Index

A

AAI. See Ankle-arm index (AAI)
Abdominal aortic aneurysm, 396–397
  conclusions, 5t, 27, 397, 407
  epidemiologic evidence, 396, 398t–407t
  evidence synthesis, 397
  implications, 397
Abortion, spontaneous. See Spontaneous abortion
Absenteeism, 615, 626–646, 638t–645t, 648t–653t
Absolute measures, versus relative, 884
Acquired immunodeficiency syndrome (AIDS). See HIV infection
ACS. See American Cancer Society (ACS)
Acute leukemia, 26, 252–254, 905
  biologic basis, 252–253
  conclusions, 4t, 26, 254, 325
  epidemiologic evidence, 253–254, 258t–295t
  implications, 254
  mortality rate, 253
Acute respiratory diseases, 423–463. See also specific disease
  biologic basis, 424–428
  classification of, 423
  conclusions, 27, 424, 447, 508
  with COPD, 447–463
    conclusions, 462
    epidemiologic evidence, 447–462, 450t–454t
    evidence synthesis, 462
    implications, 462–463
  immune response markers in, 425, 426t–428t, 427
  mortality rate, 424
  without COPD, 428–447
    epidemiologic evidence, 428–444, 429t–431t
    evidence synthesis, 444–445
    implications, 447, 448t
Adenocarcinoma
  colorectal, 210, 211
  esophageal, 116, 117, 118, 119, 122t–127t, 130t–133t, 181, 324
  gastric, 180, 181
  kidney, 166
  lung, 43, 48, 59–61, 324
  pancreatic, 136
Adenomas, colorectal, 210–213, 216t–227t
Adolescence
  asthma in (See Asthma)
  chronic respiratory symptoms in, 6t, 27–28, 485–488
    evidence synthesis, 464t, 485–486
  lung function in, 6t, 27–28, 473–474
  smoking prevalence rates, 215, 859, 859t, 897–898
  smoking reduction efforts, 871, 872, 872t
Advertising, cigarette, 899
African Americans
  breast cancer, 308
  cerebrovascular disease, 395
  esophageal cancer, 116
  lung cancer, 60f
  oropharyngeal cancer, 63
  prostate cancer, 250
Age at onset of smoking
  and breast cancer, 303, 306–307
  and colorectal cancer, 213, 244t–249t
  and infertility, 535
  and lung cancer, 44
Age distribution. See also Child(ren); Elderly population
  absenteeism, 637, 646
  atherosclerosis, 372–373
  bone mass, 698–699 (See also Bone mineral density (BMD))
  cerebrovascular disease, 393–394
  COPD, 499
  coronary heart disease, 384–385
  dental disease, 738
  erectile dysfunction, 767
  fracture risk, 717–718, 717f
  leukemia, 252
  lung cancer, 58t, 60f
  lung function decline, 474, 480–481, 481f
  medical services utilization, 647, 652–653
  prostate cancer, 250
  smoking attributable mortality, 863, 880, 881t, 882
  former smokers, 874, 882
  smoking prevalence rates, 872–873, 872t–873t, 876
Age-related macular degeneration (AMD), 777, 780–781, 786–788
  biologic basis, 781
  conclusions, 29, 788
  epidemiologic evidence, 786–787, 790t–795t
  evidence synthesis, 787–788
  implications, 788
AIDS. See HIV infection
Airflow limitation, chronic, 469
Airflow obstruction, in COPD, 498
Alabama, medical care costs study in, 647
Alcohol consumption
  absenteeism, 636–637
  breast cancer, 306–307
  colorectal cancer, 214

Note: t following a number refers to a Table; f following a number refers to a Figure.
esophageal cancer, 116, 119, 134t–135t
laryngeal cancer, 62, 80t–87t, 324
liver cancer, 296–297
oropharyngeal cancer, 63–64, 66, 67, 110t–115t, 882–884
pancreatic cancer, 137
stomach cancer, 181
Alpha1-antitrypsin deficiency, 672
AMD. See Age-related macular degeneration (AMD)
American Cancer Society (ACS), 881t
cancer prevention studies (See Cancer Prevention Study I (CPS-I); Cancer Prevention Study II (CPS-II))
American Legacy Foundation, 863, 869
Analogy, 22
Androgen receptors, 250
Aneurysm, abdominal aortic. See Abdominal aortic aneurysm
Angina pectoris, 384
Animal studies
atherosclerosis, 365–366, 368, 370
bladder and kidney cancer, 166
breast cancer, 304
colorectal cancer, 211
erectile dysfunction, 768, 775–776, 775t
esophageal cancer, 118–119
leukemia, 252–254
macular degeneration, 787
oropharyngeal cancer, 64, 65, 67
oxidative stress, 619
pancreatic cancer, 136
reproductive effects, 534, 563, 564
respiratory diseases, 424–425, 444
stomach cancer, 181
Ankle-arm index (AAI), 372–373, 372t, 379, 380t–381t
Anthropometric characteristics, and lung function decline, 479, 483, 484t
Antibiotics
for acute bronchitis, 460–462
for COPD exacerbations, 451–452, 453–455, 456t–461t, 458t–461t, 460, 462
for H. pylori infection, 181, 183
Antioxidants
and cataractogenesis, 778
depletion of, 619
Antiproteases, 472–473
Antithrombin III, 368
Aortic aneurysm, abdominal. See Abdominal aortic aneurysm
APC gene, 180, 210
L-arginine, 366
Arizona
infant lung development study in, 468
lung function decline study in, 474, 479
tobacco control program, 875
Arrhythmias, 387
Asbestos exposure, 465t
Association
relative versus absolute measures of, 884
strength of, 21
Asthma, 462–463, 486–487, 490–491, 498
in childhood, 486–487
and lung function decline, 27–28, 478
Atherogenesis, 364–369, 365f
stages of, 371–373, 384
Atherosclerosis. See also Coronary heart disease and abdominal aortic aneurysm, 396–397
biological markers of, 366–368, 372–373, 372t, 378–379, 382t–385t
conclusions, 5t, 26
coronary, 373, 378–379
inflammatory response in, 368, 370
subclinical (See Subclinical atherosclerosis) and sudden cardiac death, 387
symptoms of, 371
Atherosclerosis Risk in Communities (ARIC) Study, 372
Attributable risk, 3, 19. See also Population-attributable risk (PAR)
Australia
absenteeism studies in, 627
brain cancer studies in, 302
infant lung development study in, 468
ovarian cancer study in, 171
peptic ulcer disease study in, 805
sudden cardiac death study in, 387
B
“Back to Sleep” campaign, 584
Bacterial infection, dental diseases caused by, 733–734, 736
B2-adrenergic receptor gene, 697
Bank of America study, 662
Barrett’s esophagus, 117, 181
Bcl-2 gene, 180
Behavioral Risk Factor Surveillance System (BRFSS), 863, 885
Benzo(a)pyrene, 210, 211, 616
Best Practices for Comprehensive Tobacco Control Programs (CDC), 899
Betel, 63, 67
Bias
in cataract studies, 779
in peptic ulcer disease studies, 807
Bicarbonate, 805
Biological markers. See also specific marker or disease
bone mass loss, 698–699
breast cancer, 304, 308, 312
cancer, 39
lung, 44–47, 49
and cigarette type, 51
esophageal cancer, 117
inflammatory, 368, 370, 626, 634t–637t
lung function decline, 479–480
macular degeneration, 786
oralpharyngeal cancer, 65
oxidative injury, 619, 620t–625t
respiratory infections, 425, 426t–428t, 427
thrombosis, 367–368
Biologic basis. See also specific disease or condition
and causal inference, 20, 22, 899–900
Biologic gradient, 22. See also Dose-response relationship
Birth weight
low (See Low birth weight (LBW); Very low birth
weight (VLBW))
and smoking during pregnancy, 469, 1395, 1404–1405, 1414–1415
Bladder cancer, 166–167, 905
conclusions, 4t, 26, 39, 40t, 166–167, 324
Blindness. See Age-related macular degeneration (AMD);
Glaucma
Blood pressure, 369–370
high (See Hypertension)
measurement of (See Ankle-arm index (AAI))
Blood rheology, increased, 369–371
Body mass
and breast cancer, 306–307
and lung function decline, 479, 483, 484f
Bogalusa Heart Study, 378–379, 396
Bone cancer. See also specific type
conclusions, 39
Bone mineral density (BMD), 698, 909
loss of, 698–717, 818
age-related, 699
biologic basis, 698–699
conclusions, 8t, 29, 698, 715–716
epidemiologic evidence, 699, 700t–713t, 714, 716
evidence synthesis, 715–716
implications, 715–716
measures of, 699
in middle and later years, 706t–709t, 710t–713t, 716–717
peak, 699, 700t–705f, 714, 715f
in postmenopausal women, 699, 715f, 716–717
in premenopausal women, 715f, 716
smoking cessation and, 714
in young people, 699–715, 700t–713t
Boston (Massachusetts) study
chronic respiratory symptoms, 488
lung function, 474
Brain, MRI of, in subclinical atherosclerosis, 373, 379, 382t–385t
Brain cancer, 302–303, 905
conclusions, 26, 302–303, 325
mortality rate, 302
BRCA1 gene, 309, 312, 325
BRCA2 gene, 309, 312, 325
Breast cancer, 303–312, 905–906
biologic basis, 304–305, 900
conclusions, 26, 303–304, 312, 325
epidemiologic evidence, 305–312, 313f, 314t–323t
evidence synthesis, 312
implications, 312
mortality rate, 311–312
risk assessment, 305–307
screening prevalence, 311–312, 318t–319t
Breastfeeding, 527, 563
BRFSS. See Behavioral Risk Factor Surveillance System
(BRFSS)
British Physicians Study, 857
abdominal aortic aneurysm, 396
bladder and kidney cancer, 167
cerebrovascular disease, 394
colorectal cancer, 212
esophageal cancer, 118
leukemia, 253
liver cancer, 297
prostate cancer, 251
British Regional Heart Study, cerebrovascular disease, 394
Bronchial hyperreactivity
and asthma, 491
gender difference in, 475, 480
and lung function decline, 480, 483
Bronchitis, 449, 451, 452–453, 453–454
acute, antibiotic treatment for, 460–462
in COPD, 498
Bronchoalveolar lavage (BAL), biomarkers in, 427, 428t
Bruch’s membrane, 780–781
Burden of disease. See Disease burden

