Immunization Policies and Funding in Maine

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ABOUT MAINE

Maine is a large and largely rural state. In fact, it is one of America’s least populated states, with an estimated population of just over 1 million living in its 33,215 square miles. Geographically, Maine is the largest state in New England and is larger than the other five New England states combined (Aroostook County in the far northeastern corner of the state is so large it covers an area greater than the combined size of Connecticut and Rhode Island). The state is divided into 16 counties (Maine State Immunization Proposal). There are 22 cities, but only one officially urban metropolitan area, Portland (CityMatCH, 1992).

The state’s population (1.2 million) is predominantly white, consisting of 98% white, 0.8% Asian-American, 0.7% African-American, and 0.5% Native American residents. Maine’s population has the highest poverty rate in New England (approximately 11%). Poverty rates range from 6.8% in York County in the south near the New Hampshire border to 19.3% in Washington County on the far-eastern shore.

The state has an average of 14,000 births, and the birth rate is approximately 22 per thousand. The percentage of births to mothers under age 20 has ranged between 8 and 10% in the past few years. Of all births, 28% were to un-married women, and 6% had low birth-weight (Maine State Health Plan). State survey data for 1988–1992 indicated that while virtually all babies had at least the recommended number of well-baby visits, those born at low birth-weight were significantly less likely to receive the usual amount of well-baby care regardless of family income, education, or knowledge of source of pediatric care (PRAMS data, MMWR, 1994). The general success in achieving high levels of well-baby care was attributed to four factors: (1) infant Medicaid eligibility was set at 185% of poverty, (2) two-thirds of primary care physicians participated in the Medicaid Preventive Health Program, (3) “universal” vaccine coverage was ensured for all children, and (4) home visits by nurses emphasized the importance of well-baby care.

PUBLIC HEALTH AND HEALTH CARE FINANCING POLICY

Maine does not have a structured public health system with a network of county health departments and local clinics. There are three city health departments. Of the 71 publicly supported community and rural health centers (Maine State Health Plan), 52 are providers participating in the vaccine distribution program. The Department of Health and its Immunization
Program are primarily dependent on private physicians to deliver personal health services, including immunizations.

Because it is an intensely rural state, Maine faces recurring challenges when trying to allocate an adequate supply and distribution of health providers. Reforms to address health workforce concerns have been adopted by the state legislature.

An estimated 182,000 persons or 15% of the state’s population are uninsured, and the state had 167,000 Medicaid beneficiaries last year. The state has a well-established Medicaid managed program that uses primary care case management (PCCM) to enroll more than 10,000 beneficiaries and uses some managed care plans in the southern counties to enroll more than 5,000 addition individuals. Overall, managed care and health care maintenance organization (HMO) penetration is 10% (Health Policy Tracking Service).

The State Children’s Health Insurance Program (SCHIP) plan was approved by the federal government in August 1998. In Maine, SCHIP uses a combination of Medicaid and a new statewide program known as Cub Care. The SCHIP Medicaid expansion targeted children ages 1 to 18 years in families with incomes up to 150% of the federal poverty level (FPL). Cub Care originally covered families with incomes from 150 to 185% of poverty. Families are required to pay premiums on a sliding scale to participate in Cub Care. The SCHIP eligibility level is scheduled to increase to 200% of FPL on July 1, 2000 (Health Policy Tracking Service).

**IMMUNIZATION PROGRAM ACTIVITIES**

**Structure and Purpose**

Within the state government, the Maine Immunization Program operates under the Maine Department of Human Services, Bureau of Health, Division of Disease Control. The program also receives administrative advice (e.g., on matters such as personnel) and oversight from the Bureau of Health Administration and the Division of Disease Control director. The program director has responsibility for routine management, fiscal accountability, vaccine ordering, and oversight of contracts. In Maine, as in many other states, this means that the direction of the program depends to a large degree on state leadership. The federal government has defined the parameters within which states exercise considerable autonomy in structuring their immunization programs.

