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AN ANNOTATED BIBLIOGRAPHY OF THE COST LITERATURE ON
ICDP PROGRAMME OF ACTION COMPONENTS
IN SUB-SAHARAN AFRICA**



Authors:
Ashley Fraser
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BAY AREA INTERNATIONAL GROUP MONOGRAPH

**Costing Cairo:
An Annotated Bibliography of the Cost Literature on ICDP Programme of Action Components
in sub-Saharan Africa**

Ashley Fraser
Russell Green
Megan Dunbar

January 25, 2002

Introduction: The 1994 International Conference on Population and Development (ICPD), held in Cairo, produced a Programme of Action accepted and signed by over 180 governments. The Programme of Action marked an important shift in the ideological framework of population programs. By stating such programs should ensure that “a full-range of reproductive health care services, including family planning, are accessible, affordable, acceptable and convenient to all users” (ICPD Programme of Action, 1994, 7.5.a), Cairo identified the crux of population programs to be the reproductive health of women, and expanded the notion of family planning accordingly.

This bibliography was initiated as part of an effort to revise the original UNFPA estimates of the cost of implementing the Cairo agenda. It is focused on sub-Saharan Africa for two reasons. First, sub-Saharan Africa, by almost any measure, is most in need of improved provision of health services. Second, accuracy and completeness was a high priority, requiring that the scope be narrowed. Every effort was made to include all relevant literature published in developing countries or unpublished sources. It is primarily focused on recent literature, as the objective is to facilitate estimation of current and future implementation costs. When little or no cost estimates in sub-Saharan Africa are available, such as for breast cancer screening and treatment, we include cost estimates from outside the region.

Within each topic references are organized in order (subjectively) of usefulness and quality. Each reference gives a description of points of the study relevant to the cost figures to the extent that the study presents itself. We briefly describe the methodology, including any information provided on which costs were included or not included. The costs presented are typically unit costs, where the units are most often per CYP, per capita, per illness and per affected individual. When additional calculations were necessary to produce unit costs, the additional figures used in the calculations are also presented. We provide the year-basis for the cost figures where possible and the exchange rate used where necessary. When the precise year-basis information was not available or was ambiguous in the source material we attempted provide the dates for the period of the intervention as available to offer some context for the cost data. We occasionally included dates in other references as well to offer addition context as necessary.

Costs Studies for Reproductive Health

Family Planning				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Janowitz, Measham, & West, 1999)	<ul style="list-style-type: none"> Examined 9 cost studies on Kenyan FP Programs. Used data from 5 recent studies with method-specific visit cost estimates to construct estimates of method-specific costs per CYP. 	<p>₪ Costs converted to 1997 US\$ in all cited documents</p> <p>₪ Converted costs listed under source publications below</p>	<input checked="" type="checkbox"/> No cost for follow up visits IUD, Norplant or tubal ligation in any of the studies examined	
(Mitchell, Littlefield, & Gutter, 1999)	<ul style="list-style-type: none"> Gathered disaggregated costs of providing some RH services from Zimbabwe National FP Council (ZNFPC) & MEXFAM. Data was used to estimate & compare costs of various components of RH care per visit (or per diagnosis & treatment). 	<p>₪ 1995 US\$</p> <p>COSTS AT ZNFPC</p> <ul style="list-style-type: none"> ♀ Sterilization (FS) = \$8.77/CYP* ♂ Sterilization (MS) = \$3.65/CYP* Implant insertion/removal = \$18.71/CYP* IUD insertion & check = \$2.10-\$3.74/CYP* Oral contraceptives (OC) = \$2.54/CYP Injectables = \$11.08/CYP* <p>*Converted to CYP based on (Stover, Bertrand, Smith, Rutenberg, & Meyer-Ramirez, 1997)</p>	<input checked="" type="checkbox"/> Personnel cost (\$/minute by worker type) <input checked="" type="checkbox"/> Non-client time (indirect cost) <input checked="" type="checkbox"/> Supply cost (cost obtained from purchasing dept; reflect analysis of cost per element) <input checked="" type="checkbox"/> Pharmaceutical unit cost <input checked="" type="checkbox"/> IUD check <input checked="" type="checkbox"/> Adolescent care includes iron supplements & extra examination & counseling time <input checked="" type="checkbox"/> No capital cost for equipment & buildings	<ul style="list-style-type: none"> ➤ Comparison of cost based on ICPD Program of Action. ➤ Disaggregated data allows managers to cost a variety of approaches to introducing or expanding a RH program. ➤ IUD check includes labor costs for return client who already registered & w/history card. ➤ Adolescent care includes iron supplements & extra examination & counseling time.

Costs Studies for Reproductive Health

Family Planning				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Kimunya, 1996)	<ul style="list-style-type: none"> • Cost effectiveness analysis of 3 FPPS Family Planning (FP) clinics in Kenya concentrating on establishing costs per user by methods (cost of personnel, expendables & identifiable overhead) of FP services at provider level. • NOTE: this case study is a follow-up to Twahir, 1996. 	<p style="text-align: center;">1997 US\$</p> <p><i>From Janowitz '99</i></p> <ul style="list-style-type: none"> • OC = \$18.03/CYP • IUD = \$3.67/CYP • Injectables = \$18.15/CYP 	<input checked="" type="checkbox"/> Time/Labor costs <input checked="" type="checkbox"/> Expendable costs (NOT commodities) estimates derived from purchase records. <input checked="" type="checkbox"/> Indirect cost estimate based on computed overhead rate (e.g. indirect costs as % of direct costs). <input checked="" type="checkbox"/> No commodity cost as all supplies came from government.	<ul style="list-style-type: none"> ➤ Family Planning Private Sector (FPPS) Project ➤ Time/Labor factors based on provider interviews & salary & benefits computation divided by time to obtain cost per minute resulting in total time cost per process. ➤ Expendables are difficult to track due to lack of record keeping & mix up with MCH materials.

Costs Studies for Reproductive Health

Family Planning				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Twahir, Maggwa, & Askew, 1996)	<ul style="list-style-type: none"> • A case study of the MCS model used for integrating STI & HIV/AIDS services into existing MCH-FP services. • Study aimed to document the integration process & identify its strengths & weaknesses. • Divided MCH-FP unit into cost centers to determine the unit costs for providing various services. • NOTE: Kimunya, 1996 carried out a cost analysis to complement this case study 	<p style="text-align: center;">₪ 1997 US\$</p> <p><i>From Janowitz '99</i></p> <ul style="list-style-type: none"> • OC = \$10.28/CYP • Condoms = \$37.09/CYP • IUD = \$2.94/CYP • Injectables = \$9.02/CYP • Norplant = \$16.72/CYP • FS = \$2.32/CYP <p><small>*Converted to CYP based (Stover et al., 1997)</small></p>	<input checked="" type="checkbox"/> Each cost center represents a specific service type or area: Lab, FP, MCH, STI, RX, & Admin. <input checked="" type="checkbox"/> Recurrent direct (using payroll & balance sheets for FY 94 for labor, drugs & other supplies directly attributable to cost centers) <input checked="" type="checkbox"/> Indirect, variable & fixed costs <input checked="" type="checkbox"/> Unit cost for FP = ave cost for one FP clinic visit per client <input checked="" type="checkbox"/> The cost analysis did not include capital costs (e.g., training, renovations, etc) that the MCS needed to integrate services.	➤ MCS - Mkomani Clinic Society, Mombasa, Kenya
(Musau, 1996)	<ul style="list-style-type: none"> • Original document unavailable^. 	<p style="text-align: center;">₪ 1997 US\$</p> <p><i>^From Janowitz '99</i></p> <ul style="list-style-type: none"> • Pills = \$8.87/CYP • Condoms = \$15.70/CYP* • IUD = \$2.16/CYP • Injectables = \$9.40/CYP • Norplant = \$10.54/CYP • FS = \$3.68/CYP* <p><small>*Converted to CYP based on (Stover et al., 1997)</small></p>		

