State Laws on Compulsory Immunization in the United States

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COMPULSORY immunization, specifically smallpox vaccination, was required in some States not long after this country became a nation. Almost all the States now have some type of regulation regarding smallpox vaccination for the general population. Some statutes make specific reference to smallpox vaccination for children before they can enter school but, for the most part, such legislation encompasses all susceptible persons within the State's jurisdiction.

Legislation specifically designed to require immunization before entry to school has a direct correlation with the development of poliomyelitis and measles vaccines. Therefore, many States have amended old vaccination laws and enacted immunization laws that increase their scope, requiring immunization not only against smallpox but against diphtheria, pertussis, tetanus, poliomyelitis, and measles as well.

The Legal Base

The power inherent in the State to enact and enforce laws and to protect and promote the health, safety, morals, order, peace, comfort, and general welfare of the people is known as police power. It means that the State has the power to advance the public welfare by restraining the use of liberty and property. Health laws, which usually specify what a person may or may not do, fall into this category. In general, they prohibit acts that might endanger the health of others in the community.

Compulsory immunization is a health law with a different twist. It differs because it requires a person to submit himself to a specific personal procedure that he may not desire. The first legislation of this type was adopted in 1809 by the Commonwealth of Massachusetts (*1*). The law required smallpox vaccination for the general population. Similar legislation soon appeared in other States.

Opposition to such laws, based on the premise of a person's inalienable right to "life, liberty, and the pursuit of happiness," quickly followed. As a result, there were repeated court decisions on the legality of compulsory vaccination laws. Although conflicting legal opinions were given on certain aspects of vaccination requirements, it became an established principle of law that State legislatures may, under certain conditions, require vaccination. Further, it was determined that this power may be delegated by statute to other political subdivisions of the State. The matter was not really settled, however, until the U.S. Supreme Court upheld the constitutionality of the Massachusetts compulsory vaccination law in 1905. The Court ruled that a State had the power, through the legislative process, to pass and enforce compulsory smallpox vaccinations (*2*).

The question of compulsory vaccination came before the Supreme Court again in 1922. This case involved the constitutionality of a city or-

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dinance requiring smallpox vaccination as a prerequisite for attendance at school. The Court upheld the ordinance as constitutional, basing its decision on the precedent set by the Supreme Court in 1905 (*3*).

The word "vaccination" as used in compulsory laws was interpreted by the courts to refer to vaccination against smallpox and not against other diseases. However, it is apparent that the legal premise for compulsory laws on other diseases is based on the precedent established by these decisions of the Supreme Court.

Historical Aspects

Hanlon reported that 15 States and the District of Columbia had laws by 1915 requiring smallpox vaccination as a prerequisite to school attendance. Twenty-one other States had laws or regulations that enabled local jurisdictions to enact compulsory vaccination regulations under certain conditions (*4*).

Fowler, in his comprehensive study of smallpox vaccination laws, indicated that only six States—Arkansas, Florida, Missouri, Nebraska, Nevada, and Oklahoma—did not have some statute which made express or specific reference to smallpox vaccination (*5*).

It was not until the late 1930's that compulsory immunization laws pertaining to other diseases were enacted. A study conducted in 1942 indicated that nine States and what was then the Territory of Alaska had provisions requiring immunization against diphtheria. Six provisions were statutory; the others were part of general regulations of the State health codes (*6*).

Enactment of amendments to compulsory immunization laws in the United States was relatively static during the 1940's and early 1950's. Development of the inactivated poliomyelitis virus vaccine in the late 1950's, followed by the live virus oral poliomyelitis vaccine in 1962 and the advent of live virus measles vaccine in 1963, renewed an interest in compulsory immunization laws as a method of preventing the introduction and spread of preventable diseases.

A Contemporary Appraisal

Twenty-six States and the District of Columbia now have legislation requiring immunization against a specific disease or diseases as a prerequisite to school entry (table 1). The statutes and regulations can be divided into two general categories: the older laws requiring vaccination against smallpox only and the laws that have been recently amended or enacted, which require immunization against other diseases in addition to smallpox vaccination.

