



Stillbirth in Australia 2: Working together to reduce stillbirth in Australia: The Safer Baby Bundle initiative



Christine J. Andrews^a, David A. Ellwood^{a,b}, Adrienne Gordon^{a,c}, Philippa Middleton^{a,d}, Caroline S.E. Homer^e, Euan M. Wallace^{f,g}, Michael C. Nicholl^h, Carrie Marrⁱ, Kirstine Sketcher-Baker^j, Megan Weller^a, Sean K.M. Seeho^h, Vicki J. Flenady^{a,*}, on behalf of the Safer Baby Bundle collaborators

^a Centre of Research Excellence in Stillbirth, Mater Research Institute, The University of Queensland, Brisbane, Australia

^b Griffith University, School of Medicine and Gold Coast University Hospital, Gold Coast, QLD, Australia

^c Charles Perkins Centre, University of Sydney, Sydney, NSW, Australia

^d SAHMRI Women and Kids, South Australian Health and Medical Research Institute, Adelaide, Australia

^e Burnet Institute, Melbourne, Victoria, Australia

^f Safer Care Victoria, Department of Health and Human Services, Melbourne, Victoria, Australia

^g The Ritchie Centre, Department of Obstetrics and Gynaecology, Monash University, Clayton, VIC, Australia

^h Women and Babies Research, University of Sydney, Sydney, NSW, Australia

ⁱ Clinical Excellence Commission, Department of Health, Sydney, NSW, Australia

^j Clinical Excellence Queensland, Department of Health, Brisbane, QLD, Australia

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ABSTRACT

The rate of late gestation stillbirth in Australia is unacceptably high. Up to one third of stillbirths are preventable, particularly beyond 28 weeks' gestation. The aim of this second paper in the Stillbirth in Australia series is to highlight one key national initiative, the Safer Baby Bundle (SBB), which has been led by the Centre of Research Excellence in Stillbirth in partnership with state health departments. Addressing commonly identified evidence practice gaps, the SBB contains five elements that, when implemented together, should result in better outcomes than if performed individually. This paper describes the development of the SBB, what the initiative aims to achieve, and progress to date. By collaborating with Departments of Health and other partners to amplify uptake of the SBB, we anticipate a reduction of at least 20% in Australia's stillbirth rate after 28 weeks' gestation is achievable.

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1. Introduction

Stillbirth in Australia, once a neglected topic, is now more prominent as reflected in increased research, advocacy, guidelines, and national reports [1]. The aim of this second paper in the Stillbirth in Australia series is to highlight one key national initiative, the Safer Baby Bundle (SBB), which has been led by the Centre of Research Excellence in Stillbirth (Stillbirth CRE) in partnership with state health departments. The paper describes the development of the SBB, what the initiative aims to achieve, and progress to date. Strategies used to support state-led quality improvement programs to implement and deliver SBB resources and education in the clinical setting are described.

2. Taking a national approach to address stillbirth

As outlined in the first paper [2], the rate of late gestation stillbirth in Australia is unacceptably high. Many stillbirths are preventable, particularly beyond 28 weeks' gestation when survival for those born alive is extremely high [3]. Supported by high quality clinical audits [4], it is proposed that 20–30% of these stillbirths could be avoided with better care [5].

Increasingly, 'care bundle' approaches are being used in many contexts with the aim of improving quality of health care and outcomes [6]. Typically care bundles include three to five evidence-based elements designed to formalise care and/or reduce practice variation [7]. In the United Kingdom (UK), care bundles to address preventable stillbirth have shown positive results. The Saving Babies' Lives Care Bundle (SBLCB) [8], and the Scottish Maternity and Children Quality Improvement Collaborative (MCQIC) [9,10] were associated with a reduction in stillbirth of 20% and 22.5%, respectively. A similar bundle approach for

* Corresponding author at: Centre of Research Excellence in Stillbirth, MRI, Level 3 Aubigny Place, Mater Health Services, South Brisbane, QLD 4101, Australia.

E-mail address: vicki.flenady@mater.uq.edu.au (V.J. Flenady).

