Reproductive health priorities: evidence from a resource tracking analysis of official development assistance in 2009 and 2010

Justine Hsu, Peter Berman, Anne Mills

Lancet 2013; 381: 1772–82

See Comment page 1701

Health Economics and Systems Analysis, Department of Global Health and Development, London School of Hygiene & Tropical Medicine, London, UK (J Hsu MSc, Prof A Mills PhD); **Department of Global Health and Population, Harvard School of Public Health, Boston, MA, USA** (Prof P Berman PhD)

Correspondence to: Ms Justine Hsu, Health Economics and Systems Analysis, Department of Global Health and Development, London School of Hygiene & Tropical Medicine, 15–17 Tavistock Place, London WC1H 9SH, UK
justine.hsu@lshtm.ac.uk

Summary

Background Information is scarce about the extent to which official development assistance (ODA) is spent on reproductive health to provide childbirth care; support family planning; address sexual health; and prevent, treat, and care for sexually transmitted infections, including HIV. We analysed flows of ODA to reproductive health for 2009 and 2010, assessed their distribution by donor type and purpose, and investigated the extent to which disbursements respond to need. We aimed to provide global estimates of aid to reproductive health, to assess the allocation of resources across reproductive health activities, and to encourage donor accountability in targeting aid flows to those most in need.

Methods We applied a standard definition of reproductive health across all donors, including a portion of disease-specific activities and health systems development. We analysed disbursements to reproductive health by donor type and purpose (eg, family planning). We also reported on an indicator to monitor donor disbursements: ODA to reproductive health per woman aged 15–49 years. We analysed the extent to which funding is targeted to countries most in need, proxied by female life expectancy at birth and prevalence of HIV infection in adults.

Findings Donor disbursements to reproductive health activities in all countries amounted to US$5579 million in 2009 and US$5637 million in 2010—an increase of 1·0%. ODA for such activities in the 74 Countdown priority countries increased more rapidly at 5·3%. More than half of the funding was directed towards prevention, treatment, and care of HIV infection for women of reproductive age (15–49 years of age). On average, ODA to general reproductive health activities amounted to 15·9% and ODA to family planning 7·2%. Aid to reproductive health was heavily dependent on the USA, the Global Fund, the UK, the United Nations Population Fund, and the World Bank.

Interpretation Donors are prioritising reproductive health, and the slight increase in funding in 2009–10 is welcome, especially in the present economic climate. The large share of such funding for activities related to HIV infection in women of reproductive age affects the amount of ODA received by priority countries. It should thus be distinguished from resources directed to other reproductive health activities, such as family planning, which has been the focus of recent worldwide advocacy efforts. Tracking of donor aid to reproductive health should continue to allow investigation of the allocation of resources across reproductive health activities, and to encourage donor accountability in targeting aid flows to those most in need.

Funding Bill & Melinda Gates Foundation, World Bank, and the Governments of Australia, Canada, Norway, Sweden, and the UK.

Introduction

Although reproductive health has been on the international health policy agenda since 1994,[1] it has gained renewed political momentum in the past decade. The importance of this area of women's health was manifested in calls to make reproductive health care universally available[2] and by increasing evidence of the morbidity and mortality caused by poor access to reproductive care.[3] Such initiatives resulted in the 2007 adoption of universal access to reproductive health as a new Millennium Development Goal (MDG) target.[4]

In the past few years, financial commitments to reproductive health have increased. In 2010, the UN Global Strategy for Women's and Children's Health generated commitments valued at US$40 billion,[5] including those for reproductive health. In 2012, a summit convened by the UK and the Bill & Melinda Gates Foundation generated US$2·6 billion in financial commitments for family planning.[6] The 2013 Women Deliver conference is also likely to encourage investment in reproductive health.

This Article is part of the accountability work pursued by the Countdown to 2015. It builds on previous ODA analyses, which encompassed maternal, newborn, and child health[7–10] but, for the first time, covers a more comprehensive set of reproductive health activities that includes family planning and the treatment of sexually transmitted infections, including HIV. To retain comparability with our earlier estimates, we maintained definitions of maternal health but broadened the expenditure boundary to include activities across the range of reproductive health activities identified by the International

Conference on Population and Development.[1] This report provides evidence of ODA disbursements to reproductive health in 2009 and 2010. The aim is to encourage donor accountability and to inform policy, which should help to improve the efficiency and impact of such aid.

Methods

We adapted our previously described methods for tracking ODA to maternal, newborn, and child health[7] to include tracking of additional reproductive health activities. We defined reproductive health expenditures as spending for which the primary purpose is to restore, improve, and maintain the reproductive processes, function, and system of women of reproductive age (ie, those aged 15–49 years) and the health of their infants. This definition is based on a functional classification of health activities: it includes those addressing sexual and reproductive health needs during adolescence; before conception; and during pregnancy, childbirth, and the 7-day postnatal period. Our definition should be understood as one driven by expenditures—ie, it is controlled by activities on which aid is spent. Although we recognise the importance of male reproductive health, we have chosen to focus on female reproductive health here; thus, the term "reproductive health" refers to female reproductive health in this report. Panel 1 presents an overview of typical reproductive health activities.

We reviewed all aid disbursements recorded in the Creditor Reporting System (CRS) of the Organisation for Economic Co-operation and Development (OECD)[11] for 2009 and 2010—the most recent years for which datasets are available. This review encompassed 470 310 disbursement records of ODA and 1409 disbursement records of private grants from the Bill & Melinda Gates Foundation. We reviewed each record individually, including those reported in other development sectors (eg, humanitarian aid) to ensure completeness and to identify any misclassified reproductive health projects. We analysed disbursement data to all recipient countries from all donors, and we analysed a subset of disbursement data to the 74 Countdown priority countries from the 37 donors that reported aid data in both years—24 bilaterals, 11 multilaterals, and two global health initiatives. We used OECD definitions[12] for aid flows: bilateral refers to donors retaining control over the use of funds and multilateral refers to institutions with governmental membership retaining such control. The CRS excludes core contributions to multilaterals and global health initiatives and thus avoids double counting. Private grants from the Bill & Melinda Gates

***Panel 1:* Overview of reproductive health activities**

Maternal, newborn, and child health activities (adapted from Powell-Jackson and colleagues[7])

- Delivery of malaria interventions to pregnant women (eg, insecticide-treated bednets)
- Nutrition supplementation during pregnancy (eg, multiple micronutrient supplementation)
- Prevention of mother-to-child transmission of HIV infection
- Antenatal and postnatal care
- Childbirth care, including labour, delivery, and immediate postpartum care
- All treatment and preventive services for the newborn infant
- Information, education, and communication for the prevention of female genital mutilation

