The Business Case and Value of Improving Medical Home Care for Colorado Children While Reducing Emergency Department and Hospital Utilization, 2015

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This report summarizes our analysis of 2014-2015 trends in Colorado emergency department (ED) and hospital utilization rates for children with public or no insurance (Public/No)[a] as compared to children with private insurance (Private).[1] It reaches four important conclusions:

- Increasing numbers of Colorado children had public health insurance (Public) in 2015 while a remaining 51,000 still had no insurance coverage (No).
- Compared to privately-insured children, more Colorado children with Public/No insurance have emergency department visits (68.3% vs. 14.2%) and hospitalizations (3.6% vs. 1.5%) with excess costs of utilization amounting to an estimated $214 million per year.[b]
- Small area differences in excess utilization rates between Colorado RCCOs as well as the actual differences between Public/No and privately-insured children suggest that "medical home" strategies could be enhanced in both private practice and FQHC settings to reduce excess ED and hospital utilization, resulting in improved care and significant cost savings.
- The value (quality/cost) relationship between health care provided in medical homes vs. emergency departments should be addressed to assure the best care is provided at the lowest cost.

Overview

Since 2000, there has been a gradual increase in the percentage of Colorado children covered by public health insurance, compensating for a decrease in those covered by private insurance, while significantly reducing the percentage of children with no health insurance (Figure 1). This trend has continued to accelerate with the implementation of the Affordable Care Act, almost doubling the number of publicly-insured children.

Figure 1. Insurance status of Colorado children < 18 years of age by year (source: American Community Survey via CO Health Institute)

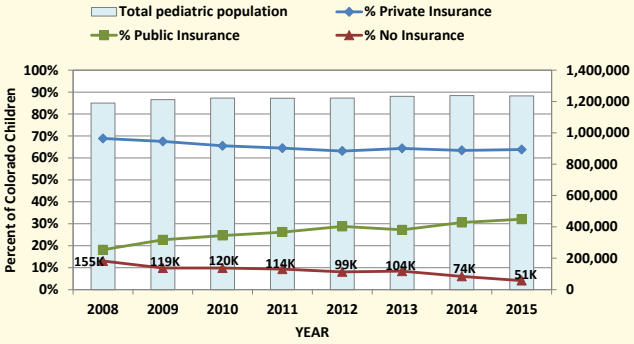
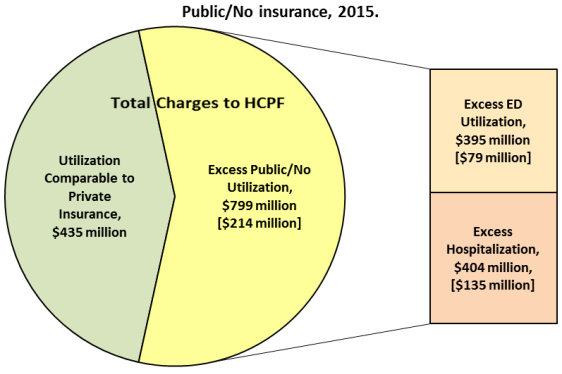


Figure 2: Total and Excess ED and hospital charges to HCPF [estimated actual HCPF cost] for children with Public/No insurance, 2015.



In spite of improved coverage, there remain substantial, but potentially avoidable, disparities between ED visit rates and hospital discharge rates for children with Public/No insurance as compared to children with private health insurance[1]. The actual costs to the Colorado Department of Health Care Policy and Financing (HCPF) for excess utilization ($799 million in charges; $214 million adjusted for estimated reimbursement to providers) is a compelling business case to redirect funding incentives to invest in expanded primary care access, while simultaneously reducing more expensive and avoidable ED visits and hospitalizations (Figure 2). Decreasing primary care reimbursement rates, which currently may not even cover expenses

[a] Children with no health insurance are combined with those with public insurance (Medicaid/SCHIP) in this analysis because prior studies show that the majority of children with no health insurance are retroactively qualified for Medicaid/SCHIP after an ED or hospital visit and consequently end up as a cost to Medicaid/SCHIP. If this is not done, public insurance utilization rates are falsely elevated.

