



LATE-STAGE FOLLOW-UP AFTER CESAREAN DELIVERY: A 12-MONTH MONITORING AND TARGETED INTERVENTION PATHWAY (WOUND/SSI, LACTATION AND EPDS, SCAR HEALING BY RMT/NICHE, PELVIC FLOOR FUNCTION, AUB, AND TOLAC/VBAC PLANNING)

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ABSTRACT

Post-cesarean care is frequently concentrated on the early postoperative window; however, clinically meaningful morbidity often extends far beyond hospital discharge. Key late-stage domains include (1) surgical-site infection (SSI) recognition after discharge, (2) persistent pain and anemia-related symptoms, (3) lactation difficulties and functional recovery, (4) perinatal mental health conditions requiring structured screening, (5) pelvic floor dysfunction, and (6) abnormal uterine bleeding (AUB) associated with cesarean scar niche (isthmocoele) and reduced residual myometrial thickness (RMT). These issues directly influence quality of life and shape counseling for subsequent pregnancies, including trial of labor after cesarean (TOLAC) and vaginal birth after cesarean (VBAC). WHO postnatal care guidance recommends multiple postnatal contacts, including between 7–14 days and around 6 weeks, but structured pathways that explicitly extend follow-up through 12 months remain inconsistently implemented in routine practice.

Background. Post-cesarean care is frequently concentrated on the early postoperative window; however, clinically meaningful morbidity often extends far beyond hospital discharge. Key late-stage domains include (1) surgical-site infection (SSI) recognition after discharge, (2) persistent pain and anemia-related symptoms, (3) lactation difficulties and functional recovery, (4) perinatal mental health conditions requiring structured screening, (5) pelvic floor dysfunction, and (6) abnormal uterine bleeding (AUB) associated with cesarean scar niche (isthmocoele) and reduced residual myometrial thickness (RMT). These issues directly influence quality of life and shape counseling for subsequent pregnancies, including trial of labor after cesarean (TOLAC) and vaginal birth after cesarean (VBAC). WHO postnatal

care guidance recommends multiple postnatal contacts, including between 7–14 days and around 6 weeks, but structured pathways that explicitly extend follow-up through 12 months remain inconsistently implemented in routine practice.

Objective. To present a pragmatic, time-anchored 12-month follow-up plan after cesarean delivery, integrating standardized assessments and decision-linked interventions across five checkpoints: 7–10 days, 6 weeks, 3 months, 6 months, and 12 months postpartum.

Methods. The pathway is structured as a schedule of assessments with prespecified action prompts. Content domains were aligned with recent (last 5 years) guidance and high-quality evidence: (i) WHO postnatal care contacts; (ii) contemporary resources for perinatal mental health screening and diagnosis; (iii) consensus guidance for diagnosis/management of cesarean scar niche incorporating RMT and fertility intentions; (iv) postpartum pelvic floor exercise evidence; and (v) contemporary SSI evidence (including bundles and recent systematic reviews/meta-analyses).

Table 1. Late-stage follow-up plan and interventions (12 months)

Timepoint	Assessment focus	Actions
Postoperative day 7–10	Wound/SSI symptoms and signs; hemoglobin (Hb) if clinically indicated; pain	Dressing review and wound care; antibiotics only when indicated; escalation pathway for suspected SSI or wound dehiscence
6 weeks	Functional recovery; lactation; EPDS screening	Tailored analgesia plan; lactation correction/support; referral and management pathway when EPDS is positive or concerning
3 months	Transvaginal ultrasound: RMT and niche assessment; pelvic floor function	Pelvic physiotherapy; biofeedback (BFB) or structured supervised training when dysfunction/symptoms are present
6 months	Transvaginal ultrasound: RMT/niche; AUB evaluation	Treat AUB if present (stepwise, starting with medical options); niche-directed management guided by symptoms, RMT, and fertility plans
12 months	Integrated final assessment; pregnancy planning	Shared decision-making for TOLAC/VBAC vs elective repeat cesarean; individualized preconception counseling and documentation of risk–benefit discussion

Key elements and justification.