Sexual and reproductive health activities

- Behaviour change programmes for safer sexual behaviour
- Testing, treatment, and care of sexually transmitted infections, including HIV
- Provision of, and counselling in, contraceptive commodities, infertility drugs, and related procedures
- Information, education, and communication activities that support or promote family planning
- Testing, treatment, and care of cancers of the reproductive system
- Medical and mental health services for survivors of sexual and sex-based violence

General health systems activities supporting reproductive health

- Training of traditional birth attendants and community health workers
- Health administration and health insurance
- Capital formation of health facilities

	2009	2010	Annual rate of increase/ decrease (%)
Worldwide*			
All ODA (excluding debt forgiveness)	132 360	138 935	5·0%
ODA for health (% of all ODA)	16 603 (12·5%)	17 856 (12·9%)	7·5%
ODA for RH (% of all ODA)	5579 (4·2%)	5637 (4·1%)	1·0%
ODA for family planning, sexual health and sexually transmitted infections, including HIV (% of ODA for RH)	3461 (62·0%)	3600 (63·9%)	4·0%
ODA for maternal and newborn health (% of ODA for RH)	2117 (38·0%)	2037 (36·1%)	–3·8%
ODA for RH as % of ODA for health	33·6%	31·6%	
74 Countdown priority countries†			
ODA for RH (% of all ODA)	4066 (3·1%)	4284 (3·1%)	5·3%
ODA for family planning, sexual health, and sexually transmitted infections, including HIV (% of ODA for RH)	2549 (62·7%)	2716 (63·4%)	6·6%
ODA for maternal and newborn health (% of ODA for RH)	1518 (37·3%)	1568 (36·6%)	3·3%

Values are in constant 2010 US$ (millions). ODA=official development assistance. RH=reproductive health. *Worldwide=ODA from all donors reporting to the CRS in that year to all developing countries. †Countdown priority countries=ODA from 37 donors to 74 Countdown priority countries. South Sudan is the 75th Countdown priority country but no data were available for this analysis.

***Table 1:* Official development assistance to reproductive health, 2009–10**

Foundation are not defined by the CRS as ODA and are not added to our ODA results; however, when appropriate, their magnitude is reported.

We coded each disbursement against a previously developed framework,[7] which classified activities by function and by whether all or a proportion of the disbursement contributed to maternal, newborn, and child health. We adapted this framework by extracting codes related to maternal and newborn health and by adding three codes for activities related to reproductive health—family planning, sexual health, and sexually transmitted infections—and assigned a country-specific factor to apportion HIV/AIDS expenditures related to reproductive health (appendix p 1). For disbursements covering multiple activities, we followed our coding principles[7,9] and assumed that the CRS-stated purpose was correct unless indicated otherwise by two of the descriptors pertaining to the project title, short description, or long description. For analytical purposes, we grouped expenditures into two main categories: ODA to family planning, sexual health and sexually transmitted infections, including HIV (termed R*); and ODA to maternal and newborn health (termed MNH), allowing us to report on reproductive health (RH=R*+MNH). The framework still included general health activities and health systems development, allocated on a proportional basis to both categories.

See Online for appendix

The coding framework indicated whether all, some, or none of the disbursement value contributed to reproductive health. When the value was neither all or none, disbursements were apportioned by application of previously described assumptions[7] and allocation factors updated in our previous analysis.[10] Additionally, new assumptions and allocation factors related to reproductive health were added (appendix p 1). For example, to allocate ODA for activities related to HIV infection in women of reproductive age, we applied the same allocation principle used in previous analyses[7–10]—ie, we took the most recent estimates of women aged 15–49 years living with HIV infection as a proportion of the total population living with HIV infection in that country.[13] For countries with no data, a global average was used. To allocate ODA for activities related to sexually transmitted infections in women of reproductive age, we took the prevalence of four major sexually transmitted infections (*Chlamydia trachomatis*, *Neisseria gonorrhoeae*, syphilis, and *Trichomonas vaginalis*) in men and women aged 15–49 years[14] and applied the average lifetime cost

	2009			2010			Total RH annual change (US$)	Total RH annual change (%)
	R*	MNH	Total RH	R*	MNH	Total RH		
Bilateral aid agencies	2673·6	1379·3	4052·9	2687·0	1326·5	4013·6	–39·3	–1·0%
Australia	21·4	46·7	68·1	31·6	61·2	92·8	+24·7	+36·3%
Austria	1·0	1·6	2·6	0·6	1·9	2·5	–0·1	–5·7%
Belgium	12·2	13·1	25·3	10·8	16·0	26·8	+1·5	+5·8%
Canada	31·7	64·3	96·0	20·0	71·9	91·9	–4·1	–4·3%
Denmark	19·4	18·0	37·4	30·3	22·3	52·6	+15·2	+40·7%
Finland	2·0	6·5	8·5	5·5	5·4	11·0	+2·5	+29·0%
France	10·7	15·1	25·8	8·6	18·9	27·6	+1·7	+6·7%
Germany	54·5	53·5	108·0	77·6	49·8	127·4	+19·4	+18·0%
Greece	3·6	2·0	5·5	4·3	4·4	8·7	+3·2	+57·3%
Ireland	18·2	9·7	27·9	14·5	10·4	24·9	–3·0	–10·7%
Italy	6·0	13·0	19·0	2·8	13·2	16·1	–2·9	–15·5%
Japan	16·4	94·9	111·2	14·4	92·8	107·2	–4·0	–3·6%
Kuwait	..	..	..	0	4·4	4·4	NA	NA
Luxembourg	4·5	7·1	11·6	1·2	11·4	12·6	+1·0	+8·8%
Netherlands	57·8	108·9	166·7	57·9	56·0	113·9	–52·8	–31·7%
New Zealand	1·8	5·9	7·7	2·0	4·6	6·6	–1·1	–14·8%
Norway	27·6	81·9	109·6	20·7	42·3	63·0	–46·6	–42·5%
Portugal	0	1·1	1·2	0·4	1·1	1·6	+0·4	+34·6%
South Korea	1·9	17·5	19·4	2·3	20·1	22·5	+3·1	+15·8%
Spain	18·4	67·7	86·1	14·7	54·9	69·5	–16·6	–19·2%
Sweden	41·0	36·4	77·4	31·9	34·4	66·3	–11·1	–14·4%
Switzerland	2·2	9·7	11·9	1·9	9·4	11·3	–0·6	–5·2%
United Arab Emirates	0·1	11·9	12·0	0·3	7·2	7·4	–4·6	–38·2%
UK	126·4	164·9	291·3	130·4	153·2	283·7	–7·6	–2·6%
USA	2194·9	527·8	2722·7	2202·4	559·2	2761·6	+38·9	+1·4%

(Continues on next page)