C

Cadmium, 563
CAG repeat gene, 250
CAL. See Clinical attachment level (CAL)
Calcium, coronary, 378, 379
California
brain cancer studies in, 302
chronic obstructive pulmonary disease studies in, 499–
500
health status study in, 662
prostate cancer study in, 251
tobacco control program, 874
Canada
breast cancer study in, 309
self-rated health status study in, 663
Canadian Mammography Screening Trial, 173
Canadian National Population Health Study, 487
Cancer, 35–325. See also specific type
biological markers of, 39
conclusions, 4t–5t, 25–26, 40t–41t, 324–325
smoking attributable mortality, 39, 858, 860t–861t, 861, 862t, 879–880, 882, 884–885, 886t
summary, 324
Cancer Prevention Study I (CPS-I), 39, 42, 857
abdominal aortic aneurysm, 396
chronic respiratory disease, 502
COPD mortality, 500
coronary heart disease, 386
cost-of-illness data, 865
leukemia, 253
lung cancer, 58t, 60
medical services utilization data, 647
smoking attributable mortality data, 859–860, 863, 879, 880, 881t
Cancer Prevention Study II (CPS-II), 39, 42, 857
breast cancer, 311
cerebrovascular disease, 393–394, 395
colorectal cancer, 212–215
COPD mortality, 500
coronary heart disease, 386
esophageal cancer, 118
lung cancer, 58t, 60
oropharyngeal cancer, 66
prostate cancer, 251
smoking attributable mortality data, 859–860, 863, 879, 880, 881t, 882, 884, 885, 886
stomach cancer, 183
Carbon monoxide, 50–51
and coronary heart disease risk, 386
and diabetic retinopathy, 788
effect on cardiovascular function, 369–371
pharmacokinetics of, 616
Carcinogenesis
bladder and kidney cancer, 166–167
breast cancer, 304, 308
cervical cancer, 168, 170
colorectal cancer, 210–211, 213–214
dermatofibrosarcoma protuberans, 113
dermatofibrosarcoma protuberans, 113
dermatofibrosarcoma protuberans, 113
endometrial cancer, 173
esophageal cancer, 117–118
leukemia, 252–253
liver cancer, 296
lung cancer, 43–47, 45f, 61
oropharyngeal cancer, 65
ovarian cancer, 171
pancreatic cancer, 136–137
prostate cancer, 250
stomach cancer, 180
Cardiac death, sudden, 384–392
epidemiologic evidence, 387
Cardiovascular diseases, 361–407, 907. See also specific disease
biologic basis, 364–371, 900
conclusions, 5t, 26–27, 363–364, 407
and erectile dysfunction, 771
mortality rate, 363, 876
smoking attributable mortality, 858, 860t, 861, 862t, 880, 881t, 882, 885, 886t
summary, 397, 406
Cardiovascular function, smoking and, 369–371
Carolina Breast Cancer Study, 309
Carotenoids, depletion of, 619
Carotid B-mode ultrasonography, in atherosclerosis studies, 374t–379t
Carotid intimal-medial thickness (IMT), 372, 374t–379t
Case-control studies. See also specific study
abdominal aortic aneurysm, 396
asthma, 491
bladder and kidney cancer, 166–167
brain cancer, 302
breast cancer, 306–307, 308–311, 313f, 314t–319t, 322t–323t
cataracts, 779, 782t–787t
cerebrovascular disease, 394
cervical cancer, 169
colorectal cancer, 211–212, 236t–239t
coronary heart disease, 386, 387
dermatofibrosarcoma protuberans, 113
esophageal cancer, 118–119, 122t–127t, 130t–135t
fractures, 718, 720t–731t
idiopathic pulmonary fibrosis, 503
laryngeal cancer, 62, 68t–97t
leukemia, 253–254, 258t–277t
liver cancer, 296
macular degeneration, 787
oropharyngeal cancer, 98t–115t
ovarian cancer, 171
pancreatic cancer, 137, 154t–165t
peptic ulcer disease, 807, 810
periodontal disease, 735, 740t–741t
reproductive effects, 534–535
respiratory disease
acute, 449–451
chronic, 488
lower, 438
stomach cancer, 182, 188t–191t, 196t–199t, 206t–209t
tar and nicotine yield, 51
Case series, on erectile dysfunction, 769
Cataracts, 777–780
biologic basis, 778
conclusions, 8t, 29, 778, 780
epidemiologic evidence, 777–780, 782t–787t
evidence synthesis, 780
implications, 780
Catecholamines, 369, 387
Causal claims, 3. See also specific disease
classification of, 3, 18
implications of, 18–19
separation from public health recommendations, 24
terminology of, 10, 11t–17t, 17–18, 24
Causal inference, 3, 10–24, 905
criteria for, 10, 17, 21
application of, 23
from experimental data, 17, 19, 22–23
judgment in, 19–23
from observational studies, 17, 19–21
statistical testing and, 23–24
Causality, reverse, 372
Causal pathways, linking smoking to poor health status, 615, 676
Cemento-enamel junction (CEJ), 732
Centers for Disease Control and Prevention (CDC), 210, 858
Best Practices for Comprehensive Tobacco Control Programs, 899
cost-of-illness data, 867, 868t, 869, 869t
office on smoking and health, 9, 735, 737
sam and ypll estimates, 885
smoking-attributable mortality, morbidity, and economic costs (samtec), 19, 379, 880, 882, 884, 885, 886, 887
smoking reduction goals, 872, 872t–873t, 875t
centers for medicare & medicaid services, 867
cerebral hemorrhage, 394
cerebrovascular disease, 393–395. see also specific disease
conclusions, 5t, 27, 395, 407
epidemiologic evidence, 394–395
mortality rate, 393–394, 880, 881t, 882, 885

cervical cancer, 167–170
conclusions, 4t, 26, 168, 170, 324
diagnosis of, 167, 169
cervical intraepithelial neoplasia, 168–169
chd. see coronary heart disease
chewing tobacco. see smokeless tobacco
chf. see congestive heart failure (chf)
child(ren). see also adolescence; infancy
asthma
in, 486–487
cancer in, 39
chronic respiratory symptoms in, 6t, 27–28, 485–488
evidence synthesis, 464t, 485–486
leukemia in, 252
lung function in, 6t, 27–28, 463, 464t, 473–474
passive smoking in, 463, 898
smoking attributable mortality, 887
child development, 576–599
conclusions, 28, 532t, 599, 600
epidemiologic evidence, 585–599, 593t–598t
china
esophageal cancer studies, 117, 118, 119
peptic ulcer disease study in, 807
stomach cancer study in, 180
chlamydia pneumoniae infection, 432–433, 433t–437t
cholesterol levels, 365–366, 368–369
choriopapillaris, 780
chromosomal abnormalities
and leukemia, 253
miscarriage caused by, 551
chronic obstructive pulmonary disease (copd), 423, 498–501
and acute respiratory disease, 447–463
biomarkers of, 479–480
bronchitis with, 460–462
conclusions, 5t, 27–28, 464t–465t, 501
epidemiologic evidence, 447–462, 450t–454t, 498–501
evidence synthesis, 501
exacerbations, antibiotic prophylaxis for, 451–452, 456–460, 456t–461t, 458t–461t
implications, 501
morbidity, 499–500
mortality, 500–501, 860t, 882, 885, 886t
and postoperative complications, 653
and smoking during childhood/adolescence, 473
chronic respiratory diseases, 463–508. see also specific
disease
biologic basis, 463, 467
conclusions, 27–28, 463, 464t–467t, 508–509
risk of, and cigarette type, 501–503, 504t–507t
cli. see confidence interval (ci)
cigarettes smoked per day. see dose-response relationship
cigarette type. see also filter-tipped cigarettes; nicotine
yield; tar yield; unfiltered cigarettes
biological markers and, 51
brain cancer, 302–303
coronary heart disease risk, 386, 388t–393t, 392
lung cancer, 48–51, 50t, 52t–57t, 56–57, 59, 61
pregnancy complications, 50
respiratory disease
acute, 444
chronic, 501–503, 504t–507t
cigarette-years, definition of, 735. see also pack-years
cigar smoking
esophageal cancer, 116–117
health effects, 3
heart disease risk, 370
opharyngeal cancer, 63–64, 66–67
smoking attributable mortality, 882
clinical attachment level (cal), 733, 735, 736
clinical trials, of antibiotic treatment for pulmonary
disease, 450–462
clotting, 367–368, 370
cogulation, 367–368, 370
coal dust exposure, 466t
codes, disease, 858, 861, 880, 883t
coffee consumption, and infertility, 535
cognitive development, child. see child development
coherence, 22
cohort studies, 3. see also specific study or disease
abdominal aortic aneurysm, 396
absenteeism, 627, 638t–645t, 648t–653t
atherosclerosis, 372, 379
bladder and kidney cancer, 166–167
bone density, 699, 710t–713t, 714, 716
breast cancer, 306, 310, 311, 313t, 320t–321t
cataracts, 779–780, 782t–787t
cerebrovascular disease, 393–395
cervical cancer, 169
childhood asthma, 487
colorectal cancer, 209–210, 212–214, 228t–235t, 240t, 249t
copd, 499
coronary heart disease, 385–386
dental caries, 737, 738, 763t–766t
diabetic retinopathy, 788
diabetes mellitus, 173
erectile dysfunction, 769
esophageal cancer, 118–119, 120t–121t, 128t
fractures, 718, 720t–731t
generalizability of, 884
hospitalization rates, 647
leukemia, 253–254, 278t–295t
leukocyte counts, 626, 634t–637t
liver cancer, 296
lung function decline, 475, 476t–479t
in childhood, 473–474
medical services utilization, 647, 654t–661t
opharyngeal cancer, 65–66, 98t, 102t–103t, 106t
pancreatic cancer, 137, 138t–153t
peptic ulcer disease, 807, 810
periodontal disease, 735, 760t–762t
prostate cancer, 250–252, 255t–257t
respiratory disease
acute, 444, 449, 453
chronic, 485, 501–502, 502t–505t
risk assessment using, 857
smoking attributable mortality, 880, 881t, 882, 884, 885
stomach cancer, 181–182, 184t–187t, 192t–195t, 200–205t
tar and nicotine yield, 51
Collaborative Group on Hormonal Factors in Breast Cancer, 307
Colorectal cancer, 208–215, 906
biologic basis, 210, 900
conclusions, 26, 209–210, 215, 325
epidemiologic evidence, 211–213, 216t–249t
evidence synthesis, 213–215
implications, 215
mortality rate, 208–209, 212–215, 244t–245t
screening prevalence, 214–215
Community Periodontal Index of Treatment Needs, 735
Community Preventive Services Task Force, 899
Comparability ratios, 861, 883t
Computed tomography (CT), of coronary calcium, 378, 379
Conception. See Fertility; Pregnancy
Conclusions. See also specific disease or conclusion
implications of, 18–19
Surgeon General’s reports, 3, 4t–8t, 25–30, 899–900
terminology of, 10, 11t–17t, 17–18, 24
Confidence interval (CI), 884
Confounding factors, 20, 900
cataract studies, 779
colorectal cancer studies, 214
coronary heart disease studies, 386–387
dental caries studies, 738
diminished health status studies, 615, 636–637, 676
pancreatic cancer studies, 137
PAR estimates, 879
periodontal disease studies, 735
prostate cancer studies, 250
reproductive effects studies, 532, 533, 539, 565
smoking attributable mortality estimates, 870, 882, 884
Congenital malformations, 527, 576–599. See also specific disorder
conclusions, 28, 531t, 599, 600
epidemiologic evidence, 576, 577t–584t, 583
Congestive heart failure (CHF), 387, 392
Connecticut Tumor Registry, 60
Consistency, 21
Constitutional hypothesis, 21
COPD. See Chronic obstructive pulmonary disease (COPD)
Copenhagen City Heart Study, 449, 478, 491, 501
Coronary atherosclerosis, 373, 378–379
Coronary calcium, 378, 379
Coronary Drug Project, 647
Coronary heart disease, 384–392. See also Atherosclerosis;
Myocardial infarction (MI)
conclusions, 5t, 27, 392, 407
epidemiologic evidence, 384–387
evidence synthesis, 392
implications, 392
and lung function decline, 478
mortality rate, 363, 384
pathophysiology of, 366, 369
percutaneous procedures for, 385–386
and postoperative complications, 653
risk factors, 363–364, 386–387
Costs. See Disease burden; Economic costs
Cotinine, 51, 550–551, 591
Cough, 485, 488, 489f
Counterfactual state, 19–20
Cox proportional hazard model, in PAR calculations, 879
CPS-I. See Cancer Prevention Study I (CPS-I)
CPS-II. See Cancer Prevention Study II (CPS-II)
C-reactive protein, 368, 370
Cross-sectional studies. See also specific study or disease
abdominal aortic aneurysm, 396
asthma, 490–491, 494t–497t
childhood, 487
atherosclerosis, 372, 373, 379, 397
bone mass loss, 699, 700t–705t, 714
cataracts, 779–780, 782t–787t
COPD, 499
cost-of-smoking, 870
dental caries, 737, 738, 763t–766t
erectile dysfunction, 769, 770t, 771
glaucoma, 789
lung function decline, 475
macular degeneration, 786–787
medical services utilization, 647
peptic ulcer disease, 805–806
periodontal disease, 735, 742t–759t
respiratory disease
acute, 444, 449
chronic, 485, 488
smoking attributable mortality, 882
stomach cancer, 181
CT. See Computed tomography (CT)
CVD. See Cardiovascular diseases; Specific disease
Cyclin D1 gene, 65, 117
CYP1A1 gene, 47, 309
CYP1A2 gene, 47, 308
CYP2A6 gene, 47
Cytochrome P-450 enzymes, 47, 211, 304, 308
Cytokines, in acute respiratory diseases, 427
**D**

