International*, (American Society of Health-System Pharmacists), 487
- Pharmaceutical Benefits Scheme (Australia), subsidies, 689–690
- Pharmaceutical care, 692–697
 - collaborative partnerships, 693
 - compensation, 695–696
 - follow-up evaluation, 694–695
 - as generalist practice, 693
 - history of landmark developments, 692
 - measuring outcomes, 695
 - patient assessment, 693–694
 - patient care process, 693–695
 - pharmaceutical care plan, 694
 - Pharmacist's Workup of Drug Therapy*, 693
 - philosophy of, 693
 - practice management system, 695
- Pharmaceutical Care Spain Foundation, 698–700
- Pharmaceutical company-sponsored, medication assistance programs, 531–532
 - enrollment, 531–532
 - ethical issues, 532
 - information frequently requested, 532
 - internet sites, 531
 - medication, 532
 - pharmacists' role, 532
- Pharmaceutical outcomes, 702–706
 - databases for, 703–704
 - ethics, 704
 - limitations of evaluating, 703
 - organizations, 704–705
 - performance measures, 702
 - resources, 704–705
 - textbooks, 704
 - web sites, 704–705
- Pharmaciens Sans Frontières, 707–709
 - funding, 708
 - goal, 707
 - history, 707–708
 - human resources, 708–709
 - meeting, 709
 - missions, 708
 - objectives, 707
- Pharmacist, physician, patient, relationship among, 331
- Pharmacists without Borders, 707–709
- Pharmacist's Workup of Drug Therapy*, 693
- Pharmacoeconomics, fellowships in, 357
- Pharmacoeconomics and Outcomes Research, International Society for, 488–489
- Pharmacoepidemiology, fellowships in, 357
- Pharmacokinetics, fellowships in, 357
- Pharmacokinetics, Pharmacodynamics and Drug Metabolism Section, American Association of Pharmaceutical Scientists, 166
- Pharmacokinetics and Drug Interactions in Elderly and Special Issues in Elderly African-American Populations*, 481
- Pharmacokinetics and Drug Metabolism Section, American Society for Clinical Pharmacology and Therapeutics, 166–167
- Pharmacokinetics/Dynamics Practice Research Network, American College of Clinical Pharmacy, 166
- Pharmacopeia, United States, 886–890
- Pharmacotherapy: Journal of Human Pharmacology and Drug Therapy*, 724–725
- Pharmacotherapy Self-Assessment Program* (American Association of Colleges of Pharmacy), 726–727
- Pharmacotherapy specialty practice, 732–735
 - functions, 732–733
 - guidelines, 728–731
 - qualifications, 733
 - supplemental information, 734
 - value, 733–734
- Pharmacovigilance, vs. risk of treatment, 736–740
 - clinical development, 737–738
 - international organizations, 737
 - postmarketing environment, 738–739
 - regulatory environment, 736–737
 - risk-benefit assessment, 739
- Pharmacy curricula, design of, 555–556
- Pharmacy Electronic Communications Standard/National e-Claims Standard Initiative, 113
- Pharmacy technician, defined, 231
- Pharmacy Technician Certification Board, 232
- Pharm.D. *See* Doctor of Pharmacy
- Pharmex, software, 216, 218
- PharmWeb, 775
- Phenelzine, adverse drug response, 29
- Phenobarbital, 870
 - adverse drug response, 29
 - pediatric pharmacokinetic data, 665
- Phenothiazines, drug reaction, 27
- Phenytoin, 870
 - adverse drug reactions, 29, 30
 - as cytochrome P450 inducer, 247
 - pediatric pharmacokinetic data, 665
- Physical impairments, in elderly, adherence to medical care and, 15
- Physician Data Query*, 450
- Physicians
 - Medicaid usage, 516
 - pharmacist, patient, relationship among, 331
- Physician's GenRX Drug Compendium Program, 775
- Placebo effects, 752–756
 - Declaration of Helsinki, 755
 - in diseases, 753–754
 - factors affecting, 754–755
 - misconceptions, 755
 - use of placebos in clinical practice, 755

