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Projecting and Monitoring the Life Course of the Marijuana/ Blunts Generation

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Abstract

Since the 1990s, marijuana has been the drug of choice among American youths, especially those that tend to sustain arrests. Previous birth cohorts had greater use of crack, powder cocaine, or heroin. This paper summarizes prior research that strongly suggests drug eras tend to follow a regular course. These insights then serve as the basis for projecting trends in marijuana use both for the general population nationwide and for Manhattan arrestees. To the extent that current trends persist, the prospects for the “Marijuana/Blunts Generation” (born 1970 and later) may be relatively good. These young persons may successfully avoid “hard drugs” as well as the attendant health, social, and legal problems for their entire life, but they may experience higher levels of smoking-related ailments. The conclusion presents issues for continued drug surveillance and ethnographic research to more accurately understand the Marijuana/Blunts Era and to provide an indicator of future changes as they occur.

Introduction

Major drug surveillance programs all indicate that marijuana use increased among American youths and young adults during the 1990s (Gfroerer, Wu, & Penne, 2002; Golub & Johnson, 2001; Johnston, O’Malley, & Bachman, 2002). In contrast, use of crack, powder cocaine, and heroin among young persons decreased. Qualitative evidence (Department of Health and Human Services [DHHS], 1999; Johnson, Golub, & Dunlap, 2000) and new data from the National Household Survey on Drug Abuse (NHSDA) presented in this paper indicate that many of American youths have been using marijuana in a blunt, an inexpensive cigar in which the tobacco filler is replaced with marijuana. References to blunts in rap music and on T-shirts provide further evidence of the symbolic importance of this drug consumption practice (Sifaneck, Kaplan, Dunlap, & Johnson, 2004). Accordingly, we refer to persons born since 1970 and entering their twenties since 1990 as the Marijuana/Blunts Generation.

The avoidance of “hard drugs”¹ by the Marijuana/Blunts Generation indicates they will not suffer the severe health and legal problems associated with those drugs. However, sustained marijuana use still carries potential health, legal and economic consequences. Marijuana smoke may contain as many or more carcinogens as tobacco (Institute of Medicine [IOM], 1999). Some research suggests that smoking blunts, in which both tobacco and marijuana are inhaled deeply may impose a particularly strong risk for long-term oncological (Filiegel et al., 1997) and pulmonary disease (Feldman, Sullivan, Passero, & Lewis, 1993; Gong, Filiegel, Tashkin, & Barbers, 1987), although other research suggests that the combined effect may be less than additive (Sherman, Campbell, Gong, Roth, & Tashkin, 1991). Still, some researchers contend that the medical and health consequences of long-term marijuana

¹We use the term “hard drugs” in its common sense to refer to substances such as heroin, powder cocaine, and crack that when compared to alcohol and marijuana carry larger criminal penalties for sales and possession, are more likely to be associated with drug-related problems, and are often considered more dangerous. In this manner, our usage is a social construction and does not necessarily represent a pharmacological hierarchy.

use are much less than those associated with crack, powder cocaine, and heroin, and perhaps even alcohol (Grinspoon & Bakalar, 1997; Zimmer & Morgan, 1997). Grinspoon & Bakalar (1997, p. 205) go so far as to speculate, “Certainly a cannabis habit would be preferable to an alcohol habit for anyone who could not avoid dependence on a drug but was able to substitute one drug for another.”

The avoidance of hard drugs has also been identified as a leading potential contributor to the reductions in crime and violence prevailing in the 1990s (Blumstein & Wallman, 2000). Ethnographic observations suggest that behaviors surrounding marijuana use and drug markets since 1990 have been much less violent than had been associated with crack and heroin in previous years (Johnson et al., 2000). Thus, youths that smoke blunts may be damaging themselves less socially than preceding generations. Of course, marijuana is illegal. Yet, a conviction for marijuana use or sale carries less severe legal sanctions. Persons arrested on marijuana charges generally receive fines or probation but are rarely incarcerated, a common legal outcome for arrests involving even small amounts of crack, powder cocaine, or heroin.

This paper examines the potential future of the Marijuana/Blunts Generation, focusing on two central questions:

- To what extent will members of the Marijuana/Blunts Generation use other illicit drugs?
- To what extent will members of the Marijuana/Blunts Generation continue marijuana use into adulthood?

Answers to these questions could greatly serve planning efforts. A recent report from the Substance Abuse and Mental Health Services Administration (SAMHSA) provided 30-year estimates of need for drug treatment primarily for the aging baby boom generation born 1946–1964 (Korper & Council, 2002). Regarding the Marijuana/Blunts Generation, a valid prediction of continued illicit drug use, use of additional substances, adverse health consequences, and development of criminal behavior could potentially justify stepping up interventions into the activities currently surrounding blunt smoking. Alternatively, a valid prediction to the contrary would justify saving the funds that might otherwise be expended. Essentially, high-quality predictions can lead to effective and efficient administration of government.