@VickiFlenady (V.J. Flenady)

Australia was first proposed by Stillbirth CRE investigators in early 2017. The successes of the UK bundles, combined with a national recognition of the importance of stillbirth prevention efforts [1], were key drivers for the realisation of an Australian bundle, the SBB. We proposed that, as occurred in the UK, successful national implementation of the SBB could lead to a 20% reduction in stillbirths after 28 weeks' gestation and save the lives of around 200 babies annually.

3. Development of the Australian Safer Baby Bundle (SBB)

Addressing commonly identified evidence practice gaps, the SBB contains five elements that, when implemented together, should result in better outcomes than if performed individually. Aligning with a bundle approach, these elements have strong clinician support as important components of routine antenatal care [7]. The SBB was modelled on the UK bundle [8] with modifications to address priorities for Australia. Extensive consultation was undertaken with the project's partners and collaborators, national experts, professional bodies, parent advocates and through a survey of lead clinicians across Australian maternity hospitals [11]. The steps taken to develop the SBB and its related resources are summarised by Fig. 1. and include selection of potential elements, selection of final set of five elements, development of recommendations and resources for each element (including evidence summaries), and lastly finalisation of recommendations and resources (including brochures, eLearning and the SBB Handbook and Resource Guide).

3.1. Selecting the SBB elements

The SBB includes three of the four UK bundle elements (smoking cessation support, fetal growth restriction (FGR) and decreased fetal movements (DFM) plus two additional elements (maternal sleep position and the timing of birth for women with risk factors for stillbirth) [12]. Fetal monitoring in labour (an element of UK bundle) was not included as training is already

widely available with good uptake through the Royal Australian and New Zealand College of Obstetricians and Gynaecologist's (RANZCOG) Fetal Surveillance Education Program (FSEP) [13,14] and other statewide programs [15]. For each element of the SBB, interventions were based on evidence summaries developed in partnership with the Perinatal Society of Australia and New Zealand (PSANZ) [16–20]. Where evidence was limited, best practice guidance was determined through consensus by multidisciplinary teams. The five SBB elements are shown in Fig. 2, with rationale and recommendations for each briefly outlined in the next section. Comprehensive details for the evidence-base, rationale supporting inclusion in the SBB, key recommendations and implementation approach in the clinical setting for each element is beyond the scope of this commentary and are available through the Stillbirth CRE website [12].

3.1.1. Element 1. Supporting women to stop smoking in pregnancy

Smoking during pregnancy is strongly associated with stillbirth and other serious adverse outcomes, such as FGR, preterm birth, sudden infant death syndrome, and has lifelong impacts on a child's health [21,22]. High-level evidence exists for the benefits of smoking cessation interventions for women during pregnancy [23,24], however uptake into practice is suboptimal [25]. Although smoking rates among pregnant women in Australia have fallen over the last decade (from 14.6% in 2009 to 9.6% in 2018) [26], there is still wide variation across the population, with higher rates particularly among Aboriginal and Torres Strait Islander mothers (43%) [26].

Whilst reducing smoking in pregnancy is not a new goal, the SBB's strong emphasis on reducing variation and optimising uptake of recommendations nationally is a key component for this element. Key messages for healthcare professionals providing antenatal care include: women expect to be assessed for tobacco use; regardless of smoking status, offer all women an exhaled breath carbon monoxide (CO) reading (and their partners where available); if smoking, provide brief advice on the benefits of



Fig. 1. Outline of steps taken to develop the Safer Baby Bundle. PSANZ — the Perinatal Society of Australia and New Zealand, SBB — Safer Baby Bundle, NHMRC — National Health and Medical Research Council, Stillbirth CRE — The Centre of Research Excellence in Stillbirth.



Fig. 2. The five elements of the Safer Baby Bundle.

quitting; offer help (referral to Quitline or similar services) and follow up at every subsequent visit; nicotine replacement therapy may be offered. This approach corresponds to the three-step (Ask, Advise, Help) brief advice model, which is the model adopted by Cancer Council Australia.

