

INDEX

ABBREVIATIONS

constituents of smokeless tobacco, 70

ABRASION (DENTAL)

defined, 128

relation to smokeless tobacco, 130

ABUSE LIABILITY OF

NICOTINE

defined, 145, 157

evidence for abuse potential, 166-167

experimental studies, 157-166

implications of studies, 162

pharmacodynamic effects, 158

research needs, 184

self-administration, 159-162

ACANTHOSIS

clinical report, 115-118

defined, 113

ADENOCARCINOMA

relation to snuff use, 48

ADOLESCENT USE

attitudes, 24

data criteria, 17

ethnic groups, 20

males vs. females, 20

National Program Inspection study, 24

peer and family influences, 24

rural vs. urban areas, 20

ADULT USE

patterns, 16-17

ADVISORY COMMITTEE TO THE SURGEON GENERAL, REPORT

carcinogens revealed, vii

conclusions, vii-viii, xxii

gingival recession, viii

historical perspective of report, xvii-xix

nicotine addiction and effects, viii

noncancerous conditions, xxi

oral leukoplakia, viii

organization of report, xvii

overview, xx-xxii

precancerous oral health conditions, xxi

review methods, xix-xx

ALCOHOL CONSUMPTION

relation to smokeless tobacco, 35

ANIMAL MODELS

bioassays with chewing tobacco, 79, 82-83

bioassays with constituents of smokeless tobacco, 86-88

bioassays with snuff, 83-86

metabolism of NMOR, 74-75

metabolism of NNK, 71-73

metabolism of NNN, 73-74

mutagenicity assays, 88-89

pharmacodynamic effects of nicotine, 158

physiologic effects of nicotine, 178

salivary glands, 126-127

short-term tests, 88-89

ASIAN DATA

case-control studies, 42-43, 119

chewing of quids, 42-43, 50

esophageal neoplasms, 50

rates of oral cancer, 42-43

smokeless tobacco products, 42-43

smoking and oral cancer risk, 43-44

BIOASSAYS FOR CARCINOGENIC

ACTIVITY OF CHEWING

TOBACCO OR CHEWING

TOBACCO EXTRACTS, 80

BIOASSAYS FOR CARCINOGENIC

ACTIVITY OF SNUFF OR SNUFF

EXTRACTS, 81

BIOASSAYS WITH

CHEWING TOBACCO

(See also ANIMAL MODELS)

application to the cheek pouch,

79, 82-83

application to the oral mucosa,

79, 82-83

oral administration, 79

skin application, 83

subcutaneous application, 83

BIOASSAYS WITH

CONSTITUENTS OF

SMOKELESS TOBACCO

(See also ANIMAL MODELS)

inducement of tumors, 86-88

- BIOASSAYS WITH SNUFF**
(*See also* **ANIMAL MODELS**)
application to the lip, oral
mucosa, or cheek pouch, 84-86
oral administration, 83-84
relation to herpes simplex virus,
86-87
subcutaneous administration, 86
- Bladder Neoplasms, *See* URINARY TRACT NEOPLASMS**
- Blockade Therapy, *See* NICOTINE ADDICTION TREATMENT**
- BUCCAL CARCINOMA**
case studies, 34-36
- CALCULUS (DENTAL)**
defined, 129
use of smokeless tobacco, 130
- CARCINOGENICITY OF TOBACCO-SPECIFIC NITROSAMINES, 82**
- CARCINOGENS**
daily exposure from snuff and chewing tobacco usage, 64
in smokeless tobacco, 58-60, 64-65
N-nitrosamines, 58-60, 64
polonium-210 (²¹⁰Po), 58, 65
polynuclear aromatic hydrocarbons (PAH), 58, 65
saliva analysis, 64
- CARCINOMA *IN SITU***
defined, 114
diagnoses differ, 123
squamous cell carcinoma study, 120
- Cardiovascular System, *See* PHYSIOLOGIC EFFECTS OF NICOTINE**
- Central Nervous System, *See* PHYSIOLOGIC EFFECTS OF NICOTINE**
- CHARACTERISTICS OF SMOKELESS TOBACCO PRODUCTS, 6**
- CHEEK NEOPLASMS**
(*See also* **ORAL CANCER**)
animal models, 79, 82, 84
case study, 120
- CHEMICAL COMPOSITION**
processed tobacco, 58
nicotine, 58
- CHEMICAL CONSTITUENTS OF SMOKELESS TOBACCO**
carcinogens, 58-59, 60, 64-65
chemical composition, 58
- CHEVRON KERATINIZATION**
case report, 116-117
defined, 114
- CHEWING TOBACCO (*See also* SMOKELESS TOBACCO, BIOASSAYS)**
case-control studies, 36, 40
characteristics, 5
looseleaf, 5, 7
plug, 5, 7
twist, 5, 7
- Commonalities Between Tobacco and Other Addictive Substances, *See* NICOTINE ADDICTION**
- CONCEPTUAL MODEL**
of smokeless tobacco lesions, 121
- CONCEPTUAL NATURAL HISTORY OF ORAL MUCOSAL CHANGES ASSOCIATED WITH THE USE OF SMOKELESS TOBACCO, 122**
- CORONARY AND PERIPHERAL VASCULAR DISEASE**
acute coronary events, 177-178
and nicotine, 177-178
atherosclerosis, 177
effect on platelets, 177
endothelial injury, 177
research needed, 185
ventricular fibrillation, 178
- Cotinine, *See* PHARMACOKINETICS OF NICOTINE**
- CURRENT POPULATION SURVEY (CPS)**
survey data, 12, 14
- DATA: ABUSE LIABILITY STUDIES AT ADDICTION RESEARCH CENTER, 160**
- DENTAL CARIES**
defined, 128
relation to smokeless tobacco, 129-130
- DOSE RESPONSE EFFECTS (*See also* ANIMAL MODELS)**
and oral leukoplakia, 131
nicotine, 147, 152-153, 158, 182-183
- DRUG DEPENDENCE**
commonalities between tobacco and other substances, 146-147, 152-157
defined, 145
physiologic or physical dependence, 145-146

