Editorial Board
Chair: James D. Beard, Ph.D.
Dharam P. Agarwal, Ph.D.
Genevieve M. Ames, Ph.D.
Raymond E Anton, M.D.
Enrique Baraona, M.D.
Stefan Borg, M.D., Ph.D.
L. Judson Chandler, Ph.D.
Robert T. Cook, M.D., Ph.D.
John Crabbe, Ph.D.
Nancy Day, Ph.D.
Phillipe A. De Witte, Ph.D.
Ivan Diamond, M.D., Ph.D.
Bruce D. Dudek, Ph.D.
Howard J. Edenberg, Ph.D.
C. J. Peter Eriksson, Ph.D.
Rueben A. Gonzales, Ph.D.
Charles R. Goodlett, Ph.D.
Donna Gruol, Ph.D.
Jan B. Hoek, Ph.D.
Paula L. Hoffman, Ph.D.
Harold D. Holder, Ph.D.
Hiromasa Ishii, M.D.
Harold Kalant, M.D., Ph.D.
Barbara J. Mason, Ph.D.
Chair Emeritus and Founder: Charles S. Lieber, M.D.
Robert O. Messing, M.D.
Esteban Mezey, M.D.
Michael E. Miles, M.D., Ph.D.
Roger Nordmann, M.D., Ph.D.
Edward P. Riley, Ph.D.
Marcia Russell, Ph.D.
Robert F. Saltz, Ph.D.
John B. Saunders, Ph.D.
Steven Schenker, M.D.
Muriel Vogel-Sprott, Ph.D.
Gary S. Wand, M.D.

Research Society on Alcoholism
President: Victor Hesselbrock, Ph.D.
Vice President: Michael Charness, M.D.
Secretary: Susan Barron, Ph.D.
Treasurer: Stephen Kiefer, Ph.D.
Immediate Past President: Stephanie O’Malley, Ph.D.
Publications Committee Chair: Jan Hoek

American Society of Addiction Medicine
President: Lawrence S. Brown, Jr., M.D.
President-elect: Elizabeth F. Howell, M.D.
Executive Vice President: Eileen McGrath, J.D.
Secretary: Michael M. Miller, M.D.
Treasurer: James Halikas, M.D.
Immediate Past President: Marc Galanter, M.D.
Contributors

Richard L. Bell, Indiana University School of Medicine, Institute of Psychiatric Research, Indianapolis, Indiana 46202-4887

Gayle Boyd, Health Scientist Administrator, Prevention Research Branch, NIAAA Division of Clinical and Prevention Research, Bethesda, Maryland 20892-7003

Kristen G. Anderson, University of California San Diego, LaJolla, California 92093-0109

Sandra A. Brown, University of California San Diego, Department of Psychology, Veterans Affairs San Diego Healthcare System, LaJolla, California 92093-0109

Oscar G. Bukstein, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15213-2593

Tammy Chung, Assistant Professor of Psychiatry, University of Pittsburgh Medical Center, Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania 15213

Duncan B. Clark, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15213-2593

Jack R. Cornelius, Professor of Psychiatry and Pharmacological Sciences, University of Pittsburgh, Pittsburgh, Pennsylvania 15213-2593

Vivian B. Faden, National Institute on Alcohol Abuse and Alcoholism, Chief Epidemiology Branch, Division of Biometry and Epidemiology, Bethesda, Maryland 20892-7003

Tamara Fahnhorst, Center for Adolescent Substance Research, University of Minnesota, Minneapolis, Minnesota 55455
Contributors

Marc Galanter, New York University School of Medicine, Department of Psychiatry, Division of Alcoholism and Drug Abuse, New York, New York 10016

Mark D. Godley, Chestnut Health Systems, Bloomington, Illinois 61701

Kristina Jackson, University of Missouri, Columbia and the Midwest Alcoholism Research Center, Columbia, Missouri 65211-0001

Yifrah Kaminer, University of Connecticut Health Center, Alcohol Research Center and Department of Psychiatry, Farmington, CT 06030-2103

