Surgeon General's Conference on Agricultural Safety and Health
FARMSAFE 2000 • A National Coalition for Local Action
Convened by the National Institute for Occupational Safety and Health
April 30 - May 3, 1991, Des Moines, Iowa

WELCOME FROM THE CHAIR OF THE CONFERENCE

By J. Donald Millar, M.D.
Director, National Institute for Occupational Safety and Health
Assistant Surgeon General of the United States Public Health Service

I am very delighted and proud to welcome you to this Surgeon General's Conference on Agricultural Safety and Health. The nickname is "FarmSafe 2000," and the theme is "a national coalition for local action."

Now all of this is by way of saying that everybody here is interested in preventing the unnecessary wastage of life, limb, and health that is associated with the oldest and noblest occupation—agriculture. Beyond that common interest, we are a very diverse group.

I would wager that some of you never heard, for instance, of NIOSH, the National Institute for Occupational Safety and Health, before this meeting. That is not unexpected, because most of the professional life of NIOSH has been devoted to the problems of smokestack industries—manufacturing, mining, and other occupations—but that is very rapidly changing in this rapidly changing world of ours.

We were created by the Occupational Safety and Health Act of 1970, which sought to "assure safe and healthful working conditions for every working man and woman." So we are obliged at this point in our national history to turn our attention to all problems that create unsafe and unhealthful working conditions for men and women.

That Act created two organizations you may have heard of OSHA and NIOSH; both are quite different organizations; both are in different parts of the Federal Government, and you will hear from leaders of both during this week.

OSHA is located in the Department of Labor and has responsibility, among other things, for promulgating and enforcing occupational standards.

NIOSH is in the Public Health Service, the Department of Health and Human Services, and is expected to exercise scientific leadership in this field. So we are expected to produce and disseminate scientific information that enables the prevention of occupational diseases and injuries.

Among the things we do best is to convene people, such as at this conference, to bring people together so that they are able to share with each other useful scientific information, which can permit the practice of prevention in every setting where it can be done. So we were very eager when the Surgeon General called on us to sponsor this conference—the first of its kind in agricultural safely and health that has ever been convened.□

Dr. J. Donald Millar: And now it is my distinct pleasure to introduce the convener of this Conference, the Surgeon General of the United States Public Health Service. She is the first woman and the first Puerto Rican to hold the position of Surgeon General. She is a dynamic and vivacious leader in the war against death and disease. I give you the fourteenth Surgeon General of the United States, Dr. Antonia C. Novello:

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WELCOME TO DES MOINES, IOWA

By John P. Dorrian
Mayor, City of Des Moines

Dr. Antonia C. Novello: Thank you Dr. Millar. Ladies and Gentlemen—I welcome you to the Surgeon General's Conference on Agricultural Safety and Health, the tenth Surgeon General's Conference on Occupational Health, and the first one in 50 years. The last one was convened in 1941, but I will speak further on that history later. I would now like to introduce Mr. Dorrian, the mayor of Des Moines, Iowa. It is a great pleasure for me to be able to introduce him. He is a lifelong resident of Des Moines, and he has served in the city government since 1983. Following service as mayor pro tem, he was elected mayor in 1987. We also know that he currently serves as the Executive Director of the Central Iowa Building Trades. Among his many public service activities, he currently serves on the Governor's Committee of Partnership for Economic Progress. Ladies and Gentleman, I would like to welcome Mr. Dorrian:

Thank you very much. On behalf of myself and all the other members of the Des Moines City Council, I want to welcome you to the City of Des Moines, and a very special welcome to Dr. Novello. Thank you for that nice introduction.

We are extremely proud of our city, and we hope that if it is your first visit to Des Moines you will be pleasantly surprised. If it has been awhile since you have been to the City of Des Moines, then you have seen some good changes take place.

We are the capital city of the State of Iowa, and as the stewards of the capital city, we try to prepare the city well for everyone's visit. We have spent a lot of dollars on the Skywalk System, for example. The weather is pretty good today, but there are days when people really appreciate that Skywalk System. Several miles of it now exist, and it is very expensive to erect, but there is a purpose in mind.

Sometimes it snows in Iowa, and sometimes it gets extremely warm with a little bit of humidity. So we need our Skywalk System. We have a lot of neat things that we hope you are able to take in while you are here. We even have a horse track running out there; I do not know if any of you are familiar with that or not, but for every dollar that is bet out there my property taxes may not go up—if you have it in your heart to support the horse racing. I have not been out there myself much, but we have a lot of other neat things—the botanical center and the zoo, the libraries, the Governor's Mansion and the Capital Building.

We just have a lot of attractions. We like to keep all these things going, and that is where you can help, if you would have it in your heart to do so. We hope that you will find a place to spend a dollar or two while you are here in our city. But really, we do hope that you have a good conference. I have to apologize because I have to leave. We do hope that you have a good conference, and again, a very special welcome to you to the capital city of Des Moines, Iowa. We are extremely proud to have all of you with us.

We do hope that you have a good conference. Enjoy yourself and come back often. Thank you.□

WELCOME TO IOWA

By Christopher G. Atchison
Director, Iowa Department of Public Health

Dr. Antonia C. Novello: Governor Branstad was unable to attend the conference today. So, I would like to introduce Christopher G. Atchison, the Assistant Director of the Illinois Department of Public Health, who is here to speak in his behalf. Mr. Atchison has served as the Assistant Director of the Illinois Department of Health since 1987. As Assistant Director, he has been responsible for program development, legislative action and executive implementation of agency programs. He has also served as a chair of the Governor's Interagency AIDS Task Force and was involved in the establishment of the Center for Rural Health. In addition, as a member of the Illinois Public Health Association, he recently worked on a task force to restructure public health in Illinois according to the future of public health reported by the Institute of Medicine. Mr. Atchison has just been appointed as director of the Iowa Department of Public Health and his welcome to us today marks his maiden speech to this state. Please welcome Mr. Atchison:

Thank you, Dr. Novello. Before I officially welcome you on behalf of Governor Branstad to Iowa, I want to acknowledge the work that Dr. J. Donald Millar, who opened this conference and is the Assistant Surgeon General and Chair of this conference, put into organizing this great event. On behalf of the people of Iowa, we thank you for bringing this conference here.

Mayor Dorrian has already welcomed you to Des Moines. On behalf of Governor Terry Branstad and the Iowa Department of Public Health, I want to welcome you to Iowa and to the Surgeon General's Conference on Agricultural Safety and Health.

We, of course, believe it is quite appropriate for this conference to be held in Iowa, a leading agricultural state. Each year Iowa farmers produce more than $9 billion in crops and livestock. Twenty-five percent of America's pork and eight percent of the nation's grain-fed beef are raised in Iowa. Among the states, Iowa ranks second in the value of agricultural exports, and in 1988, Iowa ranked first in the nation in the production of red meat.

