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Safety Outcomes of Task-Shifted Antenatal Care Delivery Models

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Abstract

Antenatal care systems in resource-constrained settings, and increasingly in high-income systems reorganizing scope of practice, rely on delegating specific antenatal tasks from physicians and specialists to nurses, midwives, community health workers, and other non-physician cadres. This article synthesizes the literature on the safety of these task-shifted antenatal care delivery models, spanning delegated counseling supported by job aids, midwife-led continuity-of-carer arrangements, group antenatal care, community-level screening and first-response treatment for hypertensive disorders of pregnancy, and non-physician-performed emergency obstetric surgery. Across these models, delegation accompanied by structured training, job aids, supervision, and defined referral pathways is consistently associated with maternal and perinatal safety outcomes comparable to, and on several measured dimensions better than, more specialist-intensive comparator care, with the community-level pre-eclampsia trials and associate-clinician caesarean-section literature offering the most direct evidence because they were designed around composite morbidity and mortality outcomes rather than intermediate process measures alone. The evidence is less complete on longer-horizon sustainability of the training and supervision infrastructure these models depend on, on the specific contribution of emerging digital decision-support tools, and on the behavioral and trust-related pathways through which task shifting can affect care-seeking independent of clinical competence. Read together, the literature supports task-shifted antenatal care as a safety-preserving strategy under demonstrated conditions rather than as an unconditional property of delegation itself.

Keywords: task shifting; antenatal care; maternal safety; community health workers; midwife-led care

1. Introduction

Antenatal care has, for the better part of a century, been organized around a straightforward assumption: a pregnant woman sees a physician, or at minimum a specialist-trained obstetric nurse, at each visit, and it is that visit that catches the complications capable of killing her or her baby. In the health systems that actually deliver most of the world's antenatal care, that assumption has never matched the available workforce. Physician density in the countries carrying the largest share of the global maternal mortality burden is a small fraction of what high-income systems consider a safe minimum, and the shortfall is worst in precisely the rural and peri-urban districts where obstetric emergencies are hardest to reach in time [1]. Task shifting -- delegating specific, well-defined clinical tasks from more specialized to less specialized cadres, supported by training, protocols and supervision -- has therefore become one of the central organizing strategies for antenatal care delivery in resource-constrained settings, and increasingly in high-income settings as well, where it is more often framed as skill-mix optimization or scope-of-practice reform than as a workforce-shortage stopgap [2].

The safety question this raises is not abstract. Antenatal care exists to detect and manage a short list of conditions -- pre-eclampsia and other hypertensive disorders, anaemia, malpresentation, multiple pregnancy, fetal growth restriction, and a handful of danger signs that predict imminent obstetric emergency -- and the entire logic of task shifting antenatal care rests on the claim that a differently trained provider, doing a narrower and more protocolized version of that job, can catch these conditions reliably enough that shifting the task does not cost lives. That is an empirical claim, not a policy slogan, and it has now been tested across a reasonably large and geographically diverse body of trials, quasi-experimental evaluations, and systematic reviews spanning task-shifted antenatal counseling, community health worker (CHW)-delivered screening, midwife-led continuity-of-care models, group antenatal care, and non-physician-performed emergency obstetric surgery.

This article synthesizes that evidence. We are not reporting a new trial or a new dataset; we are pulling together what the literature on task-shifted antenatal care delivery models has actually found about safety

outcomes -- maternal and perinatal morbidity and mortality, correct detection and referral of obstetric complications, and the quality of care processes that safety ultimately depends on -- and we are trying to be honest about where that evidence is strong, where it is suggestive but thin, and where it simply does not yet exist. We organize the discussion around four themes: the conceptual and policy foundations of task shifting as applied to maternal and newborn health; the specific delivery models that have been evaluated, from delegated counseling to group antenatal care to community-level pre-eclampsia programs; what the safety evidence from these models actually shows, both where it reassures and where it does not; and the enabling conditions -- training, supervision, job aids, and increasingly digital decision support -- without which none of these models perform as advertised. We close with the open challenges that, in our reading, the field has not yet resolved.

