JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

Association between Workforce Capacity and Pediatric Ambulatory Care in Afghanistan

Anbrasi Edward, PhD, MPH, MBA, Binay Kumar MBA, MPH, Haseeb Niayash MD, MPH, David H Peters, MD, PhD, Gilbert Burnham, MD, PhD

Johns Hopkins University, Ministry of Public Health Afghanistan

ISQuA 2011

Objectives

- Illustrate the trends in healthcare quality for under five children in outpatient clinics in Afghanistan between 2005 and 2008
- Determine factors, including workforce capacity associated with quality of IMCI care applying bivariate and multivariate statistical measures
- Discuss study limitations and implications for improving care quality for children in post conflict environments

Global deficits in health workforce

- Estimated at 100M (Chen et al,2004)
- Doctors, nurses & midwives; 24M
  - Ave world density: 1.6 doctors, 2.5 nurses/1000
  - Ratio of nurses to doctors: 1.6 to 1.0
- Imbalance in skill mix (specialists vs primary care)
- Maldistribution, migration (internal: rural to urban, public to private, external: brain drain)
- Association with health service coverage and outcomes

Chen, L., T. Evans, et al. (2004). "Human resources for health: overcoming the crisis." Lancet 364(9449): 1984-1990.

Provider Density and Health Outcomes

- Higher worker density associated with improved health coverage and outcomes (Chen et al)
- >2.5 HW/1000 enhances measles coverage and SBA
- Critical for achieving MDGs

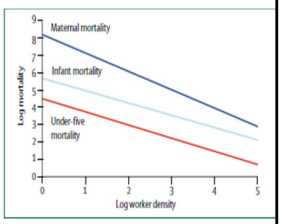
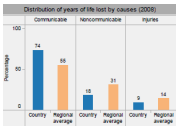


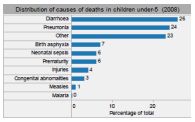
Figure 1: Association between worker density and mortality rates

Workforce deficits further exacerbated in fragile health systems - Afghanistan

- Weak health systems capacity, reliant on donor financing
- Human resource crisis is characterized by poor working conditions; minimal financial compensation, inadequate staffing (estimated at 39%), lack of career development opportunities or other incentives and worsening security
- Growing demand for female providers who currently constitute only 24% of the workforce
- Internal migration from public to private sector (international organizations and local NGO's)
- Worker retention, a challenge as opportunities arise for specialized education in high income economies

Afghanistan's Overwhelming Disease Burden





- Ranks 4th in child mortality
  - IMR 165 (129 in 2006,AHS)
  - U5MR 257 (191 in 2006,AHS)
- Ranks 2nd maternal mortality
  - MMR 1600 (Ramos 2002)
- Life Expectancy 44y

Formidable Healthcare environment…

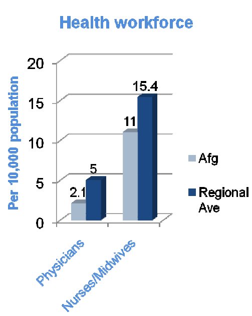
- Limited access to health services
- Total OOP: 75% of THE
- 10.5M (42%) live below poverty (<$1/day)
- Inadequate access to safe water 40.3%
- Deliveries by SBA -24%

Ministry and Donor Health Expenditure NHA 2009

Component	Amount (US$)	Percentage
Curative care services	115,258,776	44.9
Ancillary services	435,450	0.2
Medical goods dispensed	17,760	<0.1
Prevention and PH services	56,636,570	22.1
Health administration	52,249,140	20.4
Capital formation of healthcare provider org	18,866,332	7.3
Education and training of Health personnel	7,363,603	2.9
Research and development in health	1,623,641	0.6
Not classified	4,293,578	1.7
Total	256,744,552	100

© 2003, Johns Hopkins University. All rights reserved.