However, prediction is a very difficult enterprise. At a minimum, predicting social phenomena is difficult because of the multiplicity of factors that may be involved and perhaps inherently impossible because people can choose to change their behaviors at any time. Rather than providing predictions, this paper provides projections for the future of the Marijuana/Blunts Generation. A prediction is a best guess of the future. In contrast, a projection is an extrapolation of current conditions and trends (Shryock & Siegel, 1976). Projections reveal the potential long-term significance of current trends. Projections also provide a baseline for comparison with drug use in subsequent years. A deviation between prevailing and previously projected trends can provide an early indication of important changes – a need that has been decried by the U.S. General Accounting Office (1998).

The remainder of this introduction summarizes a theory of drug eras that serves as the basis for the projection. The findings describe current drug use trends and provide projections of future drug use. The discussion summarizes key findings, identifies essential factors to continue to monitor using existing drug surveillance programs, and makes recommendations for the advancement of survey research and its integration with ethnographic fieldwork.

A Theory of Drug Eras

Substantial prior research suggests that the popularity of various drugs has a cultural or subcultural basis (Johnson & Muffler, 1997). Use of some substances is embedded within the broader American culture (particularly caffeine in coffee, tea and colas, which are legal; as well as alcohol and nicotine, which are legal for adults). Children learn about these products while growing up, and many persons eventually choose to consume them, despite movements to curtail their use or limit consumption to moderate doses.

The use of other substances appears to be more subcultural, limited to groups of individuals that meet within specific social contexts. Numerous prior analyses (Becker, 1963, 1967; Golub & Johnson, 1999; Hamid, 1992; Hunt & Chambers, 1976; Johnston, 1991; Musto 1987, 1993) suggest the popularity of some substances often follows a pattern similar to the rise and fall of a disease epidemic. For that reason, these trends are often referred to as drug epidemics. Unfortunately, journalists and politicians commonly abuse the term “drug epidemic” to arouse concern and serve political agendas (Hartman & Golub, 1999; Orcutt & Turner, 1993; Reinerman & Levine, 1997). We prefer the term “drug era” to “drug epidemic” because it emphasizes the cultural aspect of the phenomena, and it holds a relatively neutral connotation.

Building on this perspective, we conceptualize four distinct phases to the diffusion of innovation process underlying drug eras: incubation, expansion, plateau, and decline. This framework has been previously used to analyze the Heroin Injection Era prevailing in the 1960s and early 1970s (Johnson & Golub, 2002), the Crack Era of the late 1980s and early 1990s (Golub & Johnson, 1997), the Marijuana/Blunts Era of the 1990s (Golub & Johnson, 2001b), and a modest rise in use of hallucinogens such as MDMA in the 1990s (Golub, Johnson, Sifaneck, Chesluk, & Parker, 2001).

A drug era typically starts among a highly limited subpopulation within a specific social context (incubation phase). The Heroin Injection Era grew out of the jazz scene (Jonnes, 2002), the Crack Era started with inner-city drug dealers at after-hours clubs (Hamid, 1992), and the Marijuana/Blunts Era was based in the hip-hop movement (Sifaneck et al., 2004). Sometimes the pioneering drug users will introduce the practice to members of the broader population, sparking a larger diffusion. This diffusion typically results in an exponential increase in the prevalence of use (expansion phase) as is common with the spread of other products, ideas, and practices (Rogers, 1995).

Eventually, everyone who is at risk of the new drug practice (typically users of other illicit drugs) will have initiated use or at least had the opportunity to. For a time, widespread use will prevail (plateau phase). During this period, youths first coming of age who become involved with illicit drugs will typically initiate use of the currently popular practice and form the core of a generation of drug users. Eventually a drug can go out of favor (decline phase). Most immediately, youths coming of age will become increasingly less likely to initiate its use. However, the overall use of the drug will endure for some time as a generation of drug users continues its habit.

There are important life-course considerations embedded within this theory regarding exposure, significance, and enduring use of different substances. Life course research suggests that persons are differently affected by events depending on their age and social position at the time (Alwin & McCammon, 2003; Elder, 1999; Newman, 1996). Events like World War I and the Great Depression can define circumstances, shape attitudes, and affect behaviors for the remainder of one's life. We contend that major drug eras can impact lives in a similar manner. Much life course research suggests that it is often youths that are most affected by historical events and that some of their central beliefs and identities persist well

into adulthood (Alwin & McCammon, 2003). The late teens and early 20s appear to be the impressionable period regarding drug use; most persons that do not initiate hard drug use by about age 25 never will (Golub, Johnson, & Labouvie, 2000; Johnston, 1991; Kandel, 1978). Other research indicates that the teens and early twenties are a particularly formative period in which peer groups can have a strong influence (Oetting & Donnermeyer, 1998), as opposed to early childhood in which parental influence can be more dominant, and later adulthood when persons have taken on adult social roles and established a more stable lifestyle (Arnett, 2000).