[b] The Colorado Hospital Association database reports hospital and ED "charges"; actual "costs" to HCPF are estimated by multiplying reported charges by an estimated payment rate of 0.20 for ED charges and 0.33 for hospital charges.

of many of the small business practices that provide medical home care for children in Colorado, will likely result in a decrease in provider supply with the unintended consequence of increased ED and hospital costs.[2]

ED Utilization

If ED visitation rates for privately-insured children are assumed to represent the optimal result of timely, coordinated, primary health care, then the notable statewide differences in ED visits for children with public or no health insurance, suggest opportunities to redirect systems and funding to improve access and utilization of the primary care medical home as compared to the far more expensive emergency department. As summarized in Table 1, ED visitation rates for children with Public/No insurance were 4.8 times greater than for children with private insurance, resulting in excess 2015 charges of $395 million ($78.9 million in estimated Medicaid payments). Our analysis estimates that over two thirds of Colorado children with public health insurance visited an emergency department in 2015 rather than a much less expensive primary care setting. Of note, 44% of ED visits were by children less than 5 years of age, and 89% had no chronic disease diagnosis. Similarly, Public/No children are more likely to be seen in the ED for common, self-limited illnesses such as: acute upper respiratory infection, strep sore throat, constipation and viral illness—non-emergent conditions often more effectively resolved with phone triage or same/next day medical home visits at a much lower cost. These findings all imply that, if these children had access to (and appropriately utilized) a readily accessible medical home, many ED visits could have been prevented with lower resultant cost to public insurers.

Table 1: Emergency Department and Hospital Utilization by Colorado Children with Public or No Health Insurance as Compared to Children with Private Health Insurance - 2015

Population	Private Insurance Comparitor	Public or No Insurance Children
Emergency Department	ED visits per 100,000 insured	4.8 times more visits
	Uncomplicated ED visits for common complaints	3.6 times more visits
	Daytime ED visits on a weekday	3.2 times more visits
	Estimated excess annual charges	$394.5 million more
	Estimated excess annual payments	$78.9 million more
Hospital	Hospitalizations per 100,000 Insured	2.4 times more hospitalizations
	% with High Severity of Illness	2.2% higher
	Weekend Admission	1.4% higher
	After-Hours Admission	4.5% higher
	Estimated excess annual charges	$404.3 million more
	Estimated excess annual payments	$134.8 million more
Total	Excess charges	$798.8 million more
	Estimated excess annual payments	$213.7 million more

Hospitalization Rates for Colorado Children

If hospitalization rates for privately insured children are assumed to the consequence of timely access to primary health care, children with Public/No insurance have notable statewide differences that suggest the need to improve access and utilization of the medical home and reduce avoidable costs of preventable hospitalizations. As shown in Table 1, hospital admission rates in 2015 for children with public or no insurance were 2.4 times the rates for children with private insurance, resulting in excess hospital charges of $404 million ($135 million in estimated Medicaid payments). Children with public or no health insurance were more likely than privately insured children to be hospitalized after hours, suggesting a potential role for expanded access to acute medical home care in reducing hospital utilization. Furthermore, the severity of illness of children with Public/No insurance was significantly greater than for privately-insured children suggestive of delays in seeking appropriate care. For many common conditions, hospitalization rates for children with public or no insurance were significantly greater than those rates for privately insured children. These higher rates may indicate lack of access to a comprehensive medical home that could address acute illness before it becomes severe enough to need more resource-intensive care.

Excess ED and Hospitalization Rates by Public/No Children in Colorado RCCO's

Among Colorado RCCOs, excess ED utilization rates for Public/No children varied from 3.65 to 8.5 while the excess hospitalization utilization rates ranged from 1.46 to 4.39 times greater than children with private insurance (Table 2). Combined, this results in a potential savings opportunity of $214 million in 2015. The variation of utilization rates between children with Public/No and Private insurance and between RCCO's suggests that best practices exist that could be applied more generally to improve care and lower cost for Colorado's publicly-insured children.

Table 2: Excess ED and Hospital Utilization by Public/No Children in Colorado RCCO's

RCCO	COUNTY	Excess ED Rate	ED Savings Opportunity	Excess Hospitalization Rate	Hospitalization Savings Opportunity	Total Savings Opportunity
RCCO-1	Archuleta, Delta, Dolores, Eagle, Garfield, Grand, Gunnison, Hinsdale, Jackson, La Plata, Larimer, Mesa, Moffat, Montezuma, Montrose, Ouray, Pitkin, Rio Blanco, Routt, San Juan, San Miguel, Summit	4.26	$6.3 million	2.35	$13.7 million	$20.0 million
RCCO-2	Cheyenne, Kit Carson, Lincoln, Logan, Morgan, Phillips, Sedgwick, Washington, Weld, Yuma	4.34	$5.7 million	2.27	$11.6 million	$17.3 million
RCCO-3	Adams, Arapahoe, Douglas	4.74	$25.9 million	2.59	$48.5 million	$74.4 million
RCCO-4	Alamosa, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Lake, Las Animas, Mineral, Otero, Prowers, Pueblo, Rio Grande, Saguache	3.65	$5.9 million	1.46	$4.5 million	$10.4 million
RCCO-5	Denver	4.28	$10.3 million	1.89	$13.4 million	$23.8 million
RCCO-6	Boulder, Broomfield, Clear Creek, Gilpin, Jefferson	4.42	$9.7 million	2.24	$16.3 million	$26.0 million
RCCO-7	El Paso, Elbert, Park, Teller	8.50	$14.6 million	4.39	$29.6 million	$44.2 million
Colorado		**4.80**	**$79 million**	**2.44**	**$135 million**	**$214 million**

