Afghanistan Nutrition Solutions Series

A Rapid Assessment of Iron and Folic Acid Supplementation during Pregnancy through the Basic Package of Health Services

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Contents

About the Afghanistan Nutrition Solutions Series

The Afghanistan Nutrition Solutions Series is a collaboration with program implementers and policymakers in Afghanistan to identify and refine promising programmatic platforms for scaling-up effective nutrition solutions in the country. The overarching framework for the Series is the Government of the Islamic Republic of Afghanistan's Nutrition Action Framework. The Nutrition Action Framework outlines a multisectoral approach for addressing, in a sustainable way, the alarmingly high rates of child and maternal malnutrition in Afghanistan. The Series builds on the global knowledge base to support Afghanistan-specific analysis, technical assistance, and pilots that generate contextualized nutrition solutions in relevant sectors. These solutions are generated by combining global evidence with in-depth knowledge of the Afghan context. Each of the notes in this series is the result of the review of evidence, additional information gathering in Afghanistan, and engagement with a range of stakeholders.

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Executive Summary

Malnutrition, including vitamin and mineral deficiencies, is prevalent in Afghanistan. It especially is a problem among women of childbearing age and children under five years old and contributes to the high rates of morbidity and mortality in the country. Over 65% of pregnant women in Afghanistan suffer from iron deficiency, and a very high incidence of babies born with neural tube defects (~ 43 per 10,000 births) also has been reported - close to 7 times higher than that in some industrialized countries.

The cornerstone of the primary healthcare system in Afghanistan is the Basic Package of Health Services, which is implemented in most of the country by non-governmental organizations under a contract with and oversight by the Ministry of Public Health. Funding for the Basic Package of Health Services comes from international donor agencies such as the European Union, the United States Agency for International Development, and the World Bank. In three provinces, the Ministry of Public Health directly implements the Basic Package of Health Services with financing from the World Bank.

An essential component of the Basic Package of Health Services is the delivery of antenatal and postpartum care services for women, including the provision of iron and folic acid supplements through community health posts and health centers. The Ministry of Public Health has published various guidance documents to inform and advise healthcare providers in the procurement and prescription of those supplements. Nevertheless, the "quality" of the implementation of iron and folic acid supplementation through the Basic Package of Health Services has been unclear. Thus, this rapid assessment was carried out to provide initial information on the quality of implementation of pregnancy and postpartum iron and folic acid supplementation through the Basic Package of Health Services.

In addition to reviewing Ministry of Public Health guidelines related to iron and folic acid supplementation, a World Bank consultant and two Public Nutrition Department staff conducted qualitative interviews with representatives from non-governmental organizations implementing the Basic Package of Health Services along with Basic Package of Health Services doctors, midwives, pharmacists, and volunteer Community Health Workers in selected health centers in Balkh, Bamiyan, Nangarhar, and Parwan Provinces. In addition, the World Bank consultant and the Public Nutrition Department staff visually documented the types of iron and folic acid supplements for pregnant and postpartum women available in those health facilities. Furthermore, individual interviews were conducted with two to three pregnant or postpartum women in Basic Package of Health Services facilities visited in Balkh, Nangarhar and Parwan Provinces.

Overview of Findings

The recommendations on iron and folic acid supplementation for pregnant and postpartum women in the National Micronutrient Guidelines developed by the Public Nutrition Department of the Ministry of Public Health match the most recent international guidance. Yet, the Public Nutrition Department guidelines do not offer direction on when and how such women should be tested for anemia. Also, by addressing the detection and treatment of severe and moderate anemia before the prevention of anemia in its document, the Public Nutrition Department unintentionally emphasizes a therapeutic approach over prevention, and prevention is a key aim of public health work.

The antenatal care services and postpartum care services guidelines developed by the Reproductive Health Directorate of the Ministry of Public Health provide guidance on the prevention, detection, and

treatment of anemia for each trimester of pregnancy and for the postpartum period. Nevertheless, the Reproductive Health Directorate guidelines do not address the issue of neural tube defects at all, and some of the recommendations related to the dose of iron and folic acid are not consistent with those in the Public Nutrition Department issued guidance. Furthermore, the Reproductive Health Directorate guidelines focus more heavily on the number of tablets of iron and folic acid supplements to be prescribed rather than the actual dose of the nutrients that the women should receive.

Although both the Public Nutrition Department and Reproductive Health Directorate guidelines recommend assessing anemia based on low hemoglobin concentration and physical symptoms, neither document advises on what should be done if the results of the two assessment methods are not complementary. In addition, although a large proportion of the population of Afghanistan resides at altitudes higher than 1,000 meters above sea level, the Ministry of Public Health guidance documents do not address adjusting measured hemoglobin values based on altitude, which substantially affects the anemia cutoff ranges which define anemia.

Discrepancies also were found between the types and doses of iron and folic acid supplements listed in the Basic Package of Health Services essential drugs list, and the products found in the Basic Package of Health Services facilities visited. None of the Basic Package of Health Services providers stocked iron only or iron and folic acid supplements with the proper dosage based on the Ministry of Public Health guidelines for the prevention or treatment of anemia.

Essentially all the healthcare providers and women patients interviewed felt the prevalence of anemia was high in their communities and viewed it as a risk to the health and well-being of the woman and her unborn fetus rather than a “normal” component of pregnancy. The term “kamkhoony,” or “insufficient blood,” is the local term for anemia in the study provinces, and all the groups mentioned “poor diet” as the main cause for this condition. Nevertheless, although everyone associated iron and folic acid supplements with the treatment of anemia, the vast majority of the healthcare providers and women interviewed did not associate supplementation with the prevention of anemia.

All the doctors, midwives, and Community Health Workers interviewed indicated that they prescribe iron and folic acid supplements to each pregnant woman upon confirmation of the pregnancy and continue to provide the supplements throughout pregnancy and for three months postpartum. The preventive supplement dose universally was reported as one iron and folic acid tablet per day; the treatment dose was reported as two iron and folic acid tablets per day. This matched the guidance in the antenatal care services guidelines of the Ministry of Public Health. Nevertheless, because the actual tablets procured by the Basic Package of Health Services implementers did not contain the recommended dose of iron and folic acid, in six of nine Basic Package of Health Services facilities visited the women received higher doses of both nutrients than from iron-only tablets.

The 10 women interviewed reported that they comply with the supplementation regimen prescribed by Basic Package of Health Services staff and that their families support their seeking medical care. None of those women reported difficulty with receiving their tablets at the health centers. Only in Parwan Province, the assessment showed that the Basic Package of Health Services facility did not have iron and folic acid tablets on stock on the day of the site visit. Nevertheless, the staff indicated that “stock outs” were rare. Yet, the two Community Health Workers interviewed in Bamiyan Province indicated that they usually encourage “non-anemic” pregnant and postpartum women to get their supplements from the nearest health center. This is because of concern about not having sufficient supply of iron and folic acid tablets for the large number of the “anemic” clients who need two tablets per day. This concern of the

Community Health Workers is understandable because the Basic Package of Health Services implementing non-governmental organizations calculate the iron and folic acid supply for each Community Health Worker based on the estimated number of pregnant women in the catchment area; the calculations do not account for the expected number of anemia cases that require double doses of tablets, yet the Community Health Workers are obliged to provide the needed dose of tablets to all their clients. Although all the doctors and midwives knew that the supplements contained iron and folic acid, only those interviewed in Bamiyan Province knew that folic acid was to prevent neural tube defects. The Community Health Workers and women interviewed referred to the supplements as "dawa-e-kamkhoony" or "medicine for insufficient blood," but they did not know specifically that the tablets contained iron and folic acid. They also had not heard about the prevention of neural tube defects and that folic acid must be taken prior to or within the first 6 to 8 weeks of pregnancy to be effective.

Finally, the Health Management Information System of the Ministry of Public Health does not require the reporting of data on cases of pregnancy or postpartum anemia or information on the iron and folic acid supplements prescribed. Appropriate pregnancy nutrition and anemia data should be incorporated into the Health Management Information System for the development of a health facility-based maternal and child nutrition surveillance system. The current lack of data reporting could be remedied, at least at the health center level, since all the doctors and midwives reported that they record women's anemia status and information on the supplement prescribed in each patient's antenatal care health card. Thus, it should be possible for health staff (e.g. doctors, midwives, etc.) to report relevant data through the Health Management Information System.

Summary of Recommendations by Category

In general, for long-term reduction in iron deficiency and anemia and increased awareness in the importance of iron and folic acid supplementation, the Ministry of Public Health must ensure that preventative care iron and folic acid supplementation is emphasized in addition to the treatment of anemia with iron and folic acid supplementation.