	2009			2010			Total RH annual change (US$)	Total RH annual change (%)
	R*	MNH	Total RH	R*	MNH	Total RH		
(Continued from previous page)								
Multilateral aid agencies	283·2	542·8	826·1	222·6	506·1	728·7	–97·4	–11·8%
AfDF	2·5	22·7	25·2	3·8	21·0	24·8	–0·4	–1·6%
AsDB Special Funds	..	..	..	3·6	30·7	34·3	NA	NA
Arab Fund (AFESD)	..	..	..	0	0·3	0·3	NA	NA
EU institutions	24·0	92·0	116·0	20·9	115·4	136·3	+20·3	+17·5%
IDB Special Operation Fund	0	4·7	4·7	0	2·2	2·2	–2·5	–53·0%
IMF (SAF/ESAF/PRGF)	0	32·1	32·1	..	..	..	NA	NA
IMF (Concessional Trust Funds)	..	..	..	0	15·7	15·7	NA	NA
OFID	0	1·0	1·0	0·9	2·5	3·4	+2·5	+250·9%
UNAIDS	95·8	0	95·8	69·3	0	69·3	–26·5	–27·7%
UNDP	7·7	0·5	8·3	4·7	0	4·7	–3·6	–43·4%
UNFPA	39·8	142·7	182·5	35·2	137·7	173·0	–9·5	–5·2%
UNICEF	7·0	42·0	49·0	9·6	43·5	53·1	+4·1	+8·4%
UNRWA	..	..	..	0	8·2	8·2	NA	NA
WFP	6·3	10·6	16·9	4·1	14·1	18·3	+1·3	+7·9%
WHO	0	46·0	46·0	0	40·5	40·5	–5·5	–12·1%
World Bank (IDA)	100·0	148·5	248·5	70·5	74·1	144·5	–104·0	–41·8%
Global health initiatives	504·6	195·2	699·8	689·9	204·5	894·4	+194·6	+27·8%
GAVI Alliance	0	4·1	4·1	0	5·9	5·9	+1·8	+44·5%
Global Fund	504·6	191·1	695·7	689·9	198·6	888·4	+192·8	+27·7%
Total ODA	3461·5	2117·3	5578·8	3599·5	2037·2	5636·7	+57·9	+1·0%

Values are in constant 2010 US$ (millions). R*=family planning, sexual health and sexually transmitted infections, including HIV. MNH=maternal and newborn health. RH=reproductive health (=R*+MNH). NA=not applicable. AfDF=African Development Fund. AsDB=Asian Development Bank. AFESD=Arab Fund for Economic and Social Development. EU=European Union. IDB=Inter-American Development Bank. IMF=International Monetary Fund. SAF=Structural Adjustment Facility. ESAF=Enhanced Structural Adjustment Facility. PRGF=Poverty Reduction and Growth Facility. OFID=OPEC Fund for International Development. UNAIDS=Joint United Nations Programme on HIV/AIDS. UNDP=United Nations Development Programme. UNFPA=United Nations Population Fund. UNICEF=United Nations Children's Fund. UNRWA=United Nations Relief and Works Agency. WPF=World Food Programme. IDA=International Development Association. ODA=official development assistance. New donors reporting to the Creditor Reporting System in 2010 include the AsDB Special Funds, Arab Fund (AFESD), IMF Concessional Trust Funds, Kuwait (Kuwait Fund for Arab Economic Development), and UNWRA.

Table 2: **Worldwide official development assistance to reproductive health by donor, 2009–10**

per case for treatment by sex.[15] This figure provided an average cost of treatment across the four sexually transmitted infections for men and women in each region. The relative percentage for women was then applied to countries within each region.

We analysed ODA to reproductive health in 2009–10. For consistency, we converted estimates of ODA into constant 2010 US dollars with the OECD Development Assistance Committee deflators.[16] Deflators adjust for both price and exchange rate changes; specific deflators have been developed for individual donors, and an average deflator is calculated from individual donors weighted by each donor's total ODA. We applied donor-specific deflators to corresponding bilateral disbursements and the average deflator to multilateral and global health initiative disbursements. For each of the 74 Countdown priority countries, we analysed the allocation of disbursements to reproductive health by type of aid modality (eg, general budget support, health sector support, and project-based aid),[12] by purpose (eg, family planning or sexual health), and by donors and recipients. We also reported data for an indicator to monitor the extent to which disbursements respond to the relevant target population: ODA to reproductive health per woman aged 15–49 years.

We investigated the extent to which development assistance is allocated to need with two proxy indicators in two separate sets of analyses. In our first set of analyses, we used female life expectancy at birth as a proxy to need.[17] Ordinary least-squares regression models were estimated, with the natural logarithm of ODA to reproductive health per woman aged 15–49 years as the dependent variable and the female life expectancy at birth as the independent variable. In our second set of analyses, we used adult prevalence of HIV infection as the proxy for need.[13] Ordinary least-squares regression models were estimated, with the natural logarithm of ODA to reproductive health per woman aged 15–49 years as the dependent variable and the natural logarithm of adult prevalence of HIV infection as the independent variable. We used Stata (version 12.1) for all analyses.

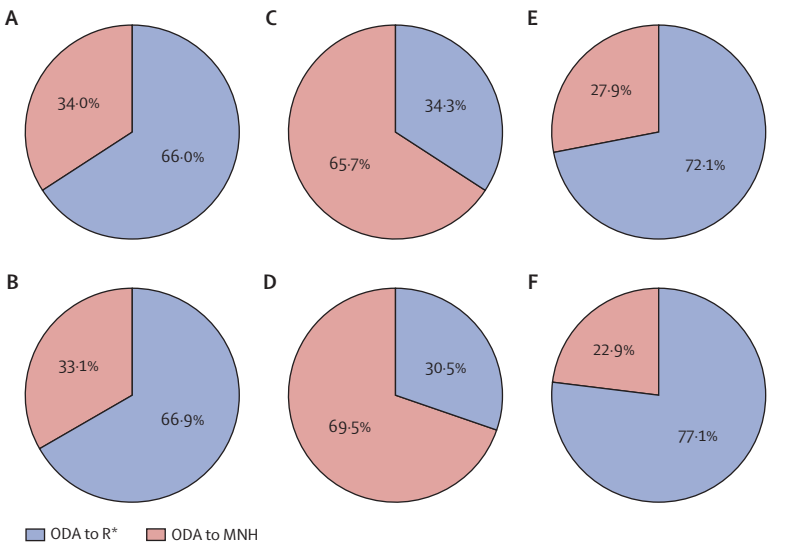

Figure: **Worldwide official development assistance to reproductive health by source of aid flows and by subcategory**

(A) 2009 bilateral aid agencies. (B) 2010 bilateral aid agencies. (C) 2009 multilateral aid agencies. (D) 2010 multilateral aid agencies. (E) 2009 global health initiatives. (F) 2010 global health initiatives. ODA=official development assistance. R*=family planning, sexual health, and sexually transmitted infections, including HIV. MNH=maternal and newborn health.