DALE. See Disability-adjusted life expectancy (DALE)
DALYs. See Disability-adjusted life years (DALYs)
Danish Osteoporosis Prevention Study, 714
Database, evidence, 9, 898
Data sets, for smoking attributable mortality estimates, 880, 881t
DCC gene, 180, 210
Death
  - fetal (See Stillbirth)
  - infant (See Sudden infant death syndrome (SIDS))
  - premature, from smoking-related disease, 873t, 885 (See also Smoking attributable mortality (SAM))
  - prevention of, 871–876, 872t–873t, 875t
  - sudden cardiac, 384–392
  - epidemiologic evidence, 387
Death certificates, disease burden estimates using, 879
Denmark, Copenhagen City Heart Study, 449, 478, 491, 501
Dental caries, 736–739
  - biologic basis, 737
  - conclusions, 29, 739
  - epidemiologic evidence, 737–738, 763t–766t
  - evidence synthesis, 738–739
  - implications, 739
Dental diseases, 732–739, 908–909. See also Periodontitis; Specific disease
  - classification, 732, 735
  - conclusions, 29, 732, 818
Dental hygiene, and dental caries, 737, 738
Dental plaque, bacterial, 733–734
Diabetes mellitus, and erectile dysfunction, 768
Diabetic retinopathy, 29, 788–789, 788t–791t, 796t–799t
Diet
  - colorectal cancer, 209, 214
  - lung function decline, 478–479
  - pregnancy outcome, 563
  - prostate cancer, 250
  - stomach cancer, 181, 183
Diffuse parenchymal lung diseases, 503, 508
Diminished health status, 615–697, 909
  - biologic basis, 616–626, 900
  - conceptual model, 616t
  - conclusions, 8t, 29, 616, 617t–618t, 676–677, 818
  - epidemiologic evidence, 626–669, 638t–645t, 648t–653t
  - evidence synthesis, 669, 676
  - implications, 677
  - and medical services utilization, 646–653
Disability, relative rate of, 865
Disability-adjusted life expectancy (DALE), 855, 856t
Disability-adjusted life years (DALYs), 855, 856t
Disease burden, 9, 19, 30, 855–871, 876, 898. See also Economic costs
  - COPD, 499
  - current impact, 858–859
  - estimation of, 878–887
    - methodology, 878–879, 885–886
    - implications, 877
  - measurement of, 855, 856t–857t
Disease classification, 858, 861, 880, 882, 883t, 886, 887
DMFS index, 737, 738
DMFT index, 737, 738
DNA adducts, 44–45, 47, 49, 65, 68, 170, 210, 302, 304
DNA repair, and cancer susceptibility, 47, 65
Dose-response relationship, 22. See also Pack-days; Pack-years
  - abdominal aortic aneurysm, 396
  - absenteeism, 627
  - asthma, 491
    - childhood, 487
  - bladder and kidney cancer, 166
  - brain cancer, 302–303
  - breast cancer, 306–312
  - cardiovascular disease, 366, 368–369, 370, 379, 385–386, 397
  - carotid intimal-medial thickness (IMT), 372
  - cataracts, 780
  - cerebrovascular disease, 394
  - cervical cancer, 169–170
  - colorectal cancer, 210, 211–214, 240t–243t, 246t–249t
  - congenital malformations, 576
  - COPD mortality, 500
  - dental disease, 735, 738
  - endometrial cancer, 173
  - erectile dysfunction, 771, 772
  - esophageal cancer, 116, 118–119, 121t, 126t–127t
  - fracture risk, 718
  - Graves' ophthalmopathy, 801
  - health status, self-rated, 668, 686t–689t
  - infertility, 534–535
  - laryngeal cancer, 62
  - leukemia, 253–254
  - leukocyte count, 626, 634t–637t
  - lung cancer, 43–44, 48, 59–61
  - lung development in utero, 467
  - lung function decline, 481, 481t, 483t
  - medical services utilization, 647, 652, 654t–661t
  - oropharyngeal cancer, 64, 66, 102t–105t
  - ovarian cancer, 171
  - oxidative stress, 619
  - pancreatic cancer, 137
  - prostate cancer, 251
  - reproductive effects, 532, 535, 539
  - respiratory disease
    - acute, 432, 438, 444, 449, 462
    - chronic, 487–488
  - SIDS, 584
  - stomach cancer, 179, 179f, 180, 182, 192t–201t
Down syndrome, 576
DPC4 gene, 180
Drusen, 781, 786
Duodenal ulcer disease. See Peptic ulcer disease
EBCT. See Electron-beam computed tomography (EBCT)
Eclampsia, 553, 562t–563t. See also Preeclampsia
Econometric models, of cost-of-illness estimates, 869–870
Economic costs
of COPD, 499
  measurement of, 868f, 868t
  medical care, 646, 654t–661t, 664t–669t
  fracture-related, 698
smoking attributable, 9, 30, 855, 856t, 863–871, 869t, 876, 898
  and health policy goals, 877
  measurement of, 863–869, 868f, 868t
  net versus gross, 870–871
offsets, 869–870
Ectopic pregnancy, 527
  conclusions and implications, 529t, 565, 575, 600
  epidemiologic evidence, 550–551, 551t–555t
Edinburgh Artery Study, abdominal aortic aneurysm, 396
Effect modification, 884
Elderly population
  fracture risk in, 698 (See also Bone mineral density (BMD); Fractures)
  self-rated health status in, 669
Electron-beam computed tomography (EBCT), 378
Emphysema, 472, 498
Employers, cost-of-smoking estimates for, 865, 871
Endometrial cancer, 172–173, 174t–177t, 906
  conclusions, 26, 172–173, 325
Endothelial dysfunction
  in atherosclerosis, 365–367, 370
  and erectile dysfunction, 768
Endothelial function, measurement of, 366
Environmental exposure. See also Occupational exposure;
  Passive smoking
    asthma, 491
    breast cancer, 309
    lung function decline, 480
    stomach cancer, 180
Epinephrine, 463
Epithelial dysfunction
  in colorectal cancer, 210
  in smoking-induced lung injury, 472, 472f
Epithelium, retinal pigment, 780
Erbb-2 gene, 180
Erectile dysfunction, 767–776, 909
  biologic basis, 768
  clinical data on, 772–773
  conclusions, 29, 767, 776, 818
  disease correlates, 771–772
  epidemiologic evidence, 768–776, 770t
  evidence synthesis, 776
  experimental data on, 774–776, 775t
  implications, 776
Erythroplasia, 64
Esophageal cancer, 116–119, 906
  biologic basis, 117–118
conclusions, 4t, 26, 39, 40t, 61, 116–117, 119, 324
epidemiologic evidence, 118–119, 120t–135t, 181
  evidence synthesis, 119
implications, 119
mortality rate, 116, 118, 119
Estrogen(s), 304–305, 309
Estrogen receptors, 171–172, 311
Estrogen replacement therapy, 20, 172, 214
Ethnic groups. See also Racial groups; Specific group
  breast cancer, 303
cardiovascular disease, 364, 384–385
cerebrovascular disease, 394–395
colorectal cancer, 208–209
COPD mortality, 500
lung function decline, 475
smoking prevalence among, 898
  stomach cancer, 178
Evidence
  classification of, 3
  companion database of, 9, 898
  evaluation of, 3, 10, 17
Experimental data, causal inference from, 17, 19, 22–23
Eye diseases, 777–789, 801, 909. See also specific disease
  conclusions, 29, 777, 818