Health Reconstruction Efforts



- Critical shortage of health personnel
- >70% of health providers in Kabul city

© 2003, Johns Hopkins University. All rights reserved.

Promising trends in health service delivery

- MOPH designed a Basic Package of Health Services (BPHS) to address the major disease burden
  - Service delivery through contracting mechanisms
- Balanced Score Card - a comprehensive performance system to measure multiple domains of the health sector ; patients and community, staff, capacity for service provision, quality of service provision, financial Systems, overall Vision
  - *Annual independent assessments conducted nationally since 2004 to measure performance of BPHS services*
  - *Enhanced capacity and quality of service delivery as evidenced by the BSC trends*

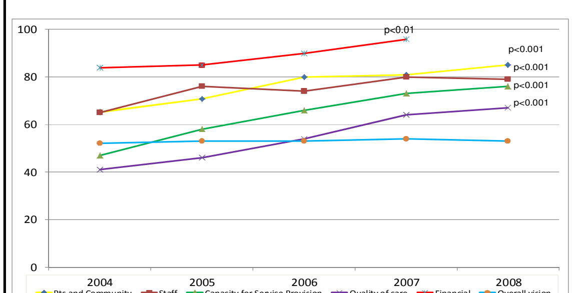
© 2003, Johns Hopkins University. All rights reserved.

Afghanistan Balanced Scorecard

		Measure	National Median	Lower Benchmark	Upper Benchmark	Badakhshan	Badghis	Baghlan	Balkh	Bamyan	Farah
	A. Patients & Community										
1	Overall Patient Satisfaction	%	83.1	66.4	90.9	86.4	76.9	90.9	84.7	97.9	82.8
2	Patient Perception of Quality Index	%	76.0	66.2	83.9	77.6	66.2	82.2	80.0	84.4	69.4
3	Written Shura-e-sehie activities in community	%	34.2	18.1	66.5	35.6	0.0	34.2	17.7	34.5	73.2
	B. Staff										
4	Health Worker Satisfaction Index	%	63.5	56.1	67.9	63.5	57.6	67.9	68.3	61.4	54.4
5	Salary payments current	%	76.7	52.4	92.0	54.9	91.8	45.8	53.3	91.4	97.7
	C. Capacity for Service Provision										
6	Equipment Functionality Index*	%	65.7	61.3	90.0	69.6	62.2	57.5	67.3	75.8	66.3
7	Drug Availability Index	%	71.1	53.3	81.8	52.9	50.1	72.8	56.1	85.6	9.8
8	Family Planning Availability Index	%	61.4	43.4	80.3	54.2	57.9	70.4	64.9	82.7	0.0
9	Laboratory Functionality Index (Hospitals & CHCs)	%	18.3	5.6	31.7	31.7	3.8	15.2	0.0	37.0	0.0
10	Staffing Index -- Meeting minimum staff guidelines	%	39.3	10.1	54.0	38.0	22.4	42.7	45.8	53.0	57.1
11	Provider Knowledge Score	%	53.5	44.8	62.3	48.6	41.6	49.3	54.0	69.0	45.5
12	Staff received training in last year	%	39.0	30.1	56.3	68.9	50.9	39.0	52.4	35.5	37.2
13	HMIS Use Index	%	67.7	49.6	80.7	60.9	62.7	40.0	72.9	67.7	72.4
14	Clinical Guidelines Index	%	34.8	22.5	51.0	18.3	25.5	29.9	16.4	41.9	59.5
15	Infrastructure Index	%	55.0	49.3	63.2	63.2	49.7	50.0	58.3	57.9	76.7
16	Patient Record Index	%	65.6	56.1	92.5	51.5	98.5	80.7	97.3	64.5	97.1
17	Facilities having TB register	%	15.8	8.3	26.6	32.5	27.0	16.1	16.4	0.0	4.3
	D. Service Provision										
18	Patient History and Physical Exam Index	%	70.6	55.1	83.5	54.2	71.7	55.1	85.4	83.6	52.0
19	Patient Counseling Index	%	29.6	23.3	48.9	23.3	40.4	29.3	55.3	33.2	16.0
20	Proper sharps disposal	%	62.2	34.1	85.0	64.4	34.1	76.9	75.1	85.0	67.8
21	Average new outpatient visits per month (BHC>750 visits)	%	22.2	6.7	57.1	27.3	10.0	27.3	71.4	22.2	0.0
22	Time spent with patient (> 9 minutes)	%	18.0	3.5	31.2	21.0	30.7	1.2	27.3	12.8	18.0
23	BPHS facilities providing antenatal care	%	62.0	28.9	82.8	28.9	49.4	49.7	67.2	88.1	82.8
24	Delivery care according to BPHS	%	25.4	10.5	39.3	38.0	36.2	10.5	39.3	38.0	57.1
	E. Financial Systems										
25	Facilities with user fee guidelines	%	90.6	80.3	100.0	94.8	95.6	95.9	28.9	86.1	100.0
26	Facilities with exemptions for poor patients	%	84.7	64.4	100.0	68.5	54.6	69.3	84.3	95.6	93.9
	F. Overall Vision										
27	Females as % of new outpatients	%	55.2	46.5	59.7	46.9	45.9	56.0	55.1	55.2	59.0
28	Outpatient visit concentration index	CI (-1 to 1)	-0.010	0.041	-0.055	0.021	0.024	-0.038	0.025	-0.076	-0.036
29	Patient satisfaction concentration index	CI (-1 to 1)	0.002	0.020	-0.018	-0.019	0.000	0.003	-0.007	-0.005	0.020
	Composite Scores										
30	**Upper Benchmarks Achieved**	%	17.2	10.3	30.8	17.2	6.9	6.9	20.7	34.5	31.0
31	**Lower Benchmarks Achieved**	%	82.8	75.9	89.7	86.2	79.3	86.2	86.2	96.6	72.4

