The Elderly and Drugs—Problem Overview and Program Strategy

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ONE OF EVERY 10 PERSONS in the United States in 1974 was 65 years or older according to the Administration on Aging of the Department of Health, Education, and Welfare—a total of about 21.8 million people. By the year 2000, this age group is expected to increase to 31 million and to account for 11.7 percent of this country's population. Most of the elderly are living somewhat longer now than in the past, but the real cause for the larger proportion of the aged in our population today is that greater numbers of people are reaching old age. The greater longevity and better health are believed to be in part the result of the use of medications. That some of these very medications can be dangerous—even lethal—is ironic.

The Problem

Although the elderly make up only 10 percent of the present U.S. population, they use 25 percent of the nation's prescription drugs. They consume more drugs than younger segments of the population because they have more physical problems. Both the vast amount of drugs the elderly use and their taking of various drugs simultaneously (sometimes with ill effects) contribute significantly to the chances for misuse of drugs (*1–6*).

Thus, in our society today, the person most likely to have a drug-induced illness is elderly (*3, 7–13*). One study has shown that not only are these drug-induced illnesses often fatal, but also that the most common drugs accounting for fatalities are freely prescribed tranquilizers, hypnotics, and antibiotics (*14*). Ten percent of more than 4,000 studies done between 1926 and 1975 on drug abuse in the elderly deal with the adverse pathological and physiological effects on the elderly of abuse of nonprescription drugs (*15*). The pathological conditions that resulted included renal tumor, pyelonephritis, gastrointestinal bleeding, and abnormal thyroid function. A search of the literature, however, seems to confirm the 1974 observations of Holloway (*16*) that drug research has placed little emphasis on the need for reducing or eliminating the abuse of prescription and nonprescription drugs by the elderly.

Nithman and co-workers reported in 1971 (*17*) that each hospitalized Medicare patient was receiving an average of 10 prescription drugs. According to 1970 information from the National Council on Aging (*18*), 20 percent of the elderly's out-of-pocket expenditures was for drugs. A special Department of Health, Education, and Welfare task force studying prescription drugs reported in 1966 that the elderly obtained about 225 million prescriptions from all sources, costing approximately $877.5 million (*1*).

Brady reported in 1975 that from 3 to 5 percent of hospital admissions in the United States were the result of adverse drug reactions. From 15 to 30 percent of patients experience one or more drug reactions during their hospitalizations. And the average hospital stay is nearly doubled for those patients who suffer such reactions. Since the occurrence of adverse drug reactions is directly related to the number and frequency of drug-dose exposure, it is likely that the elderly patient is unusually prone to adverse drug reactions (*19*).

Peterson and Thomas reported in 1975 that 5.4 percent of the patients admitted to a Miami hospital for an acute drug crisis ranged in age from 50 to 80 years (*20*). In 25 percent of the crises, two or more drugs were involved in the acute reaction.

Senator Moss' Subcommittee on Long Term Care of the U.S. Senate Special Committee on Aging reported in 1975 that drug misadventures cause 30,000 deaths and 1.5 million hospital admissions annually and that the cost of hospitalization induced by drug interactions approximates $3 billion a year (*2*).

Among the data sources available to the National Institute on Drug Abuse (NIDA) that identify the drug use patterns among various populations groups

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is the Drug Abuse Warning Network (DAWN), which reports more than 16,000 drug abuse episodes each month from 23 major urban communities. Data from DAWN for 1974–75 on emergency room admissions (*21*) showed that in 7 percent of the drug incidents in which barbiturate sedatives were involved, the patients were over 50; similarly, in 6 percent of the tranquilizer incidents and 5 percent of the incidents involving alcohol in combination with another drug or drugs, the patients were over 50. Twenty-five percent of the total population, or 54 million people, were over 50 in 1974.