F

Fatty streaks, 371
Federal Trade Commission (FTC), 49, 61, 324, 386, 502
Fertility, 533–540. See also Infertility; Pregnancy
  conclusions, 7t, 28, 541, 600
  epidemiologic evidence
    female, 534–539, 541t–548t
    male, 533–534, 536t–539t
  evidence synthesis, 536t–541t, 539–541, 565
  implications, 541, 575
Fetal death. See Stillbirth
FEV1
  in adolescents who smoke, 473–474
  decline in, 474–475, 476t–479t, 478–480
  and lung development in utero, 469
  in respiratory disease
    acute, 449, 451, 453
    chronic, 463, 468f, 668f
Fibrinogen, 367–368, 370
Fibrinolysis, 367–368
Filter-tipped cigarettes. See also Nicotine yield; Tar yield
  brain cancer, 302–303
  chronic respiratory disease, 501
  epidemiologic studies of, 51, 56
  lung cancer, 49–51, 56–57, 59, 386
Finland
  abdominal aortic aneurysm study in, 396
  bone density studies in, 714
  cerebrovascular disease study in, 395
  chronic respiratory disease studies in, 502
Follow-up studies. See also specific study
abstainism, 627
atherosclerosis, 372
bladder and kidney cancer, 167
bone density, 716–717
breast cancer, 306
cataracts, 780
cerebrovascular disease, 394
colorectal cancer, 211, 213
congestive heart failure, 387
esophageal cancer, 118
leukemia, 253
medical services utilization, 652
oropharyngeal cancer, 65
peptic ulcer disease, 811
prostate cancer, 250–251
stomach cancer, 181–182
Forced expiratory volume in one second (FEV$_1$). See FEV$_1$
Former smokers. See Smoking cessation
Fractures, 698–699, 717–719, 909
biologic basis, 698–699
conclusions, 8t, 29, 698, 719, 818
epidemiologic evidence, 717–718, 720t–731t
evidence synthesis, 718
implications, 719
relative risk, 698, 717–718, 717f
and smoking cessation, 718
Framingham Study
chronic respiratory symptoms, 488
population-attributable risk in, 876
sudden cardiac death, 387
France
asthma study in, 491
atherosclerosis study in, 378–379
Fruit, fresh, intake of, 479

G

Gastric cancer. See Stomach cancer
Gastroesophageal reflux, 117
Gastrointestinal physiology, effects of smoking on, 804–805
Gastrochisis, 576
Gender distribution
abstainism, 637
acute respiratory disease, 449, 451
asthma, childhood, 487
bladder and kidney cancer, 166–167
brain cancer, 302
cancer mortality, 39, 42
cardiovascular disease, 364, 373, 387
cerebrovascular disease, 394–395
colorectal cancer, 208, 212–214
COPD mortality, 500
coronary heart disease, 384–385
esophageal cancer, 116, 118
leukemia, 252, 253
liver cancer, 296
lung cancer, 42, 58t, 59, 60f, 61, 324, 901
lung development in utero, 468, 470t–471t
lung function decline, 474–475, 480–481, 481f
in adolescents who smoke, 473–474
macular degeneration, 786–787
medical services utilization, 647
oropharyngeal cancer, 63–64, 66–67
respiratory disease, 433, 449
smoking attributable mortality, 880, 881t, 882
smoking prevalence rates, 859, 859t
stomach cancer, 178, 179f, 180, 182
General Electric study (United Kingdom), 627
Generalizability, of cohort studies, 884
Genetic factors
breast cancer, 303–304, 308–310, 312, 325, 900
leukemia, 253
lung cancer, 43, 44–47, 49
Genetic mutations
asthma, 491
bladder and kidney cancer, 166
brain cancer, 302
breast cancer, 304, 309, 312, 325
and carcinogenesis, 45–47
cervical cancer, 168, 170
colorectal cancer, 210, 213
esophageal cancer, 64–65, 67
lung injury, 472–473
oropharyngeal cancer, 64–65, 67
pancreatic cancer, 136–137
stomach cancer, 180
Genitourinary defects, congenital, 576
Germany, peptic ulcer disease study in, 805
Gestation. See also Pregnancy
shortened, 532–533, 555, 575, 600, 887
Gestational age, small for. See also Intrauterine growth retardation (IUGR)
conclusions, 529t
incidence, 887
Gingival blood flow, 734
Gingivitis, 732–733
Glaucoma, 29, 789, 800t
Gliomas, 302–303
The Global Burden of Disease (WHO), 855
Glutathione S-transferase (GST), 211
Graves’ ophthalmopathy, 29, 801, 802t–803t
Growth factors, in carcinogenesis, 117
GST. See Glutathione S-transferase
GSTM1 gene, 47, 211, 309
Guidelines for the Diagnosis and Management of Asthma (NHLBI), 486
Hospitalization rates, 647, 654t–669t
Human immunodeficiency virus (HIV) infection. See HIV
infection
Human papilloma virus (HPV) infection, 167–170
Hume, David, 19
8-hydroxydeoxyguanosine (8-OH-dG), 619
8-hydroxyguanine, 619, 620t
Hypercholesterolemia, 366
Hyperfibrinogenemia, 367–368, 370
Hypersensitivity pneumonitis, 503
Hypertension, 369. See also Preeclampsia
and cerebrovascular disease, 395
and erectile dysfunction, 771
Hypoxemia, 370

I

IARC. See International Agency for Research on Cancer
(IARC)
ICD. See International Classification of Diseases
IDF. See Incidence density fraction (IDF)
Idiopathic pulmonary fibrosis (IPF), 28, 503
IHD. See Ischemic heart disease
Immune function, 616
acute respiratory diseases, 424–428, 425t–427t, 444
periodontal disease, 734
postoperative complications, 653
Implications, of causal conclusions, 18–19. See also specific
disease or conclusion
Impotence. See Erectile dysfunction
“Inadequate” evidence category, 18
Incidence density fraction (IDF), 878
India, cataract study in, 779
Infancy
lung function in, 463, 473–474
passive smoking in, 463, 498
smoking attributable mortality, 887
Infant birth weight
low (See Low birth weight (LBW); Very low birth
weight (VLBW))
and smoking during pregnancy, 469
Infant mortality, 576–599. See also Stillbirth
conclusions, 28, 531t, 599, 600
epidemiologic evidence, 583–584, 585t–592t
risk estimates, 858
smoking attributable, 861, 862t, 887
Infertility, 527
conclusions, 529t, 600
confounding factors in, 535, 539
definition of, 534
epidemiologic evidence, 534–535, 539
evidence synthesis, 565
implications, 575
primary, 534
K
Kaiser Permanente study
cerebrovascular disease, 395
hospitalization rates, 647
leukemia, 253
leukocyte counts, 626
respiratory disease, chronic, 502
Kidney cancer, 166–167, 905
conclusions, 4t, 26, 39, 40t, 166–167, 324
Korea, cerebrovascular disease study in, 395
K-ras gene, 45, 136–137
Krimpen Study, 769
K-sam genes, 180
L
Lacunar infarcts, 373, 379
Language (terminology), 10, 11t–17t, 17–18, 24
Large cell carcinoma, 43, 59
Laryngeal cancer, 62, 68t–97t, 906
conclusions, 4t, 25, 39, 40t, 61, 62, 324
Latin America, cervical cancer study in, 169
LBW. See Low birth weight (LBW)
LDL. See Low-density lipoprotein (LDL)
Lead-210, 252, 254
Legionella pneumophila infection, 432, 433t–437t, 444
Leg symptoms, ischemic, 371–372
Leiomyosarcoma, 180
Leisure World cohort, colorectal cancer study in, 213
Lens opacity, 778, 779
Leukemia. See Acute leukemia
Leukemogens, 252–254
Leukocyte count, 368, 370, 626, 628t–637t
Leukoplakia, 64–65, 67
Levin’s attributable risk. See Population-attributable risk (PAR)
Life expectancy
extended, for former smokers, 869–870
of nonsmokers
versus smokers, 885
social welfare costs, 869–870
and smoking-related disease, 885
Lifestyle, and coronary heart disease risk, 386–387
Limb defects, congenital, 576
Lip cancer, 63. See also Oropharyngeal cancer
Lipid metabolism, 368–369
Literature review, 3
Liver cancer, 296–297, 298t–301t, 906
conclusions, 26, 296–297, 325, 900
mortality rate, 296
Longevity. See Life expectancy