Five States—Maryland, New Hampshire, Pennsylvania, South Carolina, and Virginia—and the District of Columbia require smallpox vaccinations only. Three of the 26 States—Arkansas, California, and Minnesota—exclude smallpox vaccination from their statutes. Two of these States, California and Minnesota, have laws specifically prohibiting compulsory smallpox vaccination.

Seventeen States require that children be immunized against measles before entry to school (table 1). Twenty States require that a child be protected against poliomyelitis, 18 require immunization against diphtheria, and 16 require immunization against pertussis and tetanus.

Twelve States—Georgia, Hawaii, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Mississippi, Rhode Island, Tennessee, and West Virginia—require immunizations against all six diseases for which immunization materials are routinely used: smallpox, measles, poliomyelitis, diphtheria, pertussis, and tetanus.

In analyzing the immunizations required, the only visible pattern is that laws written within the past 5 years tend to be all-encompassing; that is, they cover all diseases for which immunizations are recommended.

In contrast to compulsory immunization laws, seven States—Arizona, California, Minnesota, North Dakota, South Dakota, Utah, and Washington—have laws making it unlawful to compel a person to receive a smallpox vaccination. Yet two of these States, California and Minnesota, now have legislation requiring children to be immunized against other diseases before entry to school. California requires protection against poliomyelitis and measles, and Minnesota requires protection against measles only.

Geographic factors. The majority of States with compulsory immunization laws are east of the Mississippi River—for several reasons. These States were the first of the Union and they faced more immediate danger from the introduction of smallpox from a foreign source,

Table 1. Compulsory immunization law requirements before entry to school

State	State law requiring immunization for a specific disease or diseases	Year of last amendment or enactment of new law	Immunizations required					
			Smallpox	Measles	Poliomyelitis	Diphtheria	Pertussis	Tetanus
Alabama [1]	No							
Alaska [2]	No							
Arizona	No							
Arkansas	Yes	1967	No	Yes	Yes	Yes	Yes	Yes
California	Yes	1967	No	Yes	Yes	No	No	No
Colorado	No							
Connecticut [3]	No							
Delaware	No							
District of Columbia.	Yes	1906	Yes	No	No	No	No	No
Florida	No							
Georgia	Yes	1968	Yes	Yes	Yes	Yes	Yes	Yes
Hawaii	Yes	1967	Yes	Yes	Yes	Yes	Yes	Yes
Idaho	No							
Illinois	Yes	1968	Yes	Yes	Yes	Yes	Yes	Yes
Indiana [4]	No							
Iowa	No							
Kansas	Yes	1965	Yes	Yes	Yes	Yes	Yes	Yes
Kentucky	Yes	1968	Yes	Yes	Yes	Yes	Yes	Yes
Louisiana	Yes	1968	Yes	Yes	Yes	Yes	Yes	Yes
Maine	No							
Maryland	Yes	1951	Yes	No	No	No	No	No
Massachusetts	Yes	1967	Yes	Yes	Yes	Yes	Yes	Yes
Michigan	Yes	1966	Yes	Yes	Yes	Yes	Yes	Yes
Minnesota	Yes	1967	No	Yes	No	No	No	No
Mississippi	Yes	1966	Yes	Yes	Yes	Yes	Yes	Yes
Missouri	Yes	1961	Yes	No	Yes	Yes	No	No
Montana	No							
Nebraska [5]	No							
Nevada	No							
New Hampshire	Yes	1951	Yes	No	No	No	No	No
New Jersey	Yes	1967	Yes	Yes	Yes	Yes	No	No
New Mexico	Yes	1962	Yes	No	Yes	Yes	Yes	Yes
New York	Yes	1968	Yes	Yes	Yes	No	No	No
North Carolina	Yes	1957	Yes	No	Yes	Yes	Yes	Yes
North Dakota	No							
Ohio	Yes	1959	Yes	No	Yes	Yes	Yes	Yes
Oklahoma	No							
Oregon	No							
Pennsylvania	Yes	1959	Yes	No	No	No	No	No
Rhode Island	Yes	1968	Yes	Yes	Yes	Yes	Yes	Yes
South Carolina	Yes	1952	Yes	No	No	No	No	No
South Dakota	No							
Tennessee	Yes	1967	Yes	Yes	Yes	Yes	Yes	Yes
Texas [6]	No							
Utah	No							
Vermont	No							
Virginia	Yes	1942	Yes	No	No	No	No	No
Washington	No							
West Virginia	Yes	1967	Yes	Yes	Yes	Yes	Yes	Yes
Wisconsin	No							
Wyoming	No							

[1] Montgomery County, Ala., requires diphtheria, tetanus, pertussis, smallpox, and poliomyelitis immunizations; not tested in court.

