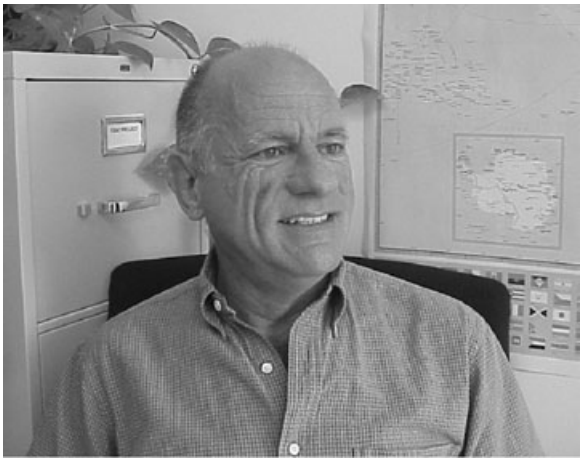
doi:10.1111/j.1360-0443.2006.01318.x

Conversation with M. Douglas Anglin



In this occasional series we record the views and personal experience of people who have especially contributed to the evolution of ideas in the journal's field of interest. M. Douglas Anglin has made notable contributions to research on civil commitment, the efficacy of methadone maintenance and the natural history of drug dependence. His concern has always been with the relevance of such research to policy choices.

GETTING INTO DRUGS RESEARCH

Addiction (A): Dr Anglin, you were born and raised in a small town in Arkansas; how did events bring you to a career working in the drug addiction field?
M. Douglas Anglin (MDA): I frequently say that most of the drug abuse researchers from my era developed 'accidental' careers, in part as a result of the times (the mid-1960s to the mid-1970s), and a few individual experiences. I studied for my undergraduate degree at the University of Arkansas (chemistry, physics and mathematics) in the late 1960s, so drug abuse was on the rise, particularly in middle-class youth, as was a counter-culture style of thinking. Having spent all those years in that relatively small environment, I was very eager to move to a bigger venue and applied to UCLA, a major nexus for the counter-culture. After my first 2 years at UCLA in clinical and social psychology, supported under a National Science Foundation fellowship, I needed a job and the man who eventually became my dissertation chair, William McGlothlin, needed a research assistant. He had just been funded by that component of the National Institute of Mental Health (NIMH) that was responsible at the time for drug abuse research; to conduct an evaluation of an offender rehabilitation program called the California Civil Addict Program (CAP).

A: What did that program entail?
MDA: This program entailed a 7-year court commitment to treatment for primarily heroin addicts that included an intensive and lengthy initial confined period (providing drug treatment, job training and educational advancement) with transition services and further treatment on release to the community for a lengthy parole period. Detected relapse to drug use resulted in a return to confinement, typically for short periods, and re-release with enhanced services and monitoring. I did not know it at the time, but this program was to be shown by our evaluation to be meaningfully effective in curtailing drug use, decreasing crime and arrests and, for many undergoing this long-term program, producing a re-entry to prosocial values and activities.

A: Do you feel that the training you had received in your undergraduate and graduate activities and through your earlier training (before gaining skills working with McGlothlin), were useful in this new field that you were entering?
MDA: Incredibly, not really. I think my early training did give me the logical assessment and problem solving skills to lay out various parameters of issues in a way amenable to scientific inquiry. But the real basics for research and specifically for drug abuse research that would have been helpful I learned only later, through my experience in the field, first with Bill and then on my own. Importantly, these included the slow development of trust with the collaborating agencies that you needed to work with. Typically, no matter what your credentials were, agency personnel still had to know you as a person in order to trust you before you could elicit optimal cooperation. Essentially, you need to gain that cooperation from the top down, because there were many ways the beleaguered civil service or non-profit staff could blockade your scientific efforts. More broadly, in this competitive grant-funded world, the scientific writing of articles and grant applications was not addressed by any academic training, and I had to learn these skills by emulating Bill McGlothlin.

A: Tell me about Dr McGlothlin and the work you did with him; I understand there were some very important studies that came out of that initial work. What was it like entering the field through the introduction by Dr McGlothlin?

MDA: Bill McGlothlin had started his own drug abuse research career at the Rand Corporation, under military funding, on the effects of hallucinogens on human thought and behavior. That was in the mid-1960s, and at UCLA during this period there was some active work going on in different areas involving Sidney Cohen, Tom Ungerleider, Ronald Siegel and perhaps a few other peripheral figures. Given that context, Psychiatry Chair Dr Jolly West and Psychology Chair Dr F. Nowell Jones brought Bill to UCLA with a joint appointment in psychology and psychiatry through the Neuropsychiatric Institute. Jolly West himself had a considerable background in hallucinogen studies. But by the time I joined Bill in 1972, most of the active work conducted by these others had dissipated. Bill was the only one who seemed to be conducting active research other than Peter Bentler, who was carrying out research in drug abuse prevention—but did not need a research assistant. By 1972, Bill had moved from studying the psychedelics to marijuana and then into heroin, which was the point I began working with him.

