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Guidelines and Interventions Related to the Postpartum Visit for Low-Risk Postpartum Women in High and Upper Middle Income Countries

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Abstract *Objectives* A two-part review was undertaken to: (1) summarize current guidelines on the timing and frequency of postpartum follow-up care for generally healthy, non-high risk postpartum women and to delineate the evidence on which these guidelines are based; and, (2) summarize the results of intervention studies focused on increasing utilization of the postpartum visit for generally healthy, non-high risk postpartum women. *Methods* A review of guidelines from high and upper middle income countries published between 2000 and 2016 in English related to non-high risk postpartum follow-up visits was conducted in 2014–2016 using four databases and additional sources. In addition, articles published between 1990 and 2016 which evaluated interventions from high to upper middle income countries related to increasing attendance at the postpartum visit were gathered using three databases. *Results* This review located eight guidelines, all of which relied on expert opinion/group consensus as the evidence for their recommendations regarding the timing of the postpartum visit. The review located 19 intervention studies focused on increasing use of the postpartum visit; in 12 there was statistically significant evidence that these approaches improved utilization. However, no intervention strategy was evaluated more than a few times and many of the evaluations were relatively dated. *Conclusions* Guidelines for the timing of the postpartum visit are variable and are typically based on weak evidence; however, there is support for increased flexibility to meet women's needs. Additionally, while there is a diverse set of promising interventions to increase utilization of the postpartum visit, there is limited evaluative information. Future initiatives should focus on more rigorous evaluation.

Keywords Postpartum follow-up care · Guidelines · Antenatal and postnatal interventions · Postpartum visit

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Significance

This article provides a focused review of the current evidence on which postpartum visit guidelines in high and upper middle income nations are based and an up-to-date review of interventions in the antenatal and postnatal periods to increase utilization of the postpartum visit.

This review shows the need for further research on the timing of postpartum care and interventions to increase attendance at the postpartum visit.

Introduction

The postpartum period is a critical part of the reproductive and perinatal health continuum. Care during this period not only serves to address health concerns associated with the aftermath of pregnancy and delivery (e.g., postpartum depression) as well as newborn care (e.g., breastfeeding, safe sleep), but also includes assisting women to transition to well-woman preventive care [3, 16, 18, 32, 36]. In particular, the postpartum visit has been receiving increased attention as a primary venue for the provision of postpartum contraception as well as assessment of postpartum mental and physical health [32]. In light of this increased focus, Healthy People 2020 includes a developmental objective related to the postpartum visit: *Increase the proportion of women giving birth who attend a postpartum care visit with a health worker* (MICH-19).

Despite the importance of postpartum care, estimates of attendance at the postpartum follow-up visit (defined by HEDIS as on or between 21 and 56 days after delivery) in the United States vary from 56 % among select Medicaid populations to nearly 90 % among a nationally representative sample of postpartum women [9, 14, 22, 23, 29, 33, 46]. Data collected from 17 US states in 2009/10 by the Centers for Disease Control and Prevention's Pregnancy Risk Assessment Monitoring System (PRAMS) found that overall, 88.9 % of women attended a postpartum follow-up visit between 2 and 9 months following delivery. However, when stratified by education level there was considerable variability in use of the postpartum visit [45]. Additionally, research has shown non-attendance at the postpartum visit to be associated with younger maternal age [14, 29, 46], increased parity [14, 22, 29, 46], minority race/ethnicity [14, 29], lower household income [9, 33], and poor/no prenatal care use [14, 29, 33].

To our knowledge, since 2000, there has only been one review of US and international guidelines that discusses the timing and frequency of care for women in the postpartum period. This review of guidelines by Haran et al. [21] focuses on clinical guidelines for postpartum care in the areas of maternal health, maternal mental health, infant health, and breastfeeding. Although Haran et al. do discuss guidelines related to the timing of the postpartum visit; timing is only mentioned in two of the six guidelines reviewed. A review of the literature which includes consideration of the evidence base for the recommendations related to the timing of the postpartum visit provides an opportunity to assess whether new models of postpartum care should be considered and/or whether further research is needed. In addition, while a diverse number of initiatives and interventions have been implemented to increase utilization of the postpartum visit there have been no comprehensive reviews which explore the range of the interventions utilized to increase attendance at the postpartum visit and provide information about their effectiveness.

As the evidence behind current guidelines related to the timing of the provision of postpartum care has not been sufficiently explicated and because there is limited information on the diversity and effectiveness of interventions to increase use of the postpartum visit, further consideration is needed. This review aims to address these shortcomings by: (1) summarizing current guidelines and recommendations on the timing and frequency of postpartum follow-up care for generally healthy, non-high risk postpartum women and delineating the evidence on which these guidelines are based; and, (2) summarizing the results of intervention studies focused on increasing utilization of the postpartum visit for generally healthy, non-high risk postpartum women. This review does not focus on clinical guidelines for high-risk women as the unique guidelines for various postpartum medical conditions are likely not generalizable to the overall population. Likewise, with respect to the review of interventions, this is not a systematic review which considers the strength of the evidence for any particular intervention; rather we provide an explication of the multiple available intervention strategies presented to date in the literature and offer information about their effectiveness.

Methods

Guidelines on Timing and Frequency of Postpartum Visit

A review of guidelines published from 2000 to 2016 focused on the postpartum follow-up visit was conducted in 2014 and updated in 2015 and 2016. An initial review was conducted with the following databases: PubMed, National Guidelines Clearinghouse (NGC), Essential Evidence (EE), Guidelines International Network (GIN), and Uptodate. Search terms for PubMed and Essential Evidence were written as follows: "(postpartum OR postnatal) AND (guidelines OR recommendations) AND (care OR visit OR follow-up)". For the Essential Evidence review, results were then limited by the "guidelines" filter option. In the National Guidelines Clearinghouse, Guidelines International Network, and Uptodate, the terms "postpartum care"