Golub & Johnson (1999) identified three distinct generations of drug users among the persons passing through Manhattan's criminal justice system in the 1990s: the Heroin Injection Generation born 1945–1954; the Crack Generation born 1955–1969, and the Marijuana/Blunts Generation born since 1970. Each birth cohort had established their characteristic drug use pattern when they were in their late teens or early 20s. Each had adopted the drug use behavior that was popular at that time, and many had continued their habits for decades. Over time, many hard drug users added the use of other drugs to their habits. In particular, many heroin injectors that persisted into the 1980s subsequently became frequent crack users in their thirties and forties (Golub & Johnson, 1994, 1996). However, few persons born 1945–1954 that were not already hard drug users (i.e., were not using heroin) initiated use of crack in later adulthood.

These observations ground a few basic theoretical principles regarding individuals' experience of drug eras:

- Existing users of other drugs (especially hard drugs) are often the innovators that discover and popularize new drug consumption practices.
- Youths first coming of age in their teens and early 20s are the primary population at risk during a drug era. These persons come to comprise a drug generation.
- Some members of a drug generation persist in their habits well into adulthood, especially persons that are less attached to conventional society.

These person-based regularities are embedded within the larger subcultural phenomenon and effect many of the characteristics associated with drug eras.

Methods

This paper projects trends in young adult substance use into the future and projects the extent to which the Marijuana/Blunts Generation will continue marijuana use. The study focuses on two populations: the general population (as measured by the NHSDA) and a group with weaker ties to conventional society and historically high rates of illicit drug use, arrestees recruited by the Arrestee Drug Abuse Monitoring (ADAM) program for Manhattan.² This section describes the two datasets employed and examines issues associated with their interpretation, particularly with regard to measuring drug use over the life course.

²Unfortunately, there is a geographic mismatch between the NHSDA and ADAM datasets. Historically, the NHSDA program has obtained a national sample. The public use data files do not include respondents' residential location, which precludes calculation of prevalence rates for the general population of Manhattan. The ADAM program obtains location-specific data. There is no officially accepted method for combining the ADAM data to prevalence rates for the arrestee population nationwide. To partially bridge this gap between the two surveillance programs, we provide citations to studies of prevalence rates that were replicated at ADAM sites across the United States to indicate the extent that Manhattan trends were typical.

The National Household Survey on Drug Abuse

The United States Government has conducted the NHSDA periodically since 1971 and annually since 1990 “[to serve as] the primary source of statistical information on the use of illegal drugs by the U.S. population” (SAMHSA, 2002b, 7). This study employed the public-use data files available for 1979, 1982, 1985, 1988, and 1990–2000. The complete multiyear dataset includes about 350,000 cases.

To obtain high response rates, the NHSDA program sends specially trained interviewers to personally administer the questionnaire at each of the residences selected (for more information see SAMHSA, 2002a, b). Typically, about 80% of persons approached agreed to participate. Prior to 1999, field staff would personally administer a questionnaire. Respondents would privately record their responses to alcohol and drug questions on separate sheets not visible to the interviewer in order to assure confidentiality and facilitate disclosure.

Over time, the NHSDA program has evolved. When examining findings, it is important to bear in mind programmatic changes to evaluate if observed differences across years might be attributable to instrumentation. From 1971 through 1990, the NHSDA sampled noninstitutionalized household members in the 48 contiguous states (SAMHSA, 2002a). Starting in 1991, the target population was expanded to include all 50 states and residents of noninstitutional group quarters (e.g., college dormitories, group homes, military installations). Persons with no fixed residence, residents of institutions (e.g., jails and hospitals), and active military personnel were still excluded from the sampling frame. In 1994, a dramatically revised questionnaire and new procedures for logical editing of responses were introduced (SAMHSA, 1996). A split sample procedure was employed to test the impact of the redesign. Many of the estimates obtained using the old and new procedures were quite similar – within two percentage points of each other. Generally, estimates obtained using the new instrument were higher for alcohol and tobacco use but lower for illicit drugs. In 1999, the survey was greatly expanded in order to support state-level estimates of drug use (SAMHSA, 2002a, 2002b). Computer-assisted personal interviewing (CAPI) in which the interviewer records responses in a computer was introduced for less sensitive information. Audio computer-assisted self-interviewing (ACASI) in which the respondent listens to recorded questions and enters their responses into a computer was introduced to increase the level of accurate disclosure of illicit drug use and other sensitive behaviors.

The NHSDA employs a complex sampling procedure with unequal selection probabilities, stratification and clustering (SAMHSA, 2000a). To account for this nonproportional sampling, the NHSDA program constructs a sample weight for each respondent inversely proportional to her or his probability of inclusion. These weights were used in this study to obtain unbiased estimates.

In 2000, the NHSDA included specific questions about blunt smoking in a module pertaining to youth experiences asked of respondents age 12–17 only (SAMHSA, 2002a). An analysis presented in this paper compares responses regarding past 30-day use of blunts and marijuana (in any form) to determine the extent to which youthful marijuana users in 2000 smoked blunts.

