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Bottoms up down under a Case Report of Emergency Vaginal Breech Delivery using Telehealth in Australian Remote Community

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Abstract

This report describes the use of Telehealth in outback Australia. In this case, an obstetrician could reach out and guide a primary health care worker to successfully resolve an obstructed delivery during the vaginal breech birth of an indigenous woman in a remote regional community. The events occurred in a small community health centre, approximately 300 km from the nearest obstetric service. The mother presented unexpectedly with contractions of active preterm labour leading to precipitant delivery. At the time of the video link, the Obstetrician saw a young aboriginal woman lying supine on a table, her skirt raised and her legs parted. A baby's lower limbs and body lay prone and unmoving, the head and neck still within the vagina. The woman was exhausted, and her care attendants were uncertain what to do. The situation was highly critical. After a moment of summation, the Obstetrician garnered the resources available, including the woman's sister, who was standing by her side, and the primary health care worker and coached them through the required steps of delivery to allow extraction and immediate neonatal resuscitation. The outcome was excellent, a testament to the mother's resilience and the support of her team. The case highlights inequalities faced by regional Australians; the isolation of profound distance, the scarcity of resources and opportunity, the proclivity of disease and risk, and the insatiable attrition of healthcare services inexorably stretched beyond their means. In this setting, it offers hope by acknowledging the success of innovative technologies such as Telehealth which can broaden the reach of virtual, face-to-face communication and allow us to connect in real-time to areas not otherwise accessible.

Keywords: Breech delivery; preterm birth; remote and rural community; Telehealth; indigenous health, migrant populations.

Introduction

Australia is a land of vast proportions. It spreads across nearly 7.6 million square kilometres, much of it far beyond the trim of coastal borders. It is home to almost 26 million people [1], 70% of whom will live, learn and labour within the sprawl of urban development. Australia is a land of many nations. We are home to many cultures and peoples of variegated backgrounds. Indigenous Australians and Torres Strait Islanders comprise approximately 3.2% of the total population [2]. Indigenous and Migrant Australians comprise just over 32% of all Australians. Unlike the general population, these groups tend to be more marginalized, living in regional or remote communities far away from city centers. Indeed, 99% of Indigenous Australians will live beyond the reach of urban centers, while migrants are nearly two times more likely, 69% compared to 30%, to share this abode [3].

Why is this important? In essence, people living in remote communities are less likely to avail the privileges of those provided in urban society. This is not a deliberate or sanctioned bias but more an imposition of isolation that inexorably debrides the ability to share the resources of opportunity and service seen elsewhere. The dichotomy is further widened by variances of lifestyle and risk that appear disproportionately prevalent in isolated communities. Education and employment opportunities are often limited [4], there may be language and cultural barriers to assimilation, and access to Medicare may be withheld, thus alienating many from healthcare services. There may be less affluence [5], making healthy food and lifestyle choices more difficult. Smoking and alcohol consumption tends to be higher and recreational drug use more ingrained and problematic [4]. Not surprisingly, they suffer higher rates of obesity, metabolic disease and other chronic morbidities, which place a taxing demand on health care services. This was

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highlighted during the peak of the COVID-19 pandemic when rural populations were especially vulnerable due to the burden of pre-existent disease.

Socioeconomic, cultural, and ethnic characteristics tend to marginalize populations. People in minority groups tend to peripheralize towards communities far from metropolitan resources. This brings advantages and risks, many compounded by the vast span of the land on which we live, where the average population density is little more than one person per square kilometre [6,7]. There is the threat of insufficient support from services of care that are too stretched to supplicate demographic and personal needs. In this case report, we highlight many of these dilemmas and share the hope for new technology, including Telehealth and other communication strategies that can help bridge the gap in traditional service delivery.

Case Report

The case is set in a remote community township in central Australia. The centre is supported by a base hospital that provides outreach to this and other scattered communities extending to the north and in all directions towards adjoining state borders many hundreds of kilometers away. Access is by bitumen road or small aircraft provided by the Royal Flying Doctor Service. The attending Obstetrician was on study leave in the Northern Territory to better understand indigenous culture and lifestyle and give back some skills and teaching to younger graduates. He was on-call for the base hospital when he was hailed urgently to assist with an unexpected vaginal breech delivery. He arrived quickly at the birthing unit only to find it empty. He was directed to the emergency department but, again, found no one in labour. He was told to go upstairs to IT (Information Technology and communication), where he found the emergency transfer team gathered around a computer monitor. He was ushered towards the screen while someone behind put earphones on his head. Bin front of him was live footage of a woman lying prone on an examination table. She was moaning, naked from her T-shirt down, her legs extended, and a baby lying half born between them. The baby's limbs and body had been delivered, the back was facing upwards, and its head and neck were still in the vagina, presumably trapped. The baby was flaccid and unmoving. There was dirt and disarray on the table but no apparent signs of significant bleeding. The mother was mostly still, moving with the discomfort of her contractions but not pushing actively. She had beside her another woman holding her hand and, on the other side, a man who was a care worker (See **Figure 1**).