The overall findings of this rapid assessment recommend:

Comparison of Ministry of Public Health guidance on <u>preventive doses</u> of iron and folic acid supplementation during pregnancy and postpartum

a. Consider lowering the Ministry of Public Health guidance on the preventive antenatal dose of iron to 30 mg (elemental iron) per day as recommended by the newest World Health Organization guidance. This would substantially reduce the potential risk of gastrointestinal side effects.
b. The revised antenatal care guidelines should include a single set of guidance related to preventive vs. therapeutic doses of iron and folic acid supplementation during pregnancy.
c. Ensure that the revised antenatal care guidelines on antenatal and postpartum care services specify the dose of elemental iron and not a particular formulation of iron preparation because the actual amount of elemental iron varies by the formulation (e.g. 30 mg of elemental iron is equivalent to 150 mg of ferrous sulfate heptahydrate, 90 mg of ferrous fumarate or 250 mg of ferrous gluconate).
d. Emphasize preventive iron and folic acid supplementation by reorganizing the revision of the Public Nutrition Department's micronutrient guidelines to first specifying guidance on the prevention of iron deficiency and then its treatment.

e. Ensure better coordination between the Public Nutrition Department and Reproductive Health Directorate regarding nutrition components of antenatal care and postpartum care nutrition services, and that the revised Reproductive Health Directorate and Public Nutrition Department guidelines on iron and folic acid supplementation do not conflict and are based on the most recent World Health Organization guidance.
f. The revised antenatal care and postpartum care services guidelines also should include information so that Basic Package of Health Services healthcare provides can adequately advise their clients on dietary approaches to enhance iron absorption and minimize potential gastrointestinal side effects of iron supplements, as indicated in the Public Nutrition Department's "National Micronutrient Guidelines."
g. Explore options to encourage newly-wed women to obtain and use iron and folic acid supplements before pregnancy, and implement one or two pilot projects to assess their feasibility and effectiveness related to increased coverage of the preconception period supplementation.
h. Ensure that the iron and folic acid supplementation guidelines of the Ministry of Public Health are incorporated in the training and continuing education programs for physicians and midwives.

Comparison of Ministry of Public Health guidance on treatment doses of iron and folic acid supplementation during pregnancy and postpartum

a. The Public Nutrition Department should issue an addendum to the National Micronutrient Guidelines to emphasize preventive iron and folic acid supplementation before addressing the treatment of anemia during pregnancy and postpartum. In this regard, the guide should specify the procedures for screening, diagnosis, treatment, and follow-up of pregnant and postpartum women with moderate anemia. Such guidance also should be included in the revision of the antenatal care and postpartum care guidelines by the Reproductive Health Directorate.
b. The preventive and treatment doses of elemental iron and folic acid should be modified in the revision of the antenatal care and postpartum care guidelines so that they are consistent with the latest World Health Organization recommendations on daily iron and folic acid supplementation.
c. Simplify the iron and folic acid supplementation guidelines by calling for a single daily dose of iron and folic acid supplementation (30 mg iron and 400 µg folic acid) for all pregnant and post-partum women, and doubling only the dose of iron to 60 mg for all pregnant and postpartum women who are identified as anemic. Women identified with severe anemia at a Basic Health Center should be referred for follow-up by a specialist in a higher level clinical setting (e.g. Comprehensive Health Center or district hospital). Thus, Basic Package of Health Services facilities should also carry 30 mg iron (only) tablets or preparations containing 60 mg iron and 400 µg folic acid to be prescribed for anemic women.
d. Add guidance that anemic patients be retested for hemoglobin after about 4 weeks of iron and folic acid supplementation, and referred to a specialist if their hemoglobin concentration does not increase by about 1 g/dL despite compliance with the supplementation regimen.
e. Consider recommending hemoglobin testing of all 3rd trimester pregnant women given increased risk of anemia in that stage of pregnancy and potential delivery complications.

Assessment of the formulation and doses of iron and folic acid supplements in the Basic Package of Health Services essential drugs list

a. Modify the Basic Package of Health Services essential drugs list to specify dose of elemental iron that supplements should contain according to the target group. This would enable Basic Package of Health Services providers to procure the best formulation of iron supplement regardless of whether it contains ferrous sulfate, ferrous fumarate, etc.
b. The Ministry of Public Health and its Basic Package of Health Services donors and implementing partners should address the prevention and control of pediatric iron deficiency, with a special focus on children less than 24 months old.
c. The Basic Package of Health Services essential drugs list should be modified to also require 1 mg supplements of folic acid for the treatment of children with acute malnutrition within therapeutic feeding units, and the Basic Package of Health Services implementers should procure such supplements and train their health providers to use the high dose folic acid preparations accordingly.

Adjusting hemoglobin cutoffs for anemia based on altitude

a. The Ministry of Public Health should consider issuing an addendum to the recently released National Micronutrient Guidelines and the revision of the antenatal care and postpartum care guidelines regarding altitude adjustments for hemoglobin cutoffs for anemia.

Doctors, midwives, Community Health Workers, and pregnant or postpartum women's perceptions and practices related to iron and folic acid fortification

a. The appropriate local term for anemia (such as "kamkhoony") and its risks/dangers especially during pregnancy should be incorporated in family planning education efforts.
b. Basic Package of Health Services healthcare providers should be informed to consider multiple pregnancies with short intervals in between a risk factor for anemia so that such women's hemoglobin specifically is tested to ensure adequate concentration.
c. Consider a follow-up assessment of iron and folic acid supplementation related antenatal care service delivery using female observers who could be present when patients are seen by midwives and physicians.
d. Especially because the Sahli method for testing hemoglobin is imprecise,[1] Basic Package of Health Services laboratories should be encouraged to confirm low hemoglobin readings, and especially to adjust the hemoglobin value based on altitude when more than 1,000 meters above sea level (see Section IV. 4 for more information).
e. Include pica as an indicator of iron deficiency/anemia (in women as well as children),[2] and inform Basic Package of Health Services doctors, midwives, and Community Health Workers, accordingly.

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[1] In order to test for anemia, the Sahli method uses finger pricks and venipuncture to count red blood cells.
[2] Pica is characterized by an appetite for substances largely non-nutritive, such as clay, chalk, dirt, or sand.

f. Healthcare providers and pregnant and postpartum women should be informed to consider the iron and folic acid supplements, together with appropriate dietary intakes, as a preventive measure against anemia, not just a treatment approach.
g. The actual hemoglobin readings from the Basic Package of Health Services facilities and other relevant information in pregnant women's antenatal care health cards should be used as indicators for a pregnancy anemia surveillance system.
h. Educate/inform Basic Package of Health Services doctors, midwives, and Community Health Workers about the prevention of neural tube defects and modify the Ministry of Public Health guidelines to enable the providers to prescribe iron and folic acid supplements to women who may be planning to become pregnant (i.e. in the preconception period). Community Health Workers should be encouraged to provide iron and folic acid supplements to potentially pregnant women before pregnancy is confirmed.
i. Basic Package of Health Services implementing non-governmental organizations should determine the supply of iron and folic acid supplements for health centers and health posts based on estimates of non-anemic and anemic pregnant women (who require two daily tablets based on the formulations of supplements currently procured). Based on available information, at least 50% of pregnant women could be expected to have anemia.
j. Basic Package of Health Services doctors and midwives should be encouraged to know the dosage of the iron and folic acid supplements in their pharmacies, so they prescribe the correct and safe doses.
k. Public Nutrition Department in collaboration with the Reproductive Health Directorate should develop and disseminate to all healthcare providers (public and private sector) a clinical protocol on the prevention and treatment of anemia among pregnant and postpartum women (and preferably among young children as well).
l. In a future study, engage female assessors to observe actual antenatal care and postpartum care service delivery sessions to assess the quality and content of the nutrition related education and counseling provided by Basic Package of Health Services facility midwives and physicians.
m. Ensure that the iron and folic acid supplementation guidelines of Ministry of Public Health are incorporated in the training and continuing education programs for physicians and midwives.

Vitamin and mineral supplements in Basic Package of Health Services facility pharmacies

a. The Ministry of Public Health should develop an appropriate mechanism to ensure the quality of the vitamin and mineral products that are procured for the Basic Package of Health Services network.
b. The Ministry of Public Health should specify the dose of "elemental" iron in supplements to be prescribed for pregnant and postpartum women, and Basic Package of Health Services providers should be informed about the differences in iron content of supplements depending on their formulation (e.g. ferrous sulfate vs. ferrous fumarate).
c. The Strengthening Mechanism of the Ministry of Public Health and non-governmental organizations should be better informed about the importance (and safety) of stocking iron and folic acid supplements with appropriate doses for none anemic vs. anemic pregnant and postpartum women; these organizations should consider that 1000 µg per day is the tolerable upper intake level for folic acid and that it is better if women were not prescribed daily doses that exceed that amount.
d. The Ministry of Public Health should ensure that the new supplies of iron and folic acid supplements procured for the Strengthening Mechanism supported Basic Package of Health Services facilities through the United Nations Children's Fund meet the Ministry of Public Health dosage requirements.

e. The preventive vs. treatment doses of iron and folic acid should be posted and easily visible by doctors, midwives, and pharmacists in the Basic Package of Health Services facilities, and they should inform the non-governmental organization headquarters if they do not have products with the correct dosages for their patients.