The Arrestee Drug Abuse Monitoring (ADAM) program

The ADAM program provides drug use information about a specific population of persons (arrestees) that are often less attached to conventional society, that are often frequent hard drug users, and that are of particular interest to criminal justice, drug treatment, and other

agencies (ADAM, 2003). These persons are particularly important to our theory of drug eras that suggests they may be more likely than members of the general population to persist with their drug habits into adulthood. These persons constitute a relatively small portion of the general population. Moreover, the NHSDA tends to systematically undersample hardcore drug users (Wright, Gfroerer, & Epstein, 1997). Indeed, one comparison of responses to the NHSDA and ADAM datasets strongly suggested that the NHSDA may fail to interview any of the daily hard drug users that routinely pass through the criminal justice system or, alternatively, that the NHSDA may fail to obtain accurate disclosure of drug use from those arrested persons it does sample (Golub & Johnson, 2002).

The ADAM program started out in 1987 as the Drug Use Forecasting [DUF] program. The National Institute of Justice established DUF to measure trends in illicit drug use among booked arrestees in most large cities (or counties) with a total population of at least 1 million, as well as many smaller cities for geographic diversity (for more information see ADAM, 2003, and Hunt & Rhodes, 2001). In 1997, the program was retitled ADAM. At that time, the number of sites was expanded and changes to the sampling procedure, questionnaire, and public-use data files followed. Since 1987, ADAM-Manhattan has been approaching enough adult arrestees as they await arraignment to voluntarily obtain urine samples and self-report data from about 250–300 persons each quarter. Typically, 70–90% of ADAM-Manhattan candidates agree to participate. The 1987–2001 combined dataset for ADAM-Manhattan includes about 18,000 cases.

The ADAM program obtains a particularly valid estimate of recent drug use through urine testing. Self-report survey responses are subject to a variety of potential errors. Subjects are often unwilling to disclose their recent drug use, even after being informed of a study's confidentiality. Prior research has often found rates of nondisclosure as low as 50% (Golub, Johnson, Taylor & Liberty, 2002; Harrison, 1997; Magura & Kang, 1996). The EMIT screen used by the ADAM program generally detects the use of opiates and cocaine within the last two to three days and marijuana use up to a month later depending on frequency of use (ADAM, 2003). The EMIT screen used does not distinguish between various opiates nor does it identify mode of consumption. Heroin is the most common illicit opiate used on the streets of New York City. Accordingly, this paper refers to “recent opiate/heroin use” as detected by urinalysis. This paper refers to “recent cocaine/crack use” detected by urinalysis to emphasize that much of the illicit cocaine consumed on the streets of New York City was smoked as crack. Of importance to historical trend analyses, the cutoff level for determining recent marijuana use was lowered from 100 to 50 nanograms in 1996, which led to an estimated 5 to 7 percentage point increase (National Institute of Justice [NIJ], 1997).

Given the drugs-crime nexus, ADAM data provide a window into drug use among many of the most serious drug abusers. However, interpretation of ADAM trends is confounded by selection procedures that effectively filter the population of potential respondents several times. Most centrally, who gets arrested depends on local law enforcement priorities. Additionally, prior to 2000 the ADAM sample also reflected ADAM priorities and nonparticipation. Since then, improved sampling procedures have controlled for variation in the probability of selection. However, the ADAM samples are still affected by any shifts in law enforcement priorities.³

Drug use among arrestees can vary widely across locations, as evidenced by substantial geographic variation previously detected by the ADAM program (ADAM, 2003; Golub & Johnson, 1997). Consequently, the analyses presented do not combine the ADAM data across locations. This paper presents ADAM findings for Manhattan only. When available, references to multi-site analyses are provided in the findings to establish the extent to which ADAM-Manhattan results were typical.

Measuring Substance Use Over the Life Course

The gold standard in life-course research is the longitudinal panel study in which a representative group of persons is repeatedly interviewed at regular intervals. This research design records a cohort's experiences over time, contemporaneously. Under suitable conditions, a series of surveys can be used to approximate this kind of information with a repeated cross-section analysis. For example, the NHSDA can be used to monitor the life course of a specific birth cohort, such as persons born in 1960. These persons were 19 years old when interviewed in 1979, 22 in 1982, 25 in 1985, and so forth. This approach accurately tracks the life course of the 1960 cohort to the extent that the NHSDA sample is truly representative of the general population in each survey year.⁴

A comparison of the variation in marijuana use for the Marijuana/Blunts Generation to that of previous generations provided the empirical basis for projecting the extent to which this new generation might be expected to persist with their habits into adulthood. The NHSDA 1979–2000⁵ data were used to trace marijuana use over the life course for four multi-year birth cohorts representing different decades: the end of the Heroin Injection Generation (persons born 1950–1954), the middle of the Crack Generation (1960–1964), the beginning of the Marijuana/Blunts Generation (1970–1974), and a later Marijuana/Blunts Generation birth cohort (1980–1984). Five birth years were included in each cohort in order to provide data for ages that would otherwise be missed due to the years in which the NHSDA was not performed prior to 1990 and to increase sample sizes of respondents at each age. Datapoints based on a subsample of fewer than 50 cases were excluded from the analysis as unreliable.