	2009		2010	
	US$	%	US$	%
General budget support	37·8	0·9%	34·8	0·8%
Sector budget support	16·7	0·4%	25·6	0·6%
Basket funding	55·5	1·4%	51·2	1·2%
Projects	3956·3	97·3%	4171·9	97·4%
Reproductive health, general	637·2	16·1%	651·8	15·6%
PMTCT	78·6	2·0%	100·6	2·4%
Family planning	289·1	7·3%	299·3	7·2%
Sexual health	65·5	1·7%	83·5	2·0%
Sexually transmitted infections	118·0	3·0%	162·0	3·9%
HIV infection	2138·8	54·1%	2269·6	54·4%
Malaria	209·5	5·3%	210·0	5·0%
Nutrition	116·7	2·9%	132·9	3·2%
General health care, including health systems	302·9	7·7%	262·3	6·3%
Total	4066·4	100·0%	4283·6	100·0%

Values are in constant 2010 US$ (millions). Percentage values represent the proportion of total aid, except for project lines, in which percentage values represent the proportion of total project-based aid. Some percentages do not add up to 100% because of rounding up or down of values to one decimal place. PMTCT=prevention of mother-to-child transmission of HIV infection.

Table 3: **Official development assistance to reproductive health to the 74 Countdown priority countries by type of aid and purpose of projects, 2009–10**

Role of the funding source

This study was financed by grants to the Countdown to 2015. The study sponsors had no role in the study design, data collection, data analysis, data interpretation, or writing of the report. All authors reviewed drafts of the report, and the corresponding author had final responsibility for the decision to submit for publication.

Results

The volume of worldwide ODA to reproductive health was US$5579 million in 2009 and US$5637 million in 2010—an increase of 1·0% in real terms (table 1). On average, development assistance directed to maternal and newborn health accounted for 37·0% of this amount, and additional reproductive health aid (R*) to family planning, sexual health, and sexually transmitted infections accounted for 12·7%, with aid to HIV infection accounting for the remaining 50·3%. Private grants to reproductive health from the Bill & Melinda Gates Foundation totalled US$76 million and US$106 million in 2009 and 2010, respectively.

The breakdown of ODA to reproductive health by source of aid flow shows varying roles and priorities in funding. On average across the 2 years, most of such aid (71·9%) was provided by bilaterals, with the remaining share split similarly between multilaterals (13·9%) and global health initiatives (14·2%; table 2). Further breakdown of ODA by R* and maternal and newborn health (figure) shows that bilaterals disbursed twice as much to R* (with an average 81·4% of R* directed to HIV/AIDS activities) as to maternal and newborn health. By contrast, multilaterals disbursed half as much aid to R* (with an average 64·3% of R* directed to HIV/AIDS activities) as to maternal and newborn health. Finally, global health initiatives disbursed three times as much to R* (with an average 79·2% of R* directed to HIV/AIDS activities) than to maternal and newborn health.

Between 2009 and 2010, disbursements to reproductive health from bilaterals remained roughly constant in real terms, decreasing by 1·0% (US$39 million), whereas multilaterals decreased their aid to such activities in 2010 by 11·8% (US$97 million), and global health initiatives increased their aid by 27·8% (US$195 million; table 2). The stability in total bilateral funding masks changes in aid from individual donors. In absolute terms, the biggest increases were in aid from the USA, Australia, and Germany, with an increase between the 2 years of at least US$20 million each. By contrast, the biggest decreases in absolute amounts were by the Netherlands, Norway, and Spain, with decreases of more than US$15 million each. Aid from multilaterals decreased by US$97 million primarily because aid from the World Bank (International Development Association) to reproductive health fell by 41·8% from US$249 million in 2009 to US$145 million in 2010. Increases by global health initiatives were driven by contributions from the Global Fund, which rose from US$696 million in 2009 to US$888 million in 2010.

Development assistance to reproductive health was highly dependent on five donors (table 2). In both years, almost three-quarters of ODA to reproductive health was provided by the USA, the Global Fund, the UK, UNFPA, and the World Bank, who collectively disbursed US$4141 million in 2009 and US$4251 million in 2010. The USA contributed the largest amount: US$2195 million