[2] Under special conditions, school children can be required to get immunizations.

[3] Compliance is a local option; majority of counties require compliance.

[4] Kindergarten ordinance requires immunizations in Marion County, Ind.

[5] Schoolboard resolutions require various immunizations, but they are not considered binding.

[6] Local schoolboards may require immunizations.

especially States along the eastern seaboard. Also, as time passed and other immunizing materials became available, it was easier for a State with a smallpox vaccination law to add other immunization requirements to it. Writing a completely new law on compulsory immunization proved to be difficult in some States. Concentration of population is also a factor. States with large populations, especially large urban populations, are more likely to have compulsory immunization. In addition, some of the Southern States with large numbers of people in the lower socioeconomic class apparently have need for this type of legislation. The majority of States without compulsory immunization laws are in the north and northwest sections of the United States.

Structure of compulsory immunization laws. The terminology of current immunization laws indicates that major emphasis is on the requirement that all children be adequately immunized before being allowed to enter school on a permanent basis. There are exceptions. North Carolina's law, for example, requires that all children be immunized against diphtheria, tetanus, pertussis, and poliomyelitis by the age of 1 year (*7*). Hawaii's requirement is the same for these diseases. In addition, the law requires that children be vaccinated against smallpox within 1 month after their first birthday and be immunized against measles during the second year of life (*8*). Kentucky's legislation has similar provisions (*9*).

The salient point is this: although legislation in some States requires immunizations early in life, enforcement usually does not come until entry to school. The States follow this procedure simply because they find it too difficult to identify susceptible preschool children in the population.

Administrative responsibility for implementation. The administrative body having responsibility for implementation of compulsory immunization laws varies considerably from State to State. In 15 States responsibility rests with the State health department. In six States individual school districts must implement the law. In two States local departments of health are responsible. One State law requires the State board of education to set up the necessary

Table 2. Agencies responsible for implementation of immunization laws and penalties for noncompliance, by State

State	Responsible agency	Penalty for noncompliance
Arkansas	State department of education	Misdemeanor.
California	Local departments of health	Penalty not mentioned.
District of Columbia	District department of education	Do.
Georgia	State department of health	Misdemeanor.
Hawaii	do	Fine, not to exceed $500.
Illinois	State department of education	Penalty not mentioned.
Kansas	State department of health	Do.
Kentucky	do	Fine or imprisonment or both.
Louisiana	Individual school districts	Penalty not mentioned.
Maryland	State department of health	Fine or imprisonment or both.
Massachusetts	State department of education	Penalty not mentioned.
Michigan	State department of health	Do.
Minnesota	Individual school districts	Do.
Mississippi	do	Do.
Missouri	State department of health	Do.
New Hampshire	do	Fine, not to exceed $10.
New Jersey	Individual school districts	Penalty not mentioned.
New Mexico	State department of health	Misdemeanor.
New York	do	Penalty not mentioned.
North Carolina	do	Fine or imprisonment or both.
Ohio	Individual school districts	Penalty not mentioned.
Pennsylvania	State department of health	Fine or imprisonment or both.
Rhode Island	do	Penalty not mentioned.
South Carolina	do	Fine or imprisonment or both.
Tennessee	do	Penalty not mentioned.
Virginia	Individual school districts	Misdemeanor.
West Virginia	Local departments of health	Fine, not to exceed $100.

mechanism. (See table 2 for information on each State.)

Although most immunization laws specify that the State health department is the responsible agency, in reality almost all authority for issuing regulations has been delegated to some branch of local government. Unfortunately, in many instances this delegation has led to misinterpretation of the law, with stringent regulations being applied in some parts of the State and almost complete noncompliance in other areas.

Compliance. As mentioned before, current immunization laws are directed primarily toward unimmunized children entering public, private, or parochial schools. Analysis of the statutes indicates that such laws usually encompass all children regardless of the type of school they are attending. Exceptions are the District of Columbia, Georgia, Louisiana, Maryland, New Jersey, and West Virginia, which require compliance from children attending public schools only.

