

Iron Folic Acid (IFA) Bottleneck Analysis Report Pakistan



Iron Folic Acid (IFA) Bottleneck Analysis Report Pakistan



© UNICEF Pakistan

© Nutrition Wing of MoNHSR&C

Designed By Human Design Studios

**IRON
FOLIC ACID**

60 TABLETS



TABLE OF CONTENTS

Preface	9
Executive summary	10
Chapter 1. Introduction	16
1.1. Situation analysis	17
1.2. Literature review	22
1.3. Rationale for this bottleneck analysis	25
1.4. Aims of this bottleneck analysis	26
Chapter 2. Methodology	27
2.1. Qualitative approach	28
2.2. Quantitative approach	29
2.3. Analytical framework of this bottleneck analysis	29
2.4. Sampling strategy	31
2.5. Activities	32
2.6. Analysis	37
Chapter 3. Results: Common bottlenecks across provinces and regions	39
3.1. Supply	40
3.2. Demand	43
3.3. Quality coverage	44
3.4. Enabling environment	45
Chapter 4. Provincial bottlenecks and recommendations	49
4.1. Punjab: Bottlenecks	50
4.2. Punjab: Recommendations	54
4.3. Sindh: Bottlenecks	57
4.4. Sindh: Recommendations	61
4.5. Khyber Pakhtunkhwa: Bottlenecks	62
4.6. Khyber Pakhtunkhwa: Recommendations	64
4.7. Balochistan: Bottlenecks	66

4.8. Balochistan: Recommendations	71
4.9. Azad Jammu and Kashmir and Gilgit-Baltistan: Bottlenecks	73
4.10. Azad Jammu and Kashmir and Gilgit-Baltistan: Recommendations	76
Chapter 5. Iron and folic acid validation workshop	79
References	92
Annexes	96
Annex A. Guide for in-depth interviews/key informant interviews with District Programme Managers (Nutrition)	96
Annex B. Guide for in-depth interviews/key informant interviews with Provincial Programme Managers (Nutrition)	98
Annex C. Guide for in-depth interviews/key informant interviews with Health Facility Medical Officers	100
Annex D. Guide for focus group discussions with women of reproductive age (pregnant and lactating women, and adolescent girls)	103
Annex E. Guide for focus group discussions with Lady Health Workers/Community Midwives	105
Annex F. Guide for focus group discussions with community members	107
Annex G. Consent form for key informant interviews	109
Annex H. National iron and folic acid bottleneck analysis service delivery checklist	111

LIST OF FIGURES

Figure 1.	Top reasons for sub-optimal iron and folic acid supplementation	22
Figure 2.	Supply and demand framework	30
Figure 3.	Modified Tanahashi framework	30
Figure 4.	Districts selected by province and region	32

LIST OF TABLES

Table 1.	Prevalence of iron deficiency anaemia in Pakistan	18
Table 2.	Compliance with iron and folic acid intake in Pakistan	19
Table 3.	Districts selected by province and region	31
Table 4.	Provincial respondents for the iron and folic acid bottleneck analysis	33
Table 5.	Participants in the iron and folic acid validation workshop	80
Table 6.	Key bottlenecks and recommendations prioritized for Punjab	81
Table 7.	Key bottlenecks and recommendations prioritized for Sindh	83
Table 8.	Key bottlenecks and recommendations prioritized for Khyber Pakhtunkhwa	85
Table 9.	Key bottlenecks and recommendations prioritized for Balochistan	87
Table 10.	Key bottlenecks and recommendations prioritized for Gilgit-Baltistan	88
Table 11.	Key bottlenecks and recommendations prioritized for Azad Jammu and Kashmir	89

ACRONYMS AND ABBREVIATIONS

AJK	Azad Jammu and Kashmir
ANC	Antenatal care
BHU	Basic health unit
BNPMC	Balochistan Nutrition Programme for Mothers and Children
CBO	Community-based organization
CHW	Community health workers
CMW	Community Midwives
DC	District Coordinator
DHO	District Health Officer
DHQ	District headquarter hospital
DMAC	District Malnutrition Addressing Committee
FGD	Focus group discussion
FMO	Female Medical Officer
GB	Gilgit-Baltistan
HCWs	Health care worker
IDA	Iron deficiency anaemia
IDI	In-depth interview
IFA	Iron and folic acid
KII	Key informant interview
KP	Khyber Pakhtunkhwa
LHS	Lady Health Supervisor
LHV	Lady Health Visitor
LHW	Lady Healthcare Worker
LHWP	Lady Health Worker Programme
LMIC	Lower middle-income country

MAM	Moderate acute malnutrition
MMR	Maternal mortality rate
MNCH	Maternal, newborn and child health
MoNHRSC	Ministry of National Health Services, Regulations and Coordination
MoRES	Monitoring of Results for Equity Systems
MSNS	Multi-sectoral Nutrition Strategy
NGO	Non-governmental organization
NNS	National Nutrition Survey
PLW	Pregnant and lactating women
PMAC	Provincial Malnutrition Addressing Committee
SAM	Severe acute malnutrition
THO	Tehsil Health Officer
THQ	Tehsil headquarter hospital
UMAC	Union Council Malnutrition Addressing Committees
WRA	Women of reproductive age

PREFACE

Pregnancy and early childhood, the foundation of proper growth and well-being of a child, are dependent upon the good maternal care and nutrition. Children of malnourished women are more likely to face cognitive impairments, short stature, lower resistance to infections, and a higher risk of disease, death throughout their lives as well physical disabilities leading towards economical dire consequence. Well-nourished women have safer pregnancies and deliver healthier babies.

Maternal anemia during pregnancy is a risk factor for maternal deaths, another major indicator on which Pakistan's progress has been slow. Anemia during pregnancy not only determines pregnancy outcomes, it could also augment/aggravate other risk factor of maternal deaths such hemorrhage, septicemia, and eclampsia. The NNS 2018, confirms that the macro and micronutrient deficiencies are alarming in the Women of Reproductive Age (WRA); 14.4% were underweight, 24% were overweight and 13.8% were obese. There was a very high prevalence (41.7%) of Anemia (Hb levels <11.99gm/dl) in this age group. Vitamin A deficiency (< 0.70 µmol/l) was estimated at 22.4%. These high rates of undernutrition and micronutrient deficiencies among WRA indicate a vicious cycle of malnutrition in the country.

Supplementation of Iron Folic Acid (IFA) during pregnancy and lactation has been implemented since decades but it has not been able to cause a dent on this indicator and produce the desired result. Keeping in mind these statistics and the importance of nutritional status and well-being of the women of reproductive age in the outcome of future generations, Nutrition Wing of Ministry of National Health Services, Regulations and Coordination with the support of UNICEF and Nutrition International has conducted an IFA Bottleneck Analysis in Pakistan to find out issues, challenges and bottlenecks for IFA supplementations and find out solutions to guide policy and planning for revising and improving strategies.

The process involved, IDIs with major stakeholders at National, Provincial and Regional Level. One to two district from each province and region were selected for the analysis process. IDIs were conducted in these districts along with FGDs with LHWs/ LHV, WRAs and Fathers. After the completion of the field work, the preliminary analysis has been carried out for all the components of the Bottleneck Analysis. Based upon the initial analysis, a draft report was prepared. A country wide series of consultations were held and this report was refined and then finalized after a large national consultation.

The support of UN and development partners, provincial governments, academia and other stakeholders in development of this document is highly appreciated. Special thanks to colleagues in the Ministry of NHR&C and UNICEF especially Dr. Khawaja Masuood Ahmed and Dr. Saba Shuja, for their support and cooperation in finalization and endorsement of the report. Thanks to PHC Global for conducting this analysis under the lead of Dr. Ali Turab. It is hoped that with the active leadership of the provinces in the implementation of different maternal supplementation programs, the findings of this Bottleneck Analysis will help a lot in improvement of the interventions this leading to prevention of malnutrition and enhancing health and nutrition status of the women of Pakistan.

Dr. Abdul Baseer Khan Achakzai

Director Nutrition,
Ministry of National Health Services, Regulations & Coordination, Islamabad

EXECUTIVE SUMMARY

Iron deficiency anaemia (IDA) is a major public health concern for women of reproductive age. It contributes to high maternal mortality rates, especially in low-income and middle-income countries. Pakistan's most recent National Nutrition Survey (NNS) 2018 reveals a high prevalence of iron deficiency anaemia (18.2 per cent) among women of reproductive age, with little variation between urban (17.4 per cent) and rural (18.7 per cent) areas. The province of Sindh has the highest prevalence of iron deficiency anaemia among women of reproductive age in Pakistan (23.8 per cent), while the province of Khyber Pakhtunkhwa has the lowest prevalence rate (15 per cent).

Iron and folic acid (IFA) supplementation has played a key role in reducing the burden of iron deficiency anaemia in Pakistan. However, low uptake and non-compliance with iron and folic acid supplements pose challenges to further reducing the prevalence of iron deficiency anaemia, particularly in areas where diets are not rich in iron. Despite an increase in the daily intake of iron and folic acid to 65 per cent – up from 45 per cent in 2013, as recorded by the Demographic and Health Survey (DHS) 2013 – the compliance rate remains low, at just 22 per cent among women who initiated iron and folic acid supplementation during their last pregnancy.

This iron and folic acid bottleneck analysis was commissioned by the United Nations Children's Fund (UNICEF), in collaboration with Pakistan's Ministry of National Health Services, Regulations and Coordination, to explore why the Iron and Folic Acid Supplementation Programme has not yet achieved its desired results. It identifies the challenges and bottlenecks that affect service delivery and community level demand, and maps out potential solutions and opportunities to inform policy and strategic planning. As the challenges facing iron and folic acid supplementation are broad, multi-faceted and deep-rooted, the research employed both qualitative and quantitative approaches. The analysis used a Monitoring Results for Equity Systems (MoRES) framework and the modified Tanahashi model as the analytical approach for synthesizing results. Following a desk review and initial analysis of the results of the National Nutrition Survey 2018, districts were selected for analysis across Pakistan's provinces and federally administered regions. These districts are characterized by medium coverage in terms of iron and folic acid supplementation, medium population density, a balanced mix of urban and rural populations, and representation in terms of south-north/diverse ethnic groups. The selection helped to identify potential barriers to iron and folic acid service delivery and utilization in areas where coverage ranges between moderate and high, and where service delivery is functional. Based on these criteria, two districts each in Punjab (Multan and Chiniot) and Khyber Pakhtunkhwa (Mardan and Swat) were selected, as were one district each in Sindh (Sanghar), Balochistan (Ziarat), Azad Jammu and Kashmir (Muzaffarabad) and Gilgit-Baltistan (Gilgit).

Qualitative approaches used for data collection included in-depth interviews/key informant interviews and focus group discussions. Respondents included service delivery stakeholders, as well as beneficiaries and influencers. At the provincial level, key informant interviews were conducted with the Director General (DG) Health, the Director Nutrition, and the Provincial Coordinator of the Lady Health Worker Programme. At the district level, key informant interviews were conducted with the designated District Health Officer (DHO), the District Coordinator (DC) of the Lady Health Worker Programme, and a Female Medical Officer (FMO) at a health care facility. Focus

group discussions were conducted with pregnant and lactating women (PLW), Lady Health Workers (LHWs), Lady Health Visitors (LHVs), and fathers.

Quantitative assessment involved administering a service delivery checklist to a health care facility, such as a basic health unit (BHU) or rural health centre (RHC). This checklist includes indicators related to service availability, service readiness, supervision, diagnostics, the availability of medicines and the supply chain. The research team also conducted an observation exercise to assess health care providers' counselling skills. The data collected was transcribed, coded and categorized into four key domains: supply, demand, quality coverage and an enabling environment. Further themes and sub-themes were developed and grouped into these categories. Based on the emerging themes under the four domains, the team developed a fishbone matrix using the modified Tanahashi model to determine cause and effect in order to identify bottlenecks to iron and folic acid supplementation. The rigorous and iterative process of data analysis and categorization within these four domains enabled the identification of bottlenecks at all levels – from the government level to the level of health care providers, and the community level. Identified bottlenecks either exist across all provinces and regions, or they are unique to a specific province or region.

Bottlenecks to iron and folic acid supplementation

Supply

Availability of iron and folic acid

- The availability of iron and folic acid supplements is patchy across Pakistan. Frequent, lengthy stock outs occur either at primary health care facilities or among Lady Health Workers.
- The lack of an iron and folic acid-specific budget limits the procurement of supplements, as does the absence of budgetary provisions for backup stocks of iron and folic acid.
- Health care facilities lack sufficient supplies and/or equipment to conduct iron deficiency anaemia screening.
- The lack of a formula or strategy to accurately calculate demand hinders the equitable, adequate and timely distribution of iron and folic acid supplements to the district level. Evaluations are not conducted to determine changes in demand and, in turn, inform supply/procurement for the districts.



Availability of human resources

- The lack of Female Medical Officers at health care facilities hampers antenatal care service delivery. This is problematic for iron and folic acid supplementation, as antenatal care visits offer an opportunity to screen women for iron deficiency anaemia, and to deliver counselling for patients on the uptake of and compliance with iron and folic acid supplementation.
- Vast areas in Pakistan are not covered by Lady Health Workers. As a result, great swathes of the population are not covered by the Iron and Folic Acid Supplementation Programme, nor are they diagnosed or counselled about iron deficiency anaemia and its consequences.

- Inefficient recruitment contributes to a shortage of essential health workers, particularly due to retirement or frequent transfers among essential cadres.
- Facility-based health care workers have sub-optimal knowledge of iron and folic acid supplementation and lack related counselling skills. This leads to confusion among users regarding the required dosage of iron and folic acid supplements, side effects and strategies to mitigate these side effects.
- Frequent training on nutrition, patient counselling and interpersonal communication are not provided for health care providers at facilities or in the field. This makes it difficult for them to effectively communicate the importance of iron and folic acid supplementation to beneficiaries, and to convince beneficiaries to take supplements.
- A lack of qualified trainers and sub-optimal supportive supervision for health care providers limits their capacity to promote iron and folic acid supplementation.

Geographical accessibility

- There is a lack of strategic planning to ensure the provision of health services, including iron and folic acid supplementation, to communities living in hard-to-reach or remote areas.

Financial accessibility

- High levels of poverty are among the most challenging barriers to iron and folic acid supplementation. The absence of adequate supplies of iron and folic acid at health care facilities, or among Lady Health Workers, means that beneficiaries must often purchase supplements themselves. The fact that many lack the financial resources to do so limits the utilization and sustained consumption of iron and folic acid supplements.

Demand

Initial utilization

- The initial utilization of iron and folic acid supplements remains low, in large part because beneficiaries lack knowledge of good nutrition and have low levels of awareness of iron deficiency anaemia and its adverse effects. Communities usually regard iron deficiency anaemia as an outcome of pregnancy, rather than as a disease that negatively affects pregnancy outcomes.
- As a result of low levels of antenatal care visits, iron deficiency anaemia is either not diagnosed at all, or is diagnosed late. This prevents effective patient counselling and the introduction of iron and folic acid supplementation.
- A lack of support from household decision makers (mothers-in-law, husbands or fathers) prevents the initial utilization of iron and folic acid supplements by women of reproductive age.

Continuous use

- The intermittent supply of iron and folic acid supplements – both at primary health care facilities and at the level of Lady Health Workers – poses the greatest bottleneck to sustained usage.
- Missed antenatal care follow-up visits hinder the provision of iron and folic acid supplements and their continued use.

- Financial constraints that prevent beneficiaries from purchasing iron and folic acid supplements themselves, in the context of shortages in supplies among health care facilities and community health workers, hamper the sustained use of these supplements.
- Side effects – such as constipation, gastric disturbance, and loose or black stools – also prompt beneficiaries to discontinue the use of iron and folic acid supplements.
- A lack of effective counselling by health care providers, especially on potential side effects and how these can be managed, contributes to the discontinuation of iron and folic acid supplementation by beneficiaries.

Quality coverage

Effective coverage

- A small proportion of women of reproductive age across Pakistan initiate iron and folic acid supplementation (<40 per cent), among whom an even smaller proportion (<30 per cent) demonstrate compliance by sustaining iron and folic intake for 90 days or more.
- The difficulties in reaching mobile populations contribute to low iron and folic acid coverage rates in all provinces and regions, as they are unable to access antenatal care in a sustained manner.

Enabling environment

Social norms

- Social norms related to a lack of awareness, poverty and sub-optimal dietary habits are major contributors to the low uptake of iron and folic acid supplementation.
- Social norms and community beliefs about 'hot foods' (*garam taseer*) and 'cold foods' (*thandi taseer*) discourage the consumption of certain essential foods by girls and women of reproductive age, as these are believed to cause the early onset of menstruation or harm pregnancies. Mothers-in-law restrict the food intake of their daughters-in-law based on their own traditional beliefs about nutrition. Lactating mothers are also told to avoid foods which communities believe affect milk production.
- Patriarchal values in society limit the decision making powers of women of reproductive age. As such, mothers are unable to make essential dietary choices, take supplements and, in some cases, access emergency health services.
- Early and frequent pregnancies contribute to nutritional deficiencies among women.
- A lack of access to diverse, nutrient-rich food contributes to nutritional deficiencies.

Policy and legislation

- There is an absence of policies to reach hard-to-reach populations and communities living in areas that are not covered by Lady Health Workers with iron and folic acid supplementation. These communities are at high risk of nutritional deficiencies.
- Inefficient recruitment policies for human resources lead to a shortage of staff at health care facilities and a shortage of Lady Health Workers. This results in significant gaps in essential health care workers in communities.

Budget

- Bottlenecks related to financial approval and budgetary release pose a major barrier to accessing available funds at the beginning of every year for the Iron and Folic Acid Supplementation Programme under PC-1s. This hinders the timely procurement and supply of iron and folic acid supplements.
- Iron and folic acid supplements are treated as a 'low priority' commodity and, as noted above, a specific budgetary allocation for iron and folic acid supplementation does not exist. This leads to the inconsistent procurement and supply of iron and folic acid supplements.
- There are no buffers or contingency budgets allocated for the procurement of iron and folic acid supplements, which are required to cater to increased demand and address emergencies.
- Minimal funds are allocated to the communication strategy for iron and folic acid supplementation.

Governance

- In general, inter-programme communication and coordination is weak. Stakeholders – including district officials, facility-based health care workers, Lady Health Workers and communities – lack knowledge about the need for iron and folic acid supplements, usage, compliance and their respective roles in service delivery.
- Procedural delays result in poor adherence to procurement and supply timelines. Current procurement procedures require that requests for procurement should be submitted during the quarter for which supplies are needed. However, due to systematic delays at multiple levels, agreed timelines are not met. This causes delays in the availability of commodities at the community level.
- The absence of an efficient Logistics Management Information System (LMIS) at the primary health care level may contribute to roadblocks in stock management.
- Generalized media campaigns and communication strategies fail to reach out to diverse and marginalized groups.
- The lack of an evidence-based behaviour change communication (BCC) strategy limits outreach to populations – particularly groups with little knowledge of nutrition – as does the absence of information, education and communication (IEC) materials for facility-based health care providers and Lady Health Workers.

Recommendations

These bottlenecks identified across Pakistan, alongside specific provincial and regional bottlenecks, were presented to provincial stakeholders at a national-level consultation on 17 December 2020. The stakeholders either agreed or disagreed with the bottlenecks identified, and provided more context on these roadblocks. After in-depth discussions and the presentation of recommendations, a draft report was prepared on the bottleneck analysis' findings and the consultation. In June 2021, provincial stakeholders took part in a validation workshop to review and validate bottlenecks and recommendations.

Some key recommendations put forward by stakeholders include:

- Develop mechanisms to calculate and regularly assess demand on the ground. Update the procurement of iron and folic acid supplements based on these demand-based calculations, in order to maintain an equilibrium between demand and supply.
- Develop and implement a digital Logistics Management Information System (LMIS) to facilitate the smooth procurement of iron and folic acid supplements, as well as to monitor the supply chain and track demand.
- Allocate an iron and folic acid-specific budget for each province/region to facilitate the timely procurement, adequate supply and equitable distribution of iron and folic acid supplements to beneficiaries. Provide a buffer stock allowance to address stock outs, which may arise due to an unanticipated increase in demand, or other factors.
- Ensure the timely release of funds and expedite the PC-1 approval process. This is vital to avoid delays in funding allocations which prevent the early procurement of iron and folic acid supplements.
- Include iron and folic acid supplements on the essential drug list (EDL) for all provinces and regions, to ensure that other commodities are not prioritized over and above iron and folic acid supplements in terms of budgets, procurement and distribution.
- Provide haemoglobin testing kits to every health facility to enable the rapid diagnosis of iron deficiency anaemia.
- Revise the criteria for hiring human resources engaged in the Iron and Folic Acid Supplementation Programme, in order to maximize coverage. Engage other cadres, such as Community Midwives (CMWs), to reduce the workload for overburdened Lady Health Workers (LHWs) and facilitate the uptake of iron and folic acid supplementation at health facilities.
- Sensitize and conduct extensive trainings for health care workers to improve their inter-personal communication and counselling skills. Revise the training curriculum for Lady Health Workers and incorporate iron and folic acid supplementation in the curriculum. Provide frequent refresher trainings and training modules for all cadres engaged in iron and folic acid supplementation.
- Implement evidence-based monitoring to streamline decision-making for all aspects of the Iron and Folic Acid Supplementation Programme, specifically to improve the distribution of the commodity and build capacities of human resources at the facility and community levels.
- Develop and implement a behaviour change communication (BCC) strategy for the Iron and Folic Acid Supplementation Programme to promote community acceptance, and beneficiaries' sustained use of iron and folic acid supplements.



01
INTRODUCTION

CHAPTER 1.

INTRODUCTION

1.1 Situation analysis

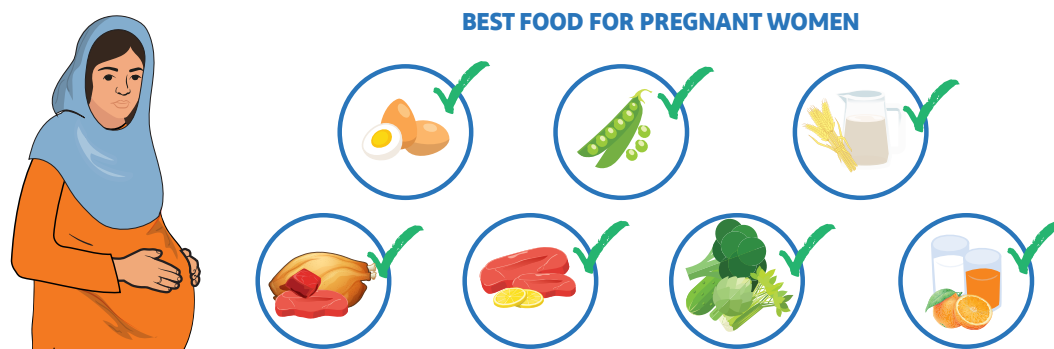
1.1.1 Iron deficiency anaemia

Anaemia is a deficiency in the number or quality of red blood cells in a person's body, which means that they lack enough healthy red blood cells to carry adequate oxygen to their tissues. Iron deficiency anaemia (IDA), as the name implies, is caused by insufficient iron, largely due to the lack of a balanced and nutritious diet. Poor nutrition is linked to many factors, including cultural dietary restrictions and limited sources of iron in food, but most prominently, it is driven by poverty. Thus, the prevalence of iron deficiency anaemia is pronounced in lower and lower middle-income countries (LMIC) with high levels of poverty, where poverty-stricken families cannot secure sustained nutritious diets.

Iron deficiency anaemia is a leading health concern particularly in Africa and Southeast Asia, where it is suspected of contributing to high maternal mortality rates (MMR). Approximately 85 per cent of all maternal mortality in the world occurs in these regions. The World Bank estimates that 65 per cent of life years lost to disease in Southeast Asia, and 71 per cent of life years lost to disease in Africa, are due to high rates of maternal mortality.¹ In addition to high maternal mortality rates, iron deficiency anaemia is also a prominent cause of birth complication in newborns. Overall, iron deficiency anaemia is directly responsible for 1.8 per cent of neonatal mortality and 2.9 per cent of infant mortality.² Children born to mothers who suffer from iron deficiency anaemia also suffer from iron deficiency anaemia themselves, leading to intergenerational cycles of poor health.³

The prevalence of iron deficiency anaemia in young children accelerates moderate acute malnutrition (MAM) and severe acute malnutrition (SAM), resulting in largely stunted and wasted populations. In addition to the health-related impacts of stunting and wasting, these forms of malnutrition linked to iron deficiency anaemia cost governments billions of dollars in lost revenue. However, the challenge of iron deficiency anaemia can be addressed by simple yet effective early interventions⁴ as discussed below.

-
- 1 Bongaarts, John. 'Short Review: WHO, UNICEF, UNFPA, World Bank Group, and United Nations Population Division, Trends in Maternal Mortality: 1990 to 2015', *Population and Development Review*, vol. 42, no. 4, 20 December 2016.
 - 2 United Nations Children's Fund (UNICEF), 'Neonatal mortality', <data.unicef.org/topic/child-survival/neonatal-mortality>, accessed 4 May 2020.
 - 3 El-Saharty, Sameh, and Naoko Ohno, 'South Asia's Quest for Reduced Maternal Mortality: What the Data Show', World Bank Blogs, 13 January 2015, <blogs.worldbank.org/health/south-asia-s-quest-reduced-maternal-mortality-what-data-show>, accessed 31 January 2022.
 - 4 Alderman, Harold, 'The economic cost of a poor start to life', *Journal of Developmental Origins of Health and Disease*, vol. 1, no. 1, February 2010, pp. 19–25.



In Pakistan, 18 per cent of women of reproductive age (WRA) – that is women between 15 and 49 years old – suffer from iron deficiency anaemia, as do 21 per cent of pregnant women.⁵ Within Pakistan, the province of Sindh has the highest prevalence of iron deficiency anaemia among women of reproductive age (22.5 per cent) and among pregnant women (27.6 per cent). It is followed closely by the provinces of Balochistan (18.8 per cent among women of reproductive age and 16.2 per cent among pregnant women) and Punjab (17.7 per cent among women of reproductive age and 21.6 per cent among pregnant women). Khyber Pakhtunkhwa is the province with the lowest prevalence of iron deficiency anaemia among women of reproductive age (15 per cent) and pregnant women (15.3 per cent). Pakistan’s federally administered regions have prevalence rates closer to the national average, as 17.2 per cent of women of reproductive age and 12.7 per cent of pregnant women in Azad Jammu and Kashmir suffer from iron deficiency anaemia, as so 17.7 per cent of women of reproductive age and 15.8 per cent of pregnant women in Gilgit-Baltistan. Table 1 presents details of the prevalence of iron deficiency anaemia among women of reproductive age and pregnant women in Pakistan, and compares this with maternal mortality rates.

Table 1. Prevalence of iron deficiency anaemia in Pakistan

Location	Prevalence of iron deficiency anaemia(a)		Maternal mortality rate (per 100,000 live births)(b)
	Women of reproductive age (non-pregnant)	Pregnant women	
Pakistan	18.0%	21.0%	186
Punjab	17.7%	21.6%	157
Sindh	22.5%	27.6%	224
Khyber Pakhtunkhwa	8.6%	6.4%	165
Balochistan	18.8%	16.2%	298
Gilgit-Baltistan	17.7%	15.8%	157
Azad Jammu and Kashmir	17.2%	12.7%	104

Source: (a) National Nutrition Survey 2018. (b) DHS Programme 2020.

⁵ Ministry of National Health Services, Regulations and Coordination, United Nations Children’s Fund (UNICEF), and Aga Khan University, *Pakistan National Nutrition Survey 2018*, Government of Pakistan, Islamabad, 2018.

1.1.2 Iron and folic acid supplementation

Iron and folic acid (IFA) supplementation has proven successful in combatting iron deficiency anaemia, especially in lower middle-income countries with adequate iron and folic acid coverage and compliance.⁶ Worldwide, governments are investing in iron and folic acid programmes to lower mortality rates and prevent lifelong health risks.⁷ In the past decade, the Government of Pakistan has implemented similar programmes. Iron and folic acid supplementation is an integral part of policies and programmes implemented by Pakistan’s provincial governments to combat perinatal complications, improve nutrition and address iron deficiency anaemia.



These programmes include antenatal care (ANC) services provided through primary health care outpatient facilities and community outreach by community health workers, most notably the Lady Health Worker Programme (LHW). Antenatal care services seek to ensure safe pregnancies by meeting women’s needs, including through nutrition support. Iron and folic acid supplementation is a key component of these programmes, which is especially vital for women who would otherwise not be able to access supplements.

However, the low uptake of iron and folic acid supplementation and non-compliance with supplementation pose serious challenges. According to Pakistan’s National Nutrition Survey (NNS) 2018, iron and folic acid uptake stands at 33.4 per cent among women at the national level. Rates of iron and folic acid uptake are highest in Gilgit-Baltistan (54.2 per cent) and lowest in Balochistan (14.2 per cent). In terms of the daily recommended intake of iron and folic acid, the statistics reveal more positive results – 65 per cent of women at the national level take the recommended daily dose of iron and folic acid, with this intake highest in Gilgit-Baltistan (81.4 per cent) and lowest in Balochistan (47.3 per cent). However, compliance with supplementation over time remains low – only 22.2 per cent of women in Pakistan take iron and folic acid supplements consistently for the recommended period of 90 consecutive days. Compliance with supplementation over time is highest in Azad Jammu and Kashmir (31.1 per cent) lowest in Balochistan (8.3 per cent). Table 2 presents data on the intake of and compliance with iron and folic acid based on the results of the National Nutrition Survey 2018.

Table 2. Compliance with iron and folic acid intake in Pakistan

Location	Uptake of iron and folic acid supplementation	Compliance with iron and folic acid supplementation	
		Daily iron and folic acid intake	Intake over time (=,>90 days)
Pakistan	w33.4%	65.0%	22.2%
Punjab	31.5%	57.8%	20.4%
Sindh	37.5%	76.3%	25.1%
Khyber Pakhtunkhwa	38.3%	71.9%	27.5%

6 Sanghvi, Tina G., Philip W. J. Harvey, and Emily Wainwright, ‘Maternal iron–folic acid supplementation programs: evidence of impact and implementation’, *Food and Nutrition Bulletin*, vol. 31, suppl. 2, June 2010, pp. S100–S107.

7 Meier, Paul R., et al., ‘Prevention of Iron Deficiency Anemia in Adolescent and Adult Pregnancies’, *Clinical Medicine & Research*, vol. 1, no. 1, January 2003, pp. 29–36.

