

# Development of Website For Breastfeeding Women With Type 1 or Type 2 Diabetes

**Bodil Rasmussen** (✉ [bodil.rasmussen@deakin.edu.au](mailto:bodil.rasmussen@deakin.edu.au))

Deakin University

**Karen Wynter**

Deakin University

**Alison Nankervis**

Royal Melbourne and Women's Hospitals

**Catharine McNamara**

Mercy Hospital for Women

**Margaret McCormick**

Women and Children's Services, Sunshine Hospital

**Cheryl Steele**

Diabetes Education Services, Sunshine Hospital

**Mary Carolan-Olah**

Victoria University

**Sara Holton**

Deakin University

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## Research Article

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# Abstract

**Background:** Breastfeeding is an important contributor to child survival, nutrition and development and maternal health. Evidence indicates that breastfeeding rates were suboptimal in women with type 1 diabetes and type 2 diabetes, and they also tend to breastfeed for a shorter duration than other childbearing women. This study aims to identify information and support needs of women with pre-pregnancy diabetes who wish to breastfeed, from the perspectives of women themselves and from health professionals, and to develop a resource informed by these data.

**Methods:** Women with pre-pregnancy diabetes were recruited from a high-risk pregnancy clinic at a large metropolitan health service in Melbourne and from a major consumer organisation invited to participate in a brief, online survey about preferred information and support about breastfeeding. Health professionals were invited to participate in a focus group, about essential content for a resource on breastfeeding for women with pre-pregnancy diabetes. A website was developed informed by the data from the women and health professionals. Review of the website was conducted by women with pre-pregnancy diabetes, and an expert advisory group including clinicians and consumer representatives.

**Results:** Six women participated in the online survey; most indicated that they would prefer a website rather than other formats. Four health professionals attended a focus group. Both groups of participants reported that, for women with pre-pregnancy diabetes, current sources of information on breastfeeding are either not relevant or based on data less applicable to Australian conditions. A mobile-friendly website was developed using plain language and carefully selected images, and links to further support including a dedicated, private, moderated Facebook support group. Preliminary review indicates that the website is informative, easy to read and appealing.

**Conclusions:** The content and format of this breastfeeding website resource were developed based on women with pre-pregnancy diabetes and health professionals' contributions. It is expected that the provision of tailored evidence-based breastfeeding information and support via resources such as this, during pregnancy and the early postpartum period, will assist women with pre-pregnancy diabetes to make informed decisions about breastfeeding, and enhance rates of breastfeeding intentions, initiation and duration.

## Background

Breastfeeding is important to child survival, nutrition and development and maternal health (1). The World Health Organization (WHO) recommends exclusive breastfeeding for babies to six months of age to achieve optimal growth, development, and health. Thereafter, the continuation of breastfeeding is recommended for at least two years, together with complementary foods (2). The WHO recommendations provide strong evidence, however, there are marked variations in breastfeeding rates among regions and women of different population groups. Of particular importance, breastfeeding rates are suboptimal

among some 'at risk' groups, such as women with type 1 diabetes (T1D) and type 2 diabetes (T2D) (3) and these women also tend to breastfeed for a shorter duration than other childbearing women (4, 5, 6, 7). A recent Australian study found that compared with women with no hyperglycaemia in pregnancy, women with T2D had lower odds for exclusive breastfeeding at discharge, at 6 weeks and 6 months (8).

The major determinant for breastfeeding on discharge from maternity hospital among women with pre-existing diabetes is that their babies are breastfed their first feed (9). Despite this, breastfeeding initiation rates are often lower among women with pre-pregnancy diabetes compared to women with gestational diabetes and women without diabetes (10–12). Multiple factors impact on breastfeeding rates in women with diabetes.

