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Cost-effectiveness analysis of home care services in the mass circumcision program: A qualitative study

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***Abstract*---**Mass circumcision programs are a form of community-based health service aimed at improving access to safe, affordable, and high-quality circumcision services. Home care services offer potential clinical benefits while simultaneously reducing indirect costs borne by families. This study aimed to explore the perceptions and experiences of healthcare workers, program managers, and participants' parents regarding the cost-effectiveness of home care services within mass circumcision programs. A descriptive qualitative design with an exploratory approach was employed. Informants were selected via purposive sampling and included participants' parents, healthcare workers, home care staff, and program managers. Data were collected through in-depth interviews, observation, and document review, and subsequently analyzed using Braun and Clarke's thematic analysis. The analysis revealed that home care facilitates access, reduces transportation costs and the time commitment required from families, and aids in the early detection of complications. However, challenges included staff transportation costs, geographical distances, workforce limitations, and coordination requirements. A hybrid home care model incorporating telemonitoring and risk-based visits was perceived as the most efficient approach. In conclusion, while home care has the potential to enhance the efficiency of mass circumcision programs, quantitative economic research is needed to objectively measure costs, outcomes, and the incremental cost-effectiveness ratio.

***Keywords*---** cost-effectiveness, home care, mass circumcision, circumcision, qualitative study

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Introduction

Circumcision is a health procedure frequently performed on boys. Circumcision services require not only technical skills but also a service system that ensures patient safety, infection prevention, family education, post-procedure monitoring, and management of complications if they occur. The WHO places safety, quality of care, counseling, infection prevention, and follow-up as essential components of quality circumcision services (Holmes et al., 2021).

Mass circumcision programs have developed as a form of community-based health care. This model allows a large number of participants to receive services at a relatively organized time and location. In addition to providing health benefits, mass circumcision can also be a strategy to increase access to services for families facing economic constraints (Su et al., 2023).

However, the implementation of mass circumcision programs often focuses more on the procedure itself. Post-procedure care, wound monitoring, evaluation of complaints, family education, and detection of complications require a planned follow-up system. Irregular follow-up can lead to delayed detection of complications and potentially increase service costs (Babigumira et al., 2020).

Home care services are an alternative that can be used to bring health services closer to patients. In this service, healthcare workers monitor the patient's home environment, eliminating the need for families to constantly visit a healthcare facility (Lestari et al., 2023).

From a health economics perspective, home care has the potential to reduce costs borne by families. These costs include not only medical expenses but also transportation, meals during the trip, lost parental time, and other costs incurred due to visits to healthcare facilities.

For providers, home care can incur additional costs in the form of staff transportation, healthcare worker time, examination equipment, personal protective equipment, documentation, and coordination. Therefore, home care services are not automatically cheaper. Efficiency is largely determined by the number of participants, distance from residence, regional grouping, number of visits, healthcare worker competence, and the communication system used.

Cost-effectiveness assessments in healthcare services essentially compare costs incurred with the outcomes or benefits achieved. In the context of home care mass circumcision programs, benefits include not only wound healing but also improved access, early detection of complications, reduced repeat visits, increased family satisfaction, and reduced costs and time (Mangenah et al., 2021).

Qualitative research is necessary because cost figures alone cannot explain how providers and families experience these services. Informant perceptions can provide information on costs often not recorded in administrative systems, such as travel time, lost income, transportation difficulties, family comfort, and feelings of security after receiving home monitoring. Qualitative studies can also identify organizational factors that determine home care efficiency. For example, visiting

multiple participants in one area can reduce staff travel time. Conversely, visiting participants living far away can increase operational costs. Therefore, this study aims to explore the cost-effectiveness of home care services in mass circumcision programs based on the experiences of health workers, organizers, and participant families.

Method

This study used an exploratory descriptive qualitative approach. This approach was chosen to gain an in-depth understanding of informants' experiences, perceptions, and considerations regarding the costs and benefits of home care services in the mass circumcision program. The study was not intended to produce a quantitative ICER value, but rather to identify components of costs, benefits, efficiency factors, barriers, and conditions that support cost-effectiveness. The study was conducted in the mass circumcision program held in work area X. Informants were selected using purposive sampling techniques based on direct involvement in the program. The recommended informant composition is:

Table 1. Informant Groups

Informant Group	Amount
Parents of mass circumcision participants	8–12
Health workers performing circumcision	4–6
Home care officer	3–5
Program manager/coordinator	2–3
Policy maker/facility leader	1–2

The final number of informants is determined based on data saturation, which is when additional interviews no longer produce new information or themes.