Balochistan	14.2%	47.3%	8.3%
Gilgit-Baltistan	54.2%	81.4%	29.9%
Azad Jammu and Kashmir	46.7%	65.0%	31.1%

Source: All data from the National Nutrition Survey 2018.

Similarly, the Government of Punjab is working to address iron deficiency anaemia through iron and folic acid supplementation, using multiple programmes and interventions for effective service delivery. One of its most prominent initiatives is the Punjab Stunting Reduction Framework, developed with the support of the United Nations Children’s Fund (UNICEF) to address malnutrition-based stunting in children under five years old. The framework is part of Punjab’s Multi-Sectoral Nutrition Strategy (MSNS) to prevent and treat stunting in children, and relies heavily on iron and folic acid supplementation for adolescent girls and pregnant and lactating women (PLW) to improve nutritional and health outcomes. The provincial government uses health care facilities as service delivery points, including basic health units, district headquarter (DHQ) hospitals, tehsil headquarter (THQ) hospitals and rural health centres. It has also mobilized Lady Health Workers, community midwives (CMWs) and community-based organizations through one-day trainings. These address a range of topics, such as interpersonal communication with women of reproductive age, and infant and young child feeding (IYCF) practices. Support groups for mothers are also being created, led by Lady Health Workers or community midwives, to disseminate information to women at the community level in order to increase community engagement and start a conversation on maternal health and nutrition. Malnutrition Addressing Committees (MAC) have been established at the provincial (PMAC), district (DMAC) and union council (UMAC) levels to oversee service delivery on the ground service delivery and ensure the coherence of official messaging.

As Sindh has the highest prevalence of iron deficiency anaemia in Pakistan, combatting anaemia is a key priority of the Government of Sindh.⁸ The province’s long-term strategic Accelerated Plan for the Reduction of Stunting and Malnutrition leverages the 1,000 day ‘window of opportunity’ to prevent and manage stunting, wasting and maternal mortality by promoting healthy nutritional practices. One of the plan’s core components is improving health outcomes among women of reproductive age and adolescent girls through nutrient supplementation, including iron and folic acid supplementation. To this end, the provincial government has worked to strengthen facility-based services by delivering refresher trainings at basic health units (BHUs) and by training Tehsil Health Officers (THOs). The Lady Health Worker Programme has been revived thanks to the revision of the curriculum for Lady Health Workers, retraining personnel, networking and placement through basic health units. Non-governmental organizations (NGOs), community-based organizations (CBOs) and District Health Officers (DHO) have also come on board as partners to support government efforts.⁹

In Khyber Pakhtunkhwa, where 18.6 per cent of women of reproductive age and 6.4 per cent of pregnant women suffer from iron deficiency anaemia, the provincial government has begun to include iron and acid supplementation in provincial nutrition plans and interventions, such as the

⁸ Government of Sindh, *Sehat and Sindh*, Government of Sindh, 2018.

⁹ Department of Health of Sindh, *Nutrition Support Programme for Sindh*, Government of Sindh, Karachi, 2013; Government of Sindh, *Sehat and Sindh*, Government of Sindh, 2018.

Stunting Prevention and Rehabilitation Integrated Nutrition initiative. This addresses iron deficiency anaemia in adolescent girls, targeting schools for the provision of iron and folic acid supplements. The provincial plan also aims to enhance household food security and dietary diversity, strengthen frontline health workers' capacities for nutrition-specific programmes, and enhancing linkages across sectors identified by the Multi-Sectoral Integrated Nutrition Programme.¹⁰

In Balochistan, the provincial government has a PC-1 programme in place for iron and folic acid supplementation, delivered through health facilities and community outreach by health workers. The programme is part and parcel of Balochistan's Nutrition Strategy 2013.¹¹ The provincial Department of Health recently developed the Balochistan Nutrition Programme for Mothers and Children (BNPMC), which applies a district-focused approach to malnutrition, maternal mortality and antenatal care. Running across seven districts, the programme targets pregnant and lactating women, mothers, and children under five years old. The programme's five components include addressing undernutrition in children, micronutrient malnutrition, behaviour change communication, strong cross institutional linkages, and strong monitoring and evaluation frameworks.¹²

In line with Pakistan's National Health Vision, the Government of Azad Jammu and Kashmir, led by the regional Department of Health's Maternal, Newborn and Child Health (MNCH) Programme, developed the Integrated Reproductive, Maternal, Newborn, Child and Adolescent Health and Nutrition Plan 2016–2021.¹³ The plan includes a focus on iron and folic acid supplementation specifically for adolescent girls, and aims to increase iron and folic acid coverage to 60 per cent of girls in the region, hand in hand with other forms of micronutrient supplementation. Gilgit-Baltistan has undertaken similar efforts with the goal of increasing iron and folic acid coverage to 60 per cent of girls in the region.¹⁴

Despite these initiatives, nutrition indicators in Pakistan have yet to meet established targets in terms of reducing the prevalence of iron deficiency anaemia, increasing the coverage of iron and folic acid supplementation, and achieving high levels of compliance with supplementation. The gap between high-level policy action and impact on the ground must be bridged. It appears that service delivery not achieving the desired coverage for iron and folic acid supplementation in line with programme objectives and plans. To understand why this gap exists, it is important to identify the exact points at which the system is struggling. In other words, it is crucial to identify challenges and bottlenecks in iron and folic acid service delivery for pregnant women and women of reproductive age in Pakistan. Identifying these bottlenecks at the levels of demand and supply will help policy makers to align interventions with the specific needs of the supply chain mechanism, health workers' capacities and users' behaviour.

10 Government of Khyber Pakhtunkhwa, *Khyber Pakhtunkhwa Stunting Prevention and Rehabilitation Integrated Nutrition Gain – Scaling Up Nutrition (SUN) Cell, Planning & Development Department, Civil Secretariat, Government of Khyber Pakhtunkhwa, Peshawar, 2016.*

11 Government of Balochistan, *Balochistan – An Inter-Sectoral Nutrition Strategy*, Government of Balochistan, Quetta, 2013.

12 SCAP Balochistan, 'BNPMC'; < scapbalochistan.org/bnPMC >, accessed 5 August 2021.

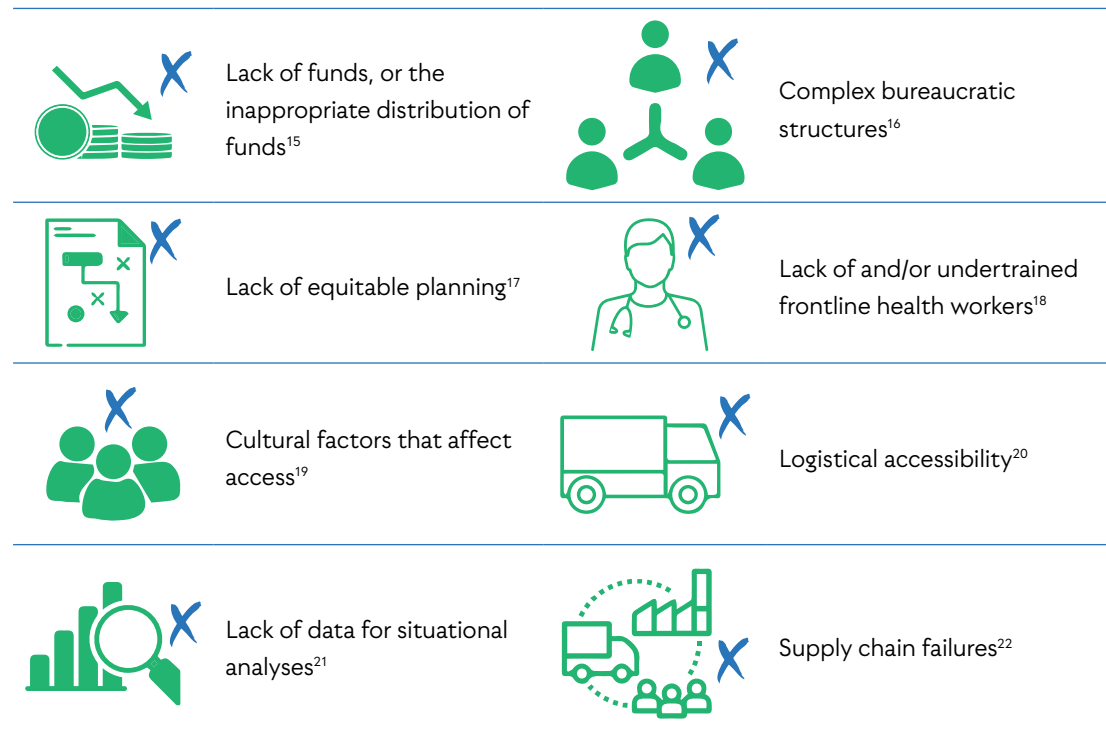
13 Department of Health of Azad Jammu and Kashmir, *Regional RMNCAH&N Strategy (2016–2020)*, Government of Azad Jammu and Kashmir, Muzaffarabad, 2016, < phkh.nhsrsrc.pk/sites/default/files/2019-06/AJK%20RMNCAH%26N%20Strategy%202016-2020.pdf >, accessed 31 January 2022.

14 Department of Health of Gilgit-Baltistan, *Regional RMNCAH&N Strategy (2016–2020)*, Government of Gilgit-Baltistan, Gilgit, 2016, < phkh.nhsrsrc.pk/sites/default/files/2019-06/GB%20RMNCAH%26N%20Strategy%202016-2020.pdf >, accessed 31 January 2022.

1.2 Literature review

The effective implementation of iron and folic acid supplementation has proved challenging in many lower middle-income countries, particularly in terms of coverage and compliance. To identify problems, researchers have undertaken bottleneck analyses of iron and folic acid service delivery in countries in Africa and South Asia. The figure below highlights some of the reasons for system failures, as identified by available literature.

Figure 1. Top reasons for sub-optimal iron and folic acid supplementation



15 Naziri, M., et al., 'Scaling up newborn care in Afghanistan: opportunities and challenges for the health sector', *Health Policy and Planning*, vol. 33, no. 2, 27 November 2017, pp. 271–282.

16 Mukhopadhyay, Dipta K., et al., 'Exploring the Bottlenecks: An Assessment of the Implementation Process of Janani Suraksha Yojana in the State of West Bengal, India', *International Journal of Medicine and Public Health*, vol. 8, no. 1, March 2018, pp. 29–33.

17 Khurmi, Manpreet Singh, et al., 'Newborn Survival Case Study in Rwanda – Bottleneck Analysis and Projections in Key Maternal and Child Mortality Rates Using Lives Saved Tool (LiST)', *International Journal of Maternal and Child Health and AIDS*, vol. 6, no. 2, 2017, pp. 93–108.

18 Rukanuddin, Rafat Jan, Tazeen S. Ali, and Beth Mcmanis, 'Midwifery Education and Maternal and Neonatal Health Issues: Challenges in Pakistan', *Journal of Midwifery and Women's Health*, vol. 52, no. 4, July/August 2007, pp. 398–405.

19 Vail, Brennan, et al., 'Logistical, cultural, and structural barriers to immediate neonatal care and neonatal resuscitation in Bihar, India', *BMC Pregnancy and Childbirth*, vol. 18, no. 385, 2018, doi: 10.1186/s12884-018-2017-5.

20 Varghese, Jithin Sam, Sumathi Swaminathan, Anura V. Kurpad, and Tinku Thomas, 'Demand and supply factors of iron-folic acid supplementation and its association with anaemia in North Indian pregnant women', *PLOS ONE*, vol. 14, no. 1, 30 January 2019, p. e0210634.

21 Roos, Nanna, et al., 'Micronutrient status of populations and preventive nutrition interventions in South East Asia', *Maternal and Child Health Journal*, 23(S1), 2018, pp. 29–45.

22 Siekmans, Kendra, et al., 'Barriers and enablers for iron folic acid (IFA) supplementation in pregnant women', *Maternal & Child Nutrition*, vol. 14, suppl. 5, December 2017, doi: 10.1111/mcn.12532.



Inadequate dosage between visits²³



Lack of informative counselling²⁴

It is vital for countries to have up-to-date, accurate data available through their Health Management Information System (HMIS) and Logistic Management Information System (LMIS) in order to identify challenges to iron and folic acid service delivery. However, many countries lack such data. A study conducted across five Southeast Asian countries (Cambodia, Laos PDR, Thailand, Indonesia and Vietnam) found that only one country (Thailand) has enough national data available on the situation on the ground. To address this challenge, the study recommends systematic and consistent monitoring of maternal, newborn and child health statistics and the implementation of various programmes linked to national level key performance indicators.²⁵

A study conducted in 2017 in Afghanistan, Bangladesh, Indonesia, Ethiopia, Kenya, Nigeria and Senegal found that antenatal care services, including iron and folic acid supplementation, rely heavily on a robust delivery system. Barriers in the delivery system hamper progress. Through bottleneck analyses, the study identifies community-based delivery as the most viable system for antenatal care services. A viable supply chain mechanism, supported by community-based delivery, ensures consistent and frequent access to micronutrients, as well as opportunities for follow-ups. In terms of demand, the study identifies community counselling as a useful method for improving compliance with supplementation, by building trust and disseminating information to women.²⁶ The study also identifies the urgent need for renewed investments in training service providers and effective behaviour change communication to achieve desired impacts.

Accessibility in terms of logistics is a persistent challenge to iron and folic acid supplementation in lower middle-income countries in general, and in South Asia specifically.²⁷ A study conducted in India in 2019 found that inconsistent supply is a barrier to iron and folic acid supplementation, both in terms of supply and demand. In addition to inconsistent supplies, the study identifies other reasons for low compliance with iron and folic acid supplementation, such as misinformation. The study identified many pregnant women who claimed not to have received iron and folic acid tablets from health workers. Women who did receive supplements, but did not comply with recommended intake guidelines, reported that they do not consider supplementation to be necessary. In terms of

23 Omotayo, Moshood O., et al., 'Feasibility of integrating calcium and iron-folate supplementation to prevent preeclampsia and anemia in pregnancy in primary healthcare facilities in Kenya', *Maternal & Child Nutrition*, vol. 14, suppl. 1, February 2018, p. e12437.

24 Siekmans, Kendra, et al., 'Barriers and enablers for iron folic acid (IFA) supplementation in pregnant women', *Maternal & Child Nutrition*, vol. 14, suppl. 5, December 2017, doi: 10.1111/mcn.12532.

25 Roos, Nanna, et al., 'Micronutrient status of populations and preventive nutrition interventions in South East Asia', *Maternal and Child Health Journal*, 23(S1), 2018, pp. 29–45.

26 Siekmans, Kendra, et al., 'Barriers and enablers for iron folic acid (IFA) supplementation in pregnant women', *Maternal & Child Nutrition*, vol. 14, suppl. 5, December 2017, doi: 10.1111/mcn.12532.

27 Gilson, Lucy, and Nika Raphaely, 'The terrain of health policy analysis in low and middle income countries: a review of published literature 1994–2007', *Health Policy and Planning*, vol. 23, no. 5, September 2008, pp. 294–307; Ogbo, Felix Akpojene, et al., 'Enablers and Barriers to the Utilization of Antenatal Care Services in India', *International Journal of Environmental Research and Public Health*, vol. 16, no. 17, September 2019, p. 3152; Wilson, Amie, et al., 'A systematic review and thematic synthesis of qualitative studies on maternal emergency transport in low- and middle-income countries', *International Journal of Gynaecology and Obstetrics*, vol. 122, no. 3, September 2013, pp. 192–201.

supply, the study identified logistical barriers and inaccessibility due to long distances as a concern for 16 of the 52 villages analysed.²⁸

Another study conducted in 2018 in West Bengal, India, found that bureaucratic inefficiencies cause significant delays in iron and folic acid supplementation for pregnant women. The greatest challenge identified by the study was inappropriate or minimal record keeping in terms of funding and cash inflow, leading to inadequate resource management and accountability for resources at the government level. The study evaluated the Janai Suraksha Yojana (JSY) programme, a national health care mission targeting maternal health. Informed by in-depth interviews and community-based monitoring of service providers on the ground and government health officials, the study concludes that well-organized funding flows are vital, tracked through a paper or digital trail.²⁹

A bottleneck analysis conducted in Rwanda in 2017 identified barriers to good maternal and child health in the country. Although the analysis found that the country has a robust health care policy with little need of improvement, the system has failed due to a lack of implementation. The study attributes this barrier to a shortage of health care personnel and a shortage of facilities. In terms of demand, inequitable approaches to health service delivery prevent the poorest wealth quintile from accessing services. As such, the study recommends applying an 'equity approach' to the design and implementation of health care policies.³⁰

A study in Kenya monitored pregnant women's compliance with micronutrient supplementation (calcium and iron and folic acid) based on dosage. It found that compliance is higher among women who receive enough supplements to last them until their next antenatal care visit. While 98 per cent of women received supplements, only 76 per cent received enough to last between visits. As a result, only 77 per cent of women complied with supplement uptake. The study also identifies useful behaviour change methods to encourage women to comply with supplementation guidelines, such as providing them with pill-taking calendars.³¹

A study conducted in Pakistan in 2007³² sheds light on maternal and child health-related resources and barriers that hinder progress. The study found that midwives and Lady Health Workers are excellent resources for addressing maternal and child health concerns. Community health workers are highly successful at promoting positive health outcomes in both developed and developing countries. While this is clear in the case of Pakistan, progress varies across locations. According to the study, outdated curricula for midwives and Lady Health Workers pose a major barrier to maternal

28 Varghese, Jithin Sam, Sumathi Swaminathan, Anura V. Kurpad, and Tinku Thomas, 'Demand and supply factors of iron-folic acid supplementation and its association with anaemia in North Indian pregnant women', *PLOS ONE*, vol. 14, no. 1, 30 January 2019, p. e0210634.

29 Mukhopadhyay, Dipta K., et al., 'Exploring the Bottlenecks: An Assessment of the Implementation Process of Janani Suraksha Yojana in the State of West Bengal, India', *International Journal of Medicine and Public Health*, vol. 8, no. 1, March 2018, pp. 29–33.

30 Khurmi, Manpreet Singh, et al., 'Newborn Survival Case Study in Rwanda – Bottleneck Analysis and Projections in Key Maternal and Child Mortality Rates Using Lives Saved Tool (LiST)', *International Journal of Maternal and Child Health and AIDS*, vol. 6, no. 2, 2017, pp. 93–108.

31 Omotayo, Moshood O., et al., 'Feasibility of integrating calcium and iron-folate supplementation to prevent preeclampsia and anemia in pregnancy in primary healthcare facilities in Kenya', *Maternal & Child Nutrition*, vol. 14, suppl. 1, February 2018, p. e12437.

32 Rukanuddin, Rafat Jan, Tazeen S. Ali, and Beth Mcmanis, 'Midwifery Education and Maternal and Neonatal Health Issues: Challenges in Pakistan', *Journal of Midwifery and Women's Health*, vol. 52, no. 4, July/August 2007, pp. 398–405.

and child health. Therefore, it is vital to update curricula and improve training for community health workers to create a large, capable work force of health care professionals equipped to support better maternal and child health nationwide.

While structural barriers pose immense challenges to maternal and child health, especially in lower middle-income countries, cultural barriers are also problematic. Cultural barriers to accessing health care are difficult to address, as they are context-specific and vary from country to country. Understanding cultural barriers in similar societies may help Pakistan to develop effective policies and plans of action. A study conducted in India in 2017 addressed cultural, structural and logistical barriers to maternal and child health in the province of Bihar. Informed by in-depth interviews with nurses working for AMANAT, a maternal and child health project launched by the provincial government, the study found that inconsistent supply, inaccessible facilities, and human resource shortages are key logistical challenges. Cultural barriers include male child preference, traditional clinical practices and hierarchy among health care staff. In terms of antenatal care, service providers' relationship with the parents and relatives of women also proved challenging in certain cases. Moreover, the study identified poverty as the main structural barrier to effective maternal and child health care.³³

The research studies summarized above reflect the important role that bottleneck analyses play in pinpointing specific challenges in health service delivery systems. Such analyses have been tried and tested for maternal and child health in lower middle-income countries, many of which have contexts that are similar to the context of Pakistan. Therefore, the robust bottleneck analysis method can be used to pinpoint barriers to iron and folic acid service delivery and compliance with supplementation in Pakistan, both in terms of supply and demand-related issues. Based on the potential results of this research, a similar strategy can be developed to identify system challenges unique to Pakistan's health care structure with regard to maternal and perinatal health care.

As the available literature shows, challenges to maternal and child health can be related to system shortcomings, bureaucratic shortcomings, social unacceptability and resource inadequacy. While all of these issues can be studied individually, Pakistan's health system has already overcome some of these challenges. To identify which problems persist, provincial polices need to be analysed and categorized according to which part of the supply chain (system shortcomings, bureaucratic shortcomings, social unacceptability or resource inadequacy) is not performing well.

1.3 Rationale for this bottleneck analysis

Although iron and folic acid supplementation is an effective maternal health intervention, coverage in Pakistan is sub-optimal. For instance, recent data from a study conducted in Sindh shows that only 50 per cent of women of reproductive age began taking iron and folic acid supplements when they became pregnant. This is an incremental improvement from the national estimate of 33 per cent.³⁴ Many women using iron and folic acid may not be benefitting fully, as the same study shows that only 59 per cent of women of reproductive age complied with iron and folic acid supplementation over time.

33 Vail, Brennan, et al., 'Logistical, cultural, and structural barriers to immediate neonatal care and neonatal resuscitation in Bihar, India', *BMC Pregnancy and Childbirth*, vol. 18, no. 385, 2018, doi: 10.1186/s12884-018-2017-5.

34 Precision Health Consultants (PHC Global), *Iron Folic Acid Babin Compliance Study*, PHC Global, Karachi, 2019.

Challenges to adequate iron and folic acid supplementation are deep-rooted and complex. As Pakistan is currently developing a national Maternal Nutrition Strategy, there is a clear need for an updated iron and folic acid bottleneck analysis. Therefore, UNICEF has supported the development of this detailed national iron and folic acid bottleneck analysis.

1.4 Aims of this bottleneck analysis

This iron and folic acid bottleneck analysis aims to improve understandings of bottlenecks in Pakistan's iron and folic acid supplementation programme, with a view to informing programming, planning and implementation, achieving greater coverage and sustaining quality. This analysis takes into account both supply and demand-related factors to identify the most pervasive challenges to service delivery and reasons for low uptake. Its specific objectives are:

1. To identify the main barriers to access to, and compliance with, iron and folic acid supplementation for pregnant women, in order to provide evidence that can inform nutrition policies, planning and programming.
2. To use the findings of this research to develop advocacy briefs/research articles for advocacy purposes, and disseminate these findings among technical experts.





02
METHODOLOGY

CHAPTER 2. METHODOLOGY

This bottleneck analysis employed both qualitative and quantitative approaches to explore the broad, multi-faceted challenges to iron and folic acid supplementation in Pakistan.

2.1 Qualitative approach

This bottleneck analysis used a qualitative approach to explore deep-rooted social and behaviour challenges to the availability, consumption and optimal use of iron or folic acid, examining both supply and demand-related issues. The qualitative research component was guided by grounded theory, a methodology that allows theory/theories to emerge from the data collected. Grounded theory research follows a systematic, yet flexible process to collect data, code data, make connections and see what theory/theories are generated or can be built from the data.

In terms of this analysis' qualitative approach, primary data was gathered through focus group discussions (FGDs) and in-depth interviews (IDIs)/key informant interviews (KIIs), using semi-structured interview guides. These tools provided direction for data collection, while being flexible enough to adapt and explore new findings that emerged during the discussions and interviews. Information on the number and kinds of participants engaged in Pakistan's provinces and at the federal level is included below in Section 2.4.

2.1.1 Focus group discussions

The flexible and interactive nature of focus groups made them ideal for exploring respondents' attitudes towards and perspectives on iron and folic acid supplementation, as well as key sources of health information.³⁵ Focus group discussions help to identify factors that may influence the likelihood of iron and folic acid uptake, as well as the forms and sources of information that respondents rely on to inform health-related decisions. Qualitative information obtained through focus groups affords research an in-depth contextual understanding of issues.³⁶ For the purposes of this analysis, homogeneity was maintained in the focus group discussions, ensuring that participants in each discussion share the same characteristics. The discussions engaged frontline health workers, including Lady Health Workers, Lady Health Visitors (LHVs) and Female Medical Officers (FMOs), as well as direct beneficiaries of iron and folic acid supplementation, including women of reproductive age, pregnant women and adolescent girls. Each focus group discussion engaged between four and six participants.

35 Kitzinger, Jenny, 'Qualitative Research: Introducing focus groups', *BMJ Clinical Research*, vol. 311, no. 7000, August 1995, pp. 299–302; McCallum, Todd J., and C. R. Arlien, 'Enhancing the matching model of recruitment through focus groups', *Aging and Mental Health*, vol. 10, no. 3, May 2006, pp. 312–318.

36 Andresean, Alan, *Marketing social change: Changing behavior to promote health, social development, and the environment*, Jossey-Bass, San Francisco, 1995.

2.1.2 In-depth interviews/key informant interviews

To inform this analysis, in-depth interviews were conducted with health care providers, programme managers and policy makers at the federal, provincial and regional levels. As these stakeholders constitute a diverse, heterogeneous group – whom it may be difficult to bring together, especially as hierarchal structures may limit free expression – in-depth interviews were an appropriate means of gathering data from them.

2.2 Quantitative approach

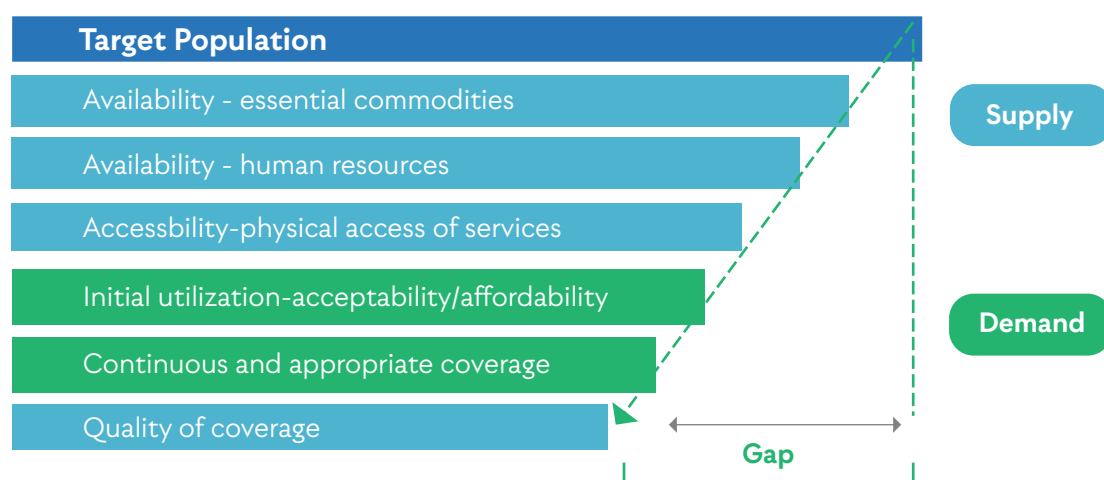
In addition to qualitative research, this bottleneck analysis collected quantitative data to identify the availability and situation of iron and folic acid-related resources on the ground, including supplies, stocks, human resources, trainings and communication materials. To assess the iron and folic acid supply and management system, a quantitative checklist was developed and implemented at selected service delivery points (primary health facilities including basic health units and the outpatient departments of district hospitals) in selected districts. These checklists were also administered in locations where the supply of iron and folic acid is stored, such as the offices of District Health Officers (DHOs) and District Coordinators of the Lady Health Worker Programme.

2.3 Analytical framework of this bottleneck analysis

This analysis used the Monitoring Results for Equity Systems (MoRES) approach to identify and highlight critical bottlenecks in Pakistan's iron and folic acid supplementation programme. This approach is known for aligning interventions/programmes to address inequities and barriers that impede the achievement of desired outcomes by using a determinant framework and analysing the main causes of existing bottlenecks. The determinant framework is derived from the Tanahashi model of effective health service coverage. This study adapted the modified Tanahashi model to identify bottlenecks in the health system. This modified model includes an 'enabling environment' domain and determinants of social norms to ensure that factors related to societal practices, policies, legislation, governance and budgets are also covered when identifying bottlenecks. The cause-and-effect exemplar of the modified Tanahashi model (see Figure 3) was applied to service delivery domains to identify bottlenecks and the systems approach widely used to improve the efficiency of delivery to target populations.

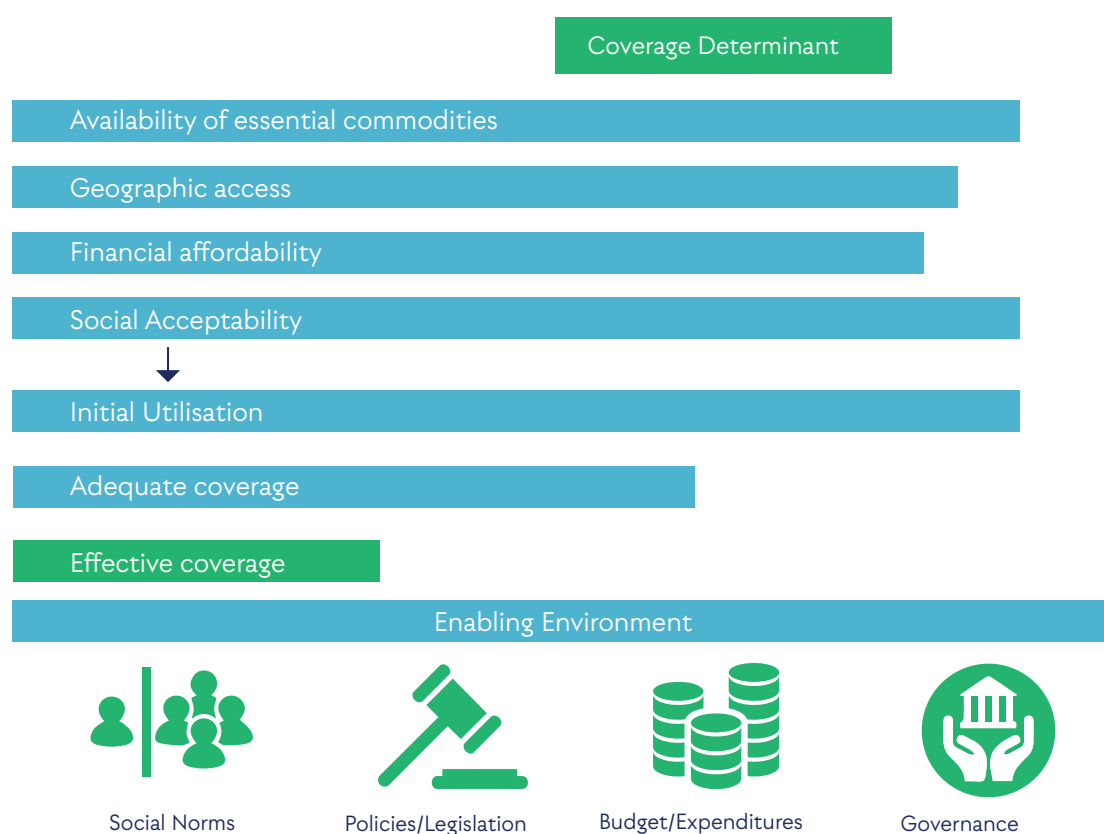
The data collected using these qualitative and quantitative approaches was categorized into themes and sub-themes, before being fed into the health system service delivery domains of demand, supply, quality and enabling environment (see Figure 2).