A: What did that project consist of? What kind of work did you start doing as the research person working with him in that evaluation?
MDA: This project gave me a tremendous breadth of experience. I had to learn something about the epidemiology and etiology of drug use, specifically heroin use, all of the history of prior interventions and why the CAP could be scientifically justified for evaluation, the evaluation methods and techniques to be applied and the general literature as well, not to mention statistical analysis techniques. I helped determine the evaluation design and develop the instruments, and I attended many meetings between the California Department of Corrections senior officials who had to approve the study, and the warden and research staff at the California Rehabilitation Center (CRC) where the records and files were maintained. I also supervised other research assistants and clerical and data entry staff, and I coordinated the statistical analyses. Later in the process I wrote reports and articles with Bill [1,2].

THE CALIFORNIA CIVIL ADDICT PROGRAM EVALUATION

A: It seems that drug abuse treatment in that era was really in the domain of the criminal justice system as opposed to the health care system.
MDA: That is correct. California at that time was probably leading the nation in attempts to control addiction-related crime through carefully applied and extensive drug abuse treatment. The California experience with the Civil Addict Program (CAP) started in 1961 after a year or two of very meticulous planning. Roland Wood, a major figure in the planning phase and the first Superintendent of CRC, has never been given enough historical credit for the program's success, due in large part to his contributions. Later on in the 1960s, its implementation achievements and favorable anecdotal findings provided the justification and basis for the New York Civil Commitment Program, which grew to an extensive size. And to a similar federal effort when, in 1966, Congress passed the Narcotic Addict Rehabilitation Act, which took civil commitment nationally. These developments occurred in the transition from a Johnson Administration to the Nixon Administration and occurred, of course, in that era's war on crime.

A: So the basis for the CAP was a criminal justice rationale more than it was a psychiatric or health care rationale.
MDA: Yes, that criminal justice rationale applied to the New York and federal programs as well. Much to the California originators' credit, the effort that was brought into constructing the program was one in which clinical experience in behavior change and research data actually drove the design of the program. I do not think I have ever seen such careful planning and execution save for the monitoring, assessment and evaluation initiatives established by the Special Action Office for Drug Abuse Prevention (SAODAP) under the Nixon Administration. Otherwise, I have not seen many successful large-scale interventions primarily designed on the basis of an accumulation of research findings. The CAP, for example, accepted that heroin use was a chronic relapsing condition, and thus had a very lengthy commitment period of seven years of inpatient and outpatient treatment with a monitoring system that looked for early relapse and then quickly intervened with an increase in supervision, including urine testing, and/or a short to lengthy return to the inpatient facility (the CRC). Commensurate with both phases of treatment were supportive services in terms of job training and education to provide basic skills that would mitigate relapse on return to the community.

'Otherwise, I have not seen many successful large-scale interventions primarily designed on the basis of an accumulation of research findings.'

A: That model has some interesting similarities with what has recently been developed as 'drug courts', where an interaction occurs between the person's behavior and participation in treatment, involving periodic jail sentences within a longer term scale depending on the length of court oversight.
MDA: That is an apt comparison, except for the troubling loss in successful program elements over the years, espe-

cially in one primary tenet of behavioral intervention: adequacy of time frame. It has been very disappointing in recent decades to see both in-patient and out-patient services stripped down to what I consider clearly sub-threshold levels for many with chronic drug problems; currently, such programs are typically capable of producing only a short-term blip in behavior and personal recovery trajectories. More people may be able to be served, but if they are served in a way that is predictive of quick relapse, we are not achieving optimal personal or social benefit in the intermediate or long term.

A: There is currently movement, promoted by Tom McLellan for one, toward adopting a more chronic care model of addiction treatment that sounds like a revisitation to a 30-year-old concept as seen in the CAP.

MDA: David Musto has written of the 20–30-year cycles in drug policy as the socio-political period in which the pendulum swings from the promulgation of rehabilitation concepts to that of increased criminalization [3]. One of the things that Bill McGlothlin pointed out to me, and I found to be true, is that nearly every question about drug abuse and related behavior that could be asked had been asked, and some good thinking, as well as some really poor thinking, had been applied to most issues. The truth of this precept is evident in many ways: for example, regarding what you just mentioned, the return of the criminal justice system into major involvement in intervening with drug abuse problems and the perspective that a long-term approach is necessary. Another example is that of methadone maintenance where morphine maintenance clinics were established in a number of cities throughout the United States in the 1910s and 1920s, an opiate maintenance effort that faded away under the prevailing criminalization mode of later decades, only to be re-established in 1965 and to be propagated nationally as a special emphasis under Nixon's war on crime and drugs. Clearly, drug abuse research has recently broadened because of innovative scientific approaches and new technologies—brain imaging, genetics and neurobiological substantiation for development of potential treatment medications—but many of the findings regarding key psychosocial questions that we have probed repeatedly through several decades remain pertinent today.

THE NATURAL HISTORY OF DRUG ABUSE

A: Your work with Dr McGlothlin evolved into some focused work on the natural history of drug abuse. How did that line of research occur? And can you describe your development of that concept?

MDA: Our later natural history work evolved from the long-term evaluation of the CAP, where we examined retrospectively the committed offenders' drug use and criminal patterns for an extended period based on self-report data and official records. The time-frame included from first heroin use through dependence development to program entry, and then for the ensuing 10 years. This detailed study of the time-course of heroin use and its associated behaviors came close to representing a full natural history as the concept is typically defined. I think part of the impetus for using a natural history perspective was to re-emphasize that we are dealing with a chronic behavioral condition that takes time to develop, leads to a life-style that sustains addiction and requires a lengthy interval of intervention to change.