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**Box 1 Health Centers**

The network of health centers in Maine includes 72 community health centers and rural health centers, with 52 of these participating in the immunization program. These health centers are privately operated and publicly supported. Thus, they often are considered public providers and sometimes act as private partners. They blend federal and state grants with patient fees, Medicaid dollars, and other third-party payments to provide services for thousands of patients in medically underserved communities. Maine has 41 federally designated Health Manpower Shortage Areas (HMSAs).
The purpose of the Maine Immunization Program is to prevent vaccine-preventable disease by achieving and maintaining high coverage rates, especially among children. Maine’s approach is a universal vaccine purchase program that has been in operation for more than a decade (Freeman et al.). The program relies on a long tradition of private-sector partnerships and has adopted some innovative uses of technology.

Using its unique approach, Maine has achieved high childhood immunization coverage rates (Figure 1). In the early 1990s, about 4 of 10 2-year-olds in Maine were not adequately immunized. Currently, only 1 in 10 is underimmunized. According to National Immunization Survey (NIS) results reported by the Centers for Disease Control and Prevention (CDC), Maine’s coverage rates for children from birth to 2 years of age ranked as the best or among the top rates in the country the late 1990s. In 1994, Maine had an immunization rate of 83% among children 19–35 months of age for the basic series (4-3-1). Maine ranked second in 1998 with a rate of 89% and was number one in 1999 with a rate of 87% coverage for the basic series of childhood immunizations (i.e., four diphtheria–tetanus–pertussis [DTP], three oral poliovirus vaccine [OPV], and one measles–mumps–rubella [MMR]) (NIS data). However, state officials have identified communities with lower rates for young children and will target additional resources to adults and adolescents in the coming year.¹

Achieving these results in immunization coverage required substantial public resources and consistent program efforts. Maine used three primary strategies and recently added a fourth approach.

1. Expanding the number of childhood vaccines purchased through the state and provided at no cost to health professionals and the families they serve. The Maine Immunization Program provides, at no cost to families, all necessary childhood vaccines to all licensed vaccine health care providers in the state.

² Conducting a public awareness campaign regarding the importance of childhood vaccines, specifically including public service announcements, health education materials, and outreach through community-based organizations.

¹ The state relies on the NIS for general population assessment. The only other population-based assessments done in Maine are the school and day care immunization surveys, supported by random validation audits.

Figure 1 Coverage rates, children 19-35 months, Maine, 1995-1998
3. Conducting medical record surveys in all vaccine provider offices every year for three years to assess their practices’ immunization coverage rates and assists with quality improvement.

4. Creating an immunization information system that meets the respective needs of families, providers, and public health agencies.

**Vaccine Utilization and Distribution**

Maine is a universal purchase state, providing vaccine to approximately 500 public and private provider sites statewide. The Maine immunization program is responsible for the ordering, receipt, storage, handling, packing, shipping, accountability, and disposal of vaccines purchased with federal, state, and private insurance funds.

The Vaccines for Children (VFC) Program (see Figure 2) provides federally purchased vaccine to Maine children who are uninsured, Medicaid eligible, Native American, and patients of federally qualified health centers or rural health centers who are underinsured. Operation of the VFC program is somewhat different in universal purchase states. In Maine, notable differences in VFC include integrated ordering and distribution with the general vaccine management procedures, and VFC eligibility information was incorporated into the design of the immunization registry, ImmPact. Similar to other states, the Maine Immunization Program recruits and enrolls VFC providers, conducts quality assurance reviews to ensure provider compliance with VFC rules, maintains provider profiles that include data on doses administered, and evaluates vaccine usage to minimize waste, fraud, and abuse.

**Private-Sector Partnerships**

The success of Maine’s public immunization efforts is in large part attributable to successful partnerships with the private health sector (Table 1). This includes partnerships with private physicians, private health care plans, hospitals, community-based organizations, media leaders, and health centers (see Box 2)
More than 90% of all the vaccine administered in Maine is given by approximately 400 private physician practices that participate in its immunization program. Active partnerships with these health professionals require that the state maintain a provider database, provide professional education and information (e.g., federally required Vaccine Information Statements to be signed by parents), conduct clinic assessments and follow-up, and operate a “help desk” to answer professional questions.

