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Current Status and Challenges of Assisted Reproductive Technology (ART) Services in Nepal

Dr. Sanu Maiya Shrestha (Pradhan)

Creator's IVF Nepal Pvt. Ltd., Satdobato, Lalitpur, Kathmandu, Nepal

ABSTRACT

Nepal, a developing country in South Asia, has a population of 29,164,578 according to the 2021 census, with 8,060,560 individuals falling within the reproductive age group (15-49 years). Subfertility affects approximately 10% of this group. Assisted Reproductive Technology (ART) treatment was regularly introduced in Nepal since 2004, prior to which individuals often travelled abroad for treatment.

A recent survey identified 51 ART centers in Nepal, with 66.7% located within the Kathmandu Valley. Of these, 94% are privately owned, while only one is government-operated, and two function as semi-government centers. Among the 51 centers, 35 are fully operational, but only 23 (45.1%) have been licensed by the Ministry of Health and Population (MoHP). Despite increasing number of ART centers, the proper ART policy and guidelines are under discussion but not finalized. Most of the centers follow different ART guidelines like European Society of Human Reproduction and Embryology (ESHRE), American Society for Reproductive Medicine (ASRM), ICMR (India) guidelines etc.

Data from 34 functioning ART centers were analyzed, as one declined to participate. All centers have in-house fertility experts, but only 58.8% have in-house embryologists. While 79.4% of centers provide regular In-vitro fertilization (IVF) treatments, 11.8% offer batch only IVF due to lack of skilled embryologist. Most centers practice IVF- antagonist protocol (85.3%) for autologous and oocyte donor cycles. Oocyte, embryo, and semen donation are practiced by almost all centers. Intracytoplasmic Sperm Injection (ICSI) for all with frozen embryo transfer cycles are common, with 2-3 embryos typically transferred per cycle. Only few centers offer Preimplantation Genetic Testing (PGT), which is usually outsourced.

ART data recording is done individually by 94.1% of centers, either in hardcopy or softcopy, as there is no national ART registry yet. Only one center submits ART data to International Committee for Monitoring Assisted Reproductive Technology (ICMART), reflecting limited awareness of international standards. Despite the growth in ART services, challenges remain in policy finalization, equitable access, and standardized practices.

***Corresponding author**

Sanu Maiya Shrestha (Pradhan), Creator's IVF Nepal Pvt. Ltd., Satdobato, Lalitpur, Kathmandu, Nepal.

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Introduction

Infertility is a growing concern in Nepal. According to the National Population and Housing Census 2021, Nepal has a population of 29,164,578, of which 8,060,560 individuals are within the reproductive age group (15–49 years). The Nepal Demographic and Health Survey (NDHS) 2022 reported that approximately 10% of this group faces subfertility. This burden highlights the increasing demand for Assisted Reproductive Technology (ART) [1,2].

ART was first introduced in Nepal in 2004 with assistance from foreign specialists, prior to which infertile individuals often traveled abroad for treatment. It was initially conducted in batches using ultralong downregulation protocols. Over the years, the number of ART centers has increased, with 51 centers established by 2024, 35 of which are fully operational and 23 licensed by the Ministry of Health and Population (MoHP). Since 2023, licensing has required on-site inspections and renewal every two years. Despite this growth, Nepal lacks comprehensive national ART policies and guidelines, in contrast to many developed nations where regulation and funding are firmly established.

Materials and Methods

A prospective telephonic survey was conducted among fertility experts at ART centers across Nepal. Out of 35 functional centers, 34 participated. Data collection was carried out between 1 November 2024 and 13 January 2025, and additional information was obtained from the MoHP.

The variables assessed included:

- Regular and batch IVF
- Presence of fertility experts and embryologists.
- IVF/ICSI protocols.
- Stimulation regimens: Antagonist protocol (ANT), Long protocol (LP), Short protocol (SP).
- Number of cycles conducted (cumulative and monthly).
- Embryo transfer type (fresh or frozen) and day of transfer.
- Gamete and embryo donation practices.
- Cryopreservation facilities.

- Preimplantation Genetic Testing (PGT).
- Outcome reporting and compliance with ICMART.
- Data were analyzed descriptively using SPSS v20.