Costs Studies for Reproductive Health

Family Planning				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Stover & Heaton, 1998)	<ul style="list-style-type: none"> This study examines the actual costs of 29 qualifying USAID contraceptive social marketing (SOMARC) programs to access cost effectiveness. Cost effectiveness is defined as dollars spent per CYP provided. 	<p style="text-align: center;"><input type="checkbox"/> 1996 US\$</p> <p>Niger: • Condoms = \$107.26/CYP Senegal: • Condoms = \$56.43/CYP Togo: • Condoms = \$6.67/CYP</p> <p>*NOTE: above CYPs include overhead cost</p> <p>• Ave cost of 29 countries is \$5.31 per CYP for all methods combined</p>	<input checked="" type="checkbox"/> SOMAC costs = Futures Group salaries, other direct cost, indirect, overhead <input checked="" type="checkbox"/> Commodity costs = project totals reflect cost of AID donated commodities <input checked="" type="checkbox"/> In-country costs = advertising, mkt research, packaging, distributing, etc <input checked="" type="checkbox"/> No private sector cost nor credit for any private sector revenues <input checked="" type="checkbox"/> No commodities costs for logistics or transport <input checked="" type="checkbox"/> No costs for population officers or AID/Wash staff time for design, implementation & evaluation	<ul style="list-style-type: none"> ➤ Qualifying programs means ≥ 2 yrs of sales by end of '96 & majority of project costs through SOMARC. ➤ Used revised USAID CYP Conversion Factors (excluding wastage)

Costs Studies for Reproductive Health

Family Planning				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Chee, 1996)	<ul style="list-style-type: none"> Family Planning Association of Kenya (FPAK) Original document unavailable^. 	<p><input checked="" type="checkbox"/> 1997 US\$</p> <p><i>^From Janowitz 1999</i></p> <ul style="list-style-type: none"> Clinic based delivery cost = \$10.06/CYP CBD cost = \$16.30/CYP 	<input checked="" type="checkbox"/> Commodity costs <input checked="" type="checkbox"/> All Staff time – which is allocated equally to all visits <input checked="" type="checkbox"/> No attempt to estimate costs of different types of visits.	➤ Re-supply methods provided by CBD programs costs more per CYP than non-re-supply

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
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Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Twahir et al., 1996)	<ul style="list-style-type: none"> • Case study of the MCS model used for integrating STI & HIV/AIDS services into existing MCH-FP services, which aimed to document the integration process & identify its strengths & weaknesses. • MCH-FP unit was divided into cost centers to determine the unit costs for providing various services • NOTE: Kimunya, 1996 carried out a cost analysis to complement this case study 	<p>₱ 1994 US\$ (55 Kshs ≅ US\$1)</p> <ul style="list-style-type: none"> • FP (new pill client) ≅ \$4.20 <p>FP & STI INTEGRATED APPROACH</p> <ul style="list-style-type: none"> • Costs STI services for new FP client pill = \$8.60 • Staff time = \$3.60 <p>FP & STI TREATED SEPARATELY</p> <ul style="list-style-type: none"> • Costs for STI & FP separately = \$12.40 • Staff time = \$5.80 • STI = \$8.20 	<input checked="" type="checkbox"/> Recurrent direct costs (using payroll & balance sheets for FY 94 for labor, drugs & other supplies directly attributable to cost centers) <input checked="" type="checkbox"/> Indirect, variable & fixed costs <input checked="" type="checkbox"/> Unit cost for FP = average cost for one FP clinic visit per client <input checked="" type="checkbox"/> The cost analysis did not include capital costs (e.g., training, renovations, etc) that the MCS needed to integrate services.	<ul style="list-style-type: none"> ➤ Each cost center represents a specific service type or area: lab, FP, MCH, STI, Rx, Administration ➤ Clients pay US\$ 4-5 for STI service which costs the MCS \$8.20 to provide. Even at reduce rate many clients cannot afford this reduced fee. ➤ MCS- Mkomani Clinic Society, Mombasa, Kenya

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Van der Veen & Fransen, 1998)	<ul style="list-style-type: none"> Compiled national STD guidelines, purchasing mechanisms, drug acquisition costs from 15 developing countries to conduct cross-country comparison of acquisition cost of drugs for treatment of one standardized STD episode. Focused on four major syndromes: urethral discharge (UD), vaginal discharge (VD), low abdominal pain (low ab), & genital ulcer disease (GUD) Calculated the relative distribution of 4 major STDs to facilitate cost comparison. 	<p>₤ 1998 US\$ (1 ecu = US\$1.10)</p> <p>PUBLIC SECTOR STD DRUGS</p> <p>Acquisition costs of drugs per standardized episode:</p> <ul style="list-style-type: none"> Tanzania = 59¢ per episode Ghana = \$3.51 per episode <p>Drug costs within one country vary depending on STD:</p> <p style="text-align: center;"><u>Namibia</u></p> <ul style="list-style-type: none"> UD = \$2.04 per episode VD = \$2.34-\$3.10 per episode GU = \$4.17 per episode <p>Drug costs per episode for one STD vary depending on country:</p> <ul style="list-style-type: none"> Low ab (Swaziland) = \$8.46 Low ab (Namibia) = \$2.64 Low ab (Mauritania) = 83¢ 	<input checked="" type="checkbox"/> Cost for international suppliers: 20% added for transportation & overhead <input checked="" type="checkbox"/> Added 18¢ to costs for needle for injected drugs as appropriate <input checked="" type="checkbox"/> Bulk prices in public sector <input checked="" type="checkbox"/> Retail prices in private sector <input checked="" type="checkbox"/> Costs do not cover logistics from centralized delivery site, i.e., storage & transportation within country, purchasing overhead & stock management.	<ul style="list-style-type: none"> ➤ Acquisition cost per standardized episode = Sum of cost of drugs for each specific syndrome times the relative frequency of syndrome according to its standardized distribution. ➤ All drug prices were converted in ecu using the rate applicable on the purchase date
(Gilson et al., 1997)	<ul style="list-style-type: none"> Established incremental cost of an intervention program in 12 rural communities in Mwanza, Tanzania. Established quantities of goods actually employed & multiplied these figures by unit prices. 	<p>₤ 1993 US\$</p> <p>Cost for 1 year</p> <ul style="list-style-type: none"> 39¢ per capita \$10.15 per STD treated <p>For training costs alone</p> <p>₤ 10¢ per capita</p>	<input checked="" type="checkbox"/> Administrative costs <input checked="" type="checkbox"/> STD Diagnostics & Treatment <input checked="" type="checkbox"/> Condom distribution & education <input checked="" type="checkbox"/> Transportation <input checked="" type="checkbox"/> Supplies <input checked="" type="checkbox"/> Maintenance & Utilities <input checked="" type="checkbox"/> No training costs <input checked="" type="checkbox"/> No salaries of health care workers	<ul style="list-style-type: none"> ➤ Marginal costs

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Daly, Franco, Chilongozi, & Dallabetta, 1998)	<ul style="list-style-type: none"> Data on drug prescription practices in STD patients were obtained on 144 patients. Observations limited to initial visits for 2 syndromes only: genital ulcers (GUD) (male & female) & urethral (UD) discharge (male only). Results & discussion compare current national guidelines with syndromic approach costs. 	<p>1995 US\$</p> <p>Cost of Syndromic Treatment:</p> <ul style="list-style-type: none"> UD = 78¢ GUD = \$1.23 <p>Cost per disease in each syndrome:</p> <ul style="list-style-type: none"> Syphilis = 67¢ per dose & Chancroid = 56¢ per course Gonorrhea = 55¢ per dose & Non-gonococcal urethritis = 23¢ per course <p>National guideline costs:</p> <ul style="list-style-type: none"> UD = 80¢ GUD = \$1.26 <p>Cost observed in study of 144 patients:</p> <ul style="list-style-type: none"> Ave. \$1.06 per patient vs. projected syndromic approach costs = \$1.07 	<input checked="" type="checkbox"/> Syndromic Costs include needle & syringe <input checked="" type="checkbox"/> Costs of drugs only <input checked="" type="checkbox"/> No treatment costs	
(Population Council/Frontiers, 1999)	<ul style="list-style-type: none"> 1998 study by Zimbabwe Nation Family Planning Council (ZNFPC) on feasibility of adding RTI diagnosis & treatment to FP. Compared Syndromic approach w/lab testing for ♀. 	<ul style="list-style-type: none"> Syndromic RTI: \$2.48 Syndromic FP: \$5.30 Syndromic w/lab w/RTI: \$10.30 Lab testing for all FP client: \$25.77 	<input checked="" type="checkbox"/> Cost per Clinic Client	