The ADAM-Manhattan data were also analyzed using the repeated cross-section design. The interpretation of findings, however, was much more tenuous. Conceivably, many young arrestees could have become unavailable to the program over time because they stopped illegal behavior or, at the other extreme, because they were incarcerated. Additionally, changes in law enforcement priorities (e.g., in the 1990s the New York Police Department increased arrests of minor offenders under its quality-of-life initiative – Silverman, 1999) as well as changes in the ADAM program's sampling procedures could have affected trends. That said, it still seemed important to examine the ADAM data because arrestees' drug use

³At inception, the ADAM program sought to monitor drug use among serious offenders: felony arrestees were oversampled; persons charged with citations were generally excluded; and drug arrestees were generally kept to 20% of the sample or less. Female arrestees were purposefully oversampled to comprise about 30% of the total to facilitate reliable comparisons across gender. In 2000, new sampling procedures were implemented and post-sampling stratification weights were included in public-use data files for adult male arrestees to account for differential probability of sampling associated with time of arrest and booking facility (Hunt & Rhodes, 2001). Since not all ADAM respondents provide urine samples, ADAM provides two sets of separate sample weights for use with the survey and urine data. For this analysis, the ADAM sample weights were modified to control for nonparticipation and oversampling of females; the weights for survey and urine data were each adjusted separately. Male respondents recruited prior to 2000 and all female respondents were assigned a preliminary weight of one since the ADAM program does not calculate their individual probabilities of selection. Even though the ADAM sampling procedure introduced in 2000 is unbiased, the sample obtained could be biased due to systematic differences in who chooses to participate. For example, older male arrestees approached in 2000 were less likely to participate. Thus, an estimate using the initial ADAM sample weights would disproportionately reflect the characteristics of younger arrestees. Logistic regression was used to develop revised weights to control for nonparticipation in each year for male and female arrestees (four separate models) using the data that ADAM started providing in 2000 regarding age, race/ethnicity, and arrest charge of both participants and nonparticipants. For example, sample weights for older males arrested in 2000 were systematically increased to control for their differential nonparticipation. Sample weights were further adjusted so that female arrestees accounted for 15% in each year; Eterno (2002) reported that females comprised from 15.6–16.6% of Manhattan arrestees from 1996 through 2001. The ADAM sample could still be potentially biased due to differential nonparticipation associated with other factors not incorporated in the revised sample weights such as extent of drug use.

⁴Golub, Labouvie, and Johnson (2000) suggested that repeated cross-section analysis can be potentially biased by "attrition from the sampling frame," whereby some persons are less likely to be sampled in successive interview years, perhaps as they become more involved with drug use. To examine this concern, they compared data from multiple NHSDA survey years with multiple years of data from a longitudinal study. The findings suggested that the NHSDA surveyed a comparable population at different ages in successive years implying that attrition from the sampling frame was not a serious problem for the NHSDA.

⁵Starting in 1999, the NHSDA began reporting multiyear age categories for persons older than 21, out of a broader concern for potential disclosure of individual information. Accordingly, NHSDA 1999–2000 data were only used to study respondents age 21 and younger.

is often at the center of what is constructed as the Nation's drug problem, because the NHSDA does not represent arrestees' experiences, and because arrestees' drug use patterns often differ from those of the general population. Within this limited basis for interpretation, this repeated cross-section analysis provides a basis for projecting the extent to which members of the Marijuana/Blunts Generation that tend to sustain arrests might be more likely to persist in their marijuana use than members of the general population.

Findings

This section presents macro-level projections for the expected future prevalence of marijuana use among youths and micro-level projections for the expected persistence of marijuana use by members of the Marijuana/Blunts Generation as they move through adulthood. These projections are empirically grounded in trends recorded by the NHSDA and ADAM-Manhattan datasets and based on our theory of drug eras. The discussion of empirical trends is necessarily brief. More extensive published analyses describing aspects of these trends are summarized and referenced when available.