In general, it can be said that compliance is uniform, with two major exceptions: (*a*) if a physician certifies that administration of an immunizing preparation required under the provisions of the act is detrimental to a child's health, the child is exempted or (*b*) if the parents or guardians are bona fide members of a recognized religious organization whose teachings are contrary to the practices of immunization, the child need not be immunized. These two major escape clauses are in almost all statutes on compulsory immunization, especially laws enacted within the last decade.

Five States—Missouri, Rhode Island, Illinois, Michigan, and Ohio—have immunization laws that must be considered "voluntary" compulsory immunization. Each State has provisions in the statute for exempting children if a parent objects in writing to such requirements for any reason.

For example, Missouri's immunization law, enacted in 1961, states in the ninth through 12th sentences of section 2: "It is unlawful for any parent or guardian to refuse or neglect to have his child immunized, as required by this section, unless the child is properly exempted." Immediately after this statement, in the first paragraph of section 3, is the following stipulation: "This act shall not apply to any child if one parent or guardian objects in writing to his school administrator against the immunization of the child" (*10*).

Penalty for noncompliance. State compulsory immunization laws, in reality, are compulsory in the spirit of the law only. Fifteen laws do not include a penalty of any type for noncompliance. A few state that violation of the act is considered a misdemeanor (table 2).

Eight States—Hawaii, Kentucky, North Carolina, Pennsylvania, South Carolina, New Hampshire, West Virginia, and Maryland—specifically impose a fine or jail sentence for violation of the statute. In practice, the penalty has been withholding the privilege of attending school. However, this stipulation often conflicts with compulsory school attendance laws in many States. To avoid this conflict, most newly enacted compulsory immunization laws simply state that the child must be adequately immunized before entry to school or within a specified time thereafter, usually 30 to 60 days.

The principal regulations in compulsory immunization laws vary considerably from State to State, but a few similarities can be gleaned from them. The following is a synoptic view of the general provisions in most modern compulsory immunization laws.

1. They require compliance from parents of children entering public, parochial, or private schools for the first time.
2. Persons objecting because of medical or religious reasons are exempted from compliance.
3. The State health agency is the administrative body responsible for establishing policy. Implementation is delegated to a local branch of government.
4. Laws enacted within the past decade cover almost all diseases for which immunizing materials are available and recommended for the school age population.
5. Penalty for noncompliance is not stated in the content of the law. Compliance is based on the premise that people comply with the law of the land without coercion.

As I mentioned earlier, a direct correlation apparently exists between the development of poliomyelitis vaccine in 1953 and the enactment of new compulsory immunization laws. Since

1953, 20 States have made poliomyelitis immunization mandatory before entry to school. Fourteen States have either amended or enacted new legislation on compulsory immunization within the past 2 years. A definite increase has occurred in the scope and number of immunization laws passed in the last decade.

So far, I have been concerned with the structure of compulsory immunization laws. I have said nothing about the function (that is, the value) of compulsory legislation in preventing disease. Any discussion of its value among public health officials usually results in a maelstrom of controversy. The following composite of arguments has been heard for and against compulsory immunization.

Arguments for Compulsory Laws

Support for compulsory immunization is based almost entirely upon what would probably be considered humanitarianism. This philosophy centers around the idea that no child should have to suffer from a disease that can be prevented. If the parent will not or cannot assume the responsibility for having the child properly immunized, then it is the responsibility of society to see that the child is protected. This idea is congruent with the belief that in any society a small minority of people must be forced to do things that are, in the long run, for their own benefit.

Although this argument is the main one for compulsory immunization, there are some underlying assumptions. For instance, it is often argued that if a child suffers permanent disability from a preventable disease, his disability represents an economic loss both in potential earning power and actual cost of hospitalization, and possibly long-term therapy. It is also pointed out that such cost often falls on every citizen either through contributions to charitable organizations or through funds earmarked for State welfare. Support also comes from the theory that preventable diseases will never be eradicated in the United States unless very high immunity levels are maintained in the population for a long period; therefore, the only way to insure such levels is through compulsory immunization laws.