NIDA (part of the Alcohol, Drug Abuse, and Mental Health Administration, Public Health Service), has paid particular attention to the dispensing patterns for barbiturate sedatives and Valium. In the calendar year 1974, Seconal (the most commonly used barbiturate sedative) appeared in the National Disease and Therapeutic Audit 3.2 million times (*22*); 30 percent of the prescriptions went to persons over 60 (who comprise 14 percent of the U.S. population), and 24 percent went to persons 65 and over (10 percent of the population). Eighty percent of all listings of Seconal were for hospitals, 17 percent resulted from prescriptions written in physicians' offices, and 3 percent were based on telephone orders from physicians; less than 1 percent were for nursing homes.

Over the same period, Valium appeared 34.2 million times, 30 percent of the time going to persons 60 and over and 21 percent of the time going to persons 65 and over. Thirty percent of the prescriptions were written in hospitals, 60 percent were written in physicians' offices, 9 percent were based on physicians' telephoned orders, and 1 percent were written for nursing homes.

While these data on the prescription patterns for barbiturate sedatives and Valium confirm reports that the use of psychoactive drugs by older people is higher than would be expected from their proportion of the population, the data show that except for barbiturates, psychoactive drugs were prescribed for more people in the age group 35–49 years than for people in the group 50 and over.

These data also indicate that a greater percentage of the population over 50 (nearly 30 percent) reported legitimate medical experience with sedatives than any other age group. Although persons in the age group over 50 in most instances use sedatives conservatively, 17 percent of this age group admitted taking a barbiturate sedative in the daytime (*23*). This potentially worrisome revelation calls to mind the kind of drug user who begins taking prescription drugs legitimately but eventually starts taking more than the prescribed dose or using the prescribed drug along with alcohol or other drugs. One can conclude, then, that people in the over-50 age group make extensive use of sedatives, and to a lesser degree, tranquilizers.

Misuse of drugs by the elderly is often due to a lack of practical information or instruction on appropriate use. This lack often causes misunderstandings and unwise actions, some of which have been characterized by O'Carroll (*24*) as follows:

1. Overdosage. Patient on own initiative takes too much of same drug or physician oversubscribes for the patient, failing to take account of the physiology of the older person.
2. Self-selection. Choice of medications is based on patient's own judgment and decision.
3. Medication omission. Patient decides to omit taking a prescribed medication.
4. Duplication. Patient uses simultaneously drugs or medications that are essentially the same, but were prescribed at different times or by different physicians.
5. Prescriptions stating "As needed." A prescription instructing the patient to "take as needed" can lead patient to misuse of drugs.
6. Exchange of drugs. Patient may exchange drugs with other people.
7. Outdated drugs. Patient may retain unused prescription drugs and take them on a subsequent occasion when they are outdated.
8. Automatic refills. Patient may continually have prescription refilled without consulting the physician and obtaining a new prescription.
9. Inappropriate prescriptions. Physician may prescribe inappropriately.
10. Telephone prescriptions. Patient requests and receives prescriptions from physician over the telephone without being evaluated by the physician in person.
11. Senility. Patient's physiological deterioration, psychological deterioration, or both, may cause the patient to be confused and to make mistakes in taking medicine.

In sum, it is common medical knowledge that the incidence of diseases for which there are specific treatments rises with age and that this increase in chronic disease is accompanied by a greater use of drugs. The four major classes of therapeutic drugs most often prescribed for the elderly are drugs for the heart, tranquilizers, diuretics, and sedatives (*25*). Heart drugs and diuretics are disease-specific, whereas the criteria for prescribing tranquilizers and sedatives are

less rigid. All the references cited in this paper make it clear that elderly people seem disproportionately inclined to use and abuse those prescription and nonprescription drugs that are sold primarily to treat nonspecific emotional stress and its secondary effects.

In addition to the statistics already quoted, a number of points that may be labeled policy issues emerge. Phillipson points out that regulations of the Food and Drug Administration do not require that the factor of aging be considered when new drugs are tested for psychoactivity or for abuse potential (*26*). He appeals for a requirement that all studies of drug metabolism, pharmacokinetics, and efficacy include a reasonably sized sample of elderly subjects as well as of younger subjects.