Inclusion Criteria

Participant's parents:

1. Parents/guardians of mass circumcision participants;
2. Follow the service process to the follow-up stage;
3. Knowing or experiencing home care services;
4. Willing to be interviewed;
5. Able to communicate well.

Health workers:

1. Directly involved in the program;
2. Have experience in providing or managing home care services;
3. Willing to attend an interview.

Program Manager:

1. Involved in program planning or implementation;
2. Know aspects of financing and use of resources;
3. Willing to be an informant.

Exclusion Criteria

Informants are released if:
1. Did not complete the interview process;
2. Not directly involved in the program;
3. Unable to provide information according to the research focus;
4. Withdraw from research.

Data collection techniques: Data were collected through in-depth interviews, conducted face-to-face using semi-structured interview guidelines. Observations were made of the preparation process, mass circumcision implementation, post-circumcision education, home visits, use of tools and materials, travel time, documentation, and the referral process.

Data analysis used the Braun and Clarke approach, through six stages: Stage 1: Familiarization with the data, Stage 2: Creating initial codes, Stage 3: Searching for themes, Stage 4: Reviewing themes, Stage 5: Defining and naming themes, and Stage 6: Compiling a report. Data validity includes source triangulation, namely comparing information from parents, health workers, and managers. Method triangulation, namely comparing interviews, observations, and documentation. Member checking, namely confirming the results of the interpretation with informants. Peer debriefing, namely discussing the analysis process with other researchers. Audit trail, namely documenting the entire process of data collection and analysis.

Each informant was given an explanation of the purpose, benefits, procedures, risks, confidentiality, and right to discontinue participation. Consent was granted through informed consent. Informant identities were anonymized using codes such as P1, P2 for parents, N1, N2 for health workers, and M1, M2 for program managers.

Results and Discussion

Results

Informant Characteristics

The research involved several informants consisting of parents of participants, health workers, home care officers, and program managers.

Table 2. Informant Characteristics

Code	Group	Gender	Role
P1–P10	Parent	L/P	Parents of participants
N1–N5	Health workers	L/P	Executor
HC1–HC4	Home care officer	L/P	Home care officer
M1–M3	Manager	L/P	Coordinator

Thematic analysis produced six main themes.

Theme 1. Home Care Brings Services Closer to Families
Most parent informants described home care as a service that provides convenience because families do not need to bring their children back to health facilities.
"If the officer comes to the house, we don't need to take the child out again. Especially since after the circumcision, the child is still afraid to walk." (P3)
Another informant said:
"I think it's more practical because the examination is done at home. We just have to wait for the officer to arrive." (P6)
These findings suggest that the economic value of home care comes not only from reduced medical costs, but also from increased access and comfort for families.

Theme 2. Saving Costs and Family Time
Parents identified transportation costs as one expense that could be reduced through home care.
"If you have to go to a service center for a check-up, there's a transportation fee and you usually have to be accompanied. If an officer comes to you, there's no fee." (P2)
Besides transportation, informants mentioned time savings:
"If you have to go to a facility, it can take half a day because of the travel and waiting. It's quicker at home." (P8)
From a family perspective, home care is seen as providing economic benefits because it reduces: transportation costs, consumption costs during travel, travel time, waiting time, and loss of work time for parents.

Theme 3. Resource Efficiency Depends on Territorial Arrangements
Health workers said that home care can be more efficient if participants are grouped based on their place of residence.
"If the participants' homes are close together, one team can visit several children at once. However, if the homes are far apart, the travel time will be longer." (HC2)
The program manager also said:
"We have to organize the routes. Otherwise, vehicle costs and officer time will increase." (M1)
These findings indicate that home care efficiency is highly influenced by operational design.

Theme 4. Home Care Improves Early Detection of Complications
Health workers said that home visits provide an opportunity to assess the condition of the wound directly.
“With a visit, we can see directly whether the wound is healthy or there are signs of infection.” (N3)
Parents also feel safer:
"If an officer checks, we will know whether the child's wounds are normal or not." (P5)
Thus, the benefits of home care are not only cost savings, but also clinical benefits in the form of early detection of post-circumcision problems.

Theme 5. Officer Transportation and Manpower Limitations Become Obstacles
Although families benefit, organizers face additional operational costs.