and "postnatal care" were searched. All searches were limited to documents published in English from high and upper middle income countries as defined by the United Nations *World Economic Situation and Prospects (WESP) Annex* [48]. Document titles, outlines, and/or abstracts were reviewed and articles/guidelines were excluded if they focused on a specific aspect of postpartum care (i.e., postpartum depression, postpartum HIV management, etc.), focused only on "high-risk" women or women with specific conditions, focused only on infant care in the postpartum period, and/or if they did not include recommendations or guidelines in the document. Articles that discussed general maternal care in the postpartum period but did not include guidelines were also reviewed for references to relevant guidelines. Documents not excluded in the initial review, were reviewed in full for mention of guidelines on the timing of the postpartum visit. Guidelines which were not original and were based primarily on another source, such as American College of Obstetrics and Gynecologists (ACOG) or World Health Organization (WHO), were excluded from further review, as they did not add any additional information. To ensure a more comprehensive search of potential guidelines, a Google search for the websites of national health organizations in English-speaking developed countries (Canada, Australia, United Kingdom, New Zealand, and the US) was searched by entering the country name and the terms "postpartum care guidelines". When applicable, the most current version of an organization's guidelines was used. The methods used to justify the recommendations provided in the guidelines were interrogated to the extent possible in an effort to uncover the evidence on which the guidelines were based. All data were extracted into an excel database designed for recording relevant information (e.g., year, populations, evidence, etc.).

Interventions to Increase Utilization of Postpartum Visit

Articles evaluating interventions related to increasing attendance at the postpartum visit were gathered using PubMed, CINAHL, and Popline. Search terms were structured as "(postpartum OR postnatal) AND (care OR visit OR follow-up) AND (use OR compliance OR utilization OR attendance) AND (intervention OR program OR initiative OR incentive OR home visit)". This search was limited to publications between 1990 and 2016 in an effort to be inclusive of any sentinel intervention evaluation articles. All searches were limited to documents published in English from high and upper middle income countries as defined by the United Nations *World Economic Situation and Prospects (WESP) Annex* [48]. Articles evaluating interventions included in the review were limited to those discussing an evaluation of a specific intervention with the aim of, either directly or indirectly, increasing use of the postpartum visit. Interventions that did not focus on attendance at the routine postpartum visit but alternatively discussed postpartum acute care visits and/or hospitalizations were not included in this review. An initial review of article titles was conducted to exclude non-intervention papers, interventions not relevant to the postpartum period, and articles focused on specific populations or from low middle income and low income countries as defined by the United Nations WESP annex [48]. Following the initial review, remaining articles' abstracts and full texts were reviewed to confirm presence of an outcome measure on postpartum visit attendance. Reference lists of articles included in the final review were also searched for additional relevant articles. All data were extracted into an excel database designed for recording relevant information (e.g., year, populations, results, etc.).

Results

Guidelines for the Timing and Frequency of the Postpartum Visit

The search for postpartum care guidelines using PubMed, NGC, GIN, and EE yielded 928 documents. The initial title and abstract review excluded a majority of these articles due to limited specificity of the article (i.e., focus on postpartum care to HIV positive mothers, postpartum depression, etc.) and lack of guidelines in the article (e.g., opinion focused piece, intervention control trial, etc.). Thirteen documents remained after the initial review and were then examined further. Two documents were then excluded due to lack of mention of guidelines related to the timing of the postpartum follow-up visit, four documents were excluded as they were not the original source of guidelines, and three documents were identified as repeats of one another. At this point, review of reference lists from relevant articles yielded one additional guideline which was included in the final review. Likewise, a review of Uptodate related to the postpartum visit also found one additional guideline. Finally, the Google search for postpartum care guidelines in English-speaking countries led to a review of the websites for the following organizations: American College of Obstetrics and Gynecologists, American Academy of Family Physicians, Association of Reproductive Health Professionals, Royal College of Obstetricians and Gynaecolgists, Society of Obstetricians and Gynaecologists Canada, Nova Scotia Department of Health, and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists. This resulted in the addition of two guidelines (Nova Scotia, ARHP) that

specifically included recommendations on the timing of the postpartum visit and were not otherwise found in the guideline search. Figure 1 shows the flow diagram for the search. Based on the above searches, eight guidelines from 2002 to 2016 were selected for review.

The eight guidelines focused on the timing of postpartum care were from the Reproductive Care Program of Nova Scotia (RCP) [38], the National Institute for Health and Care Excellence (NICE) [15], the World Health Organization (WHO) [47], the American College of Obstetrics and Gynecologists (ACOG) [2], the Michigan Quality Improvement Consortium (MQIC) [35], the Institute for Clinical Systems Improvement (ICSI) [1], the Association of Reproductive Health Professionals (ARHP) [7], and the French College of Gynaecologists and Obstetricians (CNGOF) [51] (Table 1). All recommendations related to the postpartum visit were primarily designed for health care professionals interacting with postpartum women as well as for public health officials and policy makers as applicable.

As shown in Table 1, six of the guidelines recommend only one primary postpartum visit (RCP, ACOG, MQIC, ICSI, CNGOF, and ARHP). Among these, three recommend the visit occur between the 4th and 6th week postpartum (ACOG, ICSI, and ARHP), one recommends the visit occur at the 6th week postpartum (RCP), one recommends the visit occur between 6 and 8 weeks postpartum (CNGOF), and one recommends a visit between 3 and 8 weeks postpartum (MQIC). Of those guidelines explicitly recommending one visit, three mention the option of increasing care based on the individual needs of the woman or family (RCP, ACOG, and ICSI). The RCP guidelines mention the need to increase the amount of follow-up care based on individual family assessments/needs as well as encourages assessment of maternal mental health at all interactions with the health care system during the postpartum period (e.g., infant well-child visits). The ACOG recommendations also mention that the typical 4–6 week visit should be modified based on the needs of the individual patient, as well as suggest a telephone follow-up by a health care professional within 48 h of discharge if hospital discharge occurred before 48 h postpartum for vaginal deliveries.

Two of the guidelines recommend multiple postpartum follow-up visits (WHO and NICE). WHO guidelines recommend a minimum of 3 postpartum visits at: 48–72 h, 7–14 days, and 6 weeks following delivery. The NICE guidelines strongly recommend an individualized care plan be developed in conjunction with the woman during the antenatal period. Within the individualized plan, NICE explicitly recommends a visit during the first week postpartum and again within the 2–8 weeks following delivery.