I am pleased to welcome such a broad-based group of individuals to this conference. Represented here today are individuals from 40 states and several foreign countries, evidence that agricultural safety and health is an issue that is not only national but international in scope. Your attendance here demonstrates your commitment to agricultural safety and health.

Though everyone here today may know that agriculture is one of the most hazardous occupations there is, according to the Year 2000 Health Status Objectives, farmworkers suffered 14 injuries per 100,000 during the years 1983 through 1987. The national goal would be 6 in all occupations. So, you can see agricultural injuries are high even in the statistics that we know.

The health objectives further state that agricultural worker deaths may be underestimated because many farm work forces have fewer than 11 workers and are, therefore, not identified by national data systems. The National Safety Council has estimated a rate as high as 52.1 deaths per 100,000 agricultural workers.

Until now, the hazards have been undercounted and largely ignored and underfunded, but that is changing as we can see when we look at the stated purposes of this conference—to raise consciousness, build coalitions, disseminate information, and encourage action to prevent injury and disease related to agriculture—certainly all very worthwhile goals.

Nationally, we are beginning to develop surveillance systems that document the kinds of injuries that are occurring and where they are occurring—efforts that are just beginning to develop interventions and strategies, which will help prevent those injuries and fatalities.

In Iowa, we recently finished the first year of a surveillance program to collect information about agricultural injuries and fatalities, the Sentinel Project Researching Agricultural Injury Notification Systems, which we simplified to called SPRAINS. SPRAINS is the only statewide surveillance program currently in existence, and we have been astounded by some of the figures we have gathered.

We know that there are currently about 116,000 full- and part-time agricultural workers in the state; and there were over 2,000 injuries and over 83 fatalities recorded in 1990. Eleven of these fatalities were children under the age of 15. Of the total fatalities, 51 percent were in the less-than-20-year-old age group and the over-65 age group.

In any other occupation, these people would not be working. However, in agriculture-related occupations, workers span the ages from childhood to the senior years; and apparently young workers and seniors are most vulnerable to fatal injuries.

We must note, because farming has traditionally been a family business, that it is not just the professional farmer, it is the farm family that is at risk for injury. Our statistics show that 70 percent of all injuries are suffered by farm family members—spouses, children, grandpas and grandmas helping out.

The major causes or vectors of injury fall into three groups. Number one is machinery. Number two is animal-related. Number three is falls and slips. Where do the injuries occur? Everywhere from the barn to the pasture. At least in Iowa, no clear pattern has emerged.

Iowa is developing interventions and strategies by building broadbased collaborative efforts. Among the organizations involved in these collaborative ventures are State government, academia, farm organizations, and community-based organizations.

The Governor has appointed a task force to look at our health and safety objectives for the year 2000. The purpose of this task force is to adopt objectives and measures that will guide the planning and allocation of resources throughout the decade, resulting in:

1. Increasing the span of life in Iowa.

2. Reducing health disparities among Iowans.

3. Achieving access to prevention services for all Iowans by the year 2000.

Recently I had the pleasure of meeting with Dr. Richard Remington, who chaired the Institute of Medicine's commission on the future of public health, and the Governor has appointed him the chair of our Year 2000 effort. Dr. Remington and

I hope to build this planning process into the development of programs and projects across all agencies and communities, which are involved in the public health system in Iowa.

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Another major collaborative effort, the Iowa Center for Agricultural Safety and Health, ICASH, brings together key organizations concerned with agricultural health and safety. ICASH is a partnership of the University of Iowa, Iowa State University, the Iowa Department of Public Health, and the Iowa Department of Agriculture and Land Stewardship. Its mission is to coordinate the state's resources and to establish programs to improve the health and safety of farm families, farm workers, and the agricultural community.

Some exciting projects ICASH has undertaken include the following:

1. The expansion of the Iowa Agricultural Health and Safety Service Project to a statewide network of hospitals. This project provides comprehensive occupational health and safety services.

2. The development of an illness and injury prevention program for livestock confinement operators.

3. A health and safety program for school classrooms and rural youth groups.

4. Sponsorship of a community-based project to increase awareness of farm machinery hazards.

5. The dissemination of information collected by the statewide agricultural injury surveillance program.

Another collaborative effort is Work Safe Iowa. Work Safe Iowa has established an occupational medicine and associate program at the University of Iowa with the goal of promoting occupational safety and health through education and consultation. The program was designed to assist community hospitals in implementing and strengthening their occupational medicine clinics and related outreach services. In addition, the community hospitals serve as a vehicle to integrate Work Safe Iowa services into local communities.

The Iowa Center for Rural Health and its advisory committee represent another collaborative effort. The Center for Rural Health, located within the Office of Health Planning at the Iowa Department of Public Health, acts as a focal point for the state's efforts in preserving quality health care in Iowa's rural areas. The Center and its broadbased advisory committee strive to identify health needs, build rural coalitions, provide technical assistance to rural areas, administer grants for rural projects, and act as an advocate and information resource with respect to rural health issues.

The Occupational Health and Safety Nurses Program at the Iowa Department of Public Health is the tie between the state and the communities. This program builds on existing rural health programs and links the Health Department to rural health areas.

Yet another community-based program is the Farm Family Risk Assessment and Education Program that is targeted at farm youth. It includes a farm family "safety-walkabout" training program where families learn to recognize existing farm hazards and receive assistance in changing the farm workplace into a safe environment.

Finally, we know that if all prevention interventions have failed, we must turn to Emergency Medical Services (EMS). In Iowa, EMS is a community-based program, and 75 percent of the medical providers are volunteers.

Medical treatment begins at the scene of an injury or illness and can make the critical difference between life and death. EMS has become an even more critical issue to rural Iowa over the last decade, as our population has aged and access to health care has become a pressing concern.

In the movie *Field of Dreams*, Iowa was memorialized when someone asked the hero, "Is this heaven?" and the hero responds, "No, this is Iowa." You and I know that Iowa is not heaven; it is close, but it is not heaven, as our agricultural injury and fatality numbers certainly prove. That is why we must work toward making Iowa and the nation a safe and healthy place to live and work.

Remember, even in the movie *Field of Dreams*, an injury to a farm family member was almost a tragedy. Helping prevent those injuries is our goal and our challenge at this conference.