- Plantox, 775
- Plasma pseudocholinesterase, drug reaction, 29
- Plasmapheresis, 587
- Pneumocystis carinii*, with AIDS, 442
- Pneumonia
with AIDS, 442
as cause of death, 404
- Point-of-care software, 220
- Poison information, 757–778
American Academy of Clinical Toxicology, 761–762
American Association of Poison Control Centers, 761
analytical toxicology, 773
Certified Regional Poison Information Center, 762
clinical toxicology organizations, 761–762
European Association of Poisons Centres and Clinical Toxicologists, 762
information resources, 760–761
poison center, 760
Poisoning Information, Karolinska Institute, 774
Poisonous Plant Database, 775
Poisonous Plant Guide, 775
Poisonous Plants Web Page, Cornell University, 775
- Poliovirus, 712
- Polymer Technology Systems, Inc., 141
- Polymorphic crystals, absorption, 94–95
- Polypharmacy, in elderly, 15
- Polysorbates, excipient in drug, 95
- Polyvinyl pyrrolidone, excipient in drug, 95
- Postapproval changes, 101
- Post-exposure prophylaxis, HIV, 891–898
Antiretroviral Pregnancy Registry UCSF On-Line information, 896
Centers for Disease Control, 896
definitions, 891
Food and Drug Administration, 896
HIV/AIDS Treatment Information Service, 896
Indinavir, 895
Lamivudine, 895
National Clinicians' Postexposure Hotline, 896
National HIV/AIDS Clinician's Consultation Center, 896
Nelfinavir, 895
post-exposure prophylaxis for HIV, 892–894
rationale for, 891–892
regimens, prophylaxis, 895
therapy, 894–896
transmission risk, 892
Zidovudine, 895
- Post-marketing surveillance, 785–790
Food and Drug Administration, 785–786
future direction of, 789
justification of need, 785
weaknesses, strengths of current system, 788–789
- Potassium, drug reaction with, 30
- Practice agreements, collaborative, 199–206
- Practice Guidelines Initiative, 621
- Preadmission criteria, home care, 436
- Prednisolone, 870
- Preparing Drug Information Response*, 293
- Prescription drug benefit administrators, diabetes care, 258
- Prescriptions for Health: Lowy Report*, 791–793
- Preventive medicine, 794–800
- Primaquine, adverse drug reaction, 29
- Primary care, 39–42, 801–817
degrees, 40
job activities, 39–40
long-term opportunities, 40–41
salary range, 40
site description, 41
training, 40
work settings, 39–40
- Primidone, 870
- Principal investigator, clinical pharmacist as, 144–153
American College of Clinical Pharmacy, clinical pharmacist evaluation, 154–160
assessment methods, 154–159
budget, 151
current industry, 145–148
FDA policies, 148–149
FDA regulations, 148–149
history, 144–145
publication rights, 151–152
qualifications, 152–153
access to patients, 153
audits, 153
command of research process, 152
experience, 152
human resources, 152
local leadership, 153
local resources, 152
responsibilities of, 149–150
template, 154, 155–159
- Principles and Practice of Biologic Therapy of Cancer*, 622
- Principles and Practice of Gynecologic Oncology*, 622
- Principles and Practice of Infectious Diseases*, 473
- Principles and Practice of Supportive Oncology*, 450, 622
- Principles of Scientific Literature Evaluation: Critiquing Clinical Drug Trials*, 293
- Privacy
ethical issues, 878–879
software, 222
- Privacy legislation, 113
- Privileging, defined, 231
- Probenecid, adverse drug reaction, 29
- Procainamide, adverse drug response, 29
- Product design, 82–84
biopharmaceutic considerations in, 83
- Professional associations, 818–821
- Proficiency testing, Clinical Laboratory Improvement Amendments of 1988, 142
- Program in Evidence-Based Care and Cancer Care Ontario, 621
- Program Support Center, Department of Health and Human Services, 254–255
- Project Death in America, Open Society Institute, 450
- Propylene glycol, excipient in drug, 95
- Prostate, and breast cancer, gene therapy trials, 374
- Prostatic cancers group, Cochrane collaborative, 184
- Protocol, clinical evaluation, drugs, 133–134
- Pseudocholinesterase, drug reaction, 29
- Psychiatric pharmacy specialty practice, 822–826
benefits of specialty practice, 824
international, 825
model practice settings, 823–824
networking, 824
tools, 824
- Psychiatry, fellowships in, 357
- Psychological exam, neurology specialty pharmacy practice, 585
- Psychometric theory, health status assessment, 417–418
- PTCB. *See* Pharmacy Technician Certification Board
- Ptois, 586
- PTS. *See* Polymer Technology Systems
- PTS Bioscanner, 141
- Publication rights, principal investigator, clinical pharmacist as, 151–152
- Publications committee, medical information, industry-based, 528
- PubMed, 582, 773
vs. Internet Grateful Med, 582
- PubMed Central, 582
- Pulmonary, fellowships in, 357
- Pulmonary diseases, as cause of death, 404
- Pulmonary system, neurology specialty pharmacy practice, 585
- Purdue Pharma Pain and Palliative Care Information, 450
- Pyxis, 456
automated delivery, 456
- QS/1 Data Systems, software, 216, 218
- Quality assurance
Clinical Laboratory Improvement Amendments of 1988, 142
clinical pharmacy practice, 827–835
Quality Assurance, National Committee for, 564–567
2000 NCQA Board of Directors, 566
accreditation, certification programs, 565–566
accreditation survey, 564–565
accreditation survey standards, classification of, 565
antidepressant medication management, 565
beta blocker treatment, after heart attack, 565
breast cancer screening, 565
cervical cancer screening, 565
comprehensive diabetes care, 565
effectiveness of care measures, examples of, 565