DYSPLASIA
defined, 114
diagnoses differ, 121, 123
relation to oral lesions, 115-116

Endocrine System, See

**PHYSIOLOGIC EFFECTS
OF NICOTINE**

EPIDEMIOLOGIC STUDIES

AND SMOKELESS TOBACCO

data from Asia, 42-44

data from North America and
Europe, 33-42

oral cancer, 33-44

other cancers, 47-55

EROSION (DENTAL)

defined, 128

ERYTHROPLAKIA

defined, 113

ESOPHAGEAL NEOPLASMS

case-control study, 39, 48-50

cohort study, 49-50

ESTIMATED EXPOSURE OF U.S.

RESIDENTS TO NITROSAMINES,
64

ESTIMATED RELATIVE RISKS

ASSOCIATED WITH SNUFF USE

FOR CANCERS OF THE ORAL

CAVITY, PHARYNX, AND

LARYNX, CASE-CONTROL

DATA FROM VOGLER ET AL.,

FEMALES ONLY, 38

ESTIMATED RELATIVE RISK FOR

CANCER OF THE HEAD AND

NECK FROM SMOKELESS

TOBACCO USE BY ANATOMIC

SITE, THIRD NATIONAL CAN-

CER SURVEY, MALES ONLY, 39

ESTIMATED RELATIVE RISK OF

ORO-PHARYNGEAL CANCER

ACCORDING TO DURATION OF

SNUFF USE AND ANATOMIC

SITE, WINN ET AL., 41

ESTIMATES OF RELATIVE RISKS

OF BLADDER CANCER IN

PERSONS WHO HAVE EVER

USED CHEWING TOBACCO

AND SNUFF, 53

**ETHNIC USE OF SMOKELESS
TOBACCO**

of youth, 21-22

Experimental Studies Exposing

Laboratory Animals,

See ANIMAL MODELS

**FORMATION OF TOBACCO-
SPECIFIC NITROSAMINES, 60**

**FREQUENCY OF SMOKELESS
TOBACCO USE IN PAST YEAR,**
14

Gastric Neoplasms,

See STOMACH NEOPLASMS

GENERAL PRINCIPLES IN

EVALUATING CARCINOGENIC

RISK OF CHEMICALS OR COM-

PLEX MIXTURES (INTERNA-

TIONAL AGENCY FOR

RESEARCH ON CANCER, xxi

**GINGIVAL AND PERIODONTAL
HEALTH**

bone loss, 125

effects of smokeless tobacco, 101,
103-104, 123

inflammation, 126

studies in Sweden, 126

studies in the United States, 125

GINGIVAL CARCINOMA

case studies, 34, 36, 44, 120

GINGIVAL RECESSION

Advisory Committee report, viii

defined, 123

related to oral leukoplakia/
mucosal pathology, 112

studies in the United States, 125

GINGIVITIS

defined, 123

relation to smokeless tobacco,

125, 129

studies in the United States, 125

GLYCYRRHIZIC ACID

metabolic consequences, 179

HEAD AND NECK NEOPLASMS

case-control study, 38-39, 38-39

HEROIN ADDICTION

THERAPY

model used, 156

HERPES SIMPLEX VIRUS

relation to oral cancer, 86-87, 93

HISTORICAL PERSPECTIVE

chewing tobacco, xvii

consequences of use, xviii-xix

decline of use, 5

early uses, xviii-xix, 5

snuff, xvii-xix

HYPERKERATOSIS

cohort study, 117-118

defined, 113

relation to snuff use, 125

- HYPERORTHOKERATOSIS**
 cohort study, 118
 defined, 113
- HYPERPARAKERATOSIS**
 cohort study, 118-119
 defined, 113
- HYPOKALEMIA**
 nonnicotine metabolic
 consequences, 179
- INHALED SNUFF**
 relation to nasal carcinoma, 93
- Kidney Neoplasms, See URINARY TRACT NEOPLASMS**
- LARYNGEAL NEOPLASMS**
(See also THIRD NATIONAL CANCER STUDY)
 case-control study, 37, 38, 50-51
- Leukoplakia, Oral, See ORAL LEUKOPLAKIA**
- LIP NEOPLASMS** *(See also ORAL CANCER)*
 animal models, 84-85
 case-control study, 36
 labial mucosa, 116-117
- Looseleaf, See CHEWING TOBACCO**
- MANUFACTURING TRENDS: QUANTITIES OF SMOKELESS TOBACCO MANUFACTURED IN THE UNITED STATES FROM 1961 TO 1985 EXPRESSED IN MILLION POUNDS, 8**
- MEAN FREQUENCY OF SMOKELESS TOBACCO USE DURING LAST 7 DAYS BY ETHNICITY BY MALE RESPONDENTS, 23**
- METABOLIC PATHWAYS OF NMOR, 74**
- METABOLIC PATHWAYS OF NNK, 71**
- METABOLIC PATHWAYS OF NNN, 73**
- METABOLISM OF CONSTITUENTS OF SMOKELESS TOBACCO**
 conversion of products, xx-xxi
 of NMOR, 74-75
 of NNK, 71-73
 of NNN, 73-74
- MOUTH NEOPLASMS**
(See also ORAL CANCER)
 case-control study, 36-37, 36, 37, 39, 120
- MUCOSAL PATHOLOGY**
 snuff-induced lesions, 114-116
 studies in Scandanavia, 111-112
 studies in the United States, 107, 108-109, 110-112
- MUTAGENICITY ASSAYS AND OTHER SHORT-TERM TESTS**
(See also ANIMAL MODELS)
 chewing tobacco, 88
 snuff, 88
 tobacco-specific N-nitrosamines, 88-89
- NASAL NEOPLASMS**
 posterior nasal space tumors, 48
 relation to snuff use, 48
- Nass, See ASIAN DATA**
- NATIONAL BLADDER CANCER STUDY**
 relation to smokeless tobacco use, 52-53
- NATIONAL BLOOD CANCER STUDY**
 survey data, 16
- NATIONAL HEALTH INTERVIEW SURVEY (NHIS)**
 survey data, 10, 14-15
- NATIONAL INSTITUTE ON DRUG ABUSE (NIDA)**
 survey data, 13-15
- NATIONAL PREVALENCE OF CURRENT USE OF SNUFF BY GENDER, AGE, AND RACE FOR 1980 THROUGH 1985, 11**
- NATIONAL PREVALENCE OF SMOKELESS TOBACCO USE BY ADULT STATUS AND SEX, NIDA SAMPLE, 1985, 13**
- NATIONAL PREVALENCE OF SMOKELESS TOBACCO USE: DATA SOURCES, 9**
- NATIONAL SURVEY DATA**
 conclusions, 24-25
 Current Population Survey, 12, 14
 discussion of data, 14-15
 National Health Interview Survey, 10, 14-15
 National Institute on Drug Abuse Household Survey, 13-15
 Office on Smoking and Health Surveys, 7, 10, 12, 14
 Simmons Market Research Bureau, 10, 12, 14-15