A: You also developed at that time the idea of 'return on investment'?

MDA: By providing the scientific information in the natural history frame, we helped to bring into the policy arena the 'return on investment' issue. Our CAP results [2] showed an immediate and sustained return for the full 7-year commitment period. In the larger sense, we showed that more resources placed now in an intervention could pay off over time in future budgets. The concept has been very difficult to drive into the public policy perception, however, because current year budgets seem to drive only current year activities without regard for sensible investments that require capital in the current year, but will pay off, possibly greatly, in future years. The first grant I had entirely written on my own proposed using the natural history methodology to study the interrelationship of heroin addiction, criminal and treatment careers of the CAP cohort for an additional 10 years. I spent 6 months writing that grant, and was disappointed that the priority score was in the gray area for actual funding. Having heard that the large federal agencies often found unexpected sums at the end of the federal fiscal year, I decided to go to the National Institute on Drug Abuse (NIDA) and lobby for this grant. There two NIDA agency officials, Michael Backenheimer and Richard Lindblade, who had high opinions of Bill, used his mentoring of me and their estimation of my potential to wrangle a meeting with Bill Pollin, then Director of NIDA. On the basis of an hour's meeting with me, Pollin approved funding for the grant, a decision that kept me active in the field and cemented the use by our group of natural history techniques. Without this timely support, I would probably have taken an entirely different career path. In later studies we examined the natural history of those dependent on cocaine, crack and methamphetamine, as these drugs became of national prominence due to epidemic increases in use.

A: The natural history approach is one that has been also developed by George Vaillant in studies on alcoholism; how did the construct that you developed differ from his, or are they similar?

MDA: I think there is a great deal of similarity between all natural history approaches for behavioral, and even medical, conditions that tend to persist. Bill McGlothlin, although his initial purposes were evaluation, set the scene for our natural history studies based on work by David Nurco, whose instruments provided the foundation for our natural history interview [4]. David had had the straightforward but illuminating idea of breaking a person's natural history—addiction career, if you will—into addicted and less-than-addicted periods or periods of no use. This structure allowed you to examine and quantify data reported for each condition in quasi-experimental designs, leading to a better assessment of the effects and the applicable mediators and moderators, that seem to be associated with periods of high use, to low use, to no use. Bill took that natural structuring and refined it to answer further important research questions.

A: So how did you take that idea forward?

MDA: Working with Bill I developed a series of forms called dynamic forms that capture the elements in each period that distinguished it from other periods. This is a very demanding interviewing and data entry process, as capturing a person's life for 10, 20 or, in some cases, for 30 years and breaking that history into these defined segments requires careful reconstruction using as many objective 'memory anchors' as possible. We made arrangements with the California Department of Justice and with the Federal Bureau of Investigation (FBI) to obtain the criminal records of all our subjects. We also obtained official treatment records wherever they existed and established a pre-interview time-line with all these dates and events laid out very carefully, so that we could talk to a respondent about behaviors before or after each anchoring event. Because of these time anchors and the chronological way we obtained the data, there were important analytical advantages, too. For example, all the cases could be 'lined up' on a common occurrence in each history (such as first entry to treatment) or common event important in the development of addiction (such as first regular drug use). With such common anchoring points across cases, behavioral data could be examined year-by-year, or in the case of our instruments, month-by-month before treatment entry and after treatment entry, or dependence development trajectories could be ascertained as they emerged after first regular drug use. This way of structuring the data allowed a very clear exposition of data suitable for interrupted time-series analysis or growth curve modeling. In our studies across different drugs, we found that for many groups the pre-intervention behavior was similar, but the post-intervention behavior was affected by the kind of intervention, the way it was delivered and ancillary events such as attending self-help groups, employment, and so on.

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A: What do you see as some of the major lessons from your natural history research that have influenced the study of addiction or the understanding of addiction?

MDA: I have to put that question into a more abstract frame and one I wish was more frequently used in our approach to studying and intervening with drug dependence problems. Simply stated, drug dependence is a complex and multi-factorially determined behavior, with genetic, physiological, familial, social and other components. I have stated frequently and publicly that anything that was done to intervene with the chronic histories of drug abusers was simply pushing against, or towards (statistical) distributions of behavior that were structured by many elements, most of which were resistant to change. Hence, efforts to intervene had to address drug dependence from many and diverse, but simultaneous and/or carefully staged, points if you were trying to find, if you will, a set of forces that when combined result in successful intervention. Further, this combined 'force' had to be of sufficient strength and applied for a sufficient period (and in the case of addiction, this might be for a life-time) to change the course of enough individual addiction careers to show in the aggregate, going beyond just the anecdotal, to what was making a difference at the personal and social levels. A great deal of what I will call 'addiction momentum' has been established for individuals whose dependence career is more than 3 or 4 years, and redirecting the momentum requires sufficient opposing forces to produce a significant and meaningful effect [5]. Regrettably, much of what we call a treatment intervention is deficient in both providing a very wide array of contravening forces, nor for a very long period. Linkages across criminal justice agencies, private and public social service agencies, and other supports (e.g. 12-Step groups) are touted in the rhetorical, but are either difficult to access or fragmented when delivered in the reality [6].

A: The domains you examined with the natural history interview seem similar to those that Tom McLellan has assessed in

his Addiction Severity Index. As a former treatment professional, I think they are very important.