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment

Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Laruche, Lorougnon, & Digbeu, 1995)	<ul style="list-style-type: none"> • During April 1993, 207 STD patients at 10 peripheral health centers in Abidjan were followed up. • Study assessed the clinical efficacy & feasibility of WHO-recommended therapeutic algorithms for genital discharges (UD & VD) & ulcers (GUD), diagnosed without laboratory tests, for use at the primary health care level. • Drugs sold on a cost-recovery basis. 	<p><input checked="" type="checkbox"/> 1993 US\$</p> <p>THEORETICAL COSTS:</p> <ul style="list-style-type: none"> • UD =\$4.90 • GU = \$4.50 • VD = \$1.80-\$7.80 <p>AVERAGE DIRECT COST PER CURE: \$5.60</p> <ul style="list-style-type: none"> • Range: \$0 to \$10.70 <p>AVERAGE DIRECT & INDIRECT COST PER CURE: \$6.20</p> <ul style="list-style-type: none"> • Range: \$0 to \$16.80 	<input checked="" type="checkbox"/> Theoretical cost = using algorithms <input checked="" type="checkbox"/> Direct cost = Drug cost only <input checked="" type="checkbox"/> Cost of disinfectants	<ul style="list-style-type: none"> ➤ Adherence to algorithms excellent for UD & GUD but poor for VD. ➤ Includes table with STD drug prices. ➤ Stresses that effective & affordable treatments for STDs are necessary for their realistic case management in Africa.
(dos Santos, Pereria Folgosa, & Fransen, 1992)	<ul style="list-style-type: none"> • Calculated costs of a 1987 national program for AIDS control in Mozambique that integrated an STD control program. • Costs were compiled for 1-year period (1988-89) in 20 health centers, a reference clinic, & laboratory. 	<p><input checked="" type="checkbox"/> 1989 US\$</p> <p>Cost for 1 year</p> <p><input checked="" type="checkbox"/> Population = 1 million</p> <p><input checked="" type="checkbox"/> 43¢/per capita</p> <ul style="list-style-type: none"> • \$10.80/per STD treated 	<input checked="" type="checkbox"/> Administrative costs & Taxes <input checked="" type="checkbox"/> STD Diagnostics & Treatment <input checked="" type="checkbox"/> Condom distribution & education <input checked="" type="checkbox"/> Transportation <input checked="" type="checkbox"/> Supplies <input checked="" type="checkbox"/> Maintenance & Utilities <input checked="" type="checkbox"/> No training costs <input checked="" type="checkbox"/> No salaries of health care workers	<ul style="list-style-type: none"> ➤ Offers marginal costs of integration.

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Piot & Rowley, 1992)	<ul style="list-style-type: none"> • Paper examines economic impact of RTIs & resource availability for the control of RTIs. • Used a model to estimate costs per screening & treatment of syphilis, chlamydia & gonorrhea at the clinic, with cultures & using mass treatment. • Model assumes clinic & lab costs of \$1/hr. 	Cost by approach for 1,000 ♀ assuming 10% prevalence of each STD <ul style="list-style-type: none"> • Syphilis: screen/treat = \$1.73 & mass treat = \$1.05 • Chlamydia clinic: screen/treat = .54¢; culture = \$12.12; antigen = \$5.14 & mass treat = 50¢ • Gonorrhea clinic: screen/treat = .38¢; culture = \$5.19 & mass treat = \$1.20 	<input checked="" type="checkbox"/> Screening, treating, & mass treating at different prevalence levels. <input checked="" type="checkbox"/> No program costs	➤ Prevalence rates vary w/in SSA countries, & among different STDs. However, based on the literature overall rates of 8% for Gonorrhea, 9% Chlamydia & 9% for syphilis seem reasonable. Therefore we used 10% prevalence rates to estimate the cost of screening & treatment for each STD.
(Leiva et al., 2001)	<ul style="list-style-type: none"> • Study describes quality & costs of STD case management in urban pharmacies in The Gambia & explores pharmacy workers' (PWs) willingness to improve STD care. • Interviewed PWs about their knowledge & practices regarding management of STDs. • A ♂ 'simulated client' (SC) visited each pharmacy to check the management of urethral discharge syndrome (UDS) cases. • Appropriate syndromic management for UDS mentioned by 11% of PWs but actually given to 4.4% of the SC visits. None of the PID or GUS cases would have been treated correctly. 	Reported costs for treatment of <ul style="list-style-type: none"> • UDS = \$5.30 (range \$1.30-12.40) • PID = \$6 (range \$2.50-12.90) • GUS = \$6.20 (range \$3-\$15) Cost of UDS treatment actually purchased by the SC averaged = \$3.50 (range \$1.50-\$9.60)	<input checked="" type="checkbox"/> Taking history, counseling & education messages give to client if any <input checked="" type="checkbox"/> Syndrome diagnosis & drugs	➤ Excluding the pharmacy sector from interventions will limit the impact of STD control measures. Recommends regular training in syndromic management & rational drug use, with a concise manual for reference. ➤ Most PWs interested in improving skills & improving quality. ➤ Need for strategies to lower the cost of drugs.

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
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(Parker et al., 1999) Oct 1993-early1996	<ul style="list-style-type: none"> • 28 Month study analyze patient & cost data from hospital outpatient department in two Central African Republic towns. • Paramedical workers trained in clinical management of STD using WHO algorithms, patient education & counseling & record-keeping & data management. Recorded history diagnosis, treatment & partner referral. Distribution condoms. 	₤ 1994 US\$ <ul style="list-style-type: none"> • Gonorrhea = \$1.80 • Chlamydia = \$1.18 • Candidiasis = 65¢ 1995 US\$ • Syphilis \$1.00 Prices calculated by syndrome. Higher prices for Pregnant♀ & for patients with allergies, for ex: <ul style="list-style-type: none"> • Vaginal discharge: \$4.22 per treatment • Vaginal discharge pregnant ♀: \$8.23 • Average cost/treated STD syndrome: \$3.90 	<input checked="" type="checkbox"/> Cost of drugs only <input checked="" type="checkbox"/> No treatment costs	
(Harrison et al., 2000)	<ul style="list-style-type: none"> • A randomized controlled trial of five matched pairs of clinics compared the syndrome packet & health worker training improvement intervention w/ routine syndromic management using simulated patients. 	₤ 1997 US\$ (R4.6 = US\$1) <ul style="list-style-type: none"> • Syndromic Packet: \$1.50 • Incremental costs: \$6.80 per person correctly treated 	<input checked="" type="checkbox"/> Syndromic Packet: info sheet, drugs, 4 condoms, partner notification cards	<ul style="list-style-type: none"> ➤ Includes cost of improving quality of service. ➤ Conversion to US\$ using exchange rate from Reserve Bank of South Africa.
(Mayaud et al., 1998)	<ul style="list-style-type: none"> • Systemic sample of 660 pregnant ♀ reporting for routine antenatal care at an urban clinic. • Socio-demographic & behavior interview, exam & sampling for cervical infections. • Theoretical cost per true case treated we estimated for the diagnosis of gonorrhea & chlamydia for the WHO & other risk scores. 	₤ 1994 US\$ Socio-demographic risk factors results of exam & lab test: <ul style="list-style-type: none"> • Cost per true case treated: \$6.09 		<ul style="list-style-type: none"> ➤ Risk assessment for screening & management during routine antenatal visits feasible & acceptable but limited population because of its low sensitivity. ➤ The optimal risk score may vary considerably from one place to another. ➤ The quest for simple, cheap, & reliable tests to diagnose gonorrhea & chlamydia must continue.

