# The Impact of Care Transitions on Pregnant Youth Living with HIV in Kisumu, Kenya

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## BACKGROUND

- Pregnant adolescents & young adults living with HIV (AYALWH) in low-middle-income countries (LMIC), where transition from HIV clinic to antenatal care (ANC) is required, have poor attendance & retention in HIV care[1-5]. Little is known about the impact of this pregnancy associated transition (PAT)[1].
- This sub-study of the Adapt for Adolescents (A4A) trial evaluates the impact of PAT in AYALWH on HIV care engagement.

**Study Aims:**

- *Aim 1*: Describe socio-demographic characteristics of AYALWH with PAT vs. non-pregnant AYALWH without PAT.
- *Aim 2:* Identify % AYALWH with PAT & types of transition (adolescent/adult clinic to/from ANC).
- *Aim 3:* Assess impact of perinatal transition on time to HIV care engagement failure.

## METHODS

- AYALWH (age 14-24 years) from three public facilities in Kisumu County, Kenya were enrolled from April 2021 to March 2022 (Figure 1).
- Data collected for A4A study via surveys & routine medical record abstraction.
- Primary outcome of AYALWH engagement failure at 2 years defined as the first occurrence of:
  - Missed clinic visit (≥ 14 by days) *or*
  - Viral failure (≥ 200 copies/ml) *or*
  - Death due to HIV
- Categorical variables compared with Chi-square test
- Kaplan-Meier survival curve visualized time to failure for AYALWH with PAT.
- Cox Proportional Hazard Model estimated hazard ratios, with & without time-varying covariate to account for different transition times to & from ANC.

**Pregnancy associated transition did not impact HIV care engagement of adolescents & young adults living with HIV**

## RESULTS

- A total of 457 female AYALWH were included, of which 114 had a PAT (Figure 1)
- Participants with PAT were likely to be older, started on ART at an older age & married (Table 1).
- 59.6% of PAT occurred from adolescent/adult clinic to ANC.
- 43.9% of participants with PAT experienced failure of a missed visit, viral failure or both (Figure 1).
- The probability of remaining engaged in care for those with PAT decreased to 53.7% by 2 year (Figure 2).
- Among participants with PAT the time to survival to 80% was 384 days (95% CI: 229-379), compared to 288 days (95% CI: 276-300) for participants without PAT, but the difference was not significant (log rank test, p=0.131).
- Participants with PAT may have a lower risk of failure (HR = 0.77, 95% CI: 0.56-1.06) even when adjusted for transition timing (HR = 0.40, 95% CI: 0.05 – 3.27), but these results were not significant (Table 2).
- Longer duration on ART significantly reduced risk of failure (Table 2).

**Figure 1. Study population and outcomes**

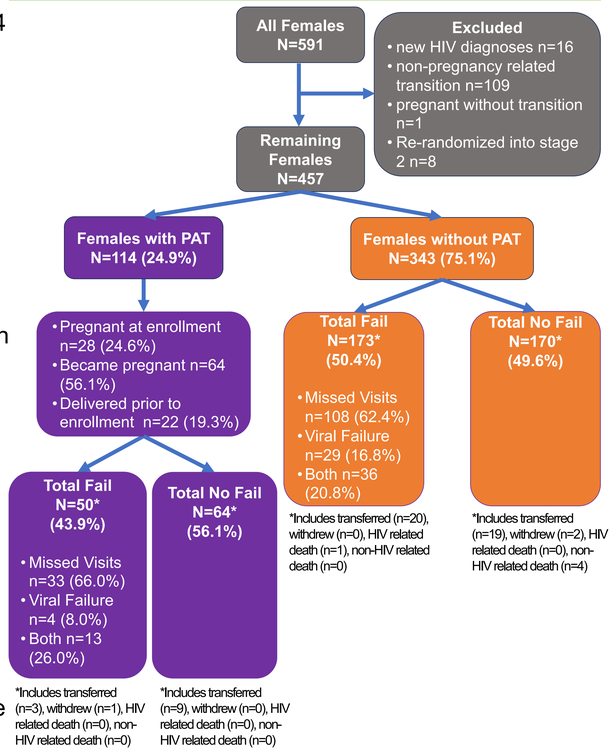



**Table 1. Demographics of pregnant AYALWH with a history of PAT vs non-pregnant AYALWH without a history of transition**