There is a general paucity of research in the area of geriatric pharmacology; little is known in this important area of human pharmacology, and much research needs to be done to elucidate, for example, the possibly altered mechanisms of drug metabolism, drug action, drug distribution, and drug toxicity in the elderly.

As health benefits expand, more elderly people will seek medical advice and, unless there is a change in the prescribing practices of most physicians, more and more drugs will be prescribed. An increase in the number of physicians specializing in geriatrics might help bring about such a change. As of now, however, there are very few specialists in the field of geriatrics. A survey conducted in 1972 by the American Medical Association revealed that there were more than 18,000 practicing pediatricians in the United States, but no more than 300 physicians classified themselves as geriatricians (*27*).

Dr. Robert N. Butler, director of the National Institute on Aging, has decried the lack of knowledge regarding drugs and the elderly, stating that the classic Goodman and Gilman textbook on pharmacology used by medical schools does not even have "age" in the index. He has indicated that his institute will work to develop a better understanding of drugs and the elderly (*28*).

Senator Moss' Subcommittee on Long Term Care attempted, through a series of special reports (*2*), to highlight the alleged misuse of drugs in the nursing home industry. Some of the major results of the subcommittee's study were as follows:

- The average nursing home patient takes from four to seven different drugs a day.
- Almost 40 percent of the drugs in nursing homes are central nervous system drugs, painkillers, sedatives, or tranquilizers.
- Tranquilizers, themselves, constitute almost 20 percent of total drugs—far and away the largest category of nursing home drugs.
- Serious concerns include theft and misuse of nursing home drugs, high incidence of adverse reactions, some disturbing evidence of drug addiction, and lack of adequate control in the regulation of drug experimentation.

Although reportedly only 5 percent of the elderly are institutionalized at any one time, this figure does not indicate the total number of elderly persons who are institutionalized in 1 year. The odds are good that anyone who lives to a fairly advanced age will spend at least some time in an institution. Moreover, because of the accelerating increase in the 75 plus population, the nursing home population is almost certain to increase, even if satisfactory alternatives are established that postpone or reduce institutionalization.

There are also strong indications that younger people and people who are now middleaged are more tolerant and more conditioned to the use of drugs than are the people who are now elderly. As these younger people and the middleaged grow older, they may use even greater amounts of drugs than the current elderly population.

What can be said with certainty about use of illicit drugs by the elderly (heroin, marijuana, or cocaine, for example) is that although it does occur, it is not of significant magnitude (*29*). The available evidence makes clear that the persons involved in illicit drug use are primarily between the ages of 12 and 30. For example, only 2 percent of those over age 50 have ever used marijuana, while 56 percent of those between the ages of 18 and 21 have used it.

As to heroin addiction, less than 1 percent of those discharged from federally funded drug treatment programs in 1975 began heroin use at or after age 40. Further, although 3.3 percent of all clients in such federally funded programs are over age 45, the number of admissions into treatment of persons 65 or over has not been statistically significant (*30*). Cisin reported in 1975 that in the 50 and over age group, less than 0.5 percent indicated that their first use of heroin, methadone, or other opiates had been within the preceding year (*23*).

NIDA's Response

The primary role of the National Institute on Drug Abuse has been the prevention of problems associated with the use of illicit drugs and of licit drugs outside of medical supervision. This mandate has focused the Institute's attention largely on the problems of the young. The drug-related problems of the

elderly, however, are an emerging concern and a legitimate area for assistance from NIDA. To begin to explore the range and the dimensions of these problems with the objective of devising a planned research and program strategy, in June 1975 NIDA held a Conference on Drug Abuse and the Elderly (*31*). Because there is so little definitive information on this subject and much of the information available is conflicting, the meeting was organized primarily to permit a dialog among knowledgeable people working in the fields of drugs and gerontology.

