Photo credit – Hand in Hand for Syria

Prioritizing Investment and Financing for the Humanitarian-Development Nexus

Planning and costing basic health service packages

By David Collins (MSH)

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Presenter

- David Collins is a **health economist with Management Sciences for Health (MSH) and is also on the faculty of Boston University School of Public Health.**
- He previously designed and ran projects for **Save the Children** in Bangladesh, Guatemala and other countries.
- These days he mainly develops **planning and costing tools** and provides TA and training in their use – e.g., presently in Afghanistan, Uganda, Syria, South Sudan and Egypt.
- MSH is an international **non-profit** organization which provides **technical assistance and training** to governments, PFP/PNFP organizations and donors for health systems development focused on poor and needy.

Contents

- Challenges of transitioning from humanitarian aid to integrated health systems.
- Two examples of work in progress:
  - network development in northern Syria
  - national community health program in South Sudan
- Reflections
- Acknowledgments

Challenges

- Humanitarian aid in a country is generally implemented by NGOs supported by several donors with different, short-term, funding cycles.
- Despite attempts to coordinate, services are sometimes **fragmented** with geographical gaps and overlaps, different service priorities, frequent changes in funding, lack of clear patient pathways and different service protocols.
- All of these are understandable but are major challenges in providing universal access to quality care and make it difficult to transition to an integrated health system.

Transition example 1 - northern Syria

Syria network development

- WHO Gaziantep Office coordinates cross-border health services provided in northern Syria by more than **40 NGOs** (mostly Syrian) to 5.5 million people.
- WHO, in consultation with the NGO Health Cluster, led the development of an **Essential Health Service Package (EHSP)** for northern Syria.
- In 2017 when Idlib was fairly stable WHO also helped develop a **pilot network** in Saraqep town and villages of 6 NGOs running 10 facilities covering **200,000 people**.
- Goal is to **improve access, cost-effectiveness and efficiency of service delivery and quality of care and to lay the groundwork for an integrated health system**.
- MSH was engaged to **model the services and cost** of the network using MSH's CORE Plus health centre costing tool.
- WHO also supporting initiatives to improve quality of care and define service levels and patient pathways

Modeling

A. **Actual number of services and actual costs for 2017**
B. Actual numbers of services and normative costs for 2017
C. **Projected numbers of services based on 100% utilization of services and normative costs**
D. Target numbers of services and normative costs
E. Target numbers of services and normative costs assuming most efficient staff use

Actual services provided in 2017

	CPHC Centre	PHC Centre 1	PHC Centre 2	PHC Unit 1	PHC Unit 2	PHC Unit 3	Mobile Clinic 1	Mobile Clinic 2	Mobile Clinic 3	Mobile Clinic 4	Total
First line catchment population	65,000	55,000	23,227	9,700	19,500	23,000	12,550	18,683	20,150	16,700	263,510
% Coverage	40%	80%	80%	90%	90%	90%	100%	100%	100%	100%	
Adjusted catchment population	**26,000**	**44,000**	**18,582**	**8,730**	**17,550**	**20,700**	**12,550**	**18,683**	**20,150**	**16,700**	**203,645**
Actual service types	**41**	**38**	**36**	**33**	**34**	**36**	**27**	**36**	**37**	**31**	
Total actual number of services	**61,528**	**66,240**	**73,710**	**32,628**	**13,200**	**28,056**	**30,768**	**48,435**	**42,603**	**27,396**	**424,564**
Curative	27,192	30,828	51,828	19,968	12,180	21,480	14,820	13,335	11,643	22,332	225,606
Preventive	34,012	35,412	21,882	12,660	1,020	6,576	15,948	35,100	30,960	5,064	198,634
Deliveries	324	-	-	-	-	-	-	-	-	-	324
Breakdown by program											
Child Health	6,960	14,868	17,814	6,228	2,328	2,256	4,188	7,128	5,280	3,372	70,422
Nutrition	**0**	**0**	**0**	**0**	**84**	**0**	**13,800**	**33,120**	**27,216**	**0**	**74,220**
Reproductive Health	34,596	9,648	7,638	13,608	1,020	6,264	2,148	3,948	5,328	8,352	92,550
Communicable Diseases	6,996	8,244	8,688	4,860	1,572	3,096	4,896	1,656	1,836	2,364	44,208
Non-communicable Diseases	11,844	4,320	17,664	7,932	4,176	10,152	5,592	2,580	2,940	13,308	80,508
Mental Health	0	624	474	0	60	144	144	3	3	0	1,452
Immunization	1,132	25,764	14,244	0	0	0	0	0	0	0	41,140
Health Education	0	0	0	0	0	312	0	0	0	0	312
Dentistry	0	2,772	7,188	0	3,960	5,832	0	0	0	0	19,752
Total actual services per adjusted capita	**2.37**	**1.51**	**3.97**	**3.74**	**0.75**	**1.36**	**2.45**	**2.59**	**2.11**	**1.64**	**2.08**