It is worth being explicit up front about what "task shifting" does and does not mean in this context. It is not the same as simply reducing the number of antenatal contacts, and it is not the same as deskilling care -- the most carefully evaluated task-shifting models add structure (checklists, job aids, protocol-driven decision rules) precisely because removing physician judgment from a task requires replacing it with something else that performs the same catching function. Nor is task shifting a single intervention that either "works" or "doesn't": the label covers a genuinely heterogeneous set of delivery models, from a lay health worker delivering a scripted counseling session to a non-physician associate clinician independently performing an emergency caesarean section, and the safety evidence for these has to be read model by model rather than as a single undifferentiated literature.

2. Foundations of Task Shifting in Maternal and Newborn Health

The World Health Organization's 2016 antenatal care guideline reframed the purpose of antenatal contacts explicitly around "a positive pregnancy experience" rather than treating antenatal care solely as a mortality-reduction technology, while still anchoring that broader goal in the core safety function of detecting and managing complications early [3]. That reframing matters for task shifting because it clarifies what any delegated model has to preserve: not just the ability to

keep a woman alive, but the systematic detection work -- blood pressure and proteinuria checks, fetal growth assessment, danger-sign counseling -- that makes early detection possible in the first place. A task-shifted model that preserves warmth and access but loses detection accuracy has not preserved the guideline's intent, even if satisfaction scores look good.

The evidence base for task shifting as a general health-system strategy considerably predates its specific application to antenatal care. Much of the foundational literature comes from HIV treatment scale-up in sub-Saharan Africa, where Callaghan, Ford and Schneider's systematic review found consistent evidence that nurses and other non-physician cadres could initiate and manage antiretroviral therapy with outcomes broadly comparable to physician-led care, at a moment when physician-only models were simply incapable of reaching the number of patients who needed treatment [4]. That HIV-era literature established both the methodological template subsequent maternal-health task-shifting studies have followed -- non-inferiority framing, structured comparison against the physician- or specialist-led standard of care -- and a degree of institutional confidence, at WHO and among ministries of health, that task shifting could be pursued deliberately rather than merely tolerated as a stopgap. Okoroafor and Christmals's more recent implementation framework generalizes this into explicit policy guidance, arguing that task shifting and task sharing succeed or fail less on the intrinsic competence of the delegated cadre and more on whether the surrounding system -- regulation, supervision, referral pathways, remuneration -- is deliberately redesigned around the new division of labor rather than treating task shifting as a training intervention layered onto an unchanged system [2].

Outside the specific task-shifting literature, a parallel and much older body of work has asked essentially the same safety question about nurse-substitution in primary care generally. The Cochrane review by Laurant and colleagues, now in its third major update, synthesizes trials comparing nurses substituting for doctors across a wide range of primary-care tasks and consistently finds similar health outcomes and, in several studies, higher patient satisfaction with nurse-led care, without evidence of increased risk to patients [5]. This review is not specific to antenatal care,

but it is a useful anchor for the field precisely because it is one of the more mature, heavily updated pieces of evidence on the general question "does substituting a differently trained provider change patient safety," and its consistent null-to-positive finding across dozens of studies is part of why task shifting in maternal health has been pursued with reasonable confidence rather than as a purely desperate measure.

Community health workers occupy a distinct position in this landscape from nurse-substitution models, because CHWs are typically not substituting one trained clinical cadre for another but extending a facility-based system into households and communities that a clinic-based model would otherwise not reach at all. Olaniran and colleagues' comparative case studies of CHW programs across Africa and Asia found that the specific antenatal and newborn tasks assigned to CHWs vary enormously by country -- health education and birth-preparedness counseling almost everywhere, but blood pressure measurement, danger-sign screening, and even limited treatment (such as chlorhexidine cord care or, in some programs, first-dose antihypertensive or anticonvulsant treatment) only where training, supervision and regulatory permission specifically allow it [6]. This variability matters for how the safety literature should be read: "CHW-delivered antenatal care" in one trial may mean structured counseling with no clinical measurement at all, and in another may mean independent blood-pressure screening with protocol-driven referral, and these are simply not the same intervention from a safety standpoint even though both get described with the same phrase.