Figure 2. Supply and demand framework



Source: Tanahashi, T., Bulletin of the World Health Organization, vol. 56, no. 2, 1978, pp. 295–303.

Figure 3. Modified Tanahashi framework



2.4 Sampling strategy

The sampling strategy used by this bottleneck analysis involved the selection of districts in each province and region, as well as the selection of stakeholders in each selected district, as discussed below.

2.4.1 Selection of districts

Districts were selected in consultation with provincial stakeholders, the Ministry of National Health Services, Regulations and Coordination, and UNICEF during the inception meeting. It was decided that two districts each in Punjab and Khyber Pakhtunkhwa, and one district each in Sindh, Balochistan, Azad Jammu and Kashmir, and Gilgit-Baltistan would be selected for assessment. These districts were selected following an initial analysis of the National Nutrition Survey and a desk review to make sure that each selected district has:

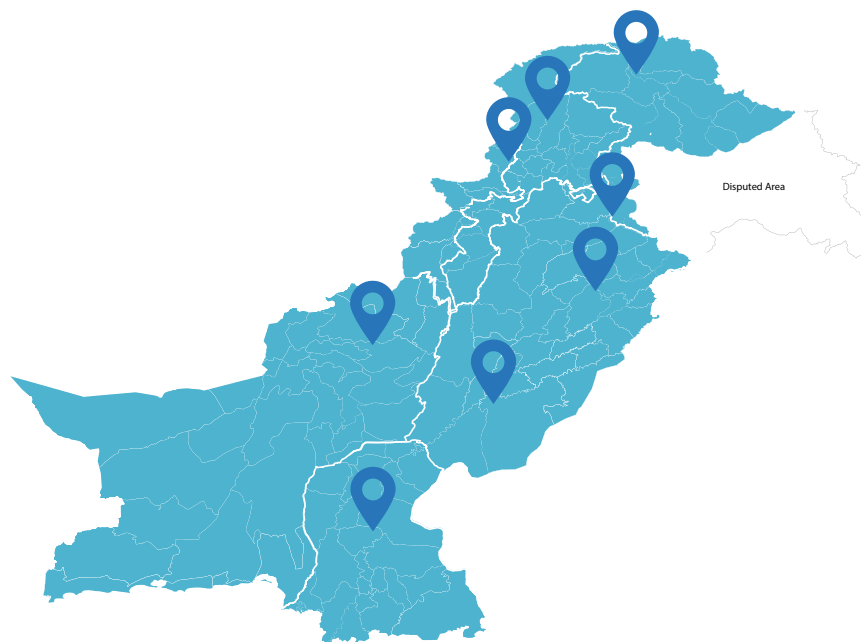
- Medium iron and folic acid supplementation coverage;
- Medium population density;
- A balanced mix of an urban and rural population; and
- South and north/ethnic group representation.

Districts with these characteristics were selected so that the bottleneck analysis could identify potential challenges to iron and folic acid service delivery and utilization in places where coverage is already moderate or high, and where service delivery is functional. Focusing on these districts would offer insights for further optimizing iron and folic acid supplementation, in line with the goals of IFA supplementation programmes. Choosing districts with high coverage, by contrast, would have only provided information and informed recommendations for achieving merely incremental gains. The table and figure below showcase the districts selected for this bottleneck analysis.

Table 3. Districts selected by province and region

Province	District
Punjab	Chiniot
	Multan
Sindh	Sanghar
Khyber Pakhtunkhwa	Charsadda
	Swat
Balochistan	Ziarat
Gilgit-Baltistan	Gilgit
Azad Jammu and Kashmir	Muzaffarabad

Figure 4. Districts selected by province and region



2.4.2 Selection of stakeholders

The selection of participants for the focus group discussions and in-depth interviews/key informant interviews was finalized during the inception meeting, in consultation with provincial stakeholders, the Ministry of National Health Services, Regulations and Coordination, and UNICEF. This analysis strove to ensure that participants struck the right balance between service delivery stakeholders (providers/managers), beneficiaries (pregnant and lactating women) and people with an influence on care-seeking behaviours (husbands/fathers). Therefore it was decided that:

- **Provinces:** Key informant interviews would be conducted with the Director General (DG) of Health, the Director of Nutrition and the Provincial Coordinator (PC) of the Lady Health Worker Programme.
- **Districts:** Key informant interviews would be conducted with the designated District Health Officer (DHO)/District Coordinator (DC) of the Lady Health Worker Programme and the Female Medical Officer (FMO). One focus group discussion would be held in each selected district with pregnant and lactating women (PLW), a group of fathers, Lady Health Workers (LHWs) and Lady Health Visitors (LHVs). The focus group discussions employed snowball sampling and Lady Health Workers helped gather participants for the focus groups. At least six participants took part in every focus group discussion.

2.5 Activities

2.5.1 Trainings

The research team which engaged in the data collection and analysis process received training throughout the course of this study. All members of the research team were trained to conduct in-depth interviews/key informant interviews and focus group discussion. Training was also delivered on

transcription and qualitative analysis, in terms of procedures for coding, categorizing and identifying bottlenecks in line with the Tanahashi model.

2.5.2 Tool development

After an extensive desk review, the research team developed tools to assess stakeholders' awareness of nutritional deficiencies, their knowledge of nutrition programmes, including the iron and folic acid supplementation programme, and their roles and responsibilities. The tools developed also sought to assess the understandings of staff engaged in iron and folic acid supplementation, barriers, and facilitating factors in terms of supply, demand and stock maintenance.

The team designed interview schedules for the in-depth interview/key informant interviews and developed guides for the focus group discussions with Lady Health Workers, Lady Health Visitors, pregnant and lactating women, and male community members.

2.5.3 Pre-testing

The tools developed by the research team were piloted/pre-tested before data collection activities began across Pakistan. This pre-testing process helped to refine questions and ensure sensitivity for the respondents.

2.5.4 Data collection

Table 4 lists the stakeholders who were contacted to collect valuable information for this analysis.

Table 4. Provincial respondents for the iron and folic acid bottleneck analysis

Province/ region	District	Designation	Gender	Tool	Number of participants	Quantitative checklist
Punjab	Chiniot	Director Nutrition	Man	Key informant interview	1	Service delivery point
		District Health Officer/ District Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		Female Medical Officer	Woman	Key informant interview	1	
		Pregnant and lactating women	Woman	Focus group discussion	8	
		Lady Health Workers	Woman	Focus group discussion	7	
		Lady Health Visitors	Woman	Focus group discussion	4	
		Fathers	Woman	Focus group discussion	6	
		Total				28

NATIONAL IRON AND FOLIC ACID BOTTLENECK ANALYSIS
PAKISTAN

Province/ region	District	Designation	Gender	Tool	Number of participants	Quantitative checklist
	Multan	District Health Officer	Man	Key informant interview	1	Service delivery point
		District Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		Female Medical Officer	Woman	Key informant interview	1	
		Pregnant and lactating women	Woman	Focus group discussion	7	
		Lady Health Workers	Woman	Focus group discussion	6	
		Lady Health Visitors	Woman	Focus group discussion	4	
		Fathers	Man	Focus group discussion	6	
		Total				26
Sindh	Sanghar	Director General Health	Man	Key informant interview	1	Service delivery point – rural health centre (RHC) and People's Primary Healthcare Initiative (PPHI) basic health unit
		Programme Coordinator AAP	Woman	Key informant interview	1	
		District Health Officer	Man	Key informant interview	1	
		District Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		Female Medical Officer	Woman	Key informant interview	1	
		Pregnant and lactating women	Woman	Focus group discussion	8	
		Lady Health Workers	Woman	Focus group discussion	6	
		Lady Health Visitors	Woman	Focus group discussion	5	
		Fathers	Man	Focus group discussion	5	
		Total				

Province/ region	District	Designation	Gender	Tool	Number of participants	Quantitative checklist
Balochistan	Ziarat	Director Nutrition	Man	Key informant interview	1	Service delivery point
		Provincial Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		District Health Officer	Man	Key informant interview	1	
		District Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		Female Medical Officer	Woman	Key informant interview	1	
		Pregnant and lactating women	Woman	Focus group discussion	7	
		Lady Health Workers	Woman	Focus group discussion	7	
		Lady Health Visitors	Woman	Focus group discussion	4	
		Fathers	Man	Focus group discussion	6	
		Total				
Khyber Pakhtunkhwa	KP	DG Health, Director Nutrition	Man	Key informant interview	2	
		Provincial Coordinator LHW Program	Man	Key informant interview	1	
	Charsadda	DHO	Man	Key informant interview	2	Service delivery point
		DC LHW Program	Man	Key informant interview	1	
		FMO	Woman	Key informant interview	1	
		PLW			4	
		Fathers	-	Focus group discussion	5	
		LHW			6	
		LHV			5	
	Swat	DHO	Man	Key informant interview	1	
		DC LHW Program	Man	Key informant interview	1	
		FMO	Woman	Key informant interview	1	
		PLW			5	
		Fathers	-	Focus group discussion	5	
		LHW			5	
		LHV			4	
Total					49	1

NATIONAL IRON AND FOLIC ACID BOTTLENECK ANALYSIS
PAKISTAN

Province/ region	District	Designation	Gender	Tool	Number of participants	Quantitative checklist
Azad Jammu & Kashmir	Muzaffarabad	Director General Health	Man	Key informant interview	1	Service delivery point
		Director Nutrition	Man	Key informant interview	1	
		Provincial Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		District Health Officer	Man	Key informant interview	1	
		District Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		Female Medical Officer	Woman	Key informant interview	1	
		Pregnant and lactating women	Woman	Focus group discussion	6	
		Lady Health Workers	Woman	Focus group discussion	7	
		Lady Health Visitors	Woman	Focus group discussion	4	
		Fathers	Man	Focus group discussion	6	
		Total				29
Gilgit- Baltistan	Gilgit	Director General Health	Man	Key informant interview	1	Service delivery point
		Director Nutrition	Man	Key informant interview	1	
		Provincial Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		District Health Officer	Man	Key informant interview	1	
		District Coordinator, Lady Health Worker Programme	Man	Key informant interview	1	
		Female Medical Officer	Woman	Key informant interview	1	
		Pregnant and lactating women	Woman	Focus group discussion	8	
		Lady Health Workers	Woman	Focus group discussion	7	
		Lady Health Visitors	Woman	Focus group discussion	4	
		Fathers	Man	Focus group discussion	6	
		Total				30

2.6 Analysis

A content analysis technique was used to analyse the qualitative data collected for this bottleneck analysis. Content analysis is “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use”.³⁷

The research team transcribed, verbatim, audio recordings of all of the interviews and focus group discussions, and collated the field notes taken during the data collection process. These audio recording transcriptions and field notes were then translated into English. Using deductive reasoning, the team developed a list of topical codes for all topics related to the research. These were further enhanced during the content analysis process.

The analysis involved four stages: de-contextualization, re-contextualization, categorization and compilation. These stages were performed several times to ensure the quality and trustworthiness of the analysis. De-contextualization involved breaking down the data into smaller ‘meaning units’ which were labelled with a code. Known as the ‘open coding process’³⁸, this facilitated the identification of concepts around which the data was assembled into blocks and patterns.³⁹ The coding process was performed repeatedly to increase stability and reliability.⁴⁰

The re-contextualization stage ensured that all aspects of the content were covered in relation to the aim of the bottleneck analysis. During the categorization stage, the coded material was divided into four domains: supply, demand, quality coverage and an enabling environment. Further themes and sub-themes were also developed. These themes were internally homogeneous and externally heterogeneous. During the final compilation stage, the themes were further refined and latent analysis conducted to identify ‘hidden meanings’ in the text. The research team performed internal inquiries, reading original transcripts and results to determine whether the conclusions reached are reasonable or not.⁴¹

Based on the content analysis, the team developed a fishbone matrix using the modified Tanahashi model. This enabled the identification of bottlenecks by teasing out causes and effects. As noted above, bottlenecks were identified for the four domains of the modified Tanahashi model (supply, demand, effective coverage and an enabling environment). Themes and sub-themes were incorporated under the determinants of these domains. The team defined supply-related determinants as the factors that influence health care’s ‘production function’. These factors include the availability of essential health commodities, the availability of human resources, and accessibility. Demand-related determinants include initial utilization and continuous utilization, which exist at the community, household and individual levels, and are influenced by demand. Effective coverage

37 Krippendorff, Klaus, ‘Measuring the reliability of qualitative text analysis data’, *Quality and Quantity*, vol. 38, no. 6, 2004, pp. 787–800.

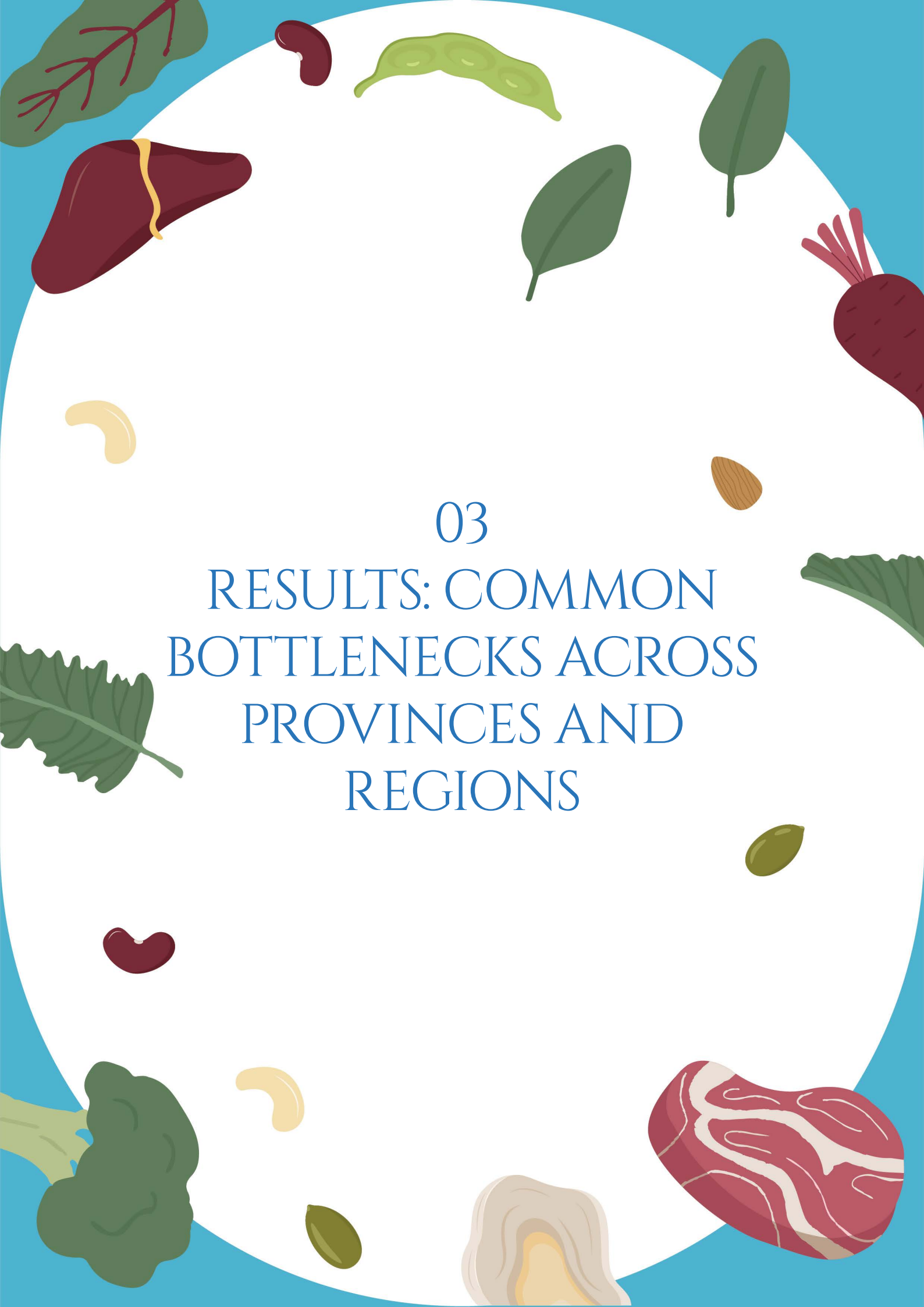
38 Berg, Bruce L., and Howard Lune, *Qualitative research methods for the social sciences*, 8th ed., Pearson, Boston, MA, 2012

39 Catanzaro, Marci, ‘Using qualitative analytical techniques’, in *Nursing research: Theory and practice*, edited by Nancy Fugate Woods and Marci Catanzaro, C.V. Mosby Company, St. Louis, MO, 1988, pp. 437–456.

40 DowneyWamboldt, Barbara, ‘Content analysis: Method, applications, and issues’, *Health Care for Women International*, vol. 13, no. 3, 1992, pp. 313–321.

41 Burnard, P., ‘Interpreting text: An alternative to some current forms of textual analysis in qualitative research’, *Social Sciences in Health*, vol. 1, no. 4, 1995, pp. 236–245; DowneyWamboldt, Barbara, ‘Content analysis: Method, applications, and issues’, *Health Care for Women International*, vol. 13, no. 3, 1992, pp. 313–321.

is defined as coverage of sufficient quality to reach a defined health impact. Similarly, an enabling environment encompasses socio-cultural norms which affect iron and folic acid supplementation, as well as bottlenecks at the policy, budgetary and governance levels. The rigorous and iterative process of data analysis and categorization within these four domains allowed the research team to identify bottlenecks at all levels – the government level, the level of health care providers, and the community level.



03
RESULTS: COMMON
BOTTLENECKS ACROSS
PROVINCES AND
REGIONS

CHAPTER 3.

RESULTS: COMMON BOTTLENECKS ACROSS PROVINCES AND REGIONS

3.1 Supply

The availability of iron and folic acid supplements is patchy across Pakistan. Supplements are available at primary health facilities for an indefinite period every month. Lady Health Workers report that they have not had stocks of iron and folic acid supplements for a year. Departments of Health do not have budgetary provisions in place for backup stocks. The lack of availability of iron and folic acid supplements at the Lady Health Worker level is exacerbated by the lengthy process of PC-1 approval, compounded by the unavailability of an iron and folic acid-specific budget. The current drive to regularize the Lady Health Worker Programme across Pakistan has the potential to improve availability.

An inefficient logistics system poses another major bottleneck to the supply of iron and folic acid across Pakistan's provinces. This affects all stages of the supply chain – from procurement to distribution to health care workers, and disbursement within communities – with a negative impact on iron and folic acid uptake and compliance. The introduction of new technology has improved practices in selected areas/districts, such as the Logistics Management Information System (LMIS) to monitor stocks, initiate and process logistic requests in real-time across different levels of service delivery. Training stakeholders on using these systems should be a priority, as human resource capacities to use digital tools remains sub-optimal. Furthermore, the lack of availability of iron deficiency anaemia-related diagnostic equipment is a bottleneck in all of Pakistan's provinces. The provision of diagnostic equipment should be prioritized.

3.1.1 Availability of iron and folic acid

Inconsistent supply/stock outs at primary health care facilities

Combined supplements of iron and folic acid, or individual tablets or syrup of iron and folic acid are available at primary health care (PHC) facilities across Pakistan. However, the supply of iron and folic acid is inconsistent. Frequent stock outs of iron and folic acid are a common concern among end users and health workers. Some report of recent stock outs lasting between three and six months at primary health care facilities. When stocks are available, stakeholders report that district level provisions are only sufficient to meet 50 per cent of demand. As families are increasingly demanding iron and folic acid supplements for adolescent girls in Punjab and Khyber Pakhtunkhwa, this increased user base is contributing to the gap between supply and demand.

Lack of a contingency/backup supply mechanism, and an IFA-specific budget

There are no back-up mechanisms in place for procurement when demand increases, leading to stock outs until facilities receive their supplies for the next quarter. This often takes considerable time due to lengthy procedural requirements. No iron and folic acid-specific budget exists. As a result, iron and folic acid supplements are often neglected when facilities face competing procurement priorities, as other medicines are usually perceived to be more important.

Inconsistent supply/stock outs among Lady Health Workers

Lady Health Workers across Pakistan reported a lack of availability of iron and folic acid, lasting between six to 12 months, although these periods vary in different parts of the country. Similarly, end users reported an intermittent supply of iron and folic acid, coupled with stock outs lasting six months, on average. When stocks are available, stakeholders reported that Lady Health Workers try to provide beneficiaries with extra supplements to compensate for missed days.

General unavailability of supplies and/or set up for screening iron deficiency anaemia

Primary health care facilities across Pakistan lack laboratory tools to assess iron deficiency anaemia in pregnant and lactating women visit. According to the stakeholders engaged for this analysis, tests prescribed for suspected cases of iron deficiency anaemia are taken to private sector laboratories. Due to financial constraints, communities tend to avoid frequent follow-ups with these laboratories located outside primary health care facilities. This prevents the identification of iron deficiency anaemia during pregnancy, which tends to be revealed as a complication during delivery.

3.1.2 Availability of human resources

Patchy availability of Female Medical Officers

Many primary health care facilities in Pakistan do not include Female Medical Officers among their staff. This hampers antenatal care-seeking, including iron and folic acid supplementation. The patchy availability of Female Medical Officers is a concern across the country, including in Punjab.

Vast areas uncovered by Lady Health Workers

Much of Pakistan's territory is rural, and vast rural areas are not covered by Lady Health Workers. Although coverage is better in Punjab than in other provinces, vast areas in Punjab are still lack coverage by the Lady Health Worker Programme. Among the provinces, Balochistan has the lowest levels of Lady Health Worker coverage. Rural populations in uncovered areas have the lowest levels of knowledge of iron deficiency anaemia, its consequences, iron and folic acid supplementation, balanced diets and the need for essential nutrients to prevent nutritional deficiencies.

Insufficient recruitment at Departments of Health

Departments of Health struggle to fill human resource gaps as the result of retirement or transfers. As a result, shortages exist in Pakistan's essential health workforce. While key posts lie vacant, essential health service delivery suffers.

Insufficient recruitment of Lady Health Workers

Most Lady Health Workers took up their jobs in either 1997 or 2007. Thus gaps exist in this essential health workforce, largely due to the retirement or death of Lady Health Workers. While stakeholders reported that recruitment is ongoing in larger districts, recruitment processes have yet to start in smaller districts.

Sub-optimal knowledge and counselling skills of facility-based health workers

When questioned about the timing, duration and dosage of iron and folic acid supplements, the answers of facility-based health care providers were not consistent with existing guidelines. They

also appear to lack awareness of the side effects of iron and folic acid supplementation, as well as strategies to manage these side effects. Facility-based health care workers generally do not inquire about patients' dietary intake or habits. All of this reflects that facility-based health workers have sub-optimal knowledge and limited counselling skills vis-à-vis iron and folic acid supplementation.

Lack of training on nutrition and counselling/communication skills

The health care workers engaged for this analysis reported a lack of training on nutrition, counselling and communication skills. Training for Lady Health Workers has not been conducted in past two to four years, and they have never received specific trainings on iron and folic acid supplementation. Such training is essential for enabling health workers to effectively communicate information on iron and folic acid supplementation to communities, including information on dosage, compliance and potential side effects.

Lack of qualified trainers

Stakeholders at both the health facility and district levels highlighted the need for qualified trainers, including specialized doctors and gynaecologists.

Sub-optimal supportive supervision

All staff at the level of primary health care, including Female Medical Officers, expressed the need for enhanced supportive supervision and on-the-job coaching to build health workers' skills.

Low educational qualifications of Lady Health Workers

Lady Health Workers tend to have low educational qualifications. Most have only completed up to Grade 8 and have not received rigorous trainings on counselling skills. This hampers their capacity to deliver messages effectively to communities, despite their years of professional experience.

3.1.3 Geographical accessibility

Hard-to-reach communities

Communities living in remote areas are not covered by Lady Health Workers, as noted above. These areas also have limited primary health care facilities, obliging residents to travel long distances to seek medical assistance. As a result, remote communities are often unable to access health care and have low levels of antenatal care-seeking behaviour, including in terms of iron and folic acid supplementation. Communities in riverine and mountainous areas are prime examples of populations with poor access to health care. The absence of key infrastructure, such as a lack of roads or poorly maintained roads, hamper health-seeking behaviour among these communities. Weak infrastructure also limits the smooth supply of iron and folic acid supplements through community health workers and health care facilities. Meeting the needs of mobile populations is a particular challenge, as they move from mountainous regions to the plains in winters, and from the plains to mountainous regions in summer. This makes it especially difficult for mobile populations to seek health care frequently or to secure a continual supply of health-related commodities.

3.1.4 Financial accessibility

Poverty

Due to the unavailability of iron and folic acid at health care facilities or with Lady Health Workers, women are often given prescriptions to buy supplements themselves. Most of these women are

financially unable to do so. While poverty hampers the initial purchase of supplements to some extent, it seriously hampers the sustained procurement of iron and folic acid.

3.2 Demand

Two main bottlenecks exist in terms of demand for iron and folic acid at the community level. The first is 'nutritional illiteracy', that is, a lack of awareness among community members of iron deficiency anaemia and iron and folic acid supplementation. The second is women's lack of decision-making power. Both factors contribute to the low uptake of and compliance with iron and folic acid supplementation. To address these challenges, stakeholders recommend community outreach activities and evidence-based behavioural change communication strategies. These activities should target all community members, especially those with decision-making power at the household level. Tools that can be used to reach communities include different media and dissemination platforms, such as advertisements on television, radio announcements, mobile phone messages (SMS), and printed materials, including newspapers and magazines. To address low levels of literacy in communities, communications materials should rely on visual messaging and displaying text in local languages. Moreover, communication tools should be used in conjunction with social mobilizers and community leaders.

3.2.1 Initial utilization

Low awareness of iron deficiency anaemia as a disease

This analysis found low levels of awareness of iron deficiency anaemia and its adverse effects among pregnant and lactating women, particularly those living in remote riverine communities or in areas that are not covered by Lady Health Workers. Communities tend to view iron deficiency anaemia as an outcome of pregnancy, rather than as a disease that affects both pregnant women and foetal development. Low levels of awareness of iron deficiency anaemia as a disease leads to the low uptake of iron and folic acid supplementation.

Limited antenatal care practices

Low rates of antenatal care visits limit the uptake of iron and folic acid supplements and prevent the diagnosis of iron deficiency anaemia among pregnant women.

Lack of support from household decision makers

In the districts targeted by this analysis, most mothers-in-law are uneducated, prefer traditional remedies and do not encourage the consumption of iron and folic acid supplements by their daughters-in-law. Male household members lack knowledge of iron deficiency anaemia, largely due to a lack of engagement by health care workers, including through counselling and awareness raising sessions. As they are unaware of the consequences of iron deficiency anaemia or how to prevent and address the disease, these household decision makers usually do not encourage the use of iron and folic acid supplements.

3.2.2 Continuous use

Supplies, affordability and acceptability play an important role in the sustained use of iron and folic acid supplements.

Inconsistent supply

The intermittent supply of iron and folic acid supplements, both at primary health care facilities and at the level of Lady Health Workers, is the greatest bottleneck to their sustained use. Patchy supply also affects the rapport between health care providers and communities, contributing to communities' mistrust of the public health system.

Missed antenatal care follow-ups

A lack of antenatal care follow-up visits is another bottleneck for the sustained use of iron and folic acid supplements.

Financial limitations

Most rural populations do not have the financial resources required to purchase iron and folic acid supplements. The fact that they cannot afford to procure the commodity in a sustained manner means that women cannot comply with guidelines for iron and folic acid supplementation.

Side effects

The reported side effects of iron and folic acid include constipation, gastric disturbance, and loose or black stools. To an extent, these side effects hamper women's sustained use of the commodity.

Lack of effective counselling

This analysis found that community concerns about the side effects of iron and folic acid are not being addressed. According to the stakeholders interviewed, facility-based health care providers lack the time to effectively engage communities. The quality of health care providers' counselling skills is a major challenge, preventing them from addressing community concerns effectively. Communities often do not trust Lady Health Workers to address their concerns about side effects, as they consider them community workers rather than skilled care providers. Community members reported different practices in terms of consuming iron and folic acid; some prefer to take supplements with water after a meal, others take it with milk after breakfast.

3.3 Quality coverage

According to the stakeholders engaged by this analysis, there is potential to expand the coverage of iron and folic acid supplementation through the Lady Health Worker Programme and outreach by other health workers. In Punjab, they suggested using Lady Health Visitors as part of antenatal care outreach to increase coverage in areas with insufficient cadres of Lady Health Workers. In Balochistan, where vast areas are uncovered by Lady Health Workers, stakeholders recommend engaging complementary cadres of Community Midwives in outreach and community-based antenatal care. Stakeholders also suggested increasingly frequent, better quality combined training for all Lady Health Workers, Lady Health Visitors, Community Midwives and Female Medical Officers.

The challenge of providing antenatal care services to mobile populations contributes to low coverage rates in all of Pakistan's provinces. Stakeholders suggest using management information systems (MIS) to track users, compliance with supplementation and share data across the districts that are home to mobile populations.

3.3.1 Effective coverage

A small proportion of women across Pakistan begin taking iron and folic acid supplements (<40 per cent). Among these women, an even a smaller proportion (<30 per cent) maintain compliance with the recommended 90-day duration for the intake of iron and folic acid supplements.

3.4 Enabling environment

A lack of political will and accountability are responsible for the limited availability of iron and folic acid supplements, as these trends cause bottlenecks in planning, procurement, supply chains and distribution of supplements. Ineffective coordination and communication across programmes and sectors also has a negative impact on iron and folic acid supplementation. Nutrition is a cross-cutting issue, overlapping with several flagship initiatives, such as the Lady Health Worker Programme. If nutrition programmes improve communication and coordination with other departments, this would strengthen collaborative efforts for iron and folic acid supplementation while reducing recurrent costs. Stronger monitoring and accountability systems are also key for improving the uptake of iron and folic acid supplementation.