Provisional data – do not quote

Services for 100% coverage of need

	CPHC Centre	PHC Centre 1	PHC Centre 2	PHC Unit 1	PHC Unit 2	PHC Unit 3	Mobile Clinic 1	Mobile Clinic 2	Mobile Clinic 3	Mobile Clinic 4	Total	%
Adjusted catchment population	26,000	44,000	18,582	8,730	17,550	20,700	-	-	-	-	135,562	
Needed service types	69	65	65	65	64	64	55	55	55	55		
Needed number of services	209,090	347,317	117,483	69,239	138,172	162,916	82,469	122,625	132,230	109,641	1,491,181	100.0%
Curative	132,728	224,594	75,884	44,574	89,596	105,675	51,518	76,696	82,717	68,550	952,531	63.9%
Preventive	75,925	122,723	41,599	24,665	48,577	57,241	30,951	45,929	49,512	41,091	538,214	36.1%
Deliveries	437	0	0	0	0	0	0	0	0	0	437	0.0%
Breakdown by program												
Child Health	3,372	5,707	1,928	1,132	2,276	2,685	1,628	2,423	2,613	2,166	25,931	1.7%
Nutrition	9,045	15,257	5,154	3,037	6,105	7,201	4,361	6,499	7,010	5,803	69,471	4.7%
Reproductive Health	59,363	94,351	31,876	18,777	37,045	43,695	26,492	39,437	42,534	35,252	428,821	28.8%
Communicable Diseases	4,742	6,970	2,711	1,592	3,201	3,776	2,289	3,408	3,675	3,046	35,411	2.4%
Non-communicable Diseases	44,512	70,928	25,449	14,946	30,046	35,438	21,486	31,985	34,497	28,590	337,877	22.7%
Mental Health	53,676	96,284	30,692	18,031	36,235	42,737	25,915	38,574	41,602	34,481	418,226	28.0%
Immunization	8,015	13,518	4,567	2,691	5,410	6,381	0	0	0	0	40,583	2.7%
Health Education	365	303	239	303	303	303	299	299	299	303	3,016	0.2%
Dentistry	26,000	44,000	14,865	8,730	17,550	20,700	0	0	0	0	131,845	8.8%
Total needed services per adjusted catchment population	*8.04*	*7.89*	*6.32*	*7.93*	*7.87*	*7.87*	*6.57*	*6.56*	*6.56*	*6.57*	*7.32*	

Provisional data – do not quote

Actual costs (US$)

