

Midwives' Knowledge and Practices towards Primary Prevention of Premature Births in a Teaching Hospital in Uganda

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Introduction

Prematurity has continued to be a threat in neonatal care for the developed and developing countries (Reedy, 2007). Complications of premature births account for 11.1% of all neonatal live births, and for one million deaths per year (Blencowe et al, 2013). In the U.S. where many infections and other causes of neonatal death have been markedly reduced, prematurity is the leading cause of neonatal mortality at 12.4% (Grady, 2009; Kent, 2009). To avoid the 116 million deaths and 99 million survivors with disability by 2035, the number of babies who are small for gestational age (10.4 million in south Asia and sub-Saharan Africa in 2010) must be reduced (WHO, 2014).

Prematurity is associated with significant costs in healthcare, even without considering the costs associated with the complications that occur later in life (Gilbert et al 2003). It places increased costs for the institution towards the care and to the affected families. There is a tremendous psychological impact on the mothers/care takers and health care providers due to increased workload especially in the era of understaffing. Generally, the consequences of prematurity have an impact on the general economy of the country.

Prematurely born infants face the risk of developing complications like respiratory distress syndrome, sepsis, necrotizing enterocolitis and intraventricular haemorrhage; long term complications include bronchopulmonary dysplasia and retinopathy of prematurity (Jitta and Kyadondo, 2008; Randis, 2008). Existing literature indicate that efforts to address the problem has been put on preparing health care providers in secondary management of preterm labour and care for preterm babies after birth. A midwife being key in the care of women/mothers and their new born babies, there was need to establish the knowledge and practices towards primary prevention of premature births to determine the relevant strategies that can be used to address any gaps and contribute to the reduction of premature births and neonatal deaths in Uganda.

Prevention of premature births can be accomplished through preconception counseling which offers an opportunity to identify clients (women) with high risk factors, initiate therapies like folic acid and other prenatal vitamins, vaccinations, nutritional counseling, and commencement of lifestyle modifications like cessation of smoking and alcohol intake which may improve future obstetric outcomes. Other recommendations include: early prenatal care which serves as the preconception care but also provides an opportunity for physical examination where cervical or uterine abnormalities can be identified and interventions sought early, comprehensive ultrasonography to detect other structural deformities or abnormalities of the fetus or the mother (March of Dimes, 2008).

In Uganda, premature births contribute 31% of the total neonatal deaths. Neonatal mortality rate stands at 22 per 1,000 live births (UNICEF, WHO, UN-Population Division, 2015; Li Liu et al, 2014; Wang et al, 2014), and it is the leading cause of neonatal mortality, followed by asphyxia at 27%. In one of the teaching hospitals in central Uganda, premature births accounted for 49.5% of the monthly admissions at the Neonatal Intensive Care Unit (NICU), and an average neonatal mortality of 33% per month (NICU reports for March, April, May, & June, 2010).

Specific objectives

The specific objectives were to assess the knowledge of midwives regarding the risk factors, approaches used, and the benefits of preventing premature births and identify the practices being employed by midwives towards the prevention of premature births in the antenatal units of this teaching hospital.

Methodology

The study used a descriptive cross-sectional approach and employed quantitative methods for data collection. The study population was all midwives working in the antenatal wards of the teaching hospital. Since the population of midwives was small and considering the research ethics of human respect, convenience sampling method was used.

A semi-structured questionnaire with both closed and open ended questions was used to collect data from 29 midwives working in the three antenatal clinics of the hospital on knowledge and their practices towards the prevention of preterm births. Knowledge on prevention of premature births is vast but for purposes of this study, midwives were assessed on the causes/predisposing factors of premature births, approaches used in the prevention of premature births and the benefits of preventing premature births.

Identifying the practice of midwives towards the prevention of premature births focused on the use of antenatal guidelines, ability to identify pregnant women at risk of premature births and offer specific care directed to prevention. Such care would include sharing and providing specific information on prevention of premature birth, availability of such specific information, availability of special room designated for mothers at risk of premature births, and clear strategy for follow up of such mothers.

Study area

The study was conducted at one of the teaching hospitals in Kampala district in Uganda. Kampala is the capital city of Uganda. Hospitals in Uganda are designed to serve all patients/clients requiring services of the different disciplines of medicine: medical, surgical, obstetrics, gynecology, and pediatrics. The hospital where the study was conducted handles cases from the surrounding communities and referrals from other hospitals, making this a large facility with generally higher acuity patient care.