3.1.2. Element 2. Improving detection and management of fetal growth restriction (FGR)

FGR is strongly associated with adverse pregnancy outcomes, including stillbirth [27] and neonatal death, and can also impact longer-term health by increasing the risk of chronic disease. When detected and managed, the rate of stillbirth for women with severe FGR can be reduced 20-fold compared to those that remain unrecognised [28]. Encouragingly, improving the poor rates of detection of FGR is possible [29].

This element provides an evidence-based, standardised FGR risk assessment care pathway for women with singleton pregnancies to aid decision-making on surveillance according to risk [17]. This includes assessing women for risk factors for FGR at the first antenatal care visit and at every subsequent antenatal visit from 24 weeks' gestation, and documenting this in the antenatal record. Maternity services should support training for all healthcare professionals providing antenatal care on the detection and management of FGR. An Australian FGR education workshop was developed and piloted across the state of Victoria. The program was well received by clinicians [30] and has been incorporated into the SBB eLearning package for national rollout.

3.1.3. Element 3. Raising awareness and improving care for women with decreased fetal movements (DFM)

Maternal perception of DFM is a marker for at-risk pregnancies [31]. Women who experience DFM have a four-fold increased risk of stillbirth [32] and double the risk of FGR [33]. DFM is also associated with other serious adverse outcomes, including fetomaternal haemorrhage, low birthweight, neonatal death and neurodevelopmental disability [20]. Clinical audits have found that care around the detection and management of women with DFM is often substandard and an important area that should be targeted for improvement [4].

As highlighted in papers 1 and 4 of this series [2,34] over the last five years the Stillbirth CRE and collaborators have been involved with developing and evaluating several large scale projects in Australia designed to raise awareness and improve management for women with DFM. This SBB element builds upon previous work providing guidance to assist maternity care providers to embed the DFM management care pathway and guidelines into practice including the provision of consistent advice and information for women attending their services.

3.1.4. Element 4. Improving awareness of maternal safe going-to-sleep position in late pregnancy

Going to sleep in the supine position from 28 weeks' gestation is a modifiable risk factor. There is an association between maternal supine going-to-sleep position and stillbirth after 28 weeks. Several studies have demonstrated that up to 1 in 10 late

pregnancy stillbirths could be prevented if all women in the last three months of pregnancy avoided going to sleep in the supine position [35,36]. Meta-analysis of all available studies confirms double the risk of stillbirth with supine going-to-sleep position, and sleeping on either the left or right side considered equally safe [37].

As outlined by paper 4 of this series [34], community campaigns in New Zealand, the UK, and Australia have recently released public health messages around the importance of women going-to-sleep on their side in late pregnancy to reduce stillbirth. A key component to implementing this element of care is education for healthcare professionals on the evidence-base for this element, and provision of information and advice to pregnant women in their care about the importance of going to sleep on your side from week 28 of pregnancy [18].

3.1.5. Element 5. Improving decision-making about the timing of birth for women with risk factors for stillbirth

High-level evidence in support of induction of labour for women at 41 weeks' and beyond to reduce stillbirth [38] has resulted in an increased uptake into practice. However, increasing trends towards even earlier births to prevent stillbirth are concerning [39]. The risk of stillbirth in ongoing pregnancies increases after around 38–39 weeks' gestation, however the absolute risk at term is low (around 1 in 1000 [40]). Research has identified factors which increase a woman's risk of stillbirth, such as overweight, obesity, maternal age, and smoking [27], where closer attention to inform the timing of birth to avoid stillbirth is needed. Benefits of early birth to reduce stillbirth need to be carefully weighed against the risk to the baby at a given gestation [5]. Through improved risk assessment and monitoring [41], the aim of this element is to reduce stillbirths at or near term, while not increasing unnecessary intervention and associated adverse outcomes.