As presented in the documents collected through this review, all eight guidelines appeared to rely on expert opinion and/or group consensus as the evidence for their recommendations on the timing and frequency of the postpartum visit. Only two of the guidelines reviewed (NICE and WHO) provided information on the "quality" of this evidence. The NICE guidelines are grounded in "recommendations for best practice based on the experience of the Guideline Development Group" but given the lowest evidence grade level by this organization. WHO's recommendations on the timing and frequency of the postpartum visit are also based on "low quality evidence" as stated in the guidelines.

Interventions to Increase Attendance at the Postpartum Visit

The search for studies focused on increasing attendance at the postpartum visit generated 1763 articles. Out of these, 1647 articles were excluded during review of article titles as they were either obviously non-intervention evaluation papers, interventions not relevant to the maternal postpartum period, or were articles focused on specific populations (e.g., HIV positive mothers, postpartum smoking cessation programs, etc.) or populations from lower middle income or low income countries [48]. Of the remaining articles included in the abstract and full text review, the majority (n = 83) were excluded because they did not contain the outcome of interest. The final review included 14 articles from the database examination. Five additional articles were also included in the final review, two from the reference lists of articles found in the literature review, and three from previous literature searches on postpartum visit utilization conducted by the authors for a related project. Figure 2 shows the flow diagram for this search. Based on these findings, 19 articles focused on seven different types of interventions from 1990 to 2014 were selected for review. In the results tables for this section of the manuscript, we present the articles found, information about the study design and population as well as key findings. However, given the variety of interventions reviewed, there is no attempt to systematically summarize the strength of the evidence for any particular intervention approach.

Discussions of the interventions reviewed in this paper are organized by timing of the intervention (i.e., conducted in the antenatal period versus conducted in the postnatal period) as well as by type of intervention. Interventions in the antenatal period (Table 2) included those focused on incentives as well as prenatal care enhancements such as home visiting programs, patient education, and group prenatal care. In the postnatal period, interventions

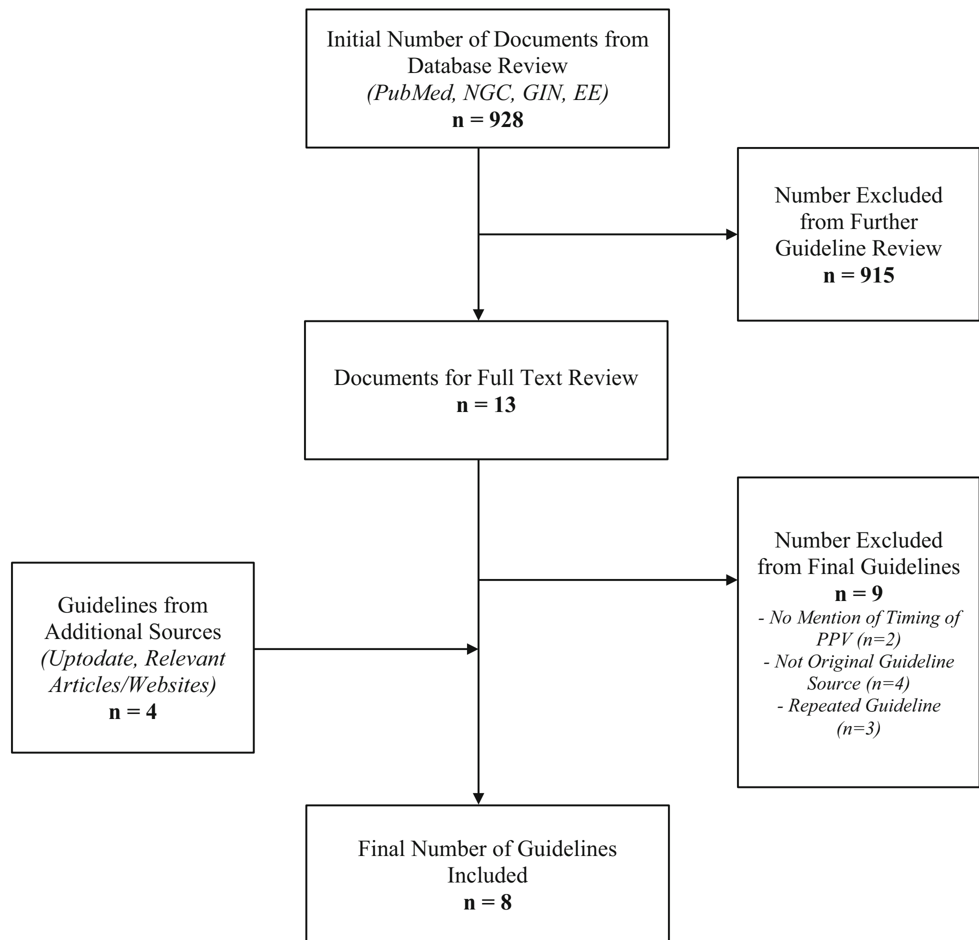

Fig. 1 Flow chart for guideline selection

included patient education, home visiting, incentives, and/or appointment scheduling initiatives (Table 3).

Interventions in the Antenatal Period: Incentive Interventions

The use of patient incentives in the antenatal period to increase attendance at the postpartum visit was evaluated in two studies. Stevens-Simon et al. [41] evaluated the impact of the use of incentives on attendance at the postpartum visit (within 12 weeks of delivery) for low-income adolescents in a Colorado Adolescent Maternity Program. Those randomized to the incentive group were informed that they would receive a gift of an infant carrier at the postpartum visit, while the non-incentive group received standard information on the postpartum visit. Over eighty percent of the young women in the incentive group attended the postpartum visit compared to 65.2 % of women in the non-incentive group ($p = .003$) [41]. Laken and Ager used two different forms of incentives ($5.00 gift certificate for each prenatal and postnatal appointment kept and $5.00 gift certificate plus entrance into to a $100 raffle for each appointment kept) to encourage postpartum visit attendance for non-adolescent low-income Medicaid-eligible women in Michigan. Overall, 55 % of women in this study attended their postpartum visit with no significant difference between the incentive or control groups [30].