Kelli A. Komro, University of Minnesota, School of Public Health-Division of Epidemiology, Minneapolis, Minnesota 55454

Kathleen M. Lenk, Alcohol Epidemiology Program, University of Minnesota, School of Public Health, Minneapolis, Minnesota 55454-1015

Cherry Lowman, National Institute on Alcohol Abuse and Alcoholism, Treatment Research Branch, Bethesda, Maryland 20892-7003

Jennifer L. Maggs, Pennsylvania State University, Human Development and Family Studies, University Park, Pennsylvania 16802

Christopher S. Martin, University of Pittsburgh Medical Center, Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania 15213

William J. McBride, Indiana University School of Medicine, Institute of Psychiatric Research, Indianapolis, Indiana 46202-4887

Brooke S. G. Molina, University of Pittsburgh School of Medicine, Western Psychiatric Institute and Clinic, Pittsburgh, Pennsylvania 15213

James M. Murphy, Indiana University School of Medicine, Institute of Psychiatric Research, Indianapolis, Indiana 46202-4887

Aesoon Park, University of Missouri, Columbia and the Midwest Alcoholism Research Center, Columbia, Missouri 65211-0001

Cheryl L. Perry, University of Minnesota, School of Public Health-Division of Epidemiology, Minneapolis, Minnesota 55454

Danielle E. Ramo, San Diego State University/University of California, San Diego Joint Doctoral Program in Clinical Psychology, La Jolla, California 92093-0109
Contributors

**Zachary A. Rodd**, Indiana University School of Medicine, Institute of Psychiatric Research, Indianapolis, Indiana 46202-4887

**Ihsan M. Salloum**, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania 15213-2593

**Robert F. Saltz**, Pacific Institute for Research and Evaluation Prevention Research Center, Berkeley, California 94704

**John E. Schulenberg**, University of Michigan, Institute for Social Research and Department of Psychology, Ann Arbor, Michigan 48109

**Alecia D. Schweinsburg**, VA San Diego, Healthcare System and University of California San Diego, Department of Psychology, San Diego, California 92161

**Kenneth Sher**, University of Missouri, Columbia, and the Midwest Alcoholism Research Center, Columbia, Missouri 65211-0001

**Natasha Slesnick**, Department of Psychology, University of New Mexico, Albuquerque, New Mexico 87131

**Linda Patia Spear**, Distinguished Professor, Binghamton University, Department of Psychology and Center for Developmental Psychobiology, Binghamton, New York 13902-6000

**Melissa H. Stigler**, University of Minnesota, School of Public Health-Division of Epidemiology, Minneapolis, Minnesota 55454

**Wendy N. Strother**, Indiana University School of Medicine, Institute of Psychiatric Research, Indianapolis, Indiana 46202-4887

**Steve Sussman**, University of Southern California, Departments of Preventive Medicine and Psychology, Alhambra, California 91803

**H. Scott Swartzwelder**, University Medical Center, Neurobiology Research Labs, Veterans Affairs Medical Center, Durham, North Carolina 27710/27705

**Susan F. Tapert**, University of California San Diego, VA San Diego Healthcare System, San Diego, California 92093

**Kristin L. Tomlinson**, University of California, San Diego, LaJolla, California 92093-1019

**Traci L. Toomey**, Alcohol Epidemiology Program, University of Minnesota, School of Public Health, Minneapolis, Minnesota 55454-1015
Elena I. Varlinskaya, Binghamton University, Department of Psychology and Center for Developmental Psychobiology, Binghamton, New York 13902-6000

Alexander C. Wagenaar, Department of Epidemiology and Health Policy Research, University of Florida School of Medicine, Gainesville, Florida 32608

Aaron M. White, Duke University Medical Center, Neurobiology Research Labs, Veterans Affairs Medical Center, Durham, North Carolina 27710

William L. White, Chestnut Health Systems, Bloomington, Illinois 61701

Michael Windle, University of Alabama at Birmingham, Center for the Advancement of Youth Health, Birmingham, Alabama 35294-1200

Rebecca C. Windle, University of Alabama at Birmingham, Center for the Advancement of Youth Health, Birmingham, Alabama 35294-1200