Partnerships with professional associations support communication and policy development. The program director serves as a liaison to the executive committee meetings of the Maine Chapter of the American Academy of Pediatrics (AAP) to advise on immunization issues.

The Maine Immunization Program has established an Immunization Advisory Committee comprised of members from the AAP, Primary Care Association, Maine chapters of the American Association of Family Practitioners (AAFP), American Nurses Association, Medical Association, and Hospital Association, as well as managed care organizations. This advisory committee is designed to assist the state in development of immunization strategies and guidelines.

The Maine Immunization Program has a strong alliance with the Maine HMO council. They have worked jointly to promote the use of practice standards and standardized immunization record keeping and reporting. The state has secured financial support for vaccine purchases.

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2 These figures vary by type of vaccine (See Table 1).
from four managed care organizations: Tufts, Healthsource Maine, NYLCARE, and Harvard-Pilgrim (1999 grant application overview).

- The program has an ongoing relationship with privately operated, publicly supported health centers across the state. These relationships are carried on directly with the health centers as providers and through collaborative projects with their associations. For example, in 1994 the Maine Immunization Program and Maine Ambulatory Care Coalition offered up to $5,000 for each of two communities health centers to develop immunization education and outreach programs. These mini grants were a key component of the community strategy for the states Immunization Action Plan (IAP).

- The Immunization Program maintains ongoing relationships with tribal governments to ensure adequate immunization coverage for three Indian Reservations (Pleasant Point, Indian Township–Princeton, and Penobscot). These locations were one of the target areas for hepatitis B prevention activities in Maine.

- Professional education is another service of the Immunization Program. Routinely, the program assists with technical questions, practice coverage assessment, and so forth. During 1997–1998, the Immunization Program conducted a professional education conference for school nurses and public health nurses, with more than 300 health professionals attending.

- Annual surveys are conducted of schools and day care centers to assess immunization coverage.

- Hospital emergency departments were targeted for an outreach education effort to increase awareness of the availability of vaccines from the state.

- The Immunization Program has a close, ongoing relationship with Maine Infection Control Practitioners who are instrumental in assisting with disease control activities with hospitalized patients and occasionally assist with community outbreak control.

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<tr>
<th>Table 1. Provider Sites Receiving Publicly Purchased Vaccine, Maine, 1999</th>
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<tr>
<td><strong>Registered as Provider with State as of 12/21/99</strong></td>
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<tr>
<td>Publicly supported clinics</td>
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**Public-Sector Partnerships**

Public-sector, interagency partnerships also support the Immunization Program and its activities. Current internal partnerships include the Supplemental Nutrition Program for Women, Infants, and Children (WIC); the Division of Child and Family Health (maternal and child health, MCH), Head Start, the Lead Prevention Program, the Diabetes Prevention Program, public health laboratories, the Bureau of Medical Services, and the Medicaid program.
• The state’s immunization registry program provides information to help families with eligible children benefit from Medicaid or SCHIP coverage. Specifically, outreach efforts are enhanced through the identification of uninsured, eligible children.

• Through a collaborative relationship with Medicaid, the program provides outreach, follow-up, and referral services to ensure that Medicaid-eligible children receive appropriate services including immunizations through the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program. These EPSDT outreach and follow-up services are required under federal law.

• The state’s WIC program requires all of its local sites to review client immunization levels at each recertification visit and provides vaccine information and educational materials to families in its service. The Immunization Program conducts in-service training at each of the 11 permanent WIC sites. In 1995, Maine used supplemental infrastructure funding (carryover funds) to upgrade the computer software at WIC agencies in order to facilitate immunization record keeping. Currently, efforts are under way to improve this cooperative venture.

Technology and Communication

The Immunization Program uses a unique combination of public health and information technology strategies to carry out its mission. The state’s immunization registry is at the center of its efforts to maximize technological capacity to get work done. Immunization Program communications activities also rely heavily on new technology. Such uses of technology are appropriate and effective for a large rural state.