MDA: Recalling my earliest review of the then extant literature, I was surprised to see nearly all these domains discussed in the late 19th- and early 20th-century literature. These issues have been held consistently as paramount in the field and, in terms of psychosocial research, the questions have changed little. In 100 and more years of literature, the universal frustration in dealing with addiction behavior has come across in clinical, policy and research writings; many of the elements of addiction remain consistent although new drugs have emerged and our approaches to modifying them must reflect an awareness of the entirety in a comprehensive manner in order for interventions to be more effective [7].

METHADONE MAINTENANCE

A: You and Bill McGlothlin also conducted one of the most visible studies on heroin addiction conducted in the last 30 years, which was an early study on the value of community-based methadone treatment.

MDA: We took the instrumentation developed in the CAP evaluation and the concept of the addiction career, as another term for the natural history of addiction, and applied the methodology to the first methadone maintenance programs opened in several counties in Southern California in the early 1970s. Each of these counties took a very different approach to the delivery of methadone services and we wanted to understand what the overall effect of methadone was in both in the short term and long term in changing heroin addicts' behaviors. We also wanted to examine how the policy context and how the program was implemented procedurally would affect outcomes. Los Angeles County, for example, using the Dole–Nyswander paradigm of high dose and flexible clinical procedures, where 'slips' and relapses were defining modes of the condition and thus addicts needed multiple opportunities, was contrasted with Orange County, where the basic philosophy was 'if you use, you lose', even just once, resulting in program termination, and a low dose of methadone was the prevailing policy. We also had an intermediate implementation policy in San Bernardino County, which was not as severe as Orange County but was not as flexible as Los Angeles County. In retrospect, our results could have easily been predicted: that the high-dose, flexible implementation in Los Angeles County had the longest client duration in treatment and the longest delays to relapse to heroin use, crime, arrest and incarceration [8]. The shortest time to relapse to these conditions was in Orange County, with San Bernardino following an intermediate course.

A: Did your findings have an immediate impact on treatment policies?

MDA: I was very disappointed after publishing these results [9] and presenting them state-wide and nationally in a number of forums that policymakers did not adjust their program procedures to derive optimal benefit from opiate maintenance treatment. Rather, increasing conservatism about methadone maintenance developed so that by 1986, county boards of supervisors, in California and elsewhere, were voting to take methadone out of the publicly funded system. Some counties did not allow it at all and other counties allowed a private fee-for-service system to emerge. It was an absolutely counterproductive movement as the findings [10] of the majority of methadone studies showed that if you wanted to improve community safety and if you wanted to improve behavior in terms of reduced drug use and crime and more productive activities, you needed to actually expand the availability of methadone for anyone who had used, as a rule of thumb, for more than 4 years. The actual closure of methadone clinics and the common practice in the fee-for-service clinics of discharging clients for inability to pay was particularly counterproductive.

A: *One of the extremes occurred in Bakersfield, California, with the complete closing down of the county's only clinic, an event that you took as an opportunity to do one of the classic natural experiment studies ever carried out in the field.*

MDA: That was the last study that I was able to conduct with Bill McGlothlin. I had worked my way from research assistant to project director to co-principal investigator over the years that I worked with him. He was brilliant in finding such significant policy changes that had occurred for various reasons and in creating very good quasi-experimental designs in order to test their effects. A control group for the clients cut off when the Bakersfield clinic was shut down came from the nearby rural county of Tulare where the clinic population was similar. For our interrupted time-series point, we used the date of closure of the Bakersfield clinic and created a pseudo-closure date for the Tulare sample. We found that clinic closure caused modest movement of the Bakersfield clinic population into somewhat higher use of in-patient and out-patient services [11]. However, the overall impact to the patients and to the community of the closure was significantly poorer over the follow-up period in terms of drug use, crime and incarceration rates than in Tulare, where the control population was allowed to continue in the natural course of methadone treatment. These results further demonstrated the counterproductive nature of restricting methadone maintenance, because it was shown once again to be a useful strategy in ameliorating the individual and community problems of heroin addiction.

A: Even though that was a relatively small program relative to the population of Bakersfield, you could actually see the positive impact on crime and other measures in the population of the Tulare program in contrast to the impact seen in ex-clients in the terminated Bakersfield program?

MDA: We could certainly see it in the population of terminated patients. By projection, using logical and statistical arguments, had methadone programs been available to serve all those who wanted it, or all those who could have been encouraged to enter methadone treatment (e.g. via the criminal justice system), the benefits could have resulted in a broad community impact [12]. Unfortunately, too few community impact studies were conducted in that era. One exception occurred in Texas, where Maddux and Desmond had looked at community-wide records, showing that as the number of addicts being served by methadone treatment increased, there were decreasing rates of overall community crime for the city of San Antonio [13]. Similarly, when those programs were restricted, there was a clear increase in community crime as those clients were forced out of the methadone treatment system.

A: You are known in the United States as one of the most articulate spokespersons for supporting the value of methadone treatment. Are you satisfied that methadone treatment has been optimally used in the nation?