Ken C. Winters, Center for Adolescent Substance Abuse Research, University of Minnesota, Minneapolis, Minnesota 55455

Ellen Witt, National Institute on Alcohol Abuse and Alcoholism, Neuroscience and Behavior Research Branch, Division of Basic Research, Bethesda, Maryland 20892-7003

Maria M. Wong, Addiction Research Center, Department of Psychiatry, University of Michigan, Ann Arbor, Michigan 48105-2194

Robert A. Zucker, Addiction Research Center, Department of Psychiatry, University of Michigan, Ann Arbor, Michigan 48105-2194
Preface

From the President of the American Society for Addiction Medicine

Even after stepping through the doorway into the 21st century, alcoholism remains a major contributor to the excess morbidity and mortality experienced by Americans. No where is this unmet need more dramatic than its impact on adolescents.

In this edition, the authors cover the wide spectrum of epidemiologic, prevention, neurobiological, behavioral and clinical issues related to alcohol use and adolescents. The wide range of topical areas mirrors the prominence of alcoholism and alcohol abuse in the American landscape. Each of these areas alone presents significant challenges and opportunities to assist in understanding the fundamental issues and crafting effective remedies.

Aside from the obvious value of contributing to the scientific portfolio of what is known, the value of this edition is meaningful beyond the eloquent study designs and erudite principles presented by the superb cadre of authors. Adolescence is already challenging. The addition of alcohol has only made it more so.

It makes sense that effective remedies to this major public health and societal challenge would be multifaceted, comprehensive, and guided by scientific evidence. The scientific information in this edition provides ample contributions to this effort.

Lawrence S. Brown, Jr., MD, MPH, FASAM
President, American Society on Addiction Medicine
Contents

I. Epidemiology, 1
   *Vivian B. Fader, Section Editor*

   Chapter 1
   
   Diagnosis, Course and Assessment of Alcohol Abuse and Dependence in Adolescents ........................................ 5
   *Tammy Chung, Christopher S. Martin, and Ken C. Winters*

   1. Diagnosis, Course, and Assessment of Alcohol Abuse and Dependence in Adolescents .................................................. 5
   2. Diagnosis of AUDs in Adolescents ........................................ 6
      2.1. DSM-IV and ICD-10 Alcohol Diagnoses .................................. 6
      2.2. Developmental Considerations in AUD Assessment .................. 8
      2.3. Prevalence of Adolescent AUDs .......................................... 9
      2.4. Alcohol Symptom Profiles in Youth .................................... 10
      2.5. Limitations of DSM-IV AUDs in Adolescents .......................... 11
   3. Course of Adolescent AUDs .................................................. 13
      3.1. Development of Alcohol Symptoms in Youth ........................... 13
      3.2. Course in Community and Clinical Samples of Adolescents .................. 14
   4. Assessment of AUDs in Adolescents ....................................... 16
      4.1. Screening Adolescents for AUDs ....................................... 16
      4.2. Comprehensive AUD Assessment ....................................... 17
      4.3. Validity of Self- and Collateral Reports ............................. 20
   5. Summary ........................................................................ 21

   Chapter 2
   
   Initiation and Course of Alcohol Consumption among Adolescents and Young Adults ................................................. 29
   *Jennifer L. Maggs and John E. Schulenberg*

   1. The Initiation of Alcohol Use ............................................. 30
      1.1. Defining the Age of Initiation ........................................... 30
      1.2. Sequelae of Early Initiation .............................................. 31
1.3. Ages of Higher Risk for Alcohol Use Initiation .......... 31
1.4. Normative Reductions in the Third Decade of Life .......... 32
1.5. Rival Hypotheses About the Meaning of Early Initiation ........................................ 32
1.6. Disentangling Evidence for Effects of Early Initiation ...... 33
2. The Course of Alcohol Use across Adolescence and Young Adulthood ........................................ 34
  2.1. Variable-Centered Approaches: Normative Trajectories and Variations ................................ 36
  2.2. Pattern-Centered Approaches: Distinguishing Prototypes or Subgroups ................................ 37
3. Risk Factors for and Protective Factors against Alcohol Use: A Developmental Perspective ................. 38
  3.1. Definition and Relationship of Risk and Protective Factors .............................................. 38
  3.2. Risk and Protective Factors for Alcohol Use ......................................................... 39
  3.3. Developmental Perspective on Normative Developmental Transitions and Psychopathology .......... 39
  3.4. Equifinality and Multifinality .......................................................... 40
  3.5. Timing Matters .......................................................... 41
4. Summary and Conclusion ............................................. 41