At the time of data collection, three different antenatal clinics existed in this hospital; two for general clients (those who could not afford to pay for the health care services, and one for private clients (able to pay for the health care services either through insurance companies or by themselves). One of the two general antenatal clinics treated women with no or low pregnancy risk, expected to have spontaneous deliveries at term. All general clients (pregnant women) reported to this clinic for screening. Pregnant women found to be at risk were referred to the second general antenatal clinic which had a focus on high risk pregnancies.

Study population

The population included all midwives found in the three antenatal clinics of the teaching hospital. They were Certificate, Diploma & BScN -with diploma in Midwifery holder midwives

Sample size and sampling method

Since the population of midwives in the three antenatal clinics was small (44) and considering the research ethics of human respect, convenience sampling method was used. Convenience sampling entails using the available people as study participants (Polit & Beck, 2008). A final sample of 29 midwives was obtained.

Inclusion criteria

The sample included all midwives from the three categories (Certificate, Diploma & BScN with diploma in Midwifery) working in the three antenatal clinics who were willing to participate in the study.

Exclusion criteria.

All categories of midwives who were working in other maternal child health units other than the antenatal clinics were not included in the study. Student and intern midwives who were working in the antenatal clinics during the time of data collection were not included in the study.

Data collection process

The researcher met the midwives through the ward in-charge during the early morning meetings. The study was introduced and the purpose explained. The midwives who accepted to participate were given consent forms to sign, followed by a self-administered questionnaire after signing and handing on the consent. The researcher agreed with the midwife after how many hours to collect the filled questionnaire, before the midwife signing off duty. The ward in charges were used as research assistants and would receive the filled questionnaires when the researcher was not in that antenatal unit at the time the midwife was ready to hand in the tool. The same approach was used on all the antenatal wards until data was collected from all the midwives who were available during the period of data collection. The duty roster for each antenatal ward was used to determine the midwives who would on duty and when so they would be targeted on such days. Data collection was done for three weeks.

Study instrument

The instrument was developed with the help of experts from Uganda and the US. It included aspects of standardized information on the preventive measures for preterm births, upon which the midwives' knowledge was measured. The standard practice for the prevention of preterm births was extracted from the *National Standard Guideline for Antenatal Care* (WHO, 2006) and designed in the form of a questionnaire to assess which of them the midwives employed during their practice. Pender's Health Promotion Model guided the selection of the dependent and independent variables (Pender, 2008). The instrument was tested in one of the district hospitals with similar categories of midwives and reliability was ensured.

Data management and analysis

The completed questionnaires were collected by the researcher and research assistants from the midwives. They were checked then kept in a safe water proof bag until the researcher accessed the personal lockable cupboard. The ward in-charges also had water-proof bags where they put the filled tools and locked them up until the researcher collected them. The collected questionnaires were given identification numbers in terms of serial numbers and they were numbered to 29.

Using Epidata, a questionnaire, record, and check files were developed. Most of the questions were already coded and so data was entered using the codes. Validation was done by entering data twice in the Epidata software. The two files were validated and the results showed that both had the same file name, file label, and file date. The two files had same fields, no field was excluded in either file, and no records were missing in both files. Both files had the same numbers of: common records which were 29; fields checked per record which were 53; and total fields that were checked which were 1537. The validation revealed that 5 out of the 29 records had errors (17.24%), and 7 out of 1537 fields had errors (0.46%). After validation, the final file was exported to SPSS for data presentation and statistical analysis.

The information generated in the different sub-sections of the questionnaire included: demographic data, knowledge and practices of midwives. The data were presented in tables and narratives. Statistical analysis with the help of a statistician was done to interpret the findings.

In the section of knowledge, midwives were assessed on the knowledge of high risk factors for premature births, approaches that can be used to prevent premature labour/ delivery, use of guidelines/standards of care in the antenatal clinic, and what guides midwifery practice. A midwife was regarded to have adequate knowledge towards the prevention of premature births if she scored 75% of the given questions, and inadequate knowledge if she scored below 75%. In Uganda, a score of 75% is accepted as excellent work both in academics and skills performance.