Once again, on behalf of Governor Branstad and the people of Iowa, welcome to Des Moines and to this conference and to this opportunity to move preventable injury programming out of the big cities and into rural America.□

RAISING SAFETY AND HEALTH CONSCIOUSNESS AMONG FARMERS AND FARM WORKERS

By Ellen G. Widess, J.D.
Director of Health and Safety Policy, Children's Advocacy Institute
Center for Public Interest Law

Dr. Antonia C. Novello: Now, we know that in 1990 this conference was authorized by Congress with four purposes, which Mr. Atchison mentioned. The first topic is going to be addressed by Professor Ellen Widess, and she will speak to us on the first topic, which is raising consciousness. Professor Widess brings a breadth of experience to our conference that ranges from managing pesticide regulatory programs to protecting the safety and health of children. Professor Widess received a law degree from the University of California at Berkeley in 1974. Ms. Widess then served on the faculty post until 1978, when she became Chief of the California State Pesticide Regulatory Program within the Division of Occupational Health. From 1984 to 1986, she managed the Workers' Compensation Program for the University of California at Berkeley and later, from 1986 to 1988, managed a similar program for the Texas Department of Agriculture. Also, while in Texas, from 1986 to 1988, Professor Widess directed the pesticide regulatory program for the Department of Agriculture. Last year, she was an adjunct professor of the University of Texas School of Law where she taught, with specific emphasis, on Toxic Torts and Occupational Health. Ellen Widess has come to us today from the Children's Advocacy Institute in San Francisco, where she is Director of Health and Safety Policy. She will speak at this moment on the topic, *Raising Safety and Health Consciousness Among Farmers and Farm Workers.* Professor Widess:

I am very, very pleased to be here. When I was first asked to speak in the place of our new Secretary of Labor, Lynn Martin, I thought it was my fantasy come true. After working for the OSHA Program, I long had a fantasy of wanting to be the Secretary of Labor.

Particularly after toiling, as Dr. Novello has indicated to you, for many years in these various lives trying to address the problems of farmers and farm workers' safety and health, I thought this would be a fabulous chance to clear up the jurisdictional confusion many of us have noted and to determine who protects agricultural workers, who should regulate pesticides and with what standards, and who, in fact, has responsibility for farm safety.

That fantasy lasted only a few moments. Then I came to my senses. It dawned on me that were I really the Secretary of Labor, I would have to deliver.

I might, in fact, make a few friends, but no doubt I would make more than an enemy or two and be saddled with all the constraints of government. As one who has been a regulator for many years, I am delighted to come today to this conference as an advocate, openly advocating, for the interests of children, who are our future generation.

I am reminded by the line from my old boss, Jim Hightower, former Agricultural Commissioner of Texas, "Ain't nothing in the middle of the road but dotted lines and dead armadillos." I hope today to be a little bit provocative, because I think it is time we got out of the middle of the road. This conference is an extremely hopeful

beginning of a more promising future in this much-needed work.

As Dr. Novello has indicated, I have had a checkered life. I would like to give you some perspective from my work, both in and out of regulatory life. I have worked for OSHA in one life and then for an agricultural department, retreating at various periods to academia—scarred from the regulatory battles—to come back and take stock of what have we accomplished in this regulatory arena.

What were our successes? What are more viable options? What have been the various creative solutions that we have devised?

CONSCIOUSNESS-RAISING AMONG FARMERS AND FARM WORKERS

I had the dubious honor of attempting to regulate pesticides in Texas, which is to most sane people pretty much a mission impossible. This is to try to somehow meet the needs of farmers while also protecting workers, consumers, and the environment. That is a very tough bill.
I think we took a number of very creative approaches to that mission, including passing the nation's only right-to-know law.

Though this law was billed as the "farmworker right-to-know law," it clearly provided critical information about pesticides and their health effects to thousands of farmers and farm families in Texas. The children often were applying pesticides where groundwater (and drinking water supply) came from contaminated well waters. They were affected by drift just as farm workers were.

During those years, we also sought to change consciousness, not only among workers, but among the public who demanded blemish-free produce. We developed a model organic farming program, which would not only reorient farmers to reduce their chemical inputs, but also change consumer consciousness and provide farmers with the technical assistance they needed and the economic assistance.

I think that is one of the messages that I want to convey today. We have to deal not only with the health and safety data we have—we have plenty of data—but we also have to deal in terms of raising consciousness among the populations of both farmers and farm workers. We have to realize that we deal with certain economic imperatives, some realities in agriculture.

Unless we also deal with those economic realities of their lives and their limited choices, we will fail in our efforts to improve health and safety. We have learned this in the industrial world, and we should apply that lesson as well in the agricultural world.

Unless we also deal with those economic realities of their lives and their limited choices, we will fail in our efforts to improve health and safety.

Also, in my time in Texas, we focused (unusual for an agricultural department), on building and supporting a rural health program. As we sought to protect farm workers, we realized that we had to deal more basically with the overriding needs of all rural Texans: farmers, farm families, farm workers and their families, and their overriding, haunting lack of rural medical care in Texas.

It leads the nation with the highest rate of hospital closings, no OB-GYNs in most rural counties to deliver babies, dwindling emergency room facilities for farm injuries, and few physicians trained in agricultural medicine or pesticide-poisoning treatment. So, all our efforts to promote agricultural safety and health and provide crop sheets and good training materials on pesticides would have little chance of success in the frontiers of rural Texas.

I was fortunate to work with a national coalition, The National Coalition of Agricultural Safety and Health (NCASH), and the National Rural Health Association, because in working for worker and farmer protection, we realized that is one part of a very looming and serious national rural health problem.

We realized that we must deal directly with the basic needs of farmer, farm workers, and their families and redirect state policies to meet these needs. Our efforts to promote agricultural health and safety were part of a much larger political and economic problem of the powerlessness of farmers and farmworkers in the country.

Now to my current role with the Children's Advocacy Institute, which provides a voice for children's well-being in California and the nation. I see this as a continuum.

If we are not taking care of our children and protecting future generations, we are a doomed society. And dealing with children is yet another face of rural poverty, disenfranchisement, and lack of access to basic health care.

An example is a recent epidemiological study by the California Department of Health Services of cancer clusters in McFarland, a rural town in the heart of the rich San Joaquin agricultural valley. State epidemiologists were unable to correlate the cancers with specific pesticide use. So in a sense, it was a negative study. However, that study uncovered some other realities, including the most horrifying statistics about malnutrition, lack of immunization, and lack of primary health care for farmworkers and rural poor, conditions that characterize the Third World. We tend not to believe these conditions exist in rural America.

To best address how to raise health and safety consciousness of farmers and farmworkers we must do several things:

▸ First, we have to understand the unique nature of this work force and the common grounds and the differences. My thesis is that there is much more that these two worlds share in common than they differ on. Basically they share powerlessness and disenfranchisement in this country, economic and political powerlessness. That is reflected in the lack of resources, research, jurisdictional clarity, health and safety standards, training materials, and many other things that other speakers will address throughout this conference.

My thesis is that we need to build on that common ground. If we do not get to the essential root causes of that powerlessness and turn that around and empower farmers, farm workers, and their communities, we will ultimately fail in our efforts to improve health and safety. I will discuss some of the areas in common in a moment.

▸ Second, I think we need to look at the lessons that hopefully we have learned from the industrial workers' struggle for health and safety and examine what has worked and whether that can be translated

to the agricultural work force. Obviously, it is a different work force. We do not have workers who work continually in steel mills or petrochemical plants.

We have rather independent, entrepreneurial farmers who are not used to regulation as are industrial employers. However, there is a lot of commonality even in that. I think the key issues there are the collective action that has led to the improvement of health and safety for industrial workers.

Just as our conference theme is "a national problem, local solutions," we need to look at what is nationally needed and a national minimum standard.