	CPHC Centre	PHC Centre 1	PHC Centre 2	PHC Unit 1	PHC Unit 2	PHC Unit 3	Mobile Clinic 1	Mobile Clinic 2	Mobile Clinic 3	Mobile Clinic 4	Total
COSTS											
Technical staff	$ 95,280	$ 81,480	$ 101,226	$ 71,520	$ 51,300	$ 51,300	$ 38,400	$ 43,200	$ 43,200	$ 18,240	$ 595,146
Support staff	$ 87,720	$ 63,720	$ 30,774	$ 53,880	$ 14,100	$ 14,100	$ 6,420	$ 22,320	$ 22,320	$ 20,760	$ 336,114
Operating costs	$ 20,400	$ 34,440	$ 49,015	$ 10,800	$ 3,000	$ 3,780	$ 9,600	$ 25,680	$ 25,680	$ 10,800	$ 193,195
Medicines and supplies	$ 466,689	$ 422,249	$ 567,121	$194,630	$ 130,956	$ 313,394	$168,413	$ 220,691	$ 223,819	$ 272,248	$ 2,980,210
Total cost	**$ 670,089**	**$ 601,889**	**$ 748,136**	**$330,830**	**$ 199,356**	**$ 382,574**	**$222,833**	**$ 311,891**	**$ 315,019**	**$ 322,048**	**$ 4,104,665**
Average cost per capita	$ 25.77	$ 13.68	$ 40.26	$ 37.90	$ 11.36	$ 18.48	$ 17.76	$ 16.69	$ 15.63	$ 19.28	$ 20.16
Average cost per service	$ 10.89	$ 9.09	$ 10.15	$ 10.14	$ 15.10	$ 13.64	$ 7.24	$ 6.44	$ 7.39	$ 11.76	$ 9.67
TECHNICAL STAFF											
Actual technical staff											
Staff numbers	24	20	18	15	8	8	6	8	8	4	119
Staff per 1,000 population	0.9	0.5	1.0	1.7	0.5	0.4	0.5	0.4	0.4	0.2	0.6
Services per day per staff person	10	13	16	8	6	13	20	23	20	26	14

Provisional data – do not quote

Cost of 100% utilization by resource type (US$)

	CPHC Centre	PHC Centre 1	PHC Centre 2	PHC Unit 1	PHC Unit 2	PHC Unit 3	Mobile Clinic 1	Mobile Clinic 2	Mobile Clinic 3	Mobile Clinic 4	Total
COST											
Technical staff	$ 357,720	$ 678,492	$ 251,367	$156,495	$ 282,366	$ 328,644	$212,760	$ 279,420	$ 288,420	$ 291,420	$ 3,127,104
Support staff	$ 158,040	$ 314,268	$ 54,333	$ 67,365	$ 45,774	$ 47,316	$ 3,000	$ 20,400	$ 20,400	$ 111,540	$ 842,436
Operating costs	$ 20,400	$ 34,440	$ 49,015	$ 10,800	$ 3,000	$ 3,780	$ 9,600	$ 25,680	$ 25,680	$ 10,800	$ 193,195
Medicines and supplies	$1,770,961	$3,000,131	$1,013,586	$592,586	$1,190,691	$1,404,404	$757,996	$1,080,695	$1,217,519	$1,008,648	$13,037,216
Total cost	**$2,307,121**	**$4,027,331**	**$1,368,301**	**$827,246**	**$1,521,831**	**$1,784,144**	**$983,356**	**$1,406,195**	**$1,552,019**	**$1,422,408**	**$17,199,951**
Average cost per capita	*$ 88.74*	*$ 91.53*	*$ 73.64*	*$ 94.76*	*$ 86.71*	*$ 86.19*	*$ 78.36*	*$ 75.27*	*$ 77.02*	*$ 85.17*	*$ 84.46*
Average cost per service	*$ 11.03*	*$ 11.60*	*$ 11.65*	*$ 11.95*	*$ 11.01*	*$ 10.95*	*$ 11.92*	*$ 11.47*	*$ 11.74*	*$ 12.97*	*$ 11.53*
TECHNICAL STAFF											
Staff numbers	59	124	27	26	27	31	30	39	41	49	453
Staff per 1,000 population	2.3	2.8	1.5	3.0	1.5	1.5	2.4	2.1	2.0	2.9	2.2
Services per day per staff person	14	11	17	10	20	20	10	12	12	9	13

Provisional data – do not quote

Cost of 100% utilization by program (US$)