Results

Table1. Socio Demographic Characteristics of 29 Study Participants

Characteristic	Frequency	Percentage
Age in Years		
≤ 30	1	3.4
31 - 45	14	48.3
46 - 60	11	37.9
Education Level:		
....O'level	24	82.8
A' level	5	17.2
Qualification:		
Registered midwife	21	72.4
Registered nurse/midwife	4	13.8
Enrolled midwife	4	13.8
Total working experience:		
6-10 years	4	13.8
11-15 years	8	27.6
16-20 years	6	20.7
Above 20 years	11	37.9
Working experience in ANC:		
1-5 years	24	82.8
6-10 years	4	13.8
Above 15 years	1	3.4
Marital status:		
Married	14	48.3
Single	7	24.1
Widowed	5	17.2
Separated	3	10.3

Of the 29 midwives who participated in the study, 3 did not indicate their age. The lowest age was 25 and the highest 59. The mean age of the respondents was 44.4(SD = 8.5) years. Table 1 show that there were about 40% of midwives in their late 40s and above. Basically, it was an older population, mostly of O'level education and with longer working experience.

Most the midwives (82.8%) joined the profession after O'level; most of them (72.4%) were registered midwives, and 37.9% had worked for more than 20 years; no midwife in the antenatal clinics had a total working experience of less than six years. Only 3.4% had worked in an antenatal clinic for more than 15 years.

Midwives' knowledge on prevention of preterm births

The midwives' knowledge about the prevention of preterm births was tested in three areas: knowledge about the risk factors for preterm births, approaches for preventing preterm births, and the likely benefits of preventing preterm births. In all the three tested areas, the participants were asked to indicate whether the options provided were correct or wrong by ticking "Yes" or "No" respectively.

Table 2. Midwives Knowledge on risk factors of Preterm Births

Options for risk factors of PTB	Frequency / Percentage(N= 29)	
	Yes	No
Multiple pregnancy	28 (96.6%)	1 (3.4%)
History of previous preterm birth	28 (96.6%)	1(3.4%)
Gestation hypertension	28 (96.6%)	1(3.4%)
Febrile disease during pregnancy	27(93.1%)	2 (6.9%)
Emotional stress	27 (93.1%)	2 (6.9%)
History of >one abortion	26 (89.7%)	3 (10.3%)
HIV in pregnancy	24 (82.8%)	5 (17.2%)
Smoking during pregnancy	21 (72.4%)	8 (27.6%)
Alcohol intake during pregnancy	16 (55.2%)	13 (44.8%)
Low socioeconomic status	16 (55.2%)	13 (44.8%)
Unstable marital relationship	14 (48.3%)	15(51.7%)
Young mothers(<18 years)	13 (44.8%)	16 (55.2%)
Elderly mothers (>35 years)	13 (44.8%)	16 (55.2%)
Severe bleeding on previous delivery*	10 (34.5%)	19 (65.5%)
Abnormal lie or presentation*	3 (10.3%)	26 (89.7%)

*Were not considered as risk factors for premature birth

Table 3. Midwives' Knowledge on Approaches for Preventing Preterm Births

Approaches for preventing preterm births	Frequency/Percentage	
	Yes	No
Sensitizing mothers risk factors of PTB	29 (100%)	0
Avoiding intensive physical exercises	25 (86.2%)	4 (13.8%)
Folic acid administration	18 (62.1%)	11 (37.9%)
Genital health	16 (55.2%)	13 (44.8%)
Hypnosis	7 (24.1%)	22 (75.9%)

Table 4. Midwives Knowledge on the Likely benefits of preterm birth

Benefit	Yes	No
Improvednational economic status	25 (86.2%)	4 (13.8%)
Reduced hospital workload	24 (82.8%)	5 (17.2%)
Increases full term pregnancies	21 (72.4%)	8 (27.6%)
Reduced newborn risks	19 (65.5%)	10 (34.5%)
Reduced hospital & national costs	17 (58.6%)	12 (41.4%)
Reduced hospitalized newborn babies	14 (48.3%)	15 (51.7%)