Infants of women with pre-pregnancy diabetes are at higher risk of complications such as macrosomia, hypoglycaemia and congenital abnormalities (13). In addition, mothers with diabetes have higher rates of complications during pregnancy and delivery, such as preeclampsia and caesarean section and their infants are more likely to need admission to Neonatal Intensive Care Unit (NICU) and Special Care Nursery (SCN) units (14). Infants of mothers with diabetes also often have a more immature sucking pattern than infants of mothers without diabetes (15) and women with diabetes commonly experience difficulties with milk supply (16, 17), delayed lactation and fluctuating maternal blood glucose levels (19).

Women with diabetes may also be concerned about their own health (15) as well as the impact of their diabetes on the new baby (16). Some of the challenges experienced by women with diabetes in the early postpartum period may make it difficult for them to breastfeed and simultaneously maintain optimal blood glucose levels (17), particularly at night (18, 20). Acknowledgment of their effort, and encouragement of support from partners, families and friends is important (21).

Women who have diabetes and a newborn baby are often socially isolated and fearful of developing a hypoglycaemic episode while nursing their baby (18, 22). The use of technology to connect women with others in similar situations has proven to be beneficial and to enhance women's quality of life (23). In 2018, 88% of Australians were active users of the internet (24). Online technology, support and resources offer women with diabetes an affordable, easily accessible and familiar way of communicating and connecting with other women with pre-pregnancy who have also recently given birth. Technology can supplement usual diabetes care by providing educational and motivational support, especially as Australians increasingly access the internet and mobile devices (24), this increases the opportunities for HPs to engage with clients via technology.

Previous research has concluded that it is not diabetes itself, but factors associated with diabetes that explain the early cessation of breastfeeding (19, 25). In a British retrospective cohort study using maternal records and postal questionnaires in women with T1D and T2D it was found that getting the balance right between support and coercion could be a challenge as the perception of support versus pressure depended on the individual woman (26). Similarly, a Swedish qualitative study highlighted that even though support from health professionals (HPs) was valued, conflicting breastfeeding advice was an issue for women (19). The authors advocate for clear communication between midwives, diabetes

educators and diabetes specialists so that mothers can receive consistent, informed and timely responsive support to meet their information needs with regards to managing breastfeeding, diabetes and infant needs (25). Women may also have specific needs such as practical help to manage daily activities with an infant, their diabetes and breastfeeding. Women may also feel that their HPs do not and they may also have specific needs such as practical help to manage daily activities with an infant, their diabetes and breastfeeding to provide them with adequate breastfeeding knowledge, skills and support (17, 18) and they may also have specific needs such as practical help to manage daily activities with an infant, their diabetes and breastfeeding, There is a lack of current breastfeeding information and support resources tailored for women with diabetes-specific needs and requirements.

This study had three aims: **1.** to identify the educational and support needs of women with T1D and T2D who intend to breastfeed, are currently breastfeeding or had recently breastfed; **2.** explore HPs' perspectives of the educational and knowledge/information needs of women with diabetes who intend to breastfeed or are currently breastfeeding; and **3.** develop a resource that addresses women's preferences and needs and is informed by the diabetes HPs views and from the perspectives of women with T1D or T2D.

## Methods

### Study design

A mixed methods design with cross-sectional study.

The study comprised two phases: 1. A focus group with HPs and survey of women with diabetes to identify women's needs and preferences about breastfeeding and breastfeeding resources; and 2. Development of a psychoeducational resource about breastfeeding for women with diabetes based on the findings from phase 1.

**Phase 1:** A focus group was conducted with HPs to identify their perceptions of the key content of a breastfeeding resource for women with T1D or T2D including:

- a. Their perceptions of the sources of information and support that woman are currently receiving.
- b. Feasibility of various formats for delivery of information and support.
- c. Essential information about breastfeeding for women with T1D or T2D.

Women with T1D and T2D who were pregnant or had had a baby in the past 12 months were invited to participate in an online survey. The survey consisted of mainly fixed-response questions and assessed respondents' sociodemographic characteristics, number and type of previous births, breastfeeding intentions and expectations, preferred health information sources, perceptions of support from HPs and social networks. Open-ended questions were included at the end of the survey for women to outline the breastfeeding advice they would provide to women with T1D and T2D, and the HPs who support them.