Interventions in the Antenatal Period: Enhanced Prenatal Care Interventions

Six of the articles reviewed evaluated a change or enhancement of prenatal care as an intervention to improve maternal health outcomes and practices including use of the postpartum follow-up visit. Belizan et al. conducted an evaluation of an education and social support intervention for socially high-risk, pregnant women in Latin America (Argentina, Cuba, Brazil, and Mexico), which consisted of 4–6 prenatal home visits by social workers. Researchers found no significant difference in attendance at the postpartum visit between the intervention group (36.8 %) and the control group (32.8 %) [5]. Meghea et al. [34] evaluated the Michigan Maternal and Infant Health Program available to all Medicaid-eligible pregnant women up to 1 year postpartum. This program provides additional medical care, care coordination, and referrals to women

Table 1 Guidelines for timing and frequency of postpartum visit (PPV)

Organization	Year	Guidelines development process	Guidelines for timing and frequency of PPV	Evidence for timing and frequency of PPV guideline	Quality of evidence as provided by guideline authors
Department of Health, Reproductive Care Program of Nova Scotia, Canada [38]	2002	A postpartum services review working group gathered information from literature review, clinical practice, current statistics and used information to develop guidelines then approved by an action group at the Reproductive Care Program of Nova Scotia and a program delivery group at the Department of Health	Follow-up visit: 6 weeks postpartum *Follow-up care can be added to based on family care plan*	Available literature, expert opinion, and clinical practice	Specific quality level not stated
National Institute for Health and Care Excellence, UK [15]	2006	A Technical Team gathered information from economic and clinical databases for review by a Guideline Development Group. Final recommendations agreed upon by Group following comments from stakeholders	First visit: within 1st week postpartum Remaining visit(s): 2–8 weeks postpartum *Care should be individualized for each woman and determined in the antenatal period*	Available literature and expert opinion/panel	Recommendation based only on experiences of Guideline Development Group
American College of Obstetrics and Gynecology [2]	2012	Developed by AAP Committee on Fetus and Newborn and the ACOG Committee on Obstetric Practice based on most up-to-date scientific information, clinical practice, and expert opinion	Follow-up visit: 4–6 weeks postpartum *Interval can be modified by needs of patient*	Available literature, expert opinion, and clinical practice	Specific quality level not stated
Michigan Quality Improvement Consortium, USA [35]	2012	Evidence gathered through literature review and evaluated by type of study used to establish guidelines to be reviewed by committee until group consensus reached	Follow-up visit: 3–8 weeks postpartum	Available literature and expert opinion/panel	Specific quality level not stated
Institute for Clinical Systems Improvement, USA [1]	2012	Evidence gathered through literature review evaluated using GRADE methodology used to establish set of guidelines reviewed and approved by a series of medical committees and relevant stakeholders	Follow-up visit: 4–6 weeks postpartum *Discussion of postpartum care initiated in antenatal period*	Available literature and expert opinion/panel	Specific quality level not stated
Association of Reproductive Health Professionals, USA [7]	2013	Based on expert opinion and available literature	Follow-up visit: 4–6 weeks postpartum	Not provided	Specific quality level not stated
World Health Organization [47]	2013	Guideline Development Group reviewed and evaluated evidence gathered through systematic reviews using GRADE profiles and analysis of benefits, risks, and costs of implementation. Findings were used to draft recommendations by a WHO steering group and finalized through group consensus/vote	First Visit: 48–72 h postpartum Second Visit: 7–14 days postpartum *A minimum of three visits*	Available literature and expert opinion/panel	Low quality evidence
French College of Gynaecologists and Obstetricians [51]	2016	A steering committee established research questions and assigned experts to conduct literature reviews related to these questions. This information was then used by the steering committee to develop guidelines	Follow-up visit: 6–8 weeks postpartum	Not provided	Specific quality level not stated