MDA: Not at all—research results are usually disregarded when political images, such as a tough on crime stance, need to be preserved. Only rarely do the two coincide. In the case of methadone maintenance, the Nixon Administration jump-started such programs in the United States in about 1968, with direct funding through the Law Enforcement Assistance Agency, including grants to establish methadone programs under criminal justice system auspices. In this initial period, you had the support of the Presidency and the recently established Special Action Office for Drug Abuse Prevention combined with massive amounts of federal funding. At about the same time Congress passed the Narcotic Addict Rehabilitation Act, which promoted drug treatment generally and provided further funding for programs in the community and within the criminal justice system. Overall, there was a major shift of resources into the treatment of drug addiction through methadone maintenance and other programs.

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A: But that momentum was not maintained.

MDA: That political momentum continued into the early and mid-1970s but faded thereafter, to be replaced by the increased criminalization and stigmatization that seems always to resurface towards addicts. In a further attempt to change the restrictive policy toward methadone, I served on the National Institute of Medicine methadone regulation review committee. As part of my contribution, I worked with the states of New York and California to conduct comparative analysis because of the policy differences in the two states. New York had retained methadone maintenance as a publicly subsidized treatment modality, but California, starting with Bakersfield and later in most other counties, moved to a primarily private fee-for-service system. In comparing the two states the duration of treatment in California was much shorter, where a sort of a 'churning' system was the reality, with clients coming to methadone for a period of time that they could afford. Then something would happen in their lives and they would not be able to afford their fees and they would be administratively discharged.

A: Looks like the research evidence was being ignored.

MDA: In my more provocative presentations, I would say society was guilty of ethical negligence, if not true medical malpractice, in removing a proven treatment, subjecting patients to health morbidity and mortality simply because the patient could no longer afford the services. This practice was contrary to rational health care policy and was inconsistent with treatment for other addiction problems. California's state methadone system remained one of rapid turnover, with frequent movement between no treatment, methadone detoxification, which was reimbursed, and methadone maintenance, which was not, all of which interrupted patient progress and was disruptive to any philosophy of recovery. Moreover, this policy was undercutting the goals of reduced drug use and reduced crime. The contrasts between the two states were clear-cut, and yet, even with the prestigious Institute of Medicine report [14], none of the states that had removed methadone from public funding reinstated it.

A: At about this time there was the introduction of levo-alpha-acetyl-methadol (LAAM)

MDA: Similar to some of the fundamental regulatory mistakes made with methadone maintenance, the introduction of LAAM (an opiate agonist-like methadone but longer-acting), begun in the early 1970s, went into limbo until a new director at NIDA was determined to obtain Food and Drug Administration (FDA) approval in the early 1990s. But by focusing on this one goal other aspects of sensible research were not addressed, despite investigator-initiated proposals submitted for consideration. First, the probable adoption of LAAM by the nation-wide system of private clinics was not addressed,

and the failure of few programs and few patients to use LAAM was a blindside to NIDA. Secondly, all research had been short-term clinical trials in non-typical community clinic settings, so while the funded studies had high internal validity, they had relatively low external reliability or real-world relevance [15]. Studies that would have assessed LAAM's acceptance and use more accurately were not a NIDA priority or were not able to make it through the grant review process. Ultimately, LAAM was removed from the market by the pharmaceutical company that produced it because of underutilization and some cardiovascular risk in a few individuals, a risk that is also seen to a more modest degree for methadone. It is interesting to speculate that this whole discouraging history could possibly have been avoided had the methadone maintenance system remained under public, rather than private funding. So one poor policy development leads to another, with cumulative negative effects for individuals and society.

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A: Your work has straddled two systems: you have both studied treatment within the criminal justice system and the community-based methadone and other treatment systems, in some cases linked to criminal justice. Why has there been such difficulty in gaining acceptance of methadone treatment by the criminal justice system and even the court system in many places?

MDA: In one of my last public appearances, just before California voters passed Proposition 36, which was enacted into law as the Substance Abuse and Crime Prevention Act of 2000 (note that crime prevention is still the driving factor in provision of treatment), I attended a meeting of legislative personnel, judges, probation and parole agency staff and staff of other law enforcement groups. In regard to methadone maintenance, I pointed out that the research results were overwhelmingly supportive of its benefits, and I referred attendants to a number of methadone outcome reviews, including my own. I challenged them to disabuse themselves of whatever philosophical antipathy they had towards methadone, and to make the modality a supported component of any broad approach to intervening in opiate-dependent behavior. In the question-and-answer period, it was quite clear that information alone was not going to change the law enforcement collective or common wisdom about methadone. The entrenched law enforcement philosophy against substituting one drug for another, despite the proven benefits, was a barrier to even considering the evidence. As a result, very few of the opiate-addicted offenders diverted into treatment by the act received methadone treatment.

INTERVENING WITH DRUG-ABUSING OFFENDERS

A: You are one of the leading proponents of the fact that adequately delivered drug abuse treatment reduces crime and that the criminal justice system can be useful in promoting treatment participation. How did you become involved in that particular area of research and policy?

MDA: After Bill McGlothlin's death, I wrote and secured funding for a second follow-up of our CAP cohort. Our arguments were for a longer-term evaluation, 20 years post-treatment, and for an extension of our natural history work [16,17] with an emphasis on criminal behavior and drug use. From the results of research from our earlier natural history studies, it was evident that the addiction life-style is an interactive one involving addictive behavior, criminal justice involvement, treatment, relapse, medical consequences, mortality and so on. It was very clear in the findings that criminal justice motivation or coercion could reduce the age at which a drug-dependent person entered treatment, accelerating the transition from an addiction career into a treatment career. Where some argued that less beneficial outcomes occur with these supposedly recalcitrant patients, we found almost the reverse to be true. In the aggregate, addicts coerced into treatment by the criminal justice system did as well or better in duration and outcomes than the so-called voluntary entrants.

