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## BACKGROUND

- The widespread rollout of treatment for HIV/AIDS in the developing world has highlighted the shortage of trained healthcare workers available to implement interventions and mount successful public health campaigns.
- HIV/AIDS in the healthcare workforce challenges success of both general and AIDS-related healthcare investments by
  - reducing productivity of HIV-positive healthcare workers
  - increasing labor turnover
  - diminishing average level of work experience
  - driving up costs to public sector health budgets.
- For local and national departments of health and individual facility managers to formulate an effective response to AIDS in the healthcare workforce, an accurate assessment is needed of the prevalence of HIV infection and the proportion of infected workers who are at risk of opportunistic infections (OIs) and should be on antiretroviral (ARV) therapy.
- Although estimates of national and regional HIV prevalence exist for South Africa, no studies have measured prevalence within a local health workforce.
- No data on disease progression are available for healthcare workers, whose level of health education, access to healthcare, and exposure to infectious diseases differ from those of other populations.

### Study Objectives

- To measure the prevalence of HIV in a local public health workforce in an urban area of Gauteng Province, South Africa
- To measure extent of disease progression based on CD4 cell counts in this workforce
- To provide relevant, practical information to hospital managers and provincial health department policymakers in Gauteng Province

### Overall Project

This research is embedded in a larger study of reasons for attrition among nurses in this public health sector workforce (findings presented elsewhere)

## METHODS

### Study Sites and Population

- Helen Joseph Hospital and Coronation Hospital, two jointly-managed public hospitals of the Gauteng Province Department of Health.
- Study population: all 2032 professional and support staff of the two hospitals.
- Data collected in February 2005
- Strong support of hospital managers and unions



### Design

- Cross-sectional, voluntary, anonymous, unlinked survey with two parts:
  - oral fluid or blood sample from each participant using the OraSure collection device or through phlebotomy
  - a brief demographic questionnaire completed by each participant
- Both oral fluid and blood samples tested using ELISA HIV-1 and HIV-2 antibody tests
- Blood samples processed further to determine CD4 cell count.
- Participation rate: All employees tested  
All employees in attendance one day or night

## RESULTS

### Characteristics of Healthcare workers tested and HIV prevalence

Table 1. HIV prevalence among health workers by sociodemographic characteristics

	Available (No.)	Tested with complete demographic data (No.)	Response rate (%)	HIV positive (No)	Prevalence (%)
Overall	1813	1493	82.3	172	11.5
Job category					
Medical doctors	200	49	24.5	1	2.0
Allied staff	278	247	88.8	14	5.7
Nurses	708	644	91.0	88	13.7
Student nurses	66	65	98.5	9	13.8
General assistants	561	488	87.0	60	12.3
Gender					
Female		1315		158	12.0
Male		178		14	7.9
Age					
18-24		105		7	6.7
25-34		327		52	15.9
35-44		530		69	13.0
45-54		393		40	10.2
55		138		4	2.9
Racial group					
Black		1028		156	15.2
Coloured		318		15	4.7
Asian		42		1	2.4
White		105		0	0.0

### CD4 count distribution among HIV-positive participants who provided a blood sample (75 of 172 HIV+ workers, 44%)

Table 2. CD4 cell count among HIV-positive health workers<sup>1</sup>

Stage	Number of persons	Percent of total (%)
<=200	14	(18.9)
201-350	21	(28.4)
351-500	13	(17.6)
>500	26	(35.1)
Total	74	(100.0)

<sup>1</sup>Overall mean 451; SD 286; Median 397

- Participation rate: 82.3%; increases to 89.5% if physicians excluded.
- Overall prevalence of HIV: 11.5%.
- By job level, prevalence highest among student nurses and nurses.
- Prevalence highest in 25-34 year age group and among black participants.
- Nearly 20% of those who tested HIV-positive were already eligible for antiretroviral therapy treatment under South African treatment guidelines at the time of survey, and almost 30% more were approaching that stage.
- Percentage eligible for ARV therapy may actually be higher, since HIV+ healthcare workers with CD4 counts between 200-349 cells/mm<sup>3</sup> may have AIDS-defining opportunistic infections that make them eligible for treatment.

## CONCLUSIONS

- One out of seven nurses and nursing students in this public sector workforce is HIV-positive.
- A high proportion of healthcare workers have CD4 counts below 350 cells/mm<sup>3</sup>. Many are already eligible for antiretroviral therapy.
- Knowledge of prevalence in this workforce and provision of effective treatment of AIDS are crucial for meeting future staffing needs given the short supply of nurses in South Africa.
- The public sector must improve efforts to secure the supply of future health staff, particularly nurses.

### New Healthworker HIV Clinic: An Unanticipated Outcome

- Established by study hospitals at request of HIV+ employees
- Solely for healthcare workers.
- Confidential counseling, testing, and treatment for HIV/AIDS available on-site during working hours without very long waits in outpatient lounges.
- More than 60 staff enrolled.

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