Improvements such as the asbestos standard or the cotton dust standard, or the right-to-know law for industrial workers, have not had to be fought out at every shop floor in every factory. There has been some national *minimum* standard of care, of humanity, of morality.

Then, there has been the opportunity on the shop floor for local initiatives for workers by unions to do even better. Just as our conference theme is "a national problem, local solutions," we need to look at what is nationally needed and a national minimum standard. We can not expect farmers and farmworkers to be fighting that out for themselves every day.

▸ Finally, we need to seek ways to empower and ways that lead to local solutions. We have learned that for industrial workers as well. People have to have a stake in their own health and safety. Solutions have to fit local needs and use local talents and resources.

In agricultural, even more than industrial workforces, a uniform national standard or prescription simply will not work. It will not work for the populations we are dealing with and the problems they face.

WORKABLE SOLUTIONS

I also want to encourage that we look for simple solutions and be very realistic about what has worked and what has not. A good example is in the area of farmworker protection.

There is a tendency to talk and move toward increasingly more sophisticated personal protective equipment for farmworkers to enable them to enter treated fields. We already know a lot about problems in using this equipment. These are problems such as heat stress, availability of protective equipment, maintenance of it, worker attitudes, and the general impossibility of having that scheme work.

We also have seen another example of the development of the field sanitation standard, which took about 17 years to provide, something as basic as toilets and water in the field. When you see that it has taken 17 years to get toilets in the fields and then you imagine the most complicated and sophisticated personal protective equipment and worrying about the nightmare of enforcement, you really have to think:

Is that the way we ought to be going?

Is there not another solution?

Can we not instead look for another way to farm, a way to use less toxic

substances that may not require those kinds of protective measures that are difficult to enforce and use?

There, too, we have a lot of issues in common. We have the real cost to farmers, farmworkers, and their families for cheap food in this country. Those costs are measured in the mangled bodies and in the statistics that we have heard and will hear. They are measured in the acute poisonings, which are grossly under-reported because workers are afraid of being deported or retaliated against, or have no idea of their rights.

Moreover, we have no uniform national data base for reporting those illnesses and injuries. We have chronic risks that are yet to be measured, which are incalculable, whose long-term social costs, if we were to do a fair cost benefit analysis, would outweigh the benefits of using some of the most toxic pesticides.

In any case, there is the basis of a common fight, and allies, and alliances. Even unholy one alliances, unimagined strange bedfellows might come together on some of these issues.

Let me elaborate a bit more on the issue of the unique agricultural work force. We are told constantly that agriculture is different from the industrial work force and obviously that is true. There are, in fact, real differences that are cultural, racial, and often those of class between farmers and farmworkers.

Farmers, based on the farm studies that have been conducted in Iowa and New York, indicate high concern about health and safety and even fairly sophisticated understanding about those risks. There is also a serious and healthy antipathy for regulation. Farmworkers, on the other hand, are obviously a lot less educated about those risks. They frequently have even fewer economic options and great fear of exercising their right to protection on the job.

Those may be the differences, but should they divide the two populations? I think that there is much more that they share in common. Both farmers and farmworkers form the hidden, invisible work force of America.

Agriculture has steadily become the most dangerous occupation. It comprises less than 3 percent of the work force, yet has over 14 percent of work-related deaths. There is a staggering lifetime risk of occupational death for farmworkers; the nonfatal injuries are equally depressing.

Yet there is depressing news, even with non-reporting, of the degree of injury among farmworkers. We have in a 1987 Federal Government report, over 280,000 handicapped migrant and seasonal farmworkers and 60,000 handicapped dependents, with one-third of those estimated to be work-related.

Children comprise a large percent of those injuries attributed to both farmers and farmworkers. And as Chris Atchison has mentioned, an equally disturbing factor of the ill-health is the high injury rate suffered by our elderly. No, there is no retirement in agriculture. No one can look forward to early retirement.

It apparently is true that you cannot even look forward to a childhood in agriculture. Children are truly the invisible workers. In my new incarnation, I am going to work hard on that because I think there is a sense, not only among farmworkers and

farmers but in the morality of this country, that we can not visit these same tragedies on our children. Even if we, as adults, are willing to take those risks or have no other options, we can not do this to our children. We want a better life for our future generations.

It certainly is true that both farmworkers and farmers want better lives, but both have few options. Child labor is not a matter of choice; it is a question of economic necessity both for farmworkers and farm families.

Marilyn Adams, who will be speaking later, eloquently captured this in a recent video, *Danger, Children at Risk*, which highlighted child labor in several different sectors including children of farmworkers and farmers. She said:

> *You would never hire a 10 or 12 year-old to work on your farm, but you let your own child work, because you have to. You can not afford to hire one.*

Many farmworkers are also driven by economic necessity, the piece-rate system that characterizes much of corporate agriculture in America. There are children in the fields working side-by-side with their parents. Though the health and safety standards do not adequately protect children, they work in the fields to help families make a living.

On the farmer's side, we know that agriculture is the most dangerous work. Again, economic realities make choices very difficult. Take for example, ROPS (roll-over protective structures) protection. Most farmers know the dangers and would willingly retrofit their tractors, but there is economic reality.

Farmers have to choose between continuing survival and retrofitting or paying the mortgage on the farm. Taking the little bit of money that is left over these days in the struggling farm economy to pay for safety equipment to protect themselves and their children is a difficult choice.

The point is that hazards do not recognize the lines between farmers and farmworkers. The safety and health hazards cross over those lines. A good example of that is the issue of parathion and whether it should continue to be used. The EPA has indicated that it may finally act to discontinue parathion's use.

This is not a mystery pesticide. There is a well-developed body of literature on parathion as the most documented cause of worker death and the cause of a very high percentage of children's deaths in children six and under. Despite the known risks, we have continued to use parathion for over 25 years. Yet the hazards are not only visited on farmworkers and their children, but also on farmers and surrounding communities.

In California, a recent study demonstrated that parathion was deposited by fog in the San Joaquin Valley. It drifted significant distances away from the original site of application; affected other farmers' crops; and contaminated the soil, the drinking water, and other rural communities. The point is that parathion is not just a hazard that affects farmworkers, but is also a hazard to farmers and their families.

Finally, in terms of this work force that faces such political and economic powerlessness, we face a problem of our trying to turn this around and raise consciousness. Either we have people who are unaware of the risks, and we have to edu-

cate them, or they know them but are absolutely unable to do anything about them because of economic reality.

Again, we look at industrial workers' fights for safety and health and we see a stark contrast. Farming is unlike industry, where the costs of safety and health are eventually borne by the industry and factored into the cost of production.

We have not chosen, in this country, to factor safety and health into the costs of preparing our food. The costs, essentially, are borne by farmers, farmworkers, and their families.

Further, we have farmers and farmworkers who are fairly remote and isolated, spread out all over the country. They may be migrants or they may be non-citizens. All in all, we have no basis for real political constituency or clout. Neither farmers nor farmworkers are validated citizens. Though they feed the nation, they are generally left out hungry.

