

CESAREAN BIRTHS IN OREGON

CESAREAN— even the name is a matter of controversy. While some sources trace the origin to the birth of Julius Caesar, others trace it to an edict from Caesar to increase the population of Roman citizens by cutting infants from dying mothers. Historically, cesarean procedures were more often used to separate the mother from the child for burial purposes than to retrieve a possibly viable infant. Reports of cesarean-style procedures exist in Hindu, Chinese, African, Egyptian, Grecian, Roman, and other European folklore. The first credible instance of a mother surviving the procedure in Western culture occurred in the 1500s. It wasn't common for the mother to survive the procedure until the 19th century.¹ While cesarean section is an important, sometimes life-saving delivery procedure, it is not without risks. This *CD Summary* reviews U.S. and Oregon data, and the public health goals and challenges related to decreasing unnecessary cesarean sections.

SOME DEFINITIONS

The total cesarean rate is the cesarean proportion of live births delivered by cesarean section. The primary cesarean rate is the rate among women who have not had a previous cesarean.

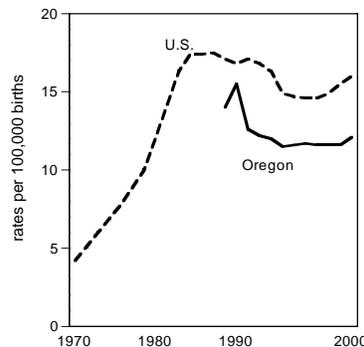
RISKS VS. BENEFITS

While cesarean deliveries can save lives, decreasing *unnecessary* cesarean births is desirable for several reasons. Vaginal births result in less postpartum discomfort, shorter hospital stays and shorter periods of disability than cesarean births.² The risk of uterine rupture greatly increases once a cesarean birth has occurred. Indeed, often the first indication listed for a cesarean birth is a prior cesarean.

Several studies have found increased risks to the infant associated with cesarean section birth. For example, one study found that infants delivered by elective cesareans have more than four times the risk for persistent pulmonary hypertension as those delivered vaginally (3.7 compared to 0.8 per 1000 live births).⁶ The National Center for Vital Statistics reported higher levels of maternal death

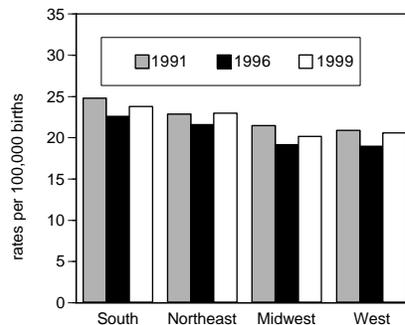
associated with increasing rates of cesarean births and no improvement in infant deaths associated with the increased use of cesarean procedures.⁷

Primary cesarean rates, Oregon vs. U.S., 1970–2000

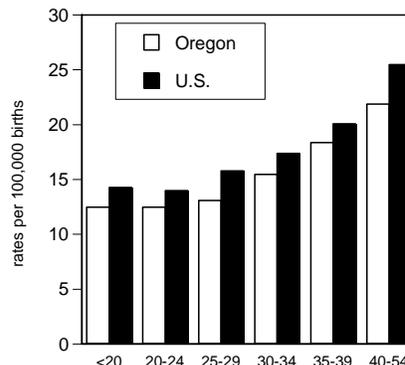


U.S. information before 1989 is from national hospital discharge data; these data were not available for Oregon.

Total cesarean rates, U.S., by region, 1991, 1996, 1999



Primary cesarean rates, U.S. by age, 2000



Because of these concerns, Healthy People 2010 set as a specific objective to “Reduce cesarean deliveries among low-risk (full-term, singleton, vertex presentation) women from 17.8 percent in 1997 to 15.5 percent by 2010.” The American College of Gynecology (ACOG) has also made recommendations to address this issue. ACOG focused its recommendations on decreasing primary cesarean rates and defining a stronger role for trial labor and vaginal births after cesarean within a framework of individual patient risk assessment.

OREGON COMPARED TO THE NATION

During the 1970s and 1980s, national primary cesarean rates in the U.S. climbed dramatically, from 4.2 per 100 live births in 1970 to 17.5 per 100 in 1988.² While cesarean rates declined from the early to mid-1990s, the recent upward trend in cesarean rates reverses that progress. Oregon's rates (available only since 1988), have been consistently lower than the national rate, and show the same upward trend in recent years (see top figure). In 2000, Oregon had one of the ten lowest total cesarean rates (19.9 per 100 births) in the nation, and Oregon met the Healthy People 2010 goal in 2000.⁴ Oregon's rates were also lower than national rates for all age groups (see lower figure), and for whites, African-Americans, and Hispanic mothers (14.1 compared to 16.4, 16.1 compared to 17.3 and 12.4 compared to 14.5 per hundred live births, respectively).³

VARIATIONS IN RATES AROUND OREGON

Cesarean rates in Oregon vary more than twofold by hospital—from 12.1 to 29.7 per 100 births at hospitals with more than 100 births. This suggests that prevailing practice patterns within specific hospitals or other hospital characteristics may affect cesarean rates. Variations in cesarean delivery rates were not explained by the size of the hospital or number of births. One might expect cesarean rates to be higher among hospitals that act as referral



If you need this material in an alternate format, call us at 503/731-4024.