I. Introduction

The heavy public health burden of malnutrition and vitamin and mineral deficiencies, especially among women of childbearing age and children under five years old has been fairly well documented by national and sub-national surveys and studies and contributes to the continuing high rates of morbidity and mortality in Afghanistan.[3] Based on the 2004 Afghanistan National Nutrition Survey, over 65% of pregnant women suffer from iron deficiency (based on elevated zinc), while 25% have iron deficiency anemia (i.e. elevated zinc protoporphyrin and low hemoglobin levels); the prevalence of iron deficiency and iron deficiency anemia among non-pregnant women is about 48% and 16%, respectively.[4] Iron deficiency and iron deficiency anemia during pregnancy increase the risk of low birth weight among newborns.[5,6] It is likely that iron and other micronutrient deficiencies contribute to the 20% low birth weight rate in Afghanistan.[7] Although data are not available on the folate status among Afghan women of children bearing, there are anecdotal reports of high incidence of babies born with neural tube defects in country. Unofficial data from the Rabia Balkhi Hospital in Kabul indicate a neural tube defects birth prevalence of ~ 43 per 10,000 births,[8] which is about 7 times higher than that in the United States.[9]

It is estimated that 75% of the population of Afghanistan has potential access to health services through a national network of health facilities, from basic village-based health posts up to national tertiary hospitals. The Ministry of Public Health reported in 2012 that approximately 58% of pregnant women attended at least one antenatal care visit, while about 46% of deliveries took place under the care of a skilled birth attendant.[10]

The cornerstone of the primary healthcare system in Afghanistan is the Basic Package of Health Services, which is implemented in most of the country by non-governmental organizations under a contract with

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[3] Levitt, Emily, Kees Kostermans, Luc Laviolette, and Nkosinathi Mbuya. 2011. *Malnutrition in Afghanistan: Scale, Scope, Causes, and Potential Response*. Washington, D.C.: The World Bank Group. www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/11/15/000356161_20101115233235/Rendered/PDF/578720PUB0Maln11public10BOX353782B0.pdf.

[4] Ministry of Public Health (MoPH)-Islamic Republic of Afghanistan, United Nations Children's Fund (UNICEF), Centers for Disease Control and Prevention (CDC), and Tufts University. 2004. Afghanistan National Nutrition Survey. Atlanta, Georgia: CDC.

[5] Cogswell, M.E., I. Parvanta, L Ickes, R Yip, G.M. and Brittenham. 2003. "Iron Supplementation During Pregnancy, Anemia, and Birth Weight: A Randomized Controlled Trial." *The American Journal of Clinical Nutrition.* 78(4):773–781.

[6] World Health Organization. 2012. *Guideline: Daily Iron and Folic Acid Supplementation in Pregnant Women*. Geneva: World Health Organization. http://apps.who.int/iris/bitstream/10665/77770/1/9789241501996_eng.pdf.

[7] United Nations Populations Fund (UNFPA). "Humanitarian Crisis in Afghanistan: Fact Sheet Reproductive Health Indicators for Afghanistan," UNFPA, http://www.unfpa.org/emergencies/afghanistan/factsheet.htm.

[8] Author's communication with David Gahn, Afghanistan Safe Birth Project, 2009.

[9] Centers for Disease Control and Prevention (CDC). 2010. "CDC Grand Rounds: Additional Opportunities to Prevent Neural Tube Defects with Folic Acid Fortification." *Morbidity and Mortality Weekly Report*. 59(31):980-984.

[10] Ministry of Public Health/General Directorate of Policy and Planning. 2012. *HIS Publication. No. 1.*, Kabul, Afghanistan: Ministry of Public Health.

and oversight by the Ministry of Public Health. Funding for Basic Package of Health Services comes from international donor agencies such as the European Union, the United States Agency for International Development, and the World Bank. In three provinces (Kapisa Province, Panjsher Province, and Parwan Province), the Ministry of Public Health directly implements the Basic Package of Health Services with financing from the World Bank.

The nutrition related services that are to be provided by Basic Package of Health Services implementing facilities are:[11] weight and height measurements; treatment of severe acute malnutrition; iron and folic acid supplementation; multi-micronutrient supplementation (although it is not specified when such supplements should be used); Vitamin A supplementation; anemia diagnosis and treatment; and behavior change communication.

The Basic Package of Health Services guidance specifies the types and doses of vitamin and mineral supplements that should be available at health facilities and administered to pregnant and postpartum women, from basic health posts to district hospitals. Furthermore, the 2003 antenatal[12] and postpartum[13] care services guides of the Reproductive Health Directorate of the Ministry of Public Health specify the doses of iron and folic acid supplements for prevention vs. treatment of anemia in pregnant women; those guidelines are being revised at this time. In addition, in late 2012, the Public Nutrition Department of the Ministry of Public Health issued guidance on vitamin and mineral supplementation for various population groups, including pregnant and postpartum women.[14]

Although the provision of iron and folic acid supplements to pregnant and postpartum women is a core component of antenatal and postpartum services provided through the Basic Package of Health Services, and over 90% of Basic Package of Health Services facilities reportedly are able to provide antenatal and postpartum care, the "quality" of the implementation of iron and folic acid supplementation "system" has been unclear. Furthermore, there are no data on the estimated proportion of pregnant women that receive or use iron and folic supplements through the public or private healthcare system, or the estimated weeks of gestation when most women make their first antenatal care visit to a health facility.

II. Purpose

This assessment was carried out to rapidly collect, analyze, and share initial information on selected indicators of the quality of pregnancy and postpartum iron and folic acid supplementation in Afghanistan.

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[11] Ministry of Public Health. 2010. *A Basic Package of Health Services for Afghanistan – 2010/1389* (Revised July 2010). Kabul, Afghanistan: Ministry of Public Health.

[12] Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Antenatal Care Services*. Kabul, Afghanistan: Ministry of Public Health.

[13] Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Postpartum Care Services*. Kabul, Afghanistan: Ministry of Public Health.

[14] Ministry of Public Health/Public Nutrition Department. 2012. *National Guidelines on Micronutrients: Prevention, Control and Treatment*. Kabul, Afghanistan: Ministry of Public Health.

III. Background

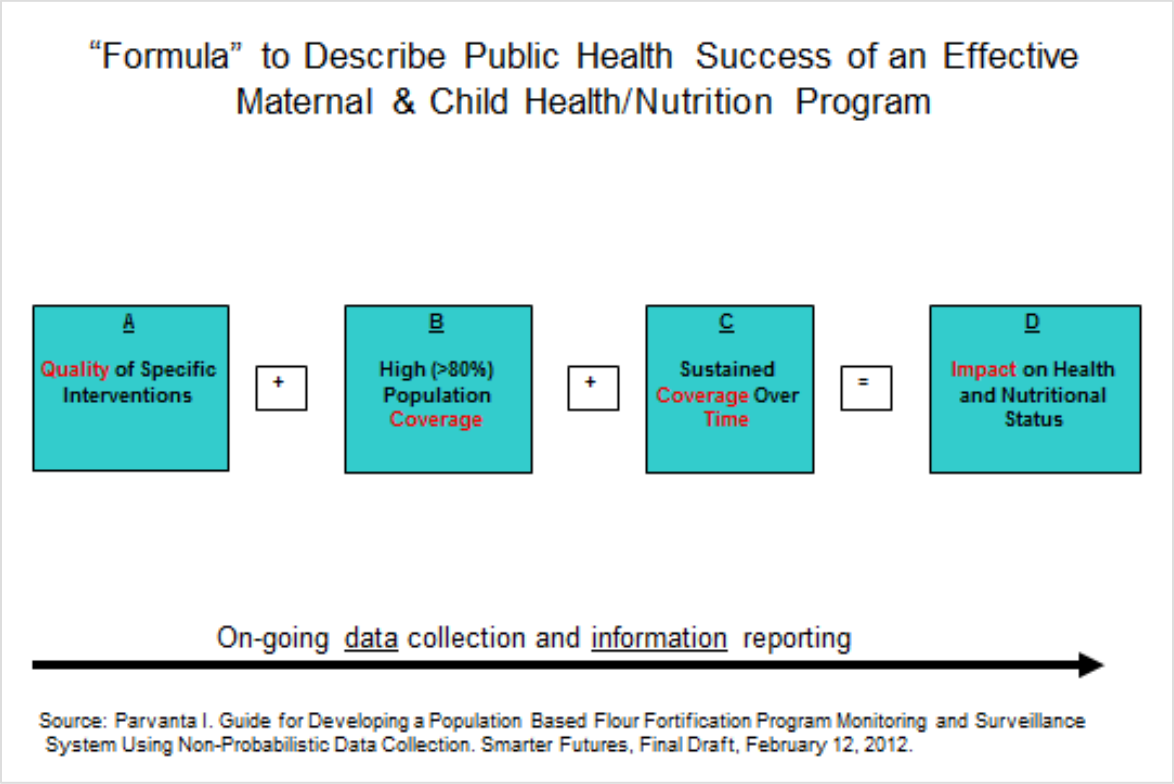
It is intended that all the Basic Package of Health Services implementing facilities, regardless of the implementing agency, must adhere to the published Ministry of Public Health guidance documents related to the various services, including iron and folic acid supplementation for pregnant and postpartum women. In the European Union and World Bank funded provinces, non-governmental organizations receive their Basic Package of Health Services operations funds from the Ministry of Public Health and procure the needed supplies of iron and folic acid supplements through private sector suppliers in the Afghan market. The Ministry of Public Health also procures iron and folic acid supplies from private sector suppliers in Afghanistan for its Basic Package of Health Services facilities in Kapisa, Panjsher, and Parwan Provinces. In contrast, the United States Agency for International Development imports into Afghanistan the supply of iron and folic acid supplements for the Basic Package of Health Services facilities in the provinces it funds and distributes the products to the relevant non-governmental organizations that operate the health facilities in these provinces.