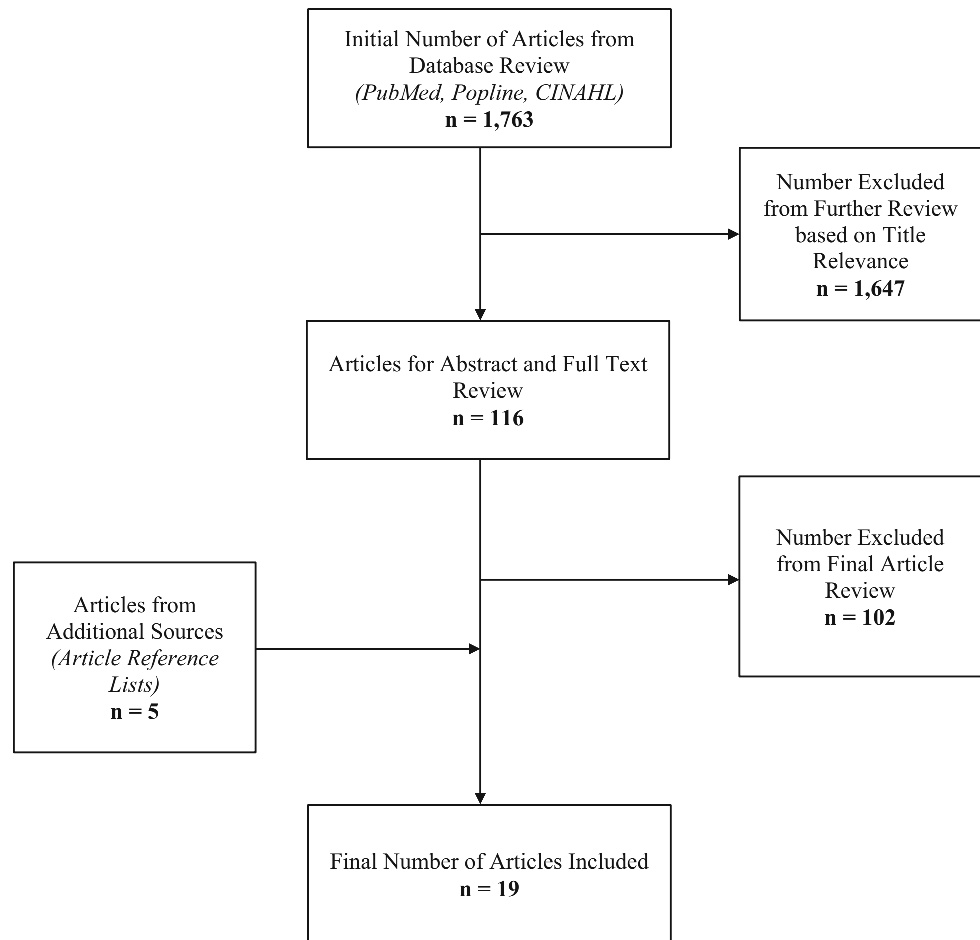

Fig. 2 Flow chart for intervention article selection

and their families as needed. Researchers found that participants in this program were significantly more likely to have attended their postpartum visit than their matched counterparts ($p < .05$). Bensussen-Walls and Saewyc [6] designed "comprehensive, interdisciplinary teen-centered prenatal care clinics" in two sites to improve maternal and infant outcomes and service utilization among pregnant adolescents. Both teen centers had a 6–8 week postpartum visit attendance rate of 70 % or greater (77.8 %), while the traditional care clinics had postpartum visit attendance rates of fewer than 33.3 and 44 % ($p < .05$).

Three of the articles examined the effect of group prenatal care, represented by the CenteringPregnancy (CP) model, on the use of postpartum follow-up care for diverse populations. A study by Grady and Bloom [19] examined healthcare utilization for adolescents attending a CP program designed specifically for adolescents in St. Louis, Missouri; of the 124 adolescents who completed the CP program, 87 % attended the postpartum visit within 8 weeks after giving birth. Tandon et al. [43] completed an evaluation of the CenteringPregnancy program implemented with a low-income Latina population obtaining prenatal care at public health clinics in Palm Beach County, Florida; 99 % of women in the group prenatal care model attended their postpartum visit within 6 weeks postdelivery compared to 94 % women in the comparison group ($p = .04$). Trudnak et al. examined the impact of CP on postpartum care utilization among a medically low-risk Latina population in the US obtaining prenatal care at a health department clinic. Eighty-seven percent of women in the CenteringPregnancy group attended their postpartum visit compared to 75 % of those in individual care (aOR = 2.20 [1.2–4.05]) [44].

Interventions in the Antenatal Period: Combination of Incentive and Patient Education in the Antenatal Period

Jones and Mondy [26], used both incentives and patient education as a part of an initiative designed to encourage low-risk, low SES pregnant adolescents (<18) to keep their postpartum and well-baby appointments. Participants were considered 'high-treatment' if they completed 8 or more prenatal classes and 'low-treatment' if they completed

Table 2 Antenatal interventions to increase attendance at postpartum follow-up visit (PPV)

Author, year	Target population	Population size	Intervention type	Results	Study design
Stevens-Simon et al. 1994 [41]	Low-income adolescents in Colorado	240	Incentives	Women given incentive of infant carrier at PPV more likely to attend PPV compared to control group (82.4 and 65.2 %, respectively; $p = .003$)	Randomized Controlled Evaluation
Laken and Ager, 1995 [30]	Medicaid-eligible women in Michigan	205	Incentives	No significant difference in PPV attendance (55 % overall) between control groups, women who received $5.00 gift card or entrance in $100 raffle for attending visit	Randomized Controlled Evaluation
Patient incentives: inconclusive findings, possible increase in attendance for adolescents					
Belizan et al. 1995 [5]	Socially high-risk women in Latin America	2235	Home visits, support services	No significant difference in PPV attendance between control group and women who received intervention (32.8 and 36.8 %, respectively)	Randomized Controlled Evaluation
Bensussen-Walls and Saewyc, 2001 [6]	Adolescents in Washington State	106	Teen-centered prenatal care	Adolescents in intervention group more likely to attend PPV than adolescents who received traditional prenatal care (70 and 77.8 % for adolescent clinics and <33.3 and 44 % for adult, $p < .05$)	Retrospective Matched Evaluation
Grady and Bloom, 2004 [19]	Adolescents in St. Louis, Missouri	124	Group prenatal care	87 % of adolescents in group prenatal care (CenteringPregnancy Model) returned for PPV	Descriptive Evaluation
Tandon et al. 2013 [43]	Hispanic women in Palm Beach County, Florida	176	Group prenatal care	Women in group prenatal care more likely to attend PPV than comparison group (99 and 94 %, respectively; $p = .04$)	Quasi-Experimental Evaluation
Trudnak et al. 2013 [44]	Spanish-speaking and Hispanic women	487	Group prenatal care	Women in group prenatal care had increased odds of attending PPV compared to women in traditional prenatal care (86.7 and 74.6 %, respectively; aOR[a] = 2.20 [1.20–4.05])	Retrospective Cohort Evaluation
Meghea et al. 2013 [34]	Medicaid-eligible women in Michigan	32,088	Home visits, support services	Women who received home visits through the Maternal and Infant Health Program were significantly more likely to attend their postpartum visit than their matched counter parts (OR = 1.50 [1.43, 1.57], $p < .05$)	Quasi-Experimental Evaluation
Enhanced prenatal care interventions: inconclusive findings, possible increase in attendance for group prenatal care					
Jones and Mondy, 1990 [26]	Low-income adolescents in Texas	399	Incentives, patient education	Women in high-treatment group (≥8 lessons) more likely to attend PPV compared to low-treatment group (<8 lessons) (87 and 73 %, respectively; $p < .011$) and comparison group (87 and 71 %, respectively; $p < .002$)	Quasi-Experimental Evaluation

[a] *OR* odds ratio, *aOR* adjusted odds ratio

fewer than 8 lessons. The women in the high-treatment group were significantly more likely to attend the postpartum visit (87 %) compared to the low-treatment group (73 %) ($p < .011$) and the comparison group (71 %) ($p < .002$); however, there was no significant difference found between the low-treatment and comparison groups [26].