3. Models of Task-Shifted Antenatal Care Delivery

Delegated antenatal counseling is among the most rigorously tested task-shifted models, because counseling quality is comparatively straightforward to measure directly. Jennings and colleagues' non-inferiority study in Benin compared lay nurse aides, supported by structured job aids, against fully trained nurse-midwives delivering antenatal counseling, and found that aides delivered a higher proportion of recommended counseling messages overall -- 80% versus 75% for nurse-midwives -- with non-inferiority demonstrated for birth preparedness, danger-sign counseling and clean-delivery messaging specifically, though not for newborn-care content, where the trial

could not rule out a meaningful gap [7]. Women counseled by lay aides also scored significantly higher on subsequent knowledge tests across general prenatal care, birth preparedness and danger-sign recognition than women counseled by nurse-midwives. This is a genuinely informative result precisely because it is not uniformly favorable: it demonstrates that job-aid-supported delegation can match or exceed the professional standard for some content while still falling short for other content, which is the level of granularity task-shifting safety evaluations need and too rarely provide.

Table 1: Task-shifted antenatal and maternal care delivery models evaluated in the literature synthesized here, the safety-relevant outcome each source examined, and the reported effect. [7,5,8,13,14,25].

Model	Source	Outcome Examined	Reported Effect
Delegated antenatal counseling by lay nurse aides with job aids	Jennings et al. [7]	Quality of counseling messages delivered; maternal knowledge	Aides delivered 80% of recommended messages vs 75% for nurse-midwives; non-inferior on birth preparedness and danger-sign content; women counseled by aides scored higher on subsequent knowledge tests
Nurse/non-physician substitution for doctors in primary care	Laurant et al. [5]	Patient health outcomes and satisfaction	Cochrane review across many trials: broadly similar health outcomes, no evidence of increased risk, and higher patient satisfaction in several studies
Midwife-led continuity-of-carer models	Sandall et al. [8]	Obstetric interventions; maternal and perinatal safety	Cochrane review: fewer obstetric interventions than other care models, with no evidence of increased risk to mothers or babies
Non-physician associate clinicians performing caesarean section	Bergström [13]	Maternal and perinatal surgical outcomes	Where training, case volume and referral backup are adequate, outcomes reported as comparable to physician-performed caesarean section
Community health worker pre-eclampsia screening and first-response treatment (CLIP)	Qureshi et al. [14]	Composite maternal/perinatal morbidity and mortality	Cluster-randomised trial of household-level blood-pressure and proteinuria screening with protocol-driven triage and first-dose treatment ahead of facility transfer
Task shifting across low- and middle-income country health systems generally	Seidman & Atun [25]	Health-system and patient cost	30 of 34 reviewed studies reported reduced costs to the health system or patient; 4 had a mixed impact

Midwife-led continuity-of-carer models sit at a different point on the task-shifting spectrum -- here the delegation is not from doctor to a lower cadre performing a narrower task, but from a fragmented obstetrician-led system to a midwife who provides the great majority of antenatal, intrapartum and postnatal care for the same woman throughout her pregnancy. The Cochrane review by Sandall and colleagues, covering trials of midwife-led continuity models against other care models including obstetrician-led and shared-care arrangements, remains the standard reference for this model's safety profile and finds it associated with fewer obstetric interventions and no evidence of increased risk to mothers or babies relative to comparator models [8]. Two of the larger individual trials feeding into that evidence base illustrate what "continuity" actually looks like operationally: the Australian M@NGO trial randomized women to caseload midwifery, in which a small team of midwives manages a woman's care from booking through postpartum, versus standard fragmented care, and found differences in intervention rates without any signal of compromised safety [9]; the COSMOS trial in the same setting similarly evaluated caseload midwifery's effect on caesarean section rates among women at low obstetric risk, again within a framework built to detect safety signals as well as process differences [10]. Group antenatal care represents a third distinct model -- less a change in who delivers care than in the format in which it is delivered, with women of similar gestational age meeting together for combined health assessment, structured education and peer support rather than one-on-one visits. Ickovics and colleagues' original randomized trial of the CenteringPregnancy group model found reduced preterm birth among participants relative to individual care, and subsequent replications, including a more recent Dutch trial by Wagijio and colleagues among low-risk women, have generally reported maternal, birth and neonatal outcomes comparable to individual antenatal care while improving satisfaction and, in some settings, specific process measures [11,12]. Group care is sometimes classified separately from task shifting in the strict sense, since a midwife or physician is still the primary provider, but it functions as a workforce-efficiency and access strategy with the same underlying safety question -- does a format that serves more women per provider-hour preserve the detection work individual visits are designed to do -- and the trial

evidence to date has been reassuring on that specific point.