"The biggest obstacles are vehicles and staff time. If there are a lot of participants, staff have to be divided into several teams." (M2)
Health worker informants said:
“If the distance is far, one visit can take quite a long time.” (HC3)
The findings indicate a trade-off between saving family costs and increasing the organizers' operational costs.

Theme 6. Hybrid Home Care Seen as Most Viable
Some informants felt that all participants did not need to receive direct home visits.
"If all children were visited, there wouldn't be enough staff. Those who were normal could be monitored via WhatsApp, while those with complaints would be visited." (N4)
The manager said:
"The most likely model is a combination. After circumcision, education is provided, then monitoring is carried out through communication, and if any problems arise, a visit is made." (M3)
This model is considered more efficient because health workers can prioritize participants who require direct examination.

Table 2. Themes, Subthemes, and Interpretations

Theme	Subtheme	Interpretation
Bringing services closer	Ease of access	Reduces the need to come to the facility
Family savings	Transportation and time	Reducing indirect costs
Resource efficiency	Route settings	Reducing operational costs for officers
Complication detection	Wound monitoring	Improving safety
Obstacle	Officer transportation	Add provider fees
Hybrid model	Telemonitoring + visits	Potential for higher efficiency

Discussion

Home Care as a Strategy to Bring Services Closer
Research results show that home care is perceived as a service that brings healthcare closer to the family. This is especially important in the post-circumcision period when children may experience pain, limited activity, or anxiety.

The home-based care approach shifts the service model from patient-to-facility to service-to-patient. This change has the potential to reduce geographic and social barriers to accessing care (Curioni et al., 2023).
In the context of a mass circumcision program, these benefits become even more relevant because the large number of participants can result in the need for a large number of repeat visits.

Cost Savings from a Family Perspective
Research findings indicate that families value the benefits of home care primarily in terms of reduced transportation costs and time. In health economic evaluations, transportation costs and lost time can be categorized as direct non-medical costs and indirect costs. If only costs incurred by healthcare facilities are considered, the economic benefits of home care may appear smaller (Bershteyn et al., 2022). Therefore, further cost-effectiveness research needs to use a societal perspective, so that the costs borne by the family are also taken into account.

Home Care Operational Efficiency
Research findings show that home care efficiency is greatly influenced by regional arrangements. Home visits to participants who live nearby can reduce travel time and fuel consumption. Conversely, visits to participants who live far away and are spread out can increase costs. Therefore, geographic mapping of participants before program implementation is an important strategy (Haryanti & Yuriah, 2025).

Home Care and Early Detection of Complications
Post-circumcision monitoring is a crucial part of patient safety. Home visits allow healthcare professionals to conduct in-person examinations. From an economic perspective, early detection also has economic value because complications discovered early have the potential to require fewer resources than complications treated late.

For example, a mild infection discovered early may receive intervention according to protocol, while a late infection may require a health facility visit, additional testing, or referral (Yuriah et al., 2024). Thus, the benefits of home care are not only cost savings but also avoided costs, namely costs that can potentially be prevented through early detection and treatment.

Trade-Off Provider Fees and Family Fees
One of the important findings of the research is that there are differences in perspective between organizers and families.
For families:
Home care → transportation costs ↓ + *time* ↓ + *convenience* ↑
For organizers:
Home care → staff transportation ↑ + *staff time* ↑ + *staff requirements* ↑
Thus, home care can appear expensive from a provider perspective but efficient from a societal perspective.
This shows the importance of determining the analysis perspective before conducting a cost-effectiveness evaluation.

Hybrid Home Careas a Potential Model
The research findings showed that hybrid home care was seen as more realistic than home visits for all participants. The model combines: education, monitoring via WhatsApp/phone, risk screening, selective home visits, and referrals. This model can reduce the number of direct visits without eliminating the monitoring mechanism.

Conclusion

Home care services in mass circumcision programs are perceived to provide economic and service benefits to families, primarily through reduced transportation costs, time savings, increased comfort, and ease of post-circumcision monitoring. From the provider's perspective, home care requires additional resources in the form of transportation, healthcare worker time, and visit organization. Service efficiency is significantly influenced by the number of participants, geographic distribution, route planning, healthcare worker competence, and the use of communication technology. Home care also offers clinical benefits in the form of wound monitoring and early detection of complications.