Interventions in the Postnatal Period: Incentive Interventions

Two of the articles reviewed evaluated the utilization of incentives in the postnatal period to increase uptake of the postpartum follow-up visit. Smith et al. [39] examined the use of two different forms of postpartum incentives (coupon to be redeemed at postpartum visit for baby formula and appointment reminder with mention of gift to be received at postpartum visit) to increase attendance at the postpartum visit among an adolescent population. Although the overall return rate for the postpartum visit was low among the entire sample (27 %), the coupon group had the greatest attendance rate (37 %); the gift group and control group showed similar rates at 23 and 22 %, respectively [39]. Tsai et al. [42] also examined the influence of incentives in the postnatal period on attendance at the postpartum visit based on a clinic-wide initiative to increase postpartum follow-up care in Honolulu, Hawaii. This intervention was unique as it aimed not only to increase attendance at the postpartum visit in general but to also increase the frequency and timing of postpartum visits to include an earlier 3-week postpartum visit in addition to the typical 6-week visit. The initiative involved providing

Table 3 Postnatal interventions to increase attendance at postpartum follow-up visit (PPV)

Author, year	Target population	Population size	Intervention type	Results	Study design
Smith et al. 1990 [39]	Low-income adolescents from large southwestern city in U.S.	534	Incentives	The group receiving a coupon for infant formula had greatest PPV attendance rate (37 %) while group receiving a gift at PPV and control group had similar PPV attendance at 23 and 22 %, respectively. Differences in PPV attendance only significant for African- American population	Randomized Controlled Evaluation
Tsai et al. 2011 [42]	Women who received care at Queen Emma clinic in Honolulu, Hawaii	221	Incentives, Appt. Scheduled	After implementation of hospital-wide initiative to offer incentives and schedule PPV more women attended PPV compared to those who gave birth in hospital prior to initiative (86.1 and 71.7 %, respectively; $p = .012$)	Before-After Evaluation
Patient incentives: possible increase in PPV attendance					
Ghilarducci and McCool, 1993 [17]	Women who received prenatal care at urban community health clinic in New England	82	Home Visits	74 % of women who received a home visit attended the PPV while 58 % of women in the control group attended the PPV ($p = .12$)	Quasi-Experimental Evaluation
Interconception Health Promotion Initiative, 2003 [24]	Women in Denver, Colorado who experienced a prior adverse birth outcome	296	Home Visits	Women who participated in home visit program more likely to keep PPV than women who declined to participate in program; 72 versus 51 %, respectively	Quasi-Experimental Evaluation
Home visits: inconclusive findings, possible increase in PPV attendance					
Buckley, 1990 [10]	Women who gave birth in Central Massachusetts perinatal center	59	Patient Education	Women receiving educational NP visits were more likely to attend PPV than women in comparison group (85.3 and 52 %, respectively; $p < .02$)	Quasi-Experimental Evaluation
Kabakian-Khasholian and Campbell, 2007 [28]	Women who gave birth one of four private hospitals in Lebanon	378	Patient Education	Women given postpartum pamphlet more likely to attend PPV than control group (85 and 55 %, respectively; $p < .001$)	Randomized Controlled Evaluation
Patient education: possible increase in PPV attendance					
Kabakian-Khasholian and Campbell, 2005 [27]	Women who gave birth at one of four private hospitals in Lebanon	378	Appointment Scheduled at Discharge	Women given a PPV before discharge from hospital were more likely to attend PPV then women who did not schedule PPV (86.3 and 39.2 %, respectively; aOR = 6.8 [6.2, 7.4])	Observational Study
Bryant et al. 2006 [9]	Low-income women throughout the United States	1637	Appointment Reminder	Women provided an appointment reminder are significantly more likely to attend the PPV than women who did not receive a reminder (91.1 and 80.9 %, respectively; aOR = 2.37 [1.40, 4.02])	Observational Study
Brown et al. 2014 [8]	Low-income minority adolescents in the United States	5	Text Appointment Reminder	All adolescents in the program attended their postpartum follow-up visit	Observational Study
Appointment scheduling: possible increase in PPV attendance					
Gunn et al. 1998 [20]	Women who gave birth at one urban and one rural hospital in Victoria, Australia	61	Earlier PPV	Women with PPV scheduled for 4–6 weeks postpartum more likely to attend PPV than women with PPV scheduled 1 week postpartum (88.4 and 76.4 %, respectively; $p = .001$)	Randomized Controlled Evaluation

OR odds ratio, *aOR* adjusted odds ratio

postpartum women with a scheduled appointment while at the hospital prior to discharge as well as a gift, a picture of the woman and her infant taken at the first postpartum visit, and then presented to the women in a photo album at the second postpartum visit. Women who received the intervention were significantly more likely to attend any scheduled postpartum visit compared to those who delivered before the implementation of the intervention, with follow-up rates of 86.1 and 71.7 %, respectively ($p = .012$). Additionally, women in the intervention group were more likely to attend both the first and second postpartum visits, with the first postpartum visit occurring approximately 1-week earlier for those in the intervention group compared to those in the non-intervention group [42].

Interventions in the Postnatal Period: Home Visiting Interventions

The impact of home visiting programs on use of the postpartum visit was examined in two studies. Ghilarducci and McCool examined the influence of a single 30–60 min postpartum home visit within 2 weeks of hospital discharge by a certified nurse midwife on attendance at the postpartum visit among low-income patients of a New England urban community health clinic. Only 58 % of women in the comparison group kept their original scheduled postpartum follow-up appointment, while 74 % of those in the intervention group kept their appointment ($p = .12$) [17]. The Colorado Interconception Health Promotion Initiative (IHPI) established a home-based case management program for women with a previous adverse birth outcome. Recruited women were followed until their next pregnancy or for 3 years. Among women who 'completed' the IHPI program, 72 % attended their postpartum visit, while only 51 % of women who 'declined' the program attended the visit. No test for significance in postpartum attendance rates was reported [24].