The Maine and New Hampshire Immunization Programs co-developed an immunization registry called ImmPact. This is a lifetime (i.e., not just childhood) immunization registry that will recommend vaccines and schedules for all populations. ImmPact has a wide variety of functions and features, including consolidated records, use of electronic birth certificates, one-step official record retrieval for patients, automated recall and reminder lists, on-line access to all functions for providers (including on-line shipping and ordering), VFC eligibility verification, and firewall and data encryption security. ImmPact started pilot operations in 10 provider sites on August 1998 and expanded to 40 sites in its first year of operation. The current goal is to serve the top 100 providers (according to volume) in fiscal year (FY) 2000 and enroll most of the remaining providers by mid-2001.

The state identifies the most important functions and benefits of the ImmPact information system as follows. For health care providers, ImmPact

• provides information to health care providers about the immunization status of the children they care for;
• keeps track of the amount and type of vaccines providers are using, as well as ordering and shipping vaccine as needed;
• helps providers easily identify those children whose immunizations are due or overdue, as well as those who should have a well-child examination;
• gives providers information that can be used for continuous quality improvement in their practice;
• analyzes immunization rates by region and local area to help public health officials identify areas where children are unprotected and are at risk for preventable disease; and
• gives all vaccine providers access to the Internet, as well as two-way communication with the state public health agency.

For families, ImmPact can
• give parents the option to participate or not;
• protect confidentiality by limiting who can see a child’s immunization record;
• provide an up-to-date immunization record when needed by a family for entry into day care, school entry, or camp, as well as other reasons;
• help the family and its health care provider decide which immunizations to administer to a child (particularly important given the complexity of the schedule); and
• help identify uninsured children, who are eligible for, but not enrolled in, SCHIP and Medicaid.

Infrastructure funding is essential for this activity. Ongoing support from federal Section 317 funds is essential to maintaining positions for the technical staff who program and operate ImmPact. While federal, state, and private funds supported development of ImmPact, it cannot be maintained without federal grant support.

With additional funding, states hope to stabilize ImmPact in the face of today’s changing technology (e.g., make it compliant with HL7 technology, maximize interstate record retrieval capacity, and upgrade security). They also hope to expand the use of ImmPact data for assessment and other quality improvement activities in provider offices. This can be done without compromising patient confidentiality and could yield savings by reducing labor-intensive, manual record reviews now done by staff.

Quality Improvement and Accountability

Quality improvement and accountability are key components of any state immunization program and are supported primarily by Section 317 funds. However, the public health department’s task of ensuring quality and safety is particularly challenging in a state where more than 90% of vaccines are administered in the private sector. Using partnerships, technology, and regional/or local staff, Maine has developed a relatively strong quality improvement program.

Maine’s Immunization Program conducts yearly clinic assessments in all publicly supported clinical sites and in a proportion of the private sector. This function is part of the state–provider agreement. The clinic assessment process uses the quality improvement tool developed by CDC known as AFIX (Assessment, Feedback, Incentives, and eXchange of information). This process includes in-service training to incorporate the “Standards for Pediatric Immunization Practices” as part of the clinical routine. At the present time, the state is conducting assessments with approximately 50 private immunization provider practices each year. As publicly supported providers the health centers are considered part of the public health delivery system and are held accountable for AFIX clinic assessments and other reporting. Sites that have reached the Year 2000 National Immunization Goal (90% coverage of children 12–35 months) are recognized at an awards ceremony conducted by the Immunization Program.

The state has a variety of procedures to ensure fiscal accountability for VFC, including on-site quality assurance visits to providers. Additional procedures are in place to minimize vaccine loss and wastage, fraud and abuse of vaccines, and administration of vaccine to non-eligible children.
Another important aspect of quality improvement for an immunization program is surveillance to track disease and adverse event rates. If either rate were high or growing, it would be an indicator of weaknesses in the program. As disease levels decline, the challenge of disease surveillance grows (i.e., while it is tougher to find the last isolated cases, public health agencies must maintain vigilance to prevent larger disease outbreaks and epidemics). Providers and parents are less likely to recognize and report disease, and isolated cases are more difficult to identify and confirm.

