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Identification of populations at risk: Stillbirth toolkit for health care providers

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Abstract

Background—Maternity care and women's health are measured, in part, by the stillbirth rate of a country. The purposes of this pilot project were to: a) establish a baseline of health care provider knowledge regarding stillbirth risk factors based on geographic distribution (urban/rural) and provider licensure (MD, APRN, PA, CNM) and b) evaluate the utility of a Stillbirth Risk Factor *Toolkit* and its effects on provider knowledge.

Methods—Evaluative research using a retrospective pre-posttest survey design was completed. The study setting included primary care clinics (urban [$n=25$] and rural [$n=25$]) in Nebraska. Health care providers from $N=50$ clinics were surveyed about their knowledge of stillbirth risk factors (modifiable and non-modifiable) before and after reading the *Toolkit*.

Results—Providers were least knowledgeable regarding the definition of stillbirth and the number of weeks' gestation that constitute a stillbirth. Overall, there was no significant difference in baseline knowledge between rural and urban providers. Nearly half (43.8%) found the *Toolkit* to be very helpful and applicable to their patient population, and 34.8% said they would be very likely to utilize it with their patients. There was a statistically significant increase in knowledge of stillbirth risk factors among all health care providers after reviewing the *Toolkit* ($p < 0.001$).

Conclusions—Health providers had varied baseline knowledge about stillbirth. The *Toolkit* improved provider knowledge, but further research is needed to assess its impact on clinical practice.

Keywords

Stillbirth; Toolkit; Populations; Risk

1. Introduction

Stillbirth remains a public health concern, despite an increase in prenatal care diligence during pregnancy. In high-income countries, stillbirth rates vary from 1.3 to 8.8 per 1000

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total births, with differences attributed to equity gaps based on income and education (Flenady et al., 2016). The U.S. stillbirth rate of 5.96 per 1000 total births continues to greatly exceed that of many other industrialized countries including Sweden (3.0 per 1000 total births) and France (3.87 per 1000 total births) (MacDorman & Gregory, 2015; World Health Organization, 2016).

Evidence-based interventions can reduce stillbirth, and it is important that patients are educated on these modifiable risk factors (Kelley & Trinidad, 2012). Yet, too often, health providers fail to discuss stillbirth, even though the risks are equivalent to or greater than many other congenital anomalies such as Down syndrome (Warland, 2013; Goldenberg et al., 2011). Many providers feel uncomfortable discussing stillbirth because it may unduly frighten their patients (Kelley & Trinidad, 2012). Some providers are not aware of modifiable risk factors for stillbirth, believing that stillbirth is only associated with the more obvious conditions such as antenatal infections or birth defects (Luo & Wilkins, 2008). Improving provider awareness and knowledge about stillbirth prevention can help assure that patients receive education on evidence-based interventions to mitigate the occurrence of this tragic condition (Stillbirth Collaborative Research Network, 2011).

1.1. Purpose and research questions

The aim of this pilot study was to test an evidence-based *Stillbirth Toolkit* designed to improve health provider knowledge and awareness of stillbirth occurrence and risk prevention. The primary research questions for the study were: 1) How do health providers define stillbirth and 2) Do health providers evaluate the *Stillbirth Toolkit* as a useful resource.

2. Methods

2.1. Design

This pilot study used cross-sectional study design. Data were collected via an email survey and at a single point in time using a retrospective pre/posttest. The study was approved by the university's institutional review board.

2.2. Sample

Sample inclusion criteria included practicing in an Obstetrics/Gynecology (OB/GYN) or Family Practice setting in Nebraska; being a licensed provider (MD, APRN, PA, or CNM); and having a working email account. A convenience sample of 80 providers was approached for recruitment in the study, and $n = 23$ consented to participate.

2.3. Materials and measures

A *Stillbirth Toolkit* was developed by the researcher. It incorporated evidence-based practices for stillbirth, including modifiable and non-modifiable risk factors. A reference section was included for additional educational resources appropriate for both providers and patients. The *Stillbirth Toolkit* was reviewed for face validity by two health providers who were not a part of the study population. There were no suggested changes.