	CPHC Centre	PHC Centre 1	PHC Centre 2	PHC Unit 1	PHC Unit 2	PHC Unit 3	Mobile Clinic 1	Mobile Clinic 2	Mobile Clinic 3	Mobile Clinic 4	Total	%
100% Utilization												
Child Health	36,431	67,363	21,739	12,756	24,436	28,654	18,595	26,331	29,569	25,663	291,538	1.7%
Nutrition	8,621	15,558	5,980	3,246	5,822	6,746	9,978	10,003	10,557	6,139	82,650	0.5%
Reproductive Health	172,224	280,450	109,024	66,383	106,464	118,408	69,659	92,369	103,405	125,872	1,244,257	7.2%
Communicable Diseases	56,271	92,239	34,166	20,327	37,639	43,816	29,590	44,160	46,605	42,448	447,261	2.6%
Non-communicable Diseases	1,506,090	2,551,407	874,769	520,475	1,005,545	1,180,937	732,098	1,070,978	1,173,332	1,022,229	11,637,860	67.7%
Mental Health	232,858	502,440	144,041	91,869	151,856	178,239	123,256	162,178	188,383	199,835	1,974,956	11.5%
Immunization	29,522	49,166	20,245	10,116	19,880	23,411	0	0	0	0	152,340	0.9%
Health Education	180	186	161	350	155	146	181	176	168	222	1,925	0.0%
Dentistry	264,923	468,522	158,176	101,724	170,032	203,787	0	0	0	0	1,367,164	7.9%
Total	**2,307,121**	**4,027,331**	**1,368,301**	**827,246**	**1,521,831**	**1,784,144**	**983,356**	**1,406,195**	**1,552,019**	**1,422,408**	**17,199,951**	**100.0%**
Curative	2,104,553	3,712,124	1,238,412	750,180	1,394,957	1,641,703	912,273	1,309,062	1,443,725	1,295,628	15,802,617	91.9%
Preventive	192,260	315,206	129,890	77,066	126,874	142,441	71,083	97,133	108,294	126,780	1,387,026	8.1%
Deliveries	10,308	0	0	0	0	0	0	0	0	0	10,308	0.1%
Total	**2,307,121**	**4,027,331**	**1,368,301**	**827,246**	**1,521,831**	**1,784,144**	**983,356**	**1,406,195**	**1,552,019**	**1,422,408**	**17,199,951**	**100.0%**

Provisional data – do not quote

CPHC Centre – top 10 services by volume (actual and 100% utilization)

ACTUAL 2017					100% UTILIZATION				
SERVICE TYPE	# SERVICES	%	SERVICES PER CASE	# CASES	SERVICE TYPE	# SERVICES	%	SERVICES PER CASE	# CASES
Gynecological counseling	13,152	6.3%	1	13,152	Depression	46,800	22.4%	3	15,600
Family planning - counseling	4,560	2.2%	1	4,560	Dental Services	26,000	12.4%	2	13,000
Routine post-natal visit	4,080	2.0%	1	4,080	Family planning - male condoms	21,840	10.4%	1	21,840
Upper respiratory infections <5	4,032	1.9%	1	4,032	Cardio Vascular Diseases	12,480	6.0%	3	4,160
Antenatal care - follow-up visits	3,936	1.9%	1	3,936	Family planning - oral contraceptives	12,480	6.0%	3	4,160
Gastrointestinal illnesses	2,844	1.4%	1	2,844	Family planning - counseling	7,800	3.7%	1	7,800
Upper respiratory infections - 5+	2,844	1.4%	1	2,844	Diabetes	7,280	3.5%	1	7,280
Skin diseases	2,616	1.3%	1	2,616	Asthma and COPD	7,280	3.5%	1	7,280
Diabetes	2,592	1.2%	1	2,592	Hypertension	5,200	2.5%	1	5,200
Antenatal care - first visits	2,592	1.2%	1	2,592	Psychoses management	4,680	2.2%	4	1,170

Provisional data – do not quote

CPHC Centre – top ten services by total cost (US$)