Chapter 3

High Risk Adolescent and Young Adult Populations:
Consumption and Consequences ........................................ 49
  Brooke S. G. Molina
  1. Introduction .......................................................... 49
  2. Adolescents with Comorbid Conditions .......................................................... 49
  3. Adolescents with Positive Family Histories of Alcohol Problems ........................................ 53
  4. Gay and Lesbian Youth .................................................. 54
  5. Homeless and Runaway Youth ........................................... 56
  6. Ethnic and Racial Minority Group Vulnerability ........................................... 57
  7. Youth with Multiple Risk Factors ........................................... 60

Chapter 4

Alcohol Consumption and Its Consequences among Adolescents and Young Adults ........................................ 67
  Michael Windle and Rebecca C. Windle
Chapter 5

Drinking among College Students ........................................... 85

Kristina M. Jackson, Kenneth J. Sher, and Aesoon Park

1. Drinking in College Student versus Non-Student Populations ........... 86
2. Prevalence and Patterns of Alcohol Use in College Students: A Closer Look .................................................. 88
3. Individual Factors Predicting Drinking .................................... 95
4. Inter-campus Factors Predicting Drinking .................................. 100
5. Intra-campus Factors Predicting Drinking ................................. 102
6. Long-Term Consequences of College Student Drinking: The Effect of College Drinking on Later Development .......... 106
7. Conclusion ........................................................................ 108

II. Neurobiology, 119

Ellen D. Witt, Section Editor

Chapter 6

Adolescent Alcohol Drinking and Its Long-Range Consequences ...... 123

William J. McBride, Richard L. Bell, Zachary A. Rodd, Wendy N. Strother and James M. Murphy

1. Introduction ....................................................................... 123
2. Development of Alcohol Drinking by High Alcohol Consuming Lines of Rats ............................................. 126
3. Neurobiological Factors Contributing to Adolescent Alcohol Drinking .............................................................. 128
4. Interventions to Prevent High Alcohol Drinking during Adolescence ................................................................. 130
5. Long-Range Consequences of Alcohol Drinking during Adolescence ............................................................... 133
6. Summary/Conclusions .......................................................... 137

Chapter 7

Adolescence ........................................................................... 143

Linda Patia Spear and Elena I. Varlinskaya
1. Sensitivity to Initial Ethanol Effects during Ontogeny .......... 143
2. Contributors to Ontogenetic Differences in Ethanol Sensitivity ........................................ 146
   2.1. Neurobiology ........................................ 146
   2.2. Acute Tolerance .................................... 147
   2.3. Longer-Term Adaptations and Consequences .......... 148
3. Adolescent Ethanol Intake .................................. 152
   3.1. Possible Relationship to Ontogenetic Differences in Ethanol Sensitivity ...................... 152
   3.2. Influence of Social Interactions on Ethanol Intake ........................................ 153
4. Summary and Conclusions ................................ 154

Chapter 8

Age-Related Effects of Alcohol on Memory and Memory-Related Brain Function in Adolescents and Adults ............... 161
Aaron M. White and H. Scott Swartzwelder

1. Overview ................................................. 161
2. Adolescent Brain Development ................................ 162
3. Alcohol and Memory ...................................... 163
4. Mechanisms Underlying Alcohol-Induced Memory Impairments .............. 164
5. The Role of the Hippocampus ................................ 165
6. Alcohol Affects Adolescents and Adults Differently .................. 167
7. Potential Mechanisms Underlying the Age-Dependent Effects of Alcohol on Memory ..................... 167
8. Long-Lasting Consequences of Alcohol Exposure: Age-Related Effects .................................. 169
9. Summary ................................................. 172