3.4.1 Social norms

Lack of awareness, poverty and sub-optimal dietary habits

Communities in rural areas tend to have low incomes and lack access to balanced diets. A lack of awareness of good nutrition is also a challenge, which often prevents the consumption of nutritious foods even among households who can afford them. The women interviewed for this analysis displayed considerable awareness of sub-optimal diets and the negative impact of iron deficiency anaemia on health. Men, however, are largely unaware of iron deficiency anaemia, its causes and consequences. Most are satisfied with their own diets and the diets of women in their households. These perceptions appear to be based on their ability to provide a certain standard of diet based on their income.

Concepts of 'hot' and 'cold' food

Girls are often discouraged from eating meat, potatoes, pulses, yoghurt, eggs as these are considered to be 'hot' foods (*garam taseer*) that are believed to lead to the early onset of menstruation. Mothers-in-law restrict the food intake of their daughters-in-law based on their own beliefs around nutrition and diets. They prevent lactating women from eating dates, eggs, milk and several vegetables – including spinach, radish and carrots – as they believe that these foods hamper digestion. Lactating mothers are also told to avoid items that are considered to be 'cold' foods, which communities believe can compromise milk production.

Patriarchy and a lack of decision-making power

This analysis found evidence of men being served first in many households, and having access to more and better food compared to women. Similarly, boys are typically given more food than girls. Decision-making power at the household level lies with men and/or mothers-in-law. Women rely heavily on their husbands, mothers-in-law or male family members in terms of the provision of food, supplements and, in some case, access to emergency health services, including blood transfusions. Many women neglect their own dietary needs, focusing instead on the needs of their household and children.

Access

Communities in remote areas, such as riverine areas, have poor access to diverse foods. This contributes to nutritional deficiencies. In addition, drought-affected areas and areas with desert-like climates have poor access to clean drinking water.

Early and frequent pregnancies

Early and frequent pregnancies are the norm in most rural areas in Pakistan. This prompts nutritional deficiencies among women, especially those who are already malnourished, who are pregnant or lactating, or those with multiple children to care for.

3.4.2 Policy

Policies to increase primary health care facilities and Lady Health Worker coverage

Policies have not yet been developed to meet the health and nutrition needs of communities in remote areas which lack primary health care facilities or which are not covered by Lady Health Workers. There remains an unmet need for strategic planning to reach remote, vulnerable and high-risk communities nationwide.

Inefficient recruitment of human resources

Recruitment policies have not been streamlined to facilitate the swift replacement of health staff who retire or are transferred. As a result, Pakistan suffers from a shortage of essential health workers. Gaps in the health workforce prevent the effective dissemination of key messages and the provision of iron and folic supplements to communities across the country.

3.4.3 Budget

Smooth access to budgetary allocations

Every year, delayed budgetary approval and the release of funds in the context of PC-1s pose a major barrier to accessing funds for iron and folic acid supplementation. This hinders the timely procurement and supply of iron and folic acid supplements.

Absence of an iron and folic acid-specific budget

Iron and folic acid supplements are not a high priority commodity for governments across Pakistan. The lack of specific budgetary allocations for iron and folic acid leads to the inconsistent procurement and supply of iron and folic acid supplements.

Lack of buffers or contingency funds

There are no buffers built into budgetary allocations to meet increased demands for iron and folic acid supplementation, or to cater for contingencies.

Lack of funds for communication strategies

Communication strategies receive minimal allocations within Pakistan's already limited health budgets. This is problematic, as effective communication is the single most important intervention for raising awareness of the importance of iron and folic acid supplementation.

3.4.4 Governance

Stakeholder coordination

Nutrition is a cross-cutting issue that requires multisectoral engagement. Despite this, communication and coordination between programmes remains weak. This analysis finds that iron and folic acid supplementation is not a priority in the health system, both at the district level and downstream. District officials, facility-based health workers, Lady Health Workers and community members lack sufficient knowledge about the need for iron and folic acid supplementation, the usage of supplements, compliance with recommended intake guidelines, and their respective roles in service delivery. The consultations held to inform this analysis also reveal a lack of clarity about the objectives of nutrition programmes, and the roles and responsibilities of health workers and other stakeholders.

Procedural delays

Procedural delays result in poor adherence to procurement and supply timelines. Current procurement procedures require that requests for procurement should be submitted during the quarter for which supplies are needed. However, due to systematic delays at multiple levels – ranging from planning to execution at the provincial level – agreed timelines are not met. This causes delays in the availability of essential commodities at the community level.

Inefficient demand determination

Existing processes for calculating demand at the health facility, district and provincial levels do not follow any specific formula to accurately estimate demand. Thus, real needs at the district level are often not identified. This results in the inappropriate distribution of iron and folic acid supplements, with some districts receiving surplus supplements, while others experience shortages. Facility visits reveal that a fixed number of iron and folic acid supplements are requested every quarter, without evaluations to determine changes in demand and adjust supplies or procurement accordingly.

Supply/inefficient use of the Logistics Management Information System (LMIS)

A lack of planning causes logistical challenges, such as the unavailability of transport or access to communities, which pose a barrier to sustaining regular supplies of iron and folic acid supplements. While the Vaccine Logistics Management Information System (VLMIS) exists, it is not used for iron and folic acid supplementation. Thus, manual records are kept on iron and folic acid supplementation. The absence of an efficient management information system at the primary health care level may contribute to bottlenecks in stock management and limit timely communication on stock outs and restocking requirements.

Lack of a targeted communication strategy

Pakistan lacks full-fledged media campaigns to raise awareness of iron deficiency anaemia and promote iron and folic acid supplementation. Existing communication strategies use a generalized approach for health interventions, targeting all strata of the community. These strategies ultimately exclude populations which have difficulties in accessing information due to low levels of education, language barriers, or because they lack the financial resources to access mediums of communication.

The stakeholders consulted for this analysis report that most media campaigns are designed to target urban areas. The approaches they use – such as streamers, banners and posters – cannot achieve desired impacts in rural areas. Moreover, information, education and communication (IEC) materials for delivering comprehensive and sustainable counselling for end users is not available. View published flyers provide helpful visual cues to pregnant and lactating women on the benefits or side effects of iron and folic acid supplementation.

Lack of evidence-based behaviour change communication strategies

There has been limited research on how communities perceive or use information on iron and folic acid supplementation. Without such evidence, it is impossible to develop effective, comprehensive communication strategies. Important tools are not used – such as a social, behavioural and marketing research – to identify the most suitable approaches for reaching populations in need.



04
PROVINCIAL
BOTTLENECKS AND
RECOMMENDATIONS

CHAPTER 4.

PROVINCIAL BOTTLENECKS AND RECOMMENDATIONS

The following sections highlight existing bottlenecks to iron and folic acid supplementation in each province and region of Pakistan, as well as recommendations put forth during the consultation workshop on 17 December 2020.

4.1 Punjab: Bottlenecks

4.1.1 Supply

Availability of iron and folic acid

Inconsistent supply/stock outs at primary health care facilities

Iron and folic acid tablets are available at primary health care facilities in the districts of Multan and Chiniot. However, end users and health workers report an inconsistent supply, resulting in frequent stock outs. According to these stakeholders, one recent stock out of iron and folic acid supplements at primary health care facilities lasted up to six months. When supplies are available, district level provisions are only considered sufficient to meet 50 per cent of existing demand in each quarter. Stakeholders report that families are increasingly demanding iron and folic acid for adolescent girls. This increase in the user base contributes to the inability of supply to meet demand.

Impact of COVID-19 on the supply of iron and folic acid

To support the COVID-19 response in the first half of 2020, limited financial resources were re-allocated. This hampered the procurement of iron and folic acid supplements, resulting in an inconsistent supply.

Lack of a contingency/back up supply mechanism and an IFA-specific budget

There are no back-up mechanisms in place in Punjab to support procurement when demand increases, leading to stock outs until the next quarter's supply becomes available. This often takes considerable time due to lengthy procedures. No specific budget is available for iron and folic acid. Therefore, iron and folic acid supplements tend to be neglected in the face of competing priorities for the procurement of other medicines.

Inconsistent supply/stock outs among Lady Health Workers

According to Lady Health Workers in the districts of Multan and Chiniot, iron and folic acid supplements have been unavailable for between six and nine months, with variations in both districts. They report that stocks for three months were provided in February. Similarly, end users report an intermittent supply of iron and folic acid and stock outs lasting between one and three months in general. They report that, when stocks are available, Lady Health Workers try to provide them with extra supplements to compensate for missed days.

Insufficient supply and increasing user base

Growing nutritional deficiencies among adolescent girls have led to an increased demand from parents for iron and folic acid supplementation for their daughters. As noted above, this results in a shortage of supplies for pregnant and lactating women.

Inefficient stock management

As a result of delayed procurement and provision from the provincial to the district level, available iron and folic acid supplements are often expired or near their expiry date. This leads to the wastage and shortage of essential supplements. While a Logistics Management Information System/ Vaccine Logistics Management Information System is in place, it is not utilized for iron and folic acid supplementation. Instead, manual records are kept of iron and folic supplementation. Stakeholders report that access to digital record keeping cannot be provided to users on the ground (Lady Health Workers, Lady Health Supervisors and basic health units) because they lack internet connections, computers and other devices. The absence of an efficient management information system at the primary health care level contributes to roadblocks in stock management, and hampers swift communication on stock outs.

Availability of human resources

Vast areas uncovered by Lady Health Workers

Although Punjab fares better than other provinces in terms of Lady Health Worker coverage, vast rural areas in Punjab remain uncovered by these essential health workers. Populations in uncovered areas have the least knowledge of iron deficiency anaemia and its consequences, as well as of iron and folic acid supplementation, balanced diets and the need to consume essential nutrients to prevent nutritional deficiencies.

Sub-optimal knowledge and counselling skills of facility-based health workers

The facility-based health care providers engaged for this analysis gave answers which are not consistent with guidelines on the initiation, duration, usage and dosage of iron and folic acid supplements. They also lack awareness about side effects of iron and folic acid supplementation, and strategies to manage side effects. In general, they do not inquire about patients' dietary intake and habits.

Geographical accessibility

Hard-to-reach communities

Communities in remote parts of Punjab are largely not covered by Lady Health Workers. Primary health care facilities are few and far between in areas, obliging locals to travel long distances if they require medical assistance. This limits access to health care, resulting in low levels of antenatal health care-seeking behaviour, including iron and folic acid supplementation. Riverine communities are prime examples of populations without fair access to health care. The absence or poor condition of key infrastructure, especially roads, restricts communities' access to health care and hampers the supply of iron and folic acid through health care facilities and community health workers.

4.1.2 Demand

Initial utilization

Low awareness of iron deficiency anaemia as a disease

Pregnant and lactating women in Punjab tend to have low levels of awareness of iron deficiency anaemia and its consequences. This is especially true for women living in areas that are not covered by Lady Health Workers, or in remote riverine communities. Communities usually believe that iron deficiency anaemia is an outcome of pregnancy, rather than a disease that adversely impacts pregnant women and foetal development. This lack of awareness of iron deficiency anaemia as a

serious disease leads to the low uptake of iron and folic acid supplementation. Stakeholders report many instances of women being brought to primary health care facilities in critical condition, with haemoglobin levels that had dropped to 7 mg/dl.

Continuous use

Side effects

Reported side effects of iron and folic acid supplementation include constipation, gastric disturbance, and loose or black stools. These side effects negatively affect the sustained use of iron and folic acid supplements to a certain extent.

Lack of effective counselling

Community concerns about the side effects of iron and folic acid supplementation tend to go unaddressed. Stakeholders report that facility-based health care providers are unable to effectively address community concerns because they lack the time to do so. The quality of health care providers' counselling skills is a major issue underlying their inability to address concerns. In addition, communities often do not believe that Lady Health Workers will be able to address their concerns, as they are regarded as community workers rather than skilled health care providers. Stakeholders gave varied responses when asked about how iron and folic acid supplements should be consumed. Some prefer to take supplements with water after a meal, while others take supplements with milk after breakfast.

4.1.3 Enabling environment

Social norms

Lack of awareness, poverty and sub-optimal dietary habits

Communities in rural Punjab tend to have low incomes, which limits their access to balanced diets. A lack of nutrition-related awareness is also a problem. Even people who can afford nutritious food often do not have balanced, healthy diets simply because they lack awareness. Women appear to be more aware of sub-optimal dietary intakes and the toll that iron deficiency anaemia takes on physical health. Men, by contrast, are largely unaware of iron deficiency anaemia, its causes and consequences. The male stakeholders engaged for this analysis are satisfied with their own diets and the diets of women in their households. However, their perceptions are based on their ability to provide a certain standard of diet based on their income. Stakeholders also report that adolescent girls and young women are prone to dieting, even in poor communities, which can lead to nutritional deficiencies.

Stakeholders report that cultural barriers to good nutrition have eased somewhat thanks to awareness raising on social media platforms. However, tribal and/or remote areas, including riverine communities, which lack access to social media have maintained traditional norms around nutrition.

Access

Communities in remote and/or riverine areas have poor access to diverse foods, which contributes to nutritional deficiencies. In addition, areas with desert-like climates have poor access to clean drinking water.

Early and frequent pregnancies

Early and frequent pregnancies are the norm in most rural areas, causing considerable nutritional deficiencies among women who are already malnourished, lactating women, pregnant women, and women with several children to care for.

Budget

Smooth access to budgetary allocations

According to the stakeholders consulted for this analysis, inconsistent supplies of iron and folic acid are linked to a number of budget-related challenges:

- There is a lack of available funding at the start of every year, or for projects in development mode, which hinders the timely procurement and supply of iron and folic acid.
- Projects awaiting PC-1 renewal experience similar funding challenges, which limit the procurement and supply of iron and folic acid throughout the year.
- As iron and folic acid supplementation is a low priority, the procurement of supplements is often ignored when funds are limited for the procurement of essential medicines. This contributes to inconsistent supplies of iron and folic acid.

Lack of iron and folic acid-specific buffers or contingency funds

There are no buffers built into budgetary allocations in Punjab that could be used to cater to increase demand for iron and folic acid supplements, or to cater for contingencies.

Governance

Procedural delays

Procedural delays result in poor adherence to procurement and supply timelines. The current procurement procedure in Punjab involves the submission of procurement requests during the quarter for which supplies are required. However, systematic delays at multiple levels – ranging from planning to execution at the provincial level – prevent agreed timelines from being met. This causes delays essential commodities being made available at the community level.

Lack of a targeted communication strategy

Stakeholders report the absence of full-fledged media campaigns to raise awareness of iron deficiency anaemia and promote iron and folic acid supplementation in Punjab. Existing communication strategies use a generalized approach for health interventions, targeting all strata of the community. This results in the exclusion of populations who cannot access information due to low levels of education, language barriers, or because they lack the financial resources needed to access mediums of communication.

According to the stakeholders consulted for this analysis, most media campaigns are designed to target urban areas. They use approaches such as streamers, banners and posters, which cannot achieve desired impacts in rural areas. Information, education and communication materials for delivering comprehensive and sustainable counselling for end users is not available. There is also a lack of flyers with helpful visual cues for pregnant and lactating women on the benefits and side effects of iron and folic acid supplementation.

Lack of evidence-based behaviour change communication strategies

Research is lacking on how communities perceive or use information, or on the factors that hinder the development of effective and comprehensive communication strategies. Tools such as a social, behavioural and marketing research are not used to identify the most suitable approaches for reaching local populations.

4.2 Punjab: Recommendations

4.2.1 Improve supply

Increase the availability of iron and folic acid supplements

Address insufficient supplies and frequent stock outs

- Introduce an iron and folic acid-specific budget and buffer funds to cater for contingencies.
- Sensitize District Health Officers on the importance of iron and folic acid supplementation and the absolute need for timely procurement.
- Make District Health Officers responsible for the procurement of iron and folic acid for all health care facilities and community workers, including Lady Health Workers. Stakeholders recommend that facility Health Managers should report to District Health Officers regarding the supplies required for both health care facilities and the Lady Health Workers affiliated with them. Ultimately, only one authority should be responsible for procuring and supplying iron and folic acid.

Meet the needs of the user base

- Ensure optimal iron and folic acid supplementation coverage for pregnant and lactating women immediately, as the key target group in need of supplementation. While participants agree that iron deficiencies exist among adolescent girls, in light of current challenges to the supply of iron and folic acid, pregnant and lactating women's needs must be met first. Once their needs are met, the iron and folic acid supplementation programme should be scaled up to address the needs of adolescent girls. This prioritization is necessary because addressing adolescent needs and the needs of pregnant and lactating women simultaneously will further burden the iron and folic acid supplementation programme.

Make stock management more efficient

- Formally assign the responsibility for stock management to suitable cadres at all levels, from the community level, to the level of health facilities, the tehsil level and, finally, the district level. Responsible persons must be trained on stock management again, and provided with essential tools, such as computers, software and internet access.

Improve the availability of human resources

Reach vast areas uncovered by Lady Health Workers

- Use community health workers to provide health education and services to inaccessible communities. Explore options for deploying such staff, with help from partners or by engaging Community Midwives who reside in the vicinity. Stakeholders also recommend renewing the original role of Lady Health Visitors – which included community outreach visits – in order to support and enhance existing outreach by Lady Health Workers by reaching areas uncovered by Lady Health Workers.

Strengthen the knowledge and counselling skills of facility-based health workers

- Provide biannual refresher training to all staff engaged in the iron and folic acid supplementation programme. These trainings should focus solely on iron and folic acid supplementation, rather than merely including iron and folic acid supplementation as a component in antenatal care trainings. Stakeholders recommend that training on iron and folic acid supplementation should include a rigorous component on interpersonal skills and counselling skills.
- Enhance the capacities of Lady Health Workers, Lady Health Visitors, Community Midwives and Female Medical Officers, with a focus on training and utilizing the skills of Community Midwives and Female Medical Officers. This is importance given their extensive medical training and communities' reliance on and trust in their opinions. Stakeholders also recommend that Lady Health Visitors should engage with communities alongside Lady Health Workers.

4.2.2 Increase demand

Promote initial utilization

Raise awareness of iron deficiency anaemia as a disease

- Use community health workers to provide health education and services in inaccessible communities, as recommended above, and explore options for deploying such staff with the help of partners or by engaging Community Midwives who reside in the vicinity. As above, stakeholders recommend renewing the original role of Lady Health Visitors in terms of antenatal care service delivery in the field, in order to support and enhance the existing outreach by Lady Health Workers. This will supplement efforts by limited cadres of Lady Health Workers and help to expand services to uncovered areas. As remote communities may experience barriers to accessing regular communication campaigns, stakeholders recommend adopting a more inclusive communication strategy and materials/mediums to engage these communities.

Promote continuous use

Ensure effective counselling

- Create an iron and folic acid-specific desk at health care facilities, designated for diagnosing and delivering targeted counselling on iron and folic acid intake, compliance and strategies to mitigate side effects. Stakeholders recommend that advertisements and information, education and communication materials related to iron and folic acid supplementation should include messages to educate women on side effects and mitigation strategies.

4.2.3 Foster an enabling environment

Address social norms

Address a lack of awareness, poverty and sub-optimal dietary habits

- Run mass awareness raising campaigns on iron and folic acid supplementation targeting different socio-economic groups, and actively engage decision-making authorities to mitigate cultural barriers to improving dietary habits, access to nutritious food and the uptake of essential supplements, including iron and folic acid. Stakeholders suggest using multiple mediums of communication depending on different community's access levels and linguistic differences. Deploy information, education and communication materials that rely on visual/pictorial communication to deliver key messages to rural communities.

Improve access

- Strengthen social security nets, and provide technical support and small loans to small-scale farmers to promote kitchen gardening and other innovative agricultural practices that do not require large amounts of land.

Address early and frequent pregnancies

- Engage supportive tribal leaders, community gate keepers – including the *ulema* at the village and provincial level – to discourage early marriage and support birth spacing.

Ensure smooth access to budgetary allocations

- Remove complicated multiple streams of supply and ease procurement processes by requiring the Department of Health to introduce a specific budget for iron and folic acid supplementation and buffer funds to cater for contingencies. As recommended above, District Health Officials should be sensitized on the importance of iron and folic acid supplementation and the absolute need for timely procurement. As recommended above, District Health Officers should be responsible for the procurement of iron and folic acid for all health care facilities and community workers, including Lady Health Workers. Stakeholders suggest that facility Health Managers should report to District Health Officers about the supplies required for both health facilities and the Lady Health Workers affiliated with them. Ultimately, only one authority should be responsible for procuring and supplying iron and folic acid supplements.

Introduce IFA-specific buffers or contingency funds

- Allocate a specific budget for iron and folic acid supplementation in order to minimize the impact of financial diversions or obstructions due to emergency situations, such as the current COVID-19 pandemic, on the procurement of iron and folic acid. Stakeholders recommend securing an additional supply (equivalent to 30 per cent of the total supply of iron and folic acid) to serve as a buffer stock which can be used to cater for spikes in demand or delayed supplies.

4.2.4 Strengthen governance

Address procedural delays

- Strictly adhere to the timelines for the supply of iron and folic acid. Requests for supplies should be made by the districts in the quarter before the supply will be needed, in order to ensure that there is ample time to fulfil essential procurement procedures. To ensure timeliness, an active oversight mechanism must be introduced to supervise the staff who are responsible for responding to requests.

Improve communication

Develop and implement a targeted communication strategy

- Improve the packaging and marketing of iron and folic acid supplements to attract target groups. Adopting a health marketing strategy could increase the value of iron and folic acid supplements, thus increasing demand and compliance. Stakeholders suggest engaging pharmaceutical companies and/or big brands to use a small proportion of their advertisement budgets to support public health campaigns. In this way, tried and tested corporate product marketing strategies can be adapted for iron and folic acid supplementation.
- Revamp the communication strategy for iron and folic acid by allocating sufficient budgets for communication and mobilization. An evidence-based strategy needs to be developed to reach

the general public, which is inclusive of ethnic and linguistic diversity in the population, and sensitive towards different groups' access to media platforms.

Utilize evidence-based behaviour change communication strategies

- Develop and implement a long-term behaviour change communication (BCC) strategy to create impact, given that the uptake of and compliance with iron and folic acid supplementation directly depends on health-seeking behaviours. It is essential to assess community perceptions of iron and folic acid packaging, marketing and communication to understand barriers within communication strategies which may hinder the uptake of and compliance with iron and folic acid supplementation. Stakeholders also recommend ensuring a continuous feedback loops between the levels of supply and demand to streamline behaviour change communication over time.

4.3 Sindh: Bottlenecks

4.3.1 Supply

Availability of iron and folic acid

Inconsistent supply/stock outs among Lady Health Workers

Lady Health Workers in Sindh report a lack of supplies of iron and folic acid, lasting more than five months. Due to an inconsistent supply of iron and folic acid within the Lady Health Worker Programme, community members note that they are referred to government health facilities or private health facilities to secure iron and folic acid supplements.

Insufficient supply/stock outs at primary health care facilities

According to facility-based health care workers in Sindh, the supply of iron and folic acid is to meet demand in communities. To cater to communities despite their insufficient stocks, health care workers only prescribe iron and folic acid supplements only when a woman's haemoglobin levels are severely low. This results in low coverage and unmet needs for iron and folic acid supplementation at the community level.

In stark contrast, basic health units run by the People's Primary Healthcare Initiative (PPHI) report that they have not experienced any challenges related to the insufficient and/or inconsistent supply of iron and folic acid. This reduces communities' reliance on and trust in public health care services provided by the Government.

Inefficient stock management

Stakeholders result that Sindh lacks an inefficient system for stock maintenance, including the robust use of the Logistics Management Information System by essential stakeholders. Stock management challenges result in shortages and the insufficient supply of iron and folic acid in Sindh. For instance:

- A lack of timely reporting about iron and folic acid stocks contributes to delayed requests for supplements, causing gaps in stocks available on the ground.
- Inefficient communication channels between provincial and district authorities result in the sub-optimal procurement and supply of iron and folic acid supplements, leading to stock outs and gaps in coverage.

- A lack of access to in-person representation and inter-district coordination at the district level restricts district-to-district communication about severe shortages of iron and folic acid supplements. As such, districts experiencing stock outs are not able to request additional supplies from districts which have a surplus of supplements. However, according to some of the participants consulted for this study, a lack of timely reporting is not a bottleneck experienced in Sindh. Both Lady Health Workers and facility-based health care workers submit reports on the 18th of every month, and these reports include a component on iron and folic acid supplements. As such, they consider that challenges related to delayed reports of iron and folic acid requirements do not exist in Sindh. Moreover, since iron and folic acid supplements are provided to districts based on the number of Lady Health Workers and the catchment population of each district, participants believe that iron and folic acid supplements are not poorly distributed among Sindh's district. They report that every district receives sufficient supplies based on its needs.
- Due to logistical issues and inefficient communication, iron and folic acid supplements are often stockpiled in warehouses for long periods of time. As a result, many of these stocks expire before they can be used.

Impact of COVID-19 on the supply of iron and folic acid

According to the health care workers consulted for this analysis, restrictions introduced due to the COVID-19 pandemic and related resource reallocation made stocks of iron and folic acid unavailable at the provincial level, leading to shortages in iron and folic acid supplements on the ground.

Availability of human resources

Uninformed human resources

This analysis finds that district level managers are largely uninformed about their own roles and responsibilities within the Nutrition Programme, as well as the roles and responsibilities of their subordinates. While staff and health care workers are aware of the importance of providing iron and folic acid supplements, they lack knowledge of the government intervention in general, as well as stakeholders' key roles in particular. For instance, many are not aware that iron and folic acid supplementation is a government intervention targeting women. Some participants consulted for this analysis attributed health care workers' lack of awareness to structural changes and revisions in job descriptions which have not yet been disseminated. Stakeholders also note that information, education and communication materials on antenatal care and iron and folic acid supplementation are not available at health care facilities. This increases the likelihood that health care workers are not fully aware of the intervention. According to one participant, however, Sindh does not have a standalone Iron and Folic Acid Supplementation Programme. Instead, iron and acid supplementation is part of the primary care provided to women by Lady Health Workers for more than a decade.

Nevertheless, concerns about workers' lack of knowledge reveals serious gaps in the training of health care workers, as well as the messaging directed towards them. There is also considerable confusion among health care workers about guidelines for initiating iron and folic acid supplementation, and a lack of clarity about the duration of supplementation.

Infrequent and/or absence of iron and folic acid-specific training

Facility and community-based health care workers in Sindh report that no iron and folic acid-specific training is provided to them. While trainings on antenatal care includes a component on iron and

folic acid supplementation, these trainings are not conducted frequently. Health care workers at the facility level report that they had not participated in training in over two years. Similarly, Lady Health Workers report that no trainings have been conducted in the last three to four years. Both facility-based and community-based health care workers emphasize the need of frequent refresher trainings, as well as training on compliance with iron and folic acid supplementation, side effects and patient counselling on uptake.

Geographical accessibility

Hard-to-reach communities

As in other parts of Pakistan, many remote communities in Sindh are hard to reach. According to the stakeholders consulted for this analysis, no efforts have been made to reach mobile populations with iron and folic acid supplementation. As a result, a large proportion of the most vulnerable population in Sindh remains uncovered.

Far-flung health care facilities

Stakeholders report that many health care facilities are essentially inaccessible to rural communities living in remote areas, either due to logistical or financial constraints. Reaching health centres also involves using public transport or hiring taxis, which involves out-of-pocket costs. This prevents communities from regularly accessing health care facilities, including for the purposes of important check-ups. In general, members of remote communities only visit health care facilities in emergencies.

4.3.2 Demand

Initial utilization

Lack of awareness of the Iron and Folic Acid Supplementation Programme

Sindh's population appears largely unaware that iron and folic acid supplementation is part of the Government's Nutrition Programme. The consultations conducted for this analysis also reveal that communities lack awareness of the Nutrition Programme in general, as well as interventions conducted by the Government to improve nutrition and address nutritional deficiencies. Communities often become aware of initiatives through 'word of mouth', learning information from fellow community members. This indicates that community engagement and mobilization activities conducted for multiple interventions under the Nutrition Programme remain weak in Sindh.

Community perceptions of iron and folic acid supplementation

Communities in Sindh report concerns about the name used to refer to iron and folic acid supplements, which are often called 'strength boosting medicine' (*taaqat ki dawai*). This causes communities to fear that iron and folic acid supplements are steroids that should not be taken by women and children. However, when supplements are referred to as 'iron tablets' and 'folic acid tablets', there is a far greater community acceptance of iron and folic acid supplements.

Continuous use

Side effects

Communities in Sindh report that women often discontinue the use of iron and folic acid supplements due to side effects. Many community members consulted for this analysis report that they were not informed of potential side effects before being given iron and folic acid supplements. This caused panic and fear whenever they experienced side effects during the utilization of iron and folic acid supplements.

4.3.3 Enabling environment

Social norms

Reluctance of male community members to participate in community engagement

Despite efforts by Lady Health Workers to engage all members of communities, including decision makers, male community members are reluctant to join counselling sessions. They consider such sessions to be about 'women's affairs' that do not concern men. Men's lack of participation prevents the effective reach of behaviour change communication (BCC) messages among community gatekeepers and decision makers. This reduces the efficacy of community engagement strategies to enhance the use of and compliance with iron and folic acid supplementation. Men's lack of engagement is a major bottleneck, especially given low level of antenatal care visits in Sindh due to restrictions imposed by decision makers, and their disapproval of women visiting health care facilities unless there is an emergency.

Preference for rapid relief mechanisms

Communities in Sindh prefer injections and intravenous (IV) drips which offer quicker relief than supplements. This results in the low uptake and limited sustained use of iron and folic acid supplements.

Fear of gaining weight

According to the community members consulted for this analysis, many adolescent girls in Sindh avoid using iron and folic acid supplements because they fear that these supplements will cause them to gain weight.

Policies and legislation

Insufficient recruitment

Due to the stark shortage of community-based health care workers in Sindh, existing field workers have an immense workload. As the Iron and Folic Acid Supplementation Programme has not been prioritized, community-based health workers often neglect keeping records of the supply of iron and folic acid supplements, resulting in the mismanagement of supplies and, ultimately, shortages and/or early stock outs. Without efficient recruitment policies in place to swiftly fill vacant posts, gaps in human resources have been increasing over time.