J
Japan
breast cancer study in, 311
Cerebrovascular disease study in, 395
Idiopathic pulmonary fibrosis study in, 503
Peptic ulcer disease study in, 807
Stomach cancer study in, 182

secondary, 534
treatment for, and smoking status, 539–540
Inflammation
asthma, 486
atherosclerosis, 368, 370
biological markers of, 368, 370, 626, 634t–637t
diffuse parenchymal lung disease, 508
diminished health status, 618–619, 626, 634t–637t
lung injury, 472, 472f
respiratory diseases, acute, 427–428, 444
Influenza, 424
and COPD, 449
epidemiologic evidence, 428–432, 429t–431t, 433t–437t
vaccination against, 432, 455
Inpatient services. See Hospitalization rates
Institute of Medicine (IOM), 17–18, 51, 59
Insurance premiums, and cost-of-illness estimates, 870–871
Interleukins, in acute respiratory diseases, 427
Intermittent claudication, 371, 372
International Agency for Research on Cancer (IARC), 18,
39, 46, 59, 137, 167, 183, 210, 252, 254, 297, 304, 858
International Classification of Diseases
7th Revision, 861, 883t
8th Revision, 861, 883t
9th Revision, 498, 861, 880, 883t, 887
10th Revision, 858, 861, 882, 883t, 887
International Studies of Infarct Survival clinical trial, 386
Interstitial lung diseases, 503, 508
Intrauterine growth retardation (IUGR)
conclusions and implications, 575, 600
epidemiologic evidence, 555, 564–565, 565t–574t, 573–575
estimates, 887
In vitro fertilization (IVF), 539–540
IPF. See Idiopathic pulmonary fibrosis (IPF)
Ischemic heart disease, 384, 860t
Ischemic stroke. See Cerebrovascular disease
Isoprostanes, as markers of oxidative injury, 619, 622t–625t
F2-isoprostanes, 369
Italy
cataract study in, 779
coronary heart disease study in, 386
erectile dysfunction study in, 769, 771

The Health Consequences of Smoking
Longitudinal studies
asthma, 490, 492t–493t
atherosclerosis, 372, 379
esophageal cancer, 117
lung function decline, 474
respiratory disease, chronic, 502, 502t–505t
stomach cancer, 179t, 180
Loss of heterozygosity (LOH), 46, 49, 65, 180
Loss of periodontal attachment (LPA), 733, 735, 736
Low birth weight (LBW), 527. See also Very low birth weight (VLBW)
c oncclusions and implications, 7t, 528t, 574, 575, 600
definition of, 555
epidemiologic evidence, 564–565, 565t–574t
smoking attributable mortality, 887
studies of, confounding factors in, 533
Low-density lipoprotein (LDL), 365–366, 368
Lower respiratory illnesses (LRIs). See also specific disease conclusions, 424
epidemiologic evidence, 432–444, 433t–443t
and lung development in utero, 468–469
risk for, versus upper respiratory illnesses, 445
Lung cancer, 42–61
biologic basis, 43–47, 900
biological markers of, 44–47, 49
conclusions, 4t, 25, 39, 41t, 42, 43, 61, 324
diagnosis of, 59–61
epidemiologic evidence, 48–60, 52t–58t, 60f
 evidence synthesis, 61
histopathology of, 42–43, 59–60
implications, 61
incidence, 42
mortality rate, 39, 42, 58t, 61, 860t–861t, 901
smoking attributable mortality, 880, 885–886, 886t
Lung development in utero, 467–469
conclusions, 6t, 469
evidence synthesis, 469
implications, 469
Lung disease. See Respiratory diseases; Specific disease
Lung function
decline in, 474–483
conclusions, 27–28, 482–483
epidemiologic evidence, 474–482, 476t–479t
evidence synthesis, 482
implications, 483
and smoking cessation, 467t, 480–482, 481f, 483f
in infancy and childhood, 6t, 27–28, 473–474
Lung Health Study
acute respiratory disease, 451
chronic respiratory disease, 488, 489f
lung function decline, 475, 478, 479, 480, 482, 484f
Lung injury, pathogenesis of, 472–473, 472f
Lutheran Brotherhood Cohort Study, 251, 254
Lymphoma, 39, 180

M

MI, 211
Macula, 780
Macular degeneration. See Age-related macular degeneration (AMD)
Magnetic resonance imaging (MRI), of brain, in subclinical atherosclerosis, 373, 379, 382t–385t
Maine, breast cancer study in, 306
Malondialdehyde, 369
Mammography, 311–312, 318t–319t
Massachusetts
 breast cancer study in, 306
chronic respiratory disease study in, 488
lung function study in, 474
tobacco control program, 875
Massachusetts Male Aging Study, 767, 770, 771, 772
Master Settlement Agreement (1998), 863, 869
Medicaid costs, smoking attributable fractions for, 868–869
Medical care costs, smoking attributable mortality, 646, 654t–661t, 664t–669t, 698. See also Disease burden; Economic costs
Medical Research Council (United Kingdom), 455
Medical services utilization, 460–653, 654t–661t, 662t–663t
Medical utilization rates, in COPD, 499
Medications. See also specific drug
and erectile dysfunction, 771
and peptic ulcer disease, 804–807, 810–811
MEDLINE search
cataracts, 778
colorectal cancer, 211
dental caries, 737
diabetes, 768
esophageal cancer, 118
oesophageal cancer, 65
peptic ulcer disease, 804
periodontal disease, 735
reproductive effects, 533
respiratory disease
acute, 423
chronic, 463
stomach cancer, 181–182
Men. See Gender distribution
fertility in. See Fertility
Menopause. See Postmenopausal women
Menstruation, 305, 534
Mental health, self-rated status, 668–669, 690t–697t
Meta-analysis
antibiotic prophylaxis for COPD, 453
bone density, 706t, 714, 716
cerebrovascular disease, 394
coronary heart disease, 385
erectile dysfunction, 769
fracture risk, 718, 720t–724t
leukemia, 253
peptic ulcer disease, 811
reproductive effects, 534
4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNK), 60, 168
Metronidazole, 812
MI. See Myocardial infarction (MI)
Michigan, acute respiratory disease study in, 444, 447, 450t–454t, 462
Microbiology
of dental disease, 733–734, 736
of peptic ulcer disease, 804–806
Micronutrients, depletion of, 181, 183, 619
Minority groups. See Ethnic groups; Racial groups; Specific group
Miscarriage. See Spontaneous abortion; Stillbirth
Mismatch repair genes, 210
Molecular epidemiology, and cancer, 39, 45–47, 61, 117, 308
Morbidity, 8t, 30, 855, 856t
non-specific, burden of, 677
Mortality. See Smoking attributable mortality (SAM); Specific disease
MRI. See Magnetic resonance imaging (MRI)
Multicenter studies
abdominal aortic aneurysm, 396
peptic ulcer disease, 812
Multiple myeloma, 39
Multiple Risk Factor Intervention Trial (MRFIT), 251, 394–395
Multivariate analysis, in coronary heart disease risk assessment, 386–387
Mycobacterium tuberculosis infection, 433–434, 433t–437t
Myeloid leukemia. See Acute leukemia
Myocardial infarction (MI), 384. See also Coronary heart disease
Myocardial perfusion, 369, 370, 378

N

N-acetyltransferase 2 (NAT2), 211
Nasal mucociliary clearance, 425
NAT1 gene, 47, 308–309, 312
NAT2 gene, 47, 308–309, 312
National Ambulatory Medical Care Survey (1985), 499
National Cancer Institute (NCI), 858
chronic respiratory disease study, 501
Smoking and Tobacco Control Monograph Series, 49, 51, 59, 880
National Center for Chronic Disease Prevention and Health Promotion, 9
National Center for Health Statistics (NCHS), 858
National Eye Institute (NEI), 777
National Health and Nutrition Examination Survey (NHANES III), 387, 499
National Health and Social Life Survey, 767
National Health Interview Survey (NHIS), 499, 858, 859t, 861, 865, 871, 880, 882, 884
breast cancer, 311
colorectal cancer screening, 214–215
medical services utilization data, 652
peptic ulcer disease data, 806
self-rated health status data, 662, 669
National Heart, Lung, and Blood Institute (NHLBI), 486
National Hospital Discharge Survey (1984), 499
National Library of Medicine, PubMed database. See MEDLINE search
National Medical Expenditures Survey (NMES-2), 867–869, 868f
National models, for cost-of-illness measurement, 868, 868f
National Mortality Followback Survey (NMFS), 387, 884, 885
National Toxicology Program, 118, 181
Natural experiment, 22
NCHS. See National Center for Health Statistics (NCHS)
NCI. See National Cancer Institute (NCI)
“Negative” evidence category, 18
Netherlands
bone density studies in, 714
chronic respiratory symptom studies in, 488
cost-of-smoking studies in, 870
erectile dysfunction study in, 769
influenza study in, 432
lung function decline studies in, 481
peptic ulcer disease study in, 807, 811
Neural tube defects, 576
New Hampshire, breast cancer study in, 306
New Mexico, tobacco smoke biological markers study in, 51
New York
asthma study in, 491
cigarette type studies in, 51
New Zealand
peptic ulcer disease study in, 805
self-rated health status study in, 668
NHANES III. See National Health and Nutrition Examination Survey (NHANES III)
NHIS. See National Health Interview Survey (NHIS)
Nicotine
and carcinogenesis, 44, 45f, 168
and cardiovascular function, 365, 369–370, 387
fetal, 563
diabetic retinopathy, 788
and gastric physiology, 180
and immune system, 424–428, 425t–427t, 444
and periodontium, 734
pharmacokinetics of, 616
and reproductive system, 534, 551, 563, 574
and wound healing, 653
Surgeon General’s Report