In terms of safety and adverse effects, the state encourages reporting of suspected and actual adverse events, initiates investigations within 24 hours of reports, and makes monthly follow-up reports to the national Vaccine Adverse Events Reporting System (VAERS). The Maine Immunization Program receives support from the Maine Epidemiology Program and the Maine Health and Environmental Laboratories in its surveillance efforts.

The ImmPact registry provides an additional tool for quality assurance and quality improvement. As the registry becomes fully operational (i.e., being updated routinely with information for all children from all providers), it will enable the Immunization Program to identify pockets of need where immunization coverage rates are low and to measure success. It also can help monitor vaccine supply and safety.

**IMMUNIZATION FINANCE**

The average cost of purchasing the basic series of vaccines for a child between birth and age 2 years was $228 in 1983 and more than $325 by 1997 (Overview of Maine Immunization Program). As new vaccines are added to the recommended series (e.g., varicella in 1997, pneumococcal vaccines in 1999), vaccine costs continue to rise. While immunizations are cost-effective and long-term savings accrue, purchasing vaccine has become a larger short-term cost to families, providers (who must pay to stock vaccine if purchased privately), and those who pay for health coverage.

By providing vaccines at no cost to all providers and individuals, Maine’s universal purchase program is designed to pool resources and purchase vaccines at the best available price. The state uses federal and state tax dollars, combined with voluntary contributions from health insurance plans, to purchase vaccines at the federal contract price (see Figure 3). Purchasing at the lowest
price possible yields savings for the state, its citizens, and businesses. “Since Maine is a universal state . . . these savings are passed on to the payers whether they are families, insurers, [or employers]” (Overview of the Maine Immunization Program).

**Federal Section 317 Grants**

*Infrastructure Funding (Section 317 Financial Assistance)*

Figure 4 shows the allocation of 317 funds for infrastructure and operational activities. The distribution is fairly consistent over the years, with the exception of 1998 when the cost for equipment to set up the *ImmPact* information initiative was much larger than usual. Personnel, travel, and supplies have not increased significantly.

Contractual arrangements have been increasing recently. In 1999, these included agreements for production of vaccine information statements and health education materials outreach conducted through local health departments, software development, and data analysis. Another large contract in recent years was set up with WIC to upgrade computers and to purchase public information video kiosks. Internal Department of Health contracts also have been used to implement an electronic birth certificate system.

Maine used carryover funds to improve its immunization infrastructure and made investments in technology development that continue to pay off for the program today. Some examples include:

- startup for the immunization registry that would eventually blend public and private resources for final development and be available in both Maine and New Hampshire;
- restructure the vaccine ordering (VACMAN) system to allow orders to be processed from a wider area (1995) and develop linkages (i.e., interface) between VACMAN and the immunization registry;
- upgrade immunization software in WIC sites;
- improve internal information system and supports such as the local area network (LAN);
- improve and maintain refrigerators and freezers used to maintain vaccine supplies; and
- purchase notebook computers to be used by immunization staff who works extensively in the field away from their desks on activities such as surveillance and assessment.

**Vaccines for Children Program**

As is true across the country, VFC provides an opportunity to purchase vaccines at the best possible price and distribute these vaccines at no cost to those who provide services for low-income, uninsured, and underinsured children. VFC program funds are used to purchase vaccines for more than half of Maine’s children, with two-thirds of this group enrolled in Medicaid (see Figure 5). These figures are a reflection of both the fact that many Maine children are poor and the fact that the state legislature has set Medicaid eligibility levels relatively high. As the state began SCHIP implementation, a substantial proportion of children in Maine were uninsured (14% of the total child population receiving vaccines and 25% of the group using VFC). Much of this group will become eligible for SCHIP in July 2000. Notice also that the share of children who are underinsured and served in health centers is quite small (4% of the total child population receiving vaccines and 6% of the group using VFC).

