

Childhood Immunizations: Beyond HEDIS

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Abstract

This study evaluated the adequacy of the Health Plan Employer Data Information Set (HEDIS) quality indicator for childhood immunizations. During 1993, the medical records of 1,165 children aged 2 to 4 years were reviewed for (1) the length of continuous care in a managed care organization during the first 2 years of life; and (2) immunization status. Only 66% of the patients seen before they were 2 years of age fit HEDIS criteria for inclusion within its quality indicator. Thirty-four percent had transferred to the managed care organization after 42 days of age or had transferred from the organization before 2 years of age; these children therefore were excluded. Of the 473 medical records of patients who had transferred to the managed care organization, 22% lacked a completed past medical history form, and 32% lacked complete documentation of previous immunizations. The large number of children excluded from the present HEDIS childhood immunization indicator represent a public health concern. Managed care organizations should expand the criteria used in the immunization quality indicator and should improve the manner in which new patients are integrated into the healthcare system of their new provider.

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The US Public Health Service set the goal of having 90% of 2-year-old children fully immunized by the year 2000.¹ The National Committee for Quality Assurance (NCQA) has emphasized the importance of adequate childhood immunization by including it as a quality indicator used

during accreditation. All managed care organizations are expected to meet or exceed all of the quality indicators obtained from the Health Plan Employer Data Information Set (HEDIS).² However, the HEDIS childhood immunization quality indicator differs somewhat from the goal of *Healthy People 2000* in that it holds health plans accountable only for children under their continuous care from 42 days of age through their second birthday.

The American Association of Health Plans reported a mean annual disenrollment rate for 1993 of 16.5%, with a 95% confidence interval of 0% to 33.1%. Children who do not remain with one insurer for their first 2 years of life are not accounted for by any health plan. This situation presents a potential problem if one hopes that managed care's success at meeting the HEDIS goals will translate into similar success on a national level. The Centers for Disease Control and Prevention (CDC) estimates the national childhood immunization rate as 75%,³ whereas many large health plans report immunization rates greater than 90%.

In one managed care organization, the documented immunization rate of 2-year-old children was proportional to the length of time spent with the healthcare provider.⁴ Children who were enrolled with the provider for the entire first 2 years had an immunization rate of 88%, whereas those enrolled for 6 months or less had an immunization rate of 62%. A precise immunization rate for children who change providers during the first 2 years of life has not been established.

Although obtaining an accurate history of immunizations during a complete past medical history (PMH) is considered the standard of care, it is not measured by the HEDIS indicator. This study sought to determine the percentage of 2-year-old children not included in the HEDIS childhood immunization quality indicator. It also evaluated the process by which new patients were integrated into the care of the new provider. These findings are considered in the context of other published data on the delivery of childhood immunizations.

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... METHODS ...

We used data obtained during a larger investigation of childhood immunization delivery at Thomas-Davis Medical Centers (TDMC), which serves primarily a managed care population. Nine board-certified pediatricians provide care in the regular day pediatric clinic. The methods used to obtain the data have been described in detail elsewhere.⁵

During May and June of 1993, we reviewed the charts of 2- to 4-year-old patients who were listed in the database as having their primary care pediatrician at the main TDMC clinic; 1,165 charts were reviewed. After reviewing the immunization record and/or copies of transferred records in the patient chart, a nurse or medical assistant listed all immunizations that the children had received. The presence of a completed PMH form also was documented. Patients who had received 4-DPT, 3-OPV, 1-MMR, and 1-HIB vaccine on or before their second birthday as defined by the childhood immunization quality indicator of HEDIS were classified as up-to-date.² The investigator reviewed the charts of all patients identified as not up-to-date by 2 years of age for additional information on immunization status from physicians' notes.

Charts of patients that contained documentation about the transfer of care from the clinic during the first 2 years of life were considered inactive. Patients also were classified as inactive if they had not been seen for 1 1/2 years and if that period began before the children had reached their second birthday.

Information on the study population was obtained by sending questionnaires to the parents of the children. Seventy-four percent of those mailed questionnaires responded. Statistical Package for the Social Sciences software (SPSS, Inc., Chicago, IL) was used to analyze the data.⁶

... RESULTS ...

Eighty-three percent of the parents who returned questionnaires had at least a high school education. Eighty-four percent of the children lived in homes with married parents, 14% lived with a single parent, and the remainder lived with another caretaker. Ten percent of household incomes were below \$10,000 annually, 50% were below \$30,000, and 84% were less than \$50,000. TDMC did not accept Medicaid at the time that these patients received care. Forty-seven percent of the population was female.

Of the 1,165 charts reviewed, 186 (16%) were of patients who entered the TDMC system after 2 years of age and were therefore excluded from additional

analysis. We do not know how many of these patients received 2 years of continuous care during the first 2 years of life under a previous health plan. Thirty-nine (3%) were classified as inactive. These charts represent children who initiated their care at TDMC but who transferred to another healthcare provider before reaching 2 years of age.