If you would prefer to have your *CD Summary* delivered by e-mail, zap your request to cd.summary@state.or.us. Please include your full name and address (not just your e-mail address), so that we can effectively purge you from our print mailing list, thus helping to save trees, taxpayer dollars, postal worker injuries, etc.

centers for women with high risk pregnancies. However, primary cesarean rates for hospitals with neonatal intensive care units, which one would expect to be referral centers for maternal and fetal problems, also had rates that ranged widely, from 12.1 to 25.2 per 100 singleton first births.

Rural counties generally had slightly lower cesarean rates (averaging 21.7 per 100 births) than more heavily populated counties (averaging 22.5 per 100 births). Only Washington County had a statistically significantly higher rate of cesareans for singleton first births (23.7 per 100 births) than the state; Lane was the only county with a significantly lower rate (15.9).

There appear to be no differences in maternal medical complications and labor and delivery complications between the populations of women giving birth in Lane and Washington counties. Even within these two counties, there are substantial differences in cesarean rates by hospital.

WHAT DRIVES CESAREAN RATES?

Clinicians can choose to deliver a first baby by Cesarean because of complications of labor or because of medical problems encountered by the mother.

According to birth certificates, the most common complications of labor and delivery listed on birth certificates for primary cesarean deliveries in Oregon were dysfunctional labor (23% of primary cesarean deliveries), fetal distress (22%), and cephalopelvic disproportion (21%). The most common specific maternal medical complication listed on birth certificates for cesarean deliveries was hypertension (11%). The frequency with which these complications are noted on birth certificates has not changed substantially in recent years. Of note, almost 10% of births

Conditions reported on birth certificates of singleton first births, Oregon 2000

Condition	Caesarean		Vaginal	
	N	(%)	N	(%)
Medical factors only	369	(9.4)	2,806	(19.4)
Complications at labor and delivery (CLD) only	1,768	(44.8)	2,204	(15.2)
Both maternal factors and CLD	1,425	(36.1)	2,147	(14.8)
Neither maternal factors nor CLD	383	(9.7)	7,339	(50.6)
Total births	3,945	(100)	14,496	(100)

by primary cesarean in 2000 had neither complications at labor and delivery nor maternal medical factors reported on the birth certificate. We do not know if this information was inadvertently left off the birth certificates, or if these cesareans were elective procedures.

SO WHAT'S THE TAKE-HOME MESSAGE?

Although Oregon has consistently had lower cesarean rates than the nation, the recent increase in cesarean rates is concerning. Efforts to better understand the cause of this rate increase and address the factors driving that increase should be undertaken, particularly if cesarean rates continue to increase.

REFERENCES

1. National Library of Medicine. Cesarean Section—A Brief History. April 27, 1998. At: http://www.nlm.nih.gov/exhibition/cesarean/cesarean_2.html.
2. CDC. Rates of cesarean delivery—United States, 1993. *MMWR* 1995; 44:303–7.
3. Martin JA, Hamilton, BE, Ventura SJ. Births: Final Data for 2000. National vital statistics reports.; vol. 50, no 5. Hyattsville, Md.: National Center for Health Statistics, 2002.
4. Menacker F, Curtin SC. Trends in cesarean birth and vaginal birth after previous cesarean, 1991–99. National vital statistics reports.; vol. 49, no 13. Hyattsville, Md.: National Center for Health Statistics, 2001:2.
5. Greene MF. Vaginal delivery after cesarean section—is the risk acceptable? *N Engl J Med* 2001; 345:54–5.
6. Levine EM, Ghai V, Barton JJ, Strom CM. Mode of delivery and risk of respiratory diseases in newborns. *Obstet Gynecol*, 2001; 97:439–42.
7. Curtin SC. Rates of cesarean birth and vaginal birth after previous cesarean, 1991–95. *MVSR* 1997;45: No. 11 Supp. 3.

SMALLPOX VACCINE QUESTIONNAIRE RESPONSE

THANKS TO ALL who responded to the Smallpox Vaccine Questionnaire in the February 12 issue. Overall, 974 people responded (554 to the *CD Summary* query and 420 to a duplicate questionnaire sent out in the Board of Nursing newsletter). We were happily overwhelmed by the response: many of you agreed to volunteer in the event of smallpox. We pledge to continue the conversation and keep *CD Summary* readers up to date. If you missed your opportunity to respond or would like to discuss smallpox further, it's not too late! Contact Maria Gilson Siström, RN, MSN, at 503/731-4024.

	Respondents	1 vax	2 vax	3/3+ vax	Experienced
Physicians	554	77	29	40	33
PA/NP/RNs*	420	162	164	94	70
Total	974	239	193	134	103

*Board of Nursing newsletter respondents