The women's contact details were collected with the intention of inviting them to review the draft resource.

**Phase 2:** A resource was developed, informed by the findings from phase 1. The format of the resource was determined by women's preferences, as identified in phase 1. The resource was then reviewed by women with T1D or T2D. The resource was also reviewed by an expert advisory group, which included an endocrinologist with specific expertise in diabetes pregnancy and postpartum care, two credentialed diabetes educators, and three health researchers.

### Website development

The development of the breastfeeding website for women with diabetes was conducted in collaboration with an experienced health management web developer, the research team and the expert advisory group. A private Facebook group linked to the website was also established based on participant feedback received in phase 1 of the study. The aim of the group was to provide a forum where women could share breastfeeding and diabetes experiences and seek peer and expert support. The Facebook site was moderated by a credentialed diabetes educator with specific experience in working with women with diabetes during pregnancy and the postpartum period.

### Recruitment

Women with T1D and T2D who were pregnant were recruited from a high-risk pregnancy clinic at a major metropolitan health service. Women with diabetes who were pregnant or had had a baby in the past 12 months were recruited from a major consumer diabetes (Diabetes Victoria) organisation website. Women were invited to participate in an online survey, hosted on Qualtrics, or a semi-structured interview. HPs were recruited from a major metropolitan health service in Melbourne and were invited to participate in a focus group. Ethics approval was granted by both the relevant university and the health service.

Completion of the survey implied consent; written consent was obtained from interview and focus group participants. With participants' consent, the interviews and focus group were audio-recorded for transcription purposes.

For the preliminary review of the website, all women who expressed interest in participating in phase 1 of the research were contacted and invited to preview the website and complete a brief survey. The survey assessed the respondents' reflections on the acceptability, comprehensibility and accessibility of the website.

### Data management and analysis

Quantitative data were imported into IBM SPSS Statistics version 25, and descriptive statistics were produced. Qualitative data were managed using an Excel spreadsheet and a manual text analysis was conducted with (a) a broad-brush line-by-line coding, (b) development of themes which were then (c) cross checked by two researchers (BR, KW).

## Results

### Phase 1 Identifying information and support needs

As only six surveys were completed by women with pre-pregnancy diabetes, the findings reported below are mostly limited to the qualitative data from the open-ended survey questions and the focus group with HPs. However, women's responses to the fixed-response question about their preferences for format of the resource are also reported.

#### Participants

##### Women (Phase 1)

Six women aged between 25–35 years completed the phase 1 online survey. No women opted for a semi-structured interview. All women who participated in the survey were diagnosed with type 1 diabetes. Their age at diagnosis varied from 4 to 16 years. One participant was pregnant (undecided about breastfeeding) and all other women had had a baby in the previous 12 months (baby age 17–53 weeks).

##### Health Professionals (Phase 1)

A single focus group included four HPs: an endocrinologist, a credentialled diabetes educator, a midwife and a lactation consultant.

##### Women (Phase 2)

Four women, three with T1D, completed the phase 2 survey after having reviewed the draft website.

Two main themes were identified from analysis of the survey and focus group data: **1.** current breastfeeding information and support for women with diabetes was mostly inadequate or not applicable; and **2.** women with pre-pregnancy diabetes needed and desired more information about breastfeeding both during pregnancy and after their baby was born.

### Women's breastfeeding information and support needs and preferences

The women indicated that current breastfeeding information and support resource were mostly inadequate or not relevant to their needs. They reported that it was particularly important for their HPs to encourage and support them to breastfeed, given the challenges they faced simultaneously managing diabetes.

*'Most women with diabetes able to breastfeed, can require some perseverance & support' (Woman with T1D, survey response)*

One woman indicated that her HPs perceived that breastfeeding was too difficult for women while managing diabetes. She suggested that HPs should instead provide support and information.