Chapter 9

The Human Adolescent Brain and Alcohol Use Disorders ........ 177
Susan F. Tapert and Alecia D. Schweinsburg

1. Introduction .............................................. 177
2. Neurocognition in Adolescents with Alcohol Use Disorders ........................................ 179
3. Brain Structure in Adolescents with Alcohol Use Disorders ........................................ 179
4. Brain Function in Adolescents with Alcohol Use Disorders ...................................... 180
5. Developmental Considerations ................................ 182
   5.1. Age of Onset of Alcohol Use Disorder .............. 182
5.2. Gender Differences in Adolescents with Alcohol Use Disorders ........................................ 183
6. Neural Risk Factors ........................................ 184
   6.1. Family History of Alcohol Use Disorders .............. 184
   6.2. Comorbid Disorders ........................................ 186
7. Potential Confounds ........................................ 187
8. Recovery ........................................ 188
9. Conclusions ........................................ 189

III. Prevention, 199
    Gayle M. Boyd, Section Editor

Chapter 10

Comprehensive Approaches to Prevent Adolescent Drinking and Related Problems ........................................ 207
Kelli A. Konro, Melissa H. Stigler, and Cheryl L. Perry

1. Theory and Rationale ........................................ 208
   1.1. Conceptual Theory ........................................ 208
   1.2. Action Theory ........................................ 211
2. Comprehensive Preventive Interventions ........................................ 214
   2.1. Life Skills Training and the Strengthening Families Program: For Parents and Children 10–14 ........................................ 214
   2.2. Midwestern Prevention Project (Project STAR) ........................................ 215
   2.3. Project Northland ........................................ 216
   2.4. D.A.R.E. Plus ........................................ 218
   2.5. Seattle Social Development Project ........................................ 219
   2.6. Project SAFE (Strengthening America’s Families and Environment) ........................................ 219
3. Discussion ........................................ 220

Chapter 11

Prevention of Adolescent Alcohol Problems in Special Populations .... 225
Steve Sussman

1. Introduction ........................................ 225
2. Consequences of Teen Alcohol Use ........................................ 227
3. Universal Prevention Program Effects ........................................ 227
4. Special Populations and Alcohol Prevention ........................................ 229
   4.1. Gender ........................................ 230
   4.2. Ethnicity ........................................ 230
   4.3. Region ........................................ 241
Chapter 12

Prevention of College Student Drinking Problems ........................................ 257

Robert F. Saltz

1. Introduction ........................................................................................................ 257
2. Why Focus on College Student Drinking? ...................................................... 258
3. Interventions Aimed Directly at Individuals .................................................. 259
4. Tier 1: Evidence of Effectiveness among College Students ..................... 263
5. Tier 2: Evidence of Success with General Populations That Could Be Applied to College Environments .................................................. 263
6. Reducing Specific and General Alcohol Availability .................................... 264
7. Community Relations ..................................................................................... 266
7. Tier 3: Evidence of Logical and Theoretical Promise, but Require More Comprehensive Evaluation .................................................. 267
8. Tier 4: Evidence of Ineffectiveness .................................................................. 270
9. Putting It All Together ..................................................................................... 271

Chapter 13

Policies to Reduce Underage Drinking .............................................................. 277

Alexander C. Wagenaar, Kathleen M. Lenk, and Traci L. Toomey

1. Introduction ........................................................................................................ 277
2. Policies with Extensive Research ..................................................................... 278
3. Policies with Moderate Research ..................................................................... 287
4. Policies with Minimal Research ...................................................................... 289
5. Policies with No Research ............................................................................... 293
6. Discussion ......................................................................................................... 294

Chapter 14

Prevention for Children of Alcoholics and Other High Risk Groups .................... 301

Robert A. Zucker and Maria M. Wong
### Contents

1. Introduction .............................................. 301
2. Scope of the Problem ..................................... 302
4. Heterogeneity of Risk Pathways .......................... 306
5. The Timing and Dosing of Prevention Programming:
   Toward a Hypothetic-Deduction Science of Prevention .... 310
6. Current Prevention Strategies ............................. 312
7. Unresolved Issues and Next Steps ........................ 316
8. Epilogue .................................................. 317

