Scaling up primary health services for improving reproductive, maternal and child health: a multi-sectoral collaboration in the conflict setting of Afghanistan

Supplement 1 Sections:

1. Background and context
2. Methodology
3. List of BPHS interventions
4. Governance and coordination mechanisms
5. Community-based approaches in BPHS
6. National health priority indicators
7. Funding mechanisms
8. Innovations
9. SWOT analysis

Section 1. Background and context

Table S1: Major health indicators of Afghanistan in 2002

Priority indicator	Value
Life expectancy at birth (years)	44.5
Infant mortality rate per 1000 live births	115
Maternal mortality ratio per 100,000 live births	1600
Total fertility rate	6.23
Deliveries attended by trained personnel (%)	14.3
Married women (15-49) using contraceptives (%)	10.3
Infants fully immunized (measles) (%)	50
Pregnant women attended by trained personnel (%)	16.1
Population with access to safe drinking water (%)	40.2
Active BPHS health facilities registered (2004)	1075
Active female Community Health Workers (2004)	729
Midwives per 10,000 population	0.08
Source: Afghanistan Health Indicators [1]; UNFPA 2003[2]; Afghanistan HIMS data	

Section 2. Methodology

<u>Systematic Literature Review</u>

For the review, a search strategy was developed and articles were searched on EMBASE, Medline, Scopus, CINAHL, PubMed and Google Scholar to identify the relevant studies (below). Grey literature was also searched on the internet using Google and other relevant databases. All study designs including opinion pieces, editorials, conference abstracts, single

case studies, advocacy materials and letters relevant to the topic were included. All the searched articles were imported to EndNote and double screened by two individuals; conflicts were resolved by mutual consensus. All the articles were screened based on title and abstract followed by full text screening. The search flow diagram is included below.

Data extraction for each record was carried out in an excel sheet by two team members individually. A report was formulated from the extracted data from grey, peer reviewed literature and surveys of Afghanistan (such as demographic health surveys, national nutrition survey and multiple indicator cluster survey). Using the extracted data, various themes and results were generated which assisted in report formulation.

Search Strategy:

<u>PubMed and Google Scholar:</u>

Afghan* AND “BPHS” OR “Basic Package of Health Services”

