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# Capitation payment rates and implications for the general pediatrician

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Many pediatricians are beginning to sign capitated contracts that require them to provide services to children on an annual basis for a predetermined price. However, not all children have the same expected cost. Children with chronic illnesses, for example, are much more likely to incur higher costs than their healthy peers. This article summarizes the recent literature on payment systems that have been developed to establish capitated rates. It also summarizes other methods for reducing the risk that pediatricians face when they accept capitated payments. Finally, it discusses physicians' perceptions of how capitation affects their practice.

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## Abbreviations

**MCO** managed care organization  
**NACHRI** National Association of Children's Hospitals and Related Institutions

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Capitation is becoming an increasingly common method for paying managed care organizations (MCOs) as well as many of the physicians who work for them. According to a recent survey by the American Medical Association, the percentage of physicians with at least one capitated contract increased from 26% in 1994 to 33% in 1995 [1]. Other data indicate that, nationally, approximately half of all primary care physicians receive at least part of their income from capitated arrangements [2,3]. Simply defined, capitation is a payment arrangement in which an MCO or physician group receives a fixed premium for each enrolled person, independent of the services provided to that specific person. Inherent in any capitated contract is some degree of financial risk, defined as the potential to make or lose money, earn more or less than anticipated, or spend more or less time with the child without additional payment [4].

The MCOs that accept capitated contracts often look to share some of their financial risk by "sub-capitating" physicians [5]. Under this arrangement, physicians receive a capitated payment and accept all (full capitation) or some (partial capitation) of the financial risk of treating the MCO's patients. Alternatively, physician groups with sufficient size, and organizational and financial backing may accept capitated payments directly from third-party payers such as Medicaid. These are known as *provider services organizations*.

Many pediatricians are willing to accept the financial risks of capitation because they enjoy greater clinical freedom under prepaid contracts. Pediatricians may use their capitated payments as they wish, leaving them free to develop cost-effective delivery systems and implement new paradigms in clinical management [6]. On the other hand, individual pediatricians and pediatric groups must be able to judge whether capitation rates are adequate for the mix of children in their panel.

## The need for risk adjustment

### Policy indications

Critics have argued that capitated health plans may be more likely to succeed by enrolling healthy people ("cream skinning") than by improving efficiency [7]. Specific risk selection strategies include attracting healthy patients through marketing techniques, discouraging high-risk individuals from enrolling, and encouraging high-risk individuals to disenroll [8]. By excluding pediatric specialists from their networks and restricting access

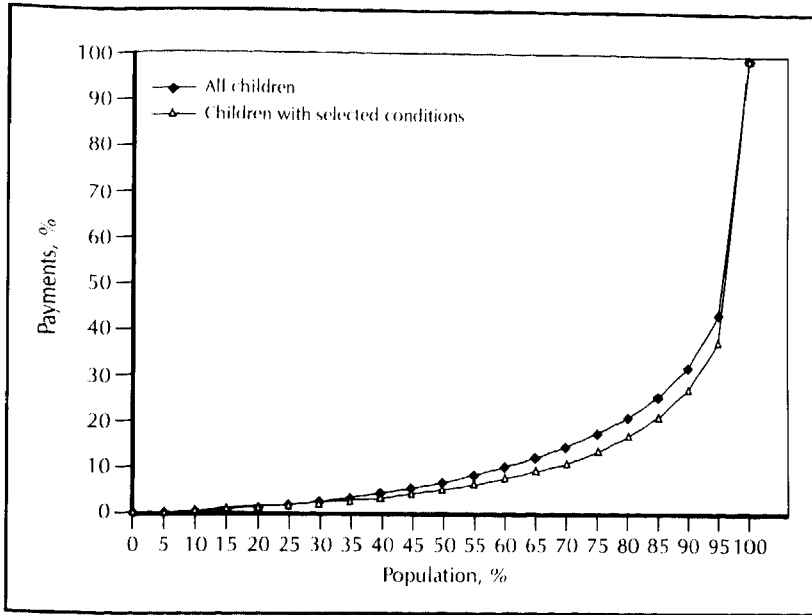


Fig. 1. Percent of expenditures versus percent of population for all children and for children with any of the selected chronic health conditions, Washington State Medicaid program, fiscal year 1993. (From Ireys [16••]; with permission.)

to services more often required by the chronically ill, such as children's hospitals, MCOs could discourage individuals such as the chronically ill from enrolling in their health plan [9]. These actions could harm individuals who are expected to be high utilizers of medical services and their usual providers such as pediatric specialists and children's hospitals.