NEUROADAPTATION (*See also* **PHYSICAL DEPENDENCE POTENTIAL OF NICOTINE, PHYSIOLOGIC EFFECTS OF NICOTINE**)

defined, 145
demonstrated, 153
nicotine, 162

NICOTINE (*See also* **PHARMACOKINETICS OF NICOTINE, NICOTINE ADDICTION, NICOTINE EXPOSURE, ABUSE LIABILITY, PHARMACODYNAMICS OF NICOTINE, PATHOLOGIC EFFECTS OF NICOTINE, AND SMOKELESS TOBACCO**)

absorption, 141-142, 185
cotinine levels, 143
dependence, 154
distribution, 142
elimination, 142-143
habituating agent, 58
levels, 143
physical dependence, 162-166
self-administration, 159-161
therapeutic effects, 154-155
turnover, 143

NICOTINE ADDICTION (*See also* **NICOTINE EXPOSURE, PHYSICAL DEPENDENCE POTENTIAL OF NICOTINE**)

commonalities with other
addictive substances, 146-147,
152-157, 184
dose manipulations, 153
encourages other drug use, 184
pattern of use, 152
relation to smokeless tobacco, 58,
144-147, 152, 185
self-administration, 152-153
social tolerance, 156
therapeutic effects, 154-155
tolerance of use developed, 153
treatment for, 155-156

NICOTINE ADDICTION TREATMENT

blockade therapy, 156
nicotine gum, 156
pretreatment, 156
substitution, 156
supportive therapy, 156

NICOTINE CHEWING GUM

as substitution, 156
reinforcing properties, 166-167
research needs, 184
self-administration, 167

NICOTINE EXPOSURE

(*See also* **NICOTINE, NICOTINE ADDICTION**)

delivery to the central nervous
system, 147
other physiological effects,
viii, xxii, xxvi
pharmacokinetics, xxiv, 141-144
peer pressure, 147, 152
reinforcer for animals, 147
relation to addiction, xxiv-xxv,
144-157

NICOTINE SELF-ADMINISTRATION PATTERNS, 161

NMOR (*See also* **ABBREVIATIONS**)

metabolism in rats, 74-75

N-NITROSAMINES

(*See also* **CARCINOGENS**)

exposure in nontobacco
products, 64, 64
in snuff, 60
in tobacco leaves, 59
metabolized by tissue, 70-75
nonvolatile, 60, 62
tobacco-specific, 60, 63
volatile, 60, 61

N-NITROSAMINES IN SMOKELESS TOBACCO, 59

NNK (*See also* **ABBREVIATIONS**)

metabolism in rats, 71-73

NNN (*See also* **ABBREVIATIONS**)

metabolism in rats, 73-74
relation to buccal mucosa, 73
relation to lingual mucosa, 73

NONCANCEROUS CONDITIONS (*See also* **PRECANCEROUS CONDITIONS**)

relation to smokeless tobacco,
100-105

NONVOLATILE NITROSAMINES IN SMOKELESS TOBACCO (PPB), 62

OFFICE ON SMOKING AND HEALTH (OSH)

survey data, 7, 10, 12, 14

ORAL CANCER (*See also* **ORAL LEUKOPLAKIA, ORAL SOFT TISSUES, LIP NEOPLASMS, MOUTH NEOPLASMS, CHEEK NEOPLASMS, AND TONGUE NEOPLASMS**)