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
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(Bulut, 1999)	<ul style="list-style-type: none"> • Cost Benefit Analysis of limited studies on cost of primary prevention w/some data on STDs. • Mozambique study: 39,000 STD patients & partners + 50,000 pregnant women w/syphilis. 	<p><input checked="" type="checkbox"/> 1993 US\$</p> <p>Range of total cost to treat STD syndromes:</p> <ul style="list-style-type: none"> • \$0.77-\$14.28 excluding herpes & AIDS • Mozambique study: STDs & syphilis: \$4.80 per person • Zambia study: STDs \$7 per patient 	<input checked="" type="checkbox"/> Treatment costs <input checked="" type="checkbox"/> Zambia includes staff time lab diagnosis treatment & condoms.	
(Bosu & Mabey, 1998) Date of the study unclear but estimated at 97/98 \$s	<ul style="list-style-type: none"> • Owners or head pharmacists of 17 drug dispensing outlets in 5 Districts in the Central Region of Ghana were interviewed about the availability & price of antibiotics for PID. • Dispensing Outlets included regular hospital, quasi-government/ university hospital, government district hospital, mission district hospital, private pharmacies & chemical shops. 	<ul style="list-style-type: none"> • Severe PID: US\$ 21.63 on average per course for meds vs. \$261.81 • Moderate PID: \$10.55 per course vs. \$79.52 	<input checked="" type="checkbox"/> Cost of drugs for consumers <input checked="" type="checkbox"/> Lowest prices (if multiple prices were given) <input checked="" type="checkbox"/> No treatment costs	➤ Includes detailed table of prices of antibiotics.
(Lux & Nguyen, 1997)	<ul style="list-style-type: none"> • Review of challenges of & strategies for providing STD services in low resource settings. • Offers cost data from a number of studies (1993-1997) & prevalence levels by region. 	Costs (to either program or client) depending on syndrome ranged from: <ul style="list-style-type: none"> • 75¢ to US\$ 14.00 per complete course 	<input checked="" type="checkbox"/> No communications costs from programs	➤ Includes table of STDs, related syndromes & appropriate treatment regimes with costs per regime. ➤ Warns that selecting treatment based on drug cost alone may contribute to drug resistance.

Costs Studies for Reproductive Health

STD Screening, Testing & Treatment				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(World Bank, 2001)	<ul style="list-style-type: none"> • “At a-glance” fact sheets series by the World Bank’s Health, Nutrition & Population (HNP) anchor & their report “Investing in the Best Buys” ((Claeson, Mawji, & Walker, 2000)). • Introduces & summarizes RH issues & key interventions that the available evidence suggests are most likely to be affordable, feasible to implement, & cost-effective, context. • Fact sheet covers the ‘best buys’ for improving RH health with specific reference to STDs. • Relies on a lifecycle approach that considers the cumulative affects of health status as well as discrete health concerns to identify the ‘best buys’. 	₪ 20¢US per capita for STD		<ul style="list-style-type: none"> ➤ Estimates for all developing countries. ➤ At-a-glance offers additional figures for HIV/prevention & maternal health.

Costs Studies for Reproductive Health

Safe Motherhood				
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Costs Studies for Reproductive Health

Safe Motherhood				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Tinker & Koblinsky, 1993)	<ul style="list-style-type: none"> This model illustrates selected economic, health and demographic characteristics, & related safe motherhood program costs for three settings (low, medium & high infrastructure). Program includes: FP; management of abortions, improvements in delivery & community education; prenatal, postnatal & postpartum care; referral for labor complications; safe birth kits; iron & folate tablets. 	<p><input type="checkbox"/> 1993 US\$</p> <p>Per capita cost of implementing Safe Motherhood Program in three settings in vary by % Maternal deaths averted</p> <ul style="list-style-type: none"> Setting A (20%) = \$1.06 Setting B (66%) = \$.95 Setting C (80%) = \$1.06 	<input checked="" type="checkbox"/> Staff costs <input checked="" type="checkbox"/> Training, <input checked="" type="checkbox"/> Contraceptives, <input checked="" type="checkbox"/> Equipment & supplies <input checked="" type="checkbox"/> Transportation, vehicles & maintenance	<ul style="list-style-type: none"> ➤ Analysis shows that costs vary from one setting to another. ➤ Sub Saharan Africa best fits in setting A. ➤ Concentrates on marginal costs.
(Cowley & Bobadilla, 1994)	<ul style="list-style-type: none"> This model uses indicators to categorize hypothetical countries into low, middle & middle II income ranges. Providing social marketing, FP, delivery care, management of labor/obstetrics & obstetric complications & abortion, neonatal care, postnatal care 	<p><input type="checkbox"/> 1994 US \$</p> <p><input checked="" type="checkbox"/> Model Population = 500,000 90% coverage (of target pop)</p> <p>Per capita cost of implementing Mother-Baby Package</p> <ul style="list-style-type: none"> Low-income Country = \$3.50 Middle income = 11.30 Middle income II = \$7.30 	<input checked="" type="checkbox"/> Vaccines & drugs <input checked="" type="checkbox"/> Equipment <input checked="" type="checkbox"/> Lab tests <input checked="" type="checkbox"/> Surgery <input checked="" type="checkbox"/> Salaries <input checked="" type="checkbox"/> Maintenance of capital	<ul style="list-style-type: none"> ➤ Presents average costs
(Weissman et al., 1999)	<ul style="list-style-type: none"> A cost study conducted by the World Health Organization (WHO) in Uganda on the costs of implementing a comprehensive safe motherhood program including the WHO Mother-Baby Package. 	<p><input type="checkbox"/> Per capita costs = \$1.40</p>	<input checked="" type="checkbox"/> The WHO Mother-Baby Package	

Costs Studies for Reproductive Health

Safe Motherhood				
Source	Methods or Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments
(Walsh & Measham, 1994)	<ul style="list-style-type: none"> This cost analysis uses indicators to create models for high & low mortality countries 	<p>1993 US\$</p> <p>Population = 1 million at given contraceptive prevalence (CP) levels</p> <p>Per capita Costs</p> <ul style="list-style-type: none"> High Mortality Country = <ul style="list-style-type: none"> 50¢ (20% CP) \$1.50 (40% CP) \$4.50 (60% CP) 	<input checked="" type="checkbox"/> Limited effort includes PNC, birth attendants; upgrade of centers & establishment 4 new centers; investment in emergency transport system. <input checked="" type="checkbox"/> Moderate effort includes community outreach, PNC, nutrition & pregnancy risk screening; increase health posts to 1/10,000; increase health centers; train staff; emergency transportation <input checked="" type="checkbox"/> Postnatal care	➤ Marginal costs

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Goodburn, Hussein, Lema, Damisoni, & Graham, 2001) ¹ (1999)	<ul style="list-style-type: none"> Set up semi-national monitoring system based on UNICEF/ WHO/UNFPA 1997 alternative to maternal mortality measures Project aimed to improve availability, accessibility & quality of obstetric care; increase awareness of the need for obstetric care; improve referral & monitoring systems. Improved recording tools to minimize under-reporting of emergencies, mis-reporting of maternal deaths & double counting of referrals. 	<ul style="list-style-type: none"> Project Costs = \$100,000 ☒ Population ≈ 5 million (Half the total pop of Malawi) 💰 Cost per capita ≈ 2¢ 	<input checked="" type="checkbox"/> Conducted operations research (10K) & training trainers (15K); developed tools (10K); & provided TA (25K) & district training & materials (40K). <input checked="" type="checkbox"/> Staff training	<ul style="list-style-type: none"> ➤ Costs of set up phase only ➤ Guidelines for alternative approach require considerable adaptation for setting
(Olukoya et al., 1997) PMM Network (January 1992-October 1995)	<ul style="list-style-type: none"> Improving care for pregnant ♀ w/complications (Ogun, Nigeria). Medical officers & midwives given refresher courses in emergency obstetric skills. Set up surgical theater, labor ward & laboratory w/ supplies & equipment. Set up reliable electrical supply. The annual # of women with complication seen increased from 55 in 1994 to 91 in 1995; likewise cesareans increased from 15 to 33. 	<div style="border: 1px solid black; padding: 2px; display: inline-block;">💰 See comments</div> <ul style="list-style-type: none"> Total cost of state hospital improvements ≈ US \$46,000 ☒ Population ≈ 194,717 💰 Costs per capita < 24¢ 	<input checked="" type="checkbox"/> Training (47% of total costs) <input checked="" type="checkbox"/> Staff per diem (Dr & Ob) <input checked="" type="checkbox"/> Equipment <input checked="" type="checkbox"/> Infrastructure <input checked="" type="checkbox"/> Materials/consumables <input checked="" type="checkbox"/> Other: file cabinets/repairs	<ul style="list-style-type: none"> ➤ The facility improvements were completed in mid-1995. ➤ 2% of cost paid by government ➤ Rapid devaluation: used rate prevailing at time of expenditure. ➤ Case fatality rate (CFR) due to major direct obstetric complications did not change appreciably.