A: The logical next step?

MDA: Having established those relationships in prior research and published the findings, what seemed the next logical step was try to bring better linkages between the two systems and propose mechanisms by which optimal outcomes could be achieved [18]. This was a difficult task because the essential philosophies of the two systems are very different in the kind of intervention approaches utilized. Bringing about some improved linkages and assisting in overcoming the inherent problems has been one contribution to the field that I am very pleased with. In the past decade-and-a-half, work that we had conducted over the past 25 years has led to an increasing acceptance by the criminal justice system for providing (drug-free) treatment to those on probation, to the incarcerated and, importantly, as a component of transition back to the community on release to parole.

A: It is certainly controversial with treatment providers when they are presented with evidence that coerced treatment works as well, or possibly better than, voluntary treatment because

they are so certain that personal motivation for treatment is critical. Have you given any thought to why your findings seem to contradict the intuition of clinicians?
MDA: Part of the reason is that there is always a tremendous disconnect between group-based research and the individual experience of clinicians. My guiding principle has always been to examine the groups-based approach while understanding the range of individual responses. Within relatively equivalent groups of coerced and non-coerced clients, the overall results are similar. Within each, of course, there is a distribution of personal motivation which, when higher, is related consistently to improved outcomes. But the overall motivation distributions do not seem to be that different between the voluntary and coerced clients. So both points of view are valid, but you have to step back to a larger model to assess relative weights using, for example, the natural history perspective.

A: Are you optimistic about continued partnerships between the criminal justice system and the treatment system?
MDA: Yes, to some degree. The heavy criminalization of drug use and the severe penalties imposed, particularly under the initial stages of the crack epidemic, produced long sentences for increasing numbers of non-violent offenders, and the sheer costs of incarceration have nearly bankrupted various correctional systems, particularly in California. When I started in this business, corrections costs were somewhat less than 2 billion dollars a year in the state. Today costs exceed 6 billion dollars a year, an untenable growth that could not be sustained without promoting a search for other remedies. Recent newspaper articles in California assess the corrections system a failure based on return to prison rates of 60–70% and call for more rehabilitation programs leading to better adjustment by offenders paroled into the community. The Governor, as well as members of the legislature, has also called for more rehabilitation efforts. However, the potential of such interventions may be undermined by too high expectations and too few allocated resources. One promising sign for the development of adequate programming is the inclusion of several criminal justice and treatment researchers in the planning process now under way in the state.

A: California voters approved Proposition 36 a few years ago to offer offenders treatment rather than sentencing them to jail or prison. Do you think the direction of California's Proposition 36 is a promising development?
MDA: The passage of Proposition 36 and its enactment as the California Substance Abuse Control Prevention Act of 2000 broke new legal ground, established in this case by the voters rather than the usual process of legislation and regulation. However, the proposition as written did not follow empirically established behavioral precepts. Apparently, researchers were not included in the formative processes of the proposition's provisions, and advocates made a number of assumptions about behavioral change that were based on apparent logical or popular sentiment appeal rather than on the research literature. Other circumstances due to the inherent characteristics of the two systems appear to have weakened implementation of the law. Importantly, nearly all law enforcement and criminal justice groups lobbied against the initiative, a climate of resistance that made it more difficult to establish the needed linkages and procedures for effective treatment delivery despite frequent task force meetings conducted in good faith by county agencies responsible for carrying out the legislation. Furthermore, the projections for treatment utilization, for which the advocates proposed 120 million dollars a year in funding, were significantly lower in terms of the actual numbers of offenders served and their use severity. Based on the evidence of the program so far, the behavioral change is similar to that of other large-scale diversion to treatment studies conducted in the present era, but less than that obtained by the California Civil Addict Program.

A: What is now likely to be the future for Proposition 36?
MDA: Proposition 36 is up for re-appropriation in 2006, but will continue to be the law until changed by the legislature or by initiative. However, the 120 million dollars allocated per year will disappear unless the legislature votes to provide further funding. The discussion, however, should not be solely about re-appropriating funding, but on how to redesign the program, eliminating earlier flaws. In particular, a lengthy period of 4–6 years of probation (or more) combined with treatment and with appropriate monitoring for relapse is needed, following a behavioral prescription model rather than a time prescription one. Two or three years of demonstrated abstinence from drug use and crime would result in early discharge from probation. Furthermore, the SACPA program should include an assessment of, and provisions for, the needed array of community services that will achieve optimal benefit for the offender population and for the larger society, and the legislature should be sincere about funding this investment in better future outcomes.

INFORMING AND INFLUENCING DRUG POLICY

A: You have been a critic throughout your career on how policy is made in this field. Can you discuss your views as to why research data and findings have been less than successful in influencing policy?