LESSONS LEARNED

Now let us look at the lessons that we have learned from our history of fighting for occupational safety and health in industry.

As I mentioned, the first lesson to apply to the agricultural work force is that we have to give people a stake in improving their own safety and health. The first critical step is to give people information because information is obviously the basis for awareness, for consciousness.

But even more important, information such as crop sheets, safety information sheets, pamphlets, videos, training programs, etc., will not do without giving people the power to act on that information, on that knowledge. For industrial workers, the fight for health and safety is best when there is collective, unified action.

Generally it comes from unionized work forces that have some economic power, are not afraid, and have independent means to have their own health and safety professionals advocate for others beyond themselves. That collective force for industrial workers has been the key ingredient of political and economic power to push government and industry. Not that this has been an easy fight, we have many examples where workers have had to be the "canaries."

What about the fight for knowledge? That may worry some of you, and maybe it should because the fight for knowledge and the raising of consciousness definitely means increasing demands. One option might be more regulation. I think we need to look very carefully at what will work, is needed, and is most effective.

The lesson that we have learned from occupational safety and health in the industrial world is that often the most effective safety and health programs do not require or depend on complete regulation. We maybe do not need police officers everywhere in every work force. Given this economic climate, we simply do not have the governmental resources, nor will we ever. We have to come up with something that is effective and relevant.

What I am suggesting in terms of raising health and safety consciousness is to give people the information and tools to allow them to make their own decisions and to allow them to come up with their own solutions. In industry that has meant selling certain minimum standards—for exam-

ple, machine guarding or carcinogen standards. Many workers have been able to bargain or even more than that to affect bottom line.

In agriculture that means setting of some minimum safety and health standards that could then allow the dissemination of information to unleash local wisdom, resources, and initiatives. These kinds of alliances might come up with new ideas—for example, re-examining our pesticide policy, our agricultural policy, or our attitudes and policies about child labor.

I am excited about the new OSHA initiative and the direction it is taking in terms of giving people more information and consultation, which is the first step. The next step is the power to act on it.

A TALE OF TWO CITIES

I would like to close with a tale of two cities—two different cases that I would like to present, which have to do with the meaning and success of empowerment.

The first case involves a pesticide poisoning of a large crew in the Salinas Valley of California in 1978. Now this was not a case of the small farm that, I think, is described most commonly in this conference. This was a fairly typical corporate agricultural operation that is common in California and in other states. This is a different and very important agricultural model, because no one is ultimately responsible for worker protection.

In this case, there was an absentee landowner, a farm manager, a marketing cooperative who hired an irrigator, a pesticide applicator, and finally, a crew leader to bring in labor. No one talked to each other. No one had any idea how the whole thing fit together.

As a result, a large crew of workers, including a matriarch, her father of 70, her two children under 12, a sister in her first trimester of pregnancy, and a host of other workers, entered a field that had been sprayed only 6 hours before with two of the most toxic pesticides, Phosdrin and Phosphamidon. There is a legal reentry of 48 hours.

These workers were in the fields, by mistake, through no one's conscious endangerment or recklessness. An inevitable mistake happened because of the nature of that kind of agriculture.

What happened? The workers became severely poisoned, but no one knew the signs and symptoms of pesticide poisoning. Even the crew leader was sick, but kept on working. Because the workers were dependent on what they could make per bushel of cauliflower, they kept on working. This happened even though one worker was unconscious, others were vomiting, and many were severely sick.

The aftermath of this case is important in terms of a lesson that we can learn about raising health and safety consciousness among workers. The workers were severely poisoned and the recovery was much longer than anyone expected. The pesticide poisoning taught us a lesson, again by workers being "canaries," of the effects of organophosphate poisoning and the slow regeneration of cholinesterase.

The children working in the fields had most severe and persistent symptoms, and even a year later were describing symptoms of sweating and nightmares from their exposures.

One of the most important things that saved these workers and made a real difference was that the workers were protected and kept out of further re-exposure to pesticides. In this case, there was immediate assistance by rural legal assistance people who taught the workers about their rights, who taught and empowered them to take advantage of programs that are available to all other workers. These are programs such as workers' compensation and unemployment insurance.

These rights, incidentally, are not granted to all farmworkers in all states, but were extended in California. That made the difference. Those workers did not have to go back to work immediately, which would have exacerbated their health effects.

The medical care has to be characterized as some of the finest in this country. The immediacy of care, knowledge about pesticide poisoning and tracking of the workers was impeccable. While a fortunate occurrence for those workers, this is, unfortunately, not a common one.

And finally, the workers who were poisoned in this episode were trained about the effects of pesticide poisoning. The next time they were in a field that had been sprayed and they began to experience the symptoms of organic phosphate poisoning—pin-point pupils, nausea, dizziness, and so forth—they left the fields.

They realized what was happening to them and could stop it. They did not need an OSHA or an agriculture inspector on the fields. They were their own protectors.

Other lessons that we learned from that case, that are important to translate more generically, were the obvious importance of good rural health care, the necessity to train workers about the health risks and how to protect themselves, empowerment, and economic power in order to use that knowledge—giving them the chance, for example, to be out on workers' compensation in order to recover.

One regulatory change that shifted the balance was the posting of fields. There was a realization that you can not always depend on perfect knowledge. In this case, even the crew leader did not know the fields had been sprayed and everyone walked in equally ignorant. Mistakes happen.

Eleven years later, another large crew of 80 workers similarly walked into a field long before the legal reentry period. They had never been trained in pesticide poisoning and were not fortunate enough to have fields posted.

Ironically the applicator, in this case, was a relative of the farm manager; he himself was affected. The farmer also bore another serious loss, because his crops could not be sold. Unwilling to take the risk of having crops with over-residues, all of that produce was withdrawn.

So, there were losses, serious medical, personal losses for the farm workers in terms of their health. Economic losses were suffered by those farm workers because they too were working piece-rate. When they had to stop because they were poisoned, they lost their day's work.

The *Tampa Register* reported on a woman who said she kept on working although she knew it was dangerous because she had bills to pay. That was simply a fact of life. She refused incidently to give her full name for fear of losing her job. This is,

again, an economic reality of the life of farm workers.

The lesson is we have 11 years later an inevitable risk, one that could have been predicted—the same pesticide and same lack of training. Most importantly, this farmworker crew had been trained about the signs and symptoms of pesticide poisoning. Thus they were aware and protected the next time they were forced to reenter a treated field before the legal reentry interval.

That leads me to the lesson that we learned in passing the right-to-know law for farmworkers and farmers. This law was initially fought by farmers who felt it was an unnecessary, burdensome regulation that would have a serious economic impact on agriculture with no measurable benefit.

Many farmers came to believe the law and training program had benefits for farmers and their families as well. The reality is that both farmworkers and farmers have a right and a need to know about the effects of pesticides. Those hazards are visited in both worlds.