Marijuana Will Continue as the Drug of Choice Among Youths

In the 1990s, marijuana emerged as the drug of choice for a new generation, especially those that sustain arrests. Figure 1 presents the self-reports of past 30-day use of various drugs among young adult (age 18–25) respondents to the NHSDA. Marijuana use had been at its highest (35%) in this population back in 1979 as the psychedelic period broadly associated with the 1960s was entering a decline. Marijuana use reached a temporary low (11%) in 1992 and then increased slowly. By the end of the 1990s, use appeared to have plateaued at about 14%. In retrospect, the increase during the 1990s was quite modest compared to the decline from 1979 to 1992. Most importantly, cocaine use (in any form) remained uncommon (1–2%) among young adults in the 1990s after declining from its high (9%) in 1979. Use of crack⁶ and heroin never exceeded 1% in this group. The popularity of other illicit drugs – methamphetamine (Feucht & Kyle, 1996) and MDMA (Golub et al., 2001) – has been highly limited regionally and/or subculturally. We project that marijuana use among young adults in the general population will continue at its modest level (based on the assumption that the Marijuana/Blunts Era is in plateau) and that crack, powder cocaine, and heroin use will remain uncommon (based on the assumption that the eras in use of these substances are in decline).⁷

The growth in marijuana use during the 1990s was much more pronounced among young-adult (age 18–25) arrestees. Among ADAM-Manhattan arrestees age 18–25 (Figure 2), detected marijuana use had been at its lowest (24%) in 1990 and rose to a peak level (64%) by 1999. The relatively stable high level of marijuana use observed subsequently suggests that by 1999 the Marijuana/Blunts Era was in its plateau phase. Golub & Johnson (2001b) confirmed that this trend prevailed across the nation with modest variations in the timing and intensity across ADAM locations.

Cocaine/crack use continued its decline phase in the 1990s. Use among young-adult arrestees peaked in 1988 (76%) and declined steadily to reach its low in 2001 (13%). Golub & Johnson (1997) reported that by 1996, the Crack Era among arrestees was in the decline phase at most of the locations served by the ADAM program despite substantial geographic variation in the era's timing and intensity. Opiate/heroin use also remained relatively low (about 10%) during the 1990s among ADAM-Manhattan young-adult arrestees (Figure 2). Based on our theory of drug eras and the observation that the Heroin Injection Era in New

⁶The NHSDA has always asked about use of cocaine (in any form). An explicit question regarding use of crack was added in 1988.

⁷Projected levels are the averages of the prevalence rates observed over the last three years.

York City started its decline phase in the mid-1970s, an even lower rate of opiate/heroin use was actually expected. Further analysis (Golub & Johnson, 2004) reinforced by ethnographic evidence (Hamid et al., 1997) suggested that opiate/heroin use had maintained its popularity within a subpopulation of predominately White persons that tended to sustain arrests in Manhattan but that the Heroin Injection Era was in decline among black and Hispanic arrestees. We project that marijuana use among young adult ADAM-Manhattan arrestees will remain at its high level, based on the assumption that the Marijuana/Blunts Era is in plateau. We project that use of cocaine/crack and opiates/heroin among young adult arrestees will remain very low, based on the assumption that the Crack and Heroin Injection Eras will continue their decline phases.⁸

Overall, these analyses strongly suggest that in the 1990s marijuana became the illicit drug of choice among those young adults that use any illicit drugs, both in the general and arrestee populations. Figure 3 partially examines the extent to which this recent marijuana use was associated with blunts. Almost half (48%, $3.4\% \div [3.4\% + 3.8\%]$) of all youthful (age 12–17) marijuana users in the general population reported smoking blunts. Additionally, a substantial proportion of blunt smokers (28%, $1.3\% \div [1.3\% + 3.4\%]$) had not reported past 30-day use of marijuana. This may have been a simple inconsistency in their responses or an indication that some youthful blunt smokers either do not know or do not define blunts as containing marijuana.

Marijuana Will Not Serve as a Gateway to Hard Drugs for the Marijuana/Blunts Generation

Much prior research found that youthful substance use tended to progress through a series of stages (see Kandel, 2002, for a review): (1) nonuse, (2) alcohol and/or tobacco, (3) marijuana, and (4) other drugs including crack, powder cocaine, and heroin. Persons that had not used substances at one stage rarely reported use of those at higher stages. Many had presumed the relationship might be causal and that alcohol, tobacco, and marijuana use served as “gateways” to other drug use. However, recent evidence strongly questions the relevance of any “gateway effect” for the Marijuana/Blunts Generation. A simulation by Morral, McCaffrey, and Paddock (2002) suggested that age-graded opportunities and behavioral norms alone could account for the observed gateway sequence. Other evidence suggests that these opportunities and norms have varied over time, across locations, and across social groups. Golub & Johnson (2001b) reported increases in marijuana use among youths in both general and arrestee populations while use of cocaine (in any form) and heroin were declining. Golub & Johnson (2001a) found that marijuana users that came of age during the 1990s were substantially less likely than in previous birth cohorts to have progressed to crack, powder cocaine, or heroin by age 25. This suggested that any linkage from marijuana use to hard drugs might be cultural and vary over time and across populations. Golub & Johnson (2002) found that many hard-drug using arrestees from six cities had not followed the gateway sequence: 10% had used marijuana before alcohol or tobacco, and 15% had not used marijuana prior to hard drug use. This suggested that marijuana use was not a necessary precursor to use of crack, powder cocaine, or heroin.