© 2003, Johns Hopkins University. All rights reserved.

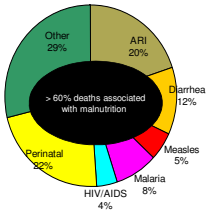
BSC Performance Trends: 2004 to 2008



Edward A, Kumar B, Kakar F, Salehi AS, Burnham G, Peters DH. Configuring Balanced Scorecards for Measuring Health System Performance: Evidence from 5 Years' Evaluation in Afghanistan. PLoS Med.8(7):e1001066.

© 2003, Johns Hopkins University. All rights reserved.

Quality of Care for Children U5: WHO's IMCI



- Integration of the Integrated Management of Childhood Illness (IMCI) clinical guidelines in BPHS
- >2100 providers trained
- *significant improvements in quality of care for children U5 in primary health facilities between 2004 and 2006*
- *Limitation of previous studies*
  - *GM not included in IMCI index*
  - *>60% of under five deaths worldwide are attributed to under nutrition*
  - *Malnutrition is a growing concern*
  - *1/3rd of child deaths are due to under-nutrition*

Edward A, Dwivedi V, Mustafa L, Hansen PM, Peters DH, Burnham G. Trends in the quality of health care for children aged less than 5 years in Afghanistan, 2004-2006. *Bull World Health Organ* 2009;**87**(12):940-9.