Results

Service Distribution

By 2024, there were 51 ART centers in Nepal, of which 35 were fully operational. Approximately 66.7% of centers were located within Kathmandu Valley, while 33.3% were outside. Ownership was dominated by the private sector (94.1%), with only 2% government and 3.9% semi-government centers. Regarding personnel, 58.8% of centers employed in-house embryologists, 35.3% used on-call embryologists, and 5.9% used both. All 34 centers had in-house fertility experts. The service distribution is summarized in Figure 1.

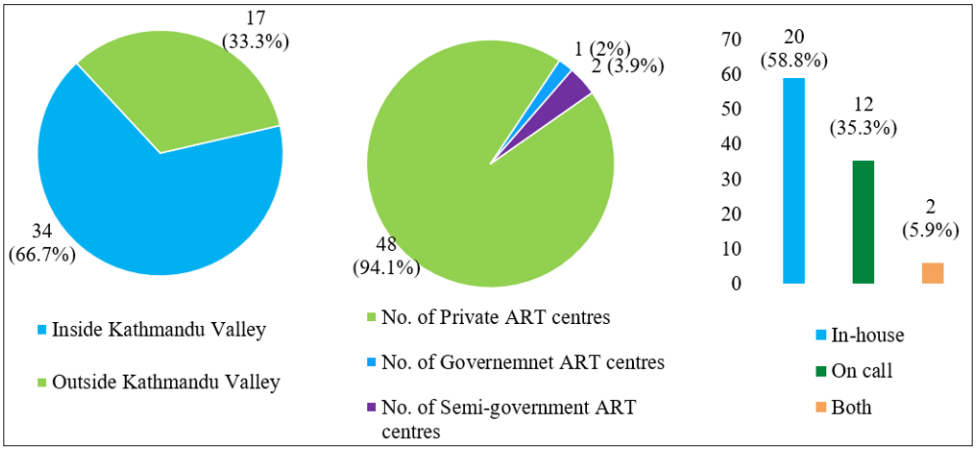

Figure 1 A Figure 1 B Figure 1 C

Figure1:
(A) Distribution of ART Centers Inside and Outside Kathmandu Valley (N=51)
(B) Ownership of ART Centers: Private, Government and Semi Government (N=51)
(C) Availability of Embryologist: In-house, On -call and Both (N=34 functional centers)

Cycle Type & Volume

A great majority of centers (79.4%) performed regular ART cycles, 11.8% performed only batch cycles while 8.8% performed both batch and regular cycles. (Figure 2A)

Monthly activity was modest: 38.2% of centers conducted 1–10 cycles per month, 32.4% performed 11–20 cycles, and 11.8% reported 21–30 cycles. Only a minority performed more than 30 cycles monthly. Compared to international centers where hundreds of cycles may be performed monthly, Nepalese centers operate on a small scale. (Figure 2B)

The total number of IVF/ICSI cycles varied widely. More than half of the centers (58.8%) did not record their cumulative numbers. 26.6% of centers had conducted fewer than 100 cycles, 8.8% reported 100–500 cycles, and only 2.9% each had performed 1000–2000 and more than 2000 cycles. (Figure 2C)

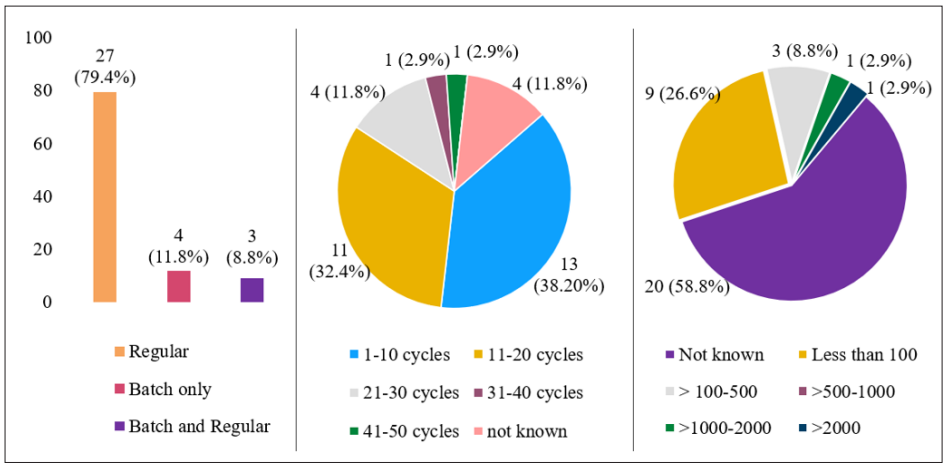

Figure 2: (A) Distribution of Centers by ART Cycle type: Regular, Batch and Both(N=34)
(B)Distribution of Centers by ART Cycles Volume (N=34)
(C) Distribution of Centers by Cumulative ART Cycles Till Date (N=34)