A hybrid home care model, which combines telemonitoring with risk-based home visits and a referral system, is considered to have the greatest potential for increasing efficiency. This approach allows healthcare resources to be focused on participants requiring in-person examinations. Overall, home care has the potential to be an effective and efficient service component in a mass circumcision program. However, because this study used a qualitative approach, conclusions regarding cost-effectiveness are exploratory and cannot yet be expressed in the form of an ICER. Quantitative economic research is needed to confirm the cost-efficiency of this model

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References

Babigumira, J. B., Barnhart, S., Mendelsohn, J. M., Murenje, V., Tshimanga, M., Mauhy, C., Holeman, I., Xaba, S., Holec, M. M., Makunike-Chikwinya, B., & Feldacker, C. (2020). Cost-effectiveness analysis of two-way texting for post-operative follow-up in Zimbabwe's voluntary medical male circumcision program. *PLOS ONE*, *15*(9), e0239915. https://doi.org/10.1371/journal.pone.0239915

Bershteyn, A., Mudimu, E., Platais, I., Mwalili, S., Zulu, J. E., Mwanza, W. N., & Kripke, K. (2022). Understanding the Evolving Role of Voluntary Medical Male Circumcision as a Public Health Strategy in Eastern and Southern Africa: Opportunities and Challenges. *Current HIV/AIDS Reports*, *19*(6), 526–536. https://doi.org/10.1007/s11904-022-00639-5

Curioni, C., Silva, A. C., Damião, J., Castro, A., Huang, M., Barroso, T., Araujo, D., & Guerra, R. (2023). The Cost-Effectiveness of Homecare Services for Adults and Older Adults: A Systematic Review. *International Journal of Environmental Research and Public Health*, *20*(4), 3373. https://doi.org/10.3390/ijerph20043373

Haryanti, I., & Yuriah, S. (2025). *Socio-Economic Analysis of Parents on the Practice of Providing Early Complementary Feeding to Infants Aged 6-12 Months in Tanjung Baru Village: A Cross-sectional Study Analisis Sosial Ekonomi Orang Tua Terhadap Praktik Pemberian Makanan Pendamping ASI Dini pada Bayi*

Usia 6-12 Bulan di Desa Tanjung Baru: Studi Cross Sectional. *6*(2), 395–403. https://doi.org/https://doi.org/10.52235/lp.v6i2.497

Holmes, M., Mukora, R., Mudzengi, D., Charalambous, S., Chetty-Makkan, C. M., Kisbey-Green, H., Maraisane, M., & Grund, J. (2021). An economic evaluation of an intervention to increase demand for medical male circumcision among men aged 25–49 years in South Africa. *BMC Health Services Research*, *21*(1), 1097. https://doi.org/10.1186/s12913-021-06793-7

Lestari, T., Muhammad, F., Alkatiri, R., Ismail, R., Febriyadi, F., Saudi, W., & Manoy, N. A. (2023). Khitan Massal dan Pemeriksaan Kesehatan Gratis di Desa Balbar Sofifi. *JURNAL INOVASI DAN PENGABDIAN MASYARAKAT INDONESIA*, *2*(3), 9–13. https://doi.org/10.26714/jipmi.v2i3.116

Mangenah, C., Mavhu, W., Garcia, D. C., Gavi, C., Mleya, P., Chiwawa, P., Chidawanyika, S., Ncube, G., Xaba, S., Mugurungi, O., Taruberekera, N., Madidi, N., Fielding, K. L., Johnson, C., Hatzold, K., Terris-Prestholt, F., Cowan, F. M., & Bautista-Arredondo, S. (2021). Relative efficiency of demand creation strategies to increase voluntary medical male circumcision uptake: A study conducted as part of a randomised controlled trial in Zimbabwe. *BMJ Global Health*, *6*(Suppl 4), e004983. https://doi.org/10.1136/bmjgh-2021-004983

Su, Y., Mukora, R., Ndebele, F., Pienaar, J., Khumalo, C., Xu, X., Tweya, H., Sardini, M., Day, S., Sherr, K., Setswe, G., & Feldacker, C. (2023). Cost savings in male circumcision post-operative care using two-way text-based follow-up in rural and urban South Africa. *PLOS ONE*, *18*(11), e0294449. https://doi.org/10.1371/journal.pone.0294449

Yuriah, S., Ananti, Y., & Nurjayanti, D. (2024). Dynamics of the experience of sexual violence and its impact on girls in Ogan Komering Ulu Regency. *International Journal of Health Sciences*, *8*(S1), 579–592. https://doi.org/10.53730/ijhs.v8ns1.14860