Table 5. Midwives' Total Knowledge on Prevention of Preterm Births

Knowledge Category	Frequency	Percentage
Knowledge on risk factors:		
Adequate	19	65.5
Inadequate	10	34.5
Knowledge on approaches for preventing PTB:		
Adequate	11	37.9
Inadequate	18	62.1
Knowledge on benefits for preventing PTB:		
Adequate	18	62.1
Inadequate	11	37.9
Total knowledge on prevention of PTB:		
Adequate	15	51.7
Inadequate	14	48.3

Table 6. Adequate total Knowledge against Education level, Qualification, total Working Experience and Working Experience in ANC

Characteristics	Knowledge (Frequency/Percentage)		OR (95% CI)	X ²	P-value
	Adequate Knowledge	Inadequate Knowledge			
Education Level:			1.5(0.21-10.65)	0.166	0.68
O'level	12 (41.4%)	12 (41.4%)			
A' level	3 (10.4%)	2 (6.8%)			
Qualification:			-	3.16	0.21
Enrolled midwife	1 (3.4%)	3 (10.4%)			
Registered midwife	13 (44.8%)	8 (27.6%)			
Registered nurse midwife	1 (3.4%)	3 (10.4%)			
Total working experience:			2.0(0.45-8.96)	0.83	0.36
< 16 years	5 (17.2%)	7 (24.1%)			
≥16 years	10 (34.5%)	7 (24.1%)			
Working experience in ANC:				1.97	0.37
1-5 years	12 (41.4%)	12 (41.4%)			
6-10 years	3 (10.4%)	1 (3.4%)			
Above 15years	0	1 (3.4%)			

Midwives practice towards prevention of preterm births

A list of six competencies was provided and the participants were asked to tick 'yes' for those they thought guide midwifery practice and 'no' to those they thought did not.

Table 7. Competencies for Midwifery Practice

Competency	Frequency/ Percentage	
	Yes	No
Standards of care and clinical guidelines	27 (93.1%)	2 (6.9%)
Individual's experience	24 (82.8%)	5 (17.2%)
One's attitude	22 (75.9%)	7 (24.1%)
Institutional policies	21 (72.4%)	8 (27.6%)
One's training	21 (72.4%)	8 (27.6%)

Majority of the midwives recognized the competencies required for midwifery practice. However, 27.6% did not recognize institutional policies and training as required competencies respectively; 24.1% did not recognize attitude as a competency for practice.

Availability of clinical guidelines and standards of ANC

The participants were required to indicate whether they had or did not have clinical guidelines and standards of antenatal care in their clinics/wards. Those who did not know or were not sure were provided with options to indicate so.

Table 8. Availability of clinical guidelines and standards of ANC

Response	Frequency	Percentage
Yes	9	31
No	12	41.4
I do not know	4	13.8
I am not sure	4	13.8

Only 31% indicated availability of the guidelines and standards of antenatal care in their clinics, 41.4% clearly indicated that they were not there.

Use of Clinical Guidelines and Standards of ANC

Use was determined based on the availability. Only those who indicated availability of the clinical guidelines and standards of antenatal care were required to indicate how often they used them.

Table 9. How often Midwives use Clinical Guidelines and Standards of ANC

Response n=9	Frequency	Percentage
Very often	0	0
Often	6	66.7
Rarely	2	22.2
Not used at all	1	11.1

Most of the respondents (66.7%) indicated that the clinical guidelines and standards of antenatal care were being used often, and only 11.1% indicated that they were not being used at all as reflected in Table 9 above.

Room for conducting specific sessions with identified women at risk of PTB

Participants were asked whether there was room in the clinics/ wards where they work for conducting specific sessions with identified mothers at risk of preterm births

Table 10. Availability of Room for Specific Sessions

Response	Frequency	Percentage
There is always room	6	20.7
Sometimes there is room	8	27.6
There is rarely room	8	27.6
There no room at all	7	24.1

Only 20.7% reported availability of a room for specific sessions always and 24.1% reported no room at all, a possibility of having a challenge with space.

Availability of specific information given to identified mothers at risk of PTB

Participants were required to indicate if there was any specific information in the clinics/wards where they work given to mothers who are at risk of preterm birth with a 'Yes' and a 'No' if there wasn't.

Table 11. Specific Information for Mothers at Risk of PTB

Availability of information	Frequency	Percentage
Yes	13	44.8
No	16	55.2

More than half (55.2%) indicated that there was no specific information given to mothers at risk of preterm births.