Stimulation Protocols

In autologous cycles, antagonist-only protocols were used in 85.3% of centers. A further 5.9% used a combination of long and antagonist protocols, while 8.8% employed a mix of long, antagonist, and short protocols. (Figure 3) This limited variation in stimulation approaches contrasts with international programs where individualized protocols are standard practice.

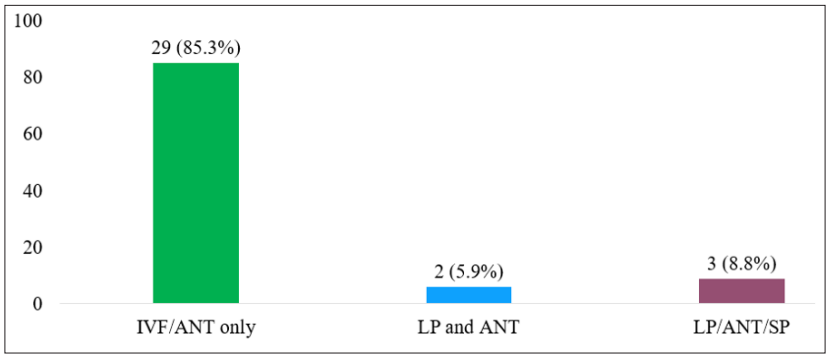

Figure 3: Distribution of Centers by Stimulation Protocols in Autologous Cycles (N=34)

Embryo Transfer Practices

Embryo transfers were nearly equally split between fresh and frozen cycles: 50% of centers performed both, 47.1% conducted frozen-only transfers, and 2.9% relied exclusively on fresh transfers. (Figure 4 A)

70.6% centers transferred embryos on both Day 3 and Day 5, 14.7% on Day 5 only, 11.8% on Day 3 only, and 2.9% on multiple days (Day 2–5). (Figure 4 B)

The number of embryos transferred per cycle also varied. Nearly half (47.1%) transferred 2–3 embryos, 23.5% transferred exactly 2 embryos, 11.8% transferred 1–3 embryos, and 8.8% transferred exactly 3 embryos. Smaller proportions transferred 3–4 embryos (2.9%) or as many as 1–5 embryos (5.9%). (Figure 4 C)

These practices, aimed at maximizing pregnancy chances in the absence of financial support, diverge from international guidelines that recommend single embryo transfer to minimize maternal and neonatal risks.