case studies, 34-41

- ORAL CANCER**—Cont.
epidemiologic studies, 33-55
in rats, 72, 79, 84-86, 88-89
- ORAL LEUKOPLAKIA**
causation, vii
defined, 113
prospective study, 118
relation to smokeless tobacco, viii,
xxiii-xxiv, 107, 110-112, 121
studies in Scandinavia, 111-112
studies in the United States, 107,
108-109, 110-112
- ORAL SOFT TISSUES**
clinical reports of lesions, 114-117
cohort studies, 117-119
definitions, 113-114
oral lesions, 119-120
transformation, 113-123
- PANCREATIC NEOPLASMS**
chewing tobacco use, 54-55
- PARANASAL SINUS
NEOPLASMS**
relation to snuff use, 48
- PATHOLOGIC EFFECTS OF
NICOTINE AND SMOKELESS
TOBACCO**
coronary and peripheral vascular
disease, 177-178
hypertension, 178
nonnicotine metabolic
consequences, 179
peptic ulcer disease, 178
pregnancy risks, 178-179
- PERIODONTAL TISSUE
DEGENERATION** (*See also*
**MUCOSAL PATHOLOGY,
GINGIVAL AND
PERIODONTAL HEALTH**)
and teenagers, 110
- PERMISSIBLE LIMITS FOR
INDIVIDUAL N-NITROSAMINES
IN CONSUMER PRODUCTS**, 65
- PHARMACODYNAMICS OF
NICOTINE**
Liking Scale, 158
Morphine Benzadrine Group
Scale, 158
research needs, 184
self-administration
implications, 162
- PHARMACOKINETICS OF
NICOTINE**
absorption, 141-142
cotinine blood levels, 143
- PHARMACOKINETICS OF
NICOTINE**—Cont.
distribution, 142
elimination, 142-143
levels in smokeless tobacco, 141
nicotine blood levels, 143
time course of turnover, 143
- PHARYNGEAL NEOPLASMS**
case-control study, 37, 38, 39-40
cohort study, 41-42
- PHYSICAL DEPENDENCE
POTENTIAL OF NICOTINE**
(*See also* **NEUROADAPTATION**)
defined, 145, 162
determination, 153-154
evidence for physical dependence,
157-166
evidence of withdrawal
symptoms, 164-166
implications of physical
dependence, 166
reinforcement with nicotine
gum, 167
studies conducted, 157, 162-163
tobacco withdrawal, 163-164
- PHYSIOLOGIC EFFECTS OF
NICOTINE** (*See also* **NEURO-
ADAPTATION, PHYSICAL
DEPENDENCE POTENTIAL
OF NICOTINE**)
cardiovascular system, 175-176
central nervous system, 147, 176,
183
differentiation possible, 162
endocrine system, 176
pleasant effects produced, 162,
176
- PLAQUE**
defined, 128
use of smokeless tobacco, 130
- Plug**, *See* **CHEWING TOBACCO**
- Polonium-210 (²¹⁰Po)**,
See **CARCINOGENS**
- Polynuclear Aromatic
Hydrocarbons (PAH)**,
See **CARCINOGENS**
- POSTERIOR NASAL SPACE
TUMORS**
relation to liquid snuff, 48
- PRECANCEROUS CONDITIONS**
(*See also* **NONCANCEROUS
CONDITIONS**)
Advisory Committee Report, xxi
defined, 113
relation to leukoplakia, 119
relation to smokeless tobacco, xxi

PRECANCEROUS LESION

defined, 113
oral lesions, 119

PREVALENCE OF SMOKELESS TOBACCO USE BY CENSUS REGION, 1985, 16

PREVALENCE OF USE OF SMOKELESS TOBACCO AMONG YOUTH BY GENDER AND GRADE: LOCAL SURVEYS USING STANDARDIZED QUESTIONS, 21-22

PREVALENCE OF USE OF SMOKELESS TOBACCO AMONG YOUTH BY GENDER AND GRADE: REGIONAL AND STATE LEVEL SURVEYS REPORTED SINCE 1980, 18-19

PREVALENCE OF SNUFF AND CHEWING TOBACCO USE BY ADULT MALES IN 10 GEOGRAPHIC AREAS, 17

PREVALENCE OF SNUFF USE AMONG COLLEGE STUDENTS 18 YEARS OF AGE OR OLDER BY GENDER AND YEAR, 12

PREVALENCE OF THE USE OF SNUFF AND CHEWING TOBACCO AMONG MALES BY AGE, 1970 NHIS AND 1985 CPS SURVEYS, 11

Quids, *See* ASIAN DATA

RECENCY OF SMOKELESS TOBACCO USE BY SEX AND AGE GROUP, 13

RELATIVE RISK OF ORAL CANCER FROM BETEL QUID WITH AND WITHOUT TOBACCO (WITH 95-PERCENT CONFIDENCE LIMIT), 43

RELATIVE RISKS OF ESOPHAGEAL CANCER IN PERSONS EXPOSED TO CHEWING TOBACCO AND SNUFF: SUMMARY OF FOUR CASE-CONTROL STUDIES, 49

Renal Neoplasms, *See* URINARY TRACT NEOPLASMS

RESEARCH NEEDS

carcinogenesis, 93-94
nicotine exposure, 184-185
oral health effects 131-132
prevalence/trends of use, 25
standardizing methods, 25

SALIVA ANALYSIS

of snuff dippers, 64

SALIVARY GLANDS

effects of smokeless tobacco, 101-103, 126-128

SCHEME LINKING NICOTINE TO FORMATION OF THE PROMUTAGENIC DNA ADDUCT O⁶-METHYLGUANINE, 72

SELECTED STUDY SUMMARIES FOR THE NONCANCEROUS ORAL HEALTH EFFECTS FROM THE USE OF SMOKELESS TOBACCO, 100-105

SIALADENITIS

defined, 123
relation to smokeless tobacco, 127
relation to snuff dippers, 127

SIMMONS MARKET RESEARCH BUREAU

survey data, 10, 12, 14-15

SMOKELESS TOBACCO (*See also* CHEWING TOBACCO, SNUFF)