- Quality Assurance, National Committee for
(*cont.*)
flu shots, for older adults, 565
HEDIS, 565
high blood pressure, controlling, 565
NCQA contact information, 566
NCQA information, 566
NCQA/HEDIS, pharmacy practice, 566
quality compass, state of managed care
quality report, 566
- Quality initiatives manager, professional
opportunities, 502
- Quality of healthcare, 411
- Quinidine
adverse drug reaction, 29
as cytochrome P450 inhibitor, 247
drug reaction, 27
- Quinine
adverse drug reaction, 29
drug reaction, 27
- Rapid acetylator, drug reaction, 29
- Rectal administration, pediatric dosing, 674
- Rectum, drug absorption in, 91
- Rectum disease, gene therapy, 376
- Refampin, 870
- Registered, defined, 231
- Regulations governing pharmacist prescribing,
190–191
- Regulatory environment, pharmacovigilance,
736–737
- Reimbursement, disease management, 269–271
- Renal disease
adverse drug reactions and, 26
cell cancer, gene therapy trials, 374
gene therapy, 376
- Renal elimination, pediatric dosing, 663
- Renal excretion, drugs, 25
- Renal group, Cochrane collaborative, 184
- Renal system, neurology specialty pharmacy
practice, 585
- Reporting systems, adverse drug reactions,
28–32
- Reproductive system, neurology specialty
pharmacy practice, 585
- Reprotox, 774
- Republic of South Africa, health care systems,
390–391
- Rescot Systems Group, software, 216, 218
- Research
health services, 408–414
access to healthcare, 411
clinical evaluation, 411–412
consumer behavior, 412
data sources, 409
definition of, 408–409
financing of healthcare, 410–411
health policy, relationship between,
409–410
informatics, 412
quality of care, 411
role of pharmacy profession in, 410–412
study setting, 408
subject selection, 408–409
work force, 412
research policy, careers options, clinical
pharmacy scientist, 179
- Research ethics, scientist, clinical pharmacy,
178–179
- Residencies, 837–842
accreditation, 838
evolution of, 838–840
information on, 840–841
prerequisites for training, 840
resident matching program, 841
types of, 837–838
- Residency, defined, 231
- Resistance
pathways for, 59
variables involved in, 59
- Respiratory disease, drug reactions and, 27
- Respiratory infection group, Cochrane
collaborative, 183
- Respiratory insufficiency, drug reactions and, 27
- Retail Mgmt. Products, software, 216, 218
- Retail network manager, professional
opportunities, 502
- Retrovirus, viral transfer techniques, 368
- Reward system, in adherence in pharmaceutical
care, 14
- Rheumatic disease, drug reactions and, 27
- Rheumatoid arthritis, gene therapy, 376
- Rheumatology, fellowships in, 357
- Rhode Island, pharmacy practice legislation,
272
- Rifampin, as cytochrome P450 inducer, 247
- Riluzole, 588