It was an unprecedented situation. Before him lay an indigenous mother; she was exhausted. She had a partially delivered breech that was almost certainly obstructed, and he could not reconcile how he could help in a situation so far distanced from him. He asked the people around him where it was happening. He was told it was a small community approximately 300 km northwest. Other than the Telehealth link, there was no other contact or communication. There was no immediate road transport for dispatch and no flights in the air for retrieval. The patient and her attendants were entirely on their own. The situation seemed impossible. After a moment, he did the only thing that was possible. He talked, He began by asking the attendants who they were. The lady on one side was the mother's sister. She had come in with the patient half an hour ago. She said the labour had been unexpected, and the transition to birth when she arrived precipitate. He learned that the mother was about 30 years old; she had birthed one baby before naturally and was currently almost 34 weeks pregnant. Apart from today, there had been minimal contact with the outreach clinic. He thanked her and told her who he was. He then introduced himself to the male attendant. He discovered he was a primary health care worker in the community who knew the patient but had little understanding of her current pregnancy. He was skilled in first aid but had not delivered a baby before. He said he was the one who had dialled into the telehealth service and that the baby had been born about 5 or 10 minutes earlier. The doctor thanked him and, now, with greater calm, began to lead the room. He asked the two attendants to bring the mother to the bottom edge of the bed and hold her legs up, one person on either side, in a lithotomy position to allow the baby to hang down from the vagina. He then asked the woman to encourage her sister to push with her contractions. He asked to press downwards with her free hand just above the pubic bone, imagining that as she did so, she was squeezing the top of the baby's head into the pelvis. He asked the care worker to feel the abdomen to help coordinate the woman's pushes with uterine activity. As they worked together, the specialist noted that the nape of the neck appeared to be showing. Sensing that delivery might occur, he asked the sister to help the patient hold her thighs high against her chest and push again with as much strength as possible. He asked the care worker to come between her legs and told him to hold the baby by the feet and to bring the legs extended towards the horizontal. He then asked him to keep them steady with one hand while his other felt for the baby's face. When found, he asked the attendant to gen-

tly put one finger into the baby's mouth and bring the chin towards the chest. With everyone working together, he asked the attendant to sweep the baby upwards slowly. To everyone's amazement, the head delivered. He brought the baby to the mother's chest while the sister brought a towel to keep it warm. It was pale and flaccid, and though not crying, he could feel a heartbeat in the chest. The doctor asked them to rub the baby vigorously. He cut the cord and used a bag and mask with air to support breathing (See **Figure 2**). In the meantime, the sister stayed close to the mother. The doctor asked her to rub the funds of the uterus to encourage third-stage separation and to keep the mother comfortable with warm blankets. A few minutes later, the baby was stirring with respiratory movements seen under the mask. They became stronger, and before long, the baby was breathing independently and brought back to the mother's breast. Syntocinon was found and given, and the placenta was delivered without significant bleeding. The mother, the sister, and the care worker carried on without question. They were happy and exhausted, they had done what was asked of them, and that was all there was to it. There was no blame, no thought that things could have been otherwise, just a relief that something wrong was now better. Back in the hospital, the specialist took a deep breath; he could not believe that things had worked so well. No one could. Six months later, the patient was seen again when she returned to town to visit family. She was happy, and her baby boy met all his milestones perfectly.

Discussion

Preterm delivery occurs when a birth is before 37 completed weeks of gestation. It is a complication of pregnancy that affects just over 10 % of all births. It is associated with a disproportionate risk of neonatal harm that may persist for as much as five years postpartum [8]. Adverse outcomes are invariably related to functional immaturity of the lungs and other major organs, including the central nervous system. These sequelae become more catastrophic as gestational age and birth weight decrease.

A baby's presentation describes the part leading towards the maternal pelvis in a longitudinal or vertical lie. At term, nearly 97% of babies will present as cephalic, which means the head will be the lowermost at the level of the pelvic brim. In contrast, a breech presentation occurs when the baby's bottom (breech) or feet (footling) are leading [9]. It is rare to find this at term; however, it becomes more likely at earlier gestations due in part to the smaller size of the baby allowing greater relative mobility within the uterus [10]. The way a baby presents may thus vary, particularly at lower gestational ages. This is significant because if labour occurs while the baby is in a breech position, there is a higher risk of complications. These are varied but may be explained by the mechanics of foetal movement as the baby descends against the soft tissue resistance of the cervix and vagina. A cephalic birth tends to flex the head towards the chest, thus presenting the smallest possible surface area – the vertex - during descent. In contrast, during breech delivery, particularly when external traction is used as an adjunct to pull the baby out, the head trailing behind will tend to extend so that the diameters it presents to the pelvis are larger. This makes it more likely to obstruct and become trapped above the symphysis when the body has delivered. This is an acute obstetric emergency, and this scenario is what confronted the Obstetrician when he first saw the patient described in this case report.