The Basic Package of Health Services implementing non-governmental organizations are responsible for the training of all their health staff, including the volunteer Community Health Workers in their geographic areas of operation, on all the relevant health services provided, including pregnancy and postpartum iron and folic acid supplementation. Similarly, the Ministry of Public Health is to ensure adequate technical capacity of the health personnel of the Strengthening Mechanism funded Basic Package of Health Services health facilities.

The effectiveness or impact of any public health intervention strategy requires that the relevant activities are implemented in a "quality" manner with sustained high population coverage over time (see Figure 1).

Please continue to next page for Figure 1.

Figure 1.



Examples of indicators of the quality of an iron and folic acid supplementation program include: use of standard guidelines (based on international recommendations) by healthcare providers for supplementation of pregnant and postpartum women; sufficient time for healthcare providers to address the iron and folic acid related needs of each patient (i.e. appropriate patient case-load); knowledge and use of appropriate iron and folic acid counseling messages by healthcare providers; consistent availability of iron and folic acid supplements containing correct doses of iron and folic acid according to the national guidelines; and availability of iron and folic acid supplement with characteristics (e.g. color, size, form, packaging, etc.) that appeal to the majority of clients served by the health facilities.

IV. Methods

The assessment team carried out a (very) rapid initial assessment of the quality of iron and folic acid supplementation for pregnant and postpartum women served by public sector providers of Basic Package of Health Services in Afghanistan. The assessment activities included:

a. A desk review of the published Ministry of Public Health guidelines related to iron and folic acid supplementation of pregnant and postpartum women.
b. Individual or small group interviews with antenatal and postpartum care providers (doctors, midwives, pharmacists, and Community Health Workers), and pregnant and/or postpartum women in selected Basic Package of Health Services implementing facilities in Balkh, Bamiyan, Nangarhar, and Parwan Provinces.

c. Visual determination of the types and formulations of iron and folic acid supplements available in the selected Basic Package of Health Services implementing facilities.

The primary aim of the assessment was to provide preliminary information related to the "quality" (i.e. Box A in Figure 1) of the iron and folic acid supplementation through the Basic Package of Health Services. The following issues were addressed:

- Review and compare the various guidance documents issued by the Ministry of Public Health on the prevention and treatment of anemia and iron and folic acid supplementation during pregnancy and postpartum.
- Obtain a general understanding of the attitudes and practices of doctors, midwives, Community Health Workers, and female subjects related to the use of iron and folic acid supplements and the prevention and treatment of prenatal and postpartum anemia. Information obtained regarding the Basic Package of Health Services providers' attitudes and practices related to the prevention and treatment of anemia also would reflect the providers' *potential* level of understanding (or knowledge) of the issue. Furthermore, the settings of the Basic Package of Health Services facilities and length of time available for the visits were not conducive to a separate assessment of the knowledge of the providers interviewed.
- Understand if, when, and how the Basic Package of Health Services health staff and Community Health Workers assess anemia in pregnant women in comparison with the Ministry of Public Health guidance documents.
- Understand when, why, and how Basic Package of Health Services health staff and Community Health Workers prescribe iron and folic acid supplements in comparison with the Ministry of Public Health guidance documents.
- Determine what formulations and doses of iron and folic acid supplements, in comparison with the Ministry of Public Health guidance documents, usually are available in Basic Package of Health Services health facilities and how they are procured.

Due to time limitations and security concerns, it was decided to limit the on-site qualitative information collection to two Basic Package of Health Services facilities in each Bamiyan, Balkh, Nangarhar, and Parwan Provinces, which represented Basic Package Health Services providers supported through the United States Agency for International Development, the World Bank, the European Union, and the Ministry of Public Health/Strengthening Mechanism, respectively. Two Basic Package of Health Services facilities within 30 to 45 minutes drive from each provincial capital were visited, except for Bamiyan Province where the Provincial Hospital also was included. The consultant accompanied two Public Nutrition Department technical staff to carry out the first set of assessment activities (i.e. interviews and Basic Package of Health Services facility pharmacy observation) in Bamiyan Province. The assessment visits to the other three Provinces were carried out independently by the same two Public Nutrition Department staff members. Regrettably, due to security and other logistic reasons, the site visits to each health facility was limited to 1 to 2 hours each.

Brief qualitative (i.e. open-ended) interview questionnaires were administered to help assess the attitudes and practices of Basic Package of Health Services facility care providers, Community Health Workers, and pregnant or postpartum women on the following topics:

a. Burden, causes, and risks of anemia, especially during pregnancy.
b. How anemia is assessed and how it could be prevented and treated.

c. If, why, when, and how Basic Package of Health Services healthcare providers prescribe iron and folic acid supplements to pregnant (and postpartum) women, and if women generally comply with the supplementation regimen.
d. Basic Package of Health Services healthcare providers' perceptions about their case loads and sufficiency of time to adequately advise their patients about anemia prevention and treatment.
e. Basic Package of Health Services doctors' and midwives' familiarity with the Ministry of Public Health issued guidelines on prevention and treatment of anemia in pregnant and postpartum women.

A separate questionnaire also was administered to the pharmacists of the Basic Package of Health Services facilities visited. The topics addressed in the pharmacist questionnaire addressed the following topics:

a. Types, formulations, and doses of iron and folic acid supplements usually in stock, based on interview and visual documentation of the available products.
b. How and how often iron and folic acid supplements are procured, and the pharmacists' perceptions about the overall availability and quality of the products.

Interviews were carried out with one or two doctors and midwives, pharmacists, Community Health Workers, and pregnant or postpartum women in each Basic Package of Health Services facility. Overall, 11 doctors, 12 midwives, 7 pharmacists, 6 Community Health Workers, and 10 women (pregnant or postpartum) were interviewed across the selected Basic Package of Health Services facilities in the four provinces.

Although the original intent was to interview the Basic Package of Health Services facility doctors and midwives separately, it was quickly learned during the first field visit to Bamiyan Province that midwives are the primary health service providers for pregnant and postpartum women within Basic Package of Health Services facilities and thus are more familiar with antenatal and postpartum healthcare requirements than most of the generalist physicians assigned to Basic Health Centers and Comprehensive Health Centers. In most Basic Package of Health Services facilities, pregnant and post-partum women are seen by the attending physicians only when there are complications that require a doctor's input. In addition, midwives specifically are trained to help women safely deliver their babies, especially when physicians trained in obstetrics are not available within health facilities. Thus, it was decided to jointly interview doctors and midwives using a single questionnaire. Consequently, the midwives contributed the bulk of the responses at each site.

In addition to interviewing the pharmacists in the Basic Package of Health Services facilities, visual documentation of the labels of the iron and folic acid supplements in each facility's pharmacy was carried out.

Upon completion of all the interviews in the field, the completed questionnaires were manually reviewed and the information summarized according to the above topic areas, as a joint effort between the World Bank consultant and the two Public Nutrition Department technical staff who administered the questionnaires.

V. Findings related to the Ministry of Public Health guidance documents on iron and folic acid supplementation

1. Ministry of Public Health guidance on preventive doses of iron and folic acid supplementation during pregnancy and postpartum

The Public Nutrition Department and the Reproductive Health Directorate of the Ministry of Public Health have issued guidelines on iron and folic acid supplementation for pregnant and postpartum women; the relevant information is summarized in Table 1. The "National Micronutrient Guidelines"[15] issued by the Public Nutrition Department inadvertently emphasize treatment of pregnancy anemia over its prevention by first presenting guidance on treatment of severe anemia, followed by treatment of moderate anemia, and finally prevention of anemia through routinely supplementation of all pregnant and postpartum women.