<u>EMBASE& MEDLINE:</u>

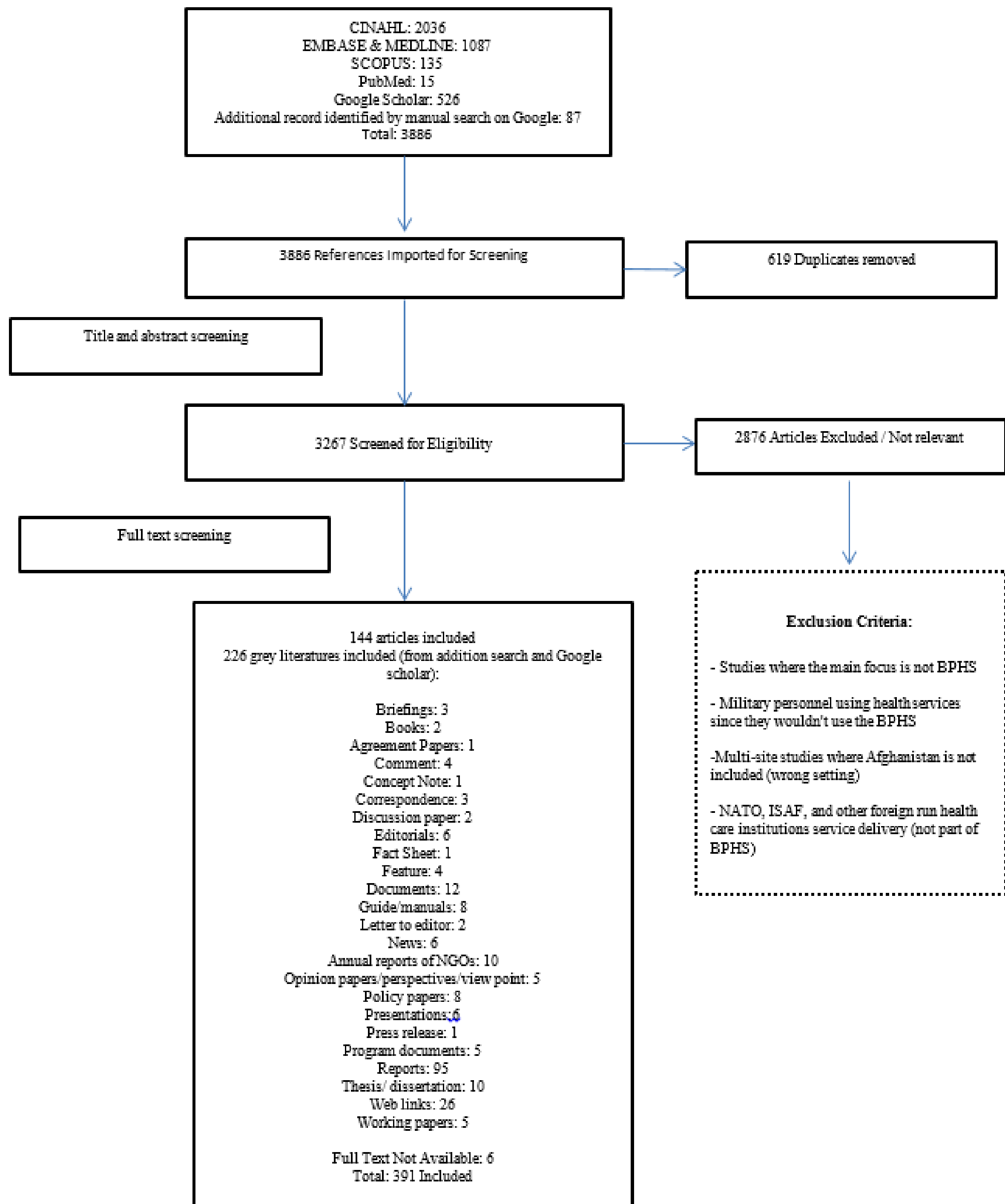
#	Searches
1	health services/
2	("basic package of health services" or BPHS).mp.
3	exp AFGHANISTAN/
4	Afghan*.mp.
5	"Health service*".mp.
6	1 or 2 or 5
7	3 or 4
8	6 and 7
9	limit 8 to english language
10	limit 9 to yr="2001 -Current"

<u>SCOPUS:</u>
((TITLE-ABS-KEY (“Basic package of health services" OR "BPHS") OR TITLE-ABS-KEY (“Health services/”) OR TITLE-ABS-KEY ("health service*” .mp.)) AND TITLE-ABS-KEY (afghanistan/ OR afghan*.mp.)) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2005) OR LIMIT-TO (PUBYEAR , 2004) OR LIMIT-

TO (PUBYEAR , 2003) OR LIMIT-TO (PUBYEAR , 2002) OR LIMIT-TO (PUBYEAR , 2001))

CINAHL (EBSCO):
(MH Health Services OR TX (("Basic package of health services" OR BPHS)) OR TX "health service*") AND ((MH afghanistan or TX Afghan*))

Search Flow Diagram:



Country Working Group:

Table S2: Country working group

S.N	Government	
1	Government of Afghanistan	Deputy Minister of Public Health for Policy and Planning, Dr. Ahmad Jan Naeem
2		Dr. Khwaja Mir Islam Saeed
3		Dr. Attaullah Sayedzai, Bahara Rasooly and Muzhgan Habibi
	iNGOs	
4	Swedish Committee for Afghanistan	Dr. Aziz Baig
	Local NGOs	
5	AHDS	Dr. Mohammad Fareed Asmand
6	SHDP	Dr. Khalil Mohmand
7	CAF	Dr. Nasir Hamid
	Hospital	
8	French Medical Institute for Children (FMIC)	Dr. Abdullah Fahim
	Inter-governmental Organization (IGO)	
9	World Bank	Habibullah Ahmadzai
	UN Agencies	
10	UNDP	Dr. Alim Atarud