Arrangement for follow of identified mothers at risk of preterm births

Availability of a clearly stated arrangement for following up mothers at risk of preterm births was to be indicated by a 'Yes' and a 'No' if there was no clear arrangement.

Table 12. Availability of Follow up Arrangement

Availability of follow up arrangement	Frequency	Percentage
Yes	12	41.4
No	17	58.6

Almost 60% indicated that there was no clearly stated arrangement for following up women at risk of preterm births.

Discussion

Knowledge on risk factors

Majority of the midwives (96.6%) recognized that multiple pregnancies, history of previous preterm birth, and gestation hypertension are risk factors for preterm births. This is in contradiction with what was found in Quebec that nearly 50% of respondents did not recognize twin pregnancy and a previous history of preterm delivery as risk factors (Moutquin, 1999). Febrile disease during pregnancy and emotional stress were recognized by 93.1%; history of more than one abortion was recognized by 89.7%; and 72.4% recognized smoking as a risk factor. Additionally, 89.7% recognized that abnormal lie or presentation is not a risk factor for preterm births. Of all the 29 midwives, 65.5% had adequate knowledge on the risk factors of preterm births. However, the 34.5% who had inadequate knowledge in this area cannot be neglected although no other studies were identified for comparison.

Approaches for preventing preterm births

Regarding preventing preterm birth, there were two approaches that were known by most of the midwives: sensitizing mothers on the risk factors for PTB (100%); and avoiding intensive physical exercises (86.2%). Rating the overall adequate knowledge of the midwives on the approaches used in the prevention of premature births revealed that out of the 29 midwives, only 37.9% had adequate knowledge on the approaches used to prevent preterm births. The high percentage (62.1%) of inadequate knowledge on the approaches used in the prevention of preterm births may be associated with the lack of specific information about prevention of preterm births (55.2% said there was no specific information in the clinic) and lack of clinical guidelines and standards of ANC (41.4% clearly indicated that they were no guidelines) in the areas of practice or in the training curricula.

Likely benefits for preventing preterm births

Although 62.1% of the midwives had adequate knowledge on the likely benefits for preventing preterm births, the remaining percentage of 37.9% is quite large. If there is no perceived benefit for the action then the practice may be hindered (Pender's Health Promotion Model, 2008). Conclusively, no similar study of knowledge, attitude and practices of midwives towards the prevention of preterm births was identified in Uganda, but studies that have assessed the knowledge of midwives or health workers like on HIV (Salayer, Walusimbi,

& Fitzpatrick, 2008); and cancer of the cervix (Malinga, 2006) have reported some knowledge gaps.

Knowledge gaps among health care providers are addressed by providing the necessary information if the practice is to improve (Stevens, 2013). Cross-tabulation of knowledge against education level revealed that the midwives knowledge increased with education level and working experience: 60% of the midwives with A 'level had adequate knowledge on the prevention of preterm births compared to the 50% of O'level although the results were not statistically significant (Odds ratio 1.5 at 95% CI = 0.21- 10.62); and 58.8% of the midwives with 16 years and above working experience had adequate knowledge compared to 41.7% of those with working experience of less than 16 year (Odds ratio 2.0 at 95% CI of 0.45-8.96, still not statistically significant). This agreed with the findings of Gonzaga, Kiguli-Malwadde, Businge & Byanyima (2009) and Furber (2000) who found out that midwives with different academic levels and working experience had different knowledge bases and perceptions concerning health promotion programs.

What Attitude the Midwives Working in the Hospital have towards the Prevention of Preterm births

Competencies for midwifery practice

Ninety- three percent of the midwives recognized that standards of care and clinical guidelines together with midwifery guidelines are required competencies for midwifery practice. However, the fact that 27.6% did not recognize training as required competency for practice creates a question as to whether the knowledge and skills they use were from experience and sources other than training. Core competencies serve as guidelines for educators, students, health care professionals, consumers, employers, and policy-makers and constitute the basic requisites for graduates of all accredited nurse-midwifery and midwifery education programs (American College of Nurse-Midwives Core Competencies for Basic Midwifery Practice, 2003). It was also observed that 24.1% did not recognize attitude as a competency for practice. The training of midwives imparts knowledge, attitudes, and skills for practices. Non-recognition of training and attitude as core competencies for practice may be an indication of a gap in the practice.