	ODA to RH				ODA to RH per woman aged 15–49 years			
	2009	2010	Annual change (US$)	Annual change (%)	2009	2010	Annual change (US$)	Annual change (%)
Afghanistan	119·6	98·0	–21·6	–18·1%	18·1	14·3	–3·7	–20·6%
Angola	22·8	21·2	–1·6	–7·2%	5·4	4·9	–0·6	–10·2%
Azerbaijan	5·4	7·7	+2·2	+41·3%	2·0	2·8	+0·8	+39·7%
Bangladesh	70·6	65·8	–4·8	–6·8%	1·8	1·6	–0·2	–8·7%
Benin	31·1	35·2	+4·1	+13·2%	15·3	16·8	+1·5	+9·6%
Bolivia	23·2	19·5	–3·7	–15·9%	9·5	7·8	–1·7	–17·7%
Botswana	120·4	41·2	–79·2	–65·8%	231·2	77·9	–153·3	–66·3%
Brazil	5·1	7·3	+2·2	+42·5%	0·1	0·1	+0·04	+41·4%
Burkina Faso	46·4	45·9	–0·5	–1·1%	12·4	11·9	–0·5	–4·1%
Burma	14·0	24·7	+10·7	+76·7%	1·0	1·8	+0·8	+75·2%
Burundi	28·6	22·5	–6·1	–21·3%	13·5	10·2	–3·3	–24·4%
Cambodia	59·6	57·9	–1·7	–2·9%	15·5	14·8	–0·8	–4·9%
Cameroon	22·3	15·2	–7·1	–31·9%	4·8	3·2	–1·6	–33·6%
Central African Republic	5·6	10·1	+4·5	+81·3%	5·4	9·5	+4·1	+77·2%
Chad	12·1	21·2	+9·0	+74·6%	4·9	8·3	+3·4	+69·5%
China	65·3	56·1	–9·2	–14·1%	0·2	0·2	–0·03	–14·4%
Comoros	0·9	2·1	+1·2	+131·7%	5·3	12·0	+6·7	+126·9%
Congo (Brazzaville)	4·3	10·4	+6·1	+140·9%	4·5	10·6	+6·1	+133·8%
Democratic Republic of the Congo	88·4	115·1	+26·7	+30·2%	6·1	7·7	+1·6	+25·9%
Côte d'Ivoire	42·3	56·8	+14·5	+34·3%	9·4	12·4	+3·0	+31·4%
Djibouti	4·7	4·0	–0·7	–14·5%	20·5	17·1	–3·4	–16·7%
Egypt	22·5	18·4	–4·1	–18·2%	1·1	0·9	–0·2	–19·7%
Equatorial Guinea	2·9	2·8	–0·1	–3·4%	18·0	16·9	–1·1	–6·0%
Eritrea	12·7	19·2	+6·5	+50·9%	9·9	14·4	+4·5	+45·9%
Ethiopia	197·9	287·1	+89·2	+45·1%	10·2	14·3	+4·1	+40·3%
Gabon	3·4	2·0	–1·4	–40·8%	9·1	5·3	–3·9	–42·4%
Ghana	74·9	64·3	–10·6	–14·2%	12·9	10·8	–2·1	–16·4%
Guatemala	23·0	16·7	–6·3	–27·5%	6·7	4·7	–2·0	–29·7%
Guinea	14·9	18·2	+3·3	+21·8%	6·7	7·9	+1·3	+19·1%
Guinea–Bissau	6·0	7·0	+1·0	+16·7%	17·0	19·3	+2·3	+13·7%
Haiti	108·1	121·3	+13·2	+12·2%	42·5	46·9	+4·3	+10·1%
India	242·9	229·8	–13·0	–5·4%	0·8	0·7	–0·1	–6·9%
Indonesia	52·1	53·4	+1·3	+2·5%	0·8	0·8	+0·01	+1·4%
Iraq	12·3	10·4	–1·9	–15·4%	1·7	1·4	–0·3	–18·1%
Kenya	248·5	267·5	+19·1	+7·7%	26·0	27·3	+1·3	+5·0%
Kyrgyzstan	5·4	7·0	+1·7	+31·0%	3·6	4·7	+1·1	+29·2%
Laos	8·7	8·5	–0·3	–2·9%	5·4	5·1	–0·3	–5·6%
Lesotho	17·9	28·5	+10·6	+59·3%	32·7	51·4	+18·7	+57·1%
Liberia	24·9	28·4	+3·5	+14·1%	27·7	30·3	+2·6	+9·3%
Madagascar	21·5	36·8	+15·3	+71·0%	4·6	7·5	+3·0	+65·4%
Malawi	113·2	87·2	–26·0	–23·0%	35·2	26·3	–8·9	–25·3%
Mali	39·3	41·9	+2·6	+6·6%	11·7	12·0	+0·4	+3·3%
Mauritania	4·0	5·1	+1·0	+25·8%	4·8	5·9	+1·1	+22·2%
Mexico	1·5	2·5	+1·0	+62·6%	0·05	0·08	+0·03	+60·5%
Morocco	14·2	12·4	–1·8	–12·6%	1·6	1·4	–0·2	–13·5%
Mozambique	154·8	179·5	+24·7	+15·9%	28·5	32·3	+3·8	+13·5%
Nepal	34·1	35·5	+1·4	+4·1%	4·5	4·5	+0·1	+1·3%
Niger	26·4	30·8	+4·3	+16·5%	8·1	9·2	+1·0	+12·4%
Nigeria	308·7	275·7	–33·0	–10·7%	8·7	7·6	–1·1	–12·9%
North Korea	2·9	5·5	+2·6	+87·5%	0·5	0·9	+0·4	+86·4%

(Continues on next page)

	ODA to RH				ODA to RH per woman aged 15–49 years			
	2009	2010	Annual change (US$)	Annual change (%)	2009	2010	Annual change (US$)	Annual change (%)
(Continued from previous page)								
Pakistan	82·6	86·2	+3·6	+4·3%	1·9	1·9	+0·03	+1·6%
Papua New Guinea	26·8	27·3	+0·4	+1·7%	16·3	16·2	−0·1	−0·8%
Peru	30·6	25·0	−5·6	−18·4%	4·0	3·2	−0·8	−19·4%
Philippines	37·1	37·5	+0·4	+1·2%	1·6	1·6	−0·01	−0·8%
Rwanda	98·3	129·9	+31·6	+32·2%	38·5	49·5	+11·1	+28·8%
São Tomé and Príncipe	0·9	0·8	−0·1	−6·6%	21·2	19·4	−1·8	−8·3%
Senegal	32·2	31·6	−0·6	−1·8%	10·9	10·4	−0·5	−4·7%
Sierra Leone	26·2	25·9	−0·3	−1·2%	18·5	17·8	−0·7	−3·7%
Solomon Islands	4·1	4·0	−0·1	−2·1%	32·5	30·9	−1·6	−4·9%
Somalia	16·3	18·5	+2·2	+13·7%	7·7	8·6	+0·9	+11·5%
South Africa	361·2	349·8	−11·4	−3·1%	27·1	26·1	−1·0	−3·8%
Sudan	47·5	79·1	+31·6	+66·6%	4·7	7·5	+2·9	+61·9%
Swaziland	17·0	34·0	+17·0	+99·8%	56·5	110·5	+54·0	+95·5%
Tajikistan	5·8	12·5	+6·7	+116·4%	3·2	6·8	+3·6	+112·2%
Tanzania	206·9	271·7	+64·7	+31·3%	20·9	26·6	+5·8	+27·7%
The Gambia	5·4	5·9	+0·5	+9·8%	12·9	13·7	+0·8	+6·5%
Togo	12·9	9·2	−3·6	−28·3%	8·7	6·1	−2·6	−30·2%
Turkmenistan	0·9	0·5	−0·4	−44·7%	0·7	0·4	−0·3	−45·6%
Uganda	176·7	187·6	+10·9	+6·2%	25·1	25·7	+0·6	+2·5%
Uzbekistan	7·2	4·6	−2·7	−36·8%	0·9	0·6	−0·4	−37·9%
Vietnam	50·8	45·1	−5·7	−11·3%	2·0	1·7	−0·2	−12·5%
Yemen	23·0	25·7	+2·7	+11·6%	4·2	4·5	+0·3	+7·4%
Zambia	144·8	135·2	−9·6	−6·6%	51·4	46·7	−4·6	−9·0%
Zimbabwe	58·9	95·1	+36·2	+61·3%	18·7	30·1	+11·4	+60·7%
Total	4066·4	4283·6	217·2	+5·3%	..	..	..	..
Median	24·0	26·6	+1·0	+4·2%	8·4	8·9	+0·03	+1·5%

Values are in constant 2010 US$ (millions). ODA=official development assistance. RH=reproductive health. South Sudan is the 75th Countdown priority country but no data were available for this analysis.

Table 4: **Official development assistance to reproductive health to the 74 Countdown priority countries 2009–10**

in 2009 and US$2202 million in 2010. In assessment of 2009 and 2010 ODA, this dependency is almost identical between the two subcategories of reproductive health. Cumulative ODA for the 2 years shows that the top five donors for R* consisted of the USA, the Global Fund, the UK, the World Bank, and UNAIDS. In comparison, the top five donors for maternal and newborn health were the USA, the Global Fund, the UK, UNFPA, and the World Bank (table 2). Thus, the volume of funding from UNAIDS was so substantial, particularly for sexually transmitted infections, including HIV, that it exceeded funding from UNFPA, making UNAIDS one of the top five donors to R*.