*“Do not discourage them from breastfeeding. HPs should offer support & inform of other 24/7 support services that will reduce the stress and fear of breastfeeding with type 1 diabetes” (Woman with T1D, survey response)*

Focus group participants emphasised that HPs should be positive and encouraging about breastfeeding when providing care for women with pre-pregnancy diabetes.

*“If this is a first baby, women should try to think beyond the birth (although it’s hard). If it’s a subsequent bub, they may have had problems with breastfeeding previous babies; it is important to still consider breastfeeding.” (Health professional, focus group)*

HPs reported that information specifically relevant to reproductive aged women with T2D was lacking. They also highlighted that although T2D is increasingly common among younger people, women with T2D often feel embarrassed or guilty about their T2D diagnosis as it is perceived as an ‘old people’s condition’. HPs’ consultations with pregnant women with T2D also rarely include discussion of breastfeeding, in contrast to consultations with women with T1D.

*“Pregnant women with type 2, I think we [HPs] do a terrible job with them, information and services are] sort of merged with what is offered to women with GDM... Because we provide a lot of services for the GDMs, they’re so many of them, and the type 2s tend to go along” (Health professional, focus group)*

*“A lot of information available for people with type 2 is for middle-aged or older women and men, not for women in their thirties or twenties. We just don’t have [the information]. You’ll see the media stereotype – big fat belly walking on the beach.” (Health professional, focus group)*

Reassurance and appropriate information are therefore important for women with T2D.

*“I’m generalising but women with type 1 will often go on Facebook, look for support, whereas women with type 2 are often embarrassed about type 2. They consider themselves too young - it’s an old person’s [disease]...they often keep it hidden, don’t read up about it”. (Health professional, focus group)*

The women also indicated that there was a lack of relevant Australian-based information to meet their specific needs during the pregnancy and in the postpartum period.

## **Information and support needs specific to pregnancy and the postpartum period**

Both women and HPs identified that women with diabetes require specific information and support about breastfeeding during different stages of pregnancy and postpartum periods. Women and HPs provided a number of recommendations relevant to each stage (**summarised in Table 1**).



Table 1

Women’s and HPs’ Pregnancy and postnatal breastfeeding information and support recommendations, with illustrative quotes

Stage	Recommendation	Illustrative quotes
Pregnancy	<ul style="list-style-type: none"> <li>● HPs should discuss breastfeeding and related support needs and preferences with all women during pregnancy care consultations (Women)</li> <li>● Due to time constraints with pregnancy care consultations, women with both types of diabetes should be encouraged to seek assistance with breastfeeding as soon as possible/practicable (ie during pregnancy or immediately post-partum) (HPs)</li> <li>● Women should be provided with support to express and collect colostrum antenatally (HPs)</li> </ul>	<ul style="list-style-type: none"> <li>● <i>“Listen to the woman. Begin talking about breastfeeding plans while they are pregnant...Remind the woman that diabetes doesn't mean they can't breastfeed.” (Woman with T1D, survey response)</i></li> <li>● <i>“ Women should check with the hospital – they may be entitled to a lactation consultation. This is recommended 4 to 5 weeks before birth” (Health professional, focus group)</i></li> <li>● <i>“Antenatal expression of colostrum [is important] – women should collect, store and bring in colostrum. This can sometimes help to avoid special care (nursery admission) for the baby” (Health professional, focus group)</i></li> </ul>
During early postpartum and after birth	<ul style="list-style-type: none"> <li>● Women should be supported and encouraged to initiate breastfeeding (HPs)</li> <li>● Women should receive up-to-date, adequate information about the safety of diabetes medications during breastfeeding (HPs)</li> </ul>	<ul style="list-style-type: none"> <li>● <i>“If you don't plan to breastfeed for long, remember that just six to eight weeks of breastfeeding will still give your baby many benefits, including immunity from infections. Breastfeeding may also reduce the chance of your baby developing diabetes later in life” (Health professional, focus group)</i></li> <li>● <i>“ Insulin is safe to take while breastfeeding. Metformin has not been reported to have adverse effects on the baby. Some other medications can get into breastmilk – then baby's blood glucose levels will fall. Talk to a doctor for advice, also about medications for cholesterol and blood pressure” (Health professional, focus group)</i></li> </ul>
Establishing and maintaining breastfeeding	<ul style="list-style-type: none"> <li>● Women should be encouraged to seek assistance from and consult regularly with their diabetes care team during the postnatal period (Women and HPs)</li> </ul>	<ul style="list-style-type: none"> <li>● <i>“Don't wait too long until you see endocrinologist – sometimes, by the time women see him or her, it's too late, they are bottle feeding by then” (Health professional, focus group)</i></li> <li>● <i>“Speak to your endocrinologist. Get extra support. Be prepared for unusual blood sugar patterns” (Woman with T1D, survey response)</i></li> </ul>

