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Key Takeaways

- HIV-related care, opportunistic prophylaxis, and end-of-life care accounted for almost one-quarter of the total cost per person for 1 year, and costs were higher for individuals with low CD4+ T-cell counts
- People with multidrug-resistant HIV-1 who are heavily treatment-experienced and have lower CD4+ T-cell counts require more healthcare resources, driving up direct costs

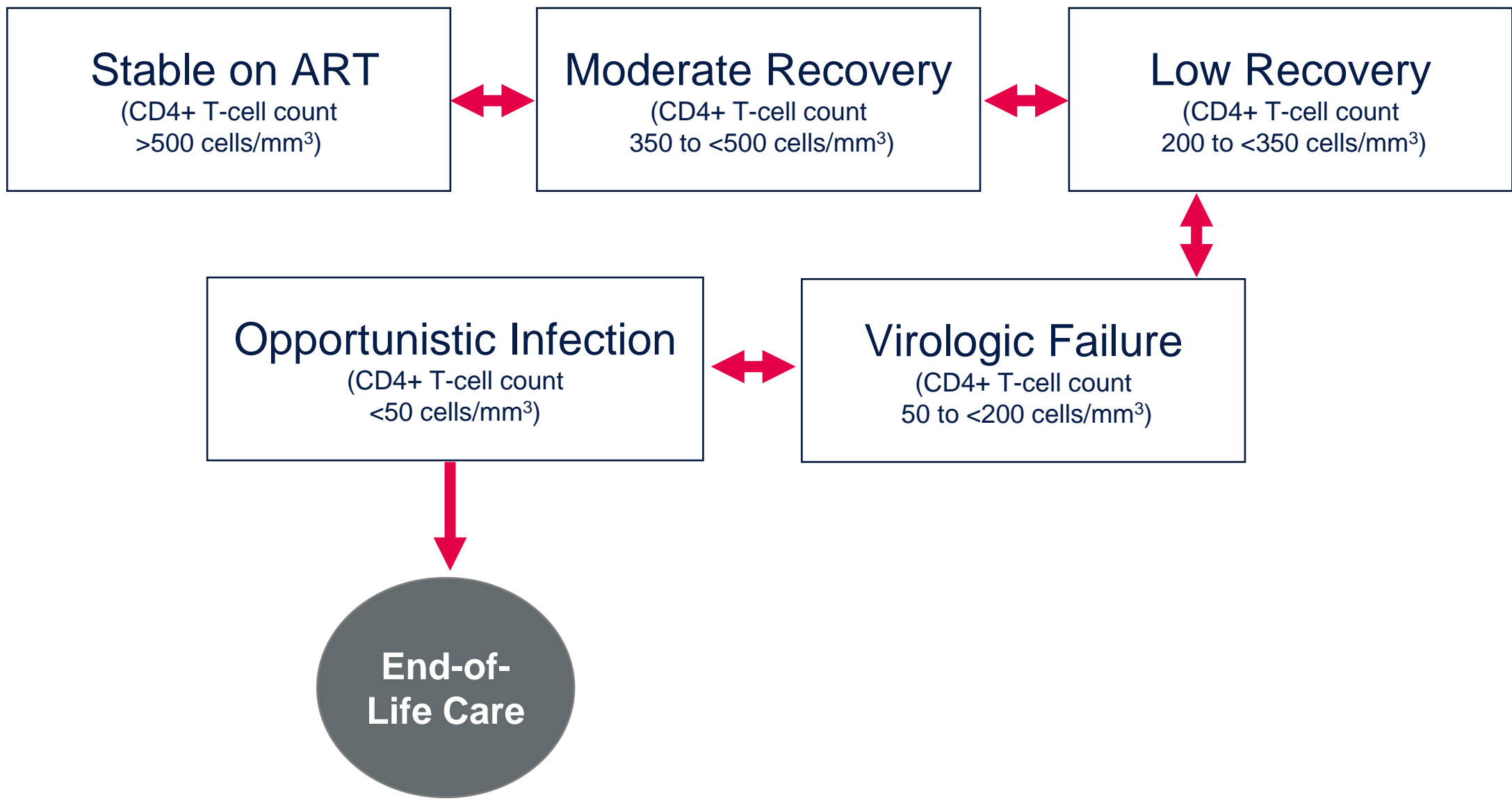
Introduction

- CD4+ T cells are essential helper T lymphocytes that coordinate the immune response¹
- HIV directly targets CD4+ T cells, using their machinery to replicate while simultaneously destroying them¹
- As the infection progresses, CD4+ T-cell counts decline, weakening the immune system¹
- Low CD4+ T-cell counts are often associated with higher incidence of opportunistic infections (OIs) and HIV/AIDS-related complications, leading to the need for complex therapies, increased use of healthcare resources, and higher costs¹⁻⁴
- The aim of this study was to analyze the direct costs for 1 year of people with multidrug-resistant HIV-1 who are heavily treatment-experienced, categorized by CD4+ T-cell count

Methods

- Health state transition model for people with HIV and CD4+ T-cell count (Figure 1)