The Term Breech Trail of Hannah et al. in 2000 advocated elective caesarean section delivery to reduce the neonatal risk for babies presenting as breech at term [10]. Whilst these findings are now less resolute, a systematic review of preterm breech delivery shows indisputable benefits for babies born by elective caesarean compared to vaginal delivery: 3.8% mortality versus 11.5% [11]. There are many reasons why this is so. The preterm baby's head is relatively larger than its body and may become trapped if the latter slips through an undilated cervix. Additionally, the breech fits less snugly within the cervix, increasing the risk of cord prolapsed [12] was partially delivered with likely head entrapment. It was a dire set of circumstances. We may reflect on the reasons that may have led to the mother's late arrival. She lived in a remote community with limited access to obstetric or midwifery care. Primary health providers were available but without the province of specialist training. When we reflect, we might posit that reasonable medical care should always be on-site, but we know this is not always possible. Alternatively, we might argue that we should move patients with imminent need to centers where we can provide care before the realization of critical risk. This is prudent, but again, not always practical nor indeed desired. Risks are not always as we see them; when they are, their impact may not be enough to balance the cost of moving a person from home and family. Indigenous Australians are connected to the land. It is the home of ancestors and culture and is woven into the fabric of life and the lives of the children they nurture and carry. Moving away and separating a pregnant mother from her home, family, land, and country may affect her and the future of the baby she is about to birth. She will hide or resist regardless of the risk to protect that right. For these and no doubt many other reasons vital to her, our patient presented when she had to, late in labour, and without having had any formal care till then. To us, this seems wrong, and we agitate that there has been a disinclination to accept the care we offer, but we forget to see it through her eyes; we forget to ask why this might be so. It does not mean we stop trying; it just means there are reasons why we might not always succeed

Few of us would be brave enough to imagine that had these events occurred in a metropolitan birthing centre, the apprehension of a seemingly irresolvable crisis would have been any less confronting. The difference, of course, is that had it done so, the immediacy of face-to-face contact, access to surgical intervention, and the support of colleagues would have made the situation less onerous. However, that was not to be. When first encountered by our consultant, the situation seemed hopeless. He was paralyzed by distance. He was not there; he was not where he needed to be to make a difference. He felt

there was nothing he could do. What transpired, however, in the moments that followed demonstrates the resilience of healthcare training and the innovation of new communication technologies that provide virtual, participatory platforms in real-time that can make a difference when nothing else seems possible.

Simulation training has been used extensively in the aviation industry since the 1930s and in the medical field in the early 1960s with simple resuscitation mannequins [13]. In 2006, a team from Bristol introduced PROMPT (Practical Obstetric Multi-Professional Training), a team-based practice training program for healthcare professionals using simulated obstetric emergencies to develop real-life skills and communication. Following its introduction, a comparative evaluation of maternal and neonatal outcomes showed a 50% reduction in neonatal hypoxic brain injuries and a 70% decrease in injuries after shoulder dystocia compared to outcomes four years prior [14]. PROMPT is now integral with mandatory training for all healthcare workers employed in women's health in Australia. Courses are held each year and continue to promote outcomes that encourage teamwork, safety, communication and leadership perspective. They practice drills and skills to manage conditions requiring high levels of cognizance or that are not often seen in routine daily practice. In so doing, they develop a repertoire of performance behaviours integral to effective critical care. This is how our clinician coped. He was not expecting the events that were to unfold before him. He could not have prepared for them. Nevertheless, it took just moments to identify what he could do. He could innovate and improvise, take stock of the situation with perspective and acknowledge the available resources. He could communicate effectively with those present and work with them to do what was possible using clear instruction and direction. At some point, we may all be called upon to deal with things entirely outside our comfort zone or normal expectations, but the faculty we keep from simulation training can help us stay poised to do the best we can. It does not mean things will always work out, but we know if they do not, it is not through a lack of trying.

