JUSTIFICATION FOR AMENDING THE STATE SCHOOL IMMUNIZATION LAW TO INCLUDE GRADES SEVEN THROUGH TWELVE

DEPARTMENT OF HUMAN SERVICES
BUREAU OF HEALTH
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INTRODUCTION

Immunization levels among junior and senior high school students in Maine are alarmingly low and the threat of immunizable disease outbreaks are very real. From January-June, 1979, the Department of Human Services and the Department of Educational and Cultural Services conducted a voluntary immunization assessment of 118,594 pupils enrolled in grades seven through twelve. The assessment was initiated to determine immunization levels in the upper grades. The results were extremely poor: only 72.3% (85,716 pupils) were protected against Diphtheria, Tetanus, and Pertussis; 75.3% (89,303 pupils) were protected against Polio; 82.4% (97,751 pupils) were protected against Measles; and 72.1% (83,553 pupils) were protected against Rubella. Thousands of pupils were and presently are susceptible to these easily preventable diseases. In the past two years, measles and rubella outbreaks have primarily occurred in older school age children.

The current State School Immunization Law, as written, has not been totally effective for two reasons. First, only students enrolled in kindergarten through grade six are required to present proof of immunization. Thus, many of today's students in junior and senior high schools lack adequate protection against these diseases. Second, immunization records are almost non-existent in many school districts in the upper grades.

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I. BACKGROUND AND PRESENT STATUS

A. BACKGROUND

The vaccine-preventable diseases of Polio, Diphtheria, Pertussis, Measles, Rubella, and Mumps are highly contagious. These diseases spread quickly where children congregate, and no place offers more opportunity for their spread then in a school setting. The danger is that in addition to the sickness that these diseases cause, each one carries with it a risk of serious complications that can cause death or permanent disability (Exhibit 1).

There are now laws in all 50 States requiring childhood immunizations as a condition of school entry. Twenty-eight of these States have laws requiring childhood immunizations for attendance in school at all levels from kindergarten through grade twelve. The present State School Immunization Law in Maine only encompasses kindergarten through grade six for the following diseases: Diphtheria, Tetanus, Pertussis, Polio, Measles, and Rubella. No immunizations are required, by State Law, in grades seven through twelve. Two local school districts, Portland and Cape Elizabeth, have mandated by a school board ruling that all pupils enrolled in kindergarten through grade twelve present proof of immunization at school entry. These school districts are commended for their action to protect the health of their school children. There are 185 public school districts and 125 private schools who do not require proof of immunization in the upper grades.

B. PRESENT STATUS

Assessments of immunization levels in the school age population reveal a direct correlation between the number of children fully protected and the strength and comprehensiveness of the state school immunization law. The State of Maine certainly reflects this concept as presented by the following data:

1. Maine State School Immunization Law-Kindergarten Through Grade Six

   The Maine State School Immunization Law (kindergarten through grade six) was actively enforced, for the first time, in late 1978. The assessment involved 129,093 pupils in public and private schools. Results of the assessment by vaccine were: 97.7% (126,124 pupils) were protected against Diphtheria, Tetanus, and Pertussis; 97.5% (125,866 pupils) were protected against Polio; 98% (126,511 pupils) were protected against Measles; and 97.7% (126,124 pupils) were protected against Rubella. These levels of protection were the highest ever achieved in the State of Maine for this particular age group (Exhibit 2).

2. Voluntary School Immunization Assessment-Grades Seven Through Twelve

   From January-June, 1979, the Department of Human Services and the Department of Educational and Cultural Services conducted a voluntary immunization assessment of 118,594 pupils enrolled in grades seven through twelve. The assessment was initiated to determine immunization levels in the upper

grades in order to find whether a problem of immunization deficient students existed. The results of the assessment were alarmingly poor-only 72.3% (85,716 pupils) were protected against Diphtheria, Tetanus, and Pertussis; 75.3% (89,303 pupils) were protected against Polio; 82.4% (97,751 pupils) were protected against Measles; and 72.1% (83,553 pupils) were protected against Rubella (Exhibit 2).

Each new school year an estimated 10,000 new transfer students enter Maine's public and private schools resulting in a constant incoming population. The most effective method of ensuring that these children are protected is active enforcement of a State School Immunization Law encompassing all pupils in kindergarten through grade twelve.

3. Rubella Outbreak Sanford, Maine

In early December, 1980, the Maine Bureau of Health became aware of cases of Rubella-like illness in the Sanford area. Two acute blood titers were drawn on high school students for rubella. Convalescent titers done 1½ - 2 weeks later were elevated, documenting rubella infection. As of the New year, 48 cases fit the clinical definition of rubella and 6 cases had been confirmed by serologic studies.