The problem of risk selection may be partially addressed through regulation, although most health policy makers advocate that some type of risk adjustment be incorporated into capitated payment systems to reduce the perverse incentives discussed earlier [10]. In other words, the objective should be to design a payment system for MCOs and capitated providers that reflects the anticipated health care needs of the populations they serve [11]. The Committee on Child Health Financing of the American Academy of Pediatrics, for example, has recommended that capitation rates be tailored to the chronicity and severity of known health problems [12].

**Bedside implications**

Physicians, ethicists, and policy makers are concerned that the incentives of capitation might adversely affect clinical decision making. There is fear that MCOs may withhold services or "stint" on care [13••]. In effecting cost-consciousness at the bedside, MCOs have traditionally relied on strategies such as utilization and peer review, clinical guidelines and protocols, and formularies [14]. Now, through the financial incentives of subcapitation, MCOs are increasingly relying on physicians to control costs autonomously. At both the health plan level and the physician level, it is widely recognized that capitation rates need to be properly adjusted to reflect the health care needs of a particular panel of children to mitigate incentives to stint on care [9].

**Protecting the chronically ill child**

Concerns over stinting and cream skimming are perhaps most profound for children with special health care needs [9]. An estimated 6.5%, or 4.4 million, of American children have some activity-limiting condition [15]. A recent study by Ireys *et al.* [16••] confirmed that a relatively small group of children account for the majority of expenditures in a given population. In the Washington State Medicaid Program during fiscal year 1993, 10% of children accounted for 70% of total expenditures (Fig. 1) [16]. A similar distribution was found in a privately insured population of children [16••]. Such a concentration of costs in a subgroup of the population is not unique to children. It is seen in the Medicare, Medicaid, and adult disabled populations [17-19].

Further analysis shows that children with certain chronic illnesses have much higher expected costs than the

**Table 1**

Annual expenditures for children with chronic illness compared with all children in the Washington State Medicaid program

Chronic illness	Mean expenditures, \$	Ratio of mean expenditures for children with chronic illness to mean expenditures for all children
All children	955	1.0
Children with:		
Chronic respiratory disease	19,104	20.0
Muscular dystrophy	16,684	17.5
Neoplasms	14,637	15.3
Cystic fibrosis	14,377	15.0
Spina bifida	11,061	11.6
Cerebral palsy	9887	10.5
Asthma	2548	2.7
Diabetes	2359	2.5

Adapted from Ireys [16••].

average child. Table 1 shows the mean expenditures for children with eight chronic conditions compared with the mean expenditures for all children using data from the Washington State Medicaid program. Mean expenditures for chronically ill children ranged from 20.0 to 2.5 times the mean expenditures for all children. A similar set of rates was seen for privately insured children [16].

### Evaluating risk adjusters

In the existing literature, the topic of risk adjustment has been discussed principally in the context of adult populations covered by Medicare or other health plans. Only one study examined the applicability of risk adjusters to a pediatric population [10]. There are virtually no data on pediatric groups accepting full-risk capitation. As a result, the following is primarily a review of the literature on the components of successful risk adjustment systems, since the principles themselves are generalizable across all populations.

To discourage risk selection, risk adjusters must succeed on several fronts. First, they must have predictive accuracy, typically defined as the proportion of variance in spending they are able to explain [13••]. Some researchers focus on how much variance can be explained at the person level, whereas others focus on the group level. Second, they must be feasible to administer. Usually this criterion is met when existing information systems designed to collect claims data are adapted to the task of risk adjustment [20]. Third, they must be resistant to manipulation by plans and providers attempting to secure higher capitation rates [21]. And fourth, they must respect patient confidentiality [21].