| Characteristic | Females with PAT N=114 (24.9%) | Females without PAT N=343 (75.1%) | |
|---|---|---|---|
| | N (%) | N (%) | p-value |
| **Age group (years)** | | | **<0.01** |
| 14-19 | 39 (34.2) | 167 (48.7) | |
| 20-24 | 75 (65.8) | 176 (51.3) | |
| **Median age (IQR)** | 21 (19-23) | 20 (16-23) | |
| **Age at ART Initiation (years)** | | | **<0.01** |
| <5 | 6 (5.3) | 75 (21.9) | |
| 5 to <10 | 22 (19.3) | 64 (18.6) | |
| 10 to 14 | 14 (12.3) | 49 (14.3) | |
| >/= 15 | 72 (63.1) | 154 (44.9) | |
| Unknown/missing | 0 (0) | 1 (0.3) | |
| **Median age at ART initiation (IQR)** | 17 (10-20) | 12 (6-19) | |
| **Median time on ART in years (IQR)** | 4 (1-9) | 6 (2-11) | |
| **Study Site** | | | 0.195 |
| Lumumba | 37 (32.4) | 111 (32.4) | |
| Kisumu county hospital | 32 (28.1) | 124 (36.1) | |
| Ahero county hospital | 45 (39.5) | 108 (31.5) | |
| **Person most responsible for well-being** | | | **<0.01** |
| Self | 14 (12.3) | 55 (16.0) | |
| Parent | 41 (35.9) | 167 (48.7) | |
| Relative | 18 (15.8) | 73 (21.3) | |
| Partner | 40 (35.1) | 45 (13.1) | |
| Other | 1 (0.9) | 3 (0.9) | |
| **Relationship Status** | | | **<0.01** |
| Single (incl. separated/divorced, widowed) | 30 (26.3) | 197 (57.4) | |
| Married or cohabitating | 47 (41.2) | 58 (16.9) | |
| Not cohabitating | 36 (31.6) | 88 (25.7) | |
| Refused | 1 (0.9) | 0 (0) | |
| **Highest level of formal education** | | | 0.057 |
| Primary education | 36 (31.6) | 149 (43.4) | |
| Secondary education | 62 (54.4) | 145 (42.3) | |
| More than secondary | 16 (14.0) | 49 (14.3) | |
| **Adverse Childhood Outcomes** | | | 0.114 |
| Lower risk 0-3 | 64 (56.1) | 221 (64.4) | |
| High risk =/>4 | 50 (43.9) | 122 (35.6) | |

Abbreviations: IQR = interquartile range; ART = antiretroviral therapy

**Figure 2. Kaplan-Meier Survival Curve of AYALWH with PAT**

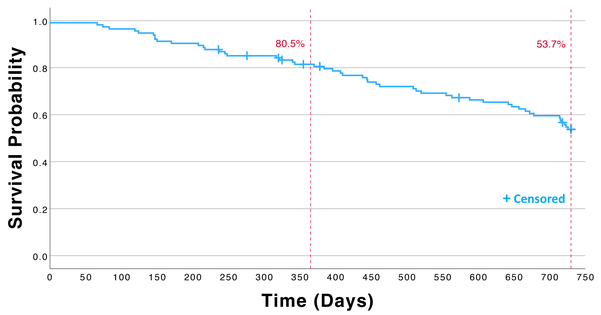



**Table 2. Determinants of survival time using the Cox Proportional Hazards Model with transition as a time-varying covariate**

| Variable | Hazard Ratio | 95% CI | p-value |
|---|---|---|---|
| **Transition timing** | 0.40 | 0.05-3.27 | 0.389 |
| **Age** | 1.00 | 0.92-1.09 | 0.953 |
| **Person most responsible for well-being** | | | |
| Parent | -- | -- | -- |
| Self | 0.94 | 0.61-1.45 | 0.786 |
| Relative | 1.09 | 0.75-1.58 | 0.643 |
| Other | 2.71 | 0.85-8.63 | 0.092 |
| Partner | 0.62 | 0.39-0.99 | **0.045** |
| **Highest level of formal education** | | | |
| More than secondary | -- | -- | -- |
| Primary education | 1.15 | 0.71-1.87 | 0.573 |
| Secondary education | 1.21 | 0.77-1.89 | 0.407 |
| **Time on ART** | 0.96 | 0.93-1.00 | **0.028** |
| **Alcohol Use** | 1.04 | 0.96-1.13 | 0.341 |

## CONCLUSIONS

- Engagement in care for AYALWH with a PAT declines over time.
- Additional research should explore if care engagement differs for AYALWH with and without PAT.
- Additional efforts are needed to ensure AYALWH with PAT remain engaged in care.

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## ADDITIONAL KEY INFORMATION

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