Striking the right balance
Global caesarean delivery rates in an era of controversy

Dr. Lori Stetz

Senior Medical Director
Aetna International

aetna®

Is there such a thing as a universal optimal caesarean rate – and does it help achieve greater health equality across the globe?

It has long been recognised that caesarean delivery can be a lifesaving procedure for both mothers and babies. But understanding when to use this medical procedure has been a source of controversy for many decades. Since 1985, the World Health Organization (WHO) has held a position stating that the optimal rate for caesarean deliveries should not exceed 10 to 15 percent across a population[1], but this figure was recently challenged by a study in the Journal of the American Medical Association (JAMA)[2], which aimed to get the most accurate estimate of caesarean section rates and put it up against maternal and neonatal mortality. That study found that the WHO goal may well be too low, and that better outcomes were achieved when the rate was somewhat higher, around 19 percent. But is there such a thing as a universal optimal caesarean rate – and does it help achieve greater health equality across the globe?

Caesarean delivery is one of the most commonly performed surgical procedures in the world – and can be critical when certain complications of pregnancy arise. Surgical delivery can be appropriate – and lifesaving – for a number of reasons for both a mother and baby. Medical conditions of the mother, such as excessively high blood pressure, or of the baby, such as low foetal weight or poor growth, may prompt a caesarean section. A number of indications may also arise during the birthing process itself, such as breech presentation or cephalopelvic disproportion, to name a few. In these instances, either planned or emergency caesarean delivery can save the life of mother and child.

WEIGHING UP THE PROS AND CONS

But there are also downsides to surgical delivery. Caesarean deliveries have the potential to cause significant and sometimes long term complications in the mother. Increased blood loss, uterine rupture with future pregnancies, damage to organs and increased recovery time are all possible risks. Risks for the baby can include breathing problems which come about as a result of premature birth, particularly if the gestational age was not calculated correctly. For example, one study found a six-fold increase in the incidence of respiratory problems for babies delivered by caesarean before the onset of labour as compared with those delivered by vaginal birth.[3]

On a population basis, getting this equation right has multiple consequences. Too few caesareans could lead

1. http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/

2. Molina, G.; Weiser, T.G.; Lipsitz, S.R. Relationship between caesarean delivery rate and maternal and neonatal mortality. JAMA 2015, 314, 2263–2270.

3. Morrison JJ, Rennie JM, Milton PJ; Neonatal respiratory morbidity and mode of delivery at term: influence of timing of elective caesarean section. Br J Obstet Gynaecol. 1995;102(2):101.

> The global caesarean section rate is reported **to have increased 12.4%**

to increases in perinatal morbidity and mortality, while too many can consume precious health care resources and have a negative effect on individual health. The key, say the WHO and many experts around the world, is to ensure that this medical procedure is employed only when medically necessary – in order to strike the right balance between risk and benefit.

GLOBAL VARIATIONS IN CAESAREAN RATES

Rates for caesarean delivery vary widely across the globe, ranging by region from 7 percent in Africa to 40 percent in Latin America and the Caribbean through to 2014, according to the most recent statistical study.[4] On a country level, the variability is particularly stark, with lows such as 0.6 percent in South Sudan to those reported in Brazil, where more than 55 percent of all births are surgical. By comparison, about one in three women and one in four women deliver surgically in the US and UK, respectively.[5]

Even within a country, the rates can vary widely, between urban and rural areas, and between the public and private sectors. As documented in several countries, including France, Switzerland and Australia, there is evidence that rates of caesarean are significantly higher in the private sector versus public system, despite a propensity for the public facilities to undertake a higher percentage of more complex cases.[6,7]

And all these rates have been on a steady upward trend over the last several decades. In fact, between 1990 and 2014, the global caesarean section rate is reported to have increased 12.4 percent, with the largest increases seen in Latin America and the Caribbean[5]. In lesser-developed countries this increase likely reflects advances in medical and surgical capabilities, but in the developed world the rationale is less clear.

Multiple factors may contribute to the surge in caesarean deliveries. On the physician and hospital side, the influence of medical liability laws and scheduling convenience may play a role, and there also may be financial incentives. Research published in the journal Medical Care has demonstrated a clear relationship between litigation pressure in the U.S. and the rate of caesarean deliveries.[8]

On the patient side, mothers may request caesarean delivery out of fear of pain, or misconception that surgical delivery is better for the baby. In addition,

4. Betrán, AP, Ye, J, Moller, A-B, Zhang, J, Gülmezoglu, AM, and Torloni, MR. The increasing trend in caesarean section rates: global, regional and national estimates: 1990–2014. PLoS One. 2016; 11: e0148343.