The remaining 940 charts represent children who received care at TDMC at age 2 years. Of this group, 287 (31%) belonged to patients who transferred to TDMC after 42 days of age but before 2 years of age, whereas 652 (69%) fulfilled HEDIS criteria for inclusion in the childhood immunization quality indicator. Of the 652 children, 88% were up-to-date. However, as published elsewhere, the immunization rate decreased proportionally as the time spent at TDMC during the first 2 years of life decreased.⁴

The overall immunization rate for the group of 1,126 active patients was 74%. The lack of adequate documentation of immunizations provided at previous healthcare providers largely appears to explain this rate, as 32% of the charts of patients who transferred care to TDMC failed to contain complete documentation of immunization status. According to a review of the 153 charts lacking complete documentation, physician notes documented that 42% of the children had been reported to be up-to-date by their parents or guardians. Twelve percent apparently were deficient, although chart documentation was incomplete. No effort appeared to have been made to obtain immunization information on 42% of the charts; parents reported the immunization status as unknown on 4%. Only 78% of patients transferring care to TDMC had a completed PMH form documented in the medical record.

... DISCUSSION ...

Managed care organizations have reported high rates of childhood immunization when using the HEDIS quality indicator. However, the patients included in HEDIS have had continuity of care for 2 years and, presumably, documentation of immunization that can be retrieved accurately from their medical records. In light of the high level of mobility in our society and the high rates of disenrollment (involuntary and voluntary) occurring in some health plans, it is not surprising that the HEDIS criteria exclude a substantial number of the children who receive care from managed care organizations. This study, in which only 69% of 2-year-old children celebrating their second birthday while under TDMC's care fit the HEDIS criteria, confirms that the criteria are too strict.

Recently, the CDC and managed care organizations met to discuss methods by which managed care can assist in improving the overall health of people living in the United States.⁶ Clearly, a quality indicator that is so restrictive as to exclude 31% of a given population is inadequate. A change is warranted if its use is to translate into an improvement in overall public health.

One of the primary problems has been that of inadequate documentation of previous immunizations. In this study, 32% of patients transferring care to TDMC after 42 days of age lacked adequate documentation of past immunizations. Inadequate documentation is a cause of missed opportunities to vaccinate, which occur when a child, deficient in immunizations, presents to a healthcare provider but does not receive immunizations as part of his or her care. Because deficiency of an immunization is a risk factor for deficiencies of other preventive services, these missed opportunities represent significant inefficiencies in the delivery of preventive services.⁷ Visit rates under capitated arrangements are higher than under fee-for-service; thus, missed opportunities to vaccinate also represent missed opportunities to provide multiple services during a given visit and, therefore, to decrease the overall visit rate. Even if preventive services are not provided at a visit, compliance with return visits was twice as high when a healthcare provider discussed the deficiency during the visit and requested a follow-up appointment as when no physician-parent interchange occurred.⁵ To improve performance in these areas, a patient's immunization record must be readily accessible in the medical record.

Some might argue that they should not be held responsible for a child for whom they had provided care during only part of the first 2 years of life. However, a 1-year-old child who enters a new healthcare system without having received previous immunizations can be brought up-to-date within 8 months.⁸ I would argue that that level of care should fall under the responsibility of the new provider, yet this can occur only if an immunization history is obtained at the time of transfer of care.

Although obtaining a complete PMH from each new patient to a healthcare facility should be an essential component of the medical care provided, only 78% of patients in this study who transferred care after 42 days of life had completed PMH forms. Thirty-two percent lacked complete documentation of previous immunizations. This documentation can be retrieved from parent-held immunization cards or past providers' records, but it is difficult to obtain. We

had a poor success rate at obtaining these records, even after making multiple attempts to contact the parents of study children whose records did not contain the immunization information. Other researchers⁹ have had similar results.

The development of statewide, computerized immunization registries, which will provide the necessary information relatively easily, recently have been proposed.¹⁰ Many states, including Arizona, have initiated these programs by covering the infrastructure development costs with grants from the CDC and/or private philanthropic organizations. The CDC has provided software support.¹¹ Although healthcare providers in Arizona are responsible for expenses incurred while connecting to the registry, the inclusion of providers in all stages of the development process has produced a system with wide compatibility and popularity. Managed care organizations in the state will be able to report accurately all immunizations received by their 2-year-old members, regardless of the site of the vaccination. All managed care organizations should be strong supporters of these systems.

It seems intuitively obvious that managed care organizations and the NCQA should not exclude a large proportion of the managed care population from the NCQA quality indicators. The denominator of the HEDIS indicator should be expanded to include all children completing their second birthday while under the care of a given organization. One practical method to achieve this goal would be to advance the date of enrollment cutoff (currently 42 days) by 6 months each year, so that, by the year 2000, the NCQA will be in step with the immunization goal of *Healthy People 2000*. This change will provide the impetus to emphasize to parents the importance of maintaining toddlers' immunization records. It should increase support for and involvement in statewide electronic immunization registries. Most important, it will serve to improve the immunization rate of all children and will accomplish what all quality indicators should accomplish—ensure improved health for all patients.

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