Stage	Recommendation	Illustrative quotes
At home with a new baby	<ul style="list-style-type: none"> <li>● Women should be provided with practical advice and support about managing their diabetes and breastfeeding including the importance of 'flexible routines' and 'realistic expectations'</li> </ul>	<ul style="list-style-type: none"> <li>● <i>"Eat regular meals and snacks, monitor blood glucose levels more frequently including before &amp; after breastfeed or expression"</i> (Health professional, focus group)</li> <li>● <i>"Keep hypo kits all over the house when you first get home!"</i> (Woman with T1D, survey response)</li> <li>● <i>"Be flexible and recognize you can't have perfect routine."</i> (Woman with T1D, survey response)</li> <li>● <i>"Be realistic about what it means to have good control. Lack of routine/hormones makes it very hard to control diabetes"</i> (Woman with T1D, survey response)</li> <li>● <i>"Learn not to be too influenced by family and friends"</i> (Health professional, focus group)</li> </ul>

## Phase 2 Development and preliminary evaluation of the website

Based on the survey and focus group data a website <http://breastfeedingwithdiabetes.com/> about breastfeeding for women with diabetes was developed and included five separate modules: 1. Breastfeeding overview, 2. Breastfeeding intentions, 3. Establishing breastfeeding in the early postpartum; and 5. Breastfeeding and diabetes management. Each brief module takes between 5–15 minutes to read and includes links to accredited and best practice breastfeeding and diabetes websites such as National Diabetes Service Scheme (NDSS) and Australian Breastfeeding Association.

The website also includes three videos: 1. A personal story - a woman with T1D discusses her experiences of breastfeeding; 2. Professional expertise - a lactation consultant with expertise in diabetes discusses her role and encourages women to breastfeed; and 3. Research team – the principal investigator of the research provides an overview of the project.

The website content and images were reviewed by the expert advisory group and four women. Based on their feedback, minor changes were made before it was launched.

In general, women were positive about the website:

*"Pretty good! I love the information included about premature babies and Special Care Unit babies"*  
(Woman with T1D, Phase 2 survey)

Women identified possible gaps in the information provided (for example, information on how to collect colostrum antenatally, and how to access a midwife or lactation consultant) and a need for further explanation:

*“Most women with diabetes don’t see a midwife, it might be worth providing information on how to see one” (Woman with T1D, Phase 2 survey)*

*“More information on why things happen - eg. Why do your insulin needs drop” (Woman with T1D, Phase 2 survey)*

One woman commented that the quiz at the end of each module was not a positive experience:

The module quiz set up was not enjoyable. It made it feel like you could pass and fail which is not what I would want from a website encouraging breastfeeding. As someone who has felt like they are failing at feeding at times, a more supportive website would be better.