Nicotine yield
  biological markers of, 50–51
  changing, and disease risk, 900
  and chronic respiratory disease, 501–502
  and coronary heart disease risk, 386, 388t–393t, 392
  and lung cancer, 49–51, 50t, 52t–57t, 56–57, 59, 61
Nitrates, 60
Nitric oxide, 366, 768
Nitrosamides, 302
Nitrosamines, 302
  tobacco-specific, 44, 60, 65, 136–137, 210
N-nitrosodiethylamine, 118, 166
NMES-2. See National Medical Expenditures Survey (NMES-2)
NMFS. See National Mortality Followback Survey (NMFS)
NNK (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone), 60, 168
Nocturnal penile tumescence (NPT), 772, 773, 774
Non-Hodgkin’s lymphoma, 180
Nonmalignant oral diseases. See Dental diseases
Nonsmokers. See also Passive smoking
  absenteeism, 615, 626–627, 638t–645t, 648t–653t
  bone density, 714
  brain cancer, 302
  breast cancer, 304–305, 306–308, 310–311
  cervical cancer, 169
  colorectal cancer, 210, 212, 213, 216t–239t
  dental caries, 627
  endometrial cancer, 173
  erectile dysfunction, 775–776
  esophageal cancer, 118, 120t, 122t–127t
  fracture risk, 717–718, 717t
  health status (See Diminished health status)
  leukemia, 254
  leukocyte counts, 619, 626, 628t–637t
  life expectancy, 870, 885
  lung cancer mortality rate, 58t
  macular degeneration, 786
  medical services utilization, 646–647, 652–653, 654t–661t
  oropharyngeal cancer, 65–66
  ovarian cancer, 171
  oxidative stress, 619, 620t–625t
  pancreatic cancer, 136
  prostate cancer, 250, 255t–257t
  reproductive effects, 534–535
  self-rated health status, 662–663, 666–669, 678t–685t, 690t–697t
  stomach cancer, 179–181, 183, 184t–191t, 200t–201t, 206t–209t
Nonsteroidal anti-inflammatory drugs (NSAIDs)
  and colorectal cancer, 214
  and peptic ulcer disease, 804–807, 810–811
Norepinephrine, 369
Normative Aging Study, of chronic respiratory disease, 502
North Carolina
  absenteeism study in, 646
  breast cancer study in, 309
Norway
  acute respiratory disease study in, 449
  colorectal cancer study in, 212
  peptic ulcer disease study in, 810
  stomach cancer study in, 182
NPT. See Nocturnal penile tumescence (NPT)
Nurses Health Study, 212–213
  breast cancer, 308
  COPD, 499
  coronary heart disease, 385
  sudden cardiac death, 387
Nursing home costs, smoking attributable fractions for, 869, 871
Nutrition. See Diet

O

Obesity, and breast cancer, 306–307
Observational studies, causal inferences from, 17, 19–21
Obstructive lung disease. See Chronic obstructive pulmonary disease (COPD)
Occupational exposure
  brain cancer, 302
  lung cancer, 43, 59
  lung disease, 465t–466t
  lung function decline, 480
Ocular lens, 777
Office of Technology Assessment (OTA), 865
Office on Smoking and Health (CDC), 9, 735, 737
OM-85 BV, 455, 457, 460
Omphalocele, 577
Oncogenes, 210
Onset of smoking, age at. See Age at onset of smoking
Ophthalmalopathy, Graves’, 801, 802t–803t
Oral cavity cancer. See Oropharyngeal cancer
Oral cleft defects, 576, 583, 600
Oral contraceptives
  and breast cancer, 307
  and cerebrovascular disease risk, 395
  and endometrial cancer, 172
  and ovarian cancer, 171
Oral diseases. See Dental diseases; Specific disease
Oral hygiene, and dental caries, 737, 738
Oral smokeless tobacco. See Smokeless tobacco
Oregon
  disease burden estimates in, 879
  self-rated health status study in, 663
  tobacco control program, 875
Oropharyngeal cancer, 63–67, 906
  and alcohol consumption, 882–884
  biologic basis, 64–65
  conclusions, 4t, 25, 39, 41t, 61, 63–64, 67, 324
  epidemiologic evidence, 65–66, 98t–115t
  mortality rate, 63–64, 66–67
Osteoporosis. See also Bone mineral density (BMD)
increased risk of, 698–699, 716–717
Outpatient services, utilization of, 646–647, 654t–661t, 664t–669t
Ovarian cancer, 171–172
conclusions, 26, 171–172, 325
mortality rate, 171
Overestimation, in smoking attributable mortality estimates, 882
Oxidative stress, 618–619, 620t–625t, 626
and macular degeneration, 781
and ovarian cancer, 171
in smoking-induced lung injury, 472, 472f
Oxygen demand, increased, 369
Oxygen supply, decreased, 369–371

P

Pack-days. See also Dose-response relationship
and acute respiratory disease risk, 449
and infertility, 534–535
Pack-years. See also Dose-response relationship
and absenteeism, 627
definition of, 66
Pancreatic cancer, 136–137, 906
conclusions, 5t, 26, 39, 41t, 136, 137, 324
epidemiologic evidence, 137, 138t–165t
Papanicolaou smears, 167
Papua New Guinea, bronchitis study in, 455
PAR. See Population-attributable risk (PAR)
Passive smoking, 3
atherosclerosis, 366, 397
breast cancer, 310–312
cost-of-illness estimates, 869
erectile dysfunction, 771, 776
in infancy and childhood, 463, 898
lower respiratory illnesses, 438
mortality rate, 858, 861t, 885
pregnancy outcome, 573, 592
prevalence of, 897–898
protection against, 899
SIDS, 584, 593
Paternal smoking, congenital malformations related to, 576
Pathobiological Determinants of Atherosclerosis in Youth (PDAY) Study, 378–379, 396
Pathogens
gastrointestinal, 804–806
periodontal, 734, 736
respiratory, 455
Peak expiratory flow, 452
Pelvic inflammatory disease, 550
Penile-brachial index (PBI), 773
Penile erection. See also Erectile dysfunction
chemically induced, 773, 774
Penile tumescence studies, 772–774
Penis
vascular hemodynamics, 772–773
vascular morphology, 773
Peptic ulcer disease, 804–813, 909
biologic basis, 804–805
conclusions, 8t, 29, 804, 813, 818–819
epidemiologic evidence, 806–812, 808t–809t, 814t–817t
evidence synthesis, 812–813
implications, 813
trends in, 805–806
Percutaneous coronary artery vascularization, 385–386
Periodontitis, 732–758
biologic basis, 733–735
conclusions, 29, 736
epidemiologic evidence, 735–736, 740t–762t
evidence synthesis, 736
implications, 736
Peripheral arterial disease, 371–373, 380t–381t
P16 gene, 46
P53 gene, 46, 65, 117, 166, 180, 210
Pharyngeal cancer. See Oropharyngeal cancer
Photoreceptors, 773–774
Physiological development, child. See Child development
P16INK4a gene, 64, 117
Pipe smoking
esophageal cancer, 116–117
health effects, 3
oropharyngeal cancer, 63–64, 66, 67
smoking attributable mortality, 882
Placental abruption
conclusions and implications, 565, 575, 600
epidemiologic evidence, 553, 560t–561t
Placenta previa
conclusions and implications, 565, 575, 600
epidemiologic evidence, 551, 553, 554, 557t–558t
Platelet aggregation, 367–368, 370, 387
Plausibility, 22
Pneumocystis carinii infection, and COPD, 451, 462
Pneumocystis carinii infection, 444
Pneumonia, 424
conclusions, 5t
epidemiologic evidence, 432–438, 433t–437t
in HIV-infected patients, 444, 445t–446t
immune response markers in, 425
Pneumonitis, hypersensitivity, 503
Poland, stomach cancer study in, 181
Polonium-210, 252, 254
Polyaromatic hydrocarbons (PAHs), 44, 60, 210, 304, 309
Population-attributable risk (PAR), 19, 855, 856t, 857–858, 876, 878
calculation of, 877–879
in current smoking attributable mortality data, 859
limitations of, 882–884
Population-based studies, of erectile dysfunction, 769–771
Population risk factors, disease burden elements used to evaluate, 855, 856t–857t
Postmenopausal women
  bone density studies, 698–699, 715t, 716–717
  breast cancer in, 305–308
  endometrial cancer in, 172
  fracture risk in, 717–718, 717t
Postoperative complications, 653, 670–677t
Potentially Reduced Exposure Products (PREPs), 900
PPD. See Probing pocket depth (PPD)
Preeclampsia
  conclusions and implications, 575, 600
  epidemiologic evidence, 553, 562t–563t
Pregnancy (smoking during), smoking attributable mortality, 858, 860t, 861, 862t
Pregnancy (smoking during), 527, 550–576. See also Fertility: Infertility
  abnormalities caused by (See Congenital malformations)
  and atherogenesis, 365
  conclusions, 28, 575, 600
  epidemiologic evidence, 549–575
  evidence synthesis, 574–575
  implications, 575
  and lung function (See Lung development in utero)
  outcome studies of, confounding factors in, 565, 592–593
  and oxidative damage, 619
  prevalence of, 550, 858, 861
Pregnancy complications, 527. See also specific complication
  and cigarette type, 50
  classification, 887
  conclusions, 7t, 530t, 600
  confounding factors in, 532–533, 565
  epidemiologic evidence, 550–575
  evidence synthesis, 565–575
  implications, 575
  smoking attributable mortality, 858, 860t, 861, 862t, 885, 887
Premature deaths, from smoking-related disease, 873t, 885. See also Smoking attributable mortality (SAM)
  prevention of, 871–876, 872t–873t, 875t
Premature rupture of membranes (PROM), epidemiologic evidence, 564t–565t
Prenatal exposure. See Pregnancy (smoking during)
PREPs. See Potentially Reduced Exposure Products (PREPs)
Preterm delivery, 532–533, 554–555, 575, 600, 887
Preterm premature rupture of membranes (PROM)
  conclusions and implications, 565, 575, 600
  epidemiologic evidence, 554–555, 564t–565t
Probing pocket depth (PPD), 733, 735, 736
Productivity loss, smoking attributable, 865, 871, 876
Progesterone receptors, 311
Prostacyclin, 370
Prostate cancer, 250–252, 907
  biologic basis, 250, 900
  conclusions, 26, 250, 252, 325
  epidemiologic evidence, 250–251, 255t–257t
  and erectile dysfunction, 771
  mortality rate, 250–252, 253t–257t
Prostate-specific antigens (PSA), 251
Proteases, 472–473
Protein(s), oxidative damage to, 619, 620t
Protein C, 368
Pseudomonas infection, 449
Psychosocial factors
  in absenteeism studies, 637
  of disease burden, 871
  in self-rated health status, 668–669
Public health recommendations. See also Smoking reduction
  separation of causal claims from, 24
  trends in, 898–901
Public Health Service (U.S.), 871, 897, 899
Public opinion, and smoking prevention, 897
Public Summary, 898
PubMed database. See MEDLINE search
Puff volume, 60
Pulmonary fibrosis, idiopathic, 28, 503
Pulmonary function testing. See also specific test
  in adolescents who smoke, 473–474
  in COPD, 452, 456, 499
  in infants, and lung development in utero, 467–469
Q
Quality-adjusted life years (QALYs), 855, 856t
Quality of life
  and disease burden, 871
  and self-rated health status, 668
  and smoking cessation, 869–870
R
Racial groups. See also Ethnic groups; Specific group
  bladder and kidney cancer, 166
  breast cancer, 303
  cardiovascular disease, 364, 384–385
  cervical cancer, 167
  colorectal cancer, 208–209
  COPD mortality, 500
  esophageal cancer, 116
  lung cancer, 60f
  lung function decline, 475
  oropharyngeal cancer, 63
  smoking prevalence among, 898
  stomach cancer, 178
Radiation exposure
  and brain cancer, 302
  and leukemia, 252
Rancho Bernardo (California) Heart and Chronic Disease Study, 481
Randomization, 20
Rapid acetylator genotype, 308
Ras mutations, 45, 136–137, 210
Rectal cancer. See Colorectal cancer
Reducing Tobacco Use (USDHHS), 899
Relative attachment loss, 733
Relative measures, versus absolute, 884
Relative risk (RR), 857–858, 878
in smoking attributable mortality estimates, 858, 859, 863, 880, 882, 884, 885, 886–887
Renal cell carcinoma, 166–167
Reproductive effects, 525–601, 908. See also Fertility; Pregnancy (smoking during); Specific effect
biologic basis, 532–533
conclusions, 7t, 28, 527, 528t–532t, 600
Reproductive risk factors, in breast cancer, 306–308
Respiratory complications, postoperative, 653
Respiratory diseases, 421–524, 907–908. See also specific disease
acute (See Acute respiratory diseases)
chronic (See Chronic respiratory diseases)
conclusions, 5t–7t, 27–28, 508–509, 617t–618t
smoking attributable mortality, 858, 860t, 862t, 882, 885, 886, 886t
Respiratory distress syndrome (RDS), 887
Respiratory symptoms, 485–508. See also Cough; Wheezing
adulthood, 6t, 488–508
childhood and adolescence, 6t, 485–488
and lung function decline, 475
Retina, effects of smoking on, 788, 789
Reverse causality, 372
Risk assessment. See also Attributable risk; Population-attributable risk (PAR)
elements of, 857–858
Risk factors, 19
nonsmoking-related, and smoking attributable mortality estimates, 884
population, disease burden elements used to evaluate, 855, 856t–857t
Roswell Park Cancer Institute, 51
Russia, stomach cancer study in, 181