MDA: I will personalize my response in this regard. In my work as a researcher on various projects, we would obtain the analysis results and see distinct findings that had direct policy relevance [19]. I had assumed, and was terribly disappointed to find otherwise, that policymakers and agency officials would attend to the results as an opportunity to improve policy and, especially, interventions. When this did not happen, and in my further experience where research was occasionally considered, I realized that the best a researcher could do was good, scientifically defensible work with the findings properly distributed both in presentations and publications. Thereafter, one had to be patient and be prepared as the socio-political context changed, as I have seen happen about every 15–20 years, to bring those research findings into the policy discussion. When there is a congruence of social and political forces that make your findings relevant at such change points, then you act proactively to make sure you educate those responsible for developing policies. Under these circumstances, then you have an opportunity to see a beneficial effect from hard-earned research findings.

A: Over the decades has the relationship between science and policy in this arena strengthened or faded?
MDA: As multiple bureaucracies have evolved and their size increased, efficiency of developing, implementing and evaluating infrastructures for ameliorating the problems associated with drug use has declined. Over my 30 years in the field, only the original efforts by the Special Action Office for Drug Abuse Prevention led to proactive, efficient and arguably the most successful large-scale programs ever implemented. The reasons for this were many: direct authorization by the Nixon administration so that funding was adequate and other agencies fell into line; experienced, talented and foresighted administrators in the persons of Jerome Jaffe, Robert DuPont and others who were able to plan well and bring swift implementation of their national infrastructure. Subsequently, ADAMHA (Alcohol, Drug Abuse and Mental Health Administration) (NIDA), the National Institutes of Health (NIH) (NIDA), the Substance Abuse and Mental Health Services (SAMHSA) (CSAT) and the Office of National Drug Control Policy (ONDCP) have been increasingly bureaucratic agencies, affected by politics as much as by their science and service missions. The grant review process compromises scientific advancement for social application and benefit in many cases, because reviewers have no broad, agency-specified strategic plans available within which to judge the merit of submitted proposals in fulfilling such plans. Rather, studies are funded for science's sake, not necessarily for the social relevance of potential findings.

A: You do not sound optimistic on this front.
MDA: I do not see how, without major changes in how government works, that thoughtful proactive policy can be developed [20]. Every incoming administration at the federal, state, and the local level brings appointments of new key policymakers whose pre-existing attitudes are more likely to determine policy than any sort of research review and assessment. Until capable technocrats are appointed to these positions, and are not replaced every 4–8 years, the public will not see optimal programming. Instead, the *status quo* will endure, with the attendant turmoil, chaos and disruptions of programs that have been in the making under a prior administration but that are tossed under a new administration.

A: So it is a matter of having the right information, the right reputation, and the right timing.
MDA: Yes, and the right energy to put yourself into the fray and the will to subject yourself to repeated setbacks while trying to advance science and practice. You must not allow yourself to be frustrated by the many obstacles, some of which, despite your sincere intent, could be of your own creation by choosing the right fight at the wrong time.

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A: The major federal policy agency in the drug abuse area has been the Office of National Drug Control Policy, which has been in effect for 15 years, heading toward 20 years. Do you feel that office has provided the nation with good leadership?
MDA: I have known and been a consultant to some of the staff of nearly every appointed director of ONDCP. Similar to my earlier comments about impediments to rational policy, ONDCP is a political agency invested primarily in public and congressional visibility. Even though the agency has both legislative authority and budget/appropriation authority, I have seen little national leadership for drug treatment policy and programming deriving from that office, certainly nothing of the calibre of SAODAP in the 1970s. Unfortunately, ONDCP has become another large bureaucracy that supports the *status quo* rather than developing any far-sighted approaches. Part of this failure may simply be the reality of politics: directors have to be confirmed by the Senate, and elected officials tend to appoint people representing a certain philosophy and acceptable to legislators rather than those individuals most experienced and credible to the field. Moreover, it is a high-visibility office so that any

potential missteps or perceived missteps can produce negative congressional and media reaction. Thus, a *status quo* conservatism pervades the culture of the office, especially as the climate is politicized rather than public health-minded.

TRAINING AND MENTORING NEW SCIENTISTS

A: One of your major contributions has been the initiation and leadership of a long-term NIH/NIDA research training program that at various times has been the largest training effort that NIDA has sponsored. Do you feel that we are getting the best people into the field to carry on needed research activities, and how do you feel generally about the development of new scientists in this area?

MDA: This is a very complex question and my response will be equally complex. I think for anyone to develop an extensive research career in the same era as I did, several incidental and coincidental factors helped shape that career. Over my own career, I worked with many different speciality topics within drug abuse: a sort of a matrix, if you will, that had dimensions of personal interest, opinions about important issues for the field, relationships with funders and opportunities for funding. As a result, the actual level of work being conducted at any one time in any one topic had to be flexible, a sort of 'background–foreground' issue. A psychosocial researcher needs the background in all of these topics: epidemiology, etiology, program development, program evaluation, the long-term nature of drug dependence and so on. Within this knowledge set, what rises to the foreground is depends frequently on what can be funded or other opportunities that allow the construction of a scientific research project. Of course, all this should serve the field. As Bill McGlothlin said to me when I had writer's blocks in my first paper [21], it does not matter how much you understand the data or are enthralled by the results, you only see a social response to your findings by presentation, consultation,and publication.

A: Why do you think young researchers choose to enter this particular research field?

MDA: As I mentioned in our introductory conversation, most researchers of my era entered drug abuse research coincidentally, even accidentally. Even now, in upcoming generations, there still seem to be multiple links: personal experience, whether that is for yourself or your family, cases of successful mentoring, opportunities for jobs to develop your skills in this area and provide for a career and others. Such motivating events still outweigh the number of students entering the field who have looked at it abstractly and proactively, deciding that drug abuse research is what they want to develop a career in.