Arguments for compulsory immunization are based on broad generalizations, but they have one major factor in their favor: the altruistic attitude of the American people, especially regarding the health and welfare of children. This attitude probably has been the determining factor in the passage of new laws on the subject in the last few years. Since the development of measles vaccines, associations for retarded children have also supported legislation requiring measles immunization.

Basic Objections to Compulsory Laws

Objections to compulsory immunization laws are of two general types: (*a*) those based on a person's philosophy about governmental control and individual freedom and (*b*) disagreements based on the thinking that such legislation does not serve the purpose for which it was intended. The following objections are the major ones raised against the concept of compulsory immunization laws.

Religion. Several religious groups in the United States object to compulsory immunization on the principle that they are members of a religious organization whose teaching prohibits this type of medical care. They feel that any attempt by the State to force a bona fide member of their organization to be immunized against his will is a violation of their constitutional right to freedom of religion. Almost all compulsory immunization laws exempt these groups from compliance.

General distrust of medical science. Many people in the United States, although a diminishing group, distrust the practices of modern medicine. They do so out of ignorance, fear of pain, cultural characteristics, or membership in one of the many health cults that abound in certain geographic areas of the United States.

Infringement of personal liberty. To the rallying call of "Give me liberty or give me death" often come the diverse elements of our society. They are heard not because of the rationality of their arguments but because of the intensity of interest and the emotionalism that often accompany such arguments. Anyone doubting this needs only to recall the turmoil that resulted when many urban areas were considering fluoridation of the public water supply.

In the broadest sense, compulsory immunization laws are an infringement of personal lib-

erty. However, the rationale of such laws is inherent with the philosophy that man not only has the responsibility for himself but also for the community in which he resides.

Difficulty of enforcement. Analysis of the statutes reveals the considerable merit of this objection. Only a few of 26 State immunization laws specifically mention a penalty for noncompliance. Apparently the philosophy applied is that the threat of specific punishment is unnecessary for people to comply with the spirit of the law. The standard procedure of the agencies enforcing such laws is to require a record of immunizations given, signed by a private physician or the local health agency. There is little evidence that parents object en masse to such requirements. However, the children of parents who persistently refuse to cooperate are usually simply forgotten.

Emphasis on compulsion rather than education. A long-range comprehensive educational program on the need for good immunization practices undoubtedly is more desirable than forced compliance through an immunization law. Until educational programs can be directed toward the hard-to-reach group, immunization laws are at least an alternative.

Compulsory laws encourage delayed primary immunization. One of the most damaging arguments is that compulsory laws encourage parents to delay primary immunization for their children until entry to school. Many public health officials believe that such laws encourage parents to delay immunizations because they know that immunizations are not mandatory until their children are ready to enter school.

Unfortunately, research apparently has not been done on this argument. There are no published data that prove or disprove the postulation that preschool children residing in States with compulsory immunization laws are not as well immunized as preschool children living in States without such laws. However, unpublished data on the immunization programs in Kansas and North Carolina reveal that at least in these two States the immunization laws do not cause parents to delay immunizations for their children.

Unpublished data from a survey conducted by the Immunization Program of the Kansas State Health Department, Topeka, indicate that the majority of 1-year-old children had started the primary immunization series. The study included 17,369 children reaching 12 months of age during fiscal year 1967. Eighty-eight percent of these children had received three or more doses of diphtheria-tetanus-pertussis (DTP) vaccine. Seventy-nine percent had received two or more doses of oral poliomyelitis vaccine, 59 percent had been immunized against measles, and 40 percent had received a primary smallpox vaccination.

The Immunization Program of the North Carolina State Health Department, Raleigh, conducted a similar study, which included followup of 6,717 children reaching 2 years of age between December 1965 and December 1966. Unpublished data of the department show that 94 percent had started the DTP and poliomyelitis immunization series before age 2, and 84 percent had finished the series before their second birthday. Fifty-seven percent had received measles immunization, and 38 percent had received primary smallpox vaccination.

Kansas' compulsory immunization law has required immunization against smallpox, poliomyelitis, diphtheria, pertussis, and tetanus since 1961. An amendment in 1965 included measles (*11*). North Carolina's law, effective since 1957, covers smallpox, poliomyelitis, diphtheria, pertussis, and tetanus (*7*).