5. Betrán, AP, Ye, J, Moller, A-B, Zhang, J, Gülmezoglu, AM, and Torloni, MR. The increasing trend in caesarean section rates: global, regional and national estimates: 1990–2014. PLoS One. 2016; 11: e0148343.

6. Einarsdóttir, K, Haggar, F, Pereira, G et al. Role of public and private funding in the rising caesarean section rate: a cohort study. BMJ Open. 2013; 3: 1–8.

7. FHF – Fédération hospitalière de France (2008), Étude sur les césariennes [Study on caesareans], Paris.

8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3096673/

So do more caesarean births result **in healthier mums and babies?**

attitudes among maternity care providers – midwives, obstetricians, and family practitioners – differ over the best approach to birth and various elements of maternity care[9]. Mothers want to be able to trust their providers, who may recommend caesarean section as it is an option they would have chosen for themselves. Social and cultural factors may also come into play: surgical delivery may be seen as a status symbol, or there may be desire in some cultures to control the delivery date for what is considered a more auspicious birthdate.

SO DO MORE CAESAREAN BIRTHS RESULT IN HEALTHIER MUMS AND BABIES?

To answer that question and identify an appropriate target, the recent JAMA article set out to examine the relationship between caesarean section rates and neonatal and maternal mortality rates in 194 countries[2]. In their article, Molina and colleagues note that previous studies on caesarean rates had shown conflicting results: in Latin American hospitals, as the rate of caesarean increased from 10 to 20 percent so did the risk of preterm delivery and neonatal mortality; similarly in Africa, neonatal morbidity was found to be higher in facilities with higher caesarean rates[10]. They also note that the WHO target of 10 to 15 percent was based on three studies in particular which were limited by either incomplete data or averaged rates across multiple years, not taking into account year over year variability. So this new study aimed to be the first to analyse data from one single year (2012) from all 194 WHO member countries.

What they found was that as the caesarean section rate increased, improvements were seen in outcomes. However, this effect tapered off – such that with rates greater than 19.1 percent there was no further improvement in maternal mortality. A similar effect was seen for neonatal mortality; it also increased up to the caesarean section rate of 19.4 percent without any further improvement. So while of course there is no "magic number" – and this figure needs to be considered across populations and over time – is 19 percent what we should be striving for? If so, how do we ensure that countries and health care partners, providers and facilities take steps to provide high quality care in all settings and achieve the right proportion of intervention, resulting in healthy mothers and babies?

DUBAI DATA STUDY

At Aetna International, we examined a segment of our own data in Dubai in order to understand how our population might compare. We found the rate of caesarean delivery in our insured membership to be

9. TEDx (2013), "Home or Hospital? Holding the Space for Human Birth": Saraswathi Vedam at TEDxAmherstCollege

10. OECD (2015), "Caesarean sections", in Health at a Glance 2015: OECD Indicators, OECD Publishing, Paris.

quite high relative to both the 19 percent target and the much lower WHO target of 10 to 15 percent: Our rate for 2014 was 45 percent; for 2015 it was 44 percent. Since our members come from a host of cultural backgrounds and access care in a diverse health care landscape, it is difficult to identify the reasons for those figures.

Observations from the physician and hospital perspective reveal a number of factors that might lead to higher rates of caesarean in this region. The medical malpractice environment is evolving in the UAE, with higher and more frequent settlements being awarded to patients. This may lead to a fear of litigation that influences doctors to recommend caesarean delivery more than may be clinically indicated. Financial incentives could also be potential factor in the UAE, since the prevailing payment model is fee for service, which tends to reward volume and perceived complexity of services.

From the patient side, the prevalence of obesity and diabetes in the Middle East is known to be increasing and has recently been gaining global attention. Both obesity and diabetes can lead to increased rates of caesarean delivery. While our membership spans numerous ethnic and cultural backgrounds, these trends may still be a driving factor. Additionally, in this population, there may be a higher patient preference for surgical birth. In some areas of the Middle East the availability of health information for women is limited, and this may perpetuate common perceptions which may or may not be scientifically based.

THE COST OF HIGH CAESAREAN RATES

With the rise in caesarean deliveries comes a rise in total health care costs. The consultancy Truven Health Analytics recently reported that the average cost in the U.S. for pregnancy and newborn care was $30,000 for a vaginal delivery and $50,000 – two-thirds more – for a C-section. Commercial insurers end up paying out $18,329 and $27,866 respectively.[11]

And those costs have risen dramatically in recent years. From 2004 to 2010, childbirth costs paid by U.S. insurers rose 49 percent for vaginal births and 41 percent for caesarean births. Even worse from a consumer perspective, out-of-pocket costs quadrupled over that time.