Interventions in the Postnatal Period: Patient Education Interventions

Two articles focused primarily on postpartum patient education as a means to increase the use of the postpartum visit. Buckley conducted an evaluation of a nurse practitioner (NP) postpartum intervention in which an NP visited the postpartum mother prior to hospital discharge and provided education on postpartum care and contraception. The researchers found that women who received the hospital NP visit were significantly more likely to attend the postpartum visit ($p < .02$) than those who did not receive a visit from the NP [10]. Kabakian-Khasholian and Campbell [28] used a randomized design to assess the impact of an educational booklet on postpartum health, including attendance at the postpartum visit. Eighty-five percent of women given the postpartum pamphlet attended the postpartum visit compared to 55 % in the control group ($p < .001$) [28].

Interventions in the Postnatal Period: Appointment Scheduling Interventions

An association between the scheduling of follow-up visits for postpartum women and attendance at the postpartum visit was found in three studies. Two were observational studies, which did not specifically test appointment scheduling but rather observed the findings as a secondary outcome. The study by Kabakian-Khasholian and Campbell in which postpartum educational booklets were evaluated (see above) also asked women to report if they were given a postpartum appointment before they left the hospital. They found that "the largest difference in the percent reporting a postpartum visit was seen between women reporting being given a postpartum appointment before discharge from hospital and those not reporting such an appointment (86 vs. 39 %)" [27, 28]. Women who scheduled an appointment prior to discharge had 6.8 (95 % CI 6.2–7.4) times the likelihood of attending a postpartum visit than those who did not schedule an appointment [27, 28]. Similarly, a study by Bryant et al. [9] found that women who received an appointment reminder for their postpartum visit had 2.37 greater likelihood (95 % CI 1.40–4.02) of attending the visit when compared to women who received no reminder, after adjusting for maternal age, race, parity and insurance status.

A third study by Brown et al., utilized educational text message "blasts" to low-income adolescents related to their infant's and their own health in the postpartum period that also included appointment reminders for the mother and infant. Adolescents reported that the reminders were "helpful"; although there was no comparison group analysis, all participants attended their postpartum follow-up appointment [8].

Interventions in the Postnatal Period: Change in Timing of the Postpartum Visit

A study by Gunn et al. examined the impact of changing the timing of the postpartum visit on attendance by providing scheduled appointments for postpartum women in Australia while at the delivery hospital for either 1 week post-delivery or the traditional 6 weeks post-delivery. Women in the 6-week group were significantly more likely to attend their postpartum visit than women in the early visit group, 88.4 and 76.4 %, respectively ($p = .001$) [20].

Discussion

The available guidelines related to the timing and frequency of the postpartum follow-up visit included in this review are somewhat inconsistent and relatively general. The four guidelines from the United States each recommend one postpartum visit at some point within a 3–8 week postpartum window, although ACOG references an ability to adjust this schedule according to the needs of the woman. Additionally, in June 2016 ACOG released a Committee Opinion commenting on the lack of evidence supporting the "traditional" timing of the postpartum visit at 4–6 weeks and state that earlier postpartum visits may be beneficial to "address concerns that arise prior to 6 weeks postpartum, and … allow time to reschedule any missed appointments" [2]. This "traditional" ~6 week visit is also mentioned in the four guidelines from countries outside the US, but two of these four also recommend earlier visit(s). Non-US guidelines also tend to focus on more frequent visits with flexible timing. Interestingly, there was a distinct lack of evidence supporting any of these recommendations; evidence-based information was only present with respect to the content to be provided at each visit as opposed to the specific timing of the visit (this content related information is not provided here).

These findings are consistent with the current literature. A 2013 Cochrane Review of best care practices associated with prenatal and intranatal care concluded that current evidence related to the timing and frequency of postnatal care is limited and inconsistent [49]. As a result of the limited research and evaluations related to the timing and frequency of postpartum care, Yonemoto et al. [49] recommends that providers individualize their care to meet local needs. Similarly, in a 2014 systematic review of six current postpartum care guidelines related to specific postpartum health needs (e.g., maternal mental health, breastfeeding, and maternal physical health), the authors found a lack of high quality research with respect to the most effective care for postpartum women; the most apparent gap in recommendations was related to the timing of the postpartum visit [21]. In lieu of actual evidence-based support for the specific timing for the postpartum visit, some researchers recommend the strategy established by the NICE recommendations: the utilization of a mother-centered approach for the timing of visits rather than an all-inclusive recommendation [21].[1]

While there is little evidence supporting current recommendations for the timing and frequency of the postpartum visit, there is, however, a large body of review articles and commentaries supporting earlier and more frequent visits [3, 4, 18, 25, 32, 36, 40]. Many of these argue to maintain a 6-week visit but also recommend a visit around 2–3 weeks past delivery [3, 4, 32, 36, 40], and some recommend an earlier visit within 1 week postpartum, but do not specify if there should be additional visits beyond this early one [18, 32].

Arguments for earlier and more frequent postpartum visits are based on decreased risk of postpartum depression, increased adherence to breastfeeding, and an earlier connection to services for contraception [18, 31, 40]. In a survey conducted by Goulet et al. [18] examining postpartum care and maternal outcomes, researchers found that among mothers who received postpartum services, those who did so in fewer than 72 h were at significantly decreased risk of postpartum depression at one month (OR = .6 [95 % CI = .45–.79]). A randomized control trial by Labarere et al. [31] found that women with a 2- and 4-week visit with a family physician were more likely to continue breastfeeding for a longer duration than those who did not receive the 2-week visit. Furthermore, there have been a number of studies showing that the majority of women resume sexual activity prior to 6 weeks, making the 6-week postpartum visit potentially too late for interventions relating to contraception [40].

Because the postpartum visit represents a valuable opportunity to initiate interconception care, it requires more attention and emphasis in practice [32]. To address this need, Lu et al. [32] not only call for an earlier visit at 2 weeks postpartum but also for follow-up care at 6-weeks, 6-months, and an annual follow-up visit. Similar to the NICE guidelines, Lu et al. emphasize a need for these visits to be individualized to the needs of the mother and also suggest that women/providers meet the minimum number and timing of visits as outlined above. Similarly, in a review of current postpartum care, Cheng et al. argue that postpartum resources for mothers and families are necessary for up to a year following the birth of their infant and that the timing of these visits should be flexible and reflective of the mother's needs [13]. Although it appears there is a consensus about the need for more frequent and earlier postpartum visits, the evidence base for the timing and frequency of visits in the postpartum period is not strong, suggesting a clear need for more research in this area.