The literature distinguishes between three components of variance [13••]. One is the fixed effect, which places an individual above the population mean for expenditures because of a demographic characteristic or medical condition. The most predictive medical conditions are diagnoses of chronic disease, such as cystic fibrosis, which are correlated consistently with higher expenditure patterns. Some of these diagnoses are summarized in Table 1. On a population level, it is thought that this aspect of variance may account for up to 20% of expenditures [13••]. The second component of variance may be accounted for by time-limited conditions, such as pregnancy, which portend increased short-term expenditures that decline over time [13••]. Finally, random events account for the remainder of observed variance [22]. After all, many health encounters are impossible to predict, such as motor vehicle accidents or new illnesses.

### A summary of current risk adjustment models

Demographic characteristics such as age and gender are commonly used to set capitation rates. Such data are easy to obtain from existing databases. The major problem with demographic adjusters is that they do nothing to

distinguish between high- and low-cost enrollees within demographic strata. Thus, they have consistently shown poor predictive accuracy at the individual level [23,24]. Estimates of their predictive power at the individual level range from 1% to 6% [13••,25]. They are most successful when applied to large, randomly assorted groups and prove far less successful when applied to either high-risk or low-risk groups [10,25]. Such trends are not surprising, since demographic data cannot discriminate between a chronically ill child and a healthy one of the same age and gender.

Reported functional health status data, collected through patient questionnaires, have been used to risk-adjust capitation rates. These surveys have been praised for their emphasis on the functional consequences of illness, which have been thought to dictate future resource use [26•]. Critics argue that they are susceptible to manipulation by patients and providers, are costly to administer and update, and poorly predict health care costs [25,27,28].

Prior-use risk adjusters offer high predictive accuracy [29•]. Recognizing that the level of past expenditures is a good predictor of expenditures in the future, they project mean historical expenditures forward. Despite the high predictive accuracy of this method, prior use risk adjusters have drawn criticism on many fronts. First, they offer little understanding of how specific conditions affect populations, thereby impeding the development of uniquely tailored delivery systems for such conditions [29]. Second, they do not address whether past expenditures were appropriate. Nevertheless, the predictive power of these risk adjusters, and the ease with which they are abstracted from claims data, make them too powerful to ignore [20].

Clinical descriptor, or diagnosis-based, risk adjusters continue to grow in acceptance and sophistication. Medicaid programs and many MCOs are starting to use them for payment purposes. Through the use of specific diagnoses, or combinations thereof, these risk adjusters identify subpopulations likely to have different levels of expected use. For example, children with cystic fibrosis are expected to have higher use rates than other children.

An example of the clinical descriptor method of risk adjustment developed specifically for children is the National Association of Children's Hospitals and Related Institutions (NACHRI) "Classification of Congenital and Chronic Health Conditions" system. It identifies individuals who have a congenital or chronic health condition expected to last 12 months or longer through ICD-9-CM (International Classification of Diseases, 9th edition) codes. It further classifies children by multiplicity of conditions, severity (levels 1 through 4), disease progression, and other "at-risk" categories such as a history of

prematurity or neglect. The remainder of the population is classified by age, gender, and at-risk categories [29•].

Currently there are four diagnosis-based risk adjustment systems that also incorporate various combinations of demographic, prior utilization, and functional status data. In addition to the NACHRI model, there is the Disability Payment System, the Ambulatory Diagnostic Groups, and the Hierarchical Coexisting Conditions [19,24,30]. Although only the NACHRI system was developed specifically for children, many of these models have been tested on claims data including children and are being considered for use by many health management organizations and state Medicaid programs [25] (Children with special health care needs in managed care organizations. Summaries of Expert Work Group Meetings, Division of Services for Children with Special Needs, Maternal and Child Health Bureau, Department of Health and Human Services; 1996). Earlier versions of these risk adjusters were evaluated for children and the results suggest that more work was needed before the systems were appropriate for payment [10]. A new evaluation is necessary to determine whether any of the newer versions of these models have significantly improved the predictive accuracy for children.