- Risk factors for nonadherence in pharmaceutical
care, 11
- RMS, software, 216, 218
- RNA, software, 216, 218
- Robert Wood Johnson Foundation, 643
- Roche Diagnostics, 141
- RRIS. *See* FEMA Rapid Response Information
System
- Rx InHand, software, 360
- Rx30, software, 216, 218
- RxList Internet Drug Name Category Cross
Index, 775
- Rx-Net, Inc., software, 216, 218
- RxWeb, software, 360
- Safe Medication Practices, Institute for,
476–477
mission, 476
objectives, 476–477
analysis-based ISMP initiatives, 476
communication-based ISMP initiatives, 477
cooperation-based ISMP initiatives, 477
education-based ISMP initiatives, 477
knowledge-based ISMP initiatives, 476
- Spain, 478–479
future goals, 479
medication errors reporting program,
478–479
mission, 478
objectives, 478
projects, 479
- Salary range, clinical pharmacy careers, 40
- SAMHSA. *See* Substance Abuse and Mental
Health Services Administration
- San Francisco Cochrane Center, 185
- Sarin nerve gas, 777
- Satisfaction, of patient, 651–655
tools to measure, 653
- Saw palmetto, adverse reaction to, 31
- Schizophrenia, 585, 754
- Schizophrenia group, Cochrane collaborative,
184
- SCIDS. *See* Severe combined
immunodeficiency syndrome
- Scientific integrity, ethical issues, research,
340
- Scientist, clinical pharmacy, 174–180
behavioral development, 178
communication skills, 178
definitions of, 176
literature tracking, evaluation, 177
research ethics, 178–179
scientific thinking, 177–178
skill sets, 177–179
technical proficiency, 178
training, 175–177
- Scope of practice, defined, 231
- Scottish Pharmacists in Mental Health, 825
- Screening methods, adverse drug reactions, 30
- ScripMaster, software, 216, 218
- ScripPro, software, 216, 218
- ScripWorld Pharmaceutical News, 775
- Search method, literature, 303
- Security, software, 222
- Sedation and/or confusion, agents causing, 586
- Seizure disorder, 815
- Seizures, 587
prophylaxis, 587
- Selegiline, 588
- Self-efficacy, nonadherence in pharmaceutical
care and, 14
- Serum drug concentration, clinical pharmacy,
economic analysis, 307–321
- Sesame oil, excipient in drug, 95
- Severe combined immunodeficiency syndrome,
gene therapy, 373
- Shortage, pharmacists, Canada, 113
- Siberian ginseng, adverse reaction to, 31
- Side effects, drug, defined, 23
- SIDP. *See* Society of Infectious Diseases
Pharmacists
- Singapore Ministry of Health, Poison
Information Centre, 775
- Sirolimus, 870
- Skilled nursing facility, clinical pharmacy,
economic analysis, 307–321
- Skin, neurology specialty pharmacy practice,
586
- Skin group, Cochrane collaborative, 184
- Slow acetylator, drug reaction, 29
- Slurred speech, 586
- Smart Solutions, software, 216, 218
- Smoking cessation, 588