The Public Nutrition Department guidance calls for daily doses of 60 mg (elemental) iron and 400 µg folic acid for all pregnant women throughout pregnancy and for three months postpartum to prevent anemia. The recently issued World Health Organization guideline on iron and folic acid supplementation during pregnancy[16] recommends daily doses of 30 to 60 mg (elemental) iron and 400 µg folic acid. Although the above World Health Organization document does not address postpartum supplementation, the 2001 World Health Organization guidelines[17] recommended continuation of the same preventive doses of iron and folic acid for three months postpartum when pregnancy anemia prevalence is ≥40%. Based on the reported 25.7% prevalence of anemia in pregnant women in Afghanistan 2004 National Nutrition Survey,[18] routine iron and folic acid supplementation for all postpartum women would not apply to Afghanistan according to the World Health Organization guidance. However, given the very high prevalence of iron deficiency among women in Afghanistan, postpartum iron and folic acid supplementation likely would be beneficial.

Although preventive doses of iron and folic acid supplements are recommended (Table 1), the antenatal care guidance from the Reproductive Health Directorate calls for the provision of "one tablet of ferrous sulfate + one folic acid (60+400) – two times per day;"[19] the reason for a dose of essentially 120 mg of iron and 800 µg of folic acid is not specified. It also is important to note that the antenatal care guidelines (erroneously) refer to 60 mg of ferrous sulfate instead of elemental iron. Instead, it should be

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[15] Ministry of Public Health/Public Nutrition Department. 2010. *National Guidelines on Micronutrients: Prevention, Control, and Treatment*. Kabul, Afghanistan: Ministry of Public Health.

[16] World Health Organization. 2012. *Guideline: Daily Iron and Folic Acid Supplementation in Pregnant Women*. Geneva: World Health Organization. http://apps.who.int/iris/bitstream/10665/77770/1/9789241501996_eng.pdf.

[17] World Health Organization. 2001. *Iron Deficiency Anaemia—Assessment, Prevention, and Control: A Guide for Programme Managers*. Geneva, Switzerland: World Health Organization. http://www.who.int/nutrition/publications/en/ida_assessment_prevention_control.pdf.

[18] Ministry of Public Health (MoPH)-Islamic Republic of Afghanistan, United Nations Children's Fund (UNICEF), Centers for Disease Control and Prevention (CDC), and Tufts University. 2004. Afghanistan National Nutrition Survey. Atlanta, Georgia: CDC.

[19] Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Antenatal Care Services*. Kabul, Afghanistan: Ministry of Public Health.

noted that 300 mg of ferrous sulfate heptahydrate is the equivalent of 60 mg elemental iron (the intended dose of iron in the Reproductive Health Directorate document). Furthermore, the Reproductive Health Directorate recommends iron and folic acid supplementation for four months postpartum; one month longer than recommended by the Public Nutrition Department guideline (Table 1).

Please continue to next page for Table 1.

Table 1. Summary of Ministry of Public Health guidelines on iron and folic acid supplementation for pregnant and postpartum women.[20]

	Preventive Dose per Day			Treatment Dose per Day					Additional Guidance
				Moderate Anemia[4]		Severe Anemia[5]		Duration	
Source		Iron	Folic Acid	Iron	Folic Acid	Iron	Folic Acid		
National Micronutrient Guidelines[1]	**Pregnant Women**	60 mg	400 µg	120 mg	400 µg	120 mg	400 µg	3 months	- In case of severe anemia, decide whether to refer to hospital or facility where blood transfusion services may be available. - Severe anemia should be treated in a hospital if the subject is beyond 36 weeks gestation (i.e. in the last month of pregnancy) or if there are signs of respiratory distress or cardiac abnormalities (e.g. labored breathing at rest or edema) present.
	Lactating Women	60 mg	400 µg	120 mg	400 µg	120 mg	400 µg	3 months	
Antenatal Care Services[2]	**1st Visit**	60 to 120 mg	400 to 800 µg	?	?	120 to 240 mg	800 to 1600 µg		- If Hb<7g/dL, double the (preventive) dose (of iron/folic acid tablets) - If Hb<7 g/dL and there is shortness of breath, refer to District Hospital
	2nd Visit	60 to 120 mg	400 to 800 µg	?	?	-	-		- If Hb<7g/dL at first and present visit refer to District Hospital
	3rd Visit	60 to 120 mg	400 to 800 µg	?	?	-	-		- If Hb<7g/dL at first, second, and present visit refer to District Hospital
	4th Visit	60 to 120 mg	400 to 800 µg	?	?	-	-		- If Hb<7g/dL at first, second, and present visit refer to District Hospital
Postpartum Care Services[3]	**1st Hours Postpartum**	60 mg	400 µg	120 mg	800 µg	-	-	4 months	- If excessive bleeding and/or Hb< 7g/dL, refer to specialist.
	1st Week Postpartum	60 mg	400 µg	120 mg	800 µg	-	-	Not specified	- If excessive bleeding and/or Hb< 7g/dL, refer to specialist.

[1] Source: Ministry of Public Health/Public Nutrition Department. 2010. *National Guidelines on Micronutrients: Prevention, Control, and Treatment*. Kabul, Afghanistan: Ministry of Public Health.
[2] Source: Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health services: Antenatal Care Services*. Kabul, Afghanistan: Ministry of Public Health.
[3] Source: Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Postpartum Care Services*. Kabul, Afghanistan: Ministry of Public Health.
[4] Hemoglobin ≥7.0 g/dL and <11.0 g/dL.
[5] Hemoglobin <7.0 g/dL

[20] Key: Hb=hemoglobin

The World Health Organization guide on "pregnancy, childbirth, postpartum, and new born care: a guide for essential practice"[21] recommends iron and folic acid supplementation (60 mg iron & 400 µg folic acid) for all new mothers for 3 months postpartum, with double dose of iron for those with moderate or severe anemia.

It would be simpler to have a single set of guidance for preventive vs. therapeutic doses of iron and folic acid supplementation in the antenatal period, regardless of the stage of pregnancy. This also would reflect what actually happens in practice at the Basic Package of Health Services facilities.

The primary purpose for recommending a 400 µg dose of folic acid is to prevent cases of babies born with neural tube defects. However, the folic acid supplementation must be initiated in the preconception period or at least within the first 8 weeks of pregnancy in order to protect the fetus against neural tube defects, and the vast majority of Afghan women do not seek antenatal care services during that period. An approach that might be considered is to deliver the iron and folic acid supplements to newly-wed couples as a component of marriage registration, or inform the local mullahs to advise new couples to obtain the iron and folic acid supplements through their local health facility or Community Health Workers. It also would be important to explore options to deliver iron and folic acid supplements to women who seek family planning/birth spacing services. Supplementation also should be complemented with fortification of wheat flour with iron and folic acid.

The Public Nutrition Department's "National Guidelines on Micronutrients"[22] provides information on iron-rich sources of food as well as dietary approaches to enhance iron absorption (e.g. consumption of vitamin C containing foods and avoidance of tea and bread when taking iron supplements), as well as potential side effects of iron supplements (e.g. dark colored stool and gastrointestinal discomfort with taking supplements on an empty stomach) that patients should be routinely shared with Basic Package of Health Services clients. Similar information should be incorporated in the revision of the antenatal care and postpartum care guidelines to help ensure that Basic Package of Health Services midwives and physicians have adequate knowledge about such issues that could affect compliance with iron and folic acid supplementation regimens.

Recommendations:

a. Consider lowering the Ministry of Public Health guidance on the preventive antenatal dose of iron to 30 mg (elemental iron) per day as recommended by the newest World Health Organization guidance. This would substantially reduce the potential risk of gastrointestinal side effects.
b. The revised antenatal care guidelines should include a single set of guidance related to preventive vs. therapeutic doses of iron and folic acid during pregnancy.
c. Ensure that the revised antenatal care guidelines on antenatal and postpartum care services specify the dose of elemental iron and not a particular formulation of iron preparation because the actual amount of elemental iron varies by the formulation (e.g. 30 mg of elemental iron is equivalent to 150 mg of ferrous sulfate heptahydrate, 90 mg of ferrous fumarate, or 250 mg of ferrous gluconate).

