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CENTER FOR IMPROVING
VALUE IN HEALTH CARE

Opportunities to Bend the Cost Curve: Reduce Cesarean Delivery Rates in Colorado

Insights from the Colorado All Payer Claims Database

July 2014

Reducing inappropriate use of expensive services that may not improve outcomes—and, in fact, may impose risks—is key to improving care for individuals and the health of Coloradans, and to bending the cost curve. Based on analysis of data from the Colorado All Payer Claims Database (APCD), the Center for Improving Value in Health Care can identify patterns in utilization of and spending for particular services that illustrate opportunities for achieving the Triple Aim in Colorado. This is the first in a series of occasional reports providing such analysis, and exploring the implications for policy and practice.

Summary

One of the most important expenses for both Medicaid and commercial health plans is labor and delivery. Most births in Colorado (approximately 75 percent) are vaginal deliveries. However, the number of cesarean (C-section) deliveries has been on the rise. In fact, while the overall rate of C-section deliveries in Colorado in 2012 was nearly 25 percent lower than a recently reported national average,[i] it increased by approximately 50 percent between 1990 and 2012.[ii] This mirrors a national trend that has not been shown to reduce complications or mortality among mothers and babies.[iii] The increasing rate of C-sections is troubling because of the health risks to both mother and child as well as the higher cost of cesarean delivery compared to vaginal delivery.

APCD data show that although C-section incidence for the commercially insured population has declined in recent years, it remains significantly higher than that for Medicaid enrollees. These variations in utilization by type of coverage raise questions about the underlying reasons. While claims data cannot fully answer those questions, they can point to areas for additional analysis and indicate potential interventions to change the trends.

Analysis of claims data from the APCD indicates that reducing the rate of cesarean deliveries in Colorado by just 10 percent (consistent with the Healthy People 2020 goal)—or 1,708 procedures—could lower overall health care spending in the state by $6.5 million per year. This represents savings to Colorado Medicaid of $1.65 million, and to commercial insurance plans and beneficiaries of $4.85 million.

Reductions in the C-section rate could be achieved through both policy and market mechanisms, including changes to benefit design and payment. Colorado policymakers and purchasers can build on evidence-based national initiatives to reduce the number of elective cesarean deliveries to improve the health of mothers and babies, and reduce costs.