We found that by requiring that farmers give workers crop sheets about the various pesticides registered for different crops, we nourished the beginning of an awareness, in farmworkers, about the risks that they had to take. There are choices they have to make for themselves and their families.

More surprising and encouraging, it also changed the consciousness of farmers. When they saw a list of pesticides ranging from the most toxic to least toxic pesticides available to be used on a particular crop, farmers realized they had choices. The choices are not only to protect their workers but to protect their families as well. Their families were often applying the pesticides and it was their ground water. They were uniformly concerned about protection of the water and the protection of future generations.

I am still haunted by the images in the video that I have mentioned, *Danger: Kids at Risk*. It points out very clearly that children, from both farmworker and farm families, are at peril and that we have really denied them a future. It is a huge and, I think, an unacceptable sacrifice that farmers and farmworkers have had to make.

One of the speakers in this video ends with a message that is very powerful. We need it if we are to be successful in raising consciousness of both these populations. It is a message told by a teacher who works with migrant children, but it applies equally to children of farm families. It is this: You must tell the children,

> *You are important. You are American citizens and entitled to something important.*

We must fight for the future of our children; otherwise we will fail as parents, as communities, and as a society.

I also listened to the "Farmers' Hotline," which was developed by the Texas Department of Agriculture to help farmers and their families on the brink of suicide, depressed about economic conditions beyond their control. It is time that we stopped blaming the victims, farmers and farmworkers, and stopped allowing them to blame themselves. We must provide them the means to protect themselves.□

BUILDING COALITIONS FOR PREVENTING INJURY AND DISEASE IN AGRICULTURE

By Thomas Dean, M.D.
President, National Rural Health Association

Dr. Antonia C. Novello: Our next speaker is going to be Dr. Thomas Dean, and he has distinguished himself in the field of rural health. He served in the U.S. Public Health Service as part of the National Health Service Corps, from 1975 to 1983, and he received a commendation medal. Dr. Dean's years with the Public Health Service were served as staff physician and later as a medical director of the Frontier Medical Services in Hyden, Kentucky. In 1978, he returned to his home state of South Dakota in Wessington Springs, to serve as medical director at Tri County Health Care. He has remained there as medical director since leaving the public health service. He is active in many professional activities in South Dakota, and he is on the Executive Committee, since 1987, of the National Rural Health Association. He currently serves as its president. Let me introduce Dr. Thomas Dean, to describe the second purpose of this conference, *Building Coalitions For Preventing Injury and Decease in Agriculture.* Dr. Dean:

Thank you. It certainly is an honor to be invited to speak to this distinguished group. However, when I was asked to address the group regarding coalitions, I wondered if I was really the one. That is not, certainly, my area of expertise.

I am a country doctor who has been in a small town in South Dakota for about 13 years. I am not a political organizer or an expert in conflict resolution and certainly not an expert in any of the various technical aspects of agricultural safety.

On the other hand, I do know something about agricultural injuries. I grew up on a farm and as I was looking back on some of these experiences, I recalled at least four times when I personally survived potentially fatal agricultural injuries. Certainly it brings home the significance of this issue.

I remember the time when, as a teenager, we were cutting silage, and I was driving down the road with a fully-loaded silage wagon, as fast as the old "M" Farmhall would go. The tractor began to drift to the right, and I turned to the left.

The tractor continued to go to the right and pretty soon we were off the road and ended up crossways in the ditch; I hit the embankment so hard that it broke the front end out from underneath the tractor. A pin had fallen out of the steering column, and how I avoided rolling over, I have no idea.

I remember another time when we were going to a local horse show, and we had to go out in the pasture to catch one of the horses. My dad and I went out and caught the horse, and I was walking home leading the horse when all of a sudden something spooked this young colt. He took off and, without me being totally aware of what was going on, pulled the coil of rope tight around my hand.

Pretty soon I was down on my face sailing through the grass behind this horse. Fortunately it rained that morning and so it was not too bad until the horse decided to

go between the fence and a tree; the two were only about 18 inches apart. For reasons that I do not completely understand, just before the horse pulled me between the fence and the tree he stopped.

At that point my father caught up, and things were okay. It really does, I think, bring home the fact that these are real issues. I do not believe I was particularly wild, and I do not think our farm was any more dangerous than the average one. I suspect anyone who has grown up in an environment like that probably could relate similar sorts of experiences.

So, as I look back, trying to think what I could contribute to this group, I would hope that maybe I can bring some perspective, some understanding of farmers and farm communities, some firsthand experience as I have just mentioned about the importance of the issue. Finally, I think I can offer some experiences with a coalition that has experienced some success, namely the National Rural Health Association (NRHA), which truly is a coalition of some very disparate organizations and interests.

I think the success that our association has had can be attributed in large part to the fact that it is a coalition. Certainly all of the people that we represent have their own professional organizations who are able to speak and, in many ways, active in speaking for their interests. But NRHA has enjoyed a considerable amount of success simply because we were able to bring together a group of people with very diverse backgrounds and interests and focus on a single issue. That, in turn, has given credibility to the arguments and the efforts that I think have really paid off and have helped to produce some movement for the betterment of health services in rural areas.

Recently we have become affiliated with the National Coalition for Agricultural Safety and Health, NCASH, which several speakers have already mentioned. I would mention just a brief commercial.

There is a brochure, a little flyer, that will be out at the front desk, which describes NCASH and also tomorrow evening, at 6:00 in the Council Bluffs Room, there will be a reception for anyone interested in closer involvement with the National Coalition for Agricultural Safety and Health. If any of you are interested in getting more information, Gary Kukulka from the NRHA staff is here, as well as David Pratt and Kelley Donham, who have both been very involved in this effort. They can certainly give you further details about the activities of NCASH.

But, to get back to the issue of coalition building, the question is, Why is it that we are focused on coalitions? What is it about the problems that we are facing today, which brings us in this direction?

I certainly believe that it is a well-placed emphasis, and I believe it is well-placed because of the nature of the barriers that we face. Certainly our barriers are not lack of knowledge.

We, no doubt, can use more knowledge, but we have a great deal of information about the problems we face. It is not lack of skills.

We have a great many skilled, dedicated people who have been concerned about these issues for some time. These skills can be improved, but that is not the barrier that blocks us.

Even resources or lack of resources is not the major barrier. We can always use more resources but we have substantial resources, if we can mobilize them. I think our biggest problem is the coordination, direction and implementation of the things that we already know.

It is not what to do. Our question is really how to do it. That is how the issue and the significance of coalitions evolved.

The dictionary defines a coalition as:

a temporary alliance of factions for some specific purpose.

I think that clearly is the goal that we are trying to accomplish. I do not know that it needs to be temporary, but we certainly need to bring together the disparate factions that are involved in these issues.

Examining what brings about an effective coalition, I think there are at least four characteristics and probably others:

1. There needs to be a **unifying issue.** Clearly we have that. I think the fact that this size of group would come together testifies to the fact that this is a powerful issue.