The researcher developed the *Evaluation Survey*. Sections 1 and 2 had 23 items adapted with permission from Duke et al. (2010) and included items regarding provider demographics, professional practice, and stillbirth definition. Section 3 evaluated the *Stillbirth Toolkit* for study outcomes related to impact on self-reported knowledge, definition of stillbirth, and provider perceptions of the *Stillbirth Toolkit's* application to professional practice. The study outcomes were provider definition of stillbirth, provider self-reported knowledge change, and perceived usefulness of the *Stillbirth Toolkit* for professional practice.

2.4. Procedures

We emailed a link to the *Stillbirth Toolkit* to $N = 80$ providers. Included in the email was a separate link to the *Evaluation Survey*, which had been formatted in Survey Monkey. The *Evaluation Survey* was administered as a retrospective pretest. Retrospective pretests collect data at a single time-point (i.e., post-intervention) and are more sensitive than traditional pre/post tests administered at two-time points because they reduce the likelihood that participants will overestimate their personal pre-intervention status (e.g., knowledge, attitudes, behaviors) (Howard et al., 1979; Pratt, Mcguigan, & Katzev, 2000). To maximize email response rates, we used the Dillman-tailored design method (Dillman, 2000), which calls for up to four contacts.

2.5. Data analysis

Data was analyzed using descriptives (mean and standard deviations of counts and scores) and paired t -tests. Pretest and posttest knowledge scores were compared with a paired t -test.

3. Results

3.1. Sample characteristics

Response rate was 27% ($n = 22/80$). Most (95.5%) were female with mean age of 39.32 years. Most (75%) practiced in OB/GYN, 12.5% Family Practice, and 4.2% Pediatrics. Respondents were mostly from urban areas ($> 50,000$ people) (66.7%). The majority (58.3%) were APRNs, with 25% MD and 8.3% CNM. Overall, half (50.8%) were in private practice. Only 15 respondents answered the item regarding experience with stillbirths in their practice. Of these, only 13.3% had not experienced stillbirth in their practice.

3.2. Analysis of findings

3.2.1. Stillbirth definition—Table 1 depicts the provider definitions of stillbirth.

3.2.2. Self-reported knowledge—Respondents rated their pre-intervention knowledge as 20.05, ± 3.44 units and their post-intervention knowledge as 23.88, ± 3.78 units. This represented a statistically significant increase of 3.44 (95% CI, 1.66 to 5.22) units, $t(16) = 4.109$, $p = 0.002$, $d = 1.149$.

3.2.3. Usefulness to professional practice—Table 2 depicts responses about *Stillbirth Toolkit* outcomes. Out of 17 respondents, seven (43.8%) found it helpful and applicable to their patient population, with twelve stating that it was very easy to use (70.6%), and six stated that they were very likely to use the *Toolkit* with their patients (34.8%).

4. Discussion

Respondents had widely varied definitions of stillbirth. More than two-thirds incorrectly believed the minimal age of stillbirth was 20 weeks' gestation. Clearly, this hinders the providers' recognition of stillbirth and likely indicates that the problem is seriously under-reported, making it an important issue for public health (Lawn et al., 2009). If providers do not adequately understand stillbirth, their ability to provide evidence-based interventions that reduce modifiable risk factors is less than effective. Thus, it was encouraging to see that our respondents found the *Toolkit* to be a useful venue to improve knowledge in stillbirth evidence-based practice. This is important because currently there are few tools that have been identified as having the ability to reduce the prevalence of stillbirth risk factors (Cnattinguis & Stephansson, 2011).

Further work is needed to refine the *Toolkit*, such as providing home instructions for women at risk for stillbirth, based on comments provided by our respondents. After revisions, future research is needed to test the *Toolkit* with a larger sample of health providers and to analyze responses per licensure, geographic region, and years in practice to better understand its feasibility per these variables.

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Table 1

Definition of stillbirth: weeks' gestation.

Number of weeks' gestation	n	% of respondents
12 weeks	1	5.3
20 weeks or greater	14	7.4
21 weeks	1	5.3
23–24 weeks	1	5.3
24 weeks	1	5.3
Uncertain	1	5.3

Table 2

Utility and application to professional practice.

Certification	N	Mean	Std. deviation
Pre-intervention MD	5	24.4	3.20936
APRN	10	24.0	4.16333
Post-intervention MD	5	20.4	2.70185
APRN	10	20.9	3.75500