At the far end of the task-shifting spectrum, several countries in sub-Saharan Africa have trained non-physician associate clinicians -- cadres with several years of medical training short of a full physician degree -- to independently perform emergency obstetric surgery, including caesarean section, when a physician is not available. Bergström's review of this practice describes decades of experience, concentrated in countries such as Mozambique and Tanzania, in which associate clinicians have been deliberately trained and credentialed for a defined scope of surgical obstetric practice specifically because physician-only staffing left large rural populations with no surgical backup for obstructed labor, uterine rupture or major haemorrhage at all [13]. This model sits outside antenatal care narrowly defined, but it belongs in any honest account of task-shifted maternal safety because it is the clearest test case of the field's central question in its most consequential form: whether a differently trained provider can be trusted with an intervention where a wrong decision is immediately and severely life-threatening, and the accumulated experience Bergström reviews is that, where training, case volume and referral backup are adequate, associate clinicians achieve maternal and perinatal outcomes comparable to physician-performed caesarean section in the same settings.

4. Safety Evidence: Screening, Detection and Referral for Obstetric Complications

Pre-eclampsia is arguably the single condition against which task-shifted antenatal care's safety claims have been tested most deliberately, because it is common, its progression from asymptomatic hypertension to eclampsia and death is comparatively well understood, and it is detectable with equipment -- a blood pressure cuff, urine dipsticks -- simple enough to plausibly place in the hands of a community-based, non-physician provider. The Community-Level Interventions for Pre-eclampsia (CLIP) trials, conducted as coordinated cluster-randomized trials in India, Pakistan and Mozambique, tested exactly this: whether training CHWs to perform structured blood-pressure and proteinuria screening at the household level, escalate suspected cases through a simplified triage algorithm, and provide first-dose treatment (oral antihypertensives,

and in some arms magnesium sulfate) ahead of transfer to facility care, could reduce the composite of maternal death, severe maternal morbidity, and adverse perinatal outcomes associated with hypertensive disorders of pregnancy [14,15]. A companion feasibility study among the CHWs and auxiliary nurse-midwives who would go on to deliver this intervention in Karnataka, India found that community-level providers generally understood the clinical seriousness of hypertension in pregnancy but had markedly uneven confidence in specific technical steps, particularly proteinuria assessment and magnesium sulfate administration, and had frequently never actually administered magnesium sulfate themselves despite being aware of it -- a gap between conceptual knowledge and hands-on procedural confidence that the trial's training program had to be built to close [16]. The prospective economic evaluation embedded across all three CLIP trial sites was designed from the outset to weigh the intervention's costs against exactly this kind of averted maternal and perinatal morbidity, reflecting the trial consortium's own recognition that community-level task shifting for a condition as dangerous as pre-eclampsia had to be justified on both safety and cost grounds simultaneously, not safety alone [17].

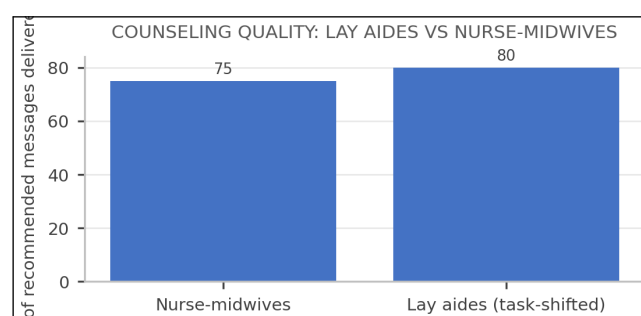


Figure 1: Proportion of recommended antenatal counseling messages delivered by task-shifted lay nurse aides, supported by structured job aids, versus fully trained nurse-midwives in a non-inferiority trial in Benin -- aides met or exceeded nurse-midwife performance overall, though non-inferiority was not demonstrated for every content area [7].