**State General Revenues**

By choosing to use a universal vaccine purchase approach, Maine has made a commitment to state funding for its Immunization Program. Figure 6 shows the variations in state contributions over the past decade. The implementation of VFC and the contributions of private managed care plans have permitted the state to reduce funding somewhat.

The average for the FY 1990–1999 period was approximately $380,000. This is also roughly the amount appropriated by the state legislature for FY 1999. On a per-child basis, Maine spent about $4.50 per child in 1999 to ensure high immunization coverage, low disease rates, and access to vaccines for all children regardless of family income. This contrasts with several large states with little or no state dollar contribution to vaccine purchase (e.g., California).
Private-Sector Direct Contributions

During the past five years, several managed care organizations have provided annual contributions to the Maine Immunization Program for the purchase and distribution of additional vaccines. These contributions are based on the proportion of children covered by the plan (market share). The funds are used only to purchase vaccines and do not support general program operating expenses or vaccine administration costs. By adding these private-sector dollars to the pool of funds available, the state has been able to increase the number of vaccines available, the age groups covered, and the volume of vaccines administered.

Without these resources as leverage, far less would be possible. However, the amount of plan contributions has been increasing steadily. The state is concerned that, this year, managed care organizations (MCOs) may be unwilling to increase their contribution again to offset the cost of pneumococcal vaccine. Moreover, the plans are concerned that as federal Section 317 grant dollars are reduced, they may be bearing more than their fair share of costs. Maine MCOs as is true for virtually all-private payers, want to avoid cost shifting from the public sector.

1. **A universal vaccine purchase program depends on maximal use of all available sources of funding.** Maine set a goal to ensure that immunizations are available and affordable to all children. The state has increased the amount available to purchase vaccine by pooling federal, state, and private health plan dollars. However, the state also must make up for shortfalls caused by new programs (e.g., SCHIP), new vaccines, or other additional costs (e.g., vaccine price inflation). The universal approach also means that the state has to identify dollars to fund the distribution and management costs of the system, including provider technical assistance and information technology.

2. **The combination of pooling resources and establishing a visionary immunization program has enabled Maine to achieve high coverage rates.** Coverage rates are high and rising, placing Maine in the top ranks among all the states. Maine public health officials believe that this would not have been possible without the universal purchase approach and the ImmPact information system.

3. **Federal Section 317 funds are a vital component of the universal purchase approach.** State officials strongly expressed the view that further cuts in 317 grants could undermine the universal purchase strategy of a state such as Maine. The state legislature is unlikely to replace
the $2 million to $3 million in federal 317 grant funding now being used to anchor the Maine Immunization Program. Other universal purchase states in New England are facing similar dilemmas.

4. **Federal Section 317 funds have been used to make investments in infrastructure.** The state has made investments in information technology—particularly through the first Internet-based, multistate immunization registry—which make sense in a geographically large, predominantly rural state and can be expected to payoff in the long run. In addition, these funds have been used to increase the role of WIC sites in improving immunization.

5. **New vaccines on the market increase fiscal pressures.** Absorbing the cost of new vaccines in a universal purchase state can pose substantial challenges. Given the nature of the public–private partnership in Maine, increased vaccine purchase costs put pressure on federal, state, and health plan resources. So far, the state has been able to insulate families from these pressures. Moreover, unlike some other states, Maine has not been forced recently to ration vaccines to certain age groups or delay introduction of new vaccines at publicly supported clinics under the current state financing scheme. The state is concerned that the cost of providing pneumococcal vaccine could have an adverse impact (e.g., causing managed care plans to reduce contributions or the state legislature to say that the universal purchase program is not sustainable).

6. **There is a limit to the elasticity of the Maine public–private partnership for immunization financing.** Private payers and plans are willing to contribute their share but not to make up for shortfalls in public-sector funding. This is the same phenomenon that has been seen elsewhere in U.S. health care financing, particularly in the case of Medicaid.

7. **Maine’s state-appropriated funds for vaccine purchase and its Immunization Program activities are high on a per capita basis and represent a commitment to matching available federal dollars.**