Section 3. List of BPHS Interventions

Table S3: List of BPHS interventions

Domain	Interventions
Antenatal Care	Antenatal visits—weight, height measurement
	Information, education, and communication (IEC)
	Pregnancy diagnosis
	Blood pressure measurement
	Tetanus immunization
	Iron and folic acid supplementation to pregnant women
	Multi nutrient supplementation
	Screening and management of sexually transmitted disease
	Treatment of anemia, asymptomatic urinary tract infections, intestinal worms, pre-eclampsia/eclampsia, hypertensive disorders of pregnancy, incomplete miscarriage/abortion, ectopic pregnancy and malaria
	Safe injection practices, infection control and proper waste disposal
Delivery Care Services	Assist normal and vaginal deliveries
	Information, education, and communication (IEC)
	Labor monitoring
	Prenatal administration of oxytocin, anticonvulsants, internal fluids and antibiotics
	Safe blood transfusion
	Provision of delivery kits

Postpartum Care Services	Vitamin supplementation to mother
	Information, education, and communication (IEC)
	Treatment of anemia, puerperal infection
	Breast examination
	Case definition and referral of infertility cases to provincial hospital
	Counselling sessions on exclusive breast feeding and birth spacing
Family Planning Services	Counselling sessions and clinical examination
	Distribution of condoms and oral contraceptives
	Screening and treatment of sexually transmitted disease
Care of the Newborn	Kangaroo care
	Information, education, and communication (IEC)
	Stimulate, clean airway; clean, clamp, and cut cord; establish early breastfeeding
	Newborn resuscitation
	Newborn immunization
	Counselling, management and referral of neonatal sepsis, jaundice and tetanus
EPI Services	Outreach immunization services
	Vitamin A supplementation
	Information, education, and communication (IEC)
	Vaccine storage
	Disease surveillance and case reporting
Integrated Management of Childhood Illness (IMCI)	Case Management of ARI and diarrhea
	Ear problems
	Fever and Malaria
	Measles
	Malnutrition and anemia
	Immunization
Public Nutrition Services	Prevention of Malnutrition:
	Vitamin A supplementation for children 6 to 59 months
	Promotion of iodized salt and balanced micronutrient rich foods
	Promotion of exclusive breast feeding and maternal nutritional status
	Promotion of appropriate complementary feeding
	Community food demonstration
	Iron/folic acid supplementation for pregnant, lactating women
	Vitamin A supplementation of post-partum women
	Prevention and control of diarrheal disease and parasitic infections
	Treatment of Malnutrition:
	Diagnosis and treatment of micronutrient deficiency
	Community mobilization and screening: Treatment of severe malnutrition at community-based Community Therapeutic Centers (CTCs)5
	Out patient management (OPM)
	Surveillance and Referral:
Source: BPHS 2010 [3]	

Section 4. Governance and coordination mechanisms

Various mechanisms were introduced to support better coordination and engagement between stakeholders at different levels of decision-making and implementation. These included coordination mechanisms at national level (High Level Inter-Ministerial Committee for Inter-Sectoral Coordination for Health), MoPH level (Strategic Health Coordination Committee, Management and Technical Advisory Group), provincial level (Provincial Health Coordination Committee) and community level (Community Shura). To strengthen coordination, the Ministry of Finance introduced sectoral coordination mechanisms called Consultative Groups for each national program under the National Development Framework and emphasized the importance of Afghan government ownership on Consultative Groups as key for development and progress. The General Directorate of Policy and Planning at MoPH is responsible for laws, regulations and policies and aids implementation and enforcement [4] as well as ensuring that the priorities of the MoPH are reflected in the policy formulation.[5]

Section 5. Community-based approaches in BPHS

There are various levels of facility which cater to the need of the population including the health post, basic health center (BHC), comprehensive health center (CHC) and district hospital (table S4). At village and community level, care is provided by community health workers at health posts; at district level through BHC and CHCs and secondary and tertiary care at provincial level by district, provincial and regional hospitals. In 2010, health sub centers and mobile health teams were also added.