The recommended approach to implementing this element is to ensure appropriate screening for stillbirth risk factors at the first antenatal care visit and again at 34–36 + 6 weeks to provide risk-appropriate monitoring and care based on shared decision-making [19]. Additional resources to support implementation of this element are currently under development. Supported by a comprehensive research program, this includes developing and evaluating: materials that help estimate a woman's individual risk of stillbirth to inform pregnancy care; co-designed materials that raise care giver confidence and expertise in providing shared, informed decision-making about timing of birth for women; and an education program for healthcare providers on communication with women about stillbirth risk and optimal timing of birth.

3.2. Developing the SBB resources

To develop the SBB resources we drew upon the principles of experience-based co-design (EBCD) methodology [42], bringing together women's and clinicians' perspectives. Resources developed include: best practice recommendations; implementation tools including clinical checklists and management algorithms; key performance indicators and audit tools; an education program for healthcare providers (eLearning and face-to-face training); information and educational resources for women and their families; and a communications and awareness campaign. The SBB has been endorsed by parent advocacy and support organisations, peak professional bodies and Departments of Health partners. The SBB e-learning modules, evidence summaries and resources were made publicly available in October 2019 following a launch in Federal Parliament [12].

4. Establishing partnerships

Establishing key partnerships and employing a collaborative approach to the development of the SBB from the outset have been crucial in ensuring the high visibility, acceptability and feasibility of rolling out the initiative nationally. The Stillbirth CRE has brought together a critical mass of parents, advocates, researchers, policy makers and healthcare professionals to collaborate, advocate and provide the expertise needed to support the development of the SBB. The groundswell of visibility around addressing stillbirth in Australia, bolstered by the Australian Government's Senate Inquiry [1], resulted in political commitment to make available resources and support for effective action. The establishment of formal partnerships with Departments of Health of three states initially (New South Wales (NSW), Queensland (QLD), and Victoria (VIC)) has facilitated acceptance and progression of the SBB initiative by leveraging off existing agendas and frameworks for collaboration and implementation.

Partnerships with parent-based advocacy and support organisations Stillbirth Foundation Australia and Still Aware have also been critical to ensuring the voices of parents are heard during the development and rollout of resources. Partnership and endorsement from professional organisations such as PSANZ, RANZCOG, the Australian College of Midwives (ACM), and Women's Healthcare Australasia (WHA) have ensured resources are relevant to healthcare providers across the different maternity care settings. Another key relationship that has brought clarity and direction to communications, design and strategy for the rollout of the SBB has been with the strategy and communications agency, 89 Degrees East.

5. Strong initial response and uptake by maternity services and maternity healthcare providers

The formative survey of lead clinicians across Australian maternity hospitals found that the majority (70%) would be interested in their hospital joining a collaborative to implement a bundle of care to reduce stillbirth [11]. While recruitment methods and strategies to support state-led SBB implementation programs (as part of the NHMRC Partnership Grant) have differed, a strong positive response from maternity services to join and engage with this collaborative approach to improvement has been observed. The rollout is currently well underway with 82 sites recruited across QLD (35), NSW (24) and VIC (23); sites responsible for approximately half of all births in these states. The Stillbirth CRE is working to partner with the Departments of Health of the other Australian states and territories who have given in principle commitment to implement the SBB, although some delays have been experienced due to the COVID-19 pandemic.

6. Taking the next steps

Although the premise of the SBB to reduce variation for the five elements of care is relatively straightforward, successful implementation nationally across a broad range of antenatal care settings, and locally by individual sites and services, is challenging. Effective introduction of a bundle into routine care requires planned, evidence-based implementation strategies that support uptake and influence the behaviour of healthcare professionals. Theory-driven development and implementation of care bundles are likely to increase their effectiveness; however, many lack this foundation [6]. Additionally, inherent levels of variation within healthcare systems are apparent, even when standard processes exist [43]. Therefore, the SBB requires a tailored strategy that maximises engagement with health department quality improvement agencies, maternity services, healthcare professionals, and

women and their families. One strategy employed during development was to ensure that, where possible, key recommendations for each element were designed to be descriptive rather than prescriptive to allow for jurisdictional (and/or local) customisation and appropriate clinical judgement [7]. To ensure that evidence and recommendations are locally relevant and actionable, a pragmatic approach to implementation was needed, recognising that strategies to embed the SBB into existing practice will differ across the jurisdictions.