carcinogenesis associated with, 33-93

chemical constituents, 58-69

cohort studies, 41-42

commonalities with other addictive substances, 146-147, 152-157

conclusions, 24-25, 92-93, 130-131, 182-183

effect on oral leukoplakia/
mucosal pathology, 107-112

epidemiologic studies and case

reports of oral cancer, 33-44

epidemiologic studies of other cancers, 47-55

evidence for abuse and dependence, 166-167

experimental studies exposing laboratory animals, 78-79

experimental studies of abuse and dependence, 157-166

metabolism of constituents, 70-75

nicotine addiction, 144-146

nicotine exposure, xxiv, 141-185

noncancerous and precancerous oral health effects, xxiii-xxiv, 99-130

pharmacokinetics of nicotine, 141-144

physiologic and pathologic effects, 175-179

prevalence and trends of use, xxii, 4-24

- SMOKELESS TOBACCO—Cont.**
 product characteristics, 5
 research needs, 25, 93-94,
 131-132, 184-185
 transformation of oral soft
 tissue, 113-120
 trends in production and sales,
 5, 7
 trends in self-reported use, 7, 10,
 12-17, 20, 24
- SMOKELESS TOBACCO AND HEAD
 AND NECK CANCER BY ANA-
 TOMIC SITE, CASE-CONTROL
 DATA FROM VINCENT AND
 MARCHETTA, MALES ONLY, 38**
- SMOKELESS TOBACCO AND
 MOUTH CANCER, CASE-
 CONTROL DATA FROM
 MOORE ET AL., 36**
- SMOKELESS TOBACCO AND
 MOUTH CANCER, CASE-
 CONTROL DATA FROM
 PEACOCK ET AL., 37**
- SNUFF (See also SMOKELESS
 TOBACCO, BIOASSAYS,
 ANIMAL MODELS)**
 case-control studies, 37, 40
 characteristics, 5
 dry, 7
 historical uses, xviii-xix
 levels of carcinogens, 60, 64-66
 moist, 7
 relation to cancer, 41, 53-55
 saliva analysis, 64
- SNUFF-DIPPER'S CARCINOMA**
 defined, 113
 exposure to nitrosamines, 64
 oral lesions, 120
 reports, 35
 Scandinavian study, 111
- SQUAMOUS CELL CARCINOMA**
 case studies, 34-36
 clinical study, 117
 defined, 114
 oral lesions, 119-120
 snuff and ear neoplasms, 47
- STAINING (DENTAL)**
 defined, 129
- STATE AND LOCAL SURVEY
 DATA**
 adolescent use, 17, 20, 24-25
 adult use, 16-17
- STOMACH NEOPLASMS**
 relation to smokeless tobacco,
 51-52
- Substitution Therapy, See
 NICOTINE ADDICTION
 TREATMENT**
- SUMMARY OF DATA: LIABILITY
 OF NICOTINE AS TOBACCO
 SMOKE OR INTRAVENOUS
 INJECTIONS, 159**
- SUMMARY OF REPORTS IN
 WHICH NICOTINE WAS AVAIL-
 ABLE UNDER INTRAVENOUS
 DRUG SELF-ADMINISTRATION
 PROCEDURES, 148-151**
- SUMMARY OF SELECTED CASE
 REPORTS, 106**
- Supportive Therapy, See
 NICOTINE ADDICTION
 TREATMENT**
- Surgeon General's Advisory
 Committee on the Health
 Consequences of Using Smokeless
 Tobacco, See ADVISORY
 COMMITTEE TO THE SUR-
 GEON GENERAL, REPORT**
- TEETH**
 dental caries, 129-130
 effect of smokeless tobacco,
 128-130
 other hard tissue effects, 130
- THERAPEUTIC EFFECTS OF
 NICOTINE**
 as an anorectic, 154
 mood regulator, 154
 performance of cognitive tasks,
 154
 self-medication, 155
 work enhancement, 154
- THIRD NATIONAL CANCER
 STUDY (TNCS)**
 bladder cancer, 54
 laryngeal neoplasms, 50-51
 other cancer sites, 55
 stomach neoplasms, 52
- TOBACCO SNIFFING**
 rare practice, xvii
- TOBACCO-SPECIFIC
 N-NITROSAMINES IN SMOKE-
 LESS TOBACCO (PPB), 63**
- TOBACCO-SPECIFIC
 N-NITROSAMINES IN SNUFF,
 U.S. BRANDS, 1985, 66**
- TOBACCO WITHDRAWAL
 (See also PHYSICAL DEPEN-
 DENCE OF NICOTINE)**
 evidence of symptoms, 164-166