Service type	Number of services	Services per capita	Services %	Total Cost	Cost %	Average Cost per Service	Average Cost per Capita	Number of services per case	Average Cost per Case
Cardio Vascular Diseases	12,480	0.48	6.0%	617,337	26.8%	49.47	23.74	3	148.40
Diabetes diagnosis and treatment	7,280	0.28	3.5%	614,411	26.6%	84.40	23.63	1	84.40
Basic Dental Services	26,000	1.00	12.4%	264,923	11.5%	10.19	10.19	2	20.38
Depression management	46,800	1.80	22.4%	166,758	7.2%	3.56	6.41	3	10.69
Asthma and COPD	7,280	0.28	3.5%	76,447	3.3%	10.50	2.94	3	31.50
Hypertension	5,200	0.20	2.5%	55,030	2.4%	10.58	2.12	1	10.58
Poisoning and Drug Overdose (acid , alkali, amphetamine, (	1,820	0.07	0.9%	47,383	2.1%	26.03	1.82	1	26.03
Family planning - oral contraceptives	12,480	0.48	6.0%	45,298	2.0%	3.63	1.74	1	3.63
Psychoses management	4,680	0.18	2.2%	40,947	1.8%	8.75	1.57	4	35.00
Upper respiratory infections - 5 and over	1,638	0.06	0.8%	32,987	1.4%	20.14	1.27	1	20.14

Provisional data – do not quote

Syria key results

- On average only 50% to 60% of the types of service in the package were provided in 2017;
- Nutrition services were only provided by 3 facilities and significant mental health services in 2 facilities;
- Distribution of services uneven – 1 CHC and 1 HU provided many more RH services than others;
- They only had 70% of the technical staff needed in 2017;
- Average utilization was 2.08 per capita (total population) but would be 7.32 if everybody who needs services uses them
- Total actual network cost $4.1 million but would be $17.1 million if everybody uses the services;
- Average cost per capita was $20.18 but would be $84.46;
- Top ten services would be 85% of cost and seven of them would be NCDs .

Syria challenges

- NGOs are struggling to meet the current demands for services – staffing and funding issues – quality and utilization not optimal;
- The gap between actual and needed utilization is large – especially for some services
- Package is comprehensive but is it feasible – qualified staff and enough funding?
- If funding is short – which services to prioritize and what to do with patients who have low priority illnesses or needs?
- One year planning cycles are too short (eg need to pool medicine procurement to get better prices but donors reluctant to pay)
- Catchment populations and needs are constantly changing
- The traditional Syrian health system was/is doctor/clinic oriented and resistance to task shifting and use of CHWs.

South Sudan

South Sudan
Community Health Services Integration

- Government established Boma Health Initiative (BHI) in 2017 – standard, integrated package of community health services for 12.3 million people;
- UNICEF provided support with funding from Global Affairs Canada
- UNICEF engaged MSH to analyze the package costs and develop an investment case for the GOSS and donors;
- UNICEF/MSH's Community Health Planning and Costing tool was used.
- Targets are normative based on estimated incidence rates, costs are based on standard treatment protocols and GOSS and UNICEF resource prices

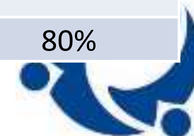
South Sudan Model

- 10 year projections
- Population growth 2.9%
- Service numbers based on population and incidence rates or expected utilization rates
- Figures based on standard treatment protocols and prices from UNICEF et al in US$ - inflation not included
- Medium scenario target growth 4% of total need per year
- Bottlenecks assumed to limit growth –cost of resolving not included in model costs