S

SAFs. See Smoking attributable fractions (SAFs)
Saliva, composition of, and dental caries, 737
SAM. See Smoking attributable mortality (SAM)
SAMMEC. See Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC)
Sarcoidosis, 503
Search strategies, 3
SEER database. See Surveillance, Epidemiology, and End Results (SEER) database
Self-rated health status, 662–663, 668–669
dose-response relationship in, 668, 686t–689t
in former smokers versus nonsmokers, 668–669, 690t–697t
in nonsmokers versus smokers, 668–669, 678t–685t
Seven Countries Study, 386, 395
Seventh-Day Adventists study, 254, 499
Sexually transmitted infections, 167–168
Short Form 36 (SF-36), 662, 668
Sickness absences. See absenteeism
SIDS. See Sudden infant death syndrome (SIDS)
Silica exposure, 465t–466t
Skeletal health. See Bone mineral density (BMD); Fractures
Skin cancer
conclusions, 39
 genetic mutations in, 46–47
Skinfold thickness, and lung function decline, 479
Slow acetylator genotype, 308, 312
Small cell undifferentiated carcinoma, 43, 59
Small for gestational age (SGA). See also Intrauterine growth retardation (IUGR)
conclusions, 529t
incidence, 887
Smokeless tobacco
oropharyngeal cancer, 63–67
and risk of heart disease, 370–371
smoking attributable mortality, 882
Smoking and Tobacco Control Monograph Series (NCI), 880
Smoking attributable fractions (SAFs), 855, 856t, 885
for hospitalization costs, 869
for Medicaid costs, 868
for nursing home costs, 869
Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC), 19, 879, 880, 882, 884, 885, 886, 887
Smoking attributable mortality (SAM), 9, 30, 39, 855, 856t, 857–858, 857t, 898
calculation of, 861, 878–880, 885–886
data sets for, 880, 881t
current data, 858–861, 860t–861t, 876, 885–886, 886t
former smokers, 873–874
limitations of, 882–884
previous estimates of, 884–886, 886t
1999 state estimates, 863, 864t–867t
total (1965–1999), 859–863, 862t
Smoking cessation. See also Smoking reduction
absenteeism, 636–637, 646, 648t–653t
asthma, 490–491
benefits of, 30, 855, 871–876
bladder and kidney cancer, 166–167
bone density, 714
breast cancer, 304, 306–307, 311
cancer, 39
cardiovascular disease, 363–364, 369, 385–386
cataracts, 779–780
cerebrovascular disease, 394
cervical cancer, 168, 169
colorectal cancer, 210, 211, 213, 216t–239t, 246t–249t
COPD morbidity, 502  
cost-of-illness offsets from, 869–870  
endometrial cancer, 172  
erectile dysfunction, 769, 771–772  
esophageal cancer, 117, 118–119, 120t, 122t–127t, 128t, 130t–133t  
and extension of life expectancy, 869–870  
fracture risk, 718  
Graves’ ophthalmopathy, 801  
laryngeal cancer, 62  
leukemia, 253  
leukocyte count, 626, 632t–633t  
lung cancer, 43–44, 48–49, 48f, 61  
macular degeneration, 787  
medical services utilization, 647, 652, 664t–669t  
oropharyngeal cancer, 64–66, 106t–109t  
ovarian cancer, 171  
pancreatic cancer, 136, 137  
peptic ulcer disease, 804–805, 810, 811  
periodontal disease, 735  
and premature death, 873–874, 882  
prevalence of, 897  
prostate cancer, 251, 255t–257t  
respiratory disease  
acute, 424  
chronic, 467t, 486, 489  
self-rated health status, versus nonsmokers, 668–669, 690t–697t  
stomach cancer, 182–183, 184t–191t, 202t–209t  
Smoking prevalence, 9, 215, 859–898  
during adolescence, 215, 859, 859t, 897–898  
age distribution, 872–873, 872t–873t, 876  
among ethnic and minority groups, 898  
among women during childbearing years, 550  
gender distribution, 859, 859t  
during pregnancy, 550, 658, 861  
rates, 859, 859t, 861, 880, 881t, 885  
reduction of, health policy goals for, 871–877, 872t–873t, 875t  
1999 state estimates, 863  
Smoking reduction, 9, 30, 895–901. See also Smoking cessation  
benefits of, 855, 871–876  
conclusions, 9, 30  
implications, 877  
comprehensive approach to, 899  
scientific foundation for, 899–900  
social welfare and, 870, 897  
sustained effort in, 898  
trends in, 897, 901  
Smoking-related disease (SRD)  
absenteeism caused by (See Absenteeism)  
burden of (See Disease burden)  
economic costs of (See Economic costs)  
premature deaths from, 873t, 885, 898 (See also Smoking attributable mortality (SAM))  
prevention of, 871–876, 872t–873t, 875t  
Smoking status. See also Dose-response relationship;  
Nonsmokers; Smoking cessation  
and absenteeism, 627, 638t–645t, 648t–653t  
and asthma, 490–491  
and COPD mortality, 500  
Snuff, 64, 67  
Social welfare, and smoking control policies, 870, 897  
Societal values, and smoking prevention, 897  
Socioeconomic status (SES)  
absenteeism, 637  
breast cancer, 310  
dental caries, 738  
peptic ulcer disease, 807  
reproductive effects, 532, 535  
smoking prevalence, 898  
Sonoma (California) study, of chronic respiratory symptoms, 488  
Spain  
bone density studies in, 714  
peptic ulcer disease study in, 810  
Specificity, 22  
Sperm quality  
epidemiologic evidence, 533–534, 536t–539t  
evidence synthesis, 539–540  
low, conclusions, 532t  
Spontaneous abortion, 527  
conclusions and implications, 529t–530t, 565, 575, 600  
epidemiologic evidence, 551, 556t–557t  
Squamous cell carcinoma  
esophageal, 116, 117, 118, 119, 122t–127t, 130t–133t, 324  
lung, 43, 59, 62  
oropharyngeal, 64  
SRD. See Smoking-related disease (SRD)  
Stanford Five-City Project, 368  
States. See also individual states  
cost-of-smoking damage claims, 869  
smoking attributable mortality data, 863, 864t–867t, 879  
smoking prevalence rates, 863  
Statistical association, 21  
Statistical inference, 10–24  
approach to, 23–24  
Statistical strength, 21  
Stillbirth, 7t, 530t–531t  
conclusions, 7t, 530t–531t  
epidemiologic evidence, 583–584, 585t–592t  
Stomach cancer, 178–183, 907  
biologic basis, 180–181  
conclusions, 5t, 26, 178–179, 183, 325  
epidemiologic evidence, 181–182, 184t–209t  
evidence synthesis, 182–183  
implications, 183  
mortality rate, 178, 179t, 182–183  
Stomach dysplasia, 180  
Stoke. See Cerebrovascular disease  
Subarachnoid hemorrhage, 393, 394–395  
Subclinical atherosclerosis, 371–379  
biological markers of, 372–373, 372t, 378–379, 382t–385t
## The Health Consequences of Smoking

