
Investing in Health for Poverty Eradication: HIV and Malaria

**UN Expert Group Meeting
“Strategies for eradicating poverty to achieve sustainable development for all”**

Session: Investing in people and promoting empowerment for poverty eradication

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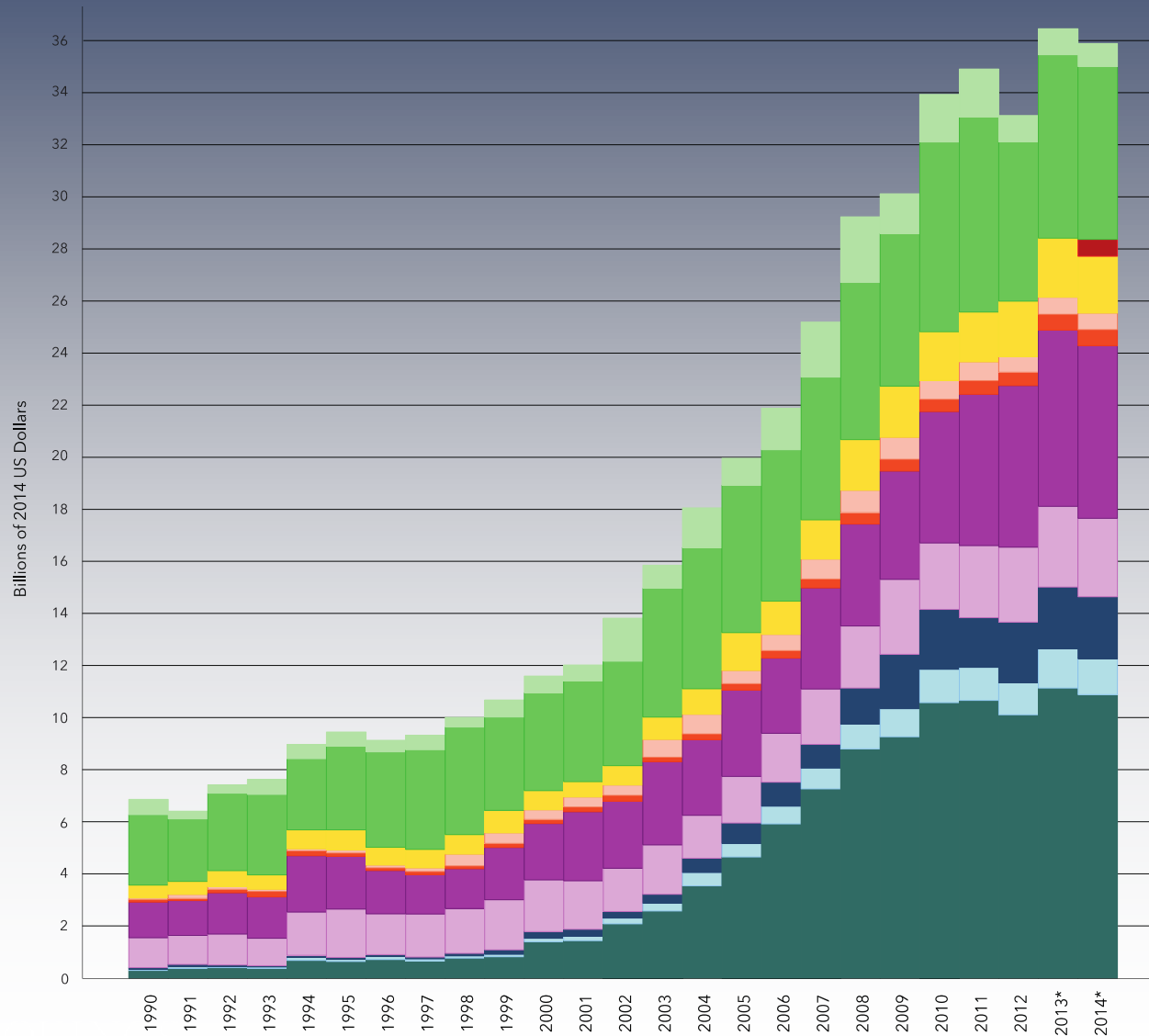
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Introduction

- Since 2000, growing advocacy, research, and resources flowing to health in the developing world.
- Development assistance for health reached US\$35 billion in 2010
- Governments in the developing world health spending increasing:
 - » 37% of government spending in low income
 - » 23% of government spending in middle income nations
- International organizations call for 'Grand Convergence' in health developing nations to cost additional US\$60-\$80 billion per year
- After a decade of unprecedented economic growth, financial crisis and plummeting commodity prices, has led to funding stagnation and budget austerity

Development Assistance for Health 1990-2014 (IHME 2015)



Health investments have dramatically lengthened life

- 50% decline in child mortality in the developing world (UNICEF 2015)
- 42% decline in HIV-related mortality
- Over 50% decrease in malaria mortality