Rationale

- Study trends in IMCI quality of care between 2005 and 2008
- Examine workforce capacity and competency across facilities; staffing adequacy, gender mix, training, knowledge and job satisfaction
- Explore associations between workforce capacity and care quality

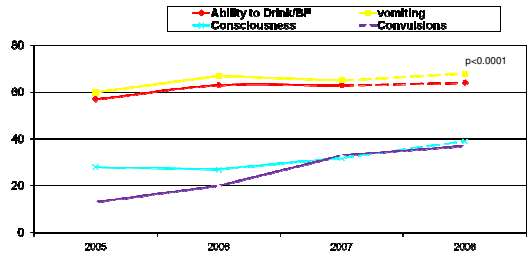
Study Design and Sample

- All accessible provinces (upto 25 functional facilities)
- Stratified random sampling of all BPHS health facilities
  - 3 District Hospitals (DH)
  - 7 Comprehensive Health Centers (CHC)
  - 15 Basic Health Centers (BHC)
- Case management observations of 5 new outpatients U5 years selected by systematic sampling followed by caretaker interviews
- Interviews on 4 randomly selected health providers per hospital
- Facility assessment of capacity and clinical capabilities including staffing, availability of essential equipment, drugs, laboratory etc

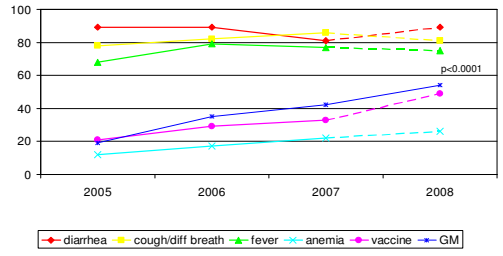
Patient Profile

Characteristics	2005 (n=2485)	2006 (n=2690)	2007 (n=2834)	2008 (n=2780)
Child age <24m (%)	58	57	58	56
Child sex: Male (%)	54	52	53	52
Caretaker: Female (%)	71	73	73	76
Presenting Symptoms (%)				
Diarrhea	49	45	44	43
Cough/difficulty in breathing	15	17	19	20
Fever	18	20	20	16
Other (skin infection, injury etc)	18	18	17	21
Type of health facility	n=589	n=605	n=622	n=612
BHC	344	373	373	379
CHC	204	191	203	190
DH	41	41	46	43

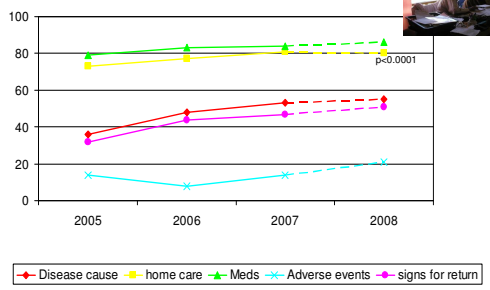
Screening for Danger Signs



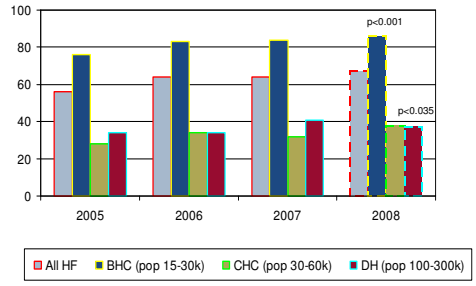
Assessment of IMCI Conditions



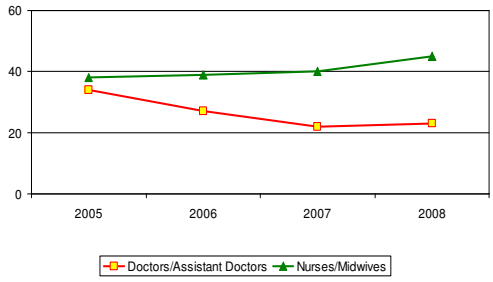
Patient Caretaker Counseling



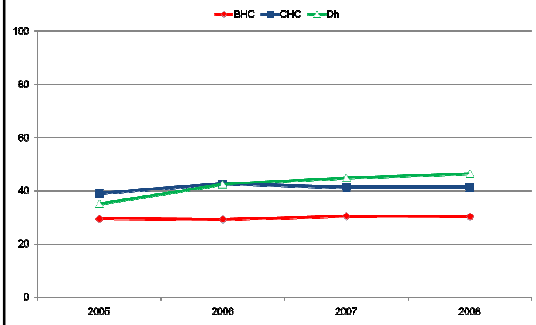
Health workforce capacity: by facility type