TOBACCO WITHDRAWAL—

Cont.

study findings, 165

symptoms, 163-164

University of Minnesota

studies, 164-166

TONGUE NEOPLASMS (*See also*

ORAL CANCER, MOUTH

NEOPLASMS)

case-control study, 36, 120

TRENDS IN PRODUCTION

AND SALES

categories of products, 7

temporal trends, 7

United States Department of

Agriculture (USDA) reports, 5

TRENDS IN SELF-REPORTED

USE: SURVEY DATA

national survey data, 7, 10, 12-15

state and local survey data,

15-17, 20, 24

Twist, See CHEWING TOBACCO

URINARY TRACT NEOPLASMS

case-control studies, 52-54

relationship to smokeless

tobacco, 52-54

***USE OF SMOKELESS TOBACCO IN
THE UNITED STATES BY
INDIVIDUALS OVER 21 YEARS
OF AGE, 10***

***VARIATIONS IN TERMS USED AND
DEFINITIONS PROVIDED FOR
GINGIVITIS AND GINGIVAL RE-
CESSION BY STUDIES CITED, 124***

***VARIATIONS IN TERMS USED AND
DEFINITIONS PROVIDED FOR
LEUKOPLAKIA/MUCOSAL
PATHOLOGY ASSOCIATED
WITH SMOKELESS TOBACCO
USED BY STUDIES CITED,
108-109***

VERRUCOUS CARCINOMA

defined, 114

dysplastic lesions, 131

***VOLATILE NITROSAMINES IN
SMOKELESS TOBACCO (PPB),
61***

WORLD HEALTH

ORGANIZATION (WHO)

