

# Disproportionally high AIDS mortality rates in a low HIV prevalence area of the UK



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## Background

Nobody should have to die of HIV with early diagnosis and free access to care and anti-retroviral drugs. Yet HIV is often diagnosed late and these patients have a 10 x higher risk of dying of HIV within the first year of detection compared to earlier diagnosis (4.0% vs. 0.4%).

An estimated 91,500 people were living with HIV in the UK by the end of 2010; 50 % were diagnosed late. Late diagnosis is defined as 'advanced HIV disease' (CD4 count <200 cells/microL and/or AIDS-defining illness) or 'late HIV presentation' (CD4 count <350 cells/microL and/or AIDS-defining illness) within the first three months of diagnosis. 24% of these individuals remained undiagnosed, therefore unaware of their infection [1].

## Objectives

To audit data on diseased HIV+ patients who died in York area. To determine whether the observed fatality rate in a low prevalence area was as expected when compared to observed fatality rates in a high prevalence area of the UK where routine HIV testing is recommended to all GP and hospital attendees.

## Methods

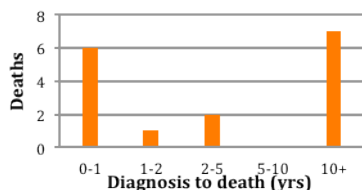
Retrospective review of clinical notes, CD4 T cell count and HIV RNA viral load of all HIV positive patients who died in York area between 2001 and 2010.

Review of local and national data on HIV new diagnosis and death. Statistical analysis was performed using Chi squared and a test of significance.

## Results

In York, 16 HIV patients died between 2001-2010. Twelve (75%) patients were male, 12(75%) Caucasian and eight (50%) were infected through heterosexual intercourse. Twelve (75%) patients died of AIDS, most common cause was *Pneumocystis jirovecii* pneumonia. Seven( 44%) patients died within 15 months of diagnosis due to AIDS. Seven patients who had been diagnosed in the pre-HAART era, died >10 years post diagnosis, of whom four died of serious non-AIDS events.

Fig 1. Time from diagnosis to death, York HIV patients 2001-2010



At time of diagnosis the median CD4 count was 38 cells/microL (range 2-400) and at time of death 44 cells/microL (range 2-475).

## Results

Data on recent (<1y) health care contact prior to HIV diagnosis was available on four patients who had died < 1year of diagnosis:

| Patient | Departments accessed prior to HIV diagnosis |
|---------|---|
| 1       | Radiology, General practice (GP)            |
| 2       | Radiology, GP, In/Outpatient                |
| 3       | Accident & Emergency, General Practice      |
| 4       | Accident & Emergency, Radiology             |

We posed the question how does the observed number of deaths in York area compare to what we would expect if case fatalities were like London area: The ratio of London deaths to new cases was  $(513 + 550)/(6988 + 8971)$ . Given 104 new diagnoses in York, we would therefore expect  $104 \times (513 + 550)/(6988 + 8971) = 6.93$  deaths.

However 16 deaths have been observed, which is significantly higher ( $p = 0.001$ ). We then expressed the magnitude of this difference by calculating the ratio of observed to expected deaths:  $16/6.93 = 2.3$ . Hence we estimate that the risk of death for a person detected with HIV in York is 2.3 (95% CI 1.3 to 3.7) times the risk for a patient detected in London.

|                                      | South East London | North West London | City of York |
|--------------------------------------|-------------------|-------------------|--------------|
| Diagnosed HIV prevalence/1000 (2010) | 7.13              | 4.95              | 0.51         |
| New HIV diagnosis (2001-2010)        | 6988              | 8971              | 104          |
| Total Deaths (2001-2010)             | 513               | 550               | 16           |

## Conclusions

Death due to late diagnosis of HIV and AIDS is not limited to high prevalence areas, where more proactive HIV screening is promoted, but was also the most common cause of death in our low prevalence area. The fatality rate in York area was 2.3 (95% CI 1.3-3.7) higher than in London area during the same decade. Heterosexual, Caucasian men living in a low prevalence area might not perceive themselves or not be considered at risk of HIV by health care providers. Opt- out HIV testing of all hospital attendees as implemented in other European countries, which as been found to be cost effective might reduce late diagnosis and mortality rate. Our data needs to be verified by auditing the fatality rate in other HIV low prevalence areas of the UK.

## References

1. HPA. HIV in the United Kingdom : 2011 Report. 2011.

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