The dialog stimulated by the conference presentations and discussions demonstrated a range of disagreement on issues, a divergence in perceptions of the problem, and differences in the directions suggested for research. Some participants emphasized the overprescribing of drugs by health care providers and drug overuse by the elderly. In the view of these participants, many of the aged are highly dependent on a variety of medications (both prescription and over-the-counter); they see professionals in the health care system as relying too heavily on drugs for treatment of geriatric patients. These conferees pointed out that overuse can also result from poor coordination of the drug treatment prescribed by several different physicians for one individual and from failure to monitor prescriptions.

Drug abuse in nursing homes was a central concern of other participants. Some held that the overprescribing of tranquilizers, sedatives, and hypnotic drugs is a common means of controlling patients' behavior in these institutions. Others countered that such approaches to treatment are not widespread.

Some conferees considered drugs to be overused by the aged; others believed drugs were underused. The second group believed that some elderly populations may not get adequate medication because of economic limitations and the social and physiological effects of aging. For instance, many people over 65 may not be able to afford needed medications, may have difficulty in opening containers, or may not have access to health care facilities because of a lack of transportation.

Disagreement among conferees as to the importance of the various issues raised at the conference and as to desirable areas for investigation pointed up the necessity for the National Institute on Drug Abuse to assign a high priority to an examination of the issue of drug use and the elderly. Among the specific actions recommended by the conferees were: (*a*) the initiation of research on the physiological changes that occur during aging, effects of drugs on older people, and sociopsychological aspects of aging; (*b*) the development of specific drug treatment models, consumer education programs, and specialized information about medical care and drug use of the elderly; and (*c*) the development of resources and provision of additional training for health care personnel to enable them to more adequately manage and respond to the unique drug problems of the elderly. Some of these actions will form the backbone of NIDA's strategy for dealing with drug use among the elderly.

The diversified recommendations of the conference, when combined with the broad range of drug problems of the elderly defined in the literature, suggest a number of program and policy options for NIDA, several of which are being pursued.

As a first step, NIDA initiated a research study to identify and evaluate the existing information on psychoactive drug use by the elderly. The impression of NIDA staff members was that although good data in this area might exist, a lack of communication among the various professional disciplines had prevented the synthesis and dissemination of these data. The study will go beyond the subject of drug abuse to a search and review of the literature and of ongoing projects that have a bearing on drug use and the elderly.

As part of this study, an annotated bibliography containing abstracts of published material and a list of relevant researchers, as well as a review of ongoing community health services for the elderly, is to be completed in 1977. Additionally, reports will be prepared (*a*) analyzing the physiological and psychological changes caused by aging and the relationship of these changes to psychoactive drug use; (*b*) detailing the incidence, prevalence, and rates of psychoactive drug use by the elderly; and (*c*) analyzing alternative programs and environments designed to afford the elderly alternatives to psychoactive drug use. This research effort will provide NIDA and others with an accurate and current appraisal of the quantity and quality of the research that has been, and that currently is being, carried out in this area of drug abuse.

NIDA's concern is with drug misuse and the drug misadventures that accompany it. A clearer understanding is needed of (*a*) the extent of drug misuse by the elderly—how frequently it occurs and how pervasive it is—and (*b*) the nature of the misuse—whether misuse is related to cultural background, economics, or other health issues and what type of drugs are most often misused and with what consequences. A number of surveys of selected elderly populations are being planned that will focus on

the nature and extent of drug misuse. In one such project jointly funded with the Administration on Aging, the diverse elderly population of the District of Columbia metropolitan area is under study in an effort to explore the patterns of drug use. Questions have been posed to determine subjects' compliance with physicians' orders, severity of abuse of the substances, and knowledge of and attitudes toward drugs and their use.

Other research efforts will be directed at medication-taking practices and attitudes of various groups of the elderly, particularly those of differing ethnic background and socioeconomic status; the common patterns of abuse of substances, including alcohol; and the relevant socioeconomic, psychological, and medical problems of this age group.