A: And research generations have in due time to be replaced?

MDA: An emphasis on 'generational replacement' came to me relatively early and was personally imperative, as I had been diagnosed with HIV in 1985 and with AIDS in 1993. Thus, it was very important to me that the drug abuse research center that Bill had initiated and I had inherited and enlarged be sustained, even if my health prospects were time-limited. I had already been recruiting and mentoring a number of individuals, but most of these individuals were relatively close to me in age. In this regard, I think one of my premier contributions to the field is having recruited and mentored such fine researchers as Yih-Ing Hser, Michael Prendergast, Douglas Longshore, Mary Lynn Brecht, Christine Grella and Robert Fiorentine here at UCLA. They are all very talented professionals in their own right, and they constituted the faculty that would be persuasive, in a proposal for a NIDA-supported institutional training grant, in showing that a critical core of experienced researchers and successful research projects existed to form a foundation for training. We were awarded that first 5-year Institutional Training Grant (ITG) and now, 15 years later, we still accept and graduate several fellows every year; a proportion of these become committed to a career in drug abuse research.

THE COMING DECADE

A: As you start a new era of your work in the drug abuse field, what do you see as our challenges, what are you optimistic about, what are you not optimistic about?

MDA: I will approach that question only for the near term, and at the same time reflect on some of the 'golden eras' of drug abuse research. The good old days are nostalgically recalled as such because they were nearly all tied to federal priorities and they were promoted through federal funding that was made available to broaden and deepen the field. As I noted earlier, such was the case in the Nixon administration where these forces shaped the nature of the developing community-based treatment system in the United States. In contrast, or as a swing of the pendulum, however, this picture changed dramatically in the early 1980s when Reagan reduced the workforce at the federal level and reduced discretionary agency funding for services and research, replacing this type of funding with state block grants. This cut and redirection caused a research and service recession that lasted through most of the 1980s. It was not until 1988, when drug abuse again became a national priority that the first Bush Administration asked Congress to establish the Office of National Drug Control Policy, and appropriate a large amount of additional funding for the field. About the same time, ADMHA was disestablished and the

research components of NIDA, National Institute on Alcohol Abuse and Alcoholism (NIAAA) and NIMH were moved to the National Institutes of Health, and the service components were reconstituted as comprising SAMHSA. In subsequent years funding tripled at NIH, and NIDA was a major recipient of large amounts of additional dollars. Now we are entering another recession period; NIH funding has become flat, actually negative because of the effects of inflation. But these historical cycles continue, and after 10 or so years of recession and de-emphasis of drug abuse the cycle of emphasis returns, perhaps accelerated by intervening events such as, in the past, the cocaine and crack epidemics. The treatment of drug-abusing offenders may become this decade's intervening event. Our corrections system is still jammed with people who are more addicts deemed criminals than criminals who are addicts. It is possible that the current trend to divert moneys from further criminalization and punishment policies to adequate rehabilitating efforts will continue and perhaps grow as the financial burden on the government and taxpayer for law enforcement becomes more severe.

A: The research-to-practice emphasis?
MDA: I would like to see another exception to flat or reduced funding in the promotion of better treatment through a research-to-practice emphasis [22]. There is substantial rhetoric that emphasizes the importance of this topic from policymakers, researchers and practitioners, but the bottom line is that the rhetoric is empty until the matter of funding such changes (e.g. reimbursement for full services), a rare topic within the overall rhetoric, is thoroughly discussed and sufficient resources allocated.

A: Any summary thoughts you would like to offer as we wrap up the career portion of this interview?
MDA: Just one. All the research that is currently being funded has a time horizon associated with it. There is currently great emphasis on bench laboratory and clinical trials research: genetic, physiological and medication development, and these areas are important. However, the time horizon from such studies for achieving a process or mechanism that can be applied to the majority of people with drug abuse problems is fairly distant. This lag is further delayed in the absence of a clear national strategy that promotes balanced funding levels and funding mechanisms for different research areas. On the other hand, research that is ecologically valid—meaning it has good potential for application in the extant prevention or treatment system—can provide more immediately relevant and useful information to promote beneficial change. Also, psychosocial interventions based on the research to date, the emphasis on research-to-practice efforts and more appropriate health services funding are the crucial elements to achieving viable solutions within a relatively short term as opposed to a continuing *status quo* for our historically chronic problems with drug abuse. I think part of the debate of the next few years should focus on the return on investment produced by these different approaches to research and practice, and from there we can start to determine a national strategy that is well formulated and well balanced.

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A: Dr Anglin, you have led an immensely busy professional life. Can you tell us something about your leisure interests?
MDA: Leisure activities became increasing circumscribed as events developed in my life. Before Bill McGlothlin died in 1980, I had compensated for a relatively sedentary and studious youth by learning to sail, ski, scuba-dive and even hang-glide. Assuming the responsibility for our research group and the time it took to establish my first individual grants eliminated my participation in all these except for skiing. Later, the HIV diagnosis caused me to become even more focused on legacy development, and skiing faded away as well. But I have been an avid reader all my life: fiction, biographies, science, and continue to do so, especially in periods of poor health. My particular interest is theoretical physics and cosmology.

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