Approximately 75% of the reported cases were students attending Sanford High School. An immunization record review conducted by the school nurse discovered that 40% of the students (student population 1,200) lacked documented evidence of protection against rubella infection.

In Sanford and the surrounding communities, 8 pregnant females were located who had been exposed to infected students. Six of the pregnant females were determined to be past the critical period (first trimester of pregnancy) or were previously immune. The other 2 pregnant females are currently under physician surveillance to determine possible future complications with the fetus' they are carrying.

With statewide immunization levels for rubella presently at 72%, the likelihood of a similar outbreak occurring in the near future is almost certain.

4. Maine Measles Epidemic 1978

In 1978, the State of Maine reported 1,320 cases of measles which resulted in the highest incidence in the nation. This massive epidemic resulted in forty (40) children being hospitalized for serious complications due to the infection. An analysis of the age distribution of the reported cases was consistent with national data showing approximately 60% of reported measles cases occur in the population over 10 years of age. With the current low immunization levels among students in the upper grades, there exists the likely possibility of another such epidemic occurring in Maine.

II. COST AND SAVINGS FOR THE STATE OF MAINE

A. COST

Since 1969 to the present, the State of Maine has received Federal Financial Assistance to support the State Immunization Program. No legislation proposing additional State funding for the Immunization Program has ever been initiated. The

State has contributed in-kind support which has been predominately Public Health Nursing support in the rural areas of the State. Actual Federal support in terms of dollars for the Program from 1979 to the present is detailed below:

YEAR	AMOUNT
1979	$221,283
1980	$224,597
1981	$258,448

Additional Federal funds will be available for the purchase of vaccine, if the State School Immunization Law is amended to include all students from kindergarten through grade twelve. No State funding would be requested with this amended action.

B. SAVINGS

The economic and social savings, resulting in protecting the children of Maine by immunization, would be substantial.

1. Dollar costs for physicians and hospital visits would be eliminated.
2. Time away from employment for a parent caring for a sick child would be eliminated
3. Children unnecessarily absent from school, anywere from two weeks or longer, would be eliminated.
4. Disabilities resulting in loss of productivity or death would be eliminated.

III. SUMMARY

The existence of a State School Immunization Law requiring immunization has been shown to correlate with high levels of immunity and a definite decrease of the incidence of disease. An increasing number of States are actively enforcing school immunization laws encompassing kindergarten through grade twelve. Unfortunately, upper grade students (grades 7-12) in Maine are not protected against the vaccine-preventable diseases. Attempted voluntary immunization recommendations for the upper grades in Maine have proved futile. Therefore, an amendment to the current School Immunization Law, including grades 7-12, is warranted in the upcoming 110th legislative session.

VACCINE-PREVENTABLE DISEASES AND THEIR CONSEQUENCES

Rubella (German Measles) is a highly communicable viral disease which, although causing only minor illness in most children and adults, can result in significant abnormalities in the fetus.

The health and social consequences of rubella are potentially severe only when the disease affects the pregnant woman in the first trimester of pregnancy. Under these circumstances it can result, in up to 20 percent of the cases, in significant disabling abnormalities in the fetus, including defects of the heart, eyes, and brain, mental retardation, and/or partial or total hearing loss.

The emotional and economic costs born by the families of these children are very high, In addition, seriously impaired children require special care, including repeated hospitalization and/or institutionalization. The cost of such care is high and represents a serious financial burden for most families and to society at large.

Measles is an acute, highly communicable viral disease producing fever and rash.

Due to the wide dissemination of vaccine, measles has occurred infrequently in recent years. When it does strike, however, it tends to be more severe than in the past because of its concentration in older non-immunized or inappropriately immunized children. The disease normally runs a two-week course of acute illness, requiring bed rest. Total recovery is the usual outcome. In young children, pneumonia is an occasional complication. Encephalitis occurs in one out of 1,000 teenage children. When complicated by encephalitis, death and permanent disability are

possible outcomes. Death occurs in 30 percent, and disability in 20 percent, of measles encephalitis cases.

There are economic and social costs associated with measles:

a. Two to three weeks absence from school or longer, in complicated cases.

b. Time away from work for a parent caring for a sick child.

c. Time lost from future productivity for those cases in which death or disability results.

d. Dollar costs for medical care which is sought in perhaps 30 percent of the cases.

e. Dollar costs for hospitalization for complicated cases.

Mumps is an acute viral disease characterized by fever and swelling which may affect the salivary and pancreatic glands, reproductive organs, or brain.

In most cases involving children, mumps entails a few days of discomfort and confinement followed by total recovery. For some, generally those past puberty, the disease is more severe. While death is rare even in these cases, the discomfort is greater and the recovery time lengthier. Transient hearing loss is common. Occasionally, permanent deafness may occur. Lost time, lost productivity, and for a very few, lost life, constitute the economic/social costs of mumps.