Governance and robust planning

Delayed procurement process

Authorities in Sindh report that the procurement of iron and folic acid is often delayed at the provincial level due to conflicts and delayed decisions about contract rates. This negatively affects the timely procurement and distribution of iron and folic acid supplements.

Weak Coordination and communication channels

Weak coordination and communication between relevant authorities results in misinformation and delayed decision-making. These bottlenecks negatively affect the smooth implementation of the Iron and Folic Acid Supplementation Programme in Sindh.

4.4 Sindh: Recommendations

4.4.1 Increase supply

Improve the availability of iron and folic acid

Ensure consistent supply and address stock outs among Lady Health Workers

- Ensure the consistent supply of iron and folic acid supplements and address the possibility of stock outs among health care facilities and Lady Health Workers. It is important to note, however, that the participants consulted for this analysis largely refute reports that Lady Health Workers experience frequent stock outs of iron and folic acid supplements. Nevertheless, they agree that shortfalls in the supply of iron and folic acid occurred as a result of the COVID-19 pandemic and related restrictions. Moreover, some stakeholders refute reports that community members are referred to private facilities for iron and folic acid supplements due to inconsistent supplies among public health facilities and community health workers.

Ensure consistent supply and address stock outs at primary health care facilities

- Use a standardized formula to calculate growing demand for iron and folic acid supplements in order to avoid insufficient supply and/or stock outs. It is worth noting that the stakeholders consulted for this analysis expressed conflicting opinions about the supply of iron and folic acid. According to one provincial authority, supplies of iron and folic acid supplements are provided on the basis of the catchment population for each Lady Health Worker, and therefore, there is no chance of shortages. However, according to another provincial authority, there is no standard calculation method in place to determine demand at both the health facility and community levels, which is necessary to ensure that sufficient provisions of iron and folic acid are available for target groups.
- Ensure thorough and timely communication between provincial and district authorities. While participants consulted for this analysis recognize that improvements have been made to communication channels, they note that more can be done to improve communication.
- Address transportation challenges that hinder the timely supply of iron and folic acid to Lady Health Workers' health houses and health care facilities. Stakeholders consulted for this analysis highlight the need to address the challenges that Lady Health Supervisors often face to collecting supplies from stores and distributing supplements to Lady Health Workers due to a lack of transportation.
- Reform supply chain mechanisms by strengthening reporting and communication channels throughout the supply chain for iron and folic acid. Stakeholders point out that, if district level demands are not accurately reported, commodities can remain in storage in warehouses, leading to expired and wasted commodities. They emphasize that the stockpiling and expiration of commodities is a management issue, rather than a challenge related to a lack of transportation facilities.

Improve the availability of human resources

- Enhance the capacity and awareness of human resources. Conduct trainings for health care providers to inform them of their roles and responsibilities for every government programme, including the Iron and Folic Acid Supplementation Programme, in order to ensure that these workers are aware of their roles and duties.

Deliver frequent iron and folic acid-specific training

- Conduct the planned 12-day training on the new revised curriculum for Lady Health Workers. The participants consulted for this analysis offered no further recommendations related to training, as they report that refresher trainings are conducted on a quarterly basis with multiple stakeholders through UNICEF and other partners.
- Make job aides available for gynaecologists, Medical Officers and Lady Health Visitors/Lady Health Workers.

Enhance geographical accessibility

Reach hard-to-reach communities

- Expand the coverage of iron and folic acid supplementation, slowly and gradually, to remote areas by increasing the number of Lady Health Workers in Sindh. Until official recruitment takes place, stakeholders recommend securing additional funds to hire community health workers.

4.4.2 Increase demand

Promote initial utilization

Address community perceptions of iron and folic acid supplementation

- Adopt a rigorous behaviour change communication strategy to engage all members of communities with comprehensive message delivery, in order to improve the uptake of and compliance with iron and folic acid supplementation.

Promote continuous use

Address concerns about side effects

- Improve counselling strategies by training health care workers on counselling mechanisms. All of the participants consulted for this analysis agreed on this recommendation.

4.4.3 Foster an enabling environment

Strengthen governance

Address delays in the procurement process

- Decentralize the procurement process to allow Sindh's districts to procure supplies of iron and folic acid according to demand among local communities.

4.5 Khyber Pakhtunkhwa: Bottlenecks

4.5.1 Supply

Availability of iron and folic acid

Iron and folic acid batch testing delays

After procurement at the provincial level, iron and folic acid supplements are shipped to the districts of Khyber Pakhtunkhwa. However, safety testing at laboratories delays the provision of iron and folic acid supplies to Lady Health Workers. Iron and folic acid supplements are procured by multiple entities (partners such as UNICEF, primary health care facilities, Nutrition International and IRH procurement) based on demand and procurement does not address the caseload of iron deficiency anaemia in the province.

Unmet needs

No studies have been undertaken to calculate unmet needs for iron and folic acid supplementation in Khyber Pakhtunkhwa.

Inefficient stock management

As a VLMIS does not exist in Khyber Pakhtunkhwa, no digital management information system is used to track iron and folic acid supplementation. Instead, manual records are kept. Stakeholders note that users on the ground (Lady Health Workers/Lady Health Supervisors and basic health units) cannot be provided with access to a digital management information system because they lack access the internet and access to computers or technological devices. The absence of an efficient management information level at the primary health care level contributes to roadblocks in stock management and prevents swift communication about stock outs.

Availability of human resources

Vast areas uncovered by Lady Health Workers

Considerable areas in Khyber Pakhtunkhwa are rural, particularly in mountainous regions. These vast rural areas are not covered by Lady Health Workers. Local populations of these remote areas have lowest levels of knowledge of iron deficiency anaemia and its consequences, iron and folic acid supplementation, balanced diets, and the need for essential nutrients to avert nutritional deficiencies.

Overburdened Lady Health Workers

Due to the province's rugged terrain and a lack of transportation in Khyber Pakhtunkhwa, Lady Health Workers find it very difficult to access all of the communities they are assigned to in a timely manner. This leads to gaps in the provision of health care.

4.5.2 Demand

Initial utilization

Impact of the Polio Programme on Lady Health Workers

Certain communities in Khyber Pakhtunkhwa have a deep mistrust of Lady Health Workers due to their association with polio campaigns. Given this lack of trust, they refuse to allow Lady Health Workers to enter their homes for any health-related purpose.

Continuous use

Mobile populations' compliance with iron and folic acid intake

A large proportion (20 per cent) of Swat's population change their place of residence twice each year. They reside in cities with more temperate climate during the winter, before moving to ancestral lands in summer. This makes it difficult for health workers to track compliance with iron and folic acid supplementation.

Low awareness of iron deficiency anaemia as a disease

Overall, pregnant and lactating women have low levels of awareness regarding iron deficiency anaemia and its adverse effects. This is especially true for women those living in areas that are not covered by Lady Health Workers, or in remote riverine communities.

4.5.3 Enabling environment

Social norms

Lack of awareness, poverty and sub-optimal dietary habits

Communities in rural areas tend to have low incomes, which prevents them from accessing healthy,

balanced diets. However, a lack of awareness is also a problem. Even people with the financial resources to access nutritious foods largely do not do so as they lack nutrition-related awareness. Women demonstrate greater awareness of sub-optimal dietary intake and the physical toll that iron deficiency anaemia takes on health. Men, by contrast, are largely unaware of iron deficiency anaemia, its causes and consequences. They express satisfaction with their own diets and the diets of women in their households. These perceptions are based on men's ability to provide a certain standard of diet based on their income.

Governance

Lack of a targeted communication strategy

Khyber Pakhtunkhwa lacks full-fledged media campaigns to raise awareness of iron deficiency anaemia and promote iron and folic acid supplementation.

Stakeholder coordination

Nutrition is a cross-cutting health issue that requires multisectoral engagement. However, inter-programme communication and coordination is extremely weak. Iron and folic acid supplementation does not appear to be a priority within the health system at the district level and downstream. Stakeholders – including district officials, facility-based health workers, Lady Health Workers and communities – lack knowledge of the need for iron and folic acid supplementation, usage and compliance guidelines, and their roles in service delivery. The consultations held to inform this analysis also reveal a general lack of clarity regarding the objectives of the nutrition programme, and the roles and responsibilities of different stakeholders, including health workers.

District leadership

With the exception of high level communication with stakeholders at the provincial level, District Health Officers tend to delegate most responsibilities to the coordinators of the Nutrition and Lady Health Worker Programmes. This leads to sub-optimal programme performance. There is also a need for greater collaboration with the private sector through public-private partnerships.

4.6 Khyber Pakhtunkhwa: Recommendations

4.6.1 Improve supply

Increase the availability of iron and folic acid

Address iron and folic acid batch testing delays

- Form groups and committees at the provincial and district levels which include representatives of stakeholders related to supply and storage across the board.
- Deliver supply chain management trainings from top to bottom.
- Appoint dedicated human resources to key positions at the district and provincial levels, and ensure that they possess suitable academic training and skills.

Make stock management more efficient

- Formally assign responsibility for stock management to suitable cadres at all levels, from the community level to the level of health care facilities, to the tehsil level and, finally, the district level. These stakeholders should be trained on stock management again and be provided with essential tools, such as computers, software and internet access.

Improve the availability of human resources

Increase the recruitment of Lady Health Workers

- Ensure that the planned numbers of new Lady Health Worker recruits are brought on board quickly. More Lady Health Workers are needed in Khyber Pakhtunkhwa. Stakeholders recommend securing a promise for greater recruitment from the Planning and Development Department, following sustained lobbying by the Department of Health which should involve other major stakeholders.

Reach vast areas uncovered by Lady Health Workers

- Ensure that areas which will not be covered by newly hired Lady Health Workers are covered by Community Midwives. These Community Midwives should be provided with a stipend, with the support of development partners. This model should be piloted for between two and three years. After this, it should be taken up by the Department of Health for full-scale implementation.

4.6.2 Increase demand

Promote initial utilization

Address the impact of the Polio Programme on Lady Health Workers

- Foster engagement between health authorities, the *ulema* and community leaders in rural areas to alleviate the stigma associated with the Polio Programme.
- Foster engagement between health authorities, the *ulema* and community leaders in rural areas to alleviate the stigma associated with the Polio Programme.

Promote continuous use

Promote mobile populations' compliance with iron and folic acid intake

- Develop mechanisms for the seasonal procurement of iron and folic acid, based on demand, for areas with mobile populations both in mountainous locations and the plains where mobile groups live during the summer.

4.6.3 Foster an enabling environment and strengthen governance

Improve communication

Introduce a targeted communication strategy

- Run mass campaigns targeting different socio-economic strata of population on the importance of iron and folic acid supplementation. These campaigns should actively engage decision-making authorities to mitigate the multiple cultural barriers to improved dietary habits, access to nutritious food, and the uptake of essential supplements, including iron and folic acid. To raise awareness and increase demand, stakeholders also suggest using multiple mediums of communication, depending on communities' level of access and linguistic differences. Deploy information, education and communication materials that rely on visual/pictorial communication to deliver key messages to rural communities.

Raise awareness

- Develop and implement a comprehensive communication and awareness raising campaign covering all aspects of iron and folic acid supplementation.
- Undertake a study to analyse the current coverage of iron and folic acid supplementation and compliance with iron and folic acid supplementation.

Enhance coordination and district leadership

Improve stakeholder coordination

- Use the Multi-sectoral Nutrition Strategy platform to engage nutrition-related stakeholders within line departments.
- Conduct workshops to further streamline and delineate the roles of departments and other stakeholder, as well as to develop key performance indicators.
- Hold regular meetings, headed by the Director General, to assess individual and overall progress.

Support district leadership

- Sensitize District Health Officers and take them on board for nutrition and related activities. Stakeholders recommend that District Health Officers should be responsible for the procurement of iron and folic acid for all health facilities and community workers, including Lady Health Workers. Facility Health Managers should report to District Health Officers on the supply required for both health facilities and the Lady Health Workers affiliated with them. Ultimately, only one authority should be responsible for procuring and supplying iron and folic acid supplements.

4.7 Balochistan: Bottlenecks

4.7.1 Supply

Availability of iron and folic acid

Inconsistent supply/stock outs at primary health care facilities

Health care workers and end users are both concerned about periodic stock outs as the result of the inconsistent and insufficient supply of iron and folic acid supplements. Stakeholders report gaps in supplies at primary health posts lasting up to six months. Lady Health Workers similarly report the unavailability of iron and folic acid supplements for over six months. However, district authorities indicate that medicines were provided by the Medical Store Depot (MSD) 12 months ago. Additional information from the Lady Health Worker Programme reveals iron and folic acid stocks for the past three years. Key obstacles to the timely supply of iron and folic acid include the stringent rules of the Balochistan Public Procurement Regulatory Authority (BPPRA), as it takes six months to fulfil protocols and ensure that the necessary paper work is ready for the procurement process.

Sub-optimal procurement system

The existing system for iron and folic acid procurement is outdated. It is not optimally equipped to calculate needs based on demand, forecast contingencies, procure adequate supplies of commodities, and deliver these commodities in a timely and efficient manner.

Inefficient stock management

As a VLMIS does not exist in Balochistan, a digital management information system is not used for iron and folic acid supplementation. Instead, manual records are kept. Stakeholders note that access to a digital management information system cannot be provided for users on the ground (Lady Health Workers/Lady Health Supervisors and basic health units) because they lack access to the internet and computers/technological devices. The absence of an efficient management information system at the primary health care level contributes to roadblocks in stock management and prevents swift communication about stock outs.

Availability of human resources

Patchy availability of medical officers/female medical officers

Many primary health care facilities are not staffed by Medical Officers/Female Medical Officers. This hampers antenatal care-seeking behaviours among women, including iron and folic acid supplementation.

Inefficient recruitment at the Department of Health

Balochistan's Department of Health struggles to fill human resource gaps, especially vacant posts in rural areas. As a result, there is a shortage of essential workers in key posts, which negatively affects essential health service delivery.

Vast areas uncovered by Lady Health Workers

Much of Balochistan's territory is rural and vast tracts of these rural areas are not covered by Lady Health Workers. Local communities in these areas have lowest levels of knowledge of iron deficiency anaemia and its consequences, iron and folic acid supplementation, balanced diets, and the need to consume essential nutrients to prevent nutritional deficiencies.

Inefficient recruitment of Lady Health Workers

Balochistan has planned to recruit additional Lady Health Workers for years. While recruitment proposals are included in PC-1 drafts, they have been disregarded either due to competing priorities, insufficient fund allocations at the time of PC-1 approval, or during fund disbursement.

Overburdened Lady Health Workers

Given Balochistan's rugged terrain and a lack of transportation, Lady Health Workers find it extremely difficult to access all the populations they are assigned to in a timely manner. This leads to gaps in the provision of essential health care.

Lack of nutrition-specific human resources

Balochistan requires nutrition-specific human resources, at least at the *tehsil* level, to push the nutritional agenda forward at the grassroots level. Nutrition-specific human resources are also required to provide nutrition-related trainings to staff, monitor the state of nutrition among the population, monitor nutrition-related activities, and conduct awareness raising events.

Sub-optimal knowledge and counselling skills of facility-based health workers

The primary health care providers consulted for this analysis offered provided answers which are not consistent with guidelines concerning the initiation, duration, usage and dosage of iron and folic acid supplements. Staff are unaware of key aspects of iron and folic acid supplementation, such as whether iron and folic acid can be taken with milk. As such, they may be disseminating incorrect information to communities. They also lack of awareness of the general side effects of iron and folic acid supplementation, as well as of strategies to manage these side effects. In general, primary health care providers do not inquire about patients' dietary intake and habits.

Lack of training on nutrition and counselling/communication skills

The health care workers consulted for this analysis report concerns about the lack of training provided to them on nutrition, as well as a lack of training on counselling and communication skills.

Sub-optimal supportive supervision

All primary health care staff consulted in Balochistan, including Female Medical Officers, agree that enhanced supportive supervision and on-the-job coaching is required to build their skills and improve the implementation of iron and folic acid supplementation.

Need for the revision of the training curriculum for Lady Health Workers

The training curriculum for Lady Health Workers in Balochistan has not been revised for a decade. This negatively affects the quality and efficiency of the services delivered by existing and newly recruited Lady Health Workers.

Geographical accessibility

Hard-to-reach communities

Communities living in remote and mountainous areas are not covered by Lady Health Workers, as noted above. The presence of primary health care facilities is also patchy in these areas, obliging people to travel long distances in search of care. Reaching the nearest health facility often involves hours of travel, making it exceptionally difficult to access health care. The supply of iron and folic acid is intermittent in remote areas compared to the capital city of Quetta, which creates further access-related barriers for communities. These factors limit access to health care for great swathes of the population, resulting in low antenatal health care-seeking behaviour, including for iron and folic acid supplementation. Reaching mobile populations is especially challenging, as they move from mountainous regions to the plains in winters, and from the plains to the mountains in summer. This makes it difficult for mobile populations to seek health care frequently and to secure a sustained supply of commodities.

Lack of health houses

Most Lady Health Workers in Balochistan do not have health houses. They are obliged to use other people's drawing rooms to conduct community sessions.

Financial accessibility

Due to the unavailability of iron and folic acid supplements at health care facilities or through Lady Health Workers, women receive prescriptions to purchase supplements from the market themselves. Yet most end users lack the financial resources to do so. This limits the likelihood of their initial purchase of iron and folic acid supplements, and undoubtedly hampers their sustained procurement of these supplements.

Costs incurred for general health-seeking

As quality health care is largely unavailable at the district level, many pregnant and lactating women are forced to travel to Quetta in search of medical assistance, even for uncomplicated cases. As most rural households cannot cover the costs of such trips themselves, they fund health-seeking trips by taking out personal loans.

4.7.2 Demand

Initial utilization

Low awareness of iron deficiency anaemia as a disease

This analysis finds a low level of awareness of iron deficiency anaemia and its adverse effects among pregnant and lactating women in Balochistan. This is especially true for women living in areas that are

not covered by Lady Health Workers, or in remote mountain communities. Communities regard iron deficiency anaemia as an outcome of pregnancy, rather than as a disease that negatively impacts pregnancy and foetal development. This lack of awareness contributes to the low uptake of iron and folic acid supplementation.

Continuous use

Supply, affordability and acceptability play important roles in women's sustained use of iron and folic acid supplements.

Side effects

To an extent, the reported side effects of iron and folic acid supplements – including constipation, gastric disturbance, and loose or black stools – hamper women's continued use of the commodity.

Lack of effective counselling

In general, community concerns about the side effects of iron and folic acid supplementation go unaddressed. Stakeholders report that facility-based health care providers are unable to effectively address communities' concerns because they lack time, or because they lack the quality counselling skills required. In turn, communities often do not trust in Lady Health Workers to address their concerns about the side effects of iron and folic acid supplementation, as they regard Lady Health Workers as community workers rather than skilled health care providers. When asked how they take iron and folic acid supplements, stakeholders' responses varied. Some prefer consuming supplements with water after a meal, while others take supplements with milk after breakfast.

4.7.3 Enabling environment

Social norms

Access to food and water

Agricultural production in some parts of Balochistan can become sluggish for four or five months each year, either due to extreme cold or excessively dry weather. The province is also prone to drought, leading to poor crop growth. As a result, shortages of food occur and staple foods may not be available for large parts of the population at certain times. Sanitation and hygiene conditions are also poor in remote areas. Especially during the dry season, animals and people drink water from the same ponds in which water accumulates during the monsoon season. A lack of clean water and sanitation facilities can cause disease and negatively impact health and nutrition outcomes.

Early and frequent pregnancies

Early pregnancy and multiple pregnancies are the norm in most rural areas of Balochistan. This leads to considerable nutritional deficiencies in women who are already malnourished, lactating women, pregnant women, and women with multiple children to care for. Family planning commodities have been unavailable in Balochistan for years.

Policy

Patchy implementation of the Nutrition Programme

The current Nutrition Programme in Balochistan is only being implemented in seven of Balochistan's 33 districts. With the support of development partners, nutrition interventions are being undertaken in an additional 13 districts. However, due to planning-related challenges, the scope and goals of

these interventions are not well-aligned. A draft PC-1 has been developed which includes all 33 districts in the province, although it has yet to be approved.

Delayed PC-1 drafting and approval

The PC-1s for both the Lady Health Worker Programme and Nutrition Programme expired in 2019. There were delays in the submission of the drafts of these documents, and further delays in terms of approval at the Planning Commission. Draft PC-1s for these programmes are still awaiting approval, as noted above. As a result, budgetary allocations have not yet become available for the procurement of supplies, including iron and folic acid supplements.

Budget

Smooth access to budgetary allocations

According to the stakeholders consulted for this analysis, the inconsistent supply of iron and folic acid in Balochistan is caused by a number of challenges related to budgetary allocations:

- There is a lack of funding available at the beginning of each year, or projects are in development mode, which hinders the timely procurement and supply of iron and folic acid.
- Projects awaiting PC-1 renewal experience similar funding challenges, thereby limiting the procurement and supply of iron and folic acid throughout the year.
- As iron and folic acid supplements are accorded low priority, they are often ignored when limited funds are available for the procurement of essential medicines. This results in the inconsistent supply of iron and folic acid in the province.

Lack of iron and folic acid-specific buffers or contingency funds

No buffers are built into budgetary allocations in Balochistan to cater to increases in demand for iron and folic acid supplements, or to cater for contingencies.

Governance

Stakeholder coordination

Nutrition is a cross-cutting health issue that requires multisectoral engagement. Despite this, inter-programme communication and coordination is extremely weak. This analysis finds that iron and folic acid supplementation is not a priority within the health system at the district level or downstream. In general, stakeholders lack knowledge of the need for the commodity, including district officials, facility-based health workers, Lady Health Workers and communities. They also lack awareness of recommended usage, compliance and their respective roles in service delivery. The consultations held to inform this analysis further reveal a general lack of clarity about the objectives of the Nutrition Programme, as well as about the roles and responsibilities of health workers and other stakeholders.

Lack of a targeted communication strategy

Balochistan lacks full-fledged media campaigns to raise awareness of iron deficiency anaemia and promote iron and folic acid supplementation. Existing communication strategies use a generalized approach for health interventions, targeting all strata of communities. This excludes populations who cannot access information due to low levels of education, language barriers, and a lack of financial resources to access mediums of communication.

4.8 Balochistan: Recommendations

4.8.1 Improve supply

Increase the availability of iron and folic acid

Ensure consistent supply and address stock outs at primary health care facilities

- Re-examine the rules of the Balochistan Public Procurement Regulatory Authority (BPPRA) to facilitate the supply of iron and folic acid.

Address the sub-optimal procurement system

- Deliver trainings on supply chain management from top to bottom.
- Appoint dedicated human resources to key positions at the district and provincial levels, ensuring that they possess suitable academic trainings and skills.

Make stock management more efficient

- Formally assign responsibility for stock management to suitable cadres at all levels, from the community level, to the health care facility level, and then to the *tehsil* and district levels. These professionals should be trained on stock management again and provided with essential, tools such as computers, software and internet access.

Improve the availability of human resources

Make recruitment more efficient at the Department of Health

- Improve planning at the Department of Health to fill vacancies and address staff rapid turnover. Stakeholders recommend that the Department of Health offer attractive salary and compensation packages to staff working in remote areas, paired with opportunities for continuous professional development.

Increase the recruitment of Lady Health Workers

- Ensure that the planned number of new Lady Health Worker recruits are broad on board quickly, as Balochistan is in dire need of more Lady Health Workers. Stakeholders recommend securing a commitment to greater recruitment from the Planning and Development Department, following sustained lobbying by the Department of Health, which should involve other major stakeholders.
- Ensure that areas which will not be covered by newly hired Lady Health Workers will be covered by Community Midwives. These Community Midwives should be provided a stipend, with the support of development partners. This model should be piloted for between two and three years before being taken up by the Department of Health for full-scale implementation.
- Revise the training curriculum of the Lady Health Worker Programme as a matter of priority.

Hire nutrition-specific human resources

- Provide funds in the nutrition PC-1 to allow the hiring of coordinators at the *tehsil* level.

Strengthen the knowledge and counselling skills of facility-based health workers

- Provide biannual refresher trainings to all staff engaged in the iron and folic acid supplementation programme. These trainings should focus solely on iron and folic acid, rather than merely including iron and folic acid supplementation as a single component in antenatal care trainings. Stakeholders recommend that iron and folic acid-specific trainings should include a rigorous component on interpersonal skills and counselling skills.

Provide optimal supportive supervision

- Implement an integrated approach so that each Lady Health Worker Coordinator can engage staff to build their skills on nutrition and provide on-the-job coaching.

Enhance geographical accessibility

Address the unavailability of health houses

- Conduct a needs assessment, led by the programme authorities, to identify Lady Health Workers who do not have health houses in Balochistan. Ensure the provision of health houses for these Lady Health Workers as a matter of priority.

Support financial accessibility

Address the costs incurred for general health care services

- Provide financial assistance to populations living in areas without tertiary care facilities, and introduce the Sehat Sahulat Health Card system in Balochistan.

4.8.2 Increase demand

Promote initial utilization

Raise awareness of iron deficiency anaemia as a disease

- Hire Community Midwives, with the support of development partners, in areas that are not covered by existing or newly recruited Lady Health Workers. These Community Midwives should reach out to populations in remote areas to raise awareness of iron deficiency anaemia as a disease and promote iron and folic acid supplementation.

Promote continuous use

Make counselling more effective

- Conduct frequent iron and folic acid-specific trainings for facility-based and community-based health care staff. These trainings should focus on interpersonal counselling and strategies to mitigate the side effects of iron and folic acid supplementation.

4.8.3 Foster an enabling environment

Address social norms

Ensure access to food and water

- Introduce a system to store rain water for community use through public and private systems. Provide communities with easy access to loans so that they can collectively build such systems.

Address early and frequent pregnancies

- Advocate with highest authorities in Balochistan, raising their awareness of the grave challenges posed by early and frequent pregnancies. Lobby these authorities to make provisions in the budget in order to ensure the availability of family planning-related commodities, communication materials and effective strategies.

Address policy-related matters

Address delayed PC-1 drafting and approval

- The Department of Health – in collaboration with relevant stakeholders, including development partners – should lobby the Planning and Development on urgent PC-1 approval.

Ensure smooth access to budgetary allocations

- Remove complicated multiple streams of supply and ease procurement processes by requesting the Department of to:

- Sensitize District Health Officers on the importance of iron and folic acid supplementation and the absolute need for timely procurement.
- Make District Health Officers responsible for the procurement of iron and folic acid supplements for all health care facilities and community workers, including Lady Health Workers. Stakeholders recommend that facility Health Managers should report to District Health Officers about the supply required for both health care facilities and the Lady Health Workers affiliated with them. Ultimately, only one authority should be responsible for procuring and supplying iron and folic acid .

Introduce an IFA-specific buffer or contingency funds

- Introduce an iron and folic acid-specific budget, as recommended above, to minimize the impact of financial diversions or obstructions in procurement due emergency situations, such as the current COVID-19 pandemic. Stakeholders recommend providing an additional supply of iron and folic acid, equivalent to 30 per cent of total supplies, to act as buffer stock in order to cater to spikes in demand or delayed the delayed provision of new supplies.

4.8.4 Strengthen governance

Improve stakeholder coordination

- Use the Multi-sectoral Nutrition Strategy platform effectively to engage nutrition-related stakeholders in line departments.
- Conduct workshops to further streamline and delineate the roles of departments and other stakeholders, as well as to develop key performance indicators
- Conduct regular meetings, headed by the Director General, to assess individual and overall progress.

Introduce a targeted communication strategy

- Undertake community mobilization, as this is the best way to communicate with target populations in Balochistan and raise awareness. Initiate the community health worker model, supported by development partners, as soon as possible. These workers should be hired from within target communities and trained to deliver effective counselling to target groups.
- Ensure that communication activities engage religious leaders on nutrition. The lack of engagement of these leaders represents a missed opportunity. Learn from the example of the engagement of Ulemmas on iodine deficiency and the HIV/AIDS campaign, which achieved positive results. It is also essential to engage political leaders and community influencers to advocate for iron and folic acid supplementation in communities, especially as such engagement has not been undertaken in the past.

4.9 Azad Jammu and Kashmir and Gilgit-Baltistan: Bottlenecks

4.9.1 Supply

Availability of iron and folic acid

Sub-optimal procurement system

The existing system procurement system for iron and folic acid is outdated in Azad Jammu and Kashmir and Gilgit-Baltistan. Moreover, the system is not optimally equipped to calculate needs

based on demand, forecast contingencies, procure adequate commodities, and deliver commodities in a timely and efficient manner.

Inefficient stock management

As a VLMIS does not exist, no digital management information system is used for iron and folic acid supplementation. Instead, manual records are kept. According to the stakeholders consulted for this analysis, it is not possible to provide access to a digital management information system to users on the ground (Lady Health Workers/Lady Health Visitors and basic health units) as they do not have access to the internet and computers/devices. The absence of an efficient management information system at the primary health care contributes to roadblocks in terms of stock management and swift communication about stock outs.

Availability of human resources

Vast areas uncovered by Lady Health Workers

Lady Health Worker coverage is patchy in mountainous areas of both Azad Jammu and Kashmir and Gilgit-Baltistan. Local populations are scattered over large distances. This makes it financially challenging to assign enough health workers to cover small population pockets in widely dispersed areas. Local populations in areas that are not covered by Lady Health Workers have the lowest level of knowledge about iron deficiency anaemia and its consequences, iron and folic acid supplementation, balanced diets and the need to consume essential nutrients to avert nutritional deficiencies.

Lack of nutrition-specific human resources

Unlike Gilgit-Baltistan, Azad Jammu and Kashmir does not have Nutrition Coordinators to push forward the nutrition agenda at the grassroots level, or to provide nutrition-related trainings to staff, monitor the state of nutrition, monitor nutrition-related activities and conduct awareness raising events.

Sub-optimal knowledge and counselling skills of facility-based health workers

When questioned about the initiation, duration, usage and dosage of iron and folic acid supplements, the answers of facility-based health care providers and Lady Health Workers were not consistent with recommended guidelines. They also lack of awareness of the general side effects of iron and folic acid supplements, as well as strategies for managing these side effects. In general, health care workers do not inquire about patients' dietary intake and habits.

Financial accessibility

Poverty

Poverty prevents local populations from procuring a sustained supply of iron and folic acid supplements over the counter, even when they want to obtain continuous supplies.

4.9.2 Demand

Initial utilization

Low awareness of iron deficiency anaemia as a disease

This analysis finds that pregnant and lactating women in Azad Jammu and Kashmir and Gilgit-Baltistan tend to have low level of awareness of iron deficiency anaemia and its adverse effects. This is especially true among women living in areas that are not covered by Lady Health Workers, or in remote riverine communities.