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[21] World Health Organization. 2006. *Pregnancy, Childbirth, Postpartum, and Newborn Care: A Guide for Essential Practice*. Geneva, Switzerland: World Health Organization.
[22] Ministry of Public Health/Public Nutrition Department. 2010. *National Guidelines on Micronutrients: Prevention, Control, and Treatment*. Kabul, Afghanistan: Ministry of Public Health.

d. Emphasize preventive iron and folic acid supplementation by reorganizing the revision of the Public Nutrition Department's micronutrient guidelines to first specifying guidance on the prevention of iron deficiency and then its treatment.
e. Ensure better coordination between the Public Nutrition Department and Reproductive Health Directorate regarding nutrition components of antenatal care and postpartum care nutrition services, and ensure that the revised Reproductive Health Directorate and Public Nutrition Department guidelines on iron and folic acid supplementation do not conflict and are based on the most recent World Health Organization guidance.
f. The revised antenatal care and postpartum care services guidelines also should include information so that Basic Package of Health Services healthcare providers adequately can advise their clients on dietary approaches to enhance iron absorption and minimize potential gastrointestinal side effects of iron supplements, as indicated in the Public Nutrition Department's "National Micronutrient Guidelines."
g. Explore options to provide iron and folic acid supplements to newly-wed women at the time of their marriage registration, and implement one or two pilot projects to assess the feasibility and effectiveness of alternate approaches to increase coverage of preconception iron and folic acid supplementation.
h. Ensure that the iron and folic acid supplementation guidelines of the Ministry of Public Health are incorporated in the training and continuing education programs for physicians and midwives.

2. Ministry of Public Health guidance on treatment doses of iron and folic acid supplementation during pregnancy and postpartum

Although the Public Nutrition Department's micronutrient guidelines specify that women be prescribed daily supplements of 120 mg (elemental) iron and 400 µg of folic acid for treatment of moderate and severe anemia during and after pregnancy (Table 1), the document does not address which pregnant and postpartum women to assess for anemia or when or how. In contrast, the antenatal and postpartum care services guidelines of the Reproductive Health Directorate (Table 2) do provide guidance on when pregnant and postpartum women should be tested for anemia based on low hemoglobin. Yet, the antenatal care guidelines do not provide any instructions on follow-up of pregnant women with moderate anemia (hemoglobin $\geq$7.0 g/dL and <11.0 g/dL), while the postpartum care guidelines do (Table 1); the reason for this discrepancy is not known. In addition, the antenatal care guidelines call for doubling the (preventive) dose of iron and folic acid to for the treatment of severe anemia. Because the antenatal care guidelines specify a preventive dose of 1 to 2 tablets of iron and folic acid per day,[23] doubling that dose for treatment of severe anemia would mean daily doses of 240 mg of iron and 1600 µg of folic acid per subject. In addition to possibly causing side effects such as nausea and constipation due to the very high amount of iron, the daily level of folic acid intake would exceed 1000 µg-the tolerable upper intake level for this nutrient.

It also is important to note that in addition to prescribing the appropriate daily dose of iron and folic acid supplements to individuals found to be anemic, such patients should be asked to return for follow-up testing of hemoglobin after about 4 weeks. If the hemoglobin level does not increase by about 1 g/dL

[23] Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Antenatal Care Services*. Kabul, Afghanistan: Ministry of Public Health.

despite compliance with the supplementation regimen, the patient should be referred to a specialist to determine the cause of anemia and followed up accordingly.[24]

The World Health Organization guidelines[25,26] simply call for a 120 mg/day dose of iron for all pregnant or postpartum women who are identified as anemic, regardless of severity (folic acid dose should be maintained at 400 µg). Similarly, the Centers for Disease Control and Prevention recommend 60 to 120 mg/day dose of iron for treatment of anemia during pregnancy.[20] This is a much simpler approach for healthcare providers to follow. However, this would mean that Basic Package of Health Services facilities also stock tablets containing 60 mg of elemental iron. Such tablets were not found in any of the facilities visited (see next section: Iron and folic acid supplements in the Basic Package of Health Services essential drugs list).

Table 2.Minstry of Public Health guidance on testing hemoglobin for anemia in pregnant and postpartum women[27]

Source	When to Test Hb
Antenatal Care Services[1]	At 1st visit for all subjects
	At 2nd visit if Hb<7g/dL in 1st visit or there are physical signs of severe anemia
	At 3rd visit if physical signs of severe anemia; refer to District Hospital if Hb<7g/dL at 1st, 2nd, and present visit
	At 4th visit if physical signs of severe anemia; refer to District Hospital if Hb<7g/dL at earlier and present visits
Postpartum Care Services[2]	1st hours postpartum if there are physical signs of severe anemia
	1st week postpartum if there are physical signs of severe anemia
	1st month postpartum if anemia occurred during pregnancy

[2] Source: Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Antenatal Care Services*. Kabul, Afghanistan: Ministry of Public Health.
[3] Source: Ministry of Public Health/Reproductive Health Directorate. 2003. *National Standards for Reproductive Health Services: Postpartum Care Services*. Kabul, Afghanistan: Ministry of Public Health.

Recommendations:

a. The Public Nutrition Department should issue an addendum to the National Micronutrient Guidelines to emphasize preventive iron and folic acid supplementation before addressing treatment of anemia during pregnancy and postpartum. In this regard, the guide should specify the procedures for screening, diagnosis, treatment, and follow-up of pregnant and postpartum women with moderate anemia. Such guidance also should be included in the revision of the antenatal and postpartum care guidelines by the Reproductive Health Directorate.

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[24] Centers for Disease Control and Prevention. 1998. "Recommendations to Prevent and Control Iron Deficiency in the United States." *Morbidity and Mortality Weekly Report.* 47(RR-3): 1-29.
[25] World Health Organization. 2012. *Guideline: Daily Iron and Folic Acid Supplementation in Pregnant Women*. Geneva: World Health Organization. http://apps.who.int/iris/bitstream/10665/77770/1/9789241501996_eng.pdf.
[26] World Health Organization. 2006. *Pregnancy, Childbirth, Postpartum, and Newborn Care: A Guide for Essential Practice*. Geneva, Switzerland: World Health Organization.
[27] Key: Hb=Hemoglobin

b. The preventive and treatment doses of elemental iron and folic acid should be modified in the revision of the antenatal and postpartum care guidelines, so they are consistent with the latest World Health Organization recommendations on daily iron and folic acid supplementation.
c. Simplify the iron and folic acid supplementation guidelines by calling for a single daily dose of iron and folic acid supplement (30 mg iron and 400 µg folic acid) for all pregnant and postpartum women, and doubling only the dose of iron to 60 mg for all pregnant and postpartum women who are identified as anemic. Women identified with severe anemia at a Basic Health Center should be referred for follow-up by a specialist in a higher level clinical setting (e.g. Comprehensive Health Center or District Hospital). Thus, the Basic Package of Health Services facilities should also carry 30 mg iron (only) tablets or preparations containing 60 mg iron and 400 µg folic acid to be prescribed for anemic women.
d. Add guidance that anemic patients be retested for hemoglobin after about 4 weeks of iron and folic acid supplementation and referred to a specialist if their hemoglobin concentration does not increase by about 1 g/dL despite compliance with the supplementation regimen.
e. Consider recommending hemoglobin testing of all 3rd trimester pregnant women given increased risk of anemia in that stage of pregnancy and potential delivery complications.

3. Iron and folic acid supplements in the Basic Package of Health Services essential drugs list

Table 3 lists the formulation and doses of iron and folic acid supplements included in the Basic Package of Health Services essential drugs list.[28] Although the reason is not specified, only ferrous sulfate formulation of iron is listed. However, in the open market in Afghanistan, other formulations of iron supplements, e.g. ferrous fumarate and ferrous gluconate also are found. Therefore, it may be better to specify the required dose of "elemental" iron, so different formulations of iron supplements could be procured based on price and availability.

Table 3. Iron and folic acid supplements specified in the Basic Package of Health Services essential drugs list

Ferrous sulfate	Tablet equivalent to 60 mg iron
Ferrous sulfate	Oral solution equivalent to 25 mg iron (as sulfate)/ml
Ferrous sulfate + folic acid	Tablet equivalent to 60 mg iron + 400 µg folic acid
Folic acid	Tablet - 5 mg

Source: Ministry of Public Health. A Basic Package of Health Services for Afghanistan – 2010/1389 (Table 2.14/8.1).

It should be noted that the Basic Package of Health Services drugs list also specifies that Basic Package of Health Services facilities have stocks of ferrous sulfate tablets containing 60 mg equivalent of elemental iron only; presumably, such supplements would be prescribed for anemic women together with a standard iron and folic acid supplement. However, such products were not found in any of the Basic Package of Health Services pharmacies visited. Also, it appears that because the antenatal and

[28] Ministry of Public Health. 2010. *A Basic Package of Health Services for Afghanistan – 2010/1389* (Revised July 2010). Kabul, Afghanistan: Ministry of Public Health.

postpartum care guidelines recommend the use of one or more tablets of combined iron + folic acid for the prevention and treatment of anemia among pregnant and postpartum women, the Basic Package of Health Services providers do not generally stock tablets containing only ferrous sulfate.