Based on the feedback from women, a link to information on how to collect colostrum, more explanation about why changes to blood glucose levels occur during breastfeeding, and general information about how to access a midwife lactation consultant during pregnancy was added to the website. The language used was also changed to indicate that the quizzes at the end of each module were optional and “just for fun” and ensured that positive feedback was provided to each quiz respondent regardless of their responses to the quiz questions.

## Discussion

This study investigated women’s with pre-existing diabetes and health professionals’ perspectives on the breastfeeding information, preferences and support needs. We found that it was important for the women that HPs discuss breastfeeding and related support needs and preferences at the earliest practical opportunity: encourage and support breastfeeding while managing diabetes, provide information about safety of medication during breastfeeding, promote ‘flexible routines’ and ‘realistic expectations’ and encourage women to seek assistance from their diabetes care team during the postnatal period. Based on the findings, and in consultation with women with diabetes, HPs, researchers and a web developer, a psychoeducational resource, ‘Breastfeeding with diabetes’ website was developed. A private Facebook group was also established and linked to the website to facilitate peer and expert breastfeeding and diabetes support and information.

The women and HPs in this study highlighted the importance of positive conversations between women and HPs about breastfeeding during the antenatal period about breastfeeding. This is consistent with our previous research which indicated that the intention to breastfeed is the most important factor in determining initiation and longer duration (three months postpartum) of breastfeeding in both women with and without diabetes, particularly women with T1D (27).

Appropriate and individualised breastfeeding support from HPs during pregnancy and in the postpartum period for women with diabetes was identified to be important by both women and HPs in this study. Our findings reflect that some HPs perceive bottle feeding as ‘a failure’ which also might put the women at risk for deteriorating their self-esteem and worry about their newborn babies’ health (28). It is important that health professionals acknowledge the guilt that many women who are unable to breastfeed may feel and that they support these women with bottle feeding their baby (29). Health professionals need to recognise the significance of this experience to the women, encourage communication about feelings and concerns, and support mothers to minimise feelings of guilt and ‘failure’ (30).

Information about the benefits of breastfeeding, and practical advice, should be provided to women during pregnancy (31). There is currently insufficient information in Australia regarding interventions to increase breastfeeding in women with pre-existing diabetes, however the Australasian Diabetes in Pregnancy Society (ADIPS) guidelines provide best evidence around the information of breastfeeding in women with diabetes (31). Previous research has also highlighted the relationships between multidisciplinary support and mothers’ self-efficacy about breastfeeding (28), especially if the support provides a practical and physical sense of self-empowerment (21); and the contribution of support to women’s success with breastfeeding (20, 22, 31) especially when support was planned (25), informed and provided by a multidisciplinary team (20).

The current website provides HPs with an opportunity to engage with women during pregnancy in a flexible and individualised manner. This will potentially enable the women to make informed decisions and support the woman to fulfil her intention to breastfeed. Professional support for breastfeeding in pregnancy, including in the form of phone calls (32) and text messaging (33) have been identified as successful in improving breastfeeding outcomes. These actions were more effective when continued during the intrapartum and postpartum periods (34, 35).

Women with T1D and T2D who have recently given birth and face the challenges of effectively managing their diabetes while breastfeeding and caring for an infant, may find it difficult to access in-person health services. Technology can enhance access to health services through increased flexibility and the ability to provide appropriate and timely information. Technology is also time- and cost-effective for users, as well as offering anonymity and networking opportunities, which are important for women with diabetes who are going through life transitions (183, 36). Consistent with the findings of this study, many young women with T1D identify a preference for internet resources (37) and the value of peer support (38). A Swedish study found that the provision of peer support via a web-based forum was perceived by women with T1D as facilitating the sharing of personal experiences, and providing advice, affirmations, and words of reassurance (39).

## **Strengths and limitations**

The strength of this study is the outcome: a unique educational and support resource based on best evidence and women with diabetes’ and HPs’ feedback. Despite the limitation of a small number of

participants including no women with T2D, the resource meets the requirements of women in pregnancy, perinatal and postnatal period in that it is flexible, easy to access and interactive as well as being developed for an Australian audience.