### IV. Treatment, 321

*Cherry Lowman, Section Editor*

**Chapter 15**

Treatment of Adolescent Alcohol-Related Problems ............... 329

*Sandra A. Brown, Kristen G. Anderson, Danielle E. Ramo, and
Kristin L. Tomlinson*

1. Lessons from Basic and Applied Alcohol Research ............ 331
2. Role of Developmental Stage in Design and
   Implementation of Alcohol Treatment for Youth ............ 335
3. Mapping Measurement onto Critical Domains of
   Adolescent Functioning .................................. 340
4. Alcohol Treatment Outcome Evaluations with Youth .......... 343
5. Summary .................................................. 346

**Chapter 16**

Treatment of Co-occurring Alcohol, Drug,
and Psychiatric Disorders ................................... 351

*Jack R. Cornelius, Duncan B. Clark, Oscar G. Bukstein, and Ihsan M. Salloum*

1. Introduction .............................................. 351
2. Comorbidity with Non-Alcohol Drug Use Disorders .......... 352
3. Comorbidity with Major Depression ........................ 355
4. Comorbidity with Anxiety Disorders ........................ 357
5. Comorbidity with Conduct Disorder ........................ 359
6. Comorbidity with Attention Deficit Hyperactivity Disorder .... 360
7. Conclusions .............................................. 362

**Chapter 17**

A Brief History and Some Current Dimensions of
Adolescent Treatment in the United States ....................... 369

*Mark D. Godley and William L. White*
1. Introduction ................................................................. 369
2. The Adolescent Treatment System .................................. 371
3. From Science to Service ............................................... 376
4. Summary ................................................................. 380

Chapter 18

Evidence-Based Cognitive-Behavioral and Family Therapies for Adolescent Alcohol and Other Substance Use Disorders .......... 385
Yifrah Kaminer and Natasha Slesnick

1. Family Therapy Outcome for Adolescent Substance Use Problems Theoretical Rationale and History ........................................ 386
2. Ecologically Based, Family Systems Studies ......................... 390
3. Behavioral Family Treatment .......................................... 393
4. Summary of Family Therapy .......................................... 393
5. Cognitive Behavioral Therapy ......................................... 395
  5.1. Theoretical Models Underlying CB Intervention Approaches ......................... 395
  5.2. Randomized Clinical Trials for Adolescent Substance Abuse Treatment ......................... 396
  5.3. Treatment Modality: Group vs. Individual Intervention ......................... 399
  5.4. Mechanism of Change in Cognitive Behavioral Therapy for Youth and Adults with AOSUD ........................................ 400
  5.5. Clinical Implications and Future Research Directions ......................... 400

Chapter 19

Assessment Issues in Adolescent Drug Abuse Treatment Research ........................................ 409
Ken Winters and Tamara Fahnhorst

1. Introduction ................................................................. 409
2. Developmental Considerations in AOD Use Assessment ............ 410
  2.1. AOD Involvement .................................................. 411
  2.2. Abuse and Dependence ........................................... 412
  2.3. Psychological Benefits ........................................... 413
  2.4. Psychosocial Factors .............................................. 414
  2.5. Co-existing Mental Health Disorders ........................................ 414
  2.6. Family Factors ...................................................... 415
  2.7. Neurobiology ....................................................... 416
3. Basic Instruments for Determining AOD Involvement and Related Problems ........................................ 416
  3.1. Screening Measures ............................................... 417
## Contents

3.2. Comprehensive Measures ........................................ 417  
3.3. Assessment of AOD Use Patterns .............................. 418  
4. Methods of Data Collection and Sources of Information ...... 419  
  4.1. Self-Report .................................................. 419  
  4.2. Laboratory Testing ........................................... 419  
  4.3. Direct Observation ........................................... 420  
  4.4. Parent Report ............................................... 420  
  4.5. Peer Report .................................................. 420  
  4.6. Archival Records ............................................. 421  
  4.7. Additional Assessment Issues ............................... 421  
5. Assessment of Outcomes ........................................... 421  
6. Summary .................................................................. 422  