¹ Note: the indexing of articles. In many cases, the keywords would not lead to selection in database searches for quality of care & costs.

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Chiwuzie et al., 1997)* PMM Network (February 1995-April 1996)	<ul style="list-style-type: none"> • Set up loan funds for ♀ w/ complications to increase access to emergency obstetric care in Ekpoma, Nigeria. • Loans primarily for transportation but were also used to cover drugs, blood & hospital fees as well. • Funds managed entirely by the clans, w/ ongoing monitoring & supervision by project staff. 2% simple interest was charged. • Loans ranged from \$7 - \$15. (83% of applicants were granted loans). • In the 1st year of the operation, \$354 in (93%) loans was repaid in full. 	<ul style="list-style-type: none"> • The cost of establishing the loan fund was US \$1360, including initial donations to the loan funds. 	<input checked="" type="checkbox"/> Most of the funds spent on transport & labor <input checked="" type="checkbox"/> No costs for monitoring by PMM team. <input checked="" type="checkbox"/> Clear target population	<ul style="list-style-type: none"> ➤ Project complemented other interventions to improve emergency obstetric care. ➤ The PMM project paid 55% of the total. ➤ Sustaining the funds over the long term requires continuing effort & involvement with the communities.

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Leigh et al., 1997) PMM Network ² (1990-1995)	<ul style="list-style-type: none"> • Posted a physician with obstetric skills; a second physician was trained. • Courses in life-saving obstetric skills were held for nurses & midwives. An unused operating theater was made functional with simple modifications. • A generator & blood bank were installed. Drugs & supplies were made available through a revolving fund. • The # of women seeking treatment for major obstetric complications tripled over 5 years, while the case fatality rate (CFR) dropped more than 25%. • Cesarean sections increased from two in 1990 to 38 in 1995. • 444 abortion-related procedures performed - almost all of them for unwanted pregnancy - compared with only 22 	<ul style="list-style-type: none"> • Project Costs ≈ US\$39,000 ☒ Population ≈ 428,000 ☒ Cost per capita ≈ 9¢ 	<input checked="" type="checkbox"/> Stocks of drugs, supplies & donated equipment <input checked="" type="checkbox"/> Other material improvements, training & per diem <input checked="" type="checkbox"/> Cash incentives for Drs, Midwives & nurses <input checked="" type="checkbox"/> Cost of overhead lamp in OR; no other physical renovations were done <input checked="" type="checkbox"/> Customs duties which were waived <input checked="" type="checkbox"/> Most blood bank costs	<ul style="list-style-type: none"> ➤ Improvements also included some of the peripheral hospital units which referred patients to the tertiary hospital targeted by the project ➤ Rebel war began in 1991 with a major intensification in early & late 1994.

² The Prevention of Maternal Mortality (PMM) Network, established in 1988 & funded by the Carnegie Corporation, consists of 11 teams in West Africa & one team at the Center for Population & Family at Columbia University in NY. The two teams in Ghana & the seven teams in Nigeria are based at universities while the two teams in Sierra Leone are situated within the Ministry of Health (MOH) with technical assistance from Columbia team. The core of the teams is comprised of a community physician, an ob/gyn, a midwife & a social scientist. Each team concentrated on one of the major causes of maternal mortality.

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Thuray, Samai, Fofana, & Sengeh, 1997)* PMM Network (Feb/March 1990 & 1992-1995)	<ul style="list-style-type: none"> Paper describes a drug cost recovery system, introduced to reduce maternal deaths in Sierra Leone by improving the availability of critical drugs & supplies. Procured obstetric drugs & supplies through a commercial source outside normal government channels. Obstetric emergency drug packs created for 24-h availability. Obstetric drug prices ranged from 46% to 68% of the prices charged by the government hospital & private pharmacies. 	<ul style="list-style-type: none"> Improvements cost ≈ \$17500, (83% for initial drug supply) <input checked="" type="checkbox"/> Population ≈ 53,000 (1985 census data) 	<input checked="" type="checkbox"/> Prices calculated to cover full costs (including handling & transportation) plus an 85% mark-up	<ul style="list-style-type: none"> ➤ No shortages of obstetric drugs occurred after interventions. ➤ The total amount billed during 1993 = US \$2537, of which \$1451 was recovered. ➤ Careful pricing critical for cost recovery. ➤ For sustainability, mark-up must cover defaulters & (currency) inflation/deflation.
(Chukudebelu et al., 1997) PMM Network (1991-1992)	<ul style="list-style-type: none"> Collaboration w/private sector institutions in an operations research project to improve the skills of staff in emergency obstetric care in Anambra State, Nigeria. Aides were trained to recognize & manage obstetric complications. The % of trainees obtaining a passing grade increased from 33% (pre-training) to 61% (post-classroom) to 77% (post- practicum) 36 aides (15 private sector/ 21 public) & 28 midwives (all public sector) trained. 1 wk classroom instruction & 2 wks practical training in missionary hospitals. 	<ul style="list-style-type: none"> Project Costs ≈ US \$18,100 No catchment population given <i>*We use data from (Nwagbo et al., 1997) in same Local Government Area (LGA)</i> <input checked="" type="checkbox"/> Population ≈ 450,000 💰 Cost per capita: 4¢ 	<input checked="" type="checkbox"/> Development, training & monitoring. <input checked="" type="checkbox"/> Trainees' salaries, which were all covered by employers.	<ul style="list-style-type: none"> ➤ Involve private sector institutions which provide a substantial proportion of emergency obstetric services. ➤ Must sustain efforts to maintain results.

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Nwagbo et al., 1997)* PMM Network (~ March 1994-December 1995)	<ul style="list-style-type: none"> Established/Upgraded blood bank including refrigerator, backup generator, reagents & supplies at General Hospital in Anambra State, Nigeria. Refresher training for laboratory technologist. A public education campaign to encourage blood donation & dispel fears of transfusion. Voluntary blood donations (primarily from relatives) increased from 0 units – 15 units. Transfusions from 3 to 17 (w/ 8 obstetric). 	<p><input type="checkbox"/> See comments</p> <ul style="list-style-type: none"> Costs of upgrading the blood bank = US \$8800 (51% material costs & 42% training) Government covered 5% of total costs <p><input type="checkbox"/> Population ≈ 450,000</p> <p><input type="checkbox"/> Cost Per capita ≈ 2¢</p>	<input checked="" type="checkbox"/> Supplies, lab equipment, transport, training venue & staff allowances (not including salaries) & training. <input checked="" type="checkbox"/> No costs for paying non-voluntary/non-relative donors. <input checked="" type="checkbox"/> No costs for public education campaign organized in tandem.	<ul style="list-style-type: none"> Community education may increase blood donation. Ministry of Health (MOH) involvement needed for successful interventions in government hospitals. Used official Naira exchange rate of Central Bank of Nigeria from Dec 1995, US\$1 = N 22, but w/ sharp devaluation, practical rate closer to US\$1 = N80-85.
(Djan et al., 1997) PMM Network (January 1993-December 1994)	<ul style="list-style-type: none"> Upgrading of obstetric care at a health center in Ghana through a series of technical, administrative & material interventions. Concentrated on hemorrhage as both a major cause of MM & as especially sensitive to delayed treatment. Established a surgical theater; lobbied to improve blood supply; arranged new water supply; procured surgical equipment. Training for midwives & admin staff; successfully lobbied for posting medical officer; initial \$ for a revolving fund for drugs. 21 midwives from the rest of the district were trained. 	<ul style="list-style-type: none"> Cost of upgrading health center = US \$30,316 <p><input type="checkbox"/> Population ≈ 223,632 (projected in 1998)</p> <p><input type="checkbox"/> Crude Birth Rate in 1990 estimated at 40 per 1000 pop</p> <p><input type="checkbox"/> TFR = 6.4</p> <p><input type="checkbox"/> Cost Per capita ≈ 13¢</p>	<input checked="" type="checkbox"/> Surgical equipment & supplies <input checked="" type="checkbox"/> Initial drugs (\$170) <input checked="" type="checkbox"/> Staff training <input checked="" type="checkbox"/> New Dr's salary (\$4700/yr) paid by MOH	<ul style="list-style-type: none"> Equipment & supplies were majority of costs. Staff training was a key element of the intervention.