Opportunities to Improve Care and Reduce Cost by Use of the Medical Home

The results of our current analysis indicate that there are significant, potentially reducible, differences in ED and hospital utilization between children with Public/No and Private health insurance (and even between RCCOs). This analysis should not be interpreted as evidence that public insurance is inferior to private insurance as much of the care for publicly-insured children actually occurs in private practice settings providing identical services to commercially-insured children. Rather it would appear families with public or no health insurance utilize primary care, urgent care, EDs and hospital care in ways different from those with commercial insurance. They are more likely to visit EDs for illnesses managed more efficiently and effectively by phone triage or a same/next day medical home visit. They also have higher hospitalization rates that are more likely to occur after hours and may be of higher severity due to a delay in seeking care. Importantly, most ED visits are in young children who do not have chronic disease implying that strategies to improve care and reduce cost should be provided to all children with public insurance. Interestingly, our analysis shows that many ED and hospital visits are avoidable, even for children with private insurance such that enhancements in the medical home model (below) are likely to improve care and reduce cost for all children regardless of insurance type.

The substantial costs to the State (minimum estimate $214 million in 2015) of excess ED and hospital utilization among publicly-insured children highlights a business case for the redirection of public funding to invest in the enhanced medical home. In fact, three of the four current Colorado Regional Care Collaborative Organization key performance indicators reflect priorities to improve well-child visit rates, decrease ED visit rates and reduce hospital admission rates.[5] Reductions in primary care reimbursement rates locally and possible changes in health care financing nationally will likely do the opposite and further increase ED and hospitalization costs.

Based on Senate Bill 07-130, the Colorado Revised Statutes requires State departments to:

> ***". . . maximize the number of children enrolled in the state medical assistance program or the children's basic health plan who have a medical home. . . All medical homes shall ensure, at a minimum, the following: health maintenance and preventative care, anticipatory guidance and health education; acute and chronic illness care; coordination of medications, specialists, and therapies; provider participation in the hospital care; and 24 hour telephone care. . ."*** [3,4]

It is fair to assert that: not all eligible children in Colorado are enrolled in public health insurance; not all enrolled children have a consistent primary care provider; not all primary care providers provide true medical home services; and not all families know how to access or use these services.[6–8] For the majority of illnesses in our analysis, ED and urgent care may have the advantage of after-hours availability with the disadvantages of variations in provider clinical training and/or experience in pediatric care, increased cost, lack of access to the child's medical record, lack of familiarity with the child or his/her family, and lack of follow-up or medical home communication.

Numerous studies support the value case that enhanced pediatric medical home services may improve care while reducing higher-cost utilization.[9–11] These include:

- Extended office hours for acute primary care that improves satisfaction and reduces ED utilization and overall cost;[6,12–16]
- 24/7 phone triage protocols with appropriate pediatric content and expertise to preempt unnecessary ED and urgent care visits and improve quality and continuity of care;[15–26 27,28]
- Improved site triage and co-location of ED and urgent care facilities coupled with real-time communication with the medical home to improve continuity and care coordination;[29–31]
- Financial disincentives and/or incentives;[32–34 35,36]
- Care coordination to assure that the needs of children with more complex conditions are met and that all children are using the medical home optimally.[10,20,37]

Based on the above evidence, practical strategies to improve medical home care and reduce excess ED and urgent care costs should be considered including:

- Incentivizing medical home-coordinated, child focused, "PHONE FIRST" phone triage to help families respond efficiently and effectively to acute care needs.
- Co-locating EDs and urgent care facilities to appropriately triage the level of care (and cost) required.
- Clearly indicating costs of care for ED and/or urgent care services.
- Requiring EDs and urgent care facilities to ascertain the child's medical home and communicate with it in a timely fashion to assure optimal case management and care coordination.

The existence of such large disparities in ED and hospital utilization for children in Colorado with public or no health insurance, coupled with unpredictable changes in national health policy suggest a compelling business case to explore ways to improve access to (and utilization of) an enhanced medical home to improve the value of health care for all Colorado children. As affirmed in current Colorado Statute:

> ***"Infants, children, and adolescents and their families work best with a health care practitioner who knows the family and who develops a partnership of mutual responsibility and trust. Medical care provided through emergency departments, walk-in clinics, and other urgent-care facilities is often more costly and less effective than care given by a physician with prior knowledge of the child and his or her family."*** [3,4]

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