- Society of Hospital Pharmacists of Australia, 851–853
 Clinical Pharmacy Practice Guidelines, 170–173
- Society of Infectious Diseases Pharmacists, 474
- Sodium alginate, excipient in drug, 95
- Sodium carboxymethylcellulose, excipient in drug, 95
- Software, 214–222, 456
 associated performance-enhancement tools, 221
 clinical software attributes, 221
 confidentiality, 222
 documentation, 220–221
 Drug Information Framework, 360
 hardware array, 215–220
 InfoWin, 456
 Nutritionist Pro, 360–361
 point-of-care software, 220
 privacy, 222
 recommendations, 222
 Rx InHand, 360
 RxWeb, 360
 security, 222
- Solid drug products, excipients used in, 95
- Solid organ transplant, Medicare Benefits and Improvement Act of 2000, 530
- Solubility
 absorption and, 93
 bioavailability and, 99–100
- Sorbitol, excipient in drug, 95
- Sources of patient data, 285
 caregiver/family member, 285
 healthcare providers, 285
 medical records, 285
 patients, 285
 pharmacy dispensing records, 285
- South African Cochrane Centre, 185
- South Carolina, pharmacy practice legislation, 272
- South Dakota
 pharmacy practice legislation, 272
 regulations governing prescribing, 191
- Spain
 clinical pharmacist in clinical trials, 843–849
 home care pharmacy practice, 439–446
 advantages, 439
 AIDS, 441–443
 antibiotic therapy, cost savings, 441
 classification, 439–440
 community-based, 440
 family environment, 440
 home environment, 440
 hospital-based, 439–440
 infections, 441
 organization, 439–440
 parenteral antibiotics, 441
 patient selection, 440–441
 type of interventions, 441
 web sites, 444
 hospital pharmacy practice, 453–460
 activities conducted in, 454–459
 automated delivery, 456
 central intravenous additive service, 457–458
 computer software, 456
 drug dispensing/distribution, 455–457
 drug information, 458
 drug surveillance, 459
 enteral, parenteral nutrition, 458
 foreign drugs, 457
 future trends, 459
 history of, 453
 management, 455
 manufacture, 457
 medical devices, activities related to, 459
 pharmacoconomics, 459
 radiopharmacy, 459
 research drugs, 457
 stocks in wards, 457
 therapeutic drug monitoring, 458–459
 training program, 454
 transition in, 453–454
- Institute for Safe Medication Practices, 478–479
 future goals, 479
 medication errors reporting program, 478–479
 mission, 478
 objectives, 478
 projects, 479
- Pharmaceutical Care Spain Foundation, 698–700
- policy documents, laws, clinical pharmacy practice, 779–784
- Spanish Society of Hospital Pharmacy, 854–856
 directors of publications, 856
 governing body, 855–856
 permanent board, 856
- Special populations, adherence in
 pharmaceutical care, 14–18
- Specialized Information Services of National Library of Medicine, 773
- Specialty clinics, managed care, clinical pharmacy careers in, 504–505
- Specialty practice
 clinical pharmacokinetics, 161–169
 American Association of Pharmaceutical Scientists
 Pharmacokinetics, Pharmacodynamics and Drug Metabolism Section, 166
 Population Pharmacokinetics and Pharmacodynamics Focus Group, 166
 American College of Clinical Pharmacy, Pharmacokinetics/Dynamics Practice Research Network, 166
 American Society for Clinical Pharmacology and Therapeutics, Pharmacokinetics and Drug Metabolism Section, 166–167
 American Society of Health-System Pharmacists, Supplemental Standard and Learning Objectives for Residency Training, 166
 benefits of, 165–166
 materials useful to, 166
 model clinical practices, 164
 networking opportunities, 166–167
 professional opportunities, 161–164
 pharmacotherapy, 732–735
 functions, 732–733
 qualifications, 733
 supplemental information, 734
 value, 733–734
- Spironolactone, adverse drug reaction, 30
- Spontaneous reporting, in pharmaco-epidemiologic studies, 30–31
- SRS, software, 216, 218
- St. John's wort, adverse reaction to, 31
- Stages in clinical evaluation of drugs, 130–133
- "Standards 2000," American Council on Pharmaceutical Education, 8–9
- Standards in Pharmacist Credentialing, National Institute for, 572–574
 activities, 573–574
 exam registration process, 573
 examination eligibility requirements, 573
 NISPC DSM examinations, 573
 organizational structure/meetings, 572–573
- Starch, excipient in drug, 95
- State Pharmacy Association Executives, National Council of, 496
- State regulations governing pharmacist prescribing, 190–191
- Statement of continuing education credit, defined, 224, 231
- Stearic acid, excipient in drug, 95
- Steroids, 587
- Stimulants, 588
- Stomach, drug absorption in, 90
- Stomatitis, 586
- Stool softeners, 587
- Street drugs, 774
- Stroke, 585, 586
 as cause of death, 404
 risk, 585
- Stroke group, Cochrane collaborative, 184
- Study volunteers, payment to, 337
- Subarachnoid hemorrhage, 587
- Subcutaneous administration, pediatric dosing, 674
- Subfertility group, Cochrane collaborative, 183
- Substance Abuse and Mental Health Services Administration, 253–254
- Succinylcholine
 adverse drug reaction, 29
- Sucrose, excipient in drug, 95
- Sugar-containing drugs, 671
- Suicide, as cause of death, 404
- Sulfadimidine, 870
- Sulfaphenazole, as cytochrome P450 inhibitor, 247
- Sulfasalazine, adverse drug response, 29
- Sulfipyrazone, 870
- Sulfonamides, adverse drug reaction, 29
- Superficial solid tumors, gene therapy trials, 374
- Support services, Medicaid usage, 516
- Suremed, 456
 automated delivery, 456