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Ifenne et al., 1997) PMM Network (1989, 1990 & 1993 to 1995)	<ul style="list-style-type: none"> • Project at Hospital in Zaria, Nigeria to reduce delays in (emergency) obstetric treatment • Restored surgical theater, renovated maternity ward, obstetric training for resident Dr., set up an emergency drug pack system. • Blood donation from families of ♀ attending antenatal clinics. • Mean admission-to-treatment interval reduced by 57%. • CFR for ♀ w/major obstetric complications fell from 14% in 11%. • Annual # of ♀ w/ obstetric complications declined from 326 to 65. 	<ul style="list-style-type: none"> • Cost of material improvements ≈ US\$135,000 ☒ Population ≈ 700,000 ☒ ♀ of reproductive age (15-49): 154,000 ♣ Costs per capita ≈ 19¢ ♣ Costs per ♀ of reproductive age ≈ 88¢ 	<input checked="" type="checkbox"/> Establishing on site Pharmacy <input checked="" type="checkbox"/> Costs reflect management decision to provide even more than the strictly necessary upgrades; scaling back to basic upgrades costs less money	<ul style="list-style-type: none"> ➤ Deteriorating economic conditions may diminish utilization of services despite improvements ➤ 65% of costs covered by the government ➤ Government also paid an additional \$8000/yr in new staff salaries
(Danquah et al., 1997) PMM Network (1991-1993)	<ul style="list-style-type: none"> • Improving record-keeping procedures at 10 facilities in Kumasi, Ghana. • Revised registers to collect information on complications & time of treatment. Trained Drs, nurses, midwives & clerks to record, compile & analyze data. • Set up monitoring & supervisory mechanisms. • Better record keeping; regular & timely data collection & analysis. 	<ul style="list-style-type: none"> • Cost of improving record-keeping at 10 healthcare facilities = US \$2543 • 85% from PMM • Cost per facility \$254 • Training costs alone = \$1667 with 160 staff trained. 	<input checked="" type="checkbox"/> MOH staff from 10 facilities <input checked="" type="checkbox"/> Kumfo Anokye Teaching Hospital staff training <input checked="" type="checkbox"/> Requires staff training & monitoring visits	<ul style="list-style-type: none"> ➤ 2 other non-project districts adopted reporting system & rest of the region may follow suit.

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Oyesola, Shehu, Ikeh, & Maru, 1997) PMM Network (1992-1993)	<ul style="list-style-type: none"> Improving obstetric services at a referral hospital in Maiyama LGA in Kebbi State, Nigeria; focused on obstructed labor. Specialist obstetricians provided training to general physicians & midwives & care to patients. Introduced obstetric first-aid box w/ essential drugs & supplies. Trained midwives to recognize & manage obstetric complications. Number of cesarean sections increased from 101 in 1990 to 131 in 1995. CFR for ♀ w/complications went from 22% to 5% in same period. Number of ♀ w/complications seeking hospital treatment increased from 200 in 1990 to 227 in 1994, & then declined to 152 in 1995. 	<ul style="list-style-type: none"> Cost of improvements ≈ US \$12,300 Government sources covered 10% ☒ Maiyama Local Government Area (LGA) Population ≈ 110,000 ₤ Per capita ≤ 11¢ total project ₤ Per cap ≈ 5¢ for intervention at a single hospital	<input checked="" type="checkbox"/> 10 midwives (6 from the referral hospital; remainder from other area facilities) <input checked="" type="checkbox"/> 10 obstetric care boxes 52% of total costs (1 at referral hospital; remainder distributed to other area facilities).	<ul style="list-style-type: none"> ➤ Declining hospital utilization may continue due to worsening economic conditions. ➤ Subsequent interventions focused improving access & reducing delay in seeking care ➤ 45% of the cost of improvements were upgrading the referral hospital

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Sabitu et al., 1997) PMM Network (1994-early 1995)	<ul style="list-style-type: none"> Improving quality of care at secondary hospital in Zaria, Nigeria & improving referral of ♀ w/complications to the tertiary hospital. Renovated maternity facilities, introduced revolving drug fund. Trained midwives & restored ambulance to service. Unsuccessfully recruited Dr. w/ obstetric emergencies skills. Substantial increases occurred in antenatal attendance (2517 to 5565 per year) & deliveries (325 to 1952 per year). Number of ♀ w/complications fell from 85 in 1990 to 28 in 1995. Referrals to higher-level facilities rose from 4 to 17 in same period. 	<ul style="list-style-type: none"> Project Costs = US \$31,827 ☒ Population ≈ 211,246 (1991 census) 💰 Cost per capita ≈ 15¢ 	<input checked="" type="checkbox"/> Facility upgrade (included repairs, equipment & water supply cost) ≈ 10K <input checked="" type="checkbox"/> Use of ambulance <input checked="" type="checkbox"/> Other community interventions focused on improving utilization by ♀ w/complications	<ul style="list-style-type: none"> ➤ Obstetric services at the referral hospital were improved before intervention at secondary facility ➤ Government covered 98% of costs
(Samai & Sengeh, 1997) PMM Network (1990 & July 1992-Dec 1993)	<ul style="list-style-type: none"> Paper describes transportation & referral system improvements to reduce delay in reaching the main referral hospital in Sierra Leone Designed an emergency transportation & communication system for ♀ w/ obstetric complications to main hospital Purchased 4 WD Vehicle to transport ♀ Case fatality rate fell from 20% to 10% during the study period 	<ul style="list-style-type: none"> Project Costs ≈ US\$ 75,000 <ul style="list-style-type: none"> Capital costs = \$69,350 Operations & Maintenance costs = \$5,486 ☒ Population ≈ 53,000 (1985 census data) 💰 Cost per capita ≈ \$1.41 	<input checked="" type="checkbox"/> 4WD Vehicle; Motorbikes (8); Radios (10); Bicycles (2) & Solar Panel <input checked="" type="checkbox"/> New transport cost included of the transport ♀'s body back if she dies.	<ul style="list-style-type: none"> ➤ Pre intervention travel time: 3hr - 24hr+ ➤ Post intervention travel time: 1.5 - 6.6 hr ➤ Solar power for radios better than vehicle batteries

Costs Studies for Reproductive Health

Improving the Quality of Care				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Ogunbekun, Adeyi, Wouters, & Morrow, 1996) (1993-1994)	<ul style="list-style-type: none"> • Analysis of the <i>incremental</i> cost of structural improvement in quality of maternal health care & the cost & financing of improvements through the Bamako Initiative in Nigeria in 1993. • Costs analysis in 3 local government areas &: <ul style="list-style-type: none"> • Determined baseline • Interviewed staff regarding for management & financial practices • Conducted focus groups • Collected budget data • Measured the incremental costs to improve facility standards • Defined quality of care by measuring performance in terms of comparisons between actual practice & expected locally appropriate standards. • Poor current level of care in areas studies. 	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> ₦ 1994 US\$ (N22 = US\$1) </div> <ul style="list-style-type: none"> • Achieving an appropriate standard care at the current level of utilization would require an additional 19% - 38% of 1993 health budget depending on region. • ₦ Cost per capita ≈ 19¢-38¢ • If current low level of utilization increased by 25%, variable costs would rise to 22% to 41% while fixed costs would add 8% to 27%. • ₦ Variable cost per capita ≈ 22¢-41¢ • ₦ Total cost per capita ≈ 30¢-68¢ 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Increasing community participation <input checked="" type="checkbox"/> Upgrade facilities, better outreach & expansion of services <input checked="" type="checkbox"/> Provision of drugs <input checked="" type="checkbox"/> Enhanced management, supervision & monitoring <input checked="" type="checkbox"/> Staff training <input checked="" type="checkbox"/> Capital costs <input checked="" type="checkbox"/> Personnel <input checked="" type="checkbox"/> Total costs of running Maternal Health Services 	<ul style="list-style-type: none"> ➤ Base line estimate of spending on health care ≈ \$1 per capita. (Range 50¢ - \$2 per capita depending on region). ➤ 60% to 70% of recommended cost increases considered critical costs. ➤ Poor revenue generation from health services appeared to be more related to inadequate supply of essential drugs & consumables than to high fees. ➤ Quality improvements are required for any user fee system aimed at cost recovery to avoid even lower utilization & to generate new revenues.