### Contents of Previous Volumes ................................. 427  

### Index .................................................................... 445
Alcohol is the substance most frequently used by youth. According to 2002 data from Monitoring the Future (MTF), a nationally representative survey of youth, 78% of 12th graders, 67% of 10th graders and 47% of 8th graders reported consuming alcohol in their lives. Furthermore, 62% of 12th graders, 44% of 10th graders and 21% of 8th graders reported having been drunk. In 2002, the 30-day prevalence of alcohol consumption was 20% for 8th graders, 35% for 10th graders and 49% for 12 graders. The prevalence of heavy episodic drinking (5 or more drinks in a row in the past 2 weeks) was 12% among 8th graders, 22% among 10th graders and 29% among 12th graders (Johnston et al, 2003). And youth who drink may experience a range of adverse short and long-term consequences including academic problems such as lower grades or school failure, social problems, physical problems such as hangovers or medical illnesses, unwanted or unintended sexual activity, physical and sexual assault, memory problems, increased risk for suicide and homicide, alcohol-related car crashes and death from alcohol poisoning. Clearly, drinking by young people and its consequences presents a significant public health problem which must command our attention. This volume of Recent Developments in Alcoholism focusing on alcohol consumption by adolescents and young adults is therefore extremely timely.

The first section of the volume is comprised of five chapters which address the epidemiology of alcohol consumption by and alcohol-related problems among adolescents. Epidemiology is defined as the study of how a disease or problem is distributed in the population and of the characteristics that influence that distribution. As such epidemiology informs us about the severity of a problem, its natural history, and its prognosis. From epidemiologic studies (e.g. MTF cited above) we can learn how widespread a problem is, dis-
cover which groups suffer most from it and identify its short and long term consequences. Such studies also serve to identify associated risk and protective factors which in turn help to identify those individuals who may be at increased risk due to neurobiological, environmental and individual factors. These factors include family history and genetic vulnerability, comorbid conditions, socio-demographic characteristics, social stressors such as poverty and lack of social support, family characteristics, alcohol availability and personality and other personal factors to mention just a few. But the ultimate goal of epidemiology goes beyond description; ultimately, a better understanding of what leads to underage use of alcohol at different developmental stages can inform prevention and treatment. For example, knowledge of protective factors may guide the design of interventions to increase resilience and identification of high risk groups may stimulate the design of interventions specifically for these groups.

The first chapter in this section summarizes what we know about the epidemiology of alcohol consumption by adolescents in the general population. In the chapter entitled “Alcohol Consumption and its Consequences Among Adolescents and Young Adults,” Michael Windle and Rebecca Windle discuss the high prevalence of drinking among young people and describe its many consequences, some very serious. General population surveys (e.g. National Survey on Drug Use and Health, MTF) as well as smaller more localized studies have uniformly found high rates of alcohol consumption among young people aged 12 to 20. As already mentioned those youth who drink may experience a range of adverse academic, social, legal and medical consequences. The authors indicate that available data consistently show rates of drinking are highest among White and American Indian or Alaskan Native youth, followed by Hispanic youth, African Americans, and Asians. The authors also indicate that alcohol consumption generally increases with increasing age. Prevalence rates for boys and girls are similar in the younger age groups; however among older adolescents, the prevalence for boys is greater than for girls for more frequent and heavier use. The authors also discuss alcohol’s association with other health-compromising behaviors such as other substance use and risky sex and the prevalence of alcohol use disorders among youth. Thus, this chapter serves to provide a broad understanding of the prevalence of alcohol consumption and its consequences among youth in general.