- Surveillance, post-marketing, 785–790
 Food and Drug Administration, 785–786
 future direction of, 789
 justification of need, 785
 weaknesses, strengths of current system, 788–789
- Sustained-release preparations, 671–672
- SymRx, software, 216, 218
- Tablet, oral administration of, processes following, 86
- Tacrine, 588
- Tacrolimus, 870
- Talc, excipient in drug, 95
- Tears, artificial, 587
- TechRx, software, 216, 218
- TEHIP. *See* Toxicology Environmental Health Information Program
- Telemedicine. National Library of Medicine, 583
- Tenure system, academic clinical pharmacy, changes in, 2
- Tetracycline, adverse drug reactions, 30
- Texas
 pharmacy practice legislation, 272
 regulations governing prescribing, 191
- Theophylline, 93
 adverse drug reaction, 27, 28
 cytochrome P450, 247
 pediatric pharmacokinetic data, 665
- Therapeutic drug monitoring, 458–459
 clinical pharmacy, economic analysis, 307–321
- Therapeutic Guidelines Limited (Australia), 857–859
 additional readings, 859
 current initiatives, 858–859
 history, 857
 major directions, 859
 mission, 858
 objectives, 858
 organizational structure, 857–858
- Therapeutic interchange, 860–863
 formulary system, history of, 860–861
 guidelines, 864–868
 process of, 861–862
- Thiazide diuretics, drug reaction, 27
- Third-party payer issues, 113
- Throat disorders group, Cochrane collaborative, 183
- Thromboembolism, with routine medical care, vs. pharmacist-managed anticoagulation, 65
- Thrombosis, anticoagulation, 64
- Thrush, 586
- Thyroid disorders, 585
- Ticlopidine, 587, 870
- Titanium dioxide, excipient in drug, 95
- TMT, software, 216, 218
- To Err is Human: Building Safer Health Care System*, 480
- Tobacco. *See* also Smoking
 addiction group, Cochrane collaborative, 184
 as cytochrome P450 inducer, 247
- Tobutamidate, cytochrome P450, 247
- Tolazamide, adverse drug reaction, 30
- Toxic reaction to drug, defined, 23
- Toxicology Environmental Health Information Program, 774
- TOXNET, 582
- TOXNET ToxLine, 774
- tPA, 587
- Tragacanth, excipient in drug, 95
- Traineeship, defined, 231
- Training
 in academic clinical pharmacy, 4
 anticoagulation clinical pharmacy practice, 66–67
 long-term care, clinical pharmacy careers in, 499
 National Institutes of Health, 577–578
 scientist, clinical pharmacy, 176
- Transcyclopropamide, adverse drug reaction, 30
- Transition, in academic clinical pharmacy, 1–3
 academicians, evolution of, 3
 higher education, 2
 reward system, changes in, 2
 tenure system, changes in, 2
- Translational research, fellowships in, 357
- Transplantation, organ
 facilities, Medicare-approved, 530
 fellowships in, 357
 Medicare Benefits and Improvement Act of 2000, 530
 pharmacy practice, 869–875
- Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*, 876–881
- Tricyclic antidepressants, 588
 drug reaction, 27
- Triptans, 587, 588
- Twenty-first century, pharmacy in, 749–751
- Two Point Conversions, software, 216, 218
- Type 2 diabetes, nonadherence to medical care in, 19
- Tyramine, drug reaction with, 30
- U.K. Cochrane Centre, 186
- Unapproved indications, medication use for, 550–553
- United Kingdom, health care systems, 392–394
- United Kingdom Clinical Pharmacy Association, 883–885
 business management group, 883–885
 care of elderly, 884
 critical care group, 884
 education, 884
 infection management group, 885
 primary care, 884
 quality assurance group, 884–885
 surgery, 885
- United Kingdom Psychiatric Pharmacy Group, 825
- United States
 causes of death in, 404
 health care systems within, 397–407
 access to health care, 403–405
 future of, 405–406
 health care financing, 401–403
 organization of, 399–400
 trends in, 400–401
- United States Pharmacopeia*, 886–890
 convention membership, 887
 history, 886
 initiatives, 889–890
 dietary supplement verification program, 889
 international, 890
 meetings, 890
 monograph development, 889–890
 priorities, 890
- MedMARx, 889
 mission, 886
 National Formulary, 887–889
 organizational structure, 887
 pharmacopeial forum, 889
 products, 887–889
 reference standards, 889
 standards development, 888
 statutory recognition, 888–889
 strengths, 886
- Universal precautions, HIV, 891–898
- Antiretroviral Pregnancy Registry UCSF
 On-Line information, 896
- Centers for Disease Control, 896
- definitions, 891
 Food and Drug Administration, 896
 HIV/AIDS Treatment Information Service, 896
 indinavir, 895
 lamivudine, 895
 National Clinicians' Postexposure Hotline, 896
 National HIV/AIDS Clinician's Consultation Center, 896
 nelfinavir, 895
 post-exposure prophylaxis for HIV, 892–894
 rationale for, 891–892
 regimens, prophylaxis, 895
 therapy, 894–896
 transmission risk, 892
 Zidovudine, 895
- University hospital, clinical pharmacy, economic analysis, 307–321
- University of Alabama at Birmingham, health outcomes research, 36
- University of North Carolina at Chapel Hill, health outcomes research, 36
- University of Pennsylvania, health outcomes research, 36
- University of Texas Cancer Pain Page, 643
- Unlabeled indications, drug use for, 551
 antineoplastics, 551
 antipsychotics, 551
 HIV, 551
 metoclopramide, 551
 ondansetron, 551
- Upper gastrointestinal, pancreatic diseases group, Cochrane collaborative, 184
- Urinary catheter, 585