7–10 days: wound/SSI and pain control. SSIs may present after discharge, and a dedicated early post-discharge checkpoint improves detection of wound problems and supports timely intervention. This timing is also consistent with WHO's recommended postnatal contact window between 7 and 14 days.

6 weeks: function, lactation, and mental health screening (EPDS). ACOG's clinical practice guidance supports systematic screening for perinatal mental health conditions using validated tools in pregnancy and the postpartum period. Embedding EPDS (or an equivalent validated tool) into the 6-week review operationalizes early recognition and referral, especially when functional complaints or breastfeeding difficulties co-exist.

3–6 months: scar healing (RMT/niche) and pelvic floor function. Cesarean scar niche has well-described associations with symptoms such as postmenstrual spotting and AUB in some patients; consensus guidance emphasizes that management should be tailored to symptoms, RMT, and future fertility plans. A structured ultrasound checkpoint at 3 and 6 months supports consistent documentation of RMT and niche characteristics, provides a baseline for symptom correlation, and enables early conservative management planning.

At the same 3-month checkpoint, screening for pelvic floor dysfunction and referral to pelvic physiotherapy is justified by the growing evidence base supporting pelvic floor muscle training during the first postpartum year. A recent systematic review and meta-analysis indicates postpartum exercise—including pelvic floor muscle training—can improve pelvic floor-related outcomes in the first year after birth.

6 months: AUB and niche-directed management. Persisting AUB warrants structured evaluation, symptom stratification, and stepwise therapy. The niche consensus framework supports using symptom burden, RMT, and reproductive plans to select expectant, medical, or surgical options.

12 months: pregnancy planning and TOLAC/VBAC decision. A dedicated 12-month visit consolidates symptom trajectory, imaging findings, and patient priorities into a documented reproductive plan. Contemporary guidance and recommendations (including FIGO good practice recommendations and RANZCOG's guideline) emphasize individualized counseling, risk stratification, and shared decision-making for VBAC, including facility readiness for emergency cesarean.

Implementation considerations. The pathway is intentionally feasible for outpatient workflows. It defines minimal data elements for documentation (wound status; EPDS score; ultrasound RMT/niche measures; pelvic floor screening result; AUB phenotype; pregnancy plan). Trigger-based escalation is built into each checkpoint: suspected SSI (7–10 days), positive EPDS (6 weeks), symptomatic pelvic floor dysfunction (3 months), persistent AUB or clinically significant niche with reduced RMT (6 months), and TOLAC/VBAC counseling requiring documented informed choice (12 months). For SSI prevention, facilities may integrate evidence-based bundles where possible; recent studies report reduced post-cesarean SSI incidence with bundle implementation in appropriate settings.

Limitations. This thesis presents a structured follow-up and intervention pathway rather than outcomes from a prospective implementation study. Local adaptation is required based on ultrasound access, pelvic physiotherapy availability, and referral networks for

mental health services. Further evaluation should measure adherence, patient-reported outcomes, rates of AUB resolution, niche-related symptom improvement, and subsequent pregnancy outcomes (including TOLAC/VBAC success and safety).

Conclusion. A structured 12-month follow-up pathway after cesarean delivery can systematically address late-stage morbidity domains that are often under-recognized after routine early postpartum care. Aligning follow-up timing with WHO postnatal contact guidance, embedding validated mental health screening, standardizing ultrasound assessment of RMT/niche, and integrating pelvic floor rehabilitation and AUB management provides a practical framework for continuity of care through 12 months and supports informed planning for future pregnancy and TOLAC/VBAC.

Abbreviations. SSI, surgical-site infection; Hb, hemoglobin; EPDS, Edinburgh Postnatal Depression Scale; RMT, residual myometrial thickness; AUB, abnormal uterine bleeding; BFB, biofeedback; TOLAC, trial of labor after cesarean; VBAC, vaginal birth after cesarean.

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