Background: About Cesarean Delivery

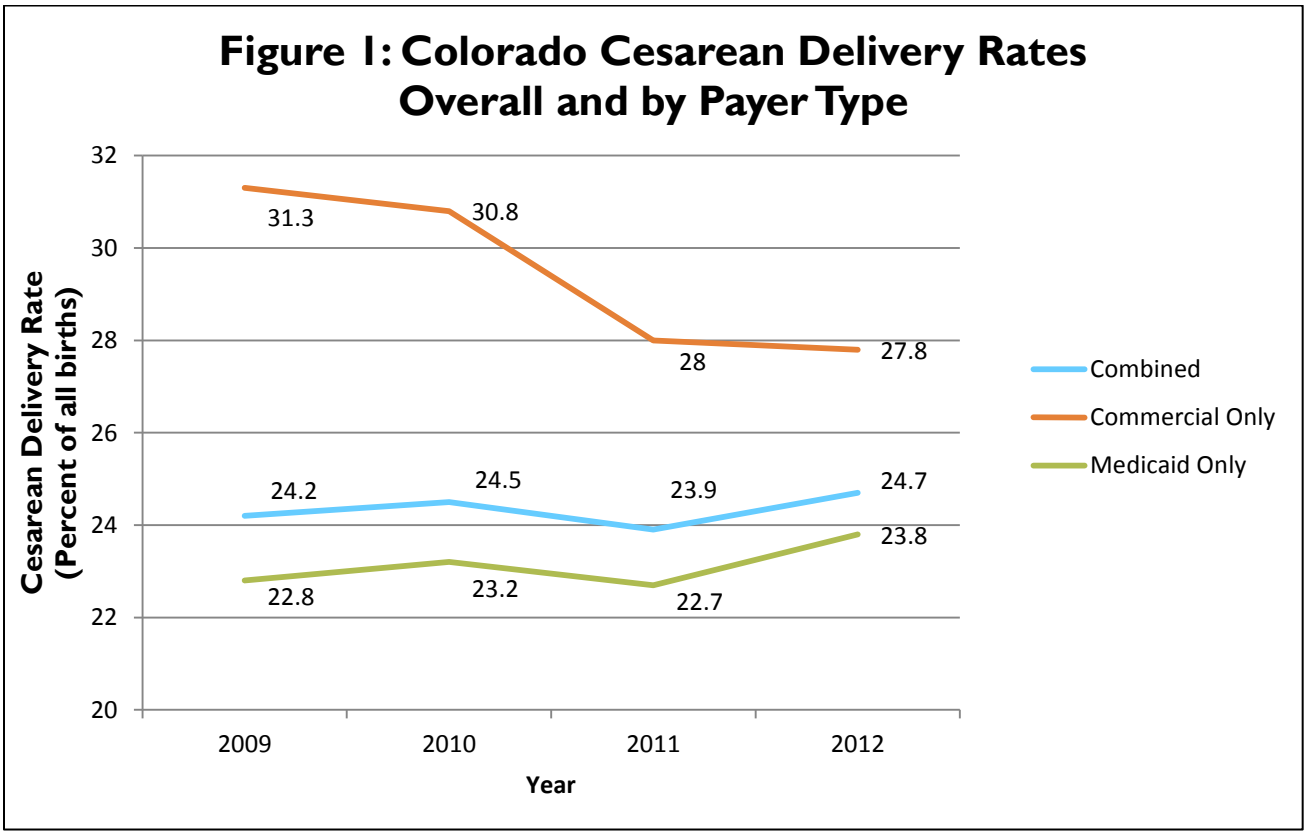
Although cesarean deliveries (also known as C-sections) are sometimes medically necessary, some women elect to schedule C-sections for a variety of reasons that are not medically necessary. Yet, women who deliver by C-section face additional risks including increased bleeding, blood clots, reactions to anesthesia, and greater risks of complications in future pregnancies.[iv] And unfortunately, some elective or planned C-sections take place before the recommended 40-week gestation period, even though evidence indicates that significant health risks to both mother and child are associated with early deliveries, particularly when the delivery occurs before 39 weeks. A study published in 2009 in the *New England Journal of Medicine* reported that babies born to mothers via scheduled C-section before 39 weeks are nearly twice as likely to have serious respiratory problems and other complications.[v] In addition, a 2007 study by the CDC found that babies born at 37 or 38 weeks have a 50 percent higher risk of infant mortality.[vi]

A number of campaigns exist designed to reduce the rate of elective cesarean deliveries. Choosing Wisely,[vii] an initiative of the American Board of Internal Medicine (ABIM) Foundation, advises against elective, non-medically necessary cesarean deliveries for women who are low risk before 39 weeks gestational age. The American Congress of Obstetricians and Gynecologists (ACOG) and the American Academy of Family Physicians (AAFP) are both participating in this campaign. Additional efforts include the Healthy People 2020 goals to reduce the rate of both primary and repeat cesarean deliveries in low risk women by ten percent.[viii] Finally, the Center for Medicare & Medicaid Innovation (CMMI), in partnership with the March of Dimes and ACOG, is leading a Strong Start for Mothers and Newborns Initiative that includes promoting awareness of the risks associated with early elective deliveries and distributing information on best practices through the Partnership for Patients Hospital Engagement Network program.[ix]

Analysis and Findings

The Colorado APCD provides a unique opportunity to assess not only overall cesarean delivery rates and paid amounts, but also to examine variation across payer types. Analysis of 2012 data revealed an overall cesarean delivery rate of 24.7 percent based on health insurance claims submitted by Medicaid and commercial (fully insured individual and large group) insurance plans. There was little variation in this overall or combined rate during the 2009 to 2012 period of analysis, from a low of 23.9 percent in 2011 to a high of 24.7 percent in 2012.

Further analysis indicates that the rate of C-section deliveries is higher for mothers covered by commercial insurance plans and that this rate decreased from 2009 to 2012. Cesarean delivery rates for Coloradans enrolled in the Medicaid program are significantly lower than those covered by commercial health plans and increased slightly during this time period. These results are summarized in Figure 1 below.