## Implications for health practice and policy

The Breastfeeding of women with T1D and T2D during pregnancy, perinatal and postnatal period:

- Promote breastfeeding as early in pregnancy as possible with practical, evidence-based and individualised information;
- Connect women with diabetes to a diabetes care team and community support (e.g. Australian Breastfeeding Association, lactation consultants, counselling services and local maternal and child health services) early in pregnancy and importantly ensure continuing contact in postnatal period;
- Promote and support expression and collection of colostrum antenatally;
- Provide information about safety of medication during breastfeeding;
- Provide information and support to minimise feelings of guilt and failure to women who are not able to breastfeed;
- Use technology to enhance access to health services to increase flexibility and the ability to provide appropriate and timely information.

## Future research

The website and peer support Facebook group developed in this study will be further evaluated in a larger sample of women with T1D and T2D and HPs. Further research including more women with T2D is needed to investigate the effectiveness of professional support in the form of phone calls and text-messages for breastfeeding in pregnancy will be important to optimise uptake and continuation of breastfeeding among women with pre-pregnancy diabetes.

## Conclusions

Current sources of breastfeeding information are perceived to be inadequate by women with diabetes and HPs. Specifically, women with T1D expressed a desire for up-to-date, relevant information that addressed their unique needs and concerns, and preferred electronic resources. Based on the findings of this study, an easily accessible, cost-effective and acceptable breastfeeding website for women with diabetes was developed. It is anticipated that this psychoeducational resource will support women with diabetes to make informed breastfeeding decisions and contribute to enhanced rates of breastfeeding intentions, initiation and duration among women with diabetes as well as improve health outcomes for women and their babies

## Abbreviations

HP – Health Professionals

T1D- Type 1 Diabetes

T2D- Type 2 Diabetes

## **Declarations**

### **Ethics approval and consent to participate**

Participation in the study was voluntary. The research project was approved by the relevant Health Service Ethics Committee (LNR/15/WH/57) and University (**Not identified for review purpose**) and was conducted accordance with the relevant guidelines and regulations as per Declaration of Helsinki

### **Consent for publication**

Not applicable.

### **Availability of data and materials**

All data generated or analysed during this study are included in this published article.

### **Competing interests**

The authors declare that they have no competing interests.

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This research was funded by Australian Diabetes Educators Research Foundation. The funding body had no role in the study design: collection, analysis and interpretation of data.

### **Authors' contributions**

All authors contributed to the study design. BR was responsible for the project and manuscript write up. CS and CM contributed to participant recruitment and data collection. KW managed the projects and together with BR, SH, MM, MC and AN contributed to data analysis, interpretation of results, manuscript write-up and management of the study. All authors read and approved the final manuscript.

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## Figures



This website provides you with information on breastfeeding when you have type 1 or type 2 diabetes. The website has been developed by researchers from Deakin University in partnership with Western Health. Women with type 1 or type 2 diabetes provided feedback at every stage of the development of this website.

There are 5 topics, each of which will take you between 5 and 15 minutes to complete. Just for fun, you can choose to complete the optional "quiz" at the end of each module.

 Breastfeeding introduction	<a href="#">BEGIN</a> <a href="#">QUIZ</a>	 During pregnancy	<a href="#">BEGIN</a> <a href="#">QUIZ</a>
 During and after birth	<a href="#">BEGIN</a> <a href="#">QUIZ</a>	 Establishing and maintaining breastfeeding	<a href="#">BEGIN</a> <a href="#">QUIZ</a>
 When you get home	<a href="#">BEGIN</a> <a href="#">QUIZ</a>		



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Each module comprises of a page with simple text and evidence-based information supported by positive images or photos. At the end of each module the opportunity to participate in a fun quiz is offered. The quiz provides reassurance about the respondent's knowledge of the module content, and promotes active engagement with the website.

Figure 1

Home/landing page of the website