Table S4: Community based approaches

Components	Details
Health facilities	- Provides midwifery, case management and preventive services - Provide outreach services to communities (E.g. expanded program of immunization-herd immunity) - Facility staff should coordinate with community leaders to optimize services in community
Facility Shura	- Works with facility staff to ensure community needs and patient satisfaction
Community Health Workers	- Community volunteers - Serves a population of 100-150 families - Staffing of one male and female community health workers at health post - 40% females at a health post is necessary - Community health workers are trained to provide primary healthcare services and refer sick patients - Promote healthy lifestyle and behavior in communities - Maintain records and provide monthly report at HMIS
Community Shura-e-sehie	- Provides support and leadership to health-related activities in community - Support, select and supervise community health workers

	- Monitor community map with community health workers to reach out to families in communities and provide preventive care - Provide leadership in promotion of social norms and behavior
Community Health Supervisors	- Supervise community health workers - Link between community and facility - Collect monthly reports - Regularly meet with Shuras' and manage community-based activities
Family Health Action Groups	- Support group for community health workers - Improve health literacy, health seeking behavior and life style of mothers and children - Aimed to reduce maternal mortality - Selection criteria: mothers with <5 years children, respected and reliable in the community, preferably literate (not required) - Consists of 10-15 members at the HP level and each member serves 10-15 households - Selected by community health workers with consultation from Community Shura

Section 6. National health priority indicators

National priority health indicators are as follows (table S5).

Table S5: National health priority indicators

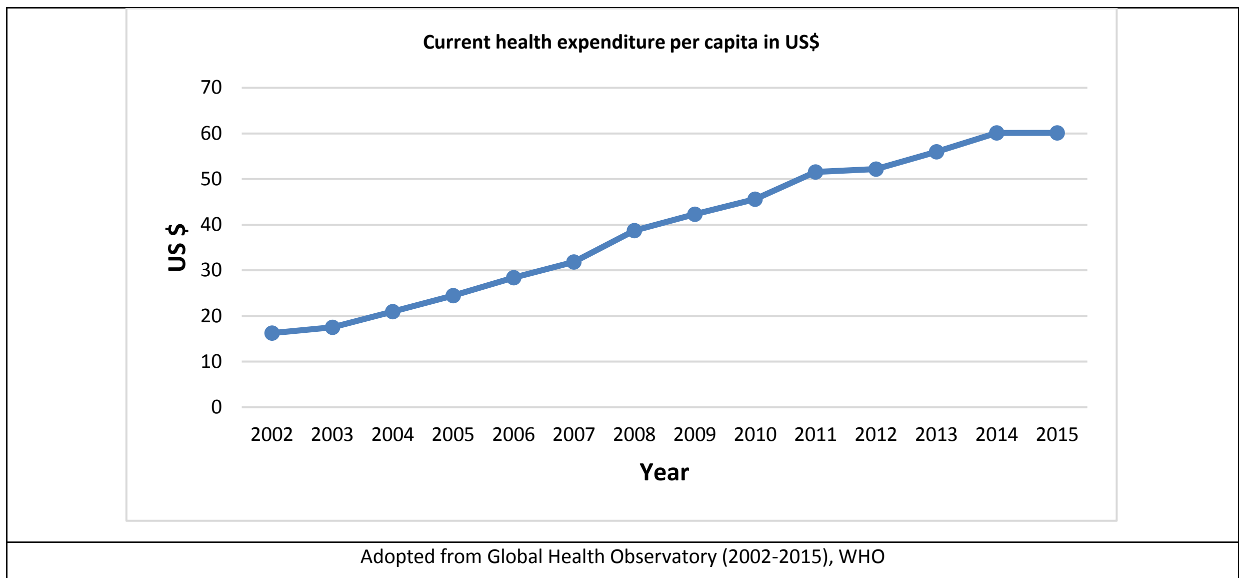
Indicators	
Mortality	Infant Mortality Rate
	Under-5 mortality rate
	Maternal Mortality Rate
Coverage	DPT3 coverage
	Measles coverage
	Antenatal coverage
	Utilization of safety bed nets
Prevalence	HIV/AIDS
	Malaria
	Tuberculosis
	Tuberculosis cases detected and cured under directly observed treatment short-course
	Contraceptive Prevalence Rate
Reproductive Health	Skilled birth attendance
	Condom use rate of the contraceptive prevalence rate
	Condom use at last high-risk sex
	Acute malnutrition for children under 5 years old
Service Delivery	Access to primary care services
	Availability of mental health services
	Availability of disability services
Other	Contacts with health system
	Management of external funds by MoPH
	Median score on Balanced Scorecard
	Blood screening
	Comprehensive correct knowledge of HIV/AIDS
Source: MoPH Afghanistan 2007	

