Colorado childhood immunization rates: Policy and practice

CHI

policy brief

Colorado Health Institute

Denver, Colorado

Colorado childhood immunization rates: Policy and practice

Three things to know …

- Colorado enjoys 2-year old immunization rates that approach Healthy People 2010 objectives for all recommended vaccines except the fourth dose of diphtheria, tetanus and pertussis (DTaP).
- To the extent that under-immunized children reside in geographic, cultural or economic pockets of need, the risk associated with a vaccine-preventable outbreak is heightened.
- Childhood poverty is the most frequently cited risk factor for under-immunization.

INTRODUCTION

According to a national survey conducted by the Centers for Disease Control and Prevention (CDC), in 2002 and 2003, Colorado ranked 50th in vaccination coverage among 2-year olds (defined as 19-35 months of age) for the 4:3:1:3:3 combined vaccine series. While this ranking brought Colorado some notoriety and media coverage, it also focused a spotlight on the state's public immunization policies and brought legislative attention to the issue. Many immunization stakeholders welcome the attention to this important public health issue, but the debate has polarized various constituencies and politicized the data. Both sides of the debate cite the same CDC data to draw opposite conclusions. Some claim Colorado immunization coverage rates signal a looming public health crisis; whereas, others consider the current vaccination levels sufficient to protect the public's health.

A recent Colorado Health Institute (CHI) white paper scratches beneath the surface of the state ranking to clarify the nature of the problem and identify issues that deserve more focused attention. This policy brief summarizes the findings of the white paper. To obtain a copy of the white paper, visit the CHI Website at www.coloradohealthinstitute.org.

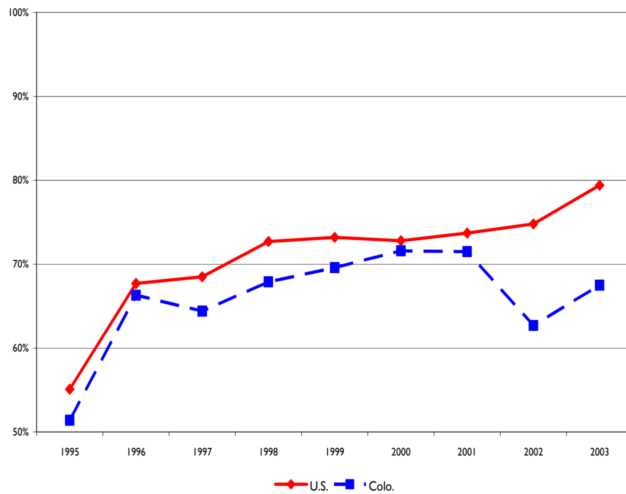
WHAT DOES THE RANKING MEAN?

The CDC conducts an annual National Immunization Survey (NIS) to collect national information about 2-year old immunization rates for individual vaccines as well as the 4:3:1:3:3 combined immunization series. The combined series includes four doses of diphtheria, tetanus and pertussis (DTaP); three doses of polio; one dose of measles, mumps and rubella (MMR); three doses of haemophilius influenzae type b (Hib); and three doses of hepatitis B (Hep B) vaccine. Colorado's ranking for the combined series is based on the results of the NIS.

Nationally, 2-year old immunization rates have reached all time highs, meeting the CDC's Healthy People 2010 objective of 80 percent coverage for the combined 4:3:1:3:3 series for 2-year olds. In 2002 and 2003, Colorado's coverage rates for the combined series were 63 percent and 68 percent respectively, ranking Colorado 50th in the nation.

Despite the state's lower coverage rate for the combined series, Colorado children enjoy 2-year old immunization rates that approach Healthy People 2010 objectives for all recommended individual vaccines, except the fourth dose of DTaP. As illustrated in Graph 1, Colorado's coverage rate for the combined series through 2001 tracked slightly lower than the national average, but then sharply diverged from the national rate during 2002 and 2003. The drop in Colorado's combined series coverage rate was driven by a time limited national vaccine shortage of DTaP vaccine that led the state to suspend its requirement that the fourth dose of DTaP be administered by 18-months of age.