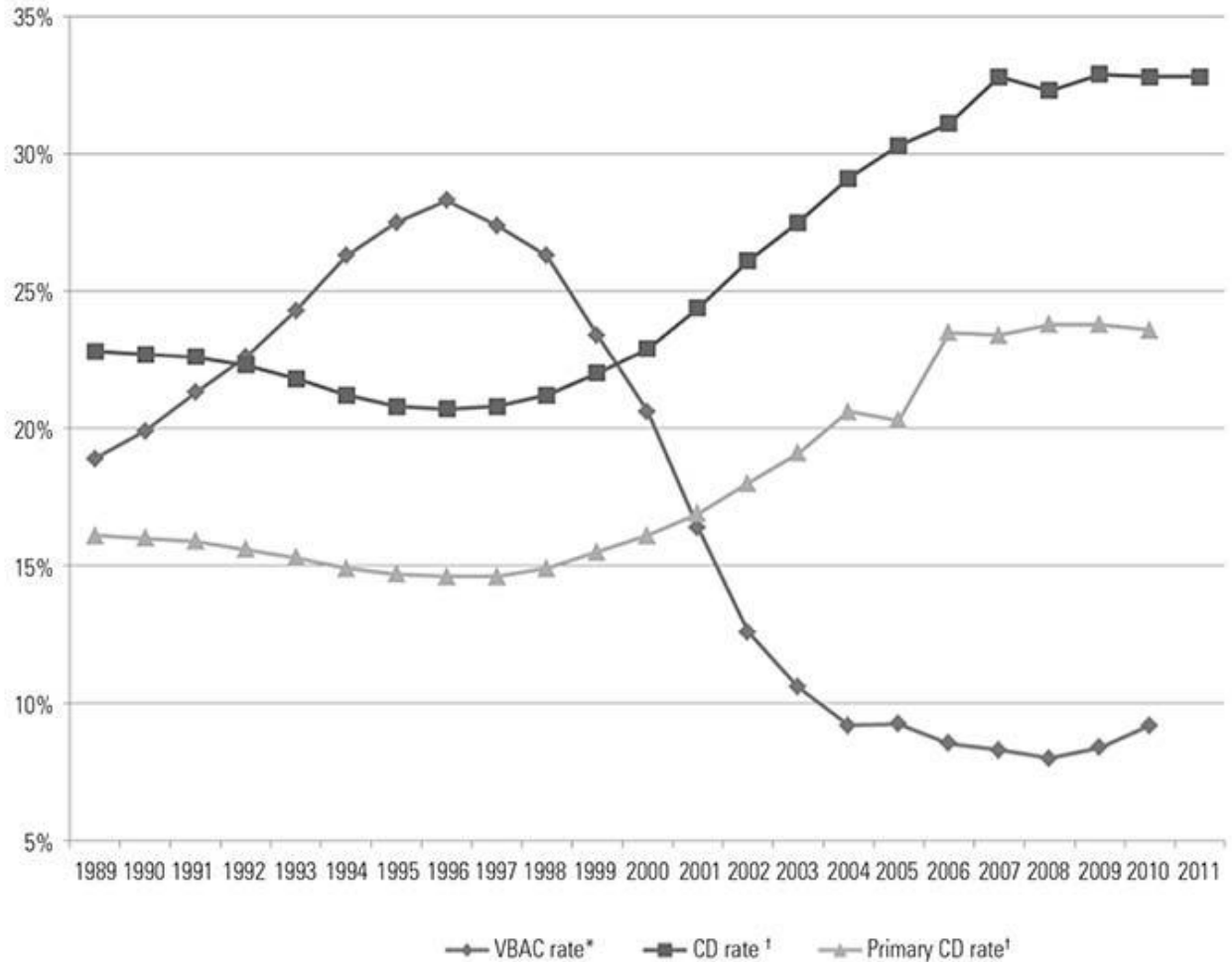


Source: CIVHC analysis of Colorado APCD data

The 2012 combined or overall C-section rate based on analysis of APCD data (24.7 percent) tracks with similar results based on analysis of Colorado Birth Certificate Registry data provided by the Colorado Department of Public Health and Environment (CDPHE), which reported an overall rate of 26.0 percent.[x] It is important to note that this rate is nearly 50 percent higher than the 16.9 percent rate identified for Colorado in 1990 based on similar analysis.[xi] This Colorado-specific increase aligns with nationwide trends observed between 1989 and 2011, during which time the rate of vaginal birth after cesarean (VBAC) decreased by 75 percent.[xii]