- Urinary tract infections, 585
- Urologic cancers group, Cochrane collaborative, 184
- U.S. Armed Services, careers in, 385–386
- U.S. Army Medical Research Institute of Infectious Diseases, 777
- U.S. Army Research Institute of Chemical Defense, 777
- U.S. Army Soldier and Chemical and Biological Defense Command, 777
- U.S. Coast Guard, careers in, 387
- U.S. Public Health Service, careers in, 386–387
- USAMRICD. *See* U.S. Army Research Institute of Chemical Defense
- USAMRIID. *See* U.S. Army Medical Research Institute of Infectious Diseases
- Use evaluation, of medication
- approaches to, 547–548
 - goals of, 546
 - limitations, pitfalls of, 548
 - priority setting, 546–547
 - process, 547
 - role of pharmacist, 546
 - scope, 546
 - tools, resources, 548
 - value of, 548
- Use of Antibiotics*, 473
- Utah, pharmacy practice legislation, 272
- Utilization management, managed care, clinical pharmacy careers in, 504
- Utilization/case manager, professional opportunities, 502
- Vaccination programs, pharmacist-managed, 710–717
- benefits of, 710–711
 - certificate programs, 710
 - immunization opportunities, 711–712
 - model pharmacist-managed practices, 712–716
 - networks, 716
 - resources for vaccine information, 716
- Vaccine Injury Act, Childhood, 559–563
- adverse events, vaccine, 559
 - childhood diseases, vaccination against, 559
 - documentation, 561
 - historical advancements, 559
 - immunization practice, pharmacy-based, 561
 - liability, 561
 - manufacturer liability, 559–560
 - National Vaccine Injury Compensation Program, 560–561
 - protection under NCVIA, 561
 - reporting, 561
 - Vaccine Injury Act of 1986, 560–561
 - vaccine injury table, 560
- Valerian, adverse reaction to, 31
- Valproic acid, 585
- pediatric pharmacokinetic data, 665
- Vanderbilt University, health outcomes research, 36
- Varicella, 712
- Varivax, 712
- Vascular endothelial growth factor, gene therapy, 375
- Vasoconstrictors, drug reaction, 27
- Vectors, gene therapy, 368–371
- adenoviral vectors, 369–370
 - plasmid-based vectors, 371
 - retroviral vectors, 368–369
- Veegum, excipient in drug, 95
- VEGF. *See* Vascular endothelial growth factor
- Ventricular drainage, 587
- Ventrogluteal intramuscular injection, von Hochstetter technique, 674
- Verapamil, cytochrome P450, 247
- Vermont, pharmacy practice legislation, 272
- Vertebrobasilar insufficiency, 587
- Vertigo
- medication induced, 586
- Viral transfer techniques, compared, 368
- Virginia, pharmacy practice legislation, 272
- Visible Human Project, 774
- Vision group, Cochrane collaborative, 183
- Vision statement, Academy of Managed Care Pharmacy, 6–7
- Vitamin B12 deficiency, 585
- Vitamin K, drug reaction with, 30
- Voice-Tech, software, 216, 218
- Volume expansion, 587
- Von Hochstetter technique, ventrogluteal intramuscular injection, 674
- Walton, Charles, 899–901
- Warfarin, 587
- adverse drug reactions, 30
 - cytochrome P450, 247
- Washington
- pharmacy practice legislation, 272
 - regulations governing prescribing, 191
- Weaver, Lawrence, 902–903
- WHO Communicable Disease Surveillance and Response, 777
- William's Hematology*, 622
- Wisconsin, pharmacy practice legislation, 272
- Wisconsin Cancer Pain Initiative, 643
- Work force, health services research, 412
- Work settings, clinical pharmacy careers, 39–40
- World Health Organization, 904–907
- Cancer Pain Release, 643
 - Essential Drug List, 908–909
 - functions, 905–907
 - history, 904
 - missions, 904–905
 - normative, harmonization functions, 905
 - operational activities, 905–907
 - communicable diseases, 905
 - emergency, humanitarian action, 905–907
 - health research, 907
 - noncommunicable diseases, 905
 - in pharmaceutical sector, 907
- World Medical Association, Declaration of Helsinki, 341–342
- Wounds group, Cochrane collaborative, 184
- Wyoming, pharmacy practice legislation, 272
- Xanthan gum, excipient in drug, 95
- X-ray, Medicaid usage, 516
- Zidovudine, 895

