Discussion
Epidemiology and Economics - Modeling Scenarios for the End of AIDS
Individual- and household-level economic impacts

• Benefits of early ART that may not be reflected in cost-effectiveness analyses

• **Cost-benefit** analyses that include such benefits may reflect the full economic returns to investments in early ART
What we know about economic benefits of ART so far

Productivity vs. Time since infection
SEARCH pilot study data: economic decline may begin at high CD4

Improved employment and education outcomes in households of HIV-infected adults with high CD4 cell counts: evidence from a community health campaign in Uganda

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Fig. 1. Nonparametric regression results showing association between employment outcomes and CD4 cell counts among HIV-infected adults not on antiretroviral therapy.
What we know about economic benefits of ART so far

Productivity

Time since infection

ART initiation at CD4 of 200 or 350
What we know about economic benefits of ART so far

Productivity

Time since infection

ART initiation at CD4 of 200 or 350
“Standard” ART initiation: Numerous studies showing improved individual/household economic outcomes

• Studies in Kenya documented gains in employment and labor productivity

• Improvements in children’s education outcomes have also been documented
  – Graff Zivin et al *JPE* 2009
A typical employment response following ART initiation at low CD4

• Data from Tamil Nadu ART programs

Thirumurthy et al AIDS 2011
Potential economic benefits from early ART initiation

Productivity

Time since infection

ART initiation immediately after diagnosis
Potential economic benefits from early ART initiation

Productivity

Time since infection

ART initiation immediately after diagnosis
Potential economic benefits from early ART initiation

Productivity

Time since infection

ART initiation immediately after diagnosis
SEARCH trial Kenya/Uganda should provide data on this

- Economic benefits of early ART intervention may be sizable
  - Particularly for HIV-infected adults/households and those at risk of acquiring HIV
- Difficult to extrapolate, however, to macroeconomic impacts
  - May depend on HIV prevalence in region/country
Behavioral factors may be critical for optimizing prevention/economic benefits

• Uptake of HIV testing at regular intervals
  – How to do it well, how to do it in low-cost ways
• Retention in care
• Adherence to ART
• Provider behaviors
What can economics offer?

• Behavioral economics and psychology: focus on choices and decisions made by individuals
  – Could offer insights on how to tackle key issues such as uptake of HIV testing and retention in care

• Status quo bias

• Immediate gratification

• Self control problems
Incentives and behavior

- Financial and non-financial incentives increasingly being used to motivate patients and general populations to change behavior
  - Often as part of schemes aimed at reducing rates of obesity, smoking, etc.
  - Common in developed countries and becoming prominent in developing countries
  - Progresa program in Mexico as a lead example (conditional cash transfers for education)
Rationale for incentives

• Theory: provide immediate reward for behaviors that usually provide health gains in the longer term
  – Also capitalize on “present bias” (tendency for to pursue small immediate rewards instead of rewards that are distant but more valued)

• Costs are low in comparison to cost of ART
Evidence so far

• Positive effects of incentives have been found for drug abstinence
  – Short-term effects usually large but evidence on sustained effects less well-known

• Incentives also more effective in increasing performance for other health behaviors
  – Attending clinic appointments, vaccinations
  – Some favorable evidence for adherence (Volpp BMC HSR 2010)
  – HIV testing (Thornton AER 2008)
Recent evidence from SSA

• Experiment in rural Malawi randomly assigned monetary incentives to collect HIV test result after being tested at home (Thornton, AER 2008)
  – Without any incentive, 34 percent of the participants learned their HIV results
  – However, even the smallest incentive (less than $1) doubled that share

• More recently, evidence that CCT for education can reduce HIV incidence (Baird et al Lancet 2012)
Concerns and other opportunities

• Concerns about incentive programs
  – Reduce intrinsic motivation once incentives are stopped
  – Sustainability (depends however on what happens in absence of intervention)
• Scope for applying other lessons from behavioral economics
  – “Status quo” bias as rationale for opt-out and community-wide testing campaigns
  – Mobile phone-based interventions to provide salient messages, reminders, and notifications