Figure 2: U.S. Delivery Rates, 1989-2011

American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine

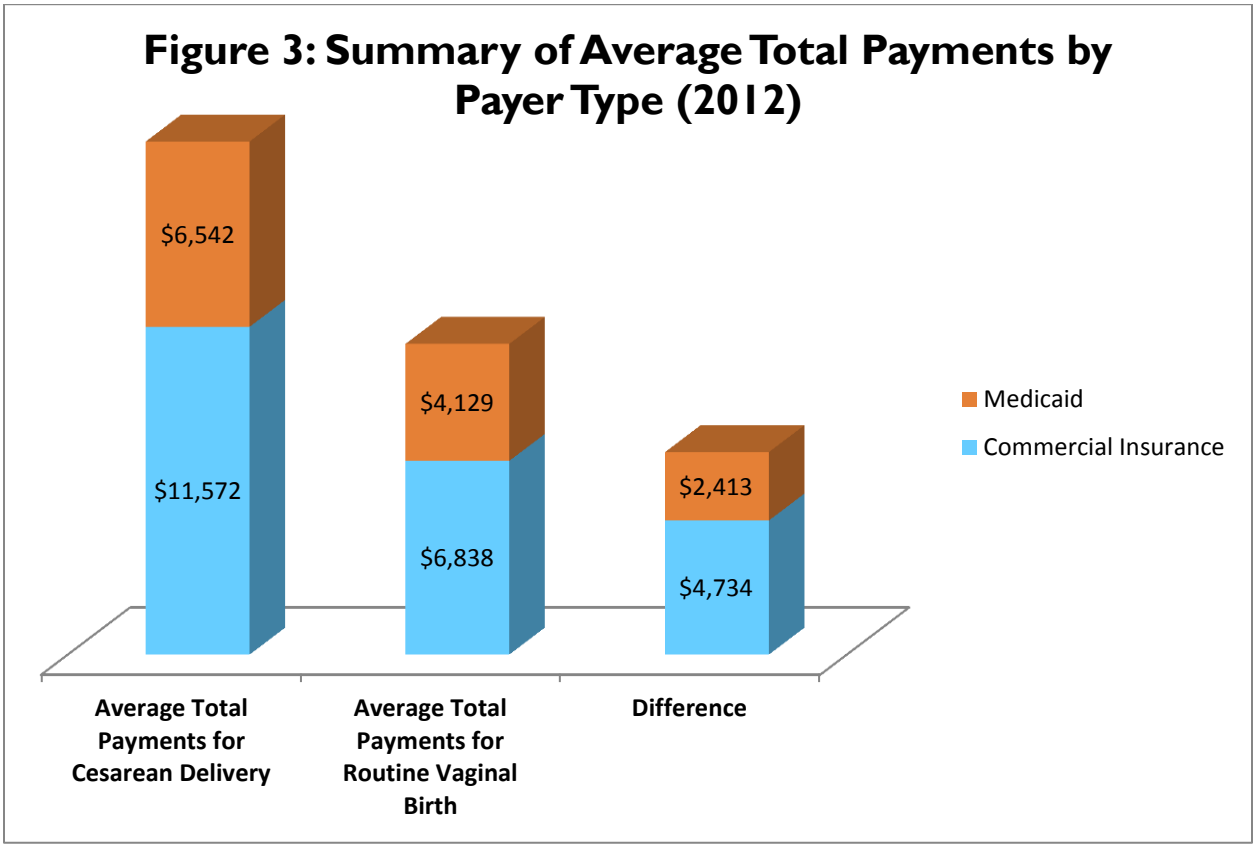


U.S delivery rates, 1989-2011. Data from National Vital Statistics. Abbreviations: CD, cesarean delivery; VBAC, vaginal birth after cesarean delivery. *Percent of women who have a vaginal birth after prior cesarean delivery.