- Conclusions, 26, 379, 397, 407
- Epidemiologic evidence, 371–379, 3741–3791
- Evidence synthesis, 379
- Implications, 379
- Substance abuse, and absenteeism, 637
- Substance P, 367
- Sudden cardiac death, 384–392
- Epidemiologic evidence, 371–379, 374
- Smoking attributable mortality, 887
- “Sufficient” evidence category, 18
- “Suggestive” evidence category, 18
- Surgeon General’s report(s), 17
  - Bone density loss, 698
  - Cancer, 39, 40t–41t
  - Cardiovascular disease, 397
  - Causal inference in, 10–24
  - Cigarette type, 51, 56
  - Conclusions from, 3, 4t–8t, 25–30, 899–900
  - Eye disease, 777
  - Fracture risk, 698
  - Lung cancer, 43
  - Organization of, 9
  - Preparation of, 9
  - Smoking attributable mortality, 3, 9, 884–885
  - Terminology in, 10, 11t–17t, 17–18, 24
- Surgeon General’s report (1964), 3, 25, 30
  - Bladder and kidney cancer, 166
  - Cancer, 39
  - Cardiovascular disease, 363
  - Cerebrovascular disease, 393
  - Criteria for Judgment, 10
  - Erectile dysfunction, 767
  - Laryngeal cancer, 62
  - Lung cancer, 42, 43, 47, 48, 61
  - Methodology, 10, 18–19, 21–23
  - Oropharyngeal cancer, 63
  - Peptic ulcer disease, 804
  - Progress since, 897–898
  - Reproductive effects, 527
  - Smoking attributable mortality, 859, 861, 876, 884
  - Stomach cancer, 179
- Surgeon General’s report (1967), Cardiovascular disease, 363
- Surgeon General’s report (1968), Lung cancer, 43
- Surgeon General’s report (1969), Reproductive effects, 527
- Surgeon General’s report (1971)
  - Cardiovascular diseases, 363
  - Peptic ulcer disease, 804
- Surgeon General’s report (1972)
  - Bladder and kidney cancer, 166
  - Pancreatic cancer, 136
  - Peptic ulcer disease, 804
  - Cardiovascular diseases, 363
  - Stomach cancer, 179
- Surgeon General’s report (1978), Reproductive effects, 527
- Surgeon General’s report (1979), 3, 885
  - Acute respiratory diseases, 424
  - Bladder and kidney cancer, 166
  - Cardiovascular disease, 363
  - Esophageal cancer, 118
  - Pancreatic cancer, 136
  - Peptic ulcer disease, 804
- Surgeon General’s report (1980)
  - Bladder and kidney cancer, 166
  - Reproductive effects, 527
- Surgeon General’s report (1981), Lung cancer, 49
  - Bladder and kidney cancer, 166
  - Cervical cancer, 168
  - Esophageal cancer, 116
  - Pancreatic cancer, 136
  - Stomach cancer, 179
- Surgeon General’s report (1983)
  - Abdominal aortic aneurysm, 396
  - Cardiovascular diseases, 363
  - Chronic obstructive pulmonary disease, 501
  - Chronic respiratory disease, 502
- Surgeon General’s report (1985), Chronic respiratory diseases, 463
- Surgeon General’s report (1986), 3
- Surgeon General’s report (1989), 885
  - Acute respiratory disease, 424
  - Bladder and kidney cancer, 166
  - Cerebrovascular disease, 394
  - Cervical cancer, 168
  - Endometrial cancer, 172
  - Pancreatic cancer, 136
  - Reproductive effects, 527
  - Stomach cancer, 179
- Surgeon General’s report (1990), 3
  - Acute respiratory disease, 424, 438, 444
  - Bladder and kidney cancer, 166
  - Cancer, 39
  - Cardiovascular diseases, 363
  - Cerebrovascular disease, 394
  - Cervical cancer, 168
  - Chronic obstructive pulmonary disease, 501
  - Diminished health status, 616, 653
  - Erectile dysfunction, 767
  - Fracture risk, 718
  - Leukemia, 252
  - Liver cancer, 296
  - Lung cancer, 43, 49
  - Pancreatic cancer, 136
  - Peptic ulcer disease, 804
  - Stomach cancer, 179

939
Surgeon General’s report (1994), chronic respiratory symptoms, 485
cardiovascular diseases, 364
lung cancer, 43, 48
Surgeon General’s report (2000), 899
reproductive effects, 540
Surgeon General’s report (2001), 3
breast cancer, 303–304, 310
cancer, 39
cardiovascular diseases, 364
cervical cancer, 168, 169
colorectal cancer, 209
endometrial cancer, 172
fracture risk, 718
leukemia, 252
liver cancer, 296
lung cancer, 43, 48
ovarian cancer, 171
peptic ulcer disease, 804
reproductive effects, 540
Surgeon General’s report (2004), conclusions, 4t–8t
Survival, Epidemiology, and End Results (SEER) database, 42, 59, 60f, 63, 116, 178
Survivability, 21
Sweden
abdominal aortic aneurysm study in, 396
bone density studies in, 714
cervical cancer study in, 169
childhood asthma study in, 487
colorectal cancer study in, 212–213
diabetes mellitus study in, 262
endometrial cancer study in, 173
leukemia study in, 254
prostate cancer study in, 251
smokeless tobacco study in, 370–371
Switzerland
breast cancer study in, 310–311
peptic ulcer disease study in, 806
T
T1, 211
Taiwan, liver cancer study in, 297
Tar yield
biological markers of, 50–51
changing, and disease risk, 900
coronary heart disease, 386, 388t–393t, 392
lung cancer, 49–51, 50f, 52t–57t, 56–57, 59, 61
oxidative stress, 619
respiratory disease
acute, 444
chronic, 501–502, 504t–507t
TBARS. See Thiobarbituric acid reactive substances (TBARS)
Tecumseh (Michigan) study, acute respiratory disease, 444, 447, 450t–454t, 462

Teeth, diseases of. See Dental diseases; Specific disease
Temporality, 22
and carcinogenesis, 215
and subclinical atherosclerosis studies, 372, 397
Tennessee, reproductive effects study in, 535
Terminology, 10, 11t–17t, 17–18, 24
Testicular cancer, 39
Testosterone, 250
Thiobarbituric acid reactive substances (TBARS), 619, 622t–625t
Thiocyanate, 778
Th-2 lymphocyte phenotype, 428, 433, 444
Thrombosis, 367–368, 387
Tissue plasminogen activator (TPA), 367
Tobacco control programs, 874–875, 877, 899. See also Smoking reduction
Tobacco-specific nitrosamines, 44, 60, 210
Tobacco use products. See also Cigarette type; Cigar smoking; Pipe smoking; Smokeless tobacco and oral and pharyngeal cancer, 63–64, 66–67
and risk of heart disease, 370–371
Transitional cell carcinoma, 166
Tucson Epidemiological Study of Airways Obstructive Disease, 481–482
Tumor suppressor genes, 46, 64–65, 117, 136, 166, 210. See also specific gene

U
Ulcers. See Peptic ulcer disease
Ultrasoundography
carotid B-mode, in atherosclerosis studies, 374t–379t
of coronary calcium, 379
Umbilical arteries, endothelial changes in, smoking-related, 365
Underestimation, in smoking attributable mortality estimates, 881–882
Unfiltered cigarettes. See also Nicotine yield; Tar yield and chronic respiratory disease, 501–502, 504t–507t
epidemiologic studies of, 51, 56
and lung cancer, 49–51, 56–57, 59
United Kingdom. See also under British
absenteeism studies in, 627
breast cancer study in, 307
childhood asthma studies in, 487
chronic respiratory disease studies in, 502
chronic respiratory symptom studies in, 488–489
COPD studies in, 455
coronary heart disease study in, 386
idiopathic pulmonary fibrosis study in, 503
lung cancer studies in, 48f, 59
medical services utilization study in, 647
peptic ulcer disease study in, 805–807, 810
self-rated health status study in, 663
United States military cohort study, of influenza, 432
United States Physicians Study, cerebrovascular disease, 394
United States Public Health Service, 871, 897, 899
United States Veterans Study, 396, 857
Upper respiratory illnesses (URIs). See also specific disease
  conclusions, 424
  epidemiologic evidence, 438–444, 438t–443t
  risk for, versus lower respiratory illnesses, 445
Urinary tract anomalies, congenital, 576
Uterine arteries, endothelial dysfunction in, 365
Uterine cancer. See Cervical cancer; Endometrial cancer

\[V\]

Vaccination, influenza, 432, 455
Vascular endothelial growth factor (VEGF), 781
Vascular hemodynamics
  and cardiovascular disease, 369
  and erectile dysfunction, 772–773
  and macular degeneration, 781
Vasectomy, and prostate cancer, 250
Very low birth weight (VLBW). See Very low birth weight (VLBW)
Very low-density lipoprotein (VLDL), 368
Veterans Administration
  bladder and kidney cancer studies, 167
  chronic respiratory disease study, 502
  colorectal cancer study, 213
  esophageal cancer studies, 117–118
  leukemia study, 253–254
  liver cancer study, 297
  lung cancer studies, 49
  medical services utilization study, 647
  oropharyngeal cancer study, 66
  peptic ulcer disease data, 805
  prostate cancer study, 250
  self-rated health status data, 663
  stomach cancer study, 182
Veterans Study (U.S.), 396, 857
Vietnam Experience Study, 772
Visual system diseases. See Eye diseases
Vitamin C
  and cataractogenesis, 778
  depletion of, 619

Vlagtwedde-Vlaardingen Study, 481
VLBW. See Very low birth weight (VLBW)
von Willebrand factor (vWF), 367–368

\[W\]

Washington state
  cervical cancer study in, 169
  endometrial cancer study in, 173
Wheezing, 488
  in adolescents who smoke, 485
  and lung development in utero, 468
  and lung function decline, 475
White blood cell count. See Leukocyte count
Whitehall Study (United Kingdom), of chronic respiratory
disease, 502
White matter disease, 373, 379
Wisconsin
  breast cancer study in, 306
  endometrial cancer study in, 173
Women. See Gender distribution
  fertility in (See Fertility; Pregnancy)
Women’s Health Initiative Trial of HRT, 20
Work loss, in cost-of-illness estimates, 865, 871, 876
World Bank, 870
World Health Organization (WHO), 534
  The Global Burden of Disease, 855
  Healthy Life, 886
Wound healing, 653, 677t, 810–811

\[Y\]

Years of potential life lost (YPLL), 855, 856t
  calculation of, 857
  current, 858–859, 860t–861t
  data sets for, 880, 881t
  limitations of, 882–884
Youth Risk Behavior Survey, 871