To use the information compiled from these efforts most effectively, practical and innovative research demonstrations of methods for initiating and upgrading preventive and treatment services for the elderly victims of drug misuse will be mounted. Educational programs for the elderly and for health practitioners on the use of drugs will also be developed. Various early intervention strategies, such as social programs to reduce, or perhaps provide alternatives to, inappropriate use of drugs by the elderly will be evaluated.

One demonstration of early intervention and improved treatment is being initiated in Lexington Ky. This innovative project operates on the hypothesis that the elderly will benefit from early intervention implemented by means of a didactic technique of self-help counseling (*32*). An experimental sample of the local elderly population classified as habitual drug users is to maintain diaries on their drug ingestion and health complaints and to receive systematic drug counseling and training though an emotional self-help technique. This sample will be compared with an uncounseled group of the elderly who do not habitually use drugs, as well as with an uncounseled group of habitual drug users. The three groups are to be compared in terms of changes in drug ingestion habits, health complaints, drug knowledge, and attitudes about drugs.

An often neglected or mismanaged aspect of geriatric care is the training and continuing education of physicians and other health workers. Much concern focuses on the inappropriate prescribing of psychoactive drugs by the well-intentioned physician who is either not fully informed as to the drugs' potential effects or who allows him- or herself to be manipulated by patients seeking drugs. NIDA has taken steps to educate the physician about this problem, chiefly through medical schools. NIDA has joined with the National Institute on Alcohol Abuse and Alcoholism to establish a career teacher program that has succeeded in increasing the attention directed at substances abuse in medical school curriculums.

NIDA is working with a number of other Federal agencies on aspects of care of the elderly that relate to drugs. For example, NIDA and the National Institute of Mental Heath have collaborated in t ıe production of training films designed to make nursing home staffs sensitive to medication misuse. The series of films, entitled "It Can't Be Home," has been distributed to more than 70 residential care centers.

Several approaches to educating consumers about responsible drug use have been proposed. They include an insert for medication packages, as well as seminars, discussion sessions, and audio and visual aids for the elderly.

Seeking to tailor its programs to specific culture groups, NIDA has encouraged the participation of the elderly in programs of drug education and the prevention of drug abuse in selected communities. For instance, the staff of a demonstration project in Gloucester, Mass., has been working with elderly people from the community to set up career-occupational alternatives for the community's youth. The Gloucester project is an innovative attempt to build exchanges across generations—to bring together young people who are untrained and the elderly who possess vanishing craft and farming skills. A program with the Mescalero Apache tribe in New Mexico is based on the hypothesis that youths with a strong cultural identity have a low incidence of drug abuse and that the persons best suited to engender an awareness in the young of a proud cultural heritage are respected tribal elders. Fifteen elderly members of the tribe serve as counselors to young tribe members in such settings as schools, hospitals, churches, and civic organizations.

In other applied research demonstration projects, NIDA plans to explore such community-based health service systems as community mental health centers, which are already providing selected services to the elderly. The aim would be to modify, augment, and possibly disseminate replicable models of these systems to other community organizations seeking to assist the elderly with problems stemming from drug misuse. Other demonstration projects are planned that will explore the relationship, if any, of drug abuse to retirement and to increased leisure time and will evaluate beneficial alternatives for use of leisure time. Ways to train physicians and other health practitioners to communicate better with the elderly

about the appropriate use of prescription and over-the-counter drugs will be examined. Also, the usefulness of family therapy in helping family members understand the elderly's needs for drugs and the effects of drugs on them will be evaluated.

Conclusion

The growing awareness of the drug use problems of the elderly clearly points up the fact that real understanding and indepth knowledge of the area is lacking. Although it is true that some elderly people are receiving too much of too many psychoactive medications, it is also true that many are not now using psychoactive drugs that could significantly help them. These and other issues need intensive study. It is crucial, then, that at this juncture, NIDA actively participate and assist in the development of new knowledge and innovative service delivery models in order to provide every assurance that the elderly population who are experiencing difficulties associated with their drug use can be accurately identified and provided quality care.

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