Figure 1. Health State Transition Model²



- A previously validated economic model was used,⁵ with a public healthcare system perspective and a time horizon of 1 year
- Healthcare resources considered to calculate the cost per person by CD4+ T-cell count:
 - Antiretroviral therapy (ART) regimens⁶
 - Outpatient^{7,8}
 - Emergency^{7,8}
 - Hospitalizations^{7,8}
 - Monitoring tests (eg, HIV-1 RNA, CD4+ T-cell count, ART resistance)⁶⁻⁸
 - OI prophylaxis^{6,9}
 - Adverse event management¹⁰
 - End-of-life care¹⁰
 - AIDS-defining events (OI management)¹⁰

Results

- Total cost per person for 1 year: R\$ 100,528
 - ART accounted for 77% of the total cost
 - Main antiretrovirals:
 - Maraviroc (used in 19% of optimized background therapies)
 - Enfuvirtide (used in 10% of optimized background therapies)
- HIV-related care accounted for 21% of the total cost, including:
 - Outpatient visits to primary HIV care providers
 - Emergency department visits
 - Inpatient days
 - Adverse event management
 - CD4+ T-cell count testing
 - HIV-1 RNA testing
 - Resistance testing
 - Non-HIV drugs
- Other costs (2%)
 - OI prophylaxis: R\$ 155
 - End-of-life care: R\$ 1,455

- Per person, total health state costs (Figure 2) and monthly costs for emergency department visits, inpatient days, and OI prophylaxis (Figure 3) are higher for those with low CD4+ T-cell counts
- People with low CD4+ T-cell counts require more intensive hospital care, more frequent testing, and more expensive treatment options

Figure 2. Total Health State Cost per Person for 1 Year by CD4+ T-cell Count Category

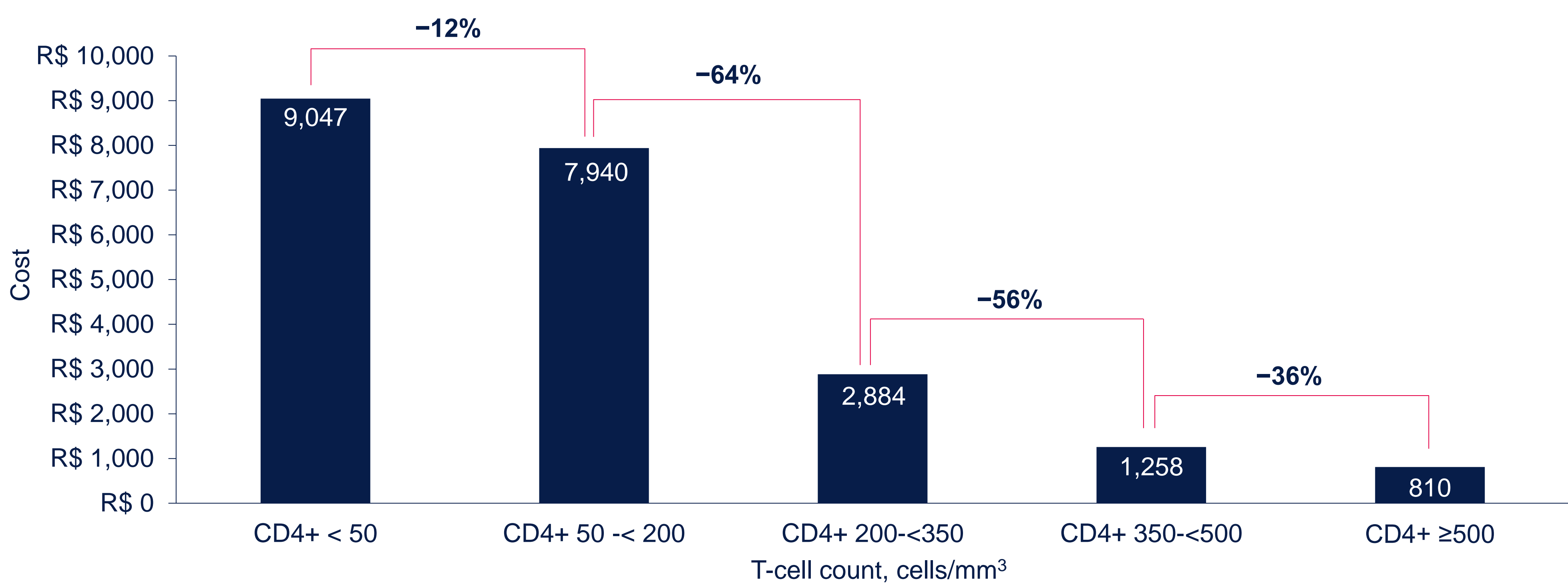


Figure 3. Monthly Costs for (A) Emergency Department Visits, (B) Inpatient Days, and (C) OI Prophylaxis by CD4+ T-cell Category



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Conclusions

- HIV-related care, opportunistic prophylaxis, and end-of-life care accounted for 23% of the total healthcare costs for 1 year for people with multidrug-resistant HIV-1 who are heavily treatment-experienced
- People with lower CD4+ T-cell counts require more healthcare resources and have higher direct costs
- There is a need for new technologies aimed at improving CD4+ T-cell counts in this population to reduce the burden on healthcare resources