Theory of Health and Poverty Reduction

- Health is an intrinsic and instrumental good
- Improved health
 - » Raise worker productivity during prime ages
 - » Cognition and educational attainment
 - » Longer life also raises incentives to savings and education
 - » Promote foreign direct investment

 - » All can improve macroeconomic growth
- Yet, theoretically saving the lives of the ill may cause:
 - » higher population growth (Young 2005; Acemoglu and Johnson 2006)
 - » raise the dependency ratio
 - » drive down wages

HIV/AIDS Context and Treatment

- By 2000, HIV/AIDS epidemic had reversed decades of life expectancy gains.
 - » 14 year decrease in southern / eastern Africa
- 37 million people globally infected with HIV/AIDS in 2014
 - » 70% of total and new cases in sub-Saharan Africa and 88% of children with HIV.
- Development of antiretroviral therapy (ART) shifted HIV from death sentence into manageable chronic condition.
 - » HIV treatment at scale increased life expectancy by over 11 years (Bor et al. 2012)

ART and Economic Outcomes for HIV+ and household

- Employment among HIV patients recovered to almost 90% of baseline after 4 years (Bor, et al, 2012)
- Likelihood of labor force participation and hours worked increase (Thirumurthy, Graff Zivin, Goldstein, 2007).
- **HH Spillovers**: Child weight-for-age improves and reduces stunting (Lucas & Wilson, 2013), increased school attendance (Graff Zivin, Thirumurthy, & Goldstein, 2009).

Economic Spillovers to the HIV negative

- Small area studies:

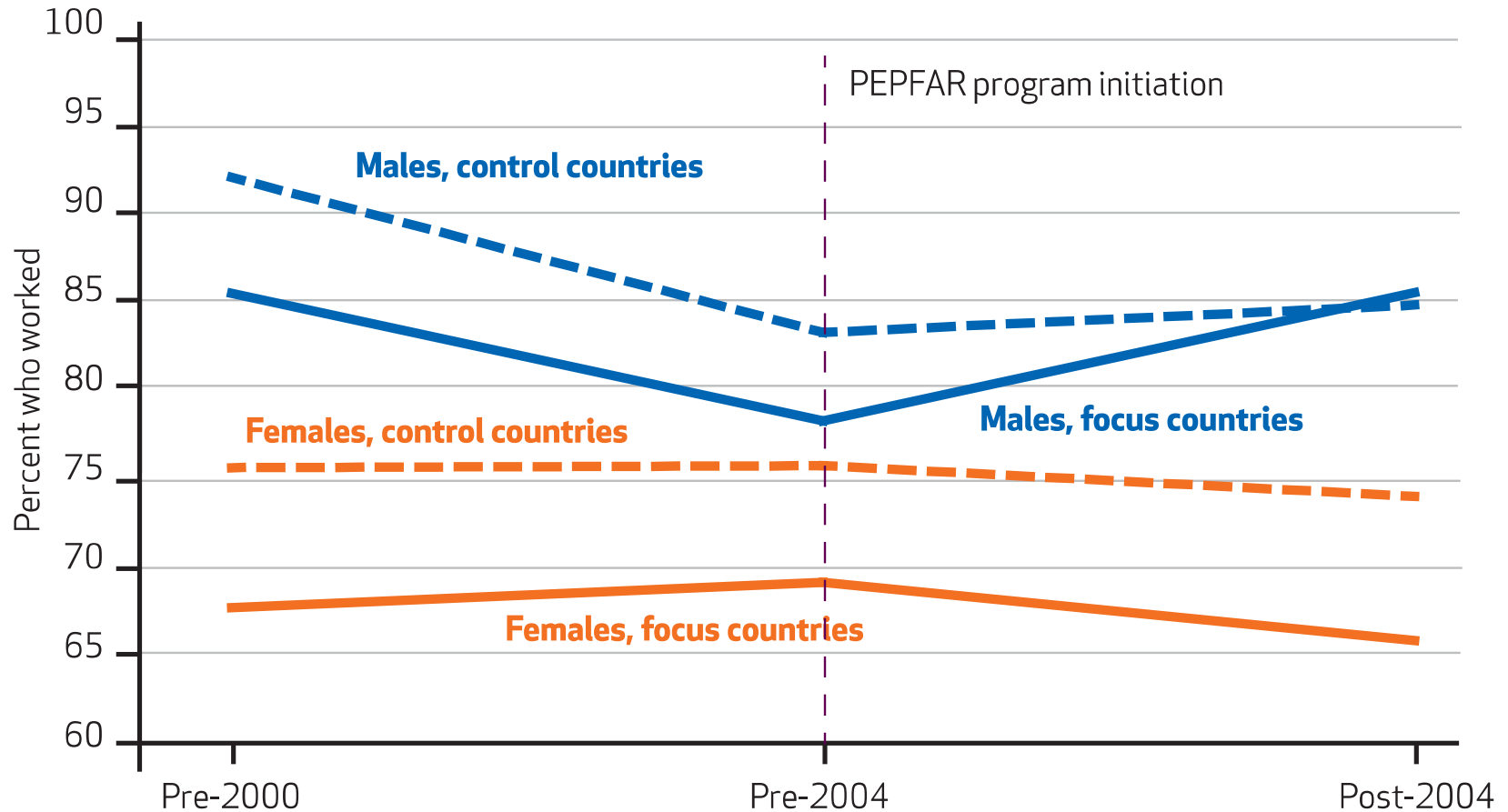
- » South Africa: large employment stimulus effects in South Africa from ART expansion (Bor, et al. 2015).
- » Malawi: Increased savings, child expenditure (Baranov & Kohler, 2013), and labor supply. Reduced mortality risk, better mental health and productivity (Baranov, Bennet, & Kohler, 2015).
 - Labor supply: Reduced mortality risk -> better mental health