4.9.34 Enabling environment

Social norms

Lack of awareness, poverty and sub-optimal dietary habits

Most communities in rural areas have low incomes and cannot access balanced diets. A lack of awareness is also a major challenge, as even people with sufficient financial resources often do not access nutritious foods. Most women appear of sub-optimal dietary intake and the toll that iron deficiency anaemia takes on physical health. Men, by contrast, are largely unaware of iron deficiency anaemia, its causes and consequences. They express satisfaction with their own diets, as well as the diets of women in their households. However, their perceptions are based on their ability to provide a certain standard of diet based on their income.

Policies

School nutrition programme

As nutrition-related educational platforms are not available at the school level for adolescent girls, they lack awareness of good nutrition, menstrual health, and iron and folic acid supplementation.

Governance

Lack of a targeted communication strategy

Both Azad Jammu and Kashmir, and Gilgit-Baltistan lack full-fledged media campaigns to raise awareness of iron deficiency anaemia and promote iron and folic acid supplementation.

Stakeholder coordination

Nutrition is a cross-cutting health issue that requires multisectoral engagement. However, inter-programme communication and coordination is weak in the regions of Azad Jammu and Kashmir and Gilgit-Baltistan. Iron and folic acid supplementation is not a priority area within the health system at the district level or downstream. Stakeholders – including district officials, facility-based health workers, Lady Health Workers and communities – lack knowledge of the importance of the iron and folic acid supplementation, usage and compliance with supplementation, and their respective roles for service delivery. The consultations held to inform this analysis also reveal a general lack of clarity about the objectives of the Nutrition Programme, as well as the roles and responsibilities of health care workers and other stakeholders.

Poor monitoring and evaluation system and skills, and a lack of evidence-based decision-making

According to the stakeholders consulted for this analysis from both Azad Jammu and Kashmir and Gilgit-Baltistan, the current monitoring and evaluation (M&E) system for iron and folic acid supplementation is dysfunctional and outdated. They report that the system suffers from both a lack of direction and a lack of necessary skills.

Budgets

Smooth access to budgetary allocations

Both regions face roadblocks in terms of financial approvals and budgetary release, which poses a major barrier to accessing available funds at the beginning of every year for iron and folic acid supplementation. This hampers the timely procurement and supply of iron and folic acid supplements, as does the fact that the programme is in PC-1 mode.

4.10 Azad Jammu and Kashmir and Gilgit-Baltistan: Recommendations

4.10.1 Increase supply

Improve the availability of iron and folic acid

Address the sub-optimal procurement system

- Deliver supply chain management trainings from top to bottom.
- Appoint dedicated human resources to key positions at the district and provincial levels, ensuring that they possess suitable academic trainings and skills.

Make stock management more efficient

- Formally assign responsibility for stock management to suitable cadres at all levels, from the community level, to the level of health care facilities, and then to the tehsil and district levels. These officials should be trained on stock management again and provided with essential tools, such as computers, software and internet access.

Improve the availability of human resources

Reach vast areas uncovered by Lady Health Workers

- Enhance the coverage of Lady Health Workers by requesting a funding allocation within the Lady Health Worker Programme PC-1, in order to hire more workers in the coming years, in a phased manner.
- Use community health workers to provide health education and services in inaccessible communities, at least until additional Lady Health Workers are recruited. Stakeholders recommend deploying community health workers with the help of partners, or by engaging Community Midwives who reside in the vicinity of remote communities.
- Renew the original role of Lady Health Visitors, which included community outreach visits. This is important to support and existing Lady Health Worker outreach in uncovered areas.

Hire nutrition-specific human resources

- Provide funds in the nutrition PC-1 for hiring coordinators at the *tehsil* level.

Strengthen the knowledge and counselling skills of facility-based health care workers

- Provide biannual refresher trainings to all staff engaged in the Iron and Folic Acid Supplementation Programme. These trainings should focus solely on iron and folic acid supplementation, rather than merely including a component on iron and folic acid in antenatal care trainings. Stakeholders recommend that IFA-specific trainings should include a rigorous component on interpersonal skills and counselling skills.
- Enhance the capacities of Lady Health Workers, Lady Health Visitors, Community Midwives and Female Medical Officers, with a particular focus on training and utilizing the skills of Community Midwives and Female Medical Officers. This is important, given their extensive medical training and communities' reliance on and trust in their opinions. Stakeholders also recommend that Lady Health Visitors should engage communities alongside Lady Health Workers.

Support financial accessibility

Address poverty

4.10.2 Foster an enabling environment and strengthen governance

Improve communication

Introduce a targeted communication strategy

- Run mass campaigns to raise awareness, targeting different socio-economic strata of the population. These campaigns should also actively engage decision-making authorities to mitigate the multiple cultural barriers which affect improved dietary habits, access to nutritious food and the uptake of essential supplements, including iron and folic acid. Stakeholders recommend using multiple mediums of communication, depending on communities' levels of access and linguistic differences. They also recommend deploying information, education and communication materials that rely on visual/pictorial communication to deliver key messages to rural communities.
- Design and implement a well-rounded school nutrition programme to promote awareness of nutrition, healthy diets, activity and iron deficiency anaemia from an early age.
- Organize mass iron and folic acid supplementation campaigns once every year to apprise target groups of iron deficiency anaemia, ways to mitigate iron deficiency, and iron and folic acid supplementation. The goal of these mass campaigns should also be to reach hard-to-reach populations.

Strengthen coordination, monitoring and evaluation

Enhance stakeholder coordination

- Use the Multi-sectoral Nutrition Strategy effectively to engage nutrition-related stakeholders within line departments.
- Conduct workshops to further streamline and delineate the roles of departments and stakeholders, as well as to develop key performance indicators.
- Conduct regular meetings, headed by the Director General, to assess individual and overall progress.

Improve the monitoring and evaluation system and related skills

- Restructure the monitoring and evaluation system thoroughly to make the system more effective. This will require the establishment of key performance indicators (KPI), in line with Azad Jammu and Kashmir's and Gilgit-Baltistan's nutrition and iron and folic acid-related goals.
- Formally assign a monitoring and evaluation role to key staff, and link this role with their key performance indicators.
- Train staff on monitoring and evaluation.
- Develop and use digital tools for monitoring and evaluation.
- Operationalize the District Health Information System (DHIS) as soon as possible. Ensure that the DHIS has an integrated platform for all health system domains.
- Promote a culture of local research on iron and folic acid supplementation by involving local and global research institutions.

Ensure smooth access to budgetary allocations

- Form a committee to ensure the timely submission of PCs-1 and lobby, through different channels, for the timely release of funds. This committee's members should include relevant officials from each region's Department of Health, the Planning and Development Department, and line departments.



05
IRON AND FOLIC
ACID VALIDATION
WORKSHOP

CHAPTER 5. IRON AND FOLIC ACID VALIDATION WORKSHOP

The findings outlined in Chapters 3 and 4 were presented to provincial stakeholders during a national-level consultation held on 17 December 2020. Representatives from each province and region reflected on sub-national bottlenecks, verified or refuted these bottlenecks, and offers recommendations for ways forward.

A national-level validation workshop was organized on 22 June 2021 to validate the analysis' findings and stakeholders' recommendations. Once more, representatives from each province and region gathered to discuss bottlenecks and recommendations at length, as well as to provide further context on identified challenges. Participants also prioritized bottlenecks for their respective province or region, and provided related recommendations.

Table 5. Participants in the iron and folic acid validation workshop

Province	Participants	Designation	Organization
Punjab	Dr. M Asif Khan Niazi	Deputy Director, IRMNCH and NP	DOH, Punjab
	Ms. Mishaal Pervez	PFA, IRMNCH and NP	DOH, Punjab
	Ms. Saima Riaz	Program Officer, NFA	MoNHSR&C
	Dr. Saba Savul	Project Coordinator, MNHN	Nutrition International
	Ms. Shahnila	Research Officer	M/o PD&SI
Sindh	Dr. Saib Jan Badar	PC-APP Health	APP-Sindh
	Dr. Muhammad Ibrahim Sarki	Director RMNCH	DOH, Sindh
	Dr. Mansoor Ali	Additional Secretary	DoH, Sindh
	Dr. Sohail Shaikh	S. Technical Officer	DoH, Sindh
	Dr. Rozina Khalid	Focal Person for Nutrition	Ehsaas Program
	Dr. Zulfiqar Dhareejo	DDG, RMNCH	DOH, Sindh

Province	Participants	Designation	Organization
Khyber Pakhtunkhwa	Dr. Ijaz Ahmed	Provincial Coordinator NP for FP	DoH, KP
	Dr. Fazal Majeed	Director Nutrition	DoH, KP
	Mr. Asim Shahzad	NPO-MANHN	Nutrition International
	Mr. Aftab Hamid	Health Manager	ACF international
	Mr. Saad Tanveer	S. Nutrition & Health Manager	ACF international
	Dr. Shandana Sarir	Public Health Specialist MNCH	DOH, KP
Balochistan	Rehmatullah	Coord. NSC, Nut Directorate	DOH, Balochistan
	Dr. Sultan Muhammad	Dy. Director, Nut Directorate	DOH Balochistan
	Dr. Sarmad Kakar	DPC MNCH	DoH, Balochistan
	Ms. Maryam Shafiq	Program Assistant, NFA	MoNHSR&C
Gilgit-Baltistan	Mr. M Abbas	Project Coordinator, Nutrition	DOH, GB
	Dr. M Essa	Director LHW Program	DoH GB
Azad Jammu and Kashmir	Ms. Mah Jabeen	Program Officer	Unicef
	Mr. Javed Akbar	Program Manager	DoH, AJK

The tables below present the bottlenecks prioritized for each province and region in Pakistan, as well as corresponding recommendations offered by stakeholders.

Table 6. Key bottlenecks and recommendations prioritized for Punjab

No.	Bottleneck	Recommendation
1	<p>Inadequate distribution of iron and folic acid</p> <p>Shortages of iron and folic acid do not occur due to procurement challenges. Instead, shortages are rooted in the inadequate distribution of iron and folic acid to beneficiaries. The prevalence of iron deficiency anaemia and demand for iron and folic acid supplementation varies across districts in Punjab. However, this is not efficiently taken into account or updated regularly. Moreover, iron and folic acid supplements are distributed through different mechanisms, such as through Lady Health Workers and health facilities. This can result in duplication and the hoarding of iron and folic acid supplements by beneficiaries.</p>	<p>Use an equity-based financing approach to cater to individual districts' demand and needs for iron and folic acid supplementation, bearing in mind that the prevalence of iron deficiency anaemia varies from district to district.</p> <p>Ensure that districts with greater needs do not suffer from supply and distribution shortages in light of the high prevalence of iron deficiency anaemia. It is important to note that iron and folic acid supplements are part of Punjab's essential drug list (EDL); as such, supplements are available to an extent.</p> <p>Enhance resources for districts with a high prevalence of iron deficiency anaemia compared to districts with a low prevalence of the disease.</p> <p>Further validate how beneficiaries are receiving iron and folic acid supplements. Identify whether there is duplication in terms of their receipt of supplements, leading to hoarding and, ultimately, to shortages in the availability of supplements for others.</p>

No.	Bottleneck	Recommendation
2	<p>Lack of capacity building for existing Lady Health Workers</p> <p>Despite shortages in terms of the number of Lady Health Workers in Punjab, the most pressing challenge is the capacity of currently employed Lady Health Workers. As a result of an outdated curriculum, insufficient trainings and refresher trainings, and the low qualifications of Lady Health Workers, nutritional service delivery becomes less efficient. This is especially due to below par interpersonal communication and counselling skills among Lady Health Workers.</p>	<p>Build the capacities of existing Lady Health Workers. Delivering frequent refresher trainings, updating the curriculum, and incorporating training on interpersonal skills and counselling skills will enhance the quality of services.</p> <p>Deliver training on proper 'history taking' for Lady Health Workers. Ensure that all trainings and refresher trainings are evaluated on a regular basis.</p> <p>Provide additional supportive supervision for Lady Health Workers to build their confidence and increase the effectiveness of counselling.</p> <p>Hire additional Lady Health Workers, but bear in mind that trainings and supportive supervision are essential for all Lady Health Workers.</p> <p>Consider replacing the recruitment of new Lady Health Workers with the recruitment of Nutrition Counsellors who could support counselling at health care facilities to more the uptake of iron and folic acid supplementation.</p>
3	<p>Lack of efforts to strengthen Punjab's communication strategy</p>	<p>Engage in advocacy before launching any supplement for public use.</p> <p>Develop comprehensive context-specific information, education and communication materials.</p> <p>Ensure that the communication strategy is directed towards key target groups, such as influencers (mothers-in-law, husbands).</p> <p>Consider peri-urban areas and urban slums during the planning and implementation of a holistic communication strategy.</p> <p>Engage pharmaceutical companies and/or big brands, encourage them to allocate 10% of their total advertising budget to supporting public health campaigns. This will involve adapting their strategies for product marketing to iron and folic acid supplementation.</p> <p>Ensure that the communication strategy reaches the masses and is inclusive of ethnically and linguistically diverse populations, as well as persons who lack access to the mainstream media.</p>

Table 7. Key bottlenecks and recommendations prioritized for Sindh

No.	Bottleneck	Recommendation
1	<p>Inefficient supply chain</p> <p>There is a lack of effective communication between the provincial and the district levels. Moreover, the supply of iron and folic acid supplements is insufficient compared to requirements, which hampers compliance and creates gaps in coverage.</p> <p>Due to manual record keeping at the facility level as well as within the Lady Health Worker Programme, there is no real-time data available on supply, which is necessary for effective monitoring at both the union council and district levels.</p>	<p>Reform supply chain mechanisms at the health care facility level, with a view to making these mechanisms more efficient.</p> <p>Provide technical assistance and divide the Logistics Management Information System (LMIS) dashboard into two tiers to monitor inventory and coverage.</p> <p>Add a separate indicator on iron and folic acid supplementation within the LMIS and District Health Information System (DHIS) dashboards. This indicator should include: 1) the number for pregnant women receiving iron and folic acid supplements, 2) the number of lactating women receiving iron and folic acid supplements, and 3) the number of adolescent girls receiving iron and folic acid supplements.</p>
2	<p>Uncovered areas</p> <p>Roughly 50% of Sindh’s territory is not covered by the Lady Health Worker Programme. This overburdens existing staff and neglects large areas across the province.</p> <p>Budgetary allocations are lacking to appoint Lady Health Workers to cover uncovered areas. As budgetary allocations have not been made to appoint new Lady Health Workers, coverage cannot be expanded to uncovered areas at a faster pace.</p>	<p>Allocate greater resources to the Lady Health Worker Programme to increase the quantity of Lady Health Workers in Sindh.</p> <p>Expand the coverage of the Lady Health Worker Programme to cover the remote/peripheral areas. Increase the quantity of health care workers to cater to uncovered populations. Until official recruitment takes place, the provincial programme should be allocated additional funds to recruit health care workers on a voluntary basis, with a head supervising them.</p> <p>Use the Community Health Worker (CHW) Satellite Programme to reach far flung areas. The satellite programme is currently in its first phase, which is being conducted in the district of Tharparkar.</p>

No.	Bottleneck	Recommendation
3	<p>Challenges for Lady Health Workers Lack of career progression pathways for Lady Health Workers</p> <p>Lady Health Workers lack career progression pathways and receive low pay. As a result, there are no incentives for effective performance and a lack of motivation is widespread. As Lady Health Workers are permanent employees, many become complacent and suffice on their monthly pay.</p> <p>Lack of mechanisms to measure Lady Health Workers' retention of knowledge</p> <p>There are no mechanisms in place to monitor or gauge Lady Health Supervisors' and Lady Health Workers' retention of knowledge delivered through training. This makes it difficult to collect data on where improvements and trainings are required.</p>	<p>Make structural changes in the hierarchy of Lady Health Workers, using career progression pathways and pay rises as incentives.</p> <p>Monitor Lady Health Workers and provide them with supportive supervision to reinforce their duties, bearing in mind that Lady Health Workers are overburdened and have replaced primary care duties for vertical programmes.</p> <p>Develop and implement a behaviour change communication (BCC) strategy. Improve Lady Health Workers' counselling skills in terms of behaviour change counselling.</p> <p>Strengthen monitoring, including by introducing third party monitoring of Lady Health Workers' performance and data tracking.</p> <p>Provide training at three tiers: the provincial level, the district/health facility level, and the community level. As Lady Health Workers have reached saturation point, they should be replaced with incoming community health workers who have a fresh mindset. According to the Reproductive, Maternal, Newborn and Child Health (RMNCH) Programme, a new curriculum has been published and sent out. Master trainers have been trained on this curriculum at the provincial level.</p>
4	<p>Low effectiveness of the communication strategy Communities continue to display hesitance/resistance towards the uptake of iron and folic acid supplementation. Beneficiaries easily discontinue the supplements when they experience side effects or hear rumours about supplementation. Gatekeepers/ household decision makers pose barriers to the uptake of iron and folic acid supplementation by pregnant and lactating women. The current communication strategy does not involve their participation in community sensitization sessions.</p>	<p>Implement the behaviour change communication strategy for Sindh and replicated this strategy for iron and folic acid supplementation. Ensure the involvement of beneficiaries in the development of tools and information, education and communication materials. All stakeholders, at all levels, need to be actively engaged.</p> <p>Ensure that behaviour change counselling takes place and includes family members, community elders/leaders, and other notable people.</p>

Table 8. Key bottlenecks and recommendations prioritized for Khyber Pakhtunkhwa

No.	Bottlenecks	Recommendations
1	<p>Integrated health system constraints</p> <p>Since the regularization to the health information system (HIS) from PC-1s, allocated budgets have been low. This is because they no longer account for operating costs (vehicle maintenance, transport compensation, etc.), instead they focused solely on human resources and accounts for salaries. This hinders the programme’s ability to procure essential supplies, often resulting in a lack of procurement of iron and folic acid supplements as they are considered less of a priority than other medicines/ supplements.</p>	<p>Develop a Logistics Management Information System (LMIS) with multiple interfaces available at different levels of service delivery. Interfaces for reporting by Lady Health Visitors and facility-based reporting are also needed to facilitate procurement processes by streamlining procurement requests and enabling supply chain monitoring.</p> <p>Train health care professionals at the district level on supply chain management. This is required to ensure the efficient use of existing and new systems.</p> <p>Further strengthen the LMIS by assessing loopholes and identifying areas for improvement, specifically in terms of the need for a user-friendly interface. Procurement processes/ procedures must make it easy to mitigate challenges/delays and reduce human errors. Demand must be based on caseloads/expenditure and on real needs for the utilization of iron and folic acid supplements. The greater the need/ demand, the greater the supply should be.</p>
2	<p>Delayed requests for procurement</p> <p>Current procurement policies entail requests for procurements to be sent during the quarter for which supplies are needed, however, lengthy procedures hinder swift and timely supply, resulting in stock outs and shortages. Revising procurement requests timelines and procedures at levels of supply chain (provincial to facility level) would greatly assist in timely provision of IFA.</p>	
3	<p>Digital logistics management information systems</p> <p>Numerous logistics and management information systems operate within integrated health services. These are not well-integrated, which results in the obstructed flow of information.</p>	<p>Hold a national and provincial level consultation to identify challenges in terms of rolling out the LMIS.</p> <p>Link/integrate the Logistics Management Information System for health services.</p> <p>Develop the LMIS with multiple services delivery modalities for procurement purposes. Alongside the LMIS, a robust supply chain management is needed at all levels, i.e. from the provincial level to the district level, and then to the facility level and the level of community workers.</p>

No.	Bottlenecks	Recommendations
4	<p>Demand calculation</p> <p>Existing procurement processes used by health facilities do not follow any specific formula to determine demand. Supplies required for districts are calculated without assessing growing/declining needs. This results in the misdistribution of iron and folic acid supplements, with some districts receiving a surplus while others experience shortages. Visits to facilities reveal that a fixed number of iron and folic acid supplements is quoted for every quarter. No evaluations are conducted to determine changes in demand and provide information on districts' real supply/procurement needs.</p>	<p>Introduce mechanisms to determine and regularly assess growing demand and update procurement requests accordingly. This is essential to ensure an equilibrium between demand and supply.</p>
5	<p>Communication strategy</p> <p>There is a lack of awareness of nutrition – including iron and folic acid supplementation, iron deficiency anaemia and nutritional status – at various levels in communities.</p>	<p>Hold more community awareness raising sessions to impart health education to entire communities. Establish Mother and Father Support Groups which regularly arrange health education sessions. More of an emphasis is needed on the participation of male community members to ensure that gate-keepers and decision makers are well-informed and in favour of iron and folic acid supplementation.</p> <p>Use media platforms further to promote iron and folic acid supplementation, including the radio, television, print media, posters and charts. Mosque announcements and announcements delivered by mobile vans are essential to reach the public, especially persons who do not have access to the mainstream media.</p> <p>Organize mass campaigns to improve community knowledge of nutrition, iron and folic acid supplementation and similar interventions. Greater knowledge will lead to increased acceptance and uptake. It is also essential to actively engage community leaders in community awareness programmes, including political leaders, religious leaders, health educators and teachers.</p> <p>Include nutrition in the curriculum of every cadre of the health sector in order to educate health care workers. Hold more trainings frequently to ensure that health care workers are continuously updated about new interventions and key information.</p> <p>Use Community Midwives to sensitize communities about the importance and use of iron and folic acid supplementation, as well as other nutrition-related issues.</p>

Table 9. Key bottlenecks and recommendations prioritized for Balochistan

No.	Bottleneck	Recommendation
1	<p>Absence of an iron and folic acid-specific budget</p> <p>The lack of a specific budget allocation for iron and folic acid supplementation poses a barrier to the smooth procurement and supply of supplements.</p>	<p>Allocate an iron and folic acid- specific budget to ensure efficient procurement, adequate supply and the timely distribution of iron and folic acid supplements to beneficiaries.</p>
2	<p>Inconsistent availability of iron and folic acid supplements</p> <p>Frequent stock outs and the insufficient provision of iron and folic acid supplements has led to inconsistent provision to beneficiaries.</p> <p>When the supply chain is dysfunctional, this reduces value of the intervention in the eyes of beneficiaries.</p>	<p>Invigorate the supply chain mechanism for iron and folic acid supplementation. The vigorous implementation of a Logistics Management Implementation System will enable Balochistan to address various issues regarding stock maintenance and reporting. The LMIS is important at all levels of infrastructure. Effective monitoring will be critical to strengthen the iron and folic acid supply chain.</p> <p>Release the allocated budget for iron and folic acid supplementation in a timely manner to ensure swift procurement and supply. There is a need to standardize documentation, inventory control, implementation and the availability of computerized stock information at all levels.</p>
3	<p>Lack of diagnostic tools and equipment to identify the need for iron and folic acid supplementation</p> <p>Balochistan lacks diagnostic facilities and equipment to detect iron deficiency anaemia.</p>	<p>Include haemoglobin testing kits in the Medicine Supply Department (MSD) and provide these to every health facility in Balochistan.</p>
4	<p>Shortage of human resources, and overburdened human resources</p> <p>Lady Health Visitors are already assigned a number of different tasks and Lady Health Workers are overburdened in the areas they cover. A shortage of human resources (both Lady Health Workers and doctors) compromises the quality of health service delivery.</p>	<p>Revise the hiring criteria for Lady Health Workers and increase their recruitment. Hire Communities Midwives to share Lady Health Workers' workload. Other cadres can also be engaged to facilitate the uptake of iron and folic acid supplementation.</p>
5	<p>Untrained human resources</p> <p>Despite their extensive experience in the field, Lady Health Workers require further capacity building. In general, Lady Health Workers lack knowledge of the effects of iron deficiency anaemia on pregnancy, such as postpartum haemorrhage, among others. Lady Medical Officers do not emphasize the importance of iron and folic acid intake as they are unaware of its importance and use. Lady Health Workers also lack information, education and communication materials to assist them to deliver counselling in communities.</p>	<p>Conduct extensive trainings to improve interpersonal counselling and other counselling skills across the board at health care facilities. Include paramedic staff in these trainings alongside other health workers.</p> <p>Revise the curriculum for Lady Health Workers to incorporate iron and folic acid supplementation and other important nutrition components.</p> <p>Enhance strong communication and rapport between health care providers and pregnant and lactating women by delivering frequent trainings on interpersonal communication and counselling for health care workers.</p>

No.	Bottleneck	Recommendation
6	<p>Lack of nutrition programmes' presence across the board in Balochistan</p> <p>Existing nutrition programmes do not cover the entire province of Balochistan. The presence of various nutrition programmes is sporadic in different districts.</p>	<p>Develop and implement a comprehensive provincial Nutrition Supplementation Programme in Balochistan. Key nutrition interventions must be implemented in every district of the province.</p>
7	<p>Lack of community sensitization and education on the importance of and need for iron and folic acid supplementation</p>	<p>Involve religious leaders in Balochistan and make their engagement mandatory in the scope of the Iron and Folic Acid Supplementation Programme, in a manner similar to their engagement in polio eradication activities.</p>

Table 10. Key bottlenecks and recommendations prioritized for Gilgit-Baltistan

No.	Bottleneck	Recommendation
1	<p>Budgetary challenges</p> <p>Delayed PC-1 approval</p> <p>The PC-1 for the region of Gilgit-Baltistan has not yet been processed by the Federal Government. As a result, funds are not readily available for the Iron and Folic Acid Supplementation Programme.</p> <p>Funding allocations for the Lady Health Worker Programme</p> <p>Due to the delayed approval of the PC-1 at the federal level, the release of funds has been delayed. This has contributed to significant financial management challenges in terms of supplies, medicines and commodities, including iron and folic acid. Funding for the Lady Health Worker Programme has also been affected. The absence of continuous and sustainable funding for the Lady Health Worker Programme prevents the recruitment of new workers to cover uncovered areas.</p> <p>Sub-optimal budget allocation and utilization cause bottlenecks in the resource-scarce region of Gilgit-Baltistan, leading to inconsistencies and shortages in supply.</p>	<p>Expedite PC-1 approval to avoid further delays in the allocation of funds.</p> <p>Increase funding allocations needs to compensate for significant budget cuts which affect the procurement of supplies, as well as the hiring and training of Lady health Workers and other essential cadres.</p> <p>Ensure merit-based hiring to prevent and mitigate challenges related to the recruitment of Lady Health Workers.</p>
2	<p>Uncovered areas and the shortage of human resources</p> <p>Between 35% and 40% of Gilgit-Baltistan's land area is uncovered by essential health workers. A lack of active efforts to reach out to hard-to-reach communities limits coverage for nomadic populations, immigrants, and other high-risk marginalized communities.</p> <p>Lady Health Workers have high workloads due to their large catchment areas. There is also a shortage of Lady Health Visitors at clinics.</p>	

No.	Bottleneck	Recommendation
3	<p>Infrequent trainings/refresher trainings and a lack of capacity building</p> <p>Regular trainings are not held for Lady Health Workers. Yet training is essential to ensure that Lady Health Workers have the knowledge needed to counsel women about iron and folic acid supplementation. In the last 18 years, only one workshop has been conducted.</p>	<p>Revise the training curriculum for Lady Health Workers and provide them with supportive supervision to improve nutrition services. Adding components on iron and folic acid supplementation to the curriculum and making these a mandatory part of annual training will increase Lady Health Workers' knowledge and improve service delivery.</p> <p>Translate the curriculum/training guides into Urdu to address language barriers for Lady Health Workers and Lady Health Visitors.</p> <p>Prioritize counselling skills and conduct frequent trainings to improve field workers' interpersonal communication and specific counselling skills on iron and folic acid supplementation, including dosage, potential side effects, and managing these side effects.</p> <p>Make budgetary provisions for trainings and the recommendations outlined above.</p>
4	<p>Absence of guidelines on iron and folic acid supplementation</p> <p>Guidelines are not available on iron and folic acid supplementation for different populations and age groups. As a result, misconceptions are widespread among communities and communication plans developed previously cannot effectively inform and educate the public on the uptake of iron and folic acid supplementation.</p>	<p>Introduce an enhanced approach to increase the coverage of the existing Iron and Folic Acid Supplementation Programme, as well as to address communities' lack of clarity about the programme.</p> <p>Prioritize social behaviour change communication (SBCC). Develop and disseminate guidelines on iron and folic acid supplementation to inform and educate different age groups and populations, in order to ensure the effectiveness of the messages delivered.</p>

Table 11. Key bottlenecks and recommendations prioritized for Azad Jammu and Kashmir

No.	Bottleneck	Recommendation
1	<p>National Finance Commission (NFC) funding</p> <p>Azad Jammu and Kashmir is not a beneficiary of the National Finance Commission Award and still awaits compensation for the NFC Award. Insufficient funding hinders sufficient procurement of iron and folic acid supplements, which is required to ensure that supply meets demand. As multiple programmes are underway to improve nutrition, budget allocations are prioritized for one programme over other. In this context, the Iron and Folic Acid Supplementation Programme is often neglected.</p> <p>A lack of advocacy and lobbying at the federal level has further slowed down Azad Jammu and Kashmir's progress in terms of including mobile and hard-to-reach populations in the budget. This results in unmet needs.</p>	<p>Plan finances thoroughly to ensure the availability of essential commodities, including iron and folic acid supplements.</p> <p>Undertake rigorously planned advocacy at the federal level to ensure that Azad Jammu and Kashmir receives funding from the National Finance Commission.</p> <p>Ensure the comprehensive planning of resource allocations, in order to ensure that the required finances are provided for prioritized actions.</p>

No.	Bottleneck	Recommendation
2	<p>Absence of iron and folic acid on the essential drug list</p> <p>The fact that iron and folic acid supplements are not included on the essential drug list means that these supplements are not prioritized in the procurement of essential medical commodities.</p>	<p>Include iron and folic acid supplements on the essential drug list. This is vital to prevent the budgetary prioritization of other commodities over iron and folic acid supplements, which contributes to the limited procurement of these supplements.</p>
3	<p>Lack of community-based mobilization activities</p> <p>The low uptake of iron and folic acid supplementation is linked to the absence of mass media campaigns (due to a lack of funds) and community mobilization activities to raise awareness and sensitize people about the importance and use of iron and folic acid supplements. Communication is inadequate in terms of communicating the side effects of iron and folic acid supplements, explaining how to manage these side effects, and dispelling rumours about the supplements' use. As a result, communities hesitate to use iron and folic acid supplements.</p>	<p>Spearhead community sensitization through awareness campaigns and mobilization activities. Use media platforms, including social media, the radio and television, as well as on-the-ground influencers, such as religious leaders (Imams, mullahs), teachers and doctors, among others, to reach the general public. Develop and implement a communication strategy/ plan to guide engagement and mobilization. Such a plan should emphasize the schedule for iron and folic acid supplementation, dosage and side effects. It must be customized for every relevant member of households, instead of only targeting pregnant and lactating women, and adolescent girls. The inclusion of decision makers in engagement/mobilization processes is equally important for increasing the uptake of and compliance with iron and folic acid supplementation.</p>

