

CONSIDE 4th International Meeting

Experience from the field & future plans to use protocols

Household transmission of influenza virus from HIV-infected and -uninfected index cases, South Africa

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Background and motivation

- The household is thought to be the primary unit of influenza transmission due to the high frequency and intensity of contact in this setting.
- To date there have been few reports on household transmission of seasonal influenza in developing country settings, and fewer studies evaluating influenza transmission characteristics in HIV-infected individuals.
- In South Africa, high HIV prevalence may contribute to the spread of influenza.



Primary objective

- To determine the secondary infection risk and associated risk factors in household contacts of HIV-infected and -uninfected index cases in South Africa





Secondary objectives

- To estimate serial interval among household contacts exposed to HIV-infected and –uninfected index cases
- To compare adult and child transmission dynamics
- To describe the severity of symptoms of influenza infection among HIV-infected index cases with different CD4 counts and viral loads.
- To describe the effect of CD4 count and viral load on influenza transmission in HIV-infected persons.
- To estimate secondary influenza infections resulting from exposure to index case versus that acquired from an exposure external to the household, by genetic sequencing of viruses.



Study design based on CONSISE protocol

- Outpatient clinic location
 - Klerksdorp, Northwest Province
 - Pietermaritzburg, KwaZulu-Natal Province
- Sample size (total from both sites)
 - 120 HIV-infected and 180 HIV-uninfected index cases
 - 360 and 540 household members (assuming 3 per case)
- Index cases
 - Enrolled from ILI surveillance using rapid test at clinics
 - Followed for 28 days to evaluate viral shedding
- Household members followed for 12 days (at clinic or home) to see if they develop influenza

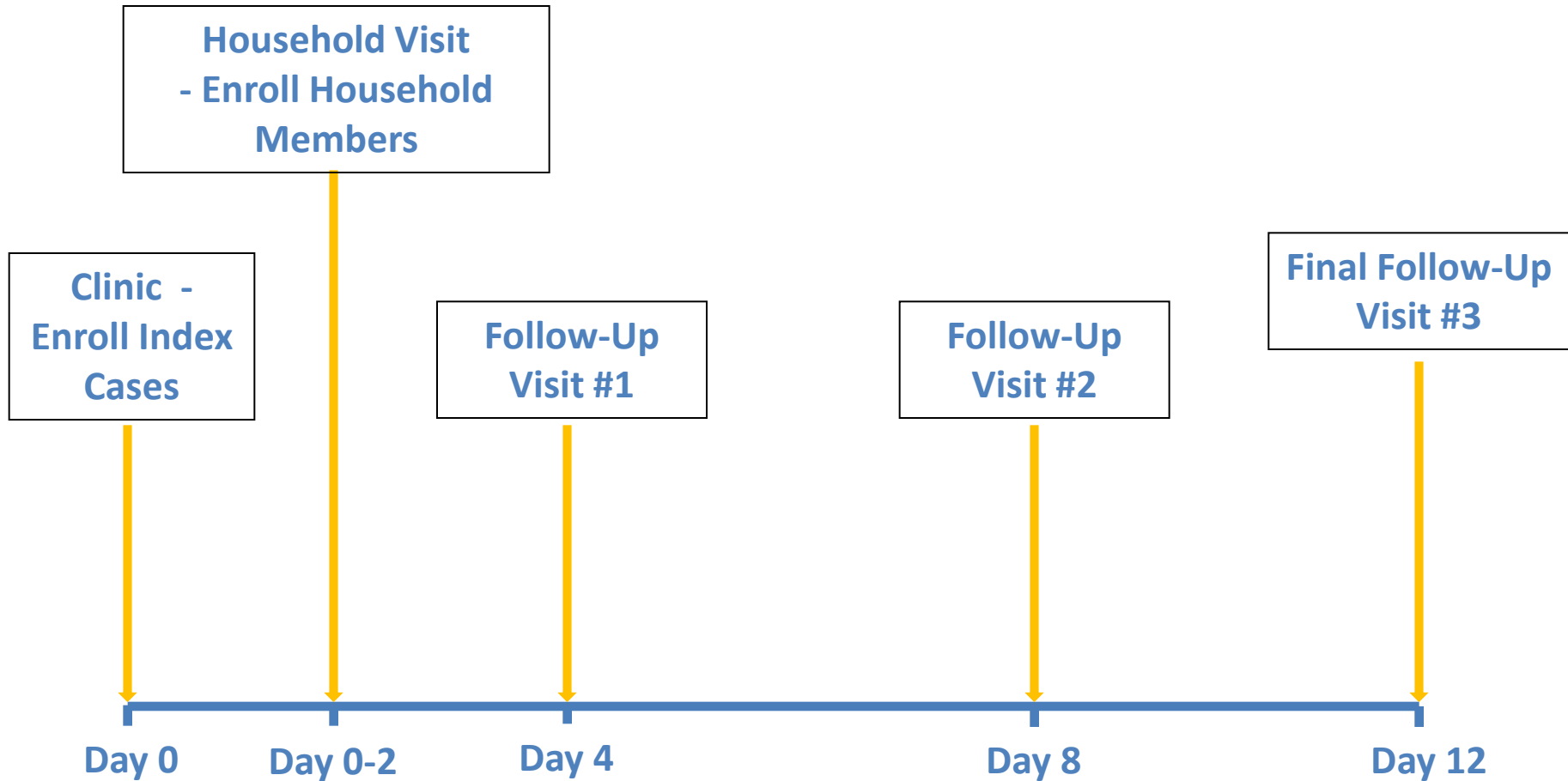


Index case – Enrollment criteria

- Meets ILI case definition
- Positive rapid influenza test
- Illness onset within 3 days of enrollment
- Known HIV status or agreement to HIV testing
- ≥ 2 household contacts
- No history of ILI in another household member within 7 days before enrollment



HTS Study Participant Timeline





Project timeline

- January 2013: Protocol submitted to IRB
- May: Staff hired and trained
- May/June: Study launched, just as flu season starting
- August/September
 - Flu season winding down
 - Not meeting enrollment targets





Project progress to date

- Discontinued patients defaulted or missed appointments
- Plan to start analyzing data this month

Enrolled	Total
Index cases	36
Household members	75
Completed	27
Discontinued	5
Active	4





Future Plans

- Planned to be a 1 year study, but haven't met enrollment targets
- Have funds for a second year and based on results, will discuss conducting a second year





Lessons Learned

- Wimpy flu season (and only one major strain)
- When to stop—annual flu epidemic may have a long tail, but will need to test many patients with respiratory illness to find few cases of influenza
- Complex
 - Combined with ILI surveillance and viral shedding study
 - Two sites to meet sample size
- Expensive--needs lots of staff and testing
- Rapid test had low sensitivity and poor PPV (and difficult to procure in South Africa)



More Lessons Learned

- Difficult to enroll patients
 - Don't seek care early in illness
 - Lower acceptability for home visits in community in Edendale
- Difficult to enroll family members
 - Work outside home
 - Don't consent to be enrolled, since index case may not be decision maker
- However ...
 - Acceptability of HIV testing was not much of an issue
 - Study teams integrated well into clinics



Thank you.

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