†Rate based on total number of deliveries. (Data from Martin JA, Hamilton BE, Ventura SJ, Osterman MJ, Mathews TJ. Births: final data for 2011. Natl Vital Stat Rep 2013;62(2):1-90.)[xiii]

CIVHC analyzed Colorado APCD data for 2012 to identify the average total amount paid (by both the insurance plan and the patient) for delivery, hospital stay and physician and other professional services. Results indicate that cesarean deliveries are, on average, $4,734 more expensive than vaginal deliveries for the commercially insured, and $2,413 more expensive for deliveries reimbursed through Colorado's Medicaid program. See Figure 3 for a comparison of cost differences by payer type for routine vaginal births and cesarean deliveries.

(Note: At this time, the APCD includes data for Medicaid and a subset of commercially-insured Coloradans. Accordingly these numbers and the resulting analysis should be viewed as illustrative, not exact.)



Source: CIVHC analysis of Colorado APCD data for 2012

Implications

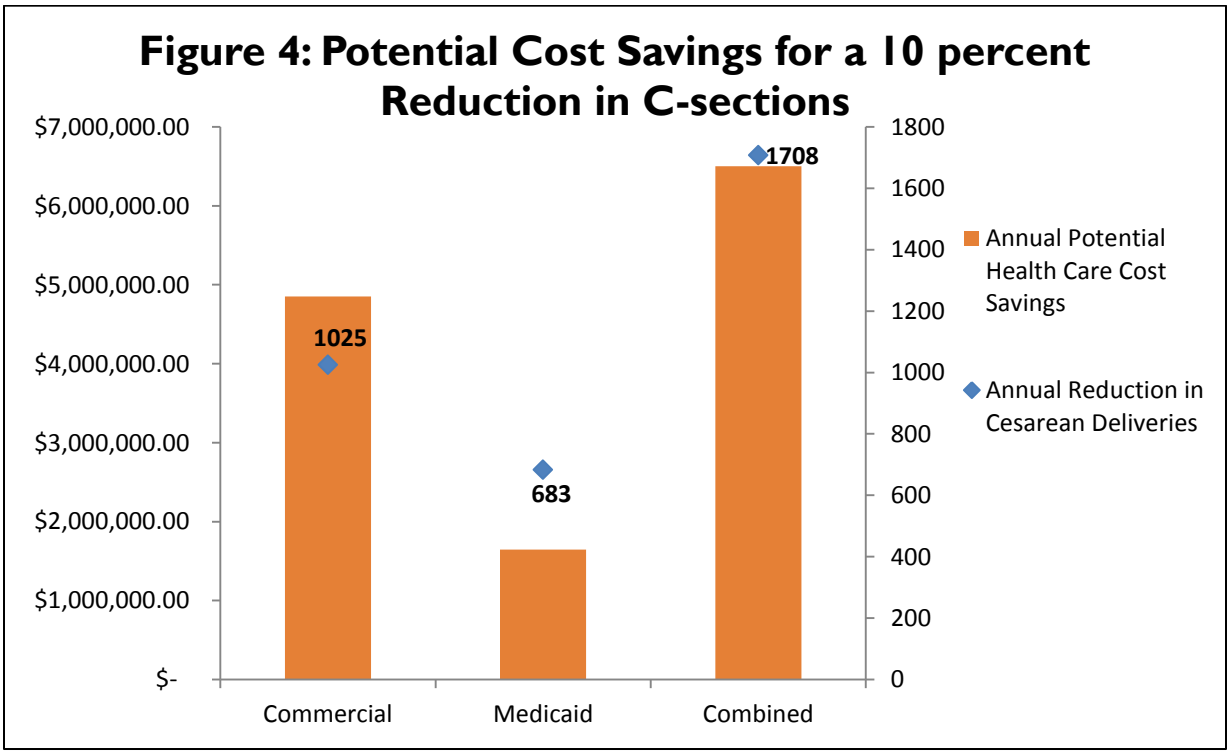
Reducing the rate of C-sections in Colorado could result in significant savings in both Medicaid expenditures and private health insurance costs—and, by extension, premiums.