Evidence supporting the theory that immunization laws encourage the delay of needed immunizations is based on the field experiences of public health officials. In support of this belief they point to the large number of children immunized at local health departments each year just before entry to school. Although there are several possible explanations for such activity, the following two seem to have particular significance.

1. In regard to smallpox vaccination the officials are probably correct. It has long been a common practice among the private medical profession and public health alike to defer giving smallpox vaccinations until the child is 4 or 5 years old, and only then in the cool weather of autumn. However, this practice is related to smallpox only.

2. Booster immunizations are recommended for diphtheria, pertussis, tetanus, smallpox, and poliomyelitis. The recommended time for such boosters is just before entry to elementary school. Many children receiving immunizations before starting school possibly are getting boosters, not starting a primary immunization series.

If a significant correlation exists between unimmunized preschool children and compulsory immunization laws, it has yet to be proved.

Compulsory immunization laws are ineffective in preventing disease. Hanlon points out that in U.S. areas once having a high incidence of smallpox, vaccination laws were a significant factor in reducing incidence and eventually controlling the disease. He cites a 1936–46 study in which it was found that the incidence of smallpox was significantly lower in the States with compulsory vaccination laws and higher in the States where compulsory vaccination was prohibited (*4a*).

For diphtheria and pertussis, the incidence of cases and deaths occurs overwhelmingly in the preschool population. Tetanus is now a disease of neonates and middle-aged people. However, since children eventually become middle aged and tetanus is a disease that attacks the unimmunized of all ages, there is no logical reason not to immunize susceptible school age children who had been missed during their preschool years.

Poliomyelitis, like diphtheria and pertussis, is primarily a disease of preschool children. But there is little doubt that school age children provided part of the reservoir of subclinical cases that kept the virus circulating in the population until the mass poliomyelitis campaigns of the early 1960's. Presumably, immunization of school age children was a factor in reducing the morbidity of poliomyelitis.

Measles offers the strongest case for compulsory immunization. The epidemiologic link to circulation of the measles virus is children in kindergarten and the first and second grades. Many measles epidemics originate within these groups. The infection is then carried home, where preschool siblings become infected.

Antagonists point to the incidence of all these diseases and say that compulsory immunization laws requiring immunization before entry to school are ineffective in preventing disease. This assertion is true only if these laws actually cause parents to defer immunizations for their preschool children until entry to school.

Conclusion

Reviewing the structure of compulsory immunization laws is, for the most part, an academic exercise. The important question is whether we should have such legislation in the United States. Analysis of the arguments for and against such legislation indicates that the choice can be difficult.

I believe that State compulsory immunization laws pose little threat to our cherished belief in individual choice and freedom of action. Therefore, I feel that such laws do little harm and, when applied in a uniform manner, can have a positive impact in raising immunization levels and preventing the spread of communicable diseases.

Compulsory legislation on immunization should not be considered a police tool but a positive expression of public policy that immunization is important to the health of the individual and of the community.

Summary

A review of State compulsory immunization laws revealed that 26 States and the District of Columbia now have legislation requiring immunization against a disease or diseases as a prerequisite to school entry. The legal base for such laws is the U.S. Supreme Court ruling of 1905 that upheld the constitutionality of the Massachusetts compulsory law on smallpox vaccination. Although initial State legislation on compulsory immunization pertained to smallpox only, by the late 1930's compulsory laws including other diseases were enacted.

Analysis of the structure of State laws on compulsory immunization revealed that most State laws of this type now require compliance from the parents of children in public, private, or parochial schools. Almost all diseases that can be prevented by immunization are included. The children of parents who object because of medical or religious reasons are exempted. The penalty for noncompliance is considered a misdemeanor and usually is not enforced.

The value of State compulsory immunization laws continues to be controversial. Arguments for and against such legislation are analyzed.

REFERENCES

(*1*) Tobey, J. A.: Public health law, New York. The Commonwealth Fund, New York, 1947.

(*2*) *Jacobson* v. *The Commonwealth of Massachusetts*, 197 U.S. 11, 25 S.Ct. 358, 49L, Ed. 643, Ann. Cas. 765 (1905).

(*3*) *Zucht* v. *King*, 260 U.S. 174 43 S.Ct. 24, 67L. (1922).