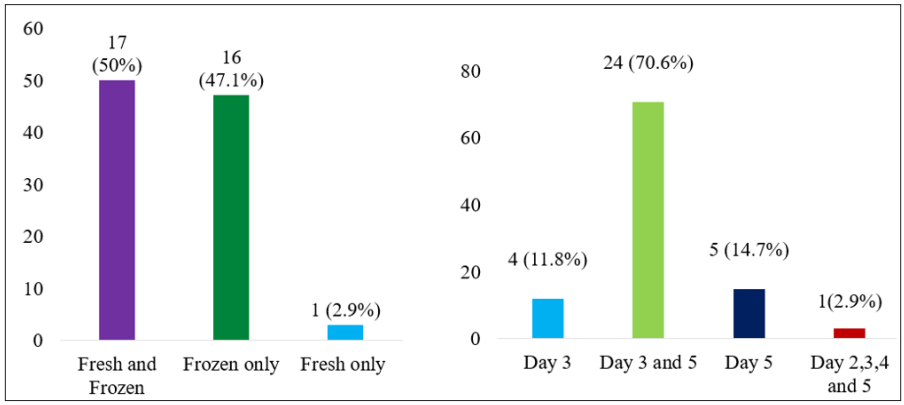

Figure 4 A **Figure 4 B**

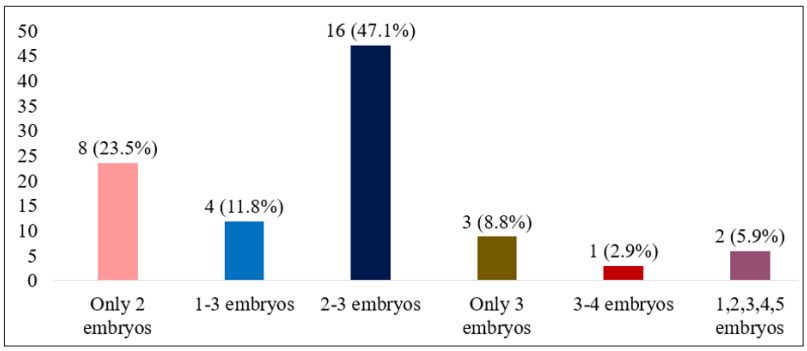

Figure 4 C

Figure 4:
(A) Distribution of Centers by ET cycle type: fresh, frozen and both(N=34)
(B)Distribution of Centers by ET day (N=34)

(C) Distribution of Centers by Number of Embryos Transferred (N=34)

Donation Practices

Semen donation was available in all centers (100%) and is regulated under the Civil Code 2017. Oocyte donation was available in 94.1% of centers (Figure 5 A), and embryo donation in 85.3%. (Figure 5 B) However, both remain unregulated by statute. In all cases, donor and recipient consent was required, anonymity was preserved unless donors were personally known, and semen and oocyte donors received financial compensation, though amounts varied. Embryo donors were not compensated. No national donor tracking system exists, unlike in countries where registries prevent genetic overlap and accidental incest in future [3].

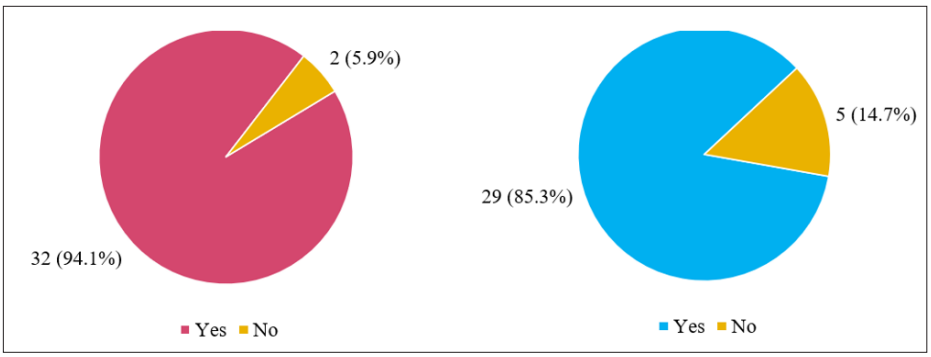

Figure 5: (A) Distribution of Centers by Availability of Oocyte Donation Facility (N=34)
(B)Distribution of Centers by Availability of Embryo Donation Facility (N=34)

Cryopreservation Facilities

Cryopreservation services were widely available. Sperm and embryo freezing were offered in 97.1% of centers, oocyte freezing in 88.2%, and tissue freezing in only 5.9%. (Figure 6) Gamete and embryo cryopreservation mirrored international practice, but the absence of guidelines in Nepal contrasts with the strict regulatory frameworks elsewhere.

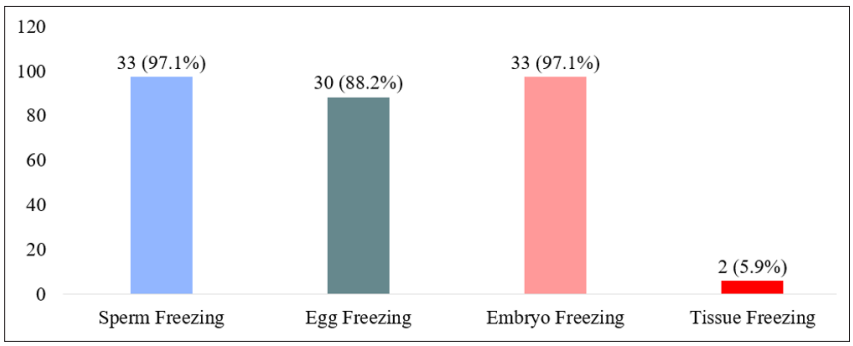

Figure 6: Distribution of Centers by Cryopreservation Facilities (N=34)

PGT and Outcome Recording

Preimplantation Genetic Testing (PGT) was offered in 32.4% of centers, but all services were outsourced (Figure 7 A) underscoring the absence of local technology and trained professionals. In contrast, PGT is routine and in-house in many international ART programs.