A survey of maternity services across Australia in relation to the SBB elements identified areas for improvement in best practice for key recommendations and education for healthcare professionals including communications with women about stillbirth risks [11]. Similarly, findings from 174 healthcare professionals (95% midwives) who completed a survey prior to the SBB eLearning launch, identified the need to improve knowledge, confidence and practice across all five SBB elements (unpublished data). In this survey, while the majority felt adequately trained to support women during pregnancy across the SBB elements (range, 56–86%), a large proportion (range, 40–65%) wanted additional training. Perceived adequacy of training was highest for DFM (99%), with a very high level of confidence in knowledge (94%) and comfort having discussions with women (95%) compared to the other elements. Across all other SBB elements, up to 1 in 3 (range, 20–33%) reported not feeling confident in their level of knowledge. Additionally, many respondents agreed or strongly agreed (range, 32–62%) that having conversations around each element of the SBB may cause some anxiety for women. These findings emphasise the importance of ongoing consultation and engagement with key stakeholders, including women, to ensure resources developed best meet the needs of the end user.

Several strategies will be used to implement and optimise uptake of the SBB. Central to this is a dedicated implementation (quality improvement) project team for each jurisdiction, led by health service executive leadership and a multi-disciplinary steering committee. These project teams provide leadership in improvement science and generate and sustain motivation for change; provide tools to support practice change through education, audit, feedback and benchmarking; and implementation support forums to facilitate sharing of experiences. Each participating hospital will establish local SBB implementation teams led by clinical champions. These local teams will collaborate and share learnings through moderated online platforms, regular meetings and by attending face-to-face learning support forums. Learnings from these sessions combined with evaluations undertaken by the Stillbirth CRE through surveys, focus groups and interviews pre- and post-implementation (with women, healthcare professionals and implementation team members) will allow for a better understanding of the barriers and facilitators impacting uptake of the SBB. Along with planned iterative process evaluations, these insights will inform our future challenge of sustaining adoption of the SBB within the clinical setting.

As many of the causal pathways to stillbirth are common to other adverse maternal and neonatal outcomes [5], the SBB has the potential to reduce not only stillbirth rates but to also improve other outcomes. Conversely, potential for unintended harm is also recognised, such as increased unnecessary intervention and preterm birth. Careful monitoring and reporting of important clinical indicators during and after implementation of the SBB initiative is recognised as essential and is incorporated into the evaluation design [44]. Additionally, alignment of the key objectives of the SBB and the Australian Preterm Birth Prevention Alliance (APBPA) [45] is important, and this is being achieved by collaboration between the Stillbirth CRE and APBPA, which share key clinical and academic investigators.

Successful rollout of this national initiative needs the strong engagement of local maternity care providers. It is anticipated that

establishing key partnerships and employing a collaborative approach will maximise clinicians' awareness and engagement. It is further expected the freely available education package and suite of resources providing consistent information for both women and clinicians will facilitate the uptake of the initiative across Australia. By collaborating with Departments of Health and other partners to amplify uptake of the SBB, we believe that a reduction of at least 20% in Australia's stillbirth rate after 28 weeks' gestation is achievable. Working together, we can make a real difference in preventing stillbirth and improving the lives of women and their families.

Author contributions

Vicki J. Flenady conceived the SBB initiative and with David A. Ellwood and Christine J. Andrews, led the development of its content and evaluation in consultation with the authors. Christine J. Andrews drafted the manuscript with Vicki J. Flenady. All authors assisted in design of the SBB initiative, reviewed the manuscript and approved the final version.

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Ethical statement

Appropriate ethics approval was obtained from the Royal Brisbane & Women's Hospital Human Research Ethics Committee in June 2019 (approval number: HREC/2019/QRBW/47709).

Conflict of interest

Caroline Homer, the Editor-in-Chief of Women and Birth, commissioned this series and is a co-author of this paper. The paper was blind peer reviewed by three reviewers who ultimately recommended accepting the paper. All other authors declare that they have no competing interests.

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