As mentioned previously, the most current World Health Organization guidelines recommend a daily preventive dose of 30 to 60 mg elemental iron and 400 µg folic acid for pregnant women. Given that more of the iron dose is absorbed when a subject is iron deficient, it may be argued that a 30 mg/day dose of elemental iron would meet needs of women who may be iron deficient, but not anemic, while minimizing the risk of any gastrointestinal side-effects that may occur with higher doses of iron. Such a preventive dose of iron also is recommended by the Centers for Disease Control and Prevention[29] and would allow for savings on the cost of supplement in the long term (a 30 mg equivalent of elemental iron as ferrous sulfate would be about $0.05 (US) less compared to a 60 mg dose of iron).[30]

It also must be noted that due to widespread poverty and lack of access to a variety of foods, Afghan women likely are deficient in multiple vitamins and minerals. Thus, it may be better for the Basic Package of Health Services providers to prescribe supplements containing multiple micronutrients[31] for pregnant and postpartum women.

Furthermore, although ferrous sulfate solution (usually prescribed for young children) also is listed in the essential drugs list for the Basic Package of Health Services (Table 3), the Ministry of Public Health does not have any guidelines or require interventions to prevent and treat pediatric iron deficiency, which affects close to 60% of children <5 years old in Afghanistan.[32] The lack of programs to prevent pediatric iron deficiency is a major shortcoming in Afghanistan's child health interventions, which must be addressed immediately because the cognitive damage due to iron deficiency in young children cannot be reversed with treatment.[33]

Finally, the 5 mg tablet of folic acid included in the essential drugs list (Table 3) is to be used as the first dose in the treatment of children with severe malnutrition, followed by daily doses of 1 mg of folic acid (which is NOT included in the Basic Package of Health Services essential drugs list). Thus, only health facilities with therapeutic feeding units would need an appropriate stock of 5 mg folic acid tablets, as well as 1 mg folic acid tablets, and the needed supplies should be based on the expected number of cases of children with acute malnutrition to be treated.

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[29] Centers for Disease Control and Prevention. 1998. "Recommendations to Prevent and Control Iron Deficiency in the United States." .*Morbidity and Mortality Weekly Report.* 47(RR-3): 1-29.

[30] Interview with Vikram Kilkar, Managing Director, Hexagon Nutrition Pvt. Ltd., Mumbai, India, 23 May, 2013.

[31] United Nations Children's Fund. 2000. *Composition of a Multi-micronutrient Supplement to be Used in Pilot Programmes among Pregnant Women in Developing Countries: Report of a United Nations Children's Fund (UNICEF), World Health Organization (WHO), United Nations University (UNU) Workshop Held at UNICEF Headquarters, New York, July 9, 1999*. New York, New York: United Nations Children's Fund.

[32] Ministry of Public Health (MoPH)-Islamic Republic of Afghanistan, United Nations Children's Fund (UNICEF), Centers for Disease Control and Prevention (CDC), and Tufts University. 2004. Afghanistan National Nutrition Survey. Atlanta, Georgia: CDC.

[33] Centers for Disease Control and Prevention. 1998. "Recommendations to Prevent and Control Iron Deficiency in the United States." *Morbidity and Mortality Weekly Report.* 47(RR-3): 1-29.

Recommendations:

a. Modify the Basic Package of Health Services essential drugs list to specify dose of elemental iron that supplements should contain according to the target group. This would enable Basic Package of Health Services providers to procure the best formulation of iron supplement, whether it contains ferrous sulfate, ferrous fumarate, etc.
b. The Ministry of Public Health and its Basic Package of Health Services donors and implementing partners should address the prevention and control of pediatric iron deficiency, with a special focus on children less than 24 months old.
c. The Basic Package of Health Services essential drugs list should be modified to also require 1 mg supplements of folic acid for the treatment of children with acute malnutrition within therapeutic feeding units, and the Basic Package of Health Services implementers should procure such supplements and train their health providers to use the high dose folic acid preparations accordingly.

4. Adjusting hemoglobin cutoffs for anemia based on altitude

The Ministry of Public Health and Basic Package of Health Services providers in Afghanistan use the standard World Health Organization cutoffs for anemia which are based on hemoglobin concentrations by age and gender at altitudes <1000 meters (Table 4). However, it is known that hemoglobin concentrations are normally higher in populations that reside at higher altitudes to compensate for the lower levels of oxygen in the air. The appropriate adjustments to the measured hemoglobin values based altitude ranges are presented in Table 5. Given the substantial variations in elevations where people reside in Afghanistan, it is important to adjust the hemoglobin cutoff to correctly identify anemia in individuals that live in communities situated above 1000 meters.[34] For example, because the average elevation in central Afghanistan is 1800 meters,[35] the hemoglobin cutoff for anemia by age and gender should be increased by 0.8 g/dL (Table 5) compared to the standard value (Table 4). Thus, a pregnant woman living in a community in central Afghanistan should be considered as severely anemic if her hemoglobin is <7.8 g/dL (instead of <7.0 g/dL as indicated in the various Ministry of Public Health released guideline documents) (see Table 6). This would lead to accurately identifying more cases of at risk pregnancies among patients in Basic Package of Health Services facilities that serve high elevation communities. Although comparable data are not available on pregnant women, using altitude unadjusted vs. adjusted hemoglobin cutoffs when analyzing the hemoglobin levels of children tested during the 2004 Afghanistan National Nutrition Survey[36] resulted in dramatic differences in the estimated prevalence of anemia. For example, using the standard hemoglobin cutoff of 11.0 g/dL in children <5 years old (Table 4), the prevalence of anemia among children residing at altitudes between 1750 to 2250 meters would have been 16.3%. Correctly adjusting the hemoglobin cutoff by +0.8 g/dL yielded an

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[34] Sullivan, K.M., Z. Mei, L. Grummer-Strawn, and I. Parvanta. 2008. "Hemoglobin Adjustments to Define Anaemia." *Tropical Medicine and International Health*. 13:1-5.

[35] Junior Worldmark Encyclopedia of Nations, 4th edition. "Islamic State of Afghanistan," http://www.gale.cengage.com/pdf/samples/sp692158.pdf. Accessed January 5, 2013.

[36] Ministry of Public Health (MoPH)-Islamic Republic of Afghanistan, United Nations Children's Fund (UNICEF), Centers for Disease Control and Prevention (CDC), and Tufts University. 2004. Afghanistan National Nutrition Survey. Atlanta, Georgia: CDC.

anemia prevalence of 32.6%.[37] Thus, one might expect that potentially twice as many pregnant women also would be identified with anemia using the altitude-adjusted hemoglobin cutoffs and appropriate treatment through the Basic Package of Health Services facilities.

Recommendation:

a. The Ministry of Public Health should consider issuing an addendum to the recently released National Micronutrient Guidelines and the antenatal and postpartum care guidelines regarding altitude adjustments for hemoglobin cutoffs for anemia.

Table 4. Blood hemoglobin concentration to define anemia by age and gender.

Age and Gender Group	Hemoglobin Concentration (g/dL)
Children 6-59 months	< 11.0
Children 5-11 years	< 11.5
Children 12-14 years	< 12.0
Non-pregnant women >15 years	< 12.0
Pregnant women	< 11.0
Men >15 years	< 13.0

Source: World Health Organization/United Nations Children's Fund/United Nations University, 2001.

Table 5. Adjustments to hemoglobin cutoffs for anemia by altitude.

Altitude Range (meters)	**g/dL**
<1000	No adjustment
1000 - 1249	+0.2
1250 - 1749	+0.5
1750 - 2249	+0.8
2250 - 2749	+1.3
2750 - 3249	+1.9
3250 - 3749	+2.7
3750 - 4249	+3.5
4250 - 4749	+4.5
4750 - 5249	+5.5
≥5250	+6.7

Source: Tropical Medicine & International Health. 2008, 13:1-5.

[37] Sullivan, K.M., Z. Mei, L. Grummer-Strawn, and I. Parvanta. 2008. "Hemoglobin Adjustments to Define Anaemia." *Tropical Medicine and International Health*. 13:1-5.

VI. Findings of qualitative interviews

1. Doctors, midwives, Community Health Workers, and pregnant or postpartum women's perceptions and practices related to iron and folic acid fortification

The overall findings of the interviews are listed below. However, it should be noted that at each Basic Package of Health Services facility visited, the doctors generally deferred to the midwives to respond to the interview questions. This is an indicator of the good training provided through the Midwifery Training Program in Afghanistan so that the general practice physicians at the Basic Health Centers and Comprehensive Health Centers primarily relied on the midwives to provide preventive and therapeutic care for pregnant and postpartum women. This also may be a reflection of the fact most physicians in Basic Health Centers and Comprehensive Health Centers are general practice doctors and less skilled in obstetric care than midwives who undergo 18 to 24 months of competency-based training on antenatal and postpartum care.

It should be noted that it was not possible during this assessment exercise to observe actual iron and folic acid counseling sessions to assess the type of information and adequacy of guidance provided by the healthcare providers. A follow-up assessment should include female investigators who could directly observe antenatal care service delivery sessions.

a. There are several primary causes of anemia, especially during pregnancy.