Poliomyelitis (Polio) is an acute viral infection resulting sometimes in severe damage to the nervous system of human and some other higher primates.

The disease is currently in abeyance. It has little of its former urgency as a health problem. If or when, however, it breaks out of the bonds Salk and Sabin placed it in, it will be the same terror it used to be, striking at the young and healthy with swift fulminating

death or slow agonizing gasping death or flailing paralysis.

The last case of poliomyelitis in Maine occurred in 1972. The potential is real, however, for an epidemic, as long as groups of susceptible persons reside in a community. Such an experience took place recently in Holland. The population, overall, was considered to be well protected. That assumption, however, was quite in error. Nearly 100 cases and one death occurred, among persons who chose, for religious reasons, not to be immunized. The outbreak spread to Canada and eventually worked its way into the United States resulting in 8 confirmed cases in Pennsylvania .

Diphtheria is an acute life-threatening bacterial infection of the respiratory tract.

When the disease strikes, it can do so with disastrous and deadly effects. The overall death rate is 5-10 percent and higher in young children. Complications from Diphtheria include brain or heart damage-with lifelong disability.

Maine, with its temperate climate, is in greater jeopardy of the disease than the areas of more polar or more torrid prevailing temperatures.

Pertussis (Whooping Cough) is an acute bacterial disease of the respiratory tract.

Whooping cough can kill, or it can cripple, and does either, especially to young children, by so irritating the respiratory tract that spasms of coughing occur (sometimes to the point that normal breathing doesn't occur) and the victims suffer from lack of oxygen, which can, in turn, cause convulsions, or permanent brain damage, or death.

There may be a greater tendency for cases to occur in children who are less than optimally nourished, and presumably thereby less able to resist many types of infections.

Tetanus (Lockjaw) is an acute disease caused by the toxin produced by bacteria which usually enter the body at the site of a deep injury.

The disease is a life-threatening one. Of those persons who develop symptoms, 50 percent will die, in spite of treatment.

In Maine in 1979, a reported case of tetanus resulted in a death.

This is really not a disease of great significance to the public, but of utmost importance to an affected victim. It does not spread from one person to another, so epidemics are not a threat. Rather, the germ spores lie patiently in wait, in the soil, or in animal intestinal tracts, and wreak their havoc when some fortunate happening delivers them deep into the tissues of a human, which is susceptible in such a way that tissue closed over them, keeping out the oxygen, which is harmful to the bacteria. If this chain of events is to be prevented, artificial immunity some time before injury occurs is essential.

The disease can occur at any age.

EXHIBIT 2

COMPARISON OF IMMUNIZATION LEVELS OF PUPILS ENROLLED
IN PUBLIC AND PRIVATE SCHOOLS
IN KINDERGARTEN-GRADE SIX VS GRADES SEVEN-TWELVE, 1979

Vaccine	*Kindergarten-Grade 6 Levels Of Protection	Grades 7-12 Levels Levels Of Protection
Diphtheria	97.7%	72.3%
Tetanus	97.7%	72.3%
Pertussis	97.7%	72.3%
Polio	97.5%	75.3%
Measles	98.0%	82.4%
Rubella	97.7%	72.1%
**Mumps	Not Available	Not Available

*The State School Immunization Law requires proof of immunization before school entry in kindergarten through grade six.

**Mumps immunization is not required under the current State School Immunization Law.

- MAINE -

Reported Morbidity And Mortality Of The Vaccine Preventable Diseases, Maine, 1974 - 1980

Disease	1974	1975	1976	1977	1978[1]	1979	1980
Measles	42	18	10	178	1,320	18	33
Rubella	302	45	14	70	158	68	119
Mumps	982	97	127	83	588	278	309
Poliomyelitis	0	0	0	0	0	0	0
Diphtheria	0	0	0	0	0	0	0
Tetanus	0	0	0	0	0	1	1
Pertussis	0	0	15	3	6	15	5

During this period, there have been two(2) deaths resulting from rubella and one (1) death from tetanus.

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[1] In 1978, forty (40) children were hospitalized with serious complications due to measles infection.

EXHIBIT 4

ENDORSEMENTS To Amend The State School Immunization Law To Include Grades Seven Through Twleve

Maine Medical Association	Frank O. Stred Executive Director & Eric F. Nicholas, M.D. Chairman, School Health Committee
Maine Osteopathic Association	Philip N. Johnson, Executive Director & Thomas Babonis, D.O.
Maine Chapter Of The American Academy of Pediatrics	Edmund N. Ervin, M.D., Chairman