No.	Bottleneck	Recommendation
4	<p>Lack of programme integration</p> <p>The Lady Health Worker Programme is not integrated with nutrition programmes, including for iron and folic acid supplementation. This creates challenges on the ground in terms of fully equipping the cadre of Lady Health Workers with essential knowledge and tools to fulfil their roles and responsibilities. There is a lack of clarity regarding the Lady Health Worker Programme and its activities either falling under temporary programmes, or being part of the primary health care system. This leads to confusion with regard to assigning duties to Lady Health Workers and training them rigorously to perform their jobs.</p> <p>As project protocols are undefined, and due to a lack of frequent and comprehensive training, the pre-planning undertaken by Lady Health Workers is fairly weak. This leaves considerable room for improvement in terms of the development of robust plans.</p> <p>Lady Health Workers lack knowledge of the Iron and Folic Acid Supplementation Programme. In general, their counselling skills are weak and the information they share with communities is variable. This leads to rumours and misconceptions about iron and folic acid supplementation.</p>	<p>Officially integrate the Lady Health Worker Programme and nutrition programmes, and clarify the status of the Lady Health Worker Programme, either as a temporary programme or part of the primary health care system. Making Lady Health Workers a cadre will revive the programme.</p> <p>Strictly monitor existing Lady Health Workers to ensure high quality performance.</p> <p>Rationalize human resources for iron and folic acid supplementation in order to ensure the effective distribution and quality of human resources deployed on the ground.</p> <p>Sensitize and deliver additional training for human resources to strengthen communication on iron and folic acid supplementation on the ground. Equip Female Medical Officers and Lady Health Workers with accurate, up-to-date information to provide to women and their families. Such guidance will contribute to reducing hesitation among beneficiaries, dispel rumours, and address community concerns in terms of the dosage, schedule and side effects of iron and folic acid supplements.</p>
5	<p>Unavailability of the Logistics Management Information System</p> <p>Stakeholders report that the LMIS is only available at the top levels of governance, forcing mid- to low-tier management to rely on manual record keeping.</p> <p>Barriers to improving the LMIS include a shortage of trained, qualified information technology (IT) personnel to integrate the LMIS and streamline digital activities.</p> <p>Challenges are created by a lack of monitoring and accountability in terms of staff and the procurement and distribution of iron and folic acid supplements.</p>	<p>Undertake evidence-based monitoring to streamline decision-making on all aspects of the Iron and Folic Acid Supplementation Programme, most importantly in terms of the distribution of the commodity and human resources. Evidence helps to inform accurate resource allocations, especially the allocation of the region's limited financial resources.</p> <p>Undertake monitoring of human resources to assess gaps in their performance and promptly respond to these gaps, either by providing refreshers/training, or by ensuring that human resources have an equitable supply of iron and folic acid supplements.</p> <p>Implement result-based management to further strengthen the response management system and increase the efficiency of the programme's implementation.</p>

REFERENCES

- Akhtar, Saeed, et al., 'Iron status of the Pakistani population – current issues and strategies', *Asia Pacific Journal*, vol. 22, no. 3, 2013, pp. 340–347.
- Akram, Muhammad C.H., Humaira Akram, and Amna Mubeen, 'Prevalence of Anemia in Pregnant Women in Central Punjab', *Pakistan Journal of Medical and Health Science*, vol. 11, no. 4, October – December 2017, pp. 1374–1376, <www.pjmhsonline.com/2017/oct_dec/pdf/1374.pdf>, accessed 31 January 2022.
- Alderman, Harold, 'The economic cost of a poor start to life', *Journal of Developmental Origins of Health and Disease*, vol. 1, no. 1, February 2010, pp. 19–25.
- Ali, Sumera Aziz, Umber Khan, and Anam Feroz, 'Prevalence and Determinants of Anemia among Women of Reproductive Age in Developing Countries', *Journal of the College of Physicians and Surgeons Pakistan*, vol. 30, no. 2, 2020, pp. 177–186.
- Andresean, Alan, *Marketing social change: Changing behavior to promote health, social development, and the environment*, Jossey-Bass, San Francisco, 1995.
- Berg, Bruce L., and Howard Lune, *Qualitative research methods for the social sciences*, 8th ed., Pearson, Boston, MA, 2012.
- Bongaarts, John. 'Short Review: WHO, UNICEF, UNFPA, World Bank Group, and United Nations Population Division, Trends in Maternal Mortality: 1990 to 2015', *Population and Development Review*, vol. 42, no. 4, 20 December 2016.
- Burnard, P., 'Interpreting text: An alternative to some current forms of textual analysis in qualitative research', *Social Sciences in Health*, vol. 1, no. 4, 1995, pp. 236–245.
- Catanzaro, Marci, 'Using qualitative analytical techniques', in *Nursing research: Theory and practice*, edited by Nancy Fugate Woods and Marci Catanzaro, C.V. Mosby Company, St. Louis, MO, 1988, pp. 437–456.
- Department of Health of Azad Jammu and Kashmir, *Regional RMNCAH&N Strategy (2016–2020)*, Government of Azad Jammu and Kashmir, Muzaffarabad, 2016, <phkh.nhsrsc.pk/sites/default/files/2019-06/AJK%20RMNCAH%26N%20Strategy%202016-2020.pdf>, accessed 31 January 2022.
- Department of Health of Gilgit-Baltistan, *Regional RMNCAH&N Strategy (2016–2020)*, Government of Gilgit-Baltistan, Gilgit, 2016, <phkh.nhsrsc.pk/sites/default/files/2019-06/GB%20RMNCAH%26N%20Strategy%202016-2020.pdf>, accessed 31 January 2022.
- Department of Health of Sindh, *Nutrition Support Programme for Sindh*, Government of Sindh, Karachi, 2013.
- Downe-Wamboldt, Barbara, 'Content analysis: Method, applications, and issues', *Health Care for Women International*, vol. 13, no. 3, 1992, pp. 313–321.
- El-Saharty, Sameh, and Naoko Ohno, 'South Asia's Quest for Reduced Maternal Mortality: What the Data Show', *World Bank Blogs*, 13 January 2015, <blogs.worldbank.org/health/south-asia-s-quest-reduced-maternal-mortality-what-data-show>, accessed 31 January 2022.
- Gilson, Lucy, and Nika Raphaely, 'The terrain of health policy analysis in low and middle income countries: a review of published literature 1994–2007', *Health Policy and Planning*, vol. 23, no. 5, September 2008, pp. 294–307.

- Government of Balochistan, *Balochistan – An Inter-Sectoral Nutrition Strategy*, Government of Balochistan, Quetta, 2013.
- Government of Khyber Pakhtunkhwa, *Khyber Pakhtunkhwa Stunting Prevention and Rehabilitation Integrated Nutrition Gain – Scaling Up Nutrition (SUN) Cell, Planning & Development Department, Civil Secretariat*, Government of Khyber Pakhtunkhwa, Peshawar, 2016. Government of Sindh, *Sehat and Sindh*, Government of Sindh, 2018.
- Huang, Ling Ling, et al., 'The Influence of Iron-deficiency Anemia during the Pregnancy on Preterm Birth and Birth Weight in South China', *Journal of Food and Nutrition Research*, vol. 3, no. 9, 2015, pp. 570–574. Khurmi, Manpreet Singh, et al., 'Newborn Survival Case Study in Rwanda – Bottleneck Analysis and Projections in Key Maternal and Child Mortality Rates Using Lives Saved Tool (LiST)', *International Journal of Maternal and Child Health and AIDS*, vol. 6, no. 2, 2017, pp. 93–108. Kitzinger, Jenny, 'Qualitative Research: Introducing focus groups', *BMJ Clinical Research*, vol. 311, no. 7000, August 1995, pp. 299–302
- Krippendorff, Klaus, 'Measuring the reliability of qualitative text analysis data', *Quality and Quantity*, vol. 38, no. 6, 2004, pp. 787–800. Mawani, Minaz, Savera Aziz Ali, Gulshan Bano, and Sumera Aziz Ali, 'Iron Deficiency Anemia among Women of Reproductive Age, An Important Public Health Problem: Situation Analysis', *Reproductive System & Sexual Disorders: Current Research*, vol. 5, no. 3, 9 August 2016, doi: 10.4172/2161-038x.1000187.
- Maternal and Child Health Integrated Program (MCHIP), *Pakistan: FATA-KP Health Program*, United States Agency for International Development (USAID), Islamabad, 2020.
- McCallum, Todd J., and C. R. Arlien, 'Enhancing the matching model of recruitment through focus groups', *Aging and Mental Health*, vol. 10, no. 3, May 2006, pp. 312–318.
- Meier, Paul R., et al., 'Prevention of Iron Deficiency Anemia in Adolescent and Adult Pregnancies', *Clinical Medicine & Research*, vol. 1, no. 1, January 2003, pp. 29–36.
- Ministry of National Health Services, Regulations and Coordination, United Nations Children's Fund (UNICEF), and Aga Khan University, *Pakistan National Nutrition Survey 2018*, Government of Pakistan, Islamabad, 2018.
- Mukhopadhyay, Dipta K., et al., 'Exploring the Bottlenecks: An Assessment of the Implementation Process of Janani Suraksha Yojana in the State of West Bengal, India', *International Journal of Medicine and Public Health*, vol. 8, no. 1, March 2018, pp. 29–33.
- National Institute of Population Studies (NIPS), *Pakistan Demographic and Health Survey 2017–18*, NIPS, Islamabad, 2018.
- National Institute of Population Studies (NIPS) and ICF, *Pakistan Maternal Mortality Survey 2019*, NIPS and ICF Islamabad, Pakistan, and Rockville, MD, USA, 2020, <dhsprogram.com/pubs/pdf/PR128/PR128.pdf>, accessed 31 January 2022.
- Naziri, M., et al., 'Scaling up newborn care in Afghanistan: opportunities and challenges for the health sector', *Health Policy and Planning*, vol. 33, no. 2, 27 November 2017, pp. 271–282. Nisar, Yasir Bin, and Michael J. Dibley, 'Determinants of neonatal mortality in Pakistan: secondary analysis of Pakistan Demographic and Health Survey 2006–07', *BMC Public Health*, vol. 14, no. 663, 2014, doi: 10.1186/1471-2458-14-663.

- Nisar, Yasir Bin, Michael J. Dibley, and Ali Mohammad Mir, 'Factors associated with non-use of antenatal iron and folic acid supplements among Pakistani women: a cross sectional household survey', *BMC Pregnancy and Childbirth*, vol. 14, no. 305, 4 September 2014, doi: 10.1186/1471-2393-14-305.
- Ogbo, Felix Akpojene, et al., 'Enablers and Barriers to the Utilization of Antenatal Care Services in India', *International Journal of Environmental Research and Public Health*, vol. 16, no. 17, September 2019, p. 3152.
- Omotayo, Moshood O., et al., 'Feasibility of integrating calcium and iron-folate supplementation to prevent preeclampsia and anemia in pregnancy in primary healthcare facilities in Kenya', *Maternal & Child Nutrition*, vol. 14, suppl. 1, February 2018, p. e12437.
- Precision Health Consultants (PHC Global), *Iron Folic Acid Bardin Compliance Study*, PHC Global, Karachi, 2019. Roos, Nanna, et al., 'Micronutrient status of populations and preventive nutrition interventions in South East Asia', *Maternal and Child Health Journal*, 23(S1), 2018, pp. 29–45.
- Rukanuddin, Rafat Jan, Tazeen S. Ali, and Beth Mcmanis, 'Midwifery Education and Maternal and Neonatal Health Issues: Challenges in Pakistan', *Journal of Midwifery and Women's Health*, vol. 52, no. 4, July/August 2007, pp. 398–405.
- Sanghvi, Tina G., Philip W. J. Harvey, and Emily Wainwright, 'Maternal iron–folic acid supplementation programs: evidence of impact and implementation', *Food and Nutrition Bulletin*, vol. 31, suppl. 2, June 2010, pp. S100–S107.
- SCAP Balochistan, 'BNPMC', < scapbalochistan.org/bnPMC >, accessed 5 August 2021.
- Shams, Sulaiman, Zarmina Ahmad, and Abdul Wadood, 'Prevalence of Iron Deficiency Anemia in Pregnant Women of District Mardan, Pakistan', *Journal of Pregnancy and Child Health*, vol. 4, no. 6, November 2017, doi: 10.4172/2376-127x.1000356.
- Siekmans, Kendra, et al., 'Barriers and enablers for iron folic acid (IFA) supplementation in pregnant women', *Maternal & Child Nutrition*, vol. 14, suppl. 5, December 2017, doi: 10.1111/mcn.12532.
- State of Azad Jammu and Kashmir, 'AJK at a glance', < www.ajk.gov.pk/ajk-at-a-glance >, accessed 16 July 2020.
- Stoltzfus, Rebecca J. 'Iron Deficiency: Global Prevalence and Consequences', *Food and Nutrition Bulletin*, vol. 24, suppl. 4, October 2003, pp. S99–S103.
- Ud Din, Jalal, et al., 'Iron deficiency anaemia in school age children of District Tank, Khyber Pakhtunkhwa Province, Pakistan', *Journal of the Pakistan Medical Association*, vol. 69, no. 1, October 2019, pp. 1543–1546.
- Ullah, Atta, Ali Muhammad Yousafzai, Gul Nabi Khan, Nasir Iqbal, and Bashir Ahmad. 2017. "Iron Deficiency Anemia (IDA) In Pregnant Women of Different Ages In Swat District, Khyber Pakhtunkhwa Pakistan". doi:10.20944/preprints201701.0126.v1.
- United Nations Children's Fund (UNICEF), *UNICEF reanalysis of Pakistan Demographic and Health Survey*, UNICEF, Islamabad, 2015.

- United Nations Children’s Fund (UNICEF), ‘Maternal mortality’, <data.unicef.org/topic/maternal-health/maternal-mortality>, accessed 31 January 2022.
- United Nations Children’s Fund (UNICEF), ‘Neonatal mortality’, <data.unicef.org/topic/child-survival/neonatal-mortality>, accessed 4 May 2020.
- United States Agency for International Development (USAID), *A Qualitative Assessment of Supply and Demand of Maternal Iron-Folic Acid Supplementation and Infant and Young Child Feeding Counseling in Jamshoro and Thatta Districts, Pakistan*, USAID, Islamabad, 2018, <www.mcsprogram.org/wp-content/uploads/2018/04/IFA-Study-Pakistan-Report.pdf>, accessed 31 January 2022.
- Vail, Brennan, et al., ‘Logistical, cultural, and structural barriers to immediate neonatal care and neonatal resuscitation in Bihar, India’, *BMC Pregnancy and Childbirth*, vol. 18, no. 385, 2018, doi: 10.1186/s12884-018-2017-5.
- Varghese, Jithin Sam, Sumathi Swaminathan, Anura V. Kurpad, and Tinku Thomas, ‘Demand and supply factors of iron-folic acid supplementation and its association with anaemia in North Indian pregnant women’, *PLOS ONE*, vol. 14, no. 1, 30 January 2019, p. e0210634.
- Wendt, Amanda S., et al. ‘Identifying bottlenecks in the iron and folic acid supply chain in Bihar, India: a mixed-methods study’, *BMC Health Services Research*, vol. 18, no. 281, 12 April 2018, doi: 10.1186/s12913-018-3017-x.
- Wilson, Amie, et al., ‘A systematic review and thematic synthesis of qualitative studies on maternal emergency transport in low- and middle-income countries’, *International Journal of Gynaecology and Obstetrics*, vol. 122, no. 3, September 2013, pp. 192–201.
- World Bank, *Pakistan Gilgit-Baltistan Economic Report*, World Bank, Islamabad, 2010.
- World Health Organization (WHO), *Worldwide Prevalence of Anaemia 1993–2005: WHO Global Database on Anaemia*, WHO, Geneva, 2008, <apps.who.int/iris/bitstream/handle/10665/43894/9789241596657_eng.pdf>, accessed 31 January 2022.
- World Health Organization, ‘Child mortality and causes of death’, <www.who.int/data/gho/data/themes/topics/topic-details/GHO/child-mortality-and-causes-of-death>, accessed 31 January 2022.
- World Health Organization, United Nations Children’s Fund (UNICEF), United Nations Population Fund (UNFPA) and World Bank, *Trends in Maternal Mortality: 2000 to 2017*, WHO, Geneva, 2019.

ANNEXES

Annex A. Guide for in-depth interviews/key informant interviews with District Programme Managers (Nutrition)

Assalam-o-Alaikum, my name is [speaker's name] and I want to discuss a very important study with you today. This is [other person's name], a colleague who will be taking notes of our discussion. Before we begin, I want to thank you for agreeing to participate in this study. We will be discussing your knowledge regarding iron and folic acid supplementation. The information you provide will remain confidential.

The objective of this study is to analyse bottlenecks to iron and folic acid supplementation, and to identify the main barriers to compliance with supplementation among pregnant women. This analysis will provide evidence for informed nutrition policy-making, planning and programming.

Therefore, it is important to understand your views on the implementation of the programme, your perceived understanding of the programme's needs, bottlenecks to optimal implementation and mitigation strategies to circumvent challenges.

Section: Awareness of the problem and burden

1. In your opinion, are there any nutrition problems among the population of this district? Are these problems different among different genders? [Probe: Women, men, children (boys/girls), with emphasis on women and girls. If respondents answer that women/girls face specific problems, ask why women/girls?]
2. In your opinion does malnutrition affect pregnant and lactating women (PLW) in your district? If yes, is there a high burden of malnutrition? What factors contribute to malnutrition in your district? [Probe: Socio-cultural, economic, programmatic and other factors.]
3. Do nutritional needs differ between pregnant and lactating women, women of reproductive age who are not pregnant, and adolescent girls? [Probe: Are needs greater or lesser among one of these groups?]
4. What is the significance of nutrition during pregnancy/lactation and adolescence?
5. Generally speaking, is the target population aware of iron deficiency anaemia? [Probe: Do they know that iron deficiency anaemia is a disease? Do they understand that it may adversely affect pregnancy outcomes? Do they understand the need for good nutrition to circumvent adverse outcomes? Are they aware of specific remedies/interventions?]
6. How can target populations' knowledge of iron and folic acid supplementation be improved?

Section: Understanding of the programme and roles/responsibilities

1. What are the objectives of the Nutrition Programme?
2. Could you please explain your general role and responsibilities? [Probe: Also ask about roles and responsibilities specific to iron and folic acid supplementation.]

3. How can you better work to advance iron and folic acid supplementation?
4. What are the roles of staff working on iron and folic acid supplementation at the district level? [Probe: Explain their roles and responsibilities in terms of iron and folic acid supplementation.]
5. What are your views about the level of understanding of staff who are supporting iron and folic acid supplementation in terms of improving women's health in general, and the health of pregnant and lactating women, at the previously mentioned levels? [Probe: Which foods should iron and folic acid be taken with, dosage, duration of utilization, compliance, etc.]
6. What could be done to improve their performance? [Probe: Better counselling skills, better/frequent trainings, enhanced supportive supervision and monitoring, increasing human resources in the geographical area.]
7. What are your views on the programme's implementation? [Probe: Is the programme's implementation robust? What is the extent of its geographical coverage? Are hard-to-reach groups covered, such as mobile/nomadic populations, ethnic minorities, immigrants, and others?]
8. What are your suggestions for improving/strengthening this programme? [Probe: Expansion into uncovered areas, improving the availability of iron and folic acid supplements, greater resource allocations for the programme, and required restructuring.]
9. Is there private sector engagement in the Iron and Folic Acid Supplementation Programme? [Probe: Please describe how it works. Could it be improved? If the private sector is not engaged already, should it be engaged? If the private sector is already engaged, how can it be better integrated?]
10. Do private providers place enough emphasis on iron and folic acid supplementation during pregnancy? If not, is there a mechanism to work with these providers (gynaecologists/obstetricians) to emphasize the importance of using iron and folic acid supplements during pregnancy?

Section: Demand and supply

1. Please share your views on the consistency of the iron and folic acid supply. [Probe: If there are stock outs, why do you think they occur? Do you also prescribe supplements from outside stores when stock outs occur?]
2. How can stock outs be prevented? [Probe: What is the backup plan for preventing stock outs? Does the plan need improvement? Do you have any suggestions?]
3. How are stocks maintained? [Probe: Are stocks stored/maintained following specific efficacy guidelines/measures? Who is responsible for keeping records? Does the storekeeper/dispenser keep records of stock outs? Ask about the quality of staff, including whether or not they are qualified and whether any pharmacist is available or not.]
4. Is there a Logistic Management Information System (LMIS) for record keeping on commodities? [Probe: Do you think this is an efficient way of addressing the supply barrier?]

Section: Communication and information

1. Do you think there are any misconceptions, rumours, resistance to communication or any other challenges to the uptake of iron and folic acid supplementation within the community? [Probe: How did you overcome these challenges? What issues did you face in terms of raising awareness, educating and providing explanations?]
2. Was the programme able to reach the population? What is the medium/approach for communicating information on this programme among the population? [Probe: Information, education and communication (IEC) materials, mass media outreach, social media outreach, and community mobilization/involvement.]
3. What are/were the good aspects of the information and communication component? What was not as good? How should this be improved?

Thank you for your participation. Your inputs are a valuable contribution to this study.

Annex B. Guide for in-depth interviews/key informant interviews with Provincial Programme Managers (Nutrition)

Assalam-o-Alaikum, my name is [speaker's name] and I want to discuss a very important study with you today. This is [other person's name], a colleague who will be taking notes of our discussion. Before we begin, I want to thank you for agreeing to participate in this study. We will be discussing your knowledge regarding iron and folic acid supplementation. The information you provide will remain confidential.

The objective of this study is to analyse bottlenecks to iron and folic acid supplementation, and to identify the main barriers to compliance with supplementation among pregnant women. This analysis will provide evidence for informed nutrition policy-making, planning and programming.

Therefore, it is important to understand your views on the implementation of the programme, your perceived understanding of the programme's needs, bottlenecks to optimal implementation and mitigation strategies to circumvent challenges.

Section: Awareness of the problem and burden

1. In your opinion, are there any nutrition problems among the population of this province? Are these problems different among different genders? [Probe: Women, men, children (boys/girls), with an emphasis on women and girls. If respondents answer that women/girls face specific problems, ask why women/girls?]
2. In your opinion is there malnutrition affect pregnant and lactating woman (PLW) in your province? If yes, is there a high burden of malnutrition? What factors contribute to malnutrition in your province? [Probe: Socio-cultural, economic, programmatic and other factors.]
3. Do nutritional needs differ between pregnant and lactating women, women of reproductive age who are not pregnant, and adolescent girls? [Probe: Are needs greater or lesser among one of these groups?]

4. What is the significance of nutrition during pregnancy/lactation and adolescence?
5. Generally speaking, is the target population aware of iron deficiency anaemia? [Probe: Do they know that iron deficiency anaemia is a disease? Do they understand that it may adversely affect pregnancy outcomes? Do they understand the need for good nutrition to circumvent adverse outcomes? Are they aware of specific remedies/interventions?]
6. How can target populations' knowledge of iron and folic acid supplementation be improved?

Section: Understanding the programme and roles/responsibilities

1. What are the objectives of the Provincial Nutrition Programme?
2. Could you please explain your general role and responsibilities. [Probe: Also ask about roles and responsibilities specific to iron and folic acid supplementation.]
3. How can you better work to advance iron and folic acid supplementation?
4. What are the roles of the staff working on iron and folic acid supplementation at the provincial level? [Probe: Explain their roles and responsibilities in terms of iron and folic acid supplementation.]
5. What are your views about the level of understanding of staff who are supporting iron and folic acid supplementation in terms of improving women's health in general, and the health of pregnant and lactating women, PLW at the previously mentioned levels? [Probe: Which foods should iron and folic acid supplements be taken with, dosage, duration of utilization, compliance, etc.]
6. What could be done to improve their performance? [Probe: Better counselling skills, better/frequent trainings, enhanced supportive supervision and monitoring, increasing human resources in the geographical area.]
7. What are your views on the programme's implementation? [Probe: Is implementation robust? What is the extent of geographical coverage? Are hard-to-reach groups covered, such as mobile/nomadic populations, ethnic minorities, immigrants, and others?]
8. What are your suggestions for improving/strengthening this programme? [Probe: Expansion into uncovered areas, improving the availability of iron and folic acid supplements, greater resource allocations for the programme, and required restructuring.]
9. Is there private sector engagement in the Iron and Folic Acid Supplementation Programme? [Probe: Please describe how it works. Could it be improved? If the private sector is not engaged already, should it be engaged? If the private sector is already engaged, how can it be better integrated?]
10. Do private providers place enough emphasis on iron and folic acid supplementation during pregnancy? If not, is there a mechanism to work with these providers (gynaecologists/obstetricians) to emphasize the importance of using iron and folic acid supplements during pregnancy?

Section: Demand and supply

1. Please share your views on the consistency of the iron and folic acid supply. [Probe: If there are stock outs, why do you think they occur? Do you also prescribe supplements from outside stores when stock outs occur?]
2. How can stock outs be prevented? [Probe: What is the backup plan for preventing stock outs? Does the plan need improvements? Do you have any suggestions?]
3. How are stocks maintained? [Probe: Are stocks stored/maintained following specific efficacy guidelines/measures? Who is responsible for keeping records? Does the storekeeper/dispenser keep records of stock outs? Ask about the quality of staff, including whether or not they are qualified and whether any pharmacist is available or not.]
4. Is there a Logistic Management Information System (LMIS) for record keeping on commodities? [Probe: Do you think this is an efficient way of addressing the supply barrier?]

Section: Communication and information

1. Do you think there are any misconceptions, rumours, resistance to communication or any other challenges to the uptake of iron and folic acid supplementation within communities? [Probe: How did you overcome these challenges? What issues did you face in terms of raising awareness, educating and providing explanations?]
2. What is the medium/approach for communicating information on this programme among the population? [Probe: Information, education and communication (IEC) materials, mass media outreach, social media outreach, and community mobilization/involvement.]
3. What are/were the good aspects of the information and communication component? What was not as good? How should this be improved?

Thank you for your participation. Your inputs are a valuable contribution to this study.

Annex C. Guide for in-depth interviews/key informant interviews with Health Facility Medical Officers

Assalam-o-Alaikum, my name is [speaker's name] and I want to discuss a very important study with you today. This is [other person's name], a colleague who will be taking notes of our discussion. Before we begin, I want to thank you for agreeing to participate in this study. We will be discussing your knowledge regarding iron and folic acid supplementation. The information you provide will remain confidential.

The objectives of this study are to analyse bottlenecks to iron and folic acid supplementation, and to identify the main barriers to compliance with supplementation among pregnant women. This analysis will provide evidence for informed nutrition policy-making, planning and programming.

Therefore, it is important to understand your views on the implementation of the programme, your perceived understanding of the programme's needs, bottlenecks to optimal implementation and mitigation strategies to circumvent challenges.

Section: Awareness of the problem and burden

1. In your opinion, are there any nutrition problems among the population of this area? Are these problems different for different genders? [Probe: Women, men, and children (girls/boys), with an emphasis on women and girls.]
2. In your opinion does malnutrition affect pregnant and lactating women in your area? If yes, is there a high burden of malnutrition? What factors contribute to malnutrition in your area? [Probe: socio-cultural, economic, programmatic and others factors.]
3. Do nutritional needs differ between pregnant or lactating women, and women of reproductive age who are not pregnant? [Probe: Whether needs are greater or lesser among pregnant and lactating women.]
4. What is the significance of nutrition during pregnancy?
5. Generally speaking, is the target population aware of iron deficiency anaemia? [Probe: Do they know that it is a disease? Do they understand that it may adversely affect pregnancy outcomes? Are they aware of any specific remedies/interventions?]
6. Do you believe that the target population understands the need for good nutrition, and specifically the need for iron and folic acid supplementation for pregnant women, as well as for women in general? [Probe: Why do they think it is useful? How could their knowledge be improved? Can men be involved?]

Section: Understanding the programme and roles/responsibilities

1. Are you aware of any programme for nutrition supplementation run by the government in your area? [Probe: If yes, can you please elaborate? What is the programme about? When was it started and who is the target population? Which department and/or personnel are responsible for this programme's implementation?]
2. Please tell us about your general role and responsibilities. [Probe: In terms of iron and folic acid supplementation, do you prescribe supplements? Who is accountable for monitoring dosage and compliance?]
3. How can you better work to advance iron and folic acid supplementation? [Probe: Frequent trainings, supportive supervision and monitoring, and improving the availability of the commodity.]
4. What is the role of the staff who work with you at this facility in terms of iron and folic acid supplementation? [Probe: Explain their roles and responsibilities for iron and folic acid supplementation.]
5. What are your views about the levels of understanding of the staff at this facility who are involved in iron and folic acid supplementation? Please explain their understanding of nutrition support for improving women's health in general, and the health of pregnant and lactating women specifically. [Probe: Do they understand required dosage, the required duration of utilization, compliance and related issues?]

6. What could be done to improve their performance? [Probe: Frequent trainings, supportive supervision and monitoring, as well as increasing the number of human resources.]
7. What are your views on the programme's implementation? [Probe: Is implementation robust? Are hard-to-reach groups covered, such as mobile/nomadic populations, ethnic minorities, immigrants and others?]
8. What are your suggestions for improving/strengthening this programme? [Probe: Expansion into uncovered areas (increasing coverage), improving the availability of iron and folic acid supplements, resource allocations and required restructuring.]
9. Is there private sector engagement in the Iron and Folic Acid Supplementation Programme? [Probe: How does private sector engagement work? Could it be improved? If the private sector is not engaged already, should it be engaged? If the private sector is already engaged, how it can be better integrated?]
10. Do private health care providers place enough of an emphasis on iron and folic acid supplementation during pregnancy? If not, is there a mechanism to work with providers (gynaecologists/obstetricians) to emphasize the importance of using iron and folic acid supplements during pregnancy?