Graph1: Combined vaccination series (4:3:1:3:3) for 2-year old children, Colorado and U.S.



Source: National Immunization Survey (1995-2003)

Scratching Beneath the Surface

The fact that Colorado ranked 50th in 2002 and 2003 is not an adequate problem statement. The state ranking may indicate that a problem likely exists, but a more nuanced analysis reveals three inter-related issues that deserve focused policy attention:

- The timeliness of all immunizations needs improvement, especially for infants under the age of 12-months;
- Pockets of need exist and result in concentrations of under-immunized children; and,
- Providers and programs need to ensure the fourth dose of DTaP is administered by 18 months of age.

Timeliness

Many Colorado children do not receive vaccinations at the recommended age. High vaccination rates for 2-year olds create a false sense of security that dissipates when one examines the lower coverage rates for infants under the age of twelve months, especially since infants are most susceptible to adverse outcomes from infectious diseases. For example, an infant develops maximum immunity against pertussis, commonly known as whooping cough, only after receiving the third of five recommended DTaP shots. The third shot is due when the infant is 6-months old. The fourth and fifth doses are booster shots. In 2003, Colorado's coverage rate for the third DTaP shot at 7-months was only 65 percent as reported by the NIS; this rate increased to 93 percent by 19-months of age. In this case, under-immunized infants tended to "catch up" and did not have a negative impact on reported 2-year old rates, but the low 7-month DTaP rate indicates a timeliness issue that puts these young infants at increased risk.

Under-immunized populations

Colorado rates vary by poverty, race, ethnicity, and provider type. Therefore, Colorado has pockets of under-immunized children, but they are difficult to identify because Colorado does not have a statewide immunization registry containing child-specific vaccination histories. In the absence of a statewide registry, the Colorado Department of Public Health and Environment (CDPHE) uses demographic risk factors to profile populations at risk, thus identifying geographic concentrations of children to target for immunization outreach programs.

Child poverty is the single most significant risk factor for under-immunization. Income influences immunization rates in a variety of ways, including parental knowledge and attitudes; reliance on publicly-financed health care services; inadequate insurance coverage; lack of childcare; and other health care access barriers. In addition, although national

immunization rates for all racial and ethnic groups have improved, racial and ethnic disparities remain. In Colorado, these disparities are most visible among Hispanic children because they are the largest ethnic minority group in the state, and the only group for whom data exist.

Because under-immunized children tend to reside in geographic, cultural, or economic pockets of need, the risk associated with a disease outbreak in these communities increases.

DTaP Vaccine Administration
In 2001, Colorado was part of a national DTaP vaccine shortage that caused the state's lower combined coverage rates in 2002 and 2003. CDPHE has statutory authority to ensure access to immunization services for certain low-income infants and children. Because it did not have sufficient vaccine to meet this statutory requirement, the state suspended its school entry requirement for the fourth and fifth doses of DTaP between April 2001 and October 2002. Other states suspended only the fifth dose, and used state funds to purchase higher priced DTaP vaccine during the shortage. Because of budget constraints, CDPHE did not purchase the higher priced vaccine, although private providers tended to purchase the higher cost vaccines. As a result, the DTaP shortage disproportionately affected Colorado children in public programs like the Vaccines for Children Program, a federal program that provides free vaccines to children who are uninsured, Medicaid-eligible, under-insured, Native Americans and Alaskan Natives.

In October 2002, the CDC recommended states begin contacting the parents of children who missed their fourth and fifth DTaP doses during the shortage. Colorado delayed this notification until 2003, when public health clinics, private providers and others initiated individual efforts to contact these children. In 2003, approximately 25 percent of Colorado's 2-year olds had not received the complete, up-to-date DTaP series. The 73 percent coverage rate for the DTaP series was well below the Healthy People 2010 objective of 90 percent for individual vaccines, and was also low relative to the national average of 85 percent.