The Healthy People 2020[xiv] goal is to reduce the rate of both primary and repeat cesarean deliveries in low-risk women by 10 percent. Such a reduction seems both modest and achievable, in light of the 50 percent increase in the rate of C-sections observed in Colorado since 1990.

Applying this 10 percent reduction to the 17,080 cesarean deliveries reported for Colorado in 2012[xv] by CDPHE yields a potential annual reduction of 1,708 C-sections. (Although these data do not distinguish between low- and high-risk C-sections, it can be reasonably assumed that—again, in view of the 50 percent increase in C-sections in Colorado in the last 25 years—a sizable proportion of these deliveries are low-risk.)

Based on information provided by the Colorado Department of Health Care Policy and Financing, the state Medicaid program financed approximately 40 percent of all births in 2012.[xvi] Applying this figure to the 1,708 Cesarean deliveries associated with a 10 percent reduction would result in 683 fewer C-sections paid for by Medicaid and 1,025 fewer C-sections covered under commercial insurance plans in 2012.

Combining this information with the differences in average total paid amounts summarized in Figure 3 yields a potential cost savings of $6.5 million associated with a 10 percent reduction in the rate of cesarean deliveries in Colorado. The results of these calculations are summarized in Figure 4.



Source: CIVHC analysis of Colorado APCD data for 2012

This total amount translates into $1.65 million in savings for the state Medicaid program and $4.85 million in savings for commercial insurance plans and their beneficiaries.

Options for Driving Change

How would a 10 percent reduction in the overall C-section rate be achieved? As noted above, physicians and public health agencies are actively engaged in campaigns to reduce the number of cesarean deliveries. In part, this can be done by educating both their colleagues and patients about the risks associated with such deliveries, particularly when performed prior to 40 weeks gestational age.

In addition, changes to benefit design can have an impact. For example, requiring shared decision-making strategies that give patients decision-aids to understand both the risks and benefits of C-sections holds promise. A 2010 study showed that educating women about the benefits and risks associated with induced births reduced the proportion of women choosing that intervention.[xvii] While induction of labor is a different matter from cesarean delivery, it is likely that similar education about the benefits, risks and appropriate indications for C-sections would have a similar impact. Accordingly, in 2011, the Informed Medical Decisions Foundation and Childbirth Connection launched a national Maternity Care Shared Decision Making Initiative. These partners are producing decision-aids for numerous preference-sensitive decisions in maternity care, including vaginal birth after and C-section multiple C-sections.[xviii]

Changes to benefit design that encourage patients to explore and understand alternatives can go hand-in-hand with payment reforms that seek to incent high-value care which improves outcomes while controlling costs. For example, outcomes-based payments can reward providers that demonstrate the use of decision-aids that are accompanied by a reduction in C-section rates for low-risk patients.

Benefit design and payment changes can be enacted through both policy and market-based mechanisms. For example, Colorado's Medicaid program could explore requiring its contracted providers to implement shared decision-making for expectant mothers; the state could also consider such a requirement for private qualified health plans offered on the Connect for Health Colorado insurance marketplace. Similarly, a robust education effort directed at employer purchasers—especially those that self-insure—could be focused on encouraging them to use their purchasing power to require changes on the part of the health plans that administer their benefits.

Conclusion and Opportunities for Additional Analysis

Opportunities for sizable health care cost savings for both Colorado's Medicaid program and commercially insured population related to reducing the rate of elective C-sections exist and could be realized with relatively modest reductions in the overall rate of cesarean deliveries. While this initial analysis of APCD data related to cesarean deliveries in Colorado has generated insights regarding opportunities to bend the cost curve, much additional work remains to be done. Specifically, CIVHC intends to leverage the unique capabilities of the APCD to analyze regional variation in C-section rates across counties and between urban and rural areas. In addition, CIVHC will assess variation in the rate of cesarean deliveries by payer and plan type and across health care providers. Insights based on these analyses will inform development of targeted interventions to reduce the number of cesarean deliveries where rates are relatively high, and contribute to realizing the goals of better health, better care and lower cost for Colorado.

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