All of these factors suggest that there are much more powerful forces underlying youthful substance use than the hypothesized gateway effect – like drug eras. However, the existence

⁸To illustrate this decline, we calculated the average annual decline 1997–2001 in young adult cocaine/crack and opiates/heroin use as follows and projected that this rate will continue:

$$\text{Average annual decline} = 1 - \sqrt[4]{\frac{\text{Prevalence in 2001}}{\text{Prevalence in 1997}}}$$

of drug eras provides only a partial explanation because it does not describe why various drugs become popular (initiating an expansion phase) and why they go out of favor (heralding the decline phase). We strongly suspect that there is no common answer pertaining to all drug eras; rather, the socio-cultural roots of these phenomena arise from persons' broader circumstances, drug availability, historical events, and especially the general gestalt defining the shared experiences of persons in a particular place at a particular time.

Members of the Marijuana/Blunts Generation Will Tend To Discontinue their Habits in Early Adulthood

Within the general population, marijuana use tended to peak around age 20 and declined as persons aged into their 20s and 30s (Figure 4). The highest prevalence for the 1960–1964 birth cohort (38%) occurred at age 19; by age 25 the prevalence for this cohort had declined below 10%. Similarly, marijuana use among the 1950–1954 birth cohort declined from its first measured value of 28% at age 25 down below 10% by age 35. Early members of the Marijuana/Blunts Generation (born 1970–1974) also exhibited their peak marijuana use of 14% at age 20 and a steady decline thereafter to 6% at age 28. The 1980–1984 cohort exhibited a peak 18% at age 19 and a one-year downturn to 16% at age 20. Bachman, Wadsworth, O'Malley, Johnston, and Schulenberg (1997) similarly found substantial declines in marijuana use with maturation and assumption of conventional adult roles using longitudinal follow-up data from the Monitoring the Future (MTF) program. Similar analyses (not shown) of alcohol, tobacco, and cocaine use over the life course, found that within the general population use of licit substances declined moderately with age while use of illicit substances declined to dramatically low levels by age 25. Among persons that continued to sustain arrests in Manhattan, both licit and illicit substance use tended to persist throughout mid-life. Accordingly, we project that marijuana use will steadily decline in adulthood among members of the Marijuana/Blunts Generation in the general population.⁹

Among ADAM-Manhattan arrestees (Figure 5), marijuana use tended to reach a peak level around age 20 and remain there. Marijuana use increased with each successive birth cohort. The prevalence of marijuana use among the 1950–1954 birth cohort was generally in the 10–20% range when arrestees were in their 30s and 40s; for the 1960–1964 birth cohort from 20–30% in the 20s and 30s; for the 1970–1974 birth cohort 30–50% in the 20s; and for the 1980–1984 birth cohort 60–70% in the late teens. We project that marijuana use will continue at high levels throughout adulthood among those members of the Marijuana/Blunts Generation that continue to sustain arrests in Manhattan.¹⁰

Discussion

The data paints a relatively rosy projection for the life course of the Marijuana/Blunts Generation, at least compared to the Heroin Injection and Crack Generations. Among the general population, persons coming of age since 1990 have been getting involved primarily

⁹To illustrate this decline, we calculated the average annual decline in past 30-day marijuana use from age 20 to 28 for the 1970–1974 birth cohort as follows and projected that this rate of decline will continue for the 1970–1974 birth cohort and that members of the 1980–1984 birth cohort will exhibit a similar decline with maturation:

$$\text{Average annual decline} = 1 - \sqrt[8]{\frac{\text{Past 30-day use at age 28}}{\text{Past 30-day use at age 20}}}$$

¹⁰The expected rate of detected marijuana use was estimated as the average prevalence observed at ages 26–30 for the 1970–1974 birth cohort and at ages 16–20 for the 1980–1984 birth cohort.

with marijuana, often as a blunt. The rate of marijuana use has been much less than during the 1970s and early 1980s but is still higher than the low reached in the early 1990s. Among arrestees, the prevalence of marijuana use increased dramatically. Among both populations, this Marijuana/Blunts Era seemed to have plateaued by the end of the 1990s.

Most importantly regarding their future, members of the Marijuana/Blunts Generation have been much less likely than members of previous generations to get involved with hard drugs. In the early 2000s, more members of the Marijuana/Blunts Generation have been passing into adulthood and passing the ages (about 18–25) of greatest risk for initiating use of hard drugs. This presents a strong contrast with the prediction by Gfroerer & Epstein (1999, p. 229). They projected that, “This expanding pool of new marijuana users may have a major effect on the demand for drug abuse treatment, as some proportion of new users progress to heavier use and to use of other drugs.”

Among arrestees, patterns of illicit substance use developed in the twenties tend to persist over the life course. Hence, we project that the high levels of detected marijuana use observed among arrestees from the Marijuana/Blunts Generation will persist as these persons pass into their 30s and 40s. These persons will probably face less severe health problems than the preceding Crack and Heroin Injection Generations, although little is known about the new health risks associated with combined smoking of marijuana and tobacco as well its potential cumulative impact over time. The Marijuana/Blunts Generation will also probably face less severe social and legal risks than their predecessors – particularly, given the more pacific culture surrounding marijuana/blunts use and their associated drug markets.