Section: Demand and supply

1. Please share your views on the consistency of the iron and folic acid supply. [Probe: If there are stock outs, why do you think they occur? Do you also prescribe supplements from outside stores when stock outs occur?]
2. How can stock outs be prevented? [Probe: What is the backup plan for preventing stock outs? Does the plan need improvements? Do you have any suggestions?]
3. How are stocks maintained? [Probe: Are stocks stored/maintained following specific efficacy guidelines/measures? Who is responsible for keeping records? Does the storekeeper/dispenser keep records of stock outs? Ask about the quality of staff, including whether or not they are qualified and whether a pharmacist is available or not.]
4. Is there a Logistic Management Information System (LMIS) for record keeping on commodities? [Probe: Do you think this is an efficient way of addressing the supply barrier?]

Section: Communication and information

1. Do you think there are any misconceptions, rumours, resistance to communication or any other challenges to the uptake of iron and folic acid supplementation within the community? [Probe: How did you overcome these challenges? What issues did you face in terms of raising awareness, educating and providing explanations?]
2. Has the programme been able to reach the population? What is the medium/approach for communicating information on this programme among the population? [Probe: Information, education and communication (IEC) materials, mass media outreach, social media outreach, and community mobilization/involvement.]

3. What are/were the good aspects of the information and communication component? What was not as good? How should this be improved?

Thank you for your participation. Your inputs are a valuable contribution to this study.

Annex D. Guide for focus group discussions with women of reproductive age (pregnant and lactating women, and adolescent girls)

Assalam-o-Alaikum, my name is [speaker's name] and I want to discuss a very important study with you today. This is [other person's name], a colleague who will be taking notes of our discussion. Before we begin, I want to thank you for agreeing to participate in this study. We will be discussing your knowledge regarding iron and folic acid supplementation. The information you provide will remain confidential.

It is important to understand your views on the implementation of the programme, your perceived understanding of the programme's needs, bottlenecks to optimal implementation and mitigation strategies to circumvent challenges.

If you do not have any questions, may we begin?

1. How would you rate your current health status? [Probe: Do you feel healthy, or do you feel weak and/or tired? Please explain what factors are responsible for your current health status, in your opinion.]
2. Why is it important to take care of one's health, especially during pregnancy?
3. What additional nutritional demands are there during pregnancy? Through what sources, other than food, can these demands be met? [Probe: Are you aware of a nutrition supplementation programme for pregnant women, or any injectable supplement? If yes, please explain both.]
4. Do you know which diseases can result from nutritional deficiencies? If yes, please explain.
5. Are you satisfied with your current nutritional intake? If not, which essential nutrients are you not consuming?
6. Have you heard of anaemia? If yes,
 - a. Please discuss what anaemia means.
 - b. What are the factors that cause anaemia and how can we overcome it?
7. Did you visit a health care provider during your current/last pregnancy? If yes, why? If not, why not?
8. In your opinion, when should you visit a health care provider/doctor after you become aware that you are pregnant? During which trimester did you visit a health care provider? [Probe: First trimester, second trimester, or third trimester.]
9. Do you, or do other pregnant women, seek consultation visits during pregnancy? If yes, what is offered during these consultation sessions? [Probe: Do they explain what iron and folic acid supplementation is? Do they explain the consumption, dosage, duration of use (compliance)

and adverse effects of iron and folic acid supplements? Did they provide iron and folic acid supplements during these visits? Do they refer you to a facility to procure medicines, including iron and folic acid supplements?]

10. Were you prescribed any medicine during your visit?
 - a. [Show them a pack of iron and folic acid supplements and then ask] Do you know what this is? b) If yes, did you receive this? Where did you get this from and when?
11. Were you supplied enough iron and folic acid supplements during your pregnancy? What did you do when you could not get iron and folic acid supplements? [Probe: Ask whether they contacted the health worker or did they visit a store/health facility or doctor.]
12. Does a health care worker visit your home? If yes,
 - a. How often does she visit?
 - b. Does she provide iron and folic acid supplements and emphasize information about their importance?
 - c. Did she regularly provide iron and folic acid supplements during your last pregnancy?
13. Did you use iron and folic acid supplements during your last pregnancy? If your health worker stopped providing iron and acid supplements, how long did this last and what was the reason behind this?
14. Do you have any concerns regarding iron and folic acid supplementation? Please share these concerns, if any. [Probe: Do you have any concerns regarding the adverse/side effects of iron and folic acid supplements? Do you have any concerns about supply? Have you heard any misconceptions, taboos or rumours?]
15. In your opinion, under what conditions must iron and folic acid supplements be taken? [Probe: Its role in women's health, with a focus on when women should take iron and folic acid supplements, i.e. during pregnancy or puberty, etc.]
16. Does anyone in your family or community discourage the use of iron and folic supplements? If yes, why?
17. Did you feel any change in your health status after taking iron and folic acid supplements? [Probe: Know the benefits.]
18. What issues are there regarding the supply of iron and folic acid supplements in your community? [Probe: Quality and efficacy, affordability, and human resources.]
19. Did you ever encounter refusals if you did not have enough money to buy iron and folic acid supplements? If yes, in your opinion, why did this happen?

Thank you so much for your participation. The information you provided is a valuable contribution to our study.

Annex E. Guide for focus group discussions with Lady Health Workers/Community Midwives

Assalam-o-Alaikum, my name is [speaker's name] and I want to discuss a very important study with you today. This is [other person's name], a colleague who will be taking notes of our discussion. Before we begin, I want to thank you for agreeing to participate in this study. We will be discussing your knowledge regarding iron and folic acid supplementation. The information you provide will remain confidential.

The objectives of this study are to analyse bottlenecks to iron and folic acid supplementation, and to identify the main barriers to compliance with supplementation among pregnant women. This analysis will provide evidence for informed nutrition policy-making, planning and programming.

Therefore, it is important to understand your views on the implementation of the programme, your perceived understanding of the programme's needs, bottlenecks to optimal implementation and mitigation strategies to circumvent challenges.

If you do not have any questions, may we begin?

1. In your opinion, are there any nutrition problems among population of this area? Are these problems different for different genders? [Probe: Women, men, children (girls/boys), with an emphasis on women and girls.]
2. In your opinion does malnutrition affect pregnant and lactating women in your district? If yes, is there a high burden of malnutrition? What factors contribute to malnutrition in your district? [Probe: Socio-cultural, economic, programmatic and other factors.]
3. Do nutritional needs differ between pregnant or lactating women, women of reproductive age who are not pregnant, and adolescent girls? [Probe: Are needs greater or lesser among one of these groups.]
4. What is the significance of nutrition during pregnancy/lactation and adolescence?
5. Generally speaking, is the target population aware of iron deficiency anaemia? [Probe: Do they know that it is a disease? Do they understand that it may adversely affect pregnancy outcomes? Are they aware of specific remedies/interventions?]
6. How can their knowledge of iron and folic acid supplementation be improved?
7. Do you know of any programme for nutrition supplementation run by the government in your district? [Probe: If yes, please elaborate. What is the programme about? When was it started and who is the target population? Which department and/or personnel are responsible for the programme's implementation?]
8. Please tell us about your general role and responsibilities, including roles and responsibilities specific to iron and folic acid supplementation? [Probe: Do you visit households in your catchment area? If yes, how frequently? Do you educate the target population in your catchment area about nutritional needs in general, and iron and folic acid supplementation specifically? Do you prescribe supplements? Who is accountable for monitoring dosage?]

9. Do you keep records when you provide iron and folic acid supplements in your catchment area? [Probe: If yes, how? Do you have a plan on whom to visit for iron and folic acid supplementation each month? If not, what are the reasons for this?]
10. What kind of methodology do you adopt to educate the population? Which method works best? What else could be done to strengthen your work? [Probe: Lectures, interactive sessions, community engagement activities, and incentives.]
11. Other than the ways discussed, what else would help you to better work on iron and folic acid supplementation? [Probe: Frequent trainings, supportive supervision and monitoring, improving the availability of iron and folic acid supplements, and increasing human resources in the existing geographical area.]
12. What are your views on the programme's implementation? (Probe: Is implementation robust? What is the extent of its geographical coverage? Are hard-to-reach groups covered, such as mobile/nomadic populations, ethnic minorities, immigrants and others?)
13. What are your suggestions for improving/strengthening this programme? [Probe: Expansion into uncovered areas, improving the availability of iron and folic acid supplements, resource allocations and required restructuring needed.]
14. Is there a mechanism to work with providers (gynaecologists/obstetricians) to emphasize the importance of using iron and folic acid supplements during pregnancy?
15. Please share your views on the consistency of the supply of iron and folic acid supplements. [Probe: If there are stock outs, why do you think they occur? Do you also prescribe supplements from outside stores?]
16. How can stock outs be prevented? [Probe: What is the backup plan for preventing stock outs? Does the plan need improvement? What do you suggest?]
17. Have you, or your team, come across any misconceptions, resistance to communication or any other challenges related to the uptake of iron and folic acid supplementation within the community? [Probe: How did you overcome these challenges? What issues did you face in raising awareness, educating and providing explanations?]

Thank you so much for your participation. The information you provided is a valuable contribution to our study.

Annex F. Guide for focus group discussions with community members

Assalam-o-Alaikum, my name is [speaker's name] and I want to discuss a very important study with you today. This is [other person's name], a colleague who will be taking notes of our discussion. Before we begin, I want to thank you for agreeing to participate in this study. We will be discussing your knowledge regarding iron and folic acid supplementation. The information you provide will remain confidential.

It is important to understand your views on the implementation of the programme, your perceived understanding of the programme's needs, bottlenecks to optimal implementation and mitigation strategies to circumvent challenges.

If you do not have any questions, may we begin?

1. In your opinion, what is a healthy diet? What specifically comprises healthy nutrition? [Probe: Ask about food intake, e.g. meat, vegetables, pulses/protein, fruit, etc.]
2. Are you satisfied with your nutritional intake? If not, what essentials are you not consuming? [Probe: What factors contribute to the non-availability of the items mentioned above? For example, low buying power due to poverty, the unavailability of items in the area, the low quality of available items, and socio-cultural trends, such as the tendency to eat more meat rather than fruit and vegetables.]
3. Are there any difference in men's and women's nutritional needs? If yes, what is the difference in nutritional requirements between a man and woman (an unmarried woman, and a married woman who is not pregnant)?
4. In your opinion, what is a healthy state for a mother? How does breastfeeding affect mothers' health? Do mothers need any supplementation while they are breastfeeding?
5. Have you heard about anaemia? If yes,
 - a. Please discuss what it means.
 - b. What factors cause anaemia, and how can we overcome it?
 - c. How can anaemia impact pregnancy?
6. In your opinion, what is the burden of anaemia and malnutrition among the population here? Is it higher in men or women, or boys and girls? [Probe: Why do you think there is a difference?]
7. Are you aware of iron and folic acid supplementation? If yes, under what conditions must iron and folic acid supplements be taken? [Probe: Its role in women's health, with a focus on when women should take supplements, e.g. during pregnancy, when lactating, or during puberty, etc.]
 - a. Do you support the use of iron and folic acid supplements? If year, please explain why you think supplements are important for women's. If not, why not? Please explain.
 - b. Please share your concerns about iron and folic acid supplements, if any. [Probe: Do you have concerns about any adverse/side effects of iron and folic acid supplements?]

8. Are there any nutrition supplementation programmes run by the government in your area? If yes, please describe the programme(s).
9. Does a health care worker visit your home? If yes,
 - a. How often does she visit?
 - b. What does she do during these visits? (Probe: Does she provide information on iron and folic acid supplementation, food and nutrition? Does she provide iron and folic acid supplements?)
 - c. In your opinion, does she adequately supply iron and folic acid supplements?
10. When you visit a health facility, what is the process for obtaining medicine from the facility? [Probe: Who prescribes medicines? Who dispenses medicines? Do they prescribe medicines that you must obtain from outside the hospital/health facility?]
11. [If the community member is a woman] Were you supplied enough iron and folic acid supplements during your pregnancy? Please discuss. If not, what are the reasons for this?
12. [If the community member is a man] Was your wife supplied enough iron and folic acid supplements during her pregnancy? Please discuss. If not, what are the reasons for this?
 - a. What options are available when iron and folic acid supplements are inaccessible? [Probe: Did you buy supplements from private practitioners or pharmacies outside of the government facility? Can you easily afford to do so? What problems do you face when you have to buy supplements from outside of a government facility?]
 - b. Have you ever bought iron and folic acid supplements from the market? [Probe: Identify concerns regarding quality and efficacy.]
13. Is it easy for you to contact a health worker and request iron and folic acid supplements? If yes, how? If not, why not?
14. Did you ever encounter refusals if you did not have enough money to buy iron and folic acid supplements? If yes, where did you register complaints?
15. Are you satisfied with government efforts in terms of iron and folic acid supplementation and nutrition in general?

Thank you so much for your participation. The information you provided is a valuable contribution to our study.

Annex G. Consent form for key informant interviews

Project Information

Project title: National iron and folic acid (IFA) bottleneck analysis

Project number:

ERC reference number:

Sponsor:

Principal investigators:

Organization:

Location:

Phone:

Other investigators:

Organization:

Location:

Phone:

Introduction

Greetings. I am here today representing Precision Health Consultants (PHC) Global, to collect some information from you regarding a health issue of great importance. This is the use of iron and folic acid supplements, and issues which hinder the accessibility and supply of iron and folic acid supplements to improve women's health status and minimize the burden of maternal anaemia. You are invited to participate in this interview as your inputs will play a significant role in this research.

Purpose of the study

By conducting this interview, we hope to understand bottlenecks to iron and folic acid supplementation. We want to know, in detail, your views about the factors which cause sub-optimal usage among pregnant women/women of reproductive age, and factors that affect the availability, utilization and access to iron and folic acid supplements.

Study procedures

If you agree to participate, you will be interviewed at a private location. This interview may take approximately one hour of your time. If you decide to participate, you will be asked to sign this form and you will be given a copy of the form to keep.

Benefits

There are no direct benefits to you from participating in this interview. However, the information we gather may help to improve the Iron and Folic Acid Supplementation Programme in Pakistan and will provide evidence for informed nutrition policy-making, planning and programming to ensure the sufficient availability of and access to iron and folic acid supplements for pregnant women in communities.

Risks

There are no physical risks from your participation in this interview. However, you may be asked a question that makes you uncomfortable. If you agree to participate, you can always choose not to answer any question that makes you uncomfortable. You can also stop the interview at any time.

Financial consideration

There is no financial compensation for your participation in this research.

Voluntarism

Your participation is completely voluntary. If you choose not to participate, your employment and the services you receive will not be affected in any way.

Confidentiality

The information you share will remain confidential. The data obtained from you will be used for the purpose of analysis and will only be accessible to senior investigators. The data will be de-identified before the analysis. A summary of the data provided by all participants will only be shared with stakeholders.

Storage of data

The data will be stored in secure cabinets and computers with passwords, and will only be accessible to the investigators.

Right to refuse or withdraw

It is important that you understand the following general principles that apply to all participants in this assessment:

1. Participation is entirely voluntary.
2. You may withdraw from this study at any time without penalty or loss of benefits.

Please feel free to ask any questions or to seek clarification if you do not understand any information. If you require additional information regarding this study, please contact:

Consent

Do you agree to participate? [Please tick one option.]

Yes No

I acknowledge that this assessment has been fully explained to me in a language that I understand and that I had the opportunity to ask questions which have been answered to my satisfaction. I agree voluntarily to participate in this study and understand that I have the right to withdraw at any time without penalty.

Participant's signature or thumb print: _____ **Date:** _____ **Study ID:** _____

Name of witness: _____ **Signature of witness:** _____ **Date:** _____

(If the participant cannot read and write)

I have explained the research to the participant and answered his/her questions to the best of my

ability. I confirm that consent has been given freely.

Investigator's name: _____ **Investigator's signature:** _____ **Date:** _____

Thank you for your time.

Annex H. National iron and folic acid bottleneck analysis service delivery checklist

Section 1

Cover page

#	Question	Result
01	Health facility number	
02	Date of visit	
03	Interviewer code	AT AB MK Other:

Facility identification

04	Name of facility	
05	Province code	Balochistan: 51 Gilgit-Baltistan: 52 Azad Jammu and Kashmir: 53 Punjab: 54 Khyber Pakhtunkhwa: 55 Sindh: 56
06	District code	Ziarat: 61 Gilgit: 62 Muzaffarabad: 63 Chiniot: 64 Charsadda: 65 Sanghar: 66
07	Type of facility	1. Lady Health Worker's home 2. Dispensary 3. Basic health unit (BHU) 4. Rural health centre (RHC) 5. Tehsil headquarter hospital (THQ) 6. District headquarter hospital (DHQ) 7. District Health Officer's (DHO) office 8. Lady Health Worker Programme's district office 9. Director General's (DG) Office 10. Lady Health Worker Programme's provincial office

08	Managing authority	<ol style="list-style-type: none"> 1. Government/public 2. Public-private partnership – People’s Primary Healthcare Initiative (PPHI) 3. Non-governmental organization (NGO)/not-for-profit organization 4. Private for-profit organization 5. Mission/faith-based organization 6. Other, please specify:
09	Urban/rural location	<ol style="list-style-type: none"> 1. Urban 2. Peri-urban 3. Rural

Consent

#	Question	Result	Skip
<p>FIND THE MANAGER, THE PERSON IN-CHARGE OF THE FACILITY, OR THE MOST SENIOR HEALTH WORKER RESPONSIBLE FOR OUTPATIENT SERVICES WHO IS PRESENT AT THE FACILITY.</p> <p>READ THE FOLLOWING GREETING:</p> <p>Good day! My name is _____. We are here on behalf of PHC Global/UNICEF conducting a survey of health facilities to assist the Government to know more about iron and folic acid supplementation.</p> <p>Now I will read a statement explaining the study.</p> <p>Your facility was selected to participate in this study. We will be asking you questions about various health services. Information about your facility may be used by the Department of Health for planning, service improvement, or for conducting further studies of health services.</p> <p>Neither your name, nor the name of any other health worker respondents who participate in this study, will be included in the dataset or in any report. However, there is a small chance that any of these respondents may be identified later. Still, we are asking for your help to ensure that the information we collect is accurate.</p> <p>You may refuse to answer any question, or choose to stop the interview at any time. However, we hope you will answer the questions, which will benefit the services you provide and the nation.</p> <p>If there are questions about which someone else is the most appropriate person to provide information, we would appreciate if you could introduce us to that person to help us collect the relevant information.</p> <p>At this point, do you have any questions about the study? Do I have your agreement to proceed?</p> <p>Interviewer’s signature indicating consent obtained:_____ Date: ____/____/____</p>			
10	May I begin the interview?	<ol style="list-style-type: none"> 1. Yes 2. No 	
11	Start time	____ : ____	

Module 1. Service availability

Section 2. Antenatal care/iron and folic acid services and dedicated area

#	Question	Result	Skip
200	Does this facility offer antenatal care (ANC) services?	<ol style="list-style-type: none"> 1. Yes 2. No 	If yes, ask question 201.
201	Is there a dedicated space for such services?	<ol style="list-style-type: none"> 1. Yes 2. No 	
202	Does this facility offer iron and folic acid (IFA) supplementation services?	<ol style="list-style-type: none"> 1. Yes 2. No 	If no, end the interview.

#	Question	Result	Skip
300	I have a few questions about the staffing of this facility. Please tell me how many staff, with each of the following qualifications/designations are currently assigned to, employed by, or seconded to this facility for iron and folic acid supplementation. Please count each staff member only once, on the basis of their highest technical or professional qualification.		
1	Specialist doctor	---	
2	Lady Health Visitor (LHV)	---	
3	Nurse	---	
4	Community Midwife (CMW)	---	
5	Lady Health Worker (LHW)	---	
6	Community Health Worker (CHW)	---	
7	Technician	---	
8	Pharmacist	---	
9	Dispenser	---	
10	Dentist	---	
11	Others (e.g. Vaccinator, etc.)	---	

Module 2. Service readiness

Section 3. Infrastructure

Communication

#	Question	Result	Skip
400	Is there a functional land line in the facility?	1. Yes 2. No	
401	Is there a functional mobile phone supported by the facility?	1. Yes 2. No	
402	Is there a functioning computer?	1. Yes 2. No	
403	Is there internet access?	1. Yes 2. No	If yes, ask question 404.
404	Is email used to report official communication?	1. Yes 2. No	

Basic client amenities

#	Question	Result	Skip
405	On average, how many hours per day is this facility open?	1. 4 hours or less 2. 5 to 8 hours 3. 9 to 16 hours 4. 24 hours	
406	What is the source of water used in this facility? [Observe that water is available from the source or in the facility on the day of the visit. E.g. check that the pipe is functioning.]	1. Public tap/standpipe 2. Tube well/borehole 3. Protected dug well 4. Unprotected dug well 5. Protected spring 6. Unprotected spring 7. Rainwater collection 8. Bottled water 9. Cart with a small tank/drum 10. Tanker 11. Truck 12. Surface water 96. Other 98. Don't know 00. No water source	
407	Is there water available from this source inside the facility?	1. Yes, inside the facility 2. Yes, within the grounds of the facility 3. No, outside the facility's grounds	
408	Is there a toilet (latrine) on premises in a functional condition that is accessible for general outpatient clients' use?	1. Yes 2. No	If yes, ask question 409.
409	What type of toilet? [if multiple toilets are available, consider the most modern type. Observe that the toilet (latrine) is accessible (unlocked or key available) and functional.]	1. Flush toilet 2. Ventilated improved pit latrine (VIPL) 3. Pit latrine with slab 4. Pit latrine without slab/open pit 5. Composting toilet 6. Bucket 7. Hanging toilet/hanging latrine 8. No facilities in the premises/bush/field	

Supervision

#	Question	Result	Skip
410	When was the last time this facility received a supervision visit from a higher level (DHMT or other)?	1. This month 2. In the last 3 months 3. More than 3 months ago 4. Don't know	
411	Did the supervisor assess the following?		

#	Question	Result	Skip
I	Medicine supply (e.g., drug stock outs, expiry, records, etc.)	1. Yes 2. No	
II	Staff availability	1. Yes 2. No	
III	Staff training	1. Yes 2. No	
IV	Data (e.g. completeness, quality, and timely reporting)	1. Yes 2. No	
V	Supply of iron and folic acid supplements	1. Yes 2. No	
VI	Availability of staff for iron and folic acid supplementation	1. Yes 2. No	
VII	Staff training specific to iron and folic acid supplementation	1. Yes 2. No	

Basic equipment

#	Question	Result	Skip
412	Is an adult weighing scale present?	1. Observed 2. Reported but not seen 3. Not available 4. Available but non-functional	
413	Is the adult weighing scale functional?	1. Yes 2. No 3. Don't know	

Section 4. Available services

Iron and folic acid supplementation/antenatal care

#	Question	Result	Skip
Ask to be shown the location in the facility where antenatal care services are provided. Find the person who is most knowledgeable about antenatal care services in the facility. Introduce yourself, explain the purpose of the survey and ask the following questions.			
500	Do antenatal care providers provide any of the following services to pregnant women as part of routine antenatal care services?		
1	Iron and folic acid supplementation	1. Yes 2. No	
2	Tetanus toxoid (TT) vaccination	1. Yes 2. No	
3	Monitoring of hypertensive disorder during pregnancy	1. Yes 2. No	

#	Question	Result	Skip
4	Intermittent preventive treatment in pregnancy (IPTp) for malaria	1. Yes 2. No	
501	Please tell me if the following documents are available in the facility today: [If available, ask to see the documents.]		
1	National antenatal care (ANC) guidelines	1. Yes, observed 2. Reported but not seen 3. No	
2	Any antenatal care checklists and/or job aids	1. Yes, observed 2. Reported but not see 3. No	
3	National iron and folic acid guidelines	1. Yes, observed 2. Reported but not seen 3. No	
4	Iron and folic acid supplementation checklists and/or job aids	1. Yes, observed 2. Reported but not seen 3. No	
5	Take-home information, education and communication (IEC) material on iron and folic acid supplementation	1. Yes, observed 2. Reported but not seen 3. No	
502	Have you or any provider(s) of iron and folic acid supplementation/ antenatal care services:		
1	Received any antenatal care-related training in past two years?	1. Yes 2. No	
2	If so, when?	____ months ago	
3	Received any iron and folic acid supplementation-related training in past two years?	Yes No	
4	If so, when?	____ months ago	

Section 5. Diagnostics

#	Question	Result	Skip
Ask to be shown the main laboratory or location in the facility where most testing is done to begin data collection. Introduce yourself and explain the purpose of the survey, then ask the following questions.			
600			
601	Does this facility conduct haemoglobin (Hb) testing?	1. On-site 2. Off-site 3. Does not conduct this test	

#	Question	Result	Skip
602	Is testing conducted using a HemoCue machine?	1. Yes 2. No	
603	Is a HemoCue machine available?	1. Yes, observed 2. Reported but not seen 3. No	
604	Is the HemoCue machine functional?	1. Yes 2. No 3. Don't know	

Section 6. Medicine

Stock

#	Question	Result	Skip
<p>Ask to be shown the main location in the facility where medicines and other supplies are stored. Find the person who is most knowledgeable about the storage and management of medicines and supplies in the facility. Introduce yourself, explain the purpose of the survey and ask the following questions.</p> <p>I would like to know if iron and folic acid supplements are available today in this facility. I would also like to observe the medicines that are available. If any of the medicines I mention are stored in another location in the facility, please tell me where in the facility it is stored so that I can go there to verify its/their presence.</p>			
701	Are any of the following available?	1. Iron tablets 2. Folic acid tablet 3. Iron and folic acid tablets 4. Iron and folic acid syrup 5. Folic acid Syrup 6. Not available	For options 1–5, ask question 704. If option 6 is selected, ask question 702.
702	Were any of the above mentioned medicines ever available?	1. Yes 2. No	If yes, ask question 703. If no, end the interview.
703	When was the last time it was available (length of stock out)?	1. ___ days/months	
704	Please check in the facility records if there has been a stock out in the past 3 months.	1. Stock out in the past 3 months 2. No stock out in the past 3 months 3. Not indicated 4. Facility record not available	
705	Was the stock out reported?	1. Yes 2. No	

#	Question	Result	Skip
706	To whom was it reported to?	1. District authorities 2. Provincial authorities 3. National authorities	
707	Is there any documentary proof of action taken?	1. Yes 2. No	
708	What was the outcome of the action taken?	1. Stock replenished within a week 2. Stock replenished within 2 weeks 3. Stock replenished within 1 month 4. Stock replenished within 2–3 months 5. Stock replenished within 4–6 months 6. Nothing happened	If option 6 is selected, ask question 709. Otherwise move to question 711.
709	Was a follow up initiated to replenish supply?	1. Yes 2. No	
710	What was the outcome of the follow-up report?	1. Stock replenished within a week 2. Stock replenished within 2 weeks 3. Stock replenished within 1 month 4. Stock replenished within 2– 3 months 5. Stock replenished within 4–6 months 6. Nothing happened	
711	Is the product stored so that identification labels, expiry dates and manufacturing dates are visible?	1. Yes 2. No	
712	[Check the expiry dates of the stored products. Are they stored in first-to-expire, first-out (FEFO) order? That is, is the stock that will expire first is the closest to the front? [Check the expiry dates of the stored product at the front and at the back of the shelf. If the product at the front expires first, answer 'yes'. If the product at the back expires first, answer 'no'.]	1. Yes 2. No 3. Most, but not all	

Supply chain

#	Question	Result	Skip
713	Who is the principal person responsible for managing orders of medical/iron and folic acid supplies at this facility?	1. Doctor 2. Technician 3. Pharmacist 4. Other, specify:	

#	Question	Result	Skip
714	How are the facility's supply quantities determined?	1. Fixed (decided within the health system) 2. Formula (flexible according to needs) 3. Don't know 4. Other means, specify:	
715	What is the main source of your routine iron and folic acid supplies? By this I mean, who is the direct supplier to your facility?	1. Provincial department of health 2. District 3. Private sector 4. Development partner: World Health Organization (WHO) World Food Programme (WFP) World Bank United Nations Children's Fund (UNICEF) Nutrition International (NI) 5. NGO 6. NSP 7. PPP 8. People's Primary Healthcare Initiative (PPHI)	
716	How are your iron and folic acid supplies, provided by the main supplier of your routine pharmaceuticals, delivered to this facility?	1. The supplier delivers to the facility 2. The facility arranges delivery to the facility	
717	For your most recent order, how long did it take between ordering and receiving products?	1. Less than two weeks 2. 2 weeks to 1 month 3. 1 to 3 months 4. More than 2 months	

Section 7. Counselling skills assessment/examination assessment

Counselling

#	Question	Result	Skip
	To complete this section, please observe a counselling session.		
1.	Does the health care provider establish a relationship with the patient by greeting the patient in a friendly and respectful manner?	1. Yes 2. No	
2.	Is the health care provider empathetic by showing an ability to understand and share the feelings of the patient?	1. Yes 2. No	
3.	Does the health care provider ask about the patient's needs and concerns?	1. Yes 2. No	
4.	Does the health care provider ask about the patient's reproductive goals?	1. Yes 2. No	
5.	Does the health care provider inform the patient about nutritional needs during pregnancy?	1. Yes 2. No	

#	Question	Result	Skip
6.	Does the health care provider inform the patient about iron deficiency anaemia?	1. Yes 2. No	
7.	Does the health care provider informs the patient about iron and folic acid supplementation?	1. Yes 2. No	
8.	Does the health care provider explains the schedule/duration of iron and folic acid supplement usage?	1. Yes 2. No	
9.	Does the health care provider ask what the patient already knows about iron and folic acid supplementation?	1. Yes 2. No	
10.	Does the health care provider correct myths/rumours?	1. Yes 2. No	
11.	Does the health care provider describe the benefits of iron and folic acid supplementation?	1. Yes 2. No	
12.	Does the health care provider describe the side effects of iron and folic acid supplements?	1. Yes 2. No	
13.	Does the health care provider answer the patient's questions clearly?	1. Yes 2. No	
14.	Does the health care provider ask if there is anything that the patient has not understood? (summarizes the visit)	1. Yes 2. No	
15.	Does the health care provider explain other channels of procuring iron and folic acid supplements?	1. Yes 2. No	
16.	During the session, does the health care provider use any form of information, education and communication material related to iron and folic acid supplementation?	1. Yes 2. No	
17.	Does the health care provider provide information, education and communication material to the patient?	1. Yes 2. No	
18.	How much time is spent (in minutes) on the counselling session?	____ minutes	
19.	How many patients are in the cue?	____ patients	

Examination

#	Question	Result	Skip
20.	Does the health care provider check women of reproductive health/ pregnant women/lactating women/adolescent girls for pallor?	1. Yes 2. No	
21.	Does the health care provider prescribe anaemia tests for suspected cases?	1. Yes 2. No	
22.	Was a weight assessment done?	1. Yes 2. No	