about the book . . .

This reference presents the latest procedures, practice guidelines, consensus documents, technological strategies, and regulatory standards for optimal pharmaceutical care—offering summaries for practical applications in a variety of clinical settings, including community and health-system pharmacies, clinics, hospice and long-term care facilities, government agencies, and pharmaceutical research and development organizations.

Providing ready access to primary literature, hard-to-find research, and consensus results, the *Encyclopedia of Clinical Pharmacy* discusses health service delivery models...biomedical science topics, such as gene therapy...best practices documents...pharmaceutical software development...legal controversies, ethical issues, and court rulings...drug dosing and electronic prescription...postmarketing surveillance...generic equivalency...quality management procedures...and educational and training programs.

about the editor . . .

JOSEPH T. DIPIRO is Assistant Dean and PANOZ Professor, University of Georgia College of Pharmacy, Athens, and Clinical Professor of Surgery, Medical College of Georgia, Augusta. The author, coauthor, or editor of numerous journal articles, book chapters, and books, he serves on the editorial boards of the journals *Pharmacotherapy*, *American Surgeon*, and *Medscape Pharmacotherapy*. A Fellow of the American College of Clinical Pharmacy and a member of the American Society of Health-System Pharmacists and the American Society for Microbiology, among other organizations, he received the B.S. degree (1978) in pharmacy from the University of Connecticut, Storrs, and the Pharm.D. degree (1981) from the University of Kentucky, Lexington.

Printed in the United States of America

DK7524



Taylor & Francis

Taylor & Francis Group

www.taylorandfrancisgroup.com

270 Madison Avenue
New York, NY 10016
2 Park Square, Milton Park
Abingdon, Oxon OX14 4RN, UK

ISBN 0-8247-0752-4

9 0000



9 780824 707521