Almost all of the individuals within the groups interviewed felt that anemia is widespread among pregnant women in their communities and a risk to the health and wellbeing of the mother and her unborn fetus, rather than a "normal" component of pregnancy. Furthermore, the women had heard of "kamkhoony", or "insufficient blood," which is the local term (in the areas visited) referring to anemia and had learned from the health facility staff about their own "kamkhoony." Finally, all groups interviewed mentioned "poor diet" as the main cause of anemia. However, the obstetrics department doctors and midwives at Bamiyan Provincial Hospital and the midwives at the Hofian Basic Health Centers in Parwan Province also mentioned the lack of appropriate family planning and multiple frequent pregnancies as additional risk factors for anemia among women.

Recommendations to address the causes of anemia:

- The appropriate local term for anemia (such as "kamkhoony") and its risks and dangers, especially during pregnancy, should be incorporated in family planning education efforts.
- Basic Package of Health Services healthcare providers should be informed to consider multiple pregnancies with short intervals in between as a risk factor for anemia, and consequently, women's hemoglobin should be specifically tested to ensure that it is present in an adequate concentration, especially in women with frequent pregnancies.
- Consider a follow-up assessment of iron and folic acid related antenatal care service delivery using female observers who could be present when patients are seen by midwives/physicians.

b. There are several ways doctors, midwives, and Community Health Workers aim to assess, treat, and prevent anemia.

All the doctors, midwives, and Community Health Workers said that they assess each patient for physical signs of anemia (e.g. pallor, weakness, dizziness, etc.). Community Health Workers said that they refer clients with positive signs of anemia to the nearest health center to have their blood tested (the Community Health Workers did not specifically know what blood test is done to assess "kamkhoony"). In the health centers with hemoglobin test instruments (Sahli method), the doctors and midwives said that each pregnant woman is tested for hemoglobin concentration at the initial antenatal care visit,[38] and the result noted in the subject's antenatal care patient card. If hemoglobin testing is not available in the facility, a patient with significant physical signs of anemia is referred to the higher level health facility of hemoglobin determination. On follow-up antenatal care visits, a woman is assessed for hemoglobin if she tested positive for anemia during her previous visit or has physical signs of anemia and the hemoglobin findings are used to determine the number of iron and folic acid supplements to prescribe and/or to refer the subject for additional medical evaluation to a district or provincial hospital. Though only included in interviews with healthcare providers in Balkh Province, the doctors and midwives in Balkh Province were asked about "pica" behavior among pregnant women as an indication of anemia; they indicated that it is quite common among pregnant women to eat dirt/clay.

All the interviewees mentioned eating more vegetables, fruits, beans and meat for prevention of anemia. Only the midwives interviewed in Nangarhar Province and Parwan Province, and one pregnant woman in Balkh Province also included taking iron and folic acid supplements for prevention of anemia.

Recommendations to assess, treat, and, prevent anemia:

- The actual hemoglobin readings from the Basic Package of Health Services facilities and other relevant information in pregnant women's antenatal care health cards should be used as indicators for a pregnancy anemia surveillance system.
- Especially because the Sahli method for testing hemoglobin is imprecise, the Basic Package of Health Services laboratories should be encouraged to confirm low hemoglobin readings, and especially encouraged to adjust the hemoglobin values based on altitude when more than 1,000 meters above sea level (see Section V. 4 above).
- Include "pica" as an indicator of iron deficiency/anemia (in women as well as children), and inform Basic Package of Health Services doctors, midwives, and Community Health Workers, accordingly.
- Healthcare providers and pregnant and postpartum women should be informed to consider iron and folic acid supplements, together with appropriate dietary intakes, as a preventive measure against anemia, not just a treatment approach.

c. If, why, when, and how Basic Package of Health Services healthcare providers prescribe iron and folic acid supplements to pregnant (and postpartum) women.

The primary reason given for prescribing iron and folic acid was to prevent or treat anemia (though as indicated above, most of the providers did not mention supplementation when they were separately asked about measures to prevent anemia in women). Only the doctors and midwives in the provincial hospital and Comprehensive Health Centers visited in Bamiyan Province said that folic acid is prescribed

[38] As mentioned on p. 15-16 (Section V. 4), the Ministry of Public Health and Basic Package of Health Services providers in Afghanistan use the standard World Health Organization cutoffs for anemia which are based on hemoglobin concentrations by age and gender at altitudes <1000 meters. In Afghanistan, a country with high elevation, the standard cutoffs are not sufficient.

to prevent neural tube defects. None of the women interviewed specifically had heard of "iron" or "folic acid" or knew of cases of neural tube defect births in their communities; to them the tablets were to prevent or treat "kamkhoony." All the healthcare providers stated that they "routinely" prescribe iron and folic acid supplements to all women as soon as pregnancy is confirmed, for the duration of pregnancy and about three months postpartum. However, a few Community Health Workers stated that they sometimes encourage pregnant women to obtain their "dawa-e kamkhoony" (medicine for insufficient blood) at the local health center because of concern that they may not have sufficient supplies of supplements at the health post to cover the need of the many women who need double doses because of severe anemia. Additionally, not all the doctors or midwives knew the specific preventive or treatment doses of iron and folic acid (in mg or µg units). However, they all prescribe iron and folic acid as "number of tablets" (one for non-anemic women and two for anemic women (only the providers in the two Basic Health Centers in Balk Province indicated prescribing three tablets for cases of severe anemia). The doctors and midwives who knew the specific doses or iron vs. folic acid to prescribe to pregnant women assumed that the tablets in their facility pharmacy contained 60 mg elemental iron and 400 µg folic acid (see also the summary of pharmacy related information below). Finally, all the midwives stated that they record the prescriptions on the patients' antenatal care health cards for each antenatal care or postpartum care visit (it was not possible to review the completed cards).

The doctors, midwives, and Community Health Workers said that the women generally complied with the supplement prescription regimen, and that the providers asked patients about taking the supplements during follow-up visits. One Community Health Worker said that he sometimes asked a woman's children or husband to verify if she took her tablets. Importantly, all the women interviewed who had been prescribed "dawa-e-kamkhoony" (medicine for insufficient blood) did not have any problems remembering to take the tablets as prescribed, and their husbands and in-laws were supportive of them seeking healthcare and taking the tablets. In terms of the logistics of taking the tablets, the women said they liked the iron and folic acid tablets in blister packets, and almost all the healthcare providers (including the pharmacists) recommended the women to take their iron and folic acid tablets between meals, but not on an empty stomach or with tea. A few said they advised their patients to take the tablets at bedtime.

Recommendations for when and how Basic Package of Health Services healthcare providers prescribe iron and folic acid supplements to pregnant (and postpartum) women:

- Educate/inform Basic Package of Health Services doctors, midwives, and Community Health Workers about the prevention of neural tube defects, and modify the Ministry of Public Health guidelines to enable the providers to prescribe iron and folic acid supplements to women who may be planning to become pregnant (i.e. in the preconception period). Community Health Workers should be encouraged to provide iron and folic acid supplements to potentially pregnant women before their pregnancy is confirmed.
- Basic Package of Health Services implementing non-governmental organizations should determine the supply of iron and folic acid supplements for health centers and health posts based on estimates of the numbers of non-anemic and anemic pregnant women (who require two daily tablets based on the formulations of supplements currently procured). Based on available information, at least 50% of pregnant women could be expected to have anemia.

- Basic Package of Health Services doctors and midwives should be encouraged to know the dosage of the iron and folic acid supplements in their pharmacies, so they prescribe the correct and safe doses.

d. Basic Package of Health Services healthcare providers' perceptions about their case loads and sufficiency of time to adequately advise their patients about anemia prevention and treatment

All the midwives felt that they had sufficient time to inform their patients about prevention and treatment of anemia and to prescribe iron and folic acid supplements. However, the assessors of this report perceived that the midwives essentially had minimal time with each patient to perform the antenatal care examination and to prescribe the iron and folic acid supplements. Observations at Basic Package of Health Services facilities by the World Bank consultant as well as the Public Nutrition Department staff counterparts during occasions unrelated to this rapid study indicated that because there is no client scheduling system within the Basic Package of Health Services facilities, the vast majority of clients arrive at the facilities en mass between about 8 a.m. and 11:00 a.m., and there is very little time for healthcare providers to spend with each patient. Other anecdotal reports of the same also have been reported.

Recommendations for advising patients on anemia prevention and treatment:

- The Public Nutrition Department should develop simple tools for doctors and midwives (and for literate Community Health Workers) to guide them in providing anticipatory guidance to their patients related to taking supplements when they prescribe the products, for example to expect changes in stool color or possible nausea, etc. This could help patients to not stop taking the supplements because of those side effects.
- If a more detailed assessment of the iron and folic acid supplementation