2. We need **a desire to bring about change** and, with that, a **willingness to compromise** on some of our own personal agendas in order to accomplish a larger goal.

3. We need to have some appreciation or some feeling that, in fact, **action and change are possible.** Coalitions do not hang together in stalemates, but if we have the sense that real change and improvement can come about, coalitions can be extremely effective.

4. Certainly by far the most important issue in any effective coalition is that we have **effective and energetic leadership.** That is why we are here today.

We certainly face a tremendous diversity of challenges and a tremendous variety of different problems, but if we are going to make progress, we really need to have the leadership to bring about a vision of where we want to get to. I think an analogy is the process of assembling a jigsaw puzzle. We have all the pieces, but unless we can come up with a vision, the big picture that is on the front of the box, it is not likely that we are going to be very effective at pulling together our activities.

That is what this conference is designed to focus on and certainly the main thing that we hope will come out of it. I believe the Surgeon General and her staff at NIOSH deserve tremendous credit and our thanks for putting this process in motion.

In trying to understand this situation a little more, I would like to spend a couple of minutes looking at a somewhat analogous situation that NRHA has been involved in over the last several years. During that time, in our concern about maintaining health services in rural communities, it has become increasingly apparent that the preservation of rural health services and the development of the communities in which they exist go hand in hand. Certainly if the community is not coordinated and working, the health services will not be coordinated and working.

One of the things that has come out of this realization is several projects around the country that focus on improving health services through community organization. The one that I would like to quote from is referred to as the Community Health Ser-

vices Development model, which was a project funded by the Kellogg Foundation, and currently active in the State of Washington.

The goal was to help communities whose health services were deteriorating by focusing on and organizing the strengths of the community itself. They went into communities where, in many cases, the health services were falling apart, and they have come out with a number of fairly striking successes, at least on the preliminary evaluation.

The particular report that I am going to cite now was published as a working paper from the WAMI Rural Research Project—their working paper #11. Anyway, in reviewing their successes, they looked at six elements, which were predictors of success.

1. Clearly, the **quality of local leadership.**

2. The **breadth of involvement** of local stakeholders. Certainly ownership of this issue and local involvement are critical if we are going to have any kind of effective response.

3. **Community commitment.** Their conclusion was that in many cases a situation of helplessness and a culture of dependence had evolved, which really effectively neutralized any response to efforts and unless that attitude could be overcome, success was very unlikely.

4. **Teamwork within the community.**

5. Comprehensive, complete and **honest identification of problems** within the system.

6. **Availability of concurrent education** in order to provide the necessary skills to respond.

I would say that the situation that we face and that will be addressed in this conference is quite analogous to that. Certainly all of those issues are relevant. Appreciation of their existence and their presence will predict the success of any coalitions that we evolve.

Self-reliance and self-determination are bedrock values of rural people, but unfortunately over time many of these have atrophied as outside problems have led to a sense of frustration and helplessness. We need to convince rural people that this energy can be rekindled, and we have to show them that even in this complex world they have a critical role and that what they do really does make a difference.

> I would challenge you to go forth in these deliberations with a sense of urgency and with an understanding that every day lives are lost because families are being devastated and futures are being ruined because of our failure in the past to build these coalitions.

As we focus on the development of coalitions, I would say that we really need to look in two different directions.

▸ We need to build the coalitions within the professional community. We have a diverse group of professionals that are involved in these concerns—the safety professionals, public health professionals, and the medical community.

We have to put our professional egos aside and certainly, speaking as a physician, I know that there are many professional egos involved. My profession clearly has more than its share.

▸ Second, and probably more importantly, we need to build the bridges between the professional community and the people on the farms. They need to understand that there is real concern and that there is help available and that what they have to contribute is important.

I would certainly echo the concerns that we must not depend on regulation. If there is any group that hates regulation more than doctors, it is farmers; and absolutely the quickest way to wreck any program, or at least to reduce cooperation among the participants, would be to provide increased regulation.

In final analysis, I would say that the effectiveness of anything we do will be determined by our own honest desire to improve the lot of the people that we are dealing with. It will depend extensively on our ability to put aside our own egos and professional pride to be sure that we can work together and move toward the improvement that we are seeking.

Coalition building is not just the best way, it really is the only way. I would challenge you to go forth in these deliberations with a sense of urgency and with an understanding that every day lives are lost because families are being devastated and futures are being ruined because of our failure in the past to build these coalitions.□

DISSEMINATING SAFETY AND HEALTH INFORMATION THROUGH EDUCATION

By J. Michael McGinnis, M.D.
Deputy Assistant Secretary for Health
Director, Office of Disease Prevention and Health Promotion
Assistant Surgeon General

Dr. Antonia C. Novello: Now I would like to introduce Dr. J. Michael McGinnis. I am very pleased that he is going to address this conference. Dr. McGinnis serves as Deputy Assistant Secretary for Health, and holds the rank of Assistant Surgeon General. He has served as the Director of the Office of Disease Prevention and Health Promotion since 1977. Dr. McGinnis is a Fellow of the American College of Epidemiology and the American College of Preventive Medicine, and has held faculty appointments at Duke University and George Washington University. His contributions include the initiation and development of *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention*, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, and the *Dietary Guidelines for Americans*, which was jointly issued by the U.S. Department of Health and Human Services and the U.S. Department of Agriculture. In addition, he has collaborated with the National Institute for Occupational Safety and Health in the mid-1980s on the project, *The Future of Work and Health*. In 1988, he also developed *The Surgeon General's Report on Nutrition and Health*. It is with great honor that I introduce Dr. McGinnis to speak on the third purpose of this conference, *Disseminating Safety and Health Information Through Education*. Dr. McGinnis:

Thank you very much, Dr. Novello. I would like to begin by commending Surgeon General Novello for her leadership in sponsoring this conference. She has often said that she must be the Surgeon General of all the people, and has certainly followed that up by addressing issues that are important to all Americans, and especially to those Americans who have been disadvantaged. I think that this Surgeon General's Conference on Agricultural Safety and Health is indicative of that leadership and both Surgeon General Novello and Assistant Surgeon General Millar deserve our thanks in that regard.

I would like to thank you for inviting me to join you at this very important conference. Farming remains one of the most hazardous occupations in our nation. The annual death rate for farmworkers in America is five times as high as the combined death rate for all other workers. Every day nearly 500 agricultural workers in America suffer disabling injuries, and almost half of these injuries result in permanent impairment.

Since these troubling statistics are affected by a number of factors, the health and safety of agricultural workers is especially vulnerable. One of the major problems stems from the decentralized nature of the workforce.

Because farmers live in rural areas and have traditionally worked independently, their health and safety needs have not been adequately addressed. Furthermore, because many farm work forces have fewer than 11 workers, they are not identified by national data systems and their burden of suffering therefore may be underestimated.

A second factor is the issue of economic disincentives. Because there is no simple way to spread the economic risk as large corporations or other industries can do, the costs of implementing many safety measures are passed directly on to farmers.