MAKING INFORMED CHOICES

With conventional wisdom that varies by region and studies that show differing results, there doesn't seem to be a definitive and universal optimal caesarean rate. Declaring a single target caesarean rate would be ignoring the real and significant differences in health care access across the globe, the diversity of social and cultural beliefs and even the impact of the medical malpractice environment. That being said, perhaps a benchmark like 19 percent could be helpful in efforts to ensure everyone has equal access to the use of appropriate medical technologies in maternity services in order to strike the right balance between risk and benefit. Efforts to balance these resources and costs will require fundamental shifts in medical education, malpractice reform, and payment and performance responsibility models so that quality of care is rewarded over volume of services provided. Increasing access to health information that's based on clinical research and experience may also lead to more informed choices among expectant mothers.

While no single answer is right for every situation, the importance of being armed with good information is critical when making a decision about caesarean delivery (aside from emergency situations, where the correct course of action is clear). Women need to thoroughly research and understand the pros and cons of surgery, and the region in which they're going to give

11. http://www.nytimes.com/2013/07/01/health/american-way-of-birth-costliest-in-the-world.html?pagewanted=all&_r=0

birth as it may be meaningfully different from that with which they are familiar. Bottom line: do the research and get the information to make an informed decision. That means working with clinicians and seeking the advice of trusted professionals. An International Private Medical Insurance provider should offer maternity care management programs with personalised advice and second opinions, educational materials and care coordination.

At Aetna International, we believe in empowering globally mobile expectant mothers by providing them evidence-based information and support they can use – in conjunction with their doctors and midwives – to make the best possible decisions for themselves, their babies and their families. Women need comprehensive prenatal and maternity support, and that can only be achieved when medical professionals listen to their needs, outline the various birth options and explain the risks, the benefits and the right balance between the two. With this kind of respectful support, women can understand when recommendations are driven by medical necessity and when they are influenced by a hospital, practitioner or country's culture. This approach is a positive step in ensuring appropriate caesarean section rates around the world and avoiding both unnecessary harm to mothers and babies and a negative impact to the wider health care community. This kind of enhanced decision-making encourages the appropriate development of emerging health care systems and fosters the safe and effective use of medical technology all over the world.

4. OECD (2015), "Caesarean sections", in Health at a Glance 2015: OECD Indicators, OECD Publishing, Paris.

Building a Healthier World®

Aetna International is part of Aetna, one of the leading diversified health care benefits companies in the U.S., serving an estimated 46.5 million customers with health benefits and resources to support them in making better informed decisions about their health care.

Aetna International is committed to helping create a stronger, healthier global community by delivering comprehensive health care benefits and population health solutions worldwide.

One of the largest providers of international private medical insurance services, Aetna International serves more than 700,000 members worldwide, including expatriates, local nationals and business travellers. Its global benefits include medical, dental, vision and emergency assistance and, in some regions, life and disability.

Aetna International also offers customised programs, technology and health management solutions to support health care systems, government entities and large employers in improving access to quality care and health care outcomes in tandem with controlling associated costs.

Dr. Lori Stetz

Senior Medical Director

Aetna International

As Senior Medical Director for Aetna International, Dr. Lori Stetz provides guidance, support and medical leadership for all care management activities around the globe. Lori drives medical policy, and actively participates in strategic planning and program and product development in concurrence with changing markets and technologies.

Lori also manages Aetna International's emergency evacuation program, helping to ensure appropriate health care delivery for our members around the globe. Prior to joining Aetna in 2009, Lori practiced primary and urgent care medicine and public health in the U.S. and a number of international settings, including Kosovo, Thailand and Nepal. Lori is certified by the American Board of Family Medicine and has special certification in Travel Medicine and Aeromedical Evacuation. Lori graduated from Haverford College, and holds an M.P.H. from Boston University and an M.D. from SUNY Downstate.

The information included in this communication is provided for information purposes only and it is not intended to constitute professional advice or replace consultation with a qualified medical practitioner.

Notice to UK residents: In the United Kingdom, Aetna Insurance Company Limited (FRN 458505) has issued and approved this communication.

Notice to all: Please visit http://www.aetnainternational.com/ai/en/about-us/legal/regional-entities for more information, including a list of relevant entities permitted to carry on or administer insurance business in their respective jurisdictions.

Aetna does not diagnose, provide care or guarantee access to health services. Not all health services are covered, and coverage is subject to applicable laws and regulations, including economic and trade sanctions, and the terms and conditions of the relevant plan documents.

www.aetnainternational.com

aetna®