Issues for Future Drug Surveillance and Ethnographic Fieldwork

Our projection of the life course for the Marijuana/Blunts Generation is based on the continuation of current trends. This section explores the type of changes in drug use that could be expected over time based on our theory of drug eras and describes how most of these changes would be detectable with existing drug surveillance programs (especially the NHSDA and ADAM programs) or through ethnographic fieldwork:

To what extent is the current Marijuana Era focused around blunts or alternatively a continuation of the Marijuana Era of the 1960s? To address this issues requires additional information about mode of marijuana consumption (such as included in the 2000 NHSDA survey) as well as perhaps other subcultural information regarding context of use such as location of use, activities co-occurring with use (e.g., dancing, drinking, talking with friends), sharing rituals, reason for use (e.g., to be cool, resilience in the face of hard drugs), preferred music, and fashions.

How large will the Marijuana/Blunts Generation become? As of 2001, marijuana was still the drug of choice among youths. Continual monitoring would potentially identify the end of this generation as fewer members of successive births cohorts smoke blunts, marking the decline of the Marijuana/Blunts Era.

Will blunt use lead to addiction more readily than other forms of marijuana use but more similar to other forms of tobacco use? Perhaps frequent blunt smokers will develop dependence upon tobacco or the combined use of marijuana and tobacco. Quitting tobacco can prove quite difficult. Consequently, marijuana use in blunts may persist longer into adulthood for a larger proportion of the general population than marijuana use in joints and pipes had in the past. It would be useful to monitor and compare the persistence of blunt smokers to marijuana users that do not smoke blunts born since 1970.

To what extent will members of the Marijuana/Blunts Generation discontinue their marijuana use in adulthood? This paper indicates that members of the Marijuana/Blunts Generation in the general population have been desisting from marijuana use in their twenties and suggests that such desistence will continue. In contrast, members of the Marijuana/Blunts Generation that continue to sustain arrests have been and are projected to continue to sustain their high levels of marijuana use into adulthood. Further monitoring would identify the extent to which this projected trend continues to hold.

What will be the long-term health consequence of persistent marijuana use (especially when smoked in a blunt)? Given the deep inhalation of these combined substances, the deterioration of the pulmonary system may be faster than previously observed among persons that smoked marijuana or tobacco or both but not in combination.

Will members of the New Marijuana Generation (especially from the inner city) be better able to integrate into conventional society? These persons' drug use and the associated cultural context may be less damaging to their physical and mental health; less damaging to their social bonds with family, friends, school, and conventional institutions; and less likely to result in extensive involvement with the criminal justice system. Perhaps these persons have better prospects for successful integration into conventional society. Alternatively, given their other deficits in health care, education, social capital, and employability, impoverished members of the Marijuana/Blunts Generation may tend to fare no better than preceding generations ravaged by crack smoking and heroin injection (Duncan & Brooks-Gunn, 1997). Many may turn to persistent heavy alcohol use, a legal but potentially very damaging behavior.

Will the Marijuana/Blunts Era eventually be replaced by a new drug era? One possibility is that the Marijuana/Blunts Era will come to an end only as a new drug practice takes hold. This possibility seems plausible because the personal devastation of marijuana use is less rapid and severe than crack or heroin use. As the Crack and Heroin Injection Eras continued, each user provided tangible evidence to successive birth cohorts of the drugs' dangers. For many members of the Marijuana/Blunts Generation, especially those in the inner city, use of marijuana and not hard drugs has been an act of personal resilience (Johnson, Golub, & Dunlap, 2000).

Will members of the Marijuana/Blunts Generation become the pioneers of a next era of hard drugs? For this reason it is important to continue to monitor drug use over the life course for this multi-year birth cohort, especially among arrestees. Conceivably, persistent marijuana/blunts users could be at the forefront of any future drug era, just as many powder cocaine and heroin users were early initiators of crack cocaine (Golub & Johnson, 1994, 1996). An alternative possibility is that these persistent marijuana users will avoid subsequent hard drug use because they had not used hard drugs in young adulthood.

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Figure 1.
Prevalence of Past 30-day Drug Use Among NHSDA Young Adult (18–25) Respondents

Figure 2.
Prevalence of Recent Drug Use Detected by Urinalysis Among ADAM-Manhattan Young Adult (18–25) Arrestees

Figure 3.
Prevalence of Blunts Smokers Among Past 30-day Marijuana Users, 2000 NHSDA 12–17-year-old Respondents

Figure 4.
Persistence of Reported Past 30-day Marijuana Use Over the Life Course in the General Population, 1979–2000 NHSDA Respondents

Figure 5.
Persistence of Recent Marijuana Use (Detected by Urinalysis) Over the Life Course Among
1987–2001 ADAM-Manhattan Arrestees