Outcome reporting was minimal. While 94.1% of centers recorded data, only one center (2.9%) calculated pregnancy and live birth outcomes. (Figure 7 B) Awareness of ICMART was limited to 17.6% of centers, (Figure 7 C) and only one (2.9%) submitted data. The lack of a national registry prevents benchmarking, quality monitoring, and international alignment.

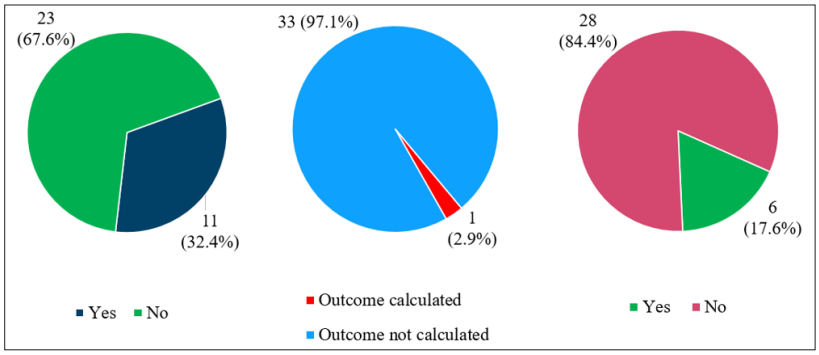

Figure 7: (A) Distribution of Centers by Availability of PGT Facility (N=34)
(B) Distribution of centers by Calculation of Pregnancy and Live Birth Outcomes(N=34)

(C) Distribution of Centers by Awareness of ICMART (N=34)

Discussion

Nepal's ART services have grown significantly since 2004, with increased availability of centers, expertise, and facilities. However, financial, legal, and regulatory gaps persist. Unlike countries with public funding or insurance schemes, Nepal's ART remains unaffordable for most couples, leading to high embryo transfer numbers and increased risks. Legal frameworks address semen donation but fail to regulate oocyte and embryo donation, and no donor tracking registry exists.

Clinically, the dominance of antagonist-only protocols and reliance on outsourced PGT reflect limited flexibility and technological gaps compared to international centers. Although cryopreservation is widely practiced, the absence of regulation raises concerns about standardization and safety. Data governance is particularly weak: outcome reporting and registry participation are rare, leaving Nepal isolated from international ART monitoring systems.

Overall, Nepal has achieved notable quantitative growth but lags behind global qualitative standards. Bridging these gaps requires urgent policy reform, financial support mechanisms, and investment in local expertise and technology [4].

Conclusion

ART services in Nepal have expanded rapidly in scope and infrastructure, but critical gaps remain in financial accessibility, legal oversight, technological capacity, and data governance. National policies should prioritize: establishing a centralized ART registry; introducing regulations on embryo transfer and donation; expanding insurance or government support; and building local capacity for advanced services such as PGT. Only by addressing these challenges can Nepal align its ART sector with international standards and ensure equitable, safe, and effective care for infertile couples.

Conflict of Interest Statement: The author declares no financial or non-financial conflicts of interest

References

1. Central Bureau of Statistics. National Population and Housing Census 2021. Kathmandu: Government of Nepal; 2021. https://censusnepal.cbs.gov.np/results/files/result-folder/National%20Report_English.pdf
2. Ministry of Health, Nepal; New ERA; ICF. Nepal Demographic and Health Survey 2022. Kathmandu: Ministry of Health and Population; 2022. https://dhsprogram.com/pubs/pdf/PR142/PR142.pdf
3. Government of Nepal. National Civil Code 2017 (2074). Kathmandu: Government of Nepal; 2017. https://www.jica.go.jp/Resource/activities/issues/governance/portal/nepal/ku57pq00002khibz-att/civil_code_1st_amendment_en.pdf
4. International Committee Monitoring Assisted Reproductive Technologies (ICMART). Data collection guidelines. [Internet]. https://www.icmartivf.org/