South Sudan – illustrative BHI service package and targets

Service	Baseline coverage	Low coverage target	Medium coverage target	High coverage target
	2018	**2028**	**2028**	**2028**
Malaria diagnosis (RDT)	10%	30%	50%	80%
Malaria treatment	10%	30%	50%	80%
Pneumonia diagnosis and treatment	10%	30%	50%	80%
Diarrhea treatment	10%	30%	50%	80%
Assess children for nutritional status	10%	30%	50%	80%
Referrals of children with complicated malaria, pneumonia or diarrhea	10%	30%	50%	80%
Immunization (day 1) - monthly mobilization of mothers and caregivers	100%	100%	100%	100%
Immunization (day 2) - monthly immunization at post (CHWs update family health register)	100%	100%	100%	100%
Communicable disease control - outreach visit (malaria, HIV, TB, NTDs)	100%	100%	100%	100%
Antenatal care promotional visit	10%	30%	50%	80%
Childbirth promotional visit (for birth planning)	10%	30%	50%	80%
Postnatal care + maternal and child health nutrition promotional visit	10%	30%	50%	80%
BCC - child spacing, adolescent health, gender based violence	100%	100%	100%	100%
Referral of pregnant women for danger signs	10%	30%	50%	80%
Maintaining Family Health Information Register (1x annually)	100%	100%	100%	100%
Maintaining Health Services Register (weekly)	10%	30%	50%	80%

Provisional data – do not quote



South Sudan
Medium coverage costs by resource type (US$)

Millions

$25
$20
$15
$10
$5
$0

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

- CHW Salaries and equipment
- Medicines and supplies
- Supervision salaries, equipment and meetings
- Recurrent Training
- Management salaries, equipment and meetings
- Other Recurrent Costs
- Start-up Training
- Capital Costs

Provisional data – do not quote

South Sudan
Medium coverage costs by program

Millions

$25
$20
$15
$10
$5
$0

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

Child health | Safe motherhood | Communicable Diseases | HMIS and surveillance

Provisional data – do not quote

South Sudan
Medium coverage illustrative financing

Millions

$25
$20
$15
$10
$5
$0

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

Funding gap
GOSS

Provisional data – do not quote

Illustrative reduction in <5 mortality (not yet completed for South Sudan)

Under-five mortality rate (per 1,000 live births)

95
90
85
80
75
70
65
60
55
50
45

90.7
89.5
89.5
75.3
65.3
64.2
50.0

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

Scenario 2 - expanded package of services
Scenario 1 - initial package of services
Baseline coverage

South Sudan
Bottlenecks to the BHI (solutions not costed)

- Stock-outs
- Availability of suitable villagers to be CHWs and gender barriers;
- Poor linkages between CHWs and health facilities;
- Capacity of MOH to supervise and manage;
- Community members lack of knowledge, awareness and trust
- Community leaders lack of ownership;
- Poor health information system.

If not resolved how much should the targets be reduced?
How much will it cost to resolve them?

South Sudan Reflections

- Total cost 2018 including start up around U$$ 19.5 million. 2019 recurrent cost US$ 12.5 (around US$ 1 per capita).
- Challenges in developing the investment case:
  - No baseline service or cost data – no comprehensive data nationally and no time to collect
  - Difficult to find incidence and prevalence rates
  - Hard to quantify bottlenecks and find and cost solutions
  - Difficult to estimate the health impact – need baseline, matching with tools (eg LiST).
  - Not possible to show funding commitments – can be incorporated in model as discussions evolve.
  - Have not taken into account any issues of capacity of the MOH to run the program and the roles and costs of the NGOs during and after transition.

GENERAL REFLECTIONS

Project planning

- Treat each project as if it is operations research so you can show if it is/was a good investment:
  - Baseline data (3 years if possible)
  - Measure inputs, processes, outputs, outcomes
  - Track costs by intervention as much as possible
  - Value goods and services in kind
  - Patient and household surveys
  - Control groups?

Investment cases

- Quantify total and additional services
- Project total and additional costs
- Include the cost of in-kind goods and services
- Identify funding sources and gaps
- Estimate health impact (morbidity/mortality)
- Estimate economic impact
- **Estimate cost savings to health system, families and society**
- Identify bottlenecks and cost and plan solutions.
- Shape results for different audiences (health/finance)

Humanitarian aid to health system development

1. **P**ool resources
2. **P**rioritize services
3. **P**atient pathways **-** provider networks
4. **P**romote efficiency – eg task shifting
5. **P**erformance-based contracts
6. **P**lanning – joint and medium term
7. **P**roof – measure results

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- **WHO/Gaziantep**
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