Section 7. Funding mechanisms

Funding mechanisms evolved over time. The World Bank (WB) initially supported the health sector by providing funding through the International Development Association and the Afghan Reconstruction Trust Fund, although later funded the BPHS through the Health Sector Emergency Reconstruction and Development Project (HSERDP) and used performance based-partnership agreements, which provided lump sum, flexible funding. After the successful completion of HSERDP, WB and MoPH felt that the evidently underfunded health system of Afghanistan will continue to need donor support for sustainability of BPHS and reducing large out-of-pocket payments. New funding projects such as Strengthening Health Activities for the Rural Poor (SHARP) (from 2009 to 2013), System Enhancing for Health Actions in Transition (SEHAT) (from 2013 to 2018) and Sehatmandi (from 2018-2021). SEHAT had similar objectives to SHARP, however more attention was given to monitoring and evaluation and evidence-based decision making. Sehatmandi has similar objectives and inherited the framework of SEHAT. From April 2003 to December 2006, USAID provided financial support through the Rural Expansion of Afghanistan's Community-based Healthcare program (from 2003-2006), Performance-based Partnership Grants (PPG) (from 2006-2009), Partnership Contracts for Health (PCH) (from 2009-2015) and once PCH completed its objectives in June 2015, USAID decided to increase on-budget support by channeling its funds through ARTF to the SEHAT program. While EU channeled funds directly to the NGOs till 2013 and later it also joined the SEHAT program. The WB used Performance-based Partnership Agreements i.e., if an NGO reached or exceeded the specific targets, it would get a bonus worth up to 10% of initial lump-sum remuneration and offered fixed lump sum payment to the NGOs with 100% flexibility in budget. However, USAID and EU used input-based contracts which were less focused on performance-based assessments. After 2015, all the provinces were funded through a similar mechanism first through SEHAT and now Sehatmandi and all donors have agreed on the lump-sum payment method and one model for evaluation and monitoring.

Figure S1 shows the current health expenditure from 2002-2015 highlighting the uniform increase in the health expenditure over the years. Per capita expenditure on health care has increased over the years.

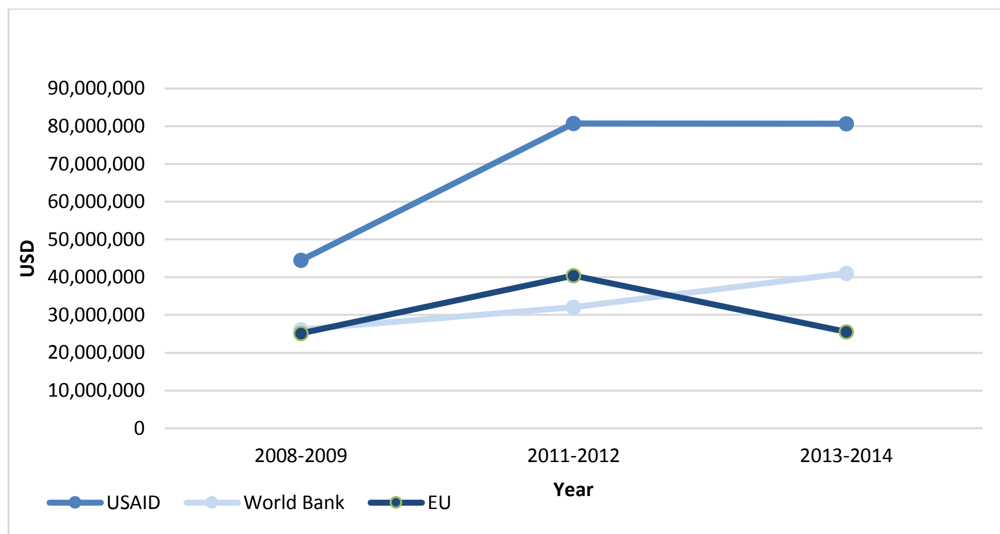
Fig S1: Health expenditure per capita in US$



Adopted from Global Health Observatory (2002-2015), WHO

According to National Health Accounts, the major expenditure on health is still out-of-pocket comprising of around 74% of the total health expenditure, while the donors contribute 21.5% and government 5.5%. Figure S2 below shows the support of the three major donors over the years.