The broader community health worker literature on antenatal care outcomes, beyond the pre-eclampsia-specific trials, gives a mixed but generally encouraging picture. Scharff and colleagues' systematic review of CHW impact on antenatal knowledge, care utilization and birth outcomes found consistent improvements in antenatal care knowledge and, less uniformly, in care-seeking behavior and utilization of skilled birth attendance, though the review is candid that fewer of the included studies were designed or

powered to detect changes in hard safety outcomes like maternal or perinatal mortality directly, as opposed to the utilization and knowledge outcomes that plausibly sit upstream of them [18]. This is a recurring limitation across the task-shifted antenatal care literature more broadly: many well-conducted studies measure counseling quality, knowledge gain, or care-seeking behavior rather than mortality or severe morbidity directly, both because those intermediate outcomes are more feasible to measure in a trial of realistic size and because they are the proximate mechanism through which task-shifted care is expected to affect safety in the first place. A CHW-delivered incentive and outreach package evaluated by Rossouw, Burger and Burger in a pilot randomized trial did move a genuinely safety-relevant outcome -- earlier initiation of antenatal care, which matters because later-gestation-age booking is itself associated with missed opportunities to detect and manage complications before they progress -- and found a meaningful shift toward earlier first antenatal visits among women assigned to the CHW package [19]. Community-based maternal and newborn care packages more broadly, synthesized in Lassi, Kdzior and Bhutta's Cochrane review, extend this picture to neonatal outcomes specifically, evaluating the range of home-visiting, community-mobilization and CHW-delivered education interventions that have accumulated across low- and middle-income countries and their association with neonatal survival [20]. Dynes and colleagues' evaluation of frontline health worker training for maternal and newborn health in rural Ethiopia adds an implementation-science perspective to this same question, documenting the early-stage process and coverage gains from a structured community-based training program without yet being positioned, at the point of that early evaluation, to report definitive mortality effects [21].

Task shifting for antenatal care's psychosocial dimension has its own dedicated evidence base, running somewhat in parallel to the physical-complication-detection literature just described but converging on similar conclusions about what makes delegation safe. Perinatal depression is common, under-detected, and itself a risk factor for adverse maternal and infant outcomes, and the Thinking Healthy Programme -- a structured cognitive-behavioral intervention originally designed for delivery by trained non-specialist health workers -- has been adapted for

delivery by peer volunteers with even less formal training in rural Pakistan, where Atif and colleagues describe the specific supervision and fidelity-monitoring architecture built around those peer volunteers to sustain intervention quality once delivery moved a further step down the skill-mix ladder from health-worker to peer [22]. This program is instructive for the safety literature on task shifting more generally because it makes explicit something the physical-screening literature more often leaves implicit: pushing a clinical or psychosocial task further down the skill hierarchy is not itself unsafe, but it does typically require adding more structured support -- supervision intensity, fidelity checks, escalation protocols -- to compensate, and studies that evaluate the delegated task without evaluating whether that compensating structure was actually in place and sustained are not really testing the safety of the model as it would function at scale.

Comparable dynamics appear in task shifting away from antenatal care specifically. Dlamini-Simelane and Moyer's qualitative study of task shifting in Swaziland's HIV and maternal health services found that patients' experiences of task-shifted care depended heavily on how visibly the shift preserved continuity and perceived competence, and that care arrangements reorganized around task shifting sometimes altered patients' trust and health-seeking behavior in ways that a purely clinical outcomes evaluation would miss entirely [23]. This is a useful corrective to a purely quantitative reading of the safety literature: a task-shifted model can be clinically non-inferior on the specific outcomes a trial measures and still change how, or whether, women engage with the system at all, and that behavioral channel is itself a safety pathway that deserves more attention than it typically receives in the evaluation literature summarized above.

5. Enabling Conditions: Training, Supervision and Digital Decision Support

None of the models described above perform to the safety standard the literature reports by virtue of task delegation alone; in essentially every case, the reported safety and quality outcomes are conditional on a specific package of training, job aids, supervision and, increasingly, digital decision support that accompanied the delegation. Jennings and colleagues' Benin counseling study is explicit that the job aids -- structured

visual counseling cards -- were central to the lay aides' performance, not incidental to it, and that the trial cannot be read as evidence that delegation works independent of that support structure [7]. The CLIP trials' training programs for CHWs similarly had to be built around the specific procedural gaps the Karnataka feasibility work identified, particularly around proteinuria testing and magnesium sulfate administration, rather than assuming that general competence would transfer automatically to these specific clinical actions [16].