The Countdown priority countries collectively received roughly three-quarters of all ODA to reproductive health in both 2009 and 2010 (table 1). Aid to these 74 countries from 37 donors increased by 5·3% in real terms from US$4066 million in 2009 to US$4284 million in 2010.

Table 3 shows the aid modalities used in the 74 Countdown priority countries in 2009–10. Consistent with other similar analyses,[7–10] project disbursement dominated, with more than 97% (US$3956 million in 2009 and US$4172 million in 2010) of such ODA disbursed through this modality. Slightly more than half of project-based aid to reproductive health related to disbursements for the treatment, prevention, and care of HIV infection for women aged 15–49 years (US$2270 million in 2010 and US$2139 million in 2009). General reproductive health (ie, unspecified reproductive health projects) accounted for 15·6% (US$652 million), family planning for 7·2% (US$299 million), and sexually transmitted infections for 3·9% (US$162 million) of aid to reproductive health (table 3).

The top and bottom recipients of ODA to reproductive health were similar in 2009 and 2010 (table 4). The same seven countries (South Africa, Ethiopia, Nigeria, Tanzania, Kenya, India, and Uganda) received the most aid in both years—collectively, US$1743 million in 2009 and US$1869 million in 2010, or 42·9% and 43·6% of ODA to reproductive health in priority countries. Table 4

shows that a similar group of five countries benefited least over the 2 years (São Tomé and Príncipe, Comoros, Turkmenistan, Mexico, and Equatorial Guinea received $7·1 million [0·2%] of such ODA in 2009; and Turkmenistan, São Tomé and Príncipe, Gabon, Comoros, and Mexico received $7·9 million [0·2%] of such ODA in 2010).

Global health initiatives and disease-specific funding channels seem to have an important role in the financing of reproductive health, even when HIV-specific funding is separated out in our analysis. The appendix (pp 2–3) shows ODA to R* minus aid disbursements related to HIV infection. In both years, the USA (due to the US President's Emergency Plan for AIDS Relief [PEPFAR]) and the Global Fund were the top donors, with some changes in the next top three donors (UNAIDS, the UK, and UNPFA in 2009; the UK, Germany, and the Netherlands in 2010). On the recipient side, however, removal of funding related to HIV infection resulted in important changes (appendix pp 4–6). For example, aid to reproductive health in South Africa decreased by US$340 million, so the country moved from the top to the 48th recipient of such aid in 2010.

Table 4 also reports on an indicator expressing the volume of disbursement in relation to the relevant target population: ODA to reproductive health per woman aged 15–49 years, which is reported by recipient country for 2009 and 2010. Across the 74 Countdown priority countries, ODA to reproductive health per woman of reproductive age increased slightly, from a median of US$8·4 (IQR US$3·7–18·1) in 2009 to US$8·9 (IQR US$3·6–17·0) in 2010 (table 4). The range was very wide in 2010, from US$0·1 in Mexico to US$110·5 in Swaziland, and even wider in 2009, from US$0·05 in Mexico to US$231·5 in Botswana. Nine countries received less than US$1·0 per woman in 2010 (Mexico, Brazil, China, Turkmenistan, Uzbekistan, Indonesia, India, North Korea, and Egypt).

The results from our linear regressions (table 5) show the extent to which donors allocated aid to countries on the basis of need. In the female life expectancy models, results for both the 2009 and 2010 models were significant such that the direction of log coefficients in these models was negative and increased from –9·6% (p<0·0001) in 2009 to –11·2% (p<0·0001) in 2010. In other words, for every 1-year increase in life expectancy, ODA to reproductive health per woman decreased by 9·6% in 2009 and by 11·2% in 2010. Similarly, in the adult prevalence of HIV infection models, results for both 2009 and 2010 were also significant, such that for a 1·0% increase in prevalence, ODA increased by 0·61% (p<0·0001) in 2009 and 0·64% (p<0·0001) in 2010.

	Coefficient	95% CI	p value	r^2
Adult HIV prevalence model				
ln (ODA to reproductive health per woman aged 15–49 years, 2010)	0·6429	0·4640 to 0·8217	<0·0001	0·4463
ln (ODA to reproductive health per woman aged 15–49 years, 2009)	0·6068	0·4431 to 0·7706	<0·0001	0·4653
Female life expectancy at birth model				
ln (ODA to reproductive health per woman aged 15–49 years, 2010)	–0·1115	–0·1420 to –0·0811	<0·0001	0·4257
ln (ODA to reproductive health per woman aged 15–49 years, 2009)	–0·0961	–0·1273 to –0·0648	<0·0001	0·3457

ln=natural logarithm. ODA=official development assistance.

Table 5: **Results of ordinary least squares regression models**

Discussion

In view of the renewed focus on women's health, tracking of ODA to reproductive health activities is important. This idea is substantiated by the volume of aid spent on family planning, sexual health, and sexually transmitted infections, including HIV, all of which represented 1·7-times the previous estimates of aid to maternal and newborn health (average across the 2 years). Our analysis provides new evidence that draws attention to the significance of funding to HIV/AIDS activities in total reproductive health expenditure.

Worldwide ODA to reproductive health amounted to US$5579 million in 2009 and US$5637 million in 2010, and was thus roughly stable between the 2 years. Since the rate of increase of aid to health overall has slowed during the past few years,[18,19] and the amount of aid to maternal, newborn, and child health has decreased slightly,[10] stability in the amount of funding to reproductive health is welcome, especially in view of present economic conditions. Stability at the aggregate level, however, masks fluctuations in funding by some donors, and future analyses and studies should monitor volatility, including its implications for reproductive health services.

In a comparison of our results with those from the Netherlands Interdisciplinary Demographic Institute (NIDI), which has been tracking financial resources to reproductive health since 1997, we found both similarities and differences. The latest NIDI estimates for 2009 amount to US$10 512 million (2009 US$),[20] by contrast with our estimate of US$5579 million (2010 US$). The difference is mainly attributable to funding for HIV/AIDS activities. Our analysis allocates such aid in proportion to the fraction of women aged 15 years and older living with HIV infection out of the total population living with HIV infection, giving a result of US$2270 million (2010 US$). By contrast, NIDI does not allocate such funding by sex or age, and reports US$7390 million (2009 US$). Differences might also be caused by different data collection methods and a wider scope of activities than used in our study. NIDI relies on self-completed questionnaires and includes funding from non-governmental organisations and foundations and expenditures for social protection and social services, reproductive health research, and the collection and analysis of population data. However, despite the difference in total aid volume, we reported similar results

in the shares of ODA allocated across different reproductive health activities.