Costs studies for Reproductive Health

Information, Education & Communication (IEC)				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Vaughan, 2001) (1993-1995)	<ul style="list-style-type: none"> Personal correspondence (9/2001) explains cost associated with introduction of a radio soap opera (full project described in a paper in (Rogers et al., 1999)). Letter explains accompanying unpublished cost benefit analysis worksheet prepared by author (dated 10/1996) Author conducted benefit analysis on FP adoption only on 1st two years of intervention & used 2 different methods to estimate impact: <ul style="list-style-type: none"> Method (1): Population based on census data and extrapolated growth rate. Treatment area consisted of reception of medium wave frequencies of Radio Tanzania (not perfect match with regional boundaries). Percentage of listener/adopters determined based on responses in target population (15+ years old) to post intervention survey. 50% of treatment area in target population. 52.6% of survey respondents listened & of those 23% self-reported adoption of family planning. Method (2): Same population estimates but relied on increases in those respondents using FP from '93-5 instead of self-reports of FP adoption. Percentages taken from married ♀ 15-59 yrs (14%) & sexually ♂ 15-59 yrs (18%) within target population. Used "always users" of FP (7%) for FP adoption instead of combining "always" & "sometimes" (10%) as in paper. 	<ul style="list-style-type: none"> Total cost (Jul '93-Jul 95) = \$346,333 <input checked="" type="checkbox"/> Estimated population in treatment area = 16.2 million <input checked="" type="checkbox"/> Per capita costs = 2¢ <hr/> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Estimated target population = 8.1 million COST PER ADOPTER <ul style="list-style-type: none"> Method 1 = 36¢ per adopter Method 2 = 95¢ per adopter 	<input checked="" type="checkbox"/> Costs of formative research to design program. <input checked="" type="checkbox"/> Some cost of monitoring program by radio station staff. <input checked="" type="checkbox"/> Financial & "in-kind" contributions from NGOs & government.	➤ Separate funding covered the research costs to evaluate the program.

Costs studies for Reproductive Health

Information, Education & Communication (IEC)				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Piotrow et al., 1992) (Feb-Jun '89)	<ul style="list-style-type: none"> Male Motivation Campaign that included a 52-episode radio drama series to promote family planning for ♂ in Zimbabwe using Enter-Educate Model. Educational talks for ♂ & pamphlets Behavioral changes measured using a subset of data from a follow up study (late 89) & data from the baseline study (mid 88) & comparing to the ♂ exposed to the drama w/♂ not exposed. Use of contraceptives rose 4% during campaign; condom use increased 5% Current condom use 62% for ♂ exposed vs. 51% for ♂ not exposed. 	TOTAL FIGURES <ul style="list-style-type: none"> Total cost of radio drama = \$92,948 Total cost of pamphlets = \$50,000 Total 1992 Population ≈ 9,855,000 ♂ Target scale of 38% = 3,744,900 ♣ Costs per capita ≈ 4¢ RADIO DRAMA CAMPAIGN <ul style="list-style-type: none"> ☒ Men (18-55 yrs) = 1,520,000 ☒ Men 18-55 yrs reached = (38%) or 576,074 Cost per person reached = 16¢ Cost per new adopter = \$2.41 PAMPHLET CAMPAIGN <ul style="list-style-type: none"> ☒ Population reach (by time of evaluation) = 35,000 ♂ (during 1st few months of this phase) Cost per person reached = \$1.43 	<input checked="" type="checkbox"/> Cost effectiveness analysis includes radio drama only. <input checked="" type="checkbox"/> No analysis of motivational talks or 2 pamphlets. <input checked="" type="checkbox"/> Motivational talks carried out independently with support from John Snow, Inc.	➤ Possible sampling variation between the pre- & post-intervention surveys.
(Piotrow, 1997)	<ul style="list-style-type: none"> References several mass media interventions which include cost data Kenya – Youth Variety Show (1997) Nigeria – Benue State Mobil Drama (1992) 	<u>Kenyan costs = US\$97,170</u> <ul style="list-style-type: none"> ☒ Population affected = 3,354,439 (Young people 15-24) <ul style="list-style-type: none"> Per affected person = 3¢ <u>Nigerian cost = US\$6,400</u> ☒ Population affected = 26,000 <ul style="list-style-type: none"> Per affected person = 25¢ 		➤ Includes an extensive bibliography w/ references through 1997 ➤ Source documents not available

Costs Studies for Reproductive Health

Gynecological Cancer (of Cervix & Breast)				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
Cervical Cancer				
(Herdman & Sherris, 2000)	<ul style="list-style-type: none"> • Document summarizes recent research & program lessons related to preventing cervical cancer. • Includes single screening costs in Kenya & Zimbabwe. • Includes the results of an analysis of total cost of program implementation for South Africa • Total cost analysis compared 2 program. approaches: (1) no attempt to screen every ♀, focus on treating symptomatic, invasive cancer & (2) screening ♀, treating pre-cancer & cancer. Approach (1) costs 80% > approach (2) using public sector providers. Using specialists to screen raises the cost of approach (2) so that approach (1) costs 12% > approach (2). Lowering prevalence or progression rates considerably causes public sector screening (2) to become more expensive than approach (1). 	<ul style="list-style-type: none"> • Kenya = \$3 per screening Zimbabwe = \$3.50 per screening • <i>We add 10% for treatment costs</i> • <i>δ We calculate the costs of Pap & treatment per capita ≈ 5¢ in Kenya & 8¢ (for screening every ♀ once every 10 yrs)</i> <hr/> <ul style="list-style-type: none"> • South Africa = \$22 specialist or \$11 public sector • <i>δ We calculate the costs of Pap & treatment per capita ≈ 46¢ with specialists & 23¢ in public sector (for screening every ♀ once every 10 yrs)</i> 	<input checked="" type="checkbox"/> Does not include costs of education campaign to promote screening	➤ We assume that costs of treatment for those with pre-cancer or cancer amounts to approximately 10% of screening costs.