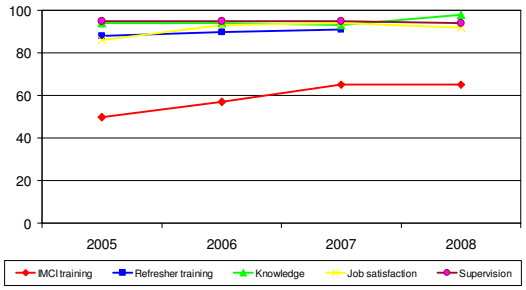
Health workforce capacity: by cadre



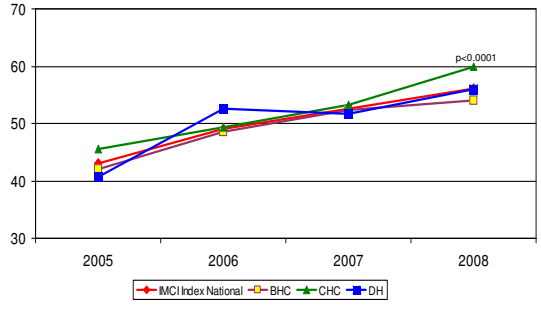
Proportion of Female Providers



Provider Competency, Job Satisfaction and Supervision



Evidence of IMCI quality



Determinants of Quality IMCI Index

Predictor Variable	Bivariate	Multivariate	
	p value	coeff	p value
Year of assessment (2008)	-	7,4	0.000
Child Age (<24m)	0.000	4.25	0.000
Caretaker Sex (Female)	0.000	4.57	0.000
Provider Cadre (Doctor and assistant doctors)	0.000	7.58	0.000
Provider Sex (Male)	0.000 (2006)		
Provider knowledge (adequate)	0.000		
Provider satisfaction (high)	0.000	11.24	0.000
Adequacy of doctors/assistant doctors	0.000	2,31	0.005
IMCI training (all or some providers)	0.000	5.75	0.000
Refresher training (all or some providers)	0.000		
6 Supervision visits in 6m (all or some providers)	0.000 (2007,2008)	3.14	0.05
IMCI guidelines (present)	0.000	5.21	0.000
Consultation time (≥10min)	0.000	16.19	0.000
Facility type (CHC)	0.000 (2005,2008)	1,63	0.000
Management Agency (contracting in vs out and other)	0.000	3.93/5.86	0.000
Patient load (high)	0.000 (2008)		
Community council (active)	0.000	3.09	0.001

Key Findings on Quality Determinants

- Some evidence of investments illustrated by improved quality of care (though still suboptimal) , IMCI training and health workforce
- Declining trends of adequacy of physicians/assistant doctors
- Determinants of Quality
  - Patient characteristics: age <24m, female caretaker, consultation time
  - Provider characteristics: physician, knowledge, IMCI training, refresher training, supervision, job satisfaction
  - Facility: Adequacy of clinical staff, contracting-in management, community council
- Study Limitations
  - Bias (observer, courtesy, not risk adjusted)
  - Comorbidities and non-IMCI conditions not examined

Conclusions and Future Considerations

- Regulatory mechanisms and comprehensive measurement frameworks support governance and priority setting
- Lack of mechanisms to foster a culture of behavior change for quality improvement amongst healthcare providers
- Environmental pressures including worsening security, internal and external migration of clinicians pose a major threat to sustaining the gains in healthcare quality
- Efforts to strengthen workforce and retention, availability of trained female providers; performance based incentives
- Innovations for e-learning and establishment for additional schools of medicine and nursing to complement the recent investments in midwifery training
- Inequity of access to the bottom population quintile necessitates alternate measures for community based health providers

Accelerating efforts toward optimal quality