The final factor involves those health problems that adversely affect agricultural workers. Though trauma is the most prominent health problem for farmworkers, respiratory diseases, other sequelae of pesticide toxicity, certain cancers, dermatitis, noise-related hearing loss, and stress-related mental disorders are all problems that agricultural workers must face. Though these health problems are extremely diverse in the way they affect individual farmers and their families, they do have a major commonality.

Fortunately, because the prominent role of behavior in health threats is not novel or unique, some of the lessons that can be gleaned from other public health areas may be germane to the kinds of approaches that we seek to establish for agricultural health and safety.

Behavior plays a prominent role in both the onset and the management of many occupational injuries and diseases. Therefore, motivating behavior change must be a part of any approach to the solutions that we seek. Fortunately, because the prominent role of behavior in health threats is not novel or unique, some of the lessons that can be gleaned from other public health areas may be germane to the kinds of approaches that we seek to establish for agricultural health and safety.

In my comments today, I would like to echo many of the themes that were raised by Ms. Widess and Dr. Dean by illustrating some examples of how those themes can play out by virtue of successes from other public health sectors in which public education and behavior change have proved to be a very important tools. I would like to share with you examples of the impact of behavioral factors on a number of our leading health problems.

Several years ago, the Carter Center of Emory University, in collaboration with the Centers for Disease Control, undertook a project called *Closing the Gap*, which examined the burden of a variety of the leading killers in our society. It found that behavioral factors played a significant role in 55 percent of heart disease deaths, 60 percent of cancer deaths, and 70 percent of motor vehicle deaths.

In fact, across all causes of death, and in comparison to genetic factors, environmental factors, and factors related to the lack of access to appropriate treatment facilities, behavior contributed to almost one-half of all premature deaths from all causes in our society. The leading causes are by now well known to all of us, as a result of the work of Surgeon General Novello and her predecessors.

Of the 2.1 million deaths each year in our society, tobacco accounts for approximately 400,000 deaths each year. The impact of factors related to the imbalance between diet and activity accounts for another 300,000 to 400,000 deaths.

Alcohol contributes to 100,000 deaths each year, including 20,000 deaths related to alcohol's impact on motor vehicle operation. It is clear by these numbers that behavioral choices have an enormous im-

pact on our society's health profile, including the health profile of agricultural workers in our country.

The good news is that we have made a great deal of progress in the past several decades. Tobacco use among males, for example, has declined from 54 percent in 1964 (at the time the first Surgeon General's report on tobacco and health was released) down to approximately 30 percent today, almost half of what it was when the campaign against tobacco was initiated.

The changes with respect to diet are less dramatic. Though the average percentage of calories for dietary fat intake is still as high as 36 percent, there has been a dramatic shift away from saturated fat consumption, resulting in risk reduction for heart disease.

Finally, we have also seen progress in the area of alcohol. Cirrhosis rates are down, and alcohol-related motor vehicle fatalities have declined. There is greater awareness of the problems related to alcohol, and I suspect that the awareness will accelerate as a result of the special focus and attention that Surgeon General Novello has drawn to that issue.

These kinds of changes are not serendipitous; they are the result of specific and targeted campaigns. Some of these campaigns have been local in nature and very carefully controlled. I would like to share with you two important examples of community mobilization to reduce behavioral risks, which improved the health prospects of those communities.

Both examples were carefully controlled studies offering a scientific approach, and both focused on cardiovascular disease prevention through targeting multiple risks simultaneously. These kinds of multiple risk factor interventions can also be applied to improving the health of our agricultural workers.

The Stanford Five-City Project addressed coronary heart disease risks, such as smoking, dietary habits, and blood pressure control. The campaign used a comprehensive mass media intervention strategy—television, radio, and newspapers—in combination with direct education provided in classes, community-level contests, and school-based programs. As a result, reduction in coronary heart disease risk in the experimental cities was nearly 20 percent greater than the secular trends of the control cities.

The other example, the North Karelia Study in Finland, used environmental change (i.e., by increasing the availability of low-fat foods and designing non-smoking areas) in addition to mass media and direct education. As a result, the overall coronary heart disease mortality in the target populations was reduced by almost 25 percent.

In addition to these carefully controlled experiments of a community wide nature, there have been some large-scale national campaigns that have had a tremendous impact on the entire nation. The Surgeon General's campaign against tobacco, initiated by Terry Luther, SG, in 1964, is perhaps the most prominent example of a successful national campaign.

Other examples include the initiation of the National High Blood Pressure Education Program in 1972 and the initiation in the early 1980s of the National Cholesterol Education Program, both by our National Heart, Lung, and Blood

Institute. Programs growing out of grassroots efforts have also had a tremendous impact on behavioral change.

For example, Mothers Against Drunk Driving (MADD) has provided important impetus in efforts to reduce the terrible tragedy of alcohol-related automobile fatalities among our young people. Consequently, we have seen some real gains in overcoming the problems related to motor vehicles and alcohol.

Indeed, all of these efforts mobilized every aspect of community life—schools, community organizations, voluntary organizations, professional societies, and worksites—in a coalition to address those problems. As Don Millar would point out, occupationally based programs have also contributed substantially to making the major inroads that we have seen against high blood pressure and tobacco smoking, as well as alcohol.

As a result, coronary heart disease mortality has declined by about 40 percent in the last 15 years, stroke mortality has declined by 55 percent, and auto fatality rates among children have declined by 22 percent in the last ten years alone. These are striking examples of success stories: success of public education efforts, with their roots at the community level. Due to these accomplishments, overall childhood and adult mortality rates have decreased.

Specifically in 1980, the Surgeon General targeted a 20 percent reduction in childhood mortality and a 25 percent reduction in adult mortality to be accomplished over the decade of the 1980's, by 1990. Both of these goals have been met, and done so largely through public education efforts.

What have we learned from these efforts that might be useful to the dissemination of agricultural health and safety information? First and foremost, we have learned that the dissemination of information alone is not enough. Knowledge is power, but education alone will not accomplish the task.

In order to succeed, we need to change the entire environment, including the physical environment as well as the social environment. The social environment contributes to shaping people's perspectives and therefore their risks.

We heard from Ms. Widess about the importance of the regulatory processes in insuring that we have provided a safe environment for farmworkers with respect to pesticide use. We heard from Dr. Dean about the importance of safety standards as well as public education efforts. Each of these are critical to success, and each was used in the successful public education campaigns launched to reduce cardiovascular risk. For example, non-smoking areas mandated through clean air laws passed at the local level have given tremendous impetus to our gains against tobacco.

The provision of lower-fat food changes, not a regulatory measure, but a very important environmentally oriented initiative on the part of industry, has helped people to make changes that are important to their daily lives. The engineering and availability of better auto passenger restraints has allowed the improvements that we have seen with respect to use of seat belts, in particular for our children, and has allowed the consequent improvements in mortality in that regard.

It is clear that the approach must be balanced between health protection on the