Our results showed that, on average across the 2 years, more than half (54·2% or US$2204 million) of aid for reproductive health is directed towards the prevention, treatment, and care for HIV infection in women aged 15–49 years. Such a predominance of funding for HIV infection is consistent with other studies.[20,21] The predominance of funding for HIV infection might also be indicative of the close connections between HIV/AIDS and reproductive and maternal health issues.[22] By contrast, a much smaller proportion of aid to reproductive health was allocated to family planning (7·2% or US$294 million), which is a cause for concern in view of recent policy attention to this area[6] and evidence that access to family planning has a substantial role in the prevention of both maternal mortality and HIV infection.[23]

The split of ODA across subcategories by donor type suggests differing roles in funding various activities of reproductive health, which could be the result of deliberate decisions to focus funding. For example, bilateral funding seems to prioritise funding to R*, but on closer examination, we saw that it is driven by US commitments to PEPFAR rather than balanced funding across all other R* activities. By contrast, multilaterals tended to direct aid to maternal and newborn health; this approach seems to be driven by the EU institutions[24] and UNPFA, which has a thematic fund for maternal and newborn health.[25] In view of their mission, the role of the Global Fund and UNAIDS in funding activities related to HIV infection is not surprising. Finally, the focus of the Bill & Melinda Gates Foundation on funding to R* is consistent with their family planning strategy.[26] On average across the 2 years, 13·5% of their funding is directed towards family planning, which is more than double the average aggregated across all donors spent on family planning, although increases are to be expected given their commitment to double their aid for family planning from 2013.[6]

Our analysis suggests that disbursements are strongly related to need and that this relation is stable, or perhaps improving slightly. In the Countdown to 2015 priority countries, median ODA to reproductive health per woman increased by US$0·5 from 2009 to 2010. Our regression analyses were significant and in expected directions. The purpose of the regression analyses was not to measure the effect of aid on health outcomes but to assess the degree to which donors allocated aid to countries with greatest need and whether responsiveness to need increased over time. Although the association strengthened slightly over the 2 years, coefficients suggest that the targeting of aid could be improved.

Although health resources are tracked by other exercises (eg, the Institute of Health Metrics, AidData, and NIDI), our analysis is the only method that undertakes a manual coding of all aid disbursement records. With consistent definitions and codes for reproductive health, our method allows for robust comparisons over time and across donors and recipients (panel 2). Other methods, such as questionnaires, key term searches, and tagging expenditures, serve different objectives with different strengths and limitations.[27,28] Nevertheless, some limitations of our approach need to be discussed.

The first limitation is that we do not provide a complete picture of financing to reproductive health. We relied on the CRS database, which does not include aid from non-profit organisations, private foundations (apart from the Bill & Melinda Gates Foundation), or emerging donors. We also did not capture domestic resource flows to reproductive health, which need different tracking methods and are being developed.

The second limitation relates to the exclusion and inclusion of particular aid activities. We did not track expenditures for activities that do not affect health directly—eg, although we track medical activities for survivors of sexual violence, we do not track legislative activities related to violence against women. However, our coding framework does include expenditures related to newborn health, which are difficult to separate out in view of the integration of health services for the mother and neonate.

The third limitation relates to our methods for allocation of aid to reproductive health. We accept that our allocation factors have some uncertainty, but we believe that their country specificity and application at the individual project level result in reasonable estimates, allowing us to recognise the role of other health projects and health systems in supporting reproductive

***Panel 2:* Research in context**

Systematic review

We systematically reviewed all 2009 and 2010 disbursement data for official development assistance (ODA) from the Creditor Reporting System (CRS) database. This database has been maintained by the Organisation for Economic Co-operation and Development (OECD) since 1967, with standard reporting techniques across all donors. It thus provides comparable and comprehensive data, including details by year, donor country, recipient country, and purpose of aid. We also reviewed other reports of development assistance from the Institute for Health Metrics and Evaluation, AidData, and the Netherlands Interdisciplinary Demographic Institute, noting the strengths and limitations of the various methods used in these reports.[27,28]

Interpretation

In this study, we analyse disbursements of ODA to reproductive health, the allocation of resources across reproductive health activities, and the extent of the targeting of aid to those most in need. We found that a large proportion of aid goes to the prevention, treatment, and care of HIV infection for women of reproductive age and that including funding for HIV infection significantly affects the amount of ODA received by priority countries. As such, we recommend that such funding be distinguished from resources directed to other reproductive health activities. This study establishes a methodology and provides a baseline for future trend analyses to monitor donor accountability and to inform policy, which should help to improve the efficiency and benefit of such aid.

health. We acknowledge that HIV/AIDS allocation factors rely on a simple population share but we have followed principles accepted in our previous analyses.[7–10] Additionally, the allocation factor for sexually transmitted infections refers to the lifetime cost of treatment in the USA, but nonetheless provides data for the relative cost of care to women. Although funding for activities targeting men were excluded, some included projects, such as behaviour change programmes with no specific mention of target groups, could well have reached the male population. Such funding would be small, since these sexual health activities amounted to just 1·7% of total ODA to reproductive health in 2009 and 2·0% in 2010.

The final limitation is the suitability of proxy indicators used in our regression. We chose female life expectancy at birth as an aggregate measure of women's health, which summarises mortality patterns across age groups (eg, adolescents and adults).[17] The indicator is therefore not limited to a specific stage in life and goes beyond a woman's potential role as a mother. In view of the large share of funding to HIV/AIDS activities, we also selected adult prevalence of HIV infection as an indicator closer to population health needs. Although we could not obtain data for prevalence of HIV infection data by sex, such evidence is commonly constructed from the prevalence among pregnant women in antenatal clinics.[13,29]

Schwartländer and colleagues[30] have suggested that investment frameworks based on country epidemiology and recognition of programmatic synergies with other sectors will help to improve the targeting of funds, increase efficiency, and improve the effect on population health. Some donors have adopted the principles of such frameworks. For example, the Global Fund approach to funding countries is based on National Strategy Applications,[31] which are linked to epidemiological data and streamline funding in line with the Paris Declaration. By contrast, the historical absence of consensus on essential interventions[32] and emphasis on commodities for reproductive health might have hindered the development of a more effective case for additional financial resources for reproductive health.

This independent analysis of ODA provides evidence for how donors are giving priority to reproductive health. The report shows that aid expenditures for family planning, sexual health, and sexually transmitted infections, including HIV, increased previous estimates of aid to maternal and newborn health by more than 170% (average across the 2 years) and emphasises that funding for activities related to HIV infection is the main cause of this increase. Although disease-specific funding does not affect the importance of specific donors, it has a crucial role in the amount received by priority countries and is therefore essential for examination of the breakdown of reproductive health funding. This assessment is particularly necessary in view of recent financing commitments made to women's health[5] and, more specifically, to family planning.[6] Elucidation of how much and how well development assistance is targeted to reproductive health should help to encourage donor accountability and increase investments in women's health.