Availability and use of clinical guidelines and standards of antenatal care

Out of the 29 participants only 31% indicated availability of the guidelines and standards of antenatal care in their clinics; 41.4% clearly indicated that they were not there. The remaining 27.6% either did not know (13.8%), or were not sure if the guidelines existed in their places of work (13.8%). However, of the 31% who indicated availability of the clinical guidelines, 66.7% said that they were often used. This means that if availability of and knowledge about the clinical guidelines are increased there may be a higher probability of increasing their use hence improving practice. Studies have shown that use of clinical guidelines enhances quality in practice (Tillett, 2009; Hanson, VandeVusse, Roberts & Forristal, 2009; ACNM, 2003; Sprague et al, 2002).

Room for conducting specific sessions with identified women at risk of PTB

Only 20.7% reported availability of room for specific sessions at all times and 24.1% reported no room at all for having specific sessions with identified mothers at risk of PTB, a possibility of having a challenge with space. The fact that there is a gap in recognizing the benefits for preventing preterm birth may lead to failure to identify a room. Studies have shown that information on health promotion should be given to the entire population of women during the prenatal period and not to target only those at risk (Furber, 2000; Moutquin, 1999). However, another approach of centering pregnancy has been recommended in the improvement of prenatal care and reduction of preterm births (Grady & Bloom, 2004). Availability of room would cater for the different mothers when grouped per age or similar health problems.

Availability of specific information on premature births and its prevention

More than half (55.2%) indicated that there was no specific information given to mothers at risk of preterm births. Since this study revealed that just a few midwives (31%) were aware of the availability of clinical guidelines and standards of antenatal care, it is not surprising to find that a larger percentage (55.2%) reported lack of specific information on preterm births.

Information giving has been advocated for in primary prevention because of its valuable impact on improving practice. A study carried out in Ottawa, Ontario, on community education on preterm births revealed that providing knowledge and standardized education materials to health care providers and mothers can improve preventive practice for preterm labour and educate women about it (Sprague et al, 2002).

Follow up of identified mothers at risk of PTB

The respondents were asked to indicate whether there was a clearly stated arrangement for following up mothers at risk of preterm births. Almost 60% indicated that there was no clearly stated arrangement for following up women at risk of preterm births. The antenatal guidelines specify the follow up of women depending on their health status. If the guidelines are not available in some of the clinics then it is possible that there is no clear arrangement for following women who are at risk of preterm birth. On the other hand, if some midwives did not know nor were not sure whether the guidelines existed in their places of work, then it was possible that they could not identify the stated arrangement for following up mothers at risk of PTB.

Conclusion

Although there was adequate knowledge about the risk factors for preterm births generally, there is need to emphasize smoking and alcohol intake during pregnancy, low socio-economic status, unstable marital relationship, young mothers of < 18 years and elderly mothers of > 35 years as prominent risks for preterm births. The results revealed inadequate knowledge on the approaches that may be used to prevent preterm births especially care of the genital area and folic acid administration. These areas should also be emphasized.

Practices thought to promote the prevention of preterm births were lacking namely: availability and use of clinical guidelines for antenatal care, vigilant screening of mothers, and availability of room for special sessions. It was reported that there was no specific information on premature prevention for mothers and the follow up process of identified women at risk of preterm birth was also not clear to many midwives. The limitation of the study was the few numbers of midwives working in antenatal clinics, compared to the big numbers of clients.

Recommendations

The teaching hospital should direct Interventions of preventing preterm birth towards increasing the knowledge and practices of the health care providers especially the midwives. Training curricula for midwives should include a section on prevention of preterm births. This should be accompanied by a clear outline of the content on premature babies including prevention and management. This will help to equip the trainees with the knowledge and skills required for practice. A similar study should focus at assessing all midwives on primary prevention of premature births, regardless of where they work. in order to get representative findings that can be generalized. On the other hand, there is need to establish the experience of mothers/caretakers of premature babies and establish their perspective on what would be the desired care and support for families with preterm babies.

Footnote

This study was a partial fulfillment for the requirement of Master Degree of Nursing. The entire study looked at the Knowledge, attitude and practices of midwives working in antenatal wards of a teaching hospital towards the primary prevention of Premature births. This article

focused on the Midwives' knowledge and practices towards the primary prevention of Premature births

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