Digital clinical decision support represents the most active area of innovation in how this enabling infrastructure is being built. Amoakoh and colleagues' work in Ghana investigated frontline health workers' actual information needs when using mobile decision-support tools for maternal and neonatal care, finding that workers wanted tools that did more than digitize a paper checklist -- they wanted context-specific guidance that helped them interpret ambiguous or borderline clinical findings, which is precisely the kind of judgment call that task-shifted, less-specialized providers are most likely to find difficult without support [24]. This points toward a specific, testable hypothesis for the next generation of task-shifting safety research: that mobile decision support tools function less as a replacement for clinical training than as a real-time compensator for the judgment gap between a specialist provider and a task-shifted one, closing exactly the kind of procedural confidence gap the CLIP feasibility work documented. Whether that hypothesis holds up will depend on trials that isolate the decision-support component specifically, which the current literature, focused more on tool design and workforce information needs than on randomized safety comparisons, has not yet fully delivered.

The cost dimension of this enabling infrastructure deserves explicit mention because it shapes what is actually sustainable at scale. Seidman and Atun's systematic review of task shifting's cost implications across low- and middle-income countries found that of 34 included studies, 30 reported reduced costs to the health system or to patients, with four showing a mixed impact, but the review's more important finding for this discussion is that the studies reporting the clearest cost savings were generally also the ones that had invested deliberately in training, supervision and

quality-assurance infrastructure rather than treating task shifting as a pure staffing substitution [25]. In other words, the safety and the cost-efficiency of task-shifted antenatal care are not competing goals to be traded off against each other; in the studies with the most complete evaluation, they are produced by the same underlying investment in structured support, and models that cut corners on that support to maximize short-term cost savings are the ones most likely to also compromise safety.

6. Open Challenges

Several limitations recur across this literature and are worth stating plainly rather than glossing over. First, outcome measurement: the majority of task-shifted antenatal care evaluations, including some of the most methodologically careful ones such as Jennings and colleagues' Benin study and Scharff and colleagues' systematic review, measure counseling quality, knowledge gain, or care-seeking behavior rather than maternal or perinatal mortality and severe morbidity directly [7,18]. This is understandable -- mortality is a rare outcome that requires very large samples to detect a difference in -- but it means that much of what gets described in policy discussions as "safety evidence" for task shifting is more precisely evidence about proximate, plausible mechanisms for safety rather than direct measurement of the safety outcomes that ultimately matter most. The CLIP trials and the caesarean-section associate-clinician literature are comparatively strong exceptions in that they were designed around composite morbidity and mortality outcomes from the outset [14,15,13], and the field would benefit from more evaluations following that template even where it requires larger and more expensive trials.

Second, heterogeneity of what "task shifting" actually means across studies makes cross-study synthesis harder than the shared vocabulary suggests. As Olaniran and colleagues' comparative case studies show, "CHW-delivered antenatal care" spans everything from pure health education to independent clinical screening with treatment authority, and pooling safety conclusions across that range risks either diluting a genuinely strong signal from the more clinically substantive models or, conversely, overgeneralizing reassuring findings from purely educational interventions to models that involve real diagnostic or treatment delegation [6]. Third, and closely related, sustainability of the enabling

infrastructure -- supervision intensity, job-aid maintenance, digital tool uptime -- is rarely evaluated over the multi-year timescales that real health-system deployment requires; most of the trials and evaluations reviewed here report outcomes over the life of a study period measured in months to a few years, not over the longer horizon during which trained cadres turn over, supervision budgets get cut, and job aids go out of date. Fourth, the psychosocial and behavioral safety pathway that Dlamini-Simelane and Moyer's qualitative work surfaces -- how task shifting changes trust and engagement, independent of clinical competence -- remains substantially under-integrated into the predominantly quantitative safety literature, which tends to treat patient experience and clinical safety as separate research questions studied by separate methods rather than as connected parts of the same causal chain [23].