(*4*) Hanlon, J. J.: Principles of public health administration. Ed. 3. C. V. Mosby Co., St. Louis, Mo., 1968; (*a*) p. 552.

(*5*) Fowler, W.: Principal provisions of smallpox vaccination laws and regulations in the United States. Public Health Rep 56: 167–189, Jan. 31, 1941.

(*6*) Fowler, W.: State diphtheria immunization requirements. Public Health Rep 57: 325–328, Mar. 6, 1942.

(*7*) N.C. Gen. Stat. 1959, art. 9, GS 130–87.

(*8*) Rev. Laws of Hawaii (1955), amend pt. II, ch. 49 § 49–30 (1967).

(*9*) Ky. Rev. Stat. § 214.036, February 1968.

(*10*) Mo. Rev. Stat., House Bill No. 34 (1961).

(*11*) Kansas School Immunization Law, Kans. Stat. Ann., ch. 72 § 5381 (1965).

Films

Sample mounting techniques—Filtration. *Order No. M–1343. Motion picture, 16 mm., color, sound, 6 minutes, 1966.*

SUMMARY: Demonstrates filtration technique for mounting precipitated samples using a vacuum pump, suction flask, filter paper, and filter tower. Shows three types of filter towers—glass, teflon, and stainless steel—and procedure for placing filter paper, through which the sample slurry has passed, in a counting dish and drying it under a heat lamp. After drying, the sample may be counted in the dish or it may be mounted more permanently with a ring and disk for counting. This procedure is also demonstrated.

Gross Radioactivity Analysis of Water. *Order No. M–1344. Motion picture, 16 mm., color, sound, 5½ minutes, 1966.*

SUMMARY: Shows gross alpha and beta counting of water samples involving the preparation of suspended solids and dissolved solids. The suspended solids are removed with a membrane filter apparatus connected to a vacuum; the filter paper is burned away, and only the suspended solid sample is prepared for mounting. The dissolved solids from the filtrate are removed by an inverted volumetric flask method. The flask is placed on a hot plate until all liquid is evaporated, and the remaining solid is allowed to cool in the planchet.

These two films were produced by the National Medical Audiovisual Center for the Bureau of Radiological Health, Public Health Service.

AUDIENCE: Radiochemists, radiobiologists, engineers, laboratory technicians, health physicists, plant safety engineers, and public health personnel. These films are not cleared for television.

AVAILABLE: Free short-term loan from the National Medical Audiovisual Center (Annex), Chamblee, Ga. 30005, Attention: Film Distribution. Purchase from DuArt Film Laboratories, Inc., 245 West 55th St., New York, N.Y. 10019. These films are available also in 8-mm. format (Fairchild cartridge) from Modern Talking Picture Service, Inc., 1212 Avenue of the Americas, New York, N.Y. 10036.

Silent World, Muffled World. *Order No. OM–1279. Motion picture, 16 mm., color, sound, 28 minutes, 1966, cleared for television. Produced by Churchill Films for the Deafness Research Foundation and the American Academy of Ophthalmology and Otolaryngology.*

AUDIENCE: Civic, educational, voluntary, and professional health groups, including medical and paramedical professions.

SUMMARY: Produced to further the understanding of deafness and hearing loss, to stress the need for medical research, and to encourage people with hearing loss or other ear disorders to participate by bequeathing their inner ear structures to the Temporal Bone Banks Program for Ear Research. Narrated by Gregory Peck, the film relates historically the difficulties of speech, education, and normal living for the deafened. Animation explains the physiology of the ear, the mechanics of the hearing process, and the hearing impairment caused by certain disorders of the outer, middle, and inner ear. The film was awarded a blue ribbon at the American Film Festival competition in May 1966 in New York City and was given a Chris Award by the Film Council of Greater Columbus (Ohio).

AVAILABLE: Free short-term loan from National Medical Audiovisual Center (Annex), Chamblee, Ga. 30005, Attention: Film distribution. Captioned version for the deaf from Captioned Films for the Deaf, Office of Education, Department of Health, Education, and Welfare, 400 Maryland Ave. SW., Washington, D.C. 20202. Purchase from DuArt Film Laboratories, Inc., 245 West 55th St., New York, N.Y. 10019.