Colorado's Current Immunization Policies and Programs

A variety of public and private programs and policies comprise Colorado's immunization infrastructure. A review of these reveals a number of financial and structural access issues:

- Administrative and financial barriers in the federal Vaccines for Children (VFC) Program limit family and provider participation;
- Many financial barriers affect immunization coverage rates including restrictive eligibility criteria for public insurance programs, low provider participation in Medicaid, limited immunization coverage in segments of the private insurance market, and lack of regulatory control over self-funded insurance plans;
- Structural barriers affecting immunization rates include inadequate public health capacity, delays in newborn enrollment in the Child Health Plan Plus (CHP+) and Medicaid programs, clinical hours that are incompatible with parents' work schedules, and transportation challenges for low-income families;

- Current data limitations impede the development of a comprehensive immunization planning effort;
- Successful public and private models exist in Colorado that have demonstrated high immunization rates among at-risk populations; and,
- Lack of coordination between public agencies administering immunization programs has limited the state's ability to maximize program impact, largely because of fragmented funding streams that flow to different state agencies.

Options for Improving Colorado Immunization Rates

The Colorado Health Institute has identified three opportunities for improving immunization policy and program development in Colorado.

Option I- *Create a state-level vision and plan that strengthens coordination between the programs currently administered by the Department of Health Care Policy and Financing (HCPF) and the Department of Public Health and the Environment (CDPHE) and builds on the active involvement of the private sector.*

Colorado should develop a unified state-level vision and strategic plan for improving immunization coverage. This action plan could coordinate the independent efforts of the various immunization programs and activities administered by HCPF and CDPHE, while also including the active participation of private sector interests. These coordination efforts will require leadership at the highest level of state government, i.e., the Governor's Office or its designee, in partnership with the state agencies, to ensure the active participation of agency staff at all levels. High-level leadership can occur through legislative action or cooperative planning processes such as an interagency task force, a blue ribbon panel, or both. Next steps will necessarily include key public and private decision-makers articulating a shared vision; clarifying respective roles and responsibilities at the state agency and community level; and developing an accountability structure that tracks overall system and individual program performance over time.

Option II- *Invest in information systems to improve data for planning, evaluation and immunization program monitoring purposes.*

Colorado's lack of child-level immunization data limits state agencies' ability to target programs and assess their effectiveness. Currently, immunization program staff makes use of national data in combination with statewide and regional demographic data to target programs to under-immunized populations. While maximizing the use of available demographic data is an appropriate strategy given the lack of child-specific information, this method hampers state efforts to precisely target geographic pockets of need.

Public and private funders should consider both short- and long-term information needs when assessing the outcomes associated with different intervention options. Information investments that track the immunization status of children include variations on the following two strategies:

- Immunization-specific registries that collect child-level immunization data at the community and state levels; and
- System-wide health information technologies and community and state level networks that exchange health information including personal health

records and a broad range of clinical and administrative data.

Option 111- *Make strategic investments that improve access to immunizations and address Colorado immunization priorities.*

Ensuring that Colorado children receive vaccinations according to the recommended schedule will likely require additional resources and strategic investments. Ideally, funders would have a state strategic plan available as described in Option 1. Until such a plan exists, Option III offers preliminary guidance to funders on how they might assess the merits of new or existing immunization program proposals.

- Identify the target population
  Proposals should clearly identify the target population to be served based on a Colorado "pockets of need" analysis.
- Link intervention goals to identified population need
  Intervention strategies should clearly describe the program theory that connects the intervention to the immunization coverage goal.
- Emphasize a Colorado context
  In addition to addressing Colorado-specific immunization goals, proposals should demonstrate knowledge of Colorado environmental factors including subgroup needs, infrastructure issues, and existing program performance factors.
- Encourage evidence-based interventions
  In contrast to other health issue areas, scholars and scientists have studied immunization programs. Funders should consider the immunization research literature recently synthesized by the CDC Task Force on Community Preventive Services.
- Consider rural, minority and other special populations
  Proposals should describe the target population to be served in terms of race, ethnicity, and geographic location.

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