Fifth, the digital decision-support literature specifically is still at an earlier stage of maturity than the training and supervision literature it is meant to complement: tools are being actively designed and piloted, as Amoakoh and colleagues' work in Ghana illustrates, but rigorous safety-outcome trials isolating the marginal contribution of decision support on top of standard training and supervision are still comparatively rare [24]. We do not think any of these gaps undermine the field's central, reasonably well-supported conclusion -- that task-shifted antenatal care delivery models, properly resourced with training, job aids and supervision, can preserve and in some cases improve the safety functions that antenatal care exists to serve -- but they do mean that "task shifting is safe" should be read as a claim that holds under specific, demonstrated conditions rather than as a general property of delegating clinical work to a less specialized provider.

A further point worth making explicitly, because it is easy to lose in a synthesis organized by delivery model, is that these models are not mutually exclusive alternatives competing for adoption in the same health system, and the strongest real-world programs typically combine several of them. A district that trains CHWs to perform community-level blood-pressure screening under a CLIP-style protocol still needs a functioning referral pathway into facility-based care, and that facility care is itself increasingly likely to be organized around midwife-led continuity rather than fragmented

obstetrician-led clinics, particularly in settings where physician staffing cannot support a purely doctor-led model at every tier [8,14]. Group antenatal care and delegated one-on-one counseling are similarly not competitors so much as options that different facilities reach for depending on caseload and available provider time, and Wagijo and colleagues' more recent CenteringPregnancy replication in the Netherlands is a useful reminder that group-format task efficiency is being adopted in high-income systems for reasons that have relatively little to do with workforce scarcity and rather more to do with a deliberate judgment that the group format itself, independent of who delivers it, produces comparable or better outcomes at lower provider-time cost [12]. Reading the task-shifting literature model by model, as this article has done, is necessary for evaluating each model's specific safety claims rigorously, but it should not obscure that the more useful policy unit of analysis is often the whole locally assembled system of delegation, referral and support that a given district or country has built, not any single model in isolation.

7. Conclusion

The evidence reviewed here supports a measured but genuinely positive conclusion about task-shifted antenatal care delivery models. Across delegated counseling, midwife-led continuity of care, group antenatal care, community-level pre-eclampsia screening, and non-physician-performed emergency obstetric surgery, the consistent pattern is not that task shifting is inherently risk-free, but that where delegation has been accompanied by structured training, job aids, supervision and a defined referral pathway, the resulting models have generally matched or, on several specific measures, exceeded the safety and quality performance of the more specialist-intensive care they replaced [7,8,13]. The pre-eclampsia-focused CLIP trials and the associate-clinician caesarean-section literature stand out as the strongest tests of this claim because they were built from the outset around composite morbidity and mortality outcomes rather than intermediate process measures alone [14,15,13], and their broadly reassuring findings, read alongside the process-outcome evidence from CHW and group-care models, give the field's central claim real empirical weight rather than leaving it as policy aspiration.

What this literature does not yet support is a claim that

task shifting works independent of the infrastructure built around it. The recurring finding, across studies as different as a counseling trial in Benin and a cost-effectiveness review spanning 34 low- and middle-income country health systems, is that the safety and efficiency gains attributed to task-shifted care are conditional on investment in training, supervision, job aids and increasingly digital decision support, and that studies or programs which strip out that supporting infrastructure to capture cost savings faster are not testing, and should not be assumed to inherit, the safety record this article has reviewed [7,25,16]. Making task-shifted antenatal care delivery a durable, scalable safety strategy rather than a well-evidenced pilot phenomenon will depend on closing the remaining evidence gaps identified above -- more mortality- and severe-morbidity-powered trials, clearer definitional consistency across studies describing themselves as "task shifting," longer-horizon sustainability evaluation, and rigorous isolation of what digital decision support specifically adds -- while continuing to build delivery models on the same foundation the strongest existing evidence already points to: delegation paired deliberately and durably with the structured support that makes it safe.

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Conflict of Interest

The authors declare that they have no competing interests relevant to this work.

Data Availability Statement

This article is a literature synthesis and did not generate new primary data. All studies discussed are cited in the reference list; readers seeking underlying datasets should consult the original publications' own data availability statements.

Ethical Approval

Not applicable. As a literature synthesis, this work did not involve human or animal subjects, primary data collection, or any intervention requiring ethical committee review.

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