States are increasingly enrolling chronically ill children in Medicaid Section 1115 waiver programs, many of which incorporate some formula for risk adjustment [31]. For example, in Washington, DC, a managed care plan has been developed specifically for disabled children on Medicaid. It depends on a specially negotiated capitation rate tailored to match the severity of its patient population, who are all recipients of Supplemental Security Income. The Maryland Medicaid program places children into one of eight Ambulatory Diagnostic Groups, which take into account the child's diagnosis, age, and gender (Children with special health care needs in managed care organizations. Summaries of Expert Work Group Meetings, Division of Services for Children with Special Needs, Maternal and Child Health Bureau, Department of Health and Human Services; 1996). Colorado and Missouri plan to classify disabled (receiving Supplementary Security Income) Medicaid recipients in one of 18 risk categories based on the Disability Payment System (Children with special health care needs in managed care organizations. Summaries of Expert Work Group Meetings, Division of Services for Children with Special Needs, Maternal and Child Health Bureau, Department of Health and Human Services; 1996). Many other states are in the process of evaluating existing demonstration programs and comparing the alternative risk adjustment models for their Medicaid programs.

### Some limitations of risk adjustment

An unanticipated finding of Ireys *et al.* [16••] was that even within subgroups of chronically ill children (*eg*, cystic

fibrosis), there was wide variation in the cost of caring for these children. In other words, even among children with specific chronic conditions, a select few accounted for the majority of expenditures. It is fair to conclude that variance in health expenditures exists both between and within characteristic subgroups of children. The principal implication of this finding is that pediatricians accepting risk-adjusted rates for known high-risk groups should anticipate that capitation rates may still fail to meet expected costs at the individual level [10]. In turn, they may wish to seek additional risk-mitigating strategies.

Re-insurance, or "stop-loss" insurance, protects physicians from much of the downside risk of enrolling very expensive children. Costs that accrue above a predetermined threshold, say \$5000 per child, are covered by the re-insurer. Thus, capitated pediatricians can limit their losses on any given patient.

Another method of managing risk is known as the "carve-out." In this scenario, pediatricians completely eliminate risks incurred by specific diseases, procedures, or services known to be associated with high costs by excluding them from their contracts. Thus, the payer remains at risk for these services. Several states have implemented carve-outs for services such as organ transplantations. Carve-outs are usually recommended when contracting physicians have little or no discretion over a certain category of expenditures [26•]. Andrews *et al.* [26•] developed a list of pediatric carve-out conditions based on a set of specific criteria.

### Physician perceptions of capitation

Kerr *et al.* [32••] recently surveyed 910 primary care physicians in California on their satisfaction with four aspects of the quality of care their capitated patients receive as compared with other patients in their practice (Table 2). Doctors reported their perceptions on how capitation affected their relationships with patients, the quality of care they provided, their freedom to use best judgment, and their ability to obtain specialty referrals.

Table 2

Comparison of physician satisfaction with quality of care in overall practice and for capitated patients (n = 910)

Item	Very or somewhat satisfied, %*	
	Overall practice	Capitated patients†
Your relationships with patients	88	71
Quality of care you are able to provide	88	64
Your ability to treat patients according to your own best judgment	79	51
Your ability to obtain specialty referrals whenever you feel they are necessary	59	50

\*Percentages are weighted by the number of primary care physicians per group.

†P ≤ 0.001 using paired t tests.

From Kerr *et al.* [32••]; with permission.

Overall, these physicians were less satisfied with these measures of quality for their capitated patients. However, physicians in medical group practices (as opposed to independent practice associations), physicians paid on salary, and physicians with a larger percentage of capitated patients reported greater satisfaction than their otherwise similar peers.

There are no data comparing objective quality measures for capitated pediatricians. This is a topic that should be pursued.

## Conclusions

Despite the growing prevalence of capitation, many physicians may be unaware of the risk they are incurring and the options that are available to reduce their risk. Reviewing data from a national survey conducted in 1995, Simon and Emmons [1•] found that 56% of physicians did not know whether they had re-insurance policies—the most common risk-mitigating strategy. They also found that physicians in solo practice and small groups—settings that often lack practice managers—were more likely to be unfamiliar with the fundamental terms of their capitated contracts [1]. Recently published articles have begun to fill this knowledge gap, and pediatricians would do well by understanding the incentives of capitation and how risk adjustment, re-insurance, and carve-outs are crucial provisions to review in the capitated contract.

## Acknowledgment

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