[1] Postpartum guidelines not found through the review methodology outlined above but provided by a reviewer, the "Postnatal Care Program Guidelines for Victorian Health Services" from the Australia's State of Victoria's Department of Health in 2012 [37], also support providing "women-centered" postnatal care that focuses on the needs and expectations of the woman and allows her to help drive the plan for postnatal care. These guidelines recommend that postnatal care planning begin during the prenatal period and should include the woman's preferred location and timing of care.

Footnote 1 continued

Although the limited research on the timing and frequency of the postpartum visit may contribute to the less than ideal uptake of this visit by postpartum women, there are a number of promising interventions in both the antenatal and postnatal period to address low-rates of attendance at the postpartum follow-up visit. Of the three types of antenatal interventions that were examined (i.e., incentives, enhanced prenatal care, and a combination of incentives and patient education), the majority of studies focused on enhanced prenatal care interventions; these studies had the most promising findings for increasing attendance at the postpartum visit although three are fairly dated (>10 years old) and only four demonstrated significant findings (3 of these 4 are from the more current evaluations). In particular, the CenteringPregnancy evaluations provide support for the effectiveness of group prenatal care in increasing attendance at the postpartum visit, specifically in the Latina population. These findings justify support for further intervention and evaluation in other populations using the group prenatal care model.

There was less evidence supporting the use of incentives in the antenatal period to increase attendance at the postpartum visit. Findings from Stevens-Simon et al. [41] indicate that low-income adolescents may be receptive to the use of a gift for the infant as an incentive in the antenatal period, while the study examining a non-adolescent population [30] found no significant support for use of cash/raffle incentives. The limited and relatively dated studies in this area indicate a need for further research to determine the type of incentive and population most receptive to this form of intervention. Future studies of this type are also needed to address concerns introduced by Laken and Ager regarding the underlying factors driving low attendance at the postpartum follow-up in low-income populations [30]. Jones and Mondy [26] found an increase in attendance among adolescents who received both incentives and patient education, the authors do not speculate to whether increased attendance occurred as a result of the incentives or patient education or a synergistic interaction between the two.

Unlike in the antenatal period, both articles reviewing use of incentives in only the postnatal period showed an increase in use of the postpartum visit for those receiving incentives. However, the findings were limited by select populations (i.e., adolescents) and the influence of additional interventions. The impact of postpartum incentives on the use of the postpartum visit for both the adolescent and non-adolescent populations is an area in need of further investigation. Similarly, the evaluations of home visiting in the postnatal period show suggestive but weak findings for the effect of postpartum home visiting programs on use of the postpartum visit for diverse populations. Despite these promising findings with respect to increased use of the postpartum visit, the rigor used in evaluating these interventions was generally weak, indicating a need for more research to examine the relationship between home visiting programs and the use of postpartum follow-up care.

Although the two approaches to postnatal patient education (i.e., one-on-one education and provision of postpartum booklet) evaluated in this review were considerably different, both significantly increased attendance at the postpartum visit. The authors who developed the postpartum booklet argue that this intervention may be an inexpensive and effective way to increase attendance at the postpartum visit and easily implemented in many settings [28]. Another potentially inexpensive and effective method for increasing attendance at the postpartum visit was the use of scheduling/reminders. All three studies found attendance to be significantly increased at the postpartum visit among those who received a scheduled visit or reminder [8, 9, 27].

Of the evaluations of postpartum visit interventions that included tests of statistical significance, only one initiative, the attempt to schedule earlier postpartum visits (1 week postpartum versus 6 weeks postpartum) showed significantly decreased use of the postpartum visit [20] while three showed no significant difference between control and intervention groups with respect to use of the postpartum visit [5, 17, 30]. For all other interventions (i.e., incentives, home visiting, enhanced prenatal care, and patient education), there was some evidence that each of these approaches improved attendance at the postpartum visit. Despite these positive findings, no intervention strategy was evaluated more than a few times, many evaluations are relatively dated, and a number of studies focused only on select populations (e.g., adolescents, Latinas, etc.). These limitations emphasize a need for further implementation and evaluation of interventions in both the antenatal and postnatal periods to increase use of the postpartum visit. It is recommended that future interventions build on the successful interventions cited in this review as a way to increase the body of knowledge surrounding these specific initiatives, with the ultimate aim of increasing utilization of the postpartum visit.

While this review is based on a thorough and comprehensive review of current guidelines and interventions in the US and other higher resource nations, it is limited to guidelines and articles written in English and available via the databases listed above and general search engines; the information provided through these guidelines is not necessarily reflective of all resources available to postpartum providers. Additionally, the commentaries and expert opinion articles included in this review are not intended to be a comprehensive, complete review of all opinions and critiques on the timing and frequency of the postpartum visit, but instead reflect a set of landmark articles on

postpartum visit timing. With respect to interventions, a considerable portion of the articles evaluating interventions to increase uptake of the postpartum visit are dated; they often were based on small sample sizes and had limited capacity to judge effectiveness (e.g., lack of a comparison group). Finally, the entirety of this paper focuses on generally low-risk postpartum women with non-complex medical needs; the guidelines and interventions for women of medically high-risk populations were considered out of the scope of this effort.

Conclusion

Overall, this review demonstrated that there are variable recommendations for the timing of postpartum visits in high or upper middle income countries and that existing recommendations are typically based on weak evidence or expert opinion. While there appears to be support for postpartum care to be delivered in a manner to best meet women's needs, there is clearly a need for more research related to the timing and frequency of the postpartum visit. Additionally, while there is a diverse set of promising interventions in both the antenatal and postnatal periods to increase attendance at the postpartum follow-up visit, there is limited evaluative information. Future initiatives should focus efforts on evaluation of interventions in select populations to better understand the needs of postpartum women and the most effective methods for increasing attendance at the postpartum visit.

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