Committee on Drug Dependence,

145

defines oral leukoplakia, 107

differing diagnoses, 123

DISCRIMINATION PROHIBITED: Under provisions of applicable public laws enacted by Congress since 1964, no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity (or, on the basis of sex, with respect to any education program or activity) receiving Federal financial assistance. In addition, Executive Order 11141 prohibits discrimination on the basis of age by contractors and subcontractors in the performance of Federal contracts, and Executive Order 11246 states that no federally funded contractor may discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. Therefore, the B. G. Health Service must be operated in compliance with 34 CFR 46.121(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o), (p), (q), (r), (s), (t), (u), (v), (w), (x), (y), (z), (aa), (ab), (ac), (ad), (ae), (af), (ag), (ah), (ai), (aj), (ak), (al), (am), (an), (ao), (ap), (aq), (ar), (as), (at), (au), (av), (aw), (ax), (ay), (az), (ba), (bb), (bc), (bd), (be), (bf), (bg), (bh), (bi), (bj), (bk), (bl), (bm), (bn), (bo), (bp), (bq), (br), (bs), (bt), (bu), (bv), (bw), (bx), (by), (bz), (ca), (cb), (cc), (cd), (ce), (cf), (cg), (ch), (ci), (cj), (ck), (cl), (cm), (cn), (co), (cp), (cq), (cr), (cs), (ct), (cu), (cv), (cw), (cx), (cy), (cz), (da), (db), (dc), (dd), (de), (df), (dg), (dh), (di), (dj), (dk), (dl), (dm), (dn), (do), (dp), (dq), (dr), (ds), (dt), (du), (dv), (dw), (dx), (dy), (dz), (ea), (eb), (ec), (ed), (ee), (ef), (eg), (eh), (ei), (ej), (ek), (el), (em), (en), (eo), (ep), (eq), (er), (es), (et), (eu), (ev), (ew), (ex), (ey), (ez), (fa), (fb), (fc), (fd), (fe), (ff), (fg), (fh), (fi), (fj), (fk), (fl), (fm), (fn), (fo), (fp), (fq), (fr), (fs), (ft), (fu), (fv), (fw), (fx), (fy), (fz), (ga), (gb), (gc), (gd), (ge), (gf), (gg), (gh), (gi), (gj), (gk), (gl), (gm), (gn), (go), (gp), (gq), (gr), (gs), (gt), (gu), (gv), (gw), (gx), (gy), (gz), (ha), (hb), (hc), (hd), (he), (hf), (hg), (hh), (hi), (hj), (hk), (hl), (hm), (hn), (ho), (hp), (hq), (hr), (hs), (ht), (hu), (hv), (hw), (hx), (hy), (hz), (ia), (ib), (ic), (id), (ie), (if), (ig), (ih), (ii), (ij), (ik), (il), (im), (in), (io), (ip), (iq), (ir), (is), (it), (iu), (iv), (iw), (ix), (iy), (iz), (ja), (jb), (jc), (jd), (je), (jf), (jg), (jh), (ji), (jj), (jk), (jl), (jm), (jn), (jo), (jp), (jq), (jr), (js), (jt), (ju), (jv), (jw), (jx), (jy), (jz), (ka), (kb), (kc), (kd), (ke), (kf), (kg), (kh), (ki), (kj), (kk), (kl), (km), (kn), (ko), (kp), (kq), (kr), (ks), (kt), (ku), (kv), (kw), (kx), (ky), (kz), (la), (lb), (lc), (ld), (le), (lf), (lg), (lh), (li), (lj), (lk), (ll), (lm), (ln), (lo), (lp), (lq), (lr), (ls), (lt), (lu), (lv), (lw), (lx), (ly), (lz), (ma), (mb), (mc), (md), (me), (mf), (mg), (mh), (mi), (mj), (mk), (ml), (mm), (mn), (mo), (mp), (mq), (mr), (ms), (mt), (mu), (mv), (mw), (mx), (my), (mz), (na), (nb), (nc), (nd), (ne), (nf), (ng), (nh), (ni), (nj), (nk), (nl), (nm), (nn), (no), (np), (nq), (nr), (ns), (nt), (nu), (nv), (nw), (nx), (ny), (nz), (oa), (ob), (oc), (od), (oe), (of), (og), (oh), (oi), (oj), (ok), (ol), (om), (on), (oo), (op), (oq), (or), (os), (ot), (ou), (ov), (ow), (ox), (oy), (oz), (pa), (pb), (pc), (pd), (pe), (pf), (pg), (ph), (pi), (pj), (pk), (pl), (pm), (pn), (po), (pp), (pq), (pr), (ps), (pt), (pu), (pv), (pw), (px), (py), (pz), (qa), (qb), (qc), (qd), (qe), (qf), (qg), (qh), (qi), (qj), (qk), (ql), (qm), (qn), (qo), (qp), (qq), (qr), (qs), (qt), (qu), (qv), (qw), (qx), (qy), (qz), (ra), (rb), (rc), (rd), (re), (rf), (rg), (rh), (ri), (rj), (rk), (rl), (rm), (rn), (ro), (rp), (rq), (rr), (rs), (rt), (ru), (rv), (rw), (rx), (ry), (rz), (sa), (sb), (sc), (sd), (se), (sf), (sg), (sh), (si), (sj), (sk), (sl), (sm), (sn), (so), (sp), (sq), (sr), (ss), (st), (su), (sv), (sw), (sx), (sy), (sz), (ta), (tb), (tc), (td), (te), (tf), (tg), (th), (ti), (tj), (tk), (tl), (tm), (tn), (to), (tp), (tq), (tr), (ts), (tt), (tu), (tv), (tw), (tx), (ty), (tz), (ua), (ub), (uc), (ud), (ue), (uf), (ug), (uh), (ui), (uj), (uk), (ul), (um), (un), (uo), (up), (uq), (ur), (us), (ut), (uu), (uv), (uw), (ux), (uy), (uz), (va), (vb), (vc), (vd), (ve), (vf), (vg), (vh), (vi), (vj), (vk), (vl), (vm), (vn), (vo), (vp), (vq), (vr), (vs), (vt), (vu), (vv), (vw), (vx), (vy), (vz), (wa), (wb), (wc), (wd), (we), (wf), (wg), (wh), (wi), (wj), (wk), (wl), (wm), (wn), (wo), (wp), (wq), (wr), (ws), (wt), (wu), (wv), (ww), (wx), (wy), (wz), (xa), (xb), (xc), (xd), (xe), (xf), (xg), (xh), (xi), (xj), (xk), (xl), (xm), (xn), (xo), (xp), (xq), (xr), (xs), (xt), (xu), (xv), (xw), (xx), (xy), (xz), (ya), (yb), (yc), (yd), (ye), (yf), (yg), (yh), (yi), (yj), (yk), (yl), (ym), (yn), (yo), (yp), (yq), (yr), (ys), (yt), (yu), (yv), (yw), (yx), (yz), (za), (zb), (zc), (zd), (ze), (zf), (zg), (zh), (zi), (zj), (zk), (zl), (zm), (zn), (zo), (zp), (zq), (zr), (zs), (zt), (zu), (zv), (zw), (zx), (zy), (zz).