

# The effect of peer educators on medication adherence in HIV patients in Cochabamba, Bolivia

George Ru

Office of International Affairs, Thomas Jefferson University;  
Office of Diversity and Inclusion Initiatives, Thomas Jefferson University; Vivo en Positivo

## BACKGROUND INFORMATION

- Bolivia is the least developed country in South America, with high levels of poverty, poor access to safe water, and low economic activity. Bolivia's GDP, in US dollars, in 2013 was \$30.60 billion and the gross national income, per capita in US dollars was \$2,550, which both rank either at or near the bottom of the list for all South American countries (7).
- The Ministry of Health and Sports (MSD)** is the national governing body responsible for formulating the strategy, policies, plans and programs in health. **The Department of Health Services (SEDES)** is the highest level of technical health management in the regional government. Bolivia is split into nine different regions: La Paz, Cochabamba, Santa Cruz, Pando, Beni, Oruro, Potosí, Chuquisaca, and Tarija. (3).
- The first AIDS case was diagnosed in Bolivia in 1984 in the city of Santa Cruz, which is the country's largest and most prosperous city. From 1984 until February 2014, the number of officially registered cases in the HIV/AIDS Program of the Ministry of Health and Sports is 11,421 people (3).
- The departments that have registered the most cases of HIV are Santa Cruz (52%), Cochabamba (20%) and La Paz (17%)
  - Most of the detected cases are in urban or suburban areas, as these three cities constitute three of the four largest cities in Bolivia (3).

## VIVO EN POSITIVO PEER EDUCATION PROGRAM

- The peer education program (Promotores Educadores Pares) at Vivo en Positivo pairs those recently diagnosed with HIV with a trained peer educator who is living with well-controlled HIV in Cochabamba, Bolivia
- The peer educator is expected to stay in contact with a patient for at least six months after the initial referral from a physician, with meetings once or twice a month lasting 20-30 minutes.
- A patient is grouped into one three stages:
  - Stage 1:** Recent diagnosis of HIV
  - Stage 2:** Initiation of antiretroviral medication treatment
  - Stage 3:** Maintenance of medication
- Frequently discussed topics include:
  - Antiretroviral drugs
  - Opportunistic infections
  - Sexually transmitted infections
  - The law 3729 (a recent law designed to protect the basic human rights and end discrimination of those living with HIV)
  - Nutrition and healthy living
  - Emotional issues



## PROPOSAL AND METHODS

- Determine the effectiveness of a peer educator in supporting adherence to medication between patients who are starting their medication compared to patients who have previously abandoned their medication regimen.
- Retrospective cohort study
- Proper adherence** = CD4+ > 350 cells/mm<sup>3</sup> and viral load < 40 copies
  - Threshold levels are adapted from the World Health Organization
- 283** patients registered with Vivo en Positivo as patients with a peer educator
  - 84** of these patients had completed at least six months with a peer educator between July of 2013 to June of 2014
    - Dates chosen due to the fact that old files are unobtainable
    - 51** patient files provided by Department of Surveillance and Reference in Cochabamba

## RESULTS

CD4+ Levels	Adherent to medication (CD4+ >350 cells/mm <sup>3</sup> )	Not adherent to medication (CD4+ <350 cells/mm <sup>3</sup> )	Treatment total
<b>First-time treatment</b>	4	11	15
<b>Adherence support</b>	8	14	22
<b>Total</b>	12	25	

**Relative Risk:** 0.75758  
**95% Confidence Interval:** 0.30365 to 1.89006

**Figure 1.** The CD4+ levels in patients in the two treatment groups with peer educators. The data is separated into groups of adherence and non-adherence to medication according to the most recent CD4+ levels. Patients who proved to be adherent to medication prior to meeting with a peer educator are excluded. The relative risk and 95% confidence interval are also included

Viral Load	Adherent to medication (VL < 40)	Not adherent to medication (VL > 40)	Treatment total s
<b>First-time treatment</b>	15	10	25
<b>Adherence support</b>	18	8	26
<b>Total</b>	33	18	

**Relative Risk:** 0.81818  
**95% Confidence Interval:** 0.46868 to 1.42831

**Figure 2.** The viral load levels in patients in the two treatment groups with peer educators. The data is separated into groups of adherence and non-adherence to medication according to the most recent viral load levels. The relative risk and 95% confidence interval are also included

## CONCLUSIONS

- No significant difference in CD4+ levels or viral loads between patients receiving treatment for the first time as compared to patients who had previously abandoned their regimen
  - Relative risk crosses 1.0 for both CD4+ and viral load
- Small sample size could explain lack of statistical significance, but the study serves as a foundation for larger research inquiries
- Exposed the fact that the peer educator program in place at Vivo en Positivo still needs improvement in terms of encouraging adherence to medication
- Lack of communication between peer educators and physicians is a major impediment that could improve patient outcomes



## REFERENCES

- AIDS.gov.* Departamento de la Salud y los Servicios Humanos de los Estados Unidos. 2010.
- El Estado Plurinacional de Bolivia. Instituto Nacional de Estadística. *Censo Nacional de Población y Vivienda 2012.* La Paz, Bolivia: 2013.
- El Estado Plurinacional de Bolivia. Ministerio de Salud y Deportes. *Bolivia: Informe Nacional de Progresos en la Respuesta al VIH/SIDA, 2014.* La Paz, Bolivia: 2014.
- Medley, Amy et. al. "Effectiveness of Peer Education Interventions for HIV Prevention in Developing Countries: A Systematic Review and Meta-Analysis." *AIDS Education and Prevention* 21.3 (2009): 181-206.
- Population Council. *Peer Education and HIV/AIDS: Past Experience, Future Directions.* 2000.
- UNAIDS. *Peer education and HIV/AIDS: Concepts, uses and problems.* Geneva, Switzerland: 1999.
- World Bank. (2014). *World databank.* Washington, DC.
- World Health Organization. *Antiretroviral therapy for HIV infection in adults and adolescents, 2010 Edition.* Geneva, Switzerland: 2011.