Program Notes

Safer Glass Doors

Safety markings are required on transparent glass doors and fixed adjacent glass sidelights in mercantile establishments and in public and commercial buildings and structures throughout Maryland.

The Maryland State Board of Health and Mental Hygiene was authorized by the legislature to establish regulations to prevent injuries to persons unfamiliar with areas where glass doors are located. The regulations, which went into effect in March 1969, are enforced by the Maryland State Health Department.

Coronary Care in Colorado

Seventeen of the 18 general hospitals in Colorado with more than 200 general service beds and 13 of the 23 with between 50 and 200 such beds have specialized coronary care units. There are four coronary care units in the 25 specialized hospitals in the State. Many of the hospitals without specialized coronary care units have defibrillators and monitors. For example, only four general hospitals of 25–50 bed capacity do not have defibrillators and monitors.

Also, by the beginning of 1969, a total of 138 registered nurses had completed 38 weeks of course work in the care of the patient on a coronary care unit. These nurses were from 37 hospitals or agencies in 19 communities in Colorado.—*Colorado's Health*, January–February 1969.

New Diagnostic Tool

An "Atlas of Mental Retardation Syndromes" is designed as a ready reference for the physician who is confronted with a child whose appearance suggests mental retardation. The 372 photographs in the book are accompanied by brief descriptions of major diagnostic features, clinical appearance, laboratory and radiological results, patterns of inheritance, and suggested treatment. An exhaustive index of clinical characteristics is listed.

Dr. Sydney S. Gellis and Dr. Murray Feingold, two pediatricians at the Tufts-New England Medical Center, collaborated in the preparation of this new diagnostic aid.—*THIS WEEK in Public Health* (Massachusetts Department of Public Health), June 23, 1969.

War on Rats in Washington, D.C.

A million-dollar war on rats in the District of Columbia was opened officially June 30, 1969, with ceremonies in a city park. The new program, funded by a grant from the Department of Health, Education, and Welfare, represents a multifaceted attack on rats in the Model Cities Area. The program is administered by the District's departments of public health, sanitary engineering, and economic development.

Telling It Like It Is

The staff of the drug abuse program of the Texas State Health Department's division of public health education tries to "tell it like it is." Presentations to junior and senior high school students dispense with philosophizing or preaching and leave students free to decide for themselves whether they should use marihuana.

At every school presentation, Sonny Bono of the singing team "Sonny and Cher" narrates a film entitled "Marihuana" and relates the subject matter to teenagers. Attitudes toward use of marihuana are explored, and arguments and counter-arguments are ventilated.

After the film, "the air is filled with questions." E. C. Nelson of the State's division of public health education tries to answer them, assisted by a pharmacist from the division of food and drugs and often aided also by a physician. If Nelson or his colleagues don't have the answer, the questioner is told, "We do not know precisely, but we'll find out for you."

Since January 1969, approximately 14,000 teenagers have attended the presentations. In the 34 presentations to date, not once has a school official expressed disappointment.—*Texas Health Bulletin*, May 1969.

"Measles Must Go"

Reported cases of measles in Washington State declined from 5,876 cases in 1967 to only 610 in 1968, according to Governor Dan Evans. This decrease, he said, is evidence of the success of a "Measles Must Go" program conducted in the fall of 1967. In this immunization campaign, approximately 116,100 Washington children were immunized at public health clinics. Vaccine sales reports indicated that an additional 10,500 children were immunized by private physicians during the campaign.

The 1967 legislature appropriated $180,000 for the State's contribution to the eradication of measles. In this connection, Dr. Wallace Lane, acting director of the State health department, noted that it has been estimated that the direct cost to the people of Washington for just one measles epidemic year would have been about $2,880,500. And health department epidemiologists had predicted that the winter and spring of 1969 would have been a measles epidemic period.

Deaths per 1,000 Live Births

The provisional U.S. infant mortality rate for 1968, 21.7 deaths per 1,000 live births, is the lowest ever recorded for the United States according to the National Center for Health Statistics, Public Health Service. Fifty years ago the rate was 100.9 deaths per 1,000 live births.

Items for this page: Health departments, health agencies, and others are invited to share their program successes with others by contributing items for brief mention on this page. Flag them for "Program Notes" and address as indicated in masthead.