Costs Studies for Reproductive Health

Gynecological Cancer (of Cervix & Breast)

Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Mitchell et al., 1999)	<ul style="list-style-type: none"> Costs of RH services based on 1995 research conducted in Zimbabwe. Study designed to help RH program managers estimate costs of adding new interventions to existing FP or MCH programs. Costs were disaggregated into individual components of service to reveal the marginal costs of adding services to existing programs. 	<ul style="list-style-type: none"> Pap smear = \$2.27 per visit <i>We add 10% for treatment costs</i> <i>Our Pap smear & treatment estimate = \$2.50</i> ⌘ <i>We calculate the costs of Pap & treatment per capita ≈ 5¢ (for screening every ♀ once every 10 yrs)</i> Inspection & cryotherapy = \$11.82 Inspection & LEEP = \$19.58 Pap smear, cone biopsy & hysterectomy = \$91.70 	<input checked="" type="checkbox"/> Costs includes cost of labor per minute & costs of each supply involved & costs of equipment <input checked="" type="checkbox"/> No costs for capital equipment & buildings <input checked="" type="checkbox"/> Patient registration	➤ We assume that costs of treatment for those with pre-cancer or cancer amounts to approximately 10% of screening costs.
(Walsh, Bain, & Eyprian Ministry of Health and Population, 1998)	<ul style="list-style-type: none"> Comparative study of cost-effectiveness of 30 health interventions in Egypt.. Projected costs of screening & treatment from detailed cost studies of 12 government hospitals & 60+ clinics. Incidence based on national cancer registry, hospital data & WHO estimates. Screening every five years from age 25 to 64 with Pap smear with 65% coverage, repeat for dysplasia biopsy after two dysplastic smears. Colposcopy, exconisation &/or hysterectomy depending on results. 	⌘ 1994 US\$ EGYPTIAN COSTS <ul style="list-style-type: none"> Screening every ♀ every 5 yrs = \$13,987,999 Screening every ♀ every 10 yrs = \$12,499,000 ⌘ Cost per capita ≈ 24¢ or 21¢ for screening every 5 yrs & every 10 yrs respectively 	<input checked="" type="checkbox"/> Health education	

Costs Studies for Reproductive Health

Gynecological Cancer (of Cervix & Breast)

Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
Breast Cancer				
(Walsh et al., 1998)	<ul style="list-style-type: none"> Analysis extrapolates for current breast cancer costs in Egypt based on current coverage to derive cost of national or full coverage. 	<p style="text-align: center;"><input type="checkbox"/> 1994 US\$</p> <p>EGYPTIAN FULL COVERAGE COSTS</p> <p><input type="checkbox"/> Cost per capita ≈ 23¢</p>	<input checked="" type="checkbox"/> Screening every 2 years	
(Forbes, 1997) (1997)	<ul style="list-style-type: none"> Analysis & projections of the global burden of breast cancer. 	<p style="text-align: center;"><input type="checkbox"/> 1990 US\$</p> <ul style="list-style-type: none"> Derives projection for <i>developing</i> regions costs from estimated costs (for the 2000) in <i>developed</i> regions = \$7.48 billion Projects total direct breast cancer costs of treating new breast cancers in 2000 in <i>developing</i> regions at 5% of costs in developed regions = \$.37 billion 	<input checked="" type="checkbox"/> Estimated total direct costs for treating breast cancer <input checked="" type="checkbox"/> Direct costs include: diagnosis/screening, treatment, follow ups & care for advanced disease	<ul style="list-style-type: none"> Estimates developed based on the relationship between US GNP, overall health & cancer costs & breast cancer cost between the US & other regions. These variables were projected for year 2000.
(Fracheboud et al., 2001)	<ul style="list-style-type: none"> Annual Evaluation report of a nationwide breast cancer screening program implemented (from 1990 to 97) in the Netherlands, providing mammography for all women aged 50-69 years every 2 yrs. Of 4 million women invited, 78.5% attended for screening. Screening performed in 47 mobile screen units. 	<p>DUTCH COSTS IN 1997</p> <ul style="list-style-type: none"> \$16.4 million or \$26 per screening exam <input type="checkbox"/> Costs per capita ≈ \$1.07 	<input checked="" type="checkbox"/> Screening only; <input checked="" type="checkbox"/> Recruitment costs <input checked="" type="checkbox"/> No cost for follow up for positives or treatment	

Costs Studies for Reproductive Health

Gynecological Cancer (of Cervix & Breast)

Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Bodai et al., 2001)	<ul style="list-style-type: none"> • Compare total facility costs for 2 breast biopsy methods: vacuum-assisted biopsy (VAB) & needle-wire-localized open surgical biopsy (OSB) in US • Costs imputed from published literature to price resources. • Total facility VAB procedure costs lower than OSB procedure costs • The overall cost advantage for using VAB ranges from \$314 to \$843 per procedure depending on the facility type. Variable cost comparison indicated little difference between the 2 procedures. Largest fixed cost difference = \$763. 	US COSTS COMPARISON <ul style="list-style-type: none"> • Hospital biopsy total procedure costs: VAB - \$854.73 vs. OSB \$1260.30 	<input checked="" type="checkbox"/> Total (fixed & variable) costs <input checked="" type="checkbox"/> Costs at Imaging Center, Ambulatory Surgery Center, Hospital <input checked="" type="checkbox"/> Capital cost depreciated & amortized	<ul style="list-style-type: none"> ➤ New technology (VAB) comparable to gold standard (OSB) ➤ High cost initial equipment costs could discourage adoption of VAB, but analysis of total facility costs find VAB less costly
(Nzarubara, 1999)	<ul style="list-style-type: none"> • Qualitative study determined the efficacy of mass screening in the control of primary breast cancer among a selected group of ♀ using health education & instruction in self-breast examination (SBE). • Incidence: 16.4 per 100,000. 			<ul style="list-style-type: none"> ➤ Mass screening using health workers in various clinics (eg MCH) for health education at grass root level is feasible. ➤ Mass screening should be included in primary health care programs

Costs Studies for Reproductive Health

Gynecological Cancer (of Cervix & Breast)				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Bah, Parkin, Hall, Jack, & Whittle, 2001)	<ul style="list-style-type: none"> • Study includes tables on incidence of cancer in The Gambia over a 10- year period using data collected through the Gambian National Cancer Registry. • The most frequent cancers in females were cervix uteri 34.0%, liver 19.4%, breast 9.2% & ovary 3.2%*. • Registry established to as part of the Gambia Hepatitis Intervention Study (GHIS) with the aim of evaluating the effect of hepatitis B vaccination in infancy on later risk of primary liver cancer. • * Age standardized incidence rates. 			<ul style="list-style-type: none"> ➤ Major problems w/ cancer registration in developing world discussed ➤ Data show a lower overall rate of cancer incidence than in more developed parts of the world
(Parkin, 1998)	<ul style="list-style-type: none"> • Includes 1990 estimates of the # of new cancer cases, & annual incidence rates, of 25 different cancers for 23 different regions around the world by cancer site, gender & region. • Breast cancer-by far the most important cancer of women world-wide (21% of the total). • Female Breast Cancer incidence in sub-Saharan African: 28,500 new cases per year in 1990. 			<ul style="list-style-type: none"> ➤ Importance of the different cancers varies widely by region. ➤ Some environmental & genetic factors elucidate geographic distribution.

Costs Studies for Reproductive Health

Gynecological Cancer (of Cervix & Breast)				
Source	Study/Project Description & Results	Costs	<input checked="" type="checkbox"/> Included Costs <input checked="" type="checkbox"/> Missing Costs	Comments & Conclusions
(Hoffman et al., 2000)	<ul style="list-style-type: none"> • Describes overall & age-specific incidence rates for breast cancer & determinants of breast cancer stage at diagnosis in the Western Cape, South Africa. • Data from a 4-year case-control (Jan 1994 to Dec 1997). • N = 485 cases from study population (colored & black women under the age of 55 years), who presented w/1st occurrence of invasive breast cancer at 2 tertiary hospitals. • 249 interviewees from 1st 2 years of the study are used as numerator for incidence rate estimates. 			<ul style="list-style-type: none"> ➤ Early stage at diagnosis significantly associated w/ higher educational level, membership of a medical aid, urban residence & positive family history. ➤ Overall incidence rate = 23.1 per 100,000 ♀/ year ➤ Incidence rate for colored = 25.6 per 100,000 ♀/ year ➤ Incidence rate black ♀ = 14.7 per 100,000 ♀/ year ➤ Incidence rate urban areas = 26.6 per 100,000 ♀/ year ➤ Incidence rate rural areas = 16.3 per 100,000 ♀/ year ➤ Stages 1 & 2 = 57.8% of cases

- | | | | |
|-------------------------------------|-------------------|-----|---------------------------------|
| <input checked="" type="checkbox"/> | Cost included | RTI | Reproductive Tract Infections |
| <input checked="" type="checkbox"/> | Cost not included | STD | Sexually Transmitted Diseases |
| ♀ | Female (Women) | STI | Sexually Transmitted Infections |
| ♂ | Male (Men) | CYP | Couple Year Protection |

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