Fig S2: Contribution of major donors over years:



Section 8. Innovations

These are some of the innovations tested

Table S6: Innovations

Innovation	Intervention	Provinces	Target population	Impact
Conditional cash transfer	Routine immunization and institutional deliveries. Women were given 1000 Afs for delivering at a government healthcare facility and community health workers received 300 Afs/woman for coming to the health facility for an institutional delivery at a government healthcare facility	Bamyan, Bagdhis and Kandahar	To community health workers: to increase referrals for institutional delivery To women (post-partum) when she gives birth at a government facility	Increase demand for healthcare services
Result based financing	Performance payments were made to health workers based on improvement in the provision of the maternal and child health services based on data reported in the Health Management Information System	Balkh, Bamiyan, Daykundi, Jawzjan, Kandahar, Kunduz, Panjsher, Parwan, Samangan, Sar-e-Pul, and Takhar	Health workers	Reduce maternal and child mortality
E-Health	Telemedicine	N/a	N/a	Improve healthcare delivery all over Afghanistan, including the remote areas
Maternity waiting houses	Residential facilities which provide Comprehensive Essential Maternal and Obstetric Care for women who are waiting to deliver and recover post-partum in a comfortable environment.	Badakhshan, Bamyan, Kunar, Hirat, Laghman and Kandahar	Pregnant women	Provide safe delivery to women by a skilled birth attendant and improve health, hygiene and nutritional knowledge of women and their households
Family health houses	Include Family health houses, as a lower level health facility than the basic health center, with mobile health teams so that health services could reach remote areas. It has four components which includes Family health house/ Ashiana-e-Sehi, health post, family health action group and community health shura/ shura-e-sehi	Herat, Bamyan, Farah and Daikundi	Women	Increased access to reproductive, maternal, neonatal and child healthservices in under-served areas, hence decreasing morbidity and deaths
Mobile support team	Part of Family health house. Provides technical and managerial support to Family health houses from time to time and provides immunization and basic health services in remote villages surrounding the Family health	Herat, Bamyan, Farah and Daikundi	Women	Effective reproductive, maternal, neonatal and child health services to the underserved areas

	houses.			
Family health action group	These support groups help spread health messages and awareness amongst the community, hence leading to better usage of health services that are being provided	N/a	Women	Improved family's attitude towards health with efficient health services

Section 9. Strengths, weaknesses, opportunities and threats analysis

Strengths	**Weakness**
● Six types of primary healthcare facilities and community outreach approaches to increase access and improve equity ● Multistakeholder collaborative model allowed relative strengths and expertise of partners to be maximized ● Clearly defined role of stakeholders ● Community midwifery and community nursing program improved delivery of services ● Competitive and transparent mechanism of awarding contracts ● Technical and regulatory bodies ensure quality and accountability ● Improved equity of care ● Flexibility and adaptability ● Monitoring and evaluation system in place including third party evaluations	● Unavailability of female health professionals (especially female doctors) in underprivileged areas ● No focus on non-communicable diseases or trauma care ● Gaps in data collection from various sources ● Economic evaluation (cost benefit and cost-effective analysis) of BPHS not conducted ● Contracting mechanism is based on least cost ● Insufficient and inadequately trained staff, especially in highly-insecure areas ● Unreliable drug quality control ● Lack of capacity building of hospital administrators and managers ● Corruption within healthcare ● Scant sharing of information between ministerial departments ● Minimal efforts on problem solving (equipping teams with quality/problem solving tools for improvement) ● Staff turn-over due to lack of facilities ● Inequitable distribution of health facilities
Opportunities	**Threats**
● Availability of donor funds ● Availability of human resources in the market ● Potential for increased fundraising opportunities within the system eg introducing user fees ● Switch the contracts from least cost to standard cost.	● Political instability and insecurity affects overall implementation and results ● Donor dependency ● Sustainability of healthcare services ● Cultural barriers

● Access to quality international and national experts as well as a high level of commitment and knowledge from Afghanistan's health sector leadership ● Revisions of BPHS and policies and strategies based on findings from the various evaluation mechanisms ● Prioritization of health education for women leaving in rural areas ● Increase in number of female community health workers and midwives in remote areas	

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