In the second chapter in this section entitled “High Risk Adolescent and Young Adult Populations—Consumption and Consequences,” Brooke Molina looks more specifically at certain groups of adolescents at increased risk: those with comorbid psychiatric conditions; those with a positive family history of alcohol problems; gay and lesbian youth; homeless and throwaway youth; and those who belong to ethnic and racial groups with greater vulnerability. Studies indicate that at least some youth in each of these categories experience heightened vulnerability and therefore may benefit from targeted interventions. For example, as described in this chapter, there is convergence in the literature that there is a strong association of conduct problems and alcohol
consumption, and according to a national survey, youth who identify themselves as gay, lesbian or bisexual are at elevated risk for heavy alcohol consumption. However as the authors of this chapter aptly point out, the same youth are likely to be vulnerable for a number of reasons, as risk factors tend to cluster in individuals. Underage alcohol consumption should therefore be studied in a conceptual framework which addresses the full constellation of risk and protective factors from early childhood through adolescence and into young adulthood.

In the next chapter, “Drinking among College Students—Consumption and Consequences,” Kristina Jackson, Kenneth Sher and Aesoon Park consider alcohol consumption, alcohol-related consequences and problems, and alcohol dependence among a specific group of youth who consume alcohol at high levels, college students. Studies consistently indicate that about 4 out of 5 college students drink alcohol, about 2 out of 5 engage in excessive heavy consumption (5 or more drinks in a row for men and 4 or more in a row for women in the past two weeks or 30 days, depending on the survey) and about 1 in 5 engages in frequent episodic heavy consumption (3 or more times in the past two weeks) (NIAAA, 2002). The consequences of this consumption may include academic problems, social problems, legal problems, involvement in physical or sexual assault or risky sex, and even death. The authors of this chapter carefully review available information about levels and patterns of consumption in this population, consider individual, intra-campus and inter-campus factors which relate to drinking in college, and discuss what is currently known about the long-term negative outcomes of drinking by college students. They identify the need for prospective information to establish causality, however, and the need for more information about long-term outcomes, particularly in the area of academic achievement. The authors also highlight the need to consider the developmental course of alcohol involvement among college drinkers and the roles in their drinking of individual and institutional factors, as well as their interactions.

The fourth chapter, “The Initiation and Course of Alcohol Use among Adolescents and Young Adults” by Jennifer Maggs and John Schulenberg, looks within and across individuals to study the initiation of alcohol consumption and its escalation and/or de-escalation over time. In the case of alcohol consumption by adolescents, studying the developmental trajectory of drinking behavior and the roles of various risk and protective factors in influencing those trajectories at different points in development is critical to understanding the complexity of the problem we face as we work to reduce underage alcohol consumption. This chapter discusses research on the initiation of drinking and the significance of the age of initiation for future alcohol-related outcomes. This is very important since national surveys indicate that half of 8th graders have already initiated alcohol use. The chapter goes on to discuss the course of alcohol use during adolescence and early adulthood using both variable centered and pattern centered approaches for understanding drinking trajectories in individuals and populations.
Finally, the last chapter deals with the identification of alcohol abuse and alcohol dependence among youth. Accurate measurement of the problem under consideration is essential to accurate epidemiologic study and reaching appropriate conclusions. One very important part of the epidemiology of alcohol consumption among adolescents and young adults involves estimating the prevalence of alcohol use disorders in this population. In their chapter entitled, “Diagnosis, Course, and Assessment of Alcohol Abuse and Dependence in Adolescents,” Tammy Chung, Christopher Martin and Ken Winters discuss the problems with applying the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria, which were developed for adults, to children and adolescents. For example, the symptoms of tolerance and drinking more or longer than intended may not be appropriate for the developmental period of adolescence. The authors underscore the need for a developmental perspective in studying the manifestation of symptoms among youth and understanding the significance of those symptoms. Although included in this section, this chapter is also pertinent to the study of treatment which involves making appropriate diagnostic inferences and therefore is also relevant to the section of the volume concerning treatment.

In summary, this section provides a great deal of very important information about alcohol consumption among adolescents and young adults. It provides information about how much and about which youth drink, describes the risk and protective factors for this behavior, discusses the initiation and course of alcohol consumption among youth, details its consequences and discusses diagnostic issues particular to youth. But in addition and equally important, each chapter also points out critical conceptual challenges which must be faced as we seek to better understand alcohol consumption and alcohol-related problems among youth in a developmental context.