Contributors

JH, PB, and AM conceptualised the analysis and developed the methods related to expenditure tracking of additional reproductive health activities. JH analysed the data and wrote the first draft. PB and AM provided analytical input to subsequent drafts. All authors contributed to analysis of the data, reviewed successive drafts, and approved the final version of the report.

Conflicts of interest

PB is Chair of the Countdown to 2015 Financing Working Group. The other authors declare that they have no conflicts of interest.

Acknowledgments

This work was supported through the Countdown to 2015 for Maternal, Newborn and Child Survival by the Bill & Melinda Gates Foundation; the World Bank; and the Governments of Australia, Canada, Norway, Sweden, and the UK. We thank members of the Countdown to 2015 Steering Group and the Countdown to 2015 Financing Working Group and the anonymous reviewers for their comments on the report.

References

1 UN. Report of the International Conference on Population and Development, Cairo, 5–13 September 1994 (A/CONF.171/13/Rev.1). New York: United Nations, 1995.
2 Fathalla MF, Sinding SW, Rosenfield A, Fathalla MMF. Sexual and reproductive health for all: a call for action. *Lancet* 2006; **368:** 2095–100.
3 Glasier A, Gülmezoglu AM, Schmid G, Garcia Moreno C, Van Look PFA. Sexual and reproductive health: a matter of life and death. *Lancet* 2006; **368:** 1595–607.
4 UN. Report of the Secretary-General on the work of the Organization (supplement no. 1 [A/62/1]). New York: United Nations, 2007.
5 The Global Campaign. Putting the Global Strategy for Women's and Children's Health into action. New York: The Global Campaign for the Health Millennium Development Goals, 2010.
6 DfID and Gates Foundation. London Summit on Family Planning summary of commitments. London/Seattle: UK Department for International Development/ The Bill & Melinda Gates Foundation. http://www.londonfamilyplanningsummit.co.uk/summit.php (accessed Jan 27, 2013).
7 Powell-Jackson T, Borghi J, Mueller DH, Patouillard E, Mills A. Countdown to 2015: tracking donor assistance to maternal, newborn, and child health. *Lancet* 2006; **368:** 1077–87.
8 Greco G, Powell-Jackson T, Borghi J, Mills A. Countdown to 2015: assessment of donor assistance to maternal, newborn, and child health between 2003 and 2006. *Lancet* 2008; **371:** 1268–75.
9 Pitt C, Greco G, Powell-Jackson T, Mills A. Countdown to 2015: assessment of official development assistance to maternal, newborn, and child health, 2003–08. *Lancet* 2010; **376:** 1485–96.
10 Hsu J, Pitt C, Greco G, Berman P, Mills A. Countdown to 2015: changes in official development assistance to maternal, newborn, and child health in 2009–10, and assessment of progress since 2003. *Lancet* 2012; **380:** 1157–68.
11 OECD. Creditor Reporting System (CRS) aid activity database. Paris: Organisation for Economic Co-operation and Development. http://stats.oecd.org/Index.aspx?datasetcode=CRS1 (accessed April 30, 2012).
12 OECD. DAC glossary of key terms and concepts. Paris: Organisation for Economic Co-operation and Development. http://www.oecd.org/development/aidstatistics/dacglossaryofkeytermsandconcepts.htm (accessed Jan 27, 2013).
13 UNAIDS. UNAIDS report on the global AIDS epidemic, 2010. Geneva: Joint United Nations Programme on HIV/AIDS, 2010.
14 WHO. Prevalence and incidence of selected sexually transmitted infections. Geneva: World Health Organization, 2011.
15 Chesson HW, Blandford JM, Gift TL, Tao G, Irwin KL. The estimated direct medical cost of sexually transmitted diseases among American youth, 2000. *Perspect Sex Reprod Health* 2004; **36:** 11–19.

16 OECD. Information note on the DAC deflators. Paris: Organisation for Economic Co-operation and Development. http://www.oecd.org/dac/aidstatistics/informationnoteonthedacdeflators.htm (accessed April 30, 2012).

17 WHO. World health statistics 2012. Geneva: World Health Organization, 2011.

18 Leach-Kemon K, Chou DP, Schneider MT, et al. The global financial crisis has led to a slowdown in growth of funding to improve health in many developing countries. *Health Aff* 2012; **31:** 228–35.

19 IHME. Financing global health 2011: continued growth as MDG deadline approaches. Seattle: Institute for Health Metrics and Evaluation, 2011.

20 Netherlands Interdisciplinary Demographic Institute. Financial resource flows for population activities in 2009. New York: United Nations Population Fund, 2010.

21 Patel P, Roberts B, Guy S, Lee-Jones L, Conteh L. Tracking official development assistance for reproductive health in conflict-affected countries. *PLoS Med* 2009; **6:** e1000090.

22 WHO, UNFPA. Sexual and reproductive health of women living with HIV-AIDS. Geneva/New York: World Health Organization/United Nations Population Fund, 2006.

23 Ahmed S, Li Q, Liu L, Tsui AO. Maternal deaths averted by contraceptive use: an analysis of 172 countries. *Lancet* 2012; **380:** 111–25.

24 European Commission. Press release: EU €1 billion Millennium Development Goals initiative to support maternal health, contribute to fight against child mortality and hunger and improve supply of water and sanitation. Brussels: European Commission http://europa.eu/rapid/press-release_IP-11-1063_en.htm (accessed Jan 27, 2013).

25 UNFPA. Maternal Health Thematic Fund: annual report 2011. New York: United Nations Population Fund, 2011.

26 Gates Foundation. Family planning strategy overview. Seattle: The Bill & Melinda Gates Foundation, 2012.

27 Global Health Resource Tracking Group. Following the money: toward better tracking of global health resources. Washington, DC: Center for Global Development, 2007.

28 Schaferhoff M, Schrade C, Yamey G. Financing maternal and child health—what are the limitations in estimating donor flows and resource needs? *PLoS Med* 2010; **7:** e1000305.

29 WHO. HIV prevalence among adults aged 15–49 years (%). Geneva: World Health Organization. http://www.who.int/healthinfo/statistics/indhivprevalence/en/index.html (accessed Jan 28, 2013).

30 Schwartländer B, Stover J, Hallett T, et al. Towards an improved investment approach for an effective response to HIV/AIDS. *Lancet* 2011; **377:** 2031–41.

31 Global Fund. The NSA approach and the second wave. Geneva: The Global Fund to Fight AIDS, Tuberculosis and Malaria, 2011.

32 Starrs AM. Safe motherhood initiative: 20 years and counting. *Lancet* 2006; **368:** 1130–32.