Telehealth brings the ability to share information across distances. It began with telegraph and radio in the 1900s and later included video links in the 1950s. The 1990s saw a renewed commitment to bring communities closer together and ensure reliable outreach from medical services [20, 21, 22]. Since the early peak of COVID-19, reliable audio-visual platforms have been widely used using digital and satellite internet connections. We cannot make the land any smaller. We cannot bring everyone to the city, but, in some sense, we can be with them in their community and share important decisions in real time. We can talk, we can counsel, and offer choices. We can make plans to support, provide retrieval services, and, as in this report, we can be there in whatever way is possible to do the things that are needed as best we can. This need has never been greater. Of the many aftermaths of COVID-19, social isolation has worsened, the cost of living has risen, marginalization of population subsets has become more extreme, and the gap between idealized and actual health care outcomes has failed to narrow. This is nowhere more evident than in the communities of remote Australia. Telehealth has expanded to meet the challenge, but many limitations remain. Infrastructure, including internet access, is not available in all locations. The maintenance of equipment, security, and up skilling of the local population to utilize it effectively may still be lacking [15]. There may also be social or cultural barriers to its integration, such as a preference for traditional interactions by community and health practitioners unfamiliar with the interface. The Government is implementing education programs to break down barriers and create incentives to encourage health workers to work in rural areas. In our report, the Obstetrician was on study leave as part of a personal commitment to engage and experience the Indigenous community from the ground up. For him, this was appropriate. It is not necessarily something that all health care workers should do; however, it is something they may want to do if encouraged to take the opportunity to do so.

The Royal Australasian College of Surgeons (RACS) acknowledged that less than 12 % of their specialist workforce practised beyond urban boundaries [16]. In the coming years, one of their biggest priorities is to institute a Rural Health Equity Strategy, which will address the inequity of health services and incentives to increase awareness of this need and the importance of cultural and societal sensitivity [16]. Similarly, the Rural Health Outreach Fund (RHOF) supports outreach programs to improve the egress of medical specialists, general practitioners and allied health care providers to regional, rural and remote clinical practice [17].

Conclusion

Our case report is not just about problems. We live in a vast country where distance is inevitable, and it will always be challenging to provide quality and timely care to everyone, no matter where they are. However, we are trying. We are implementing strategies to improve quality of life through primary health incentives, funding to support community infrastructure and education, and broadening employment opportunities to sustain dignity and independence. We are bringing trained people to the bush to share their experience and skills, people who can make a difference, empower, and celebrate our nation's true resilience. We are all one community, whether that be the sister who stands by her sibling in labour, a community worker who stays to help, or a trained obstetrician who has moved beyond comfort zones to share and be where it matters. Australia is a land of privilege, and we are lucky to be here.

References

1. National, state and territory population. Statistics about the population and components of change (births, deaths, migration) for Australia and its states and territories. ABS. 2021.

2. Recognition and indigenizing official statistics: Reflections from Aotearoa New Zealand and Australia, research article Kukutai, Tahu & Waletr.Maggie Statistical Journal of the IAOS. 2015; 31(2): 317-326.

3. Families then & now: Households and families L Qu - Australian Institute of Family Studies. 2020.

4. AIHW. Rural and remote health [Internet]. Canberra: Australian Institute of Health and Welfare. 2020.

5. NRHA-factsheet. Poverty in rural and remote Australia. 2017.

6. Regional Australia. Informed decision. 2022.

7. National Rural Health Alliance. Demography Demography | NRHA - National Rural Health Alliance

8. S Margo et al. Global burden of prematurity. Seminars in fetal and neonatal medicine. 2016; 21(2): 74-79

9. Common determinants of breech presentation at birth in singletons: a population-based study. 2014.

10. Term breech presentation-Intended cesarean section versus intended vaginal delivery-A systematic review and meta-analysis Julia Wängberg Nordborg,Therese Svanberg,Annika Strandell,Ylva Carlsson. 2022. https://doi.org/10.1111/aogs.14333

11. Francisco J, Fernández-Carrasco, Delia Cristóbal-Cañadas, Juan Gómez-Salgado, Juana M Vázquez-Lara, Luciano Rodríguez-Díaz, et al. Maternal and fetal risks of planned vaginal breech delivery vs planned caesarean section for term breech birth: A systematic review and meta-analysis, J Glob Health. 2022; 12: 04055.

12. Ga Won Jeon, Hye Jung Choo, Yong Uk Kwon. Risk factors and screening timing for developmental dysplasia of the hip in preterm infants, Author information Article notes Copyright and License information Disclaimer. Clin Exp Pediatr. 2022; 65(5): 262-268.

13. Martine Casteels, Kathleen Podevyn, Henk Vanoverschelde. Implementation of a breech program in a Belgian obstetric team, Frank Louwen First published. 2021. https://doi.org/10.1002/ijgo.14003

14. l Delnaz Fard, Chiara S Borchers, Jill-Caren Philippeit, Anja V Philippeit, Laura R, Kaukemüller Lara R. et al. Comparing forces on the fetal neck in breech delivery in lithotomy versus all-fours position: a simulation mode. von Kaisenberg Rüdiger Klapdor Maternal-Fetal Medicine. 2022.

15. Shane A Kavanagh, Penelope Hawe, Alan Shiell, Mark Mallman & Kate Garvey. Soft infrastructure: the critical community-level resources reportedly needed for program success, BMC Public Health. 2022; 420.

16. Improving rural health outcomes is a priority for RACS. 2017.