- National level:

- » PEPFAR: 13% employment gain, represents 50% of program cost (Wagner et al. 2015).
- » South Africa: Early evaluation of ART expansion Small employment effect using distance to nearest clinic (McLaren, 2011).
- » Malawi: Employment effect of ART in Malawi using DHS and health clinic data (Barofsky and Baranov, 2015).

Data from 21 nations

Employment Trends For Males And Females Over Time In Selected Countries In Sub-Saharan Africa



Malaria and Poverty Eradication

“It has long been recognized that a malarious community is an impoverished community”

- T. H. Weller, 1958

Context

- Malaria causes 150-300 million acute cases and about 440,000 deaths in 2015 (World Malaria Report, 2015).
- Sub-Saharan Africa (SSA) suffers from 88% of worldwide malaria cases and 90% of global deaths.
 - » Mostly children < 5.
- From 2000- 2015, resurgence of advocacy and funding to fight malaria and historic success in reducing burden (WMR, 2015).
 - » 42% decline in malaria cases in SSA
 - » 66% drop in malaria mortality in SSA
 - » About 70% of decrease from bed net distribution

Malaria Treatment

- Malaria is a mosquito borne infectious disease caused by parasitic protozoans from the genus Plasmodium.
- SSA hosts *P. falciparum* while peripheral malaria areas (India, Latin American, southern U.S.) mostly hosted *P. vivax*.
- *P. vivax*: Reduction in morbidity → unambiguous increase in human capital.
- *P. falciparum*: Reduction in mortality and morbidity → ambiguous effect.

Channels from Malaria Control to Economic Outcomes

- **Cognition and educational attainment**
 - » Early life malaria impedes cognitive development (Lozoff and Georgieff 2008).
 - » Delayed development of central nervous system (Beard, 2008).
 - » Worsen attention and memory (Kihara, et al. 2006)
- **Longer adult life** raises incentives to savings and education.
- **Worker productivity** increases during prime age.
- **Macroeconomic benefits** (Gallup and Sachs, 2001).

Microeconomic results outside of sub-Saharan Africa

- **US, Brazil, Colombia, Mexico:** Positive and large long-term economic benefits of malaria eradication on income in Mixed on schooling (Bleakley, 2010; Venkataramani, 2012).
- **India:** Consumption benefits among prime age men, but no or mixed education effects (Cutler, et al. 2010).
- **Sri Lanka and Paraguay:** Female years of schooling 0.1 increase for every 10% reduction in malaria prevalence (Lucas, 2010).

Microeconomic results in sub-Saharan Africa

- Positive schooling effects in 16 of 22 SSA nations (Kuecken, Thuillez, Valfort, 2014)
- Free bed nets to farmers in Zambia raises worker productivity by 15% (Masiye and Fink, 2015) – 70% of total mortality decline from bed nets
- Investigate long-term economic effect of 1959-60 malaria eradication in southwestern Uganda (Barofsky et al. 2015)
 - » **Schooling**: Mean years of schooling increased 0.5 for both males (11%) and females (21%)
 - » **Primary School**: Over 30% increase in female primary school completion.
 - » **Wage work**: 37% increase in likelihood of male wage work

Policy Implications

Gains are real: HIV treatment and malaria control produce significant short- and long-term economic gains.

1) Incorporate benefits into cost estimates Economic benefits must be part of government cost estimates and cost effectiveness analysis

2) Greater data transparency will permit better identification of impacts and mechanisms since current cost-effective interventions best way to improve health and reduce poverty.

3) Market failures mean continued government provision Failures mean continued public support

» Externalities, Principal-agent effects, asymmetric information.

Health investment (SDG 3.3) important tool to achieve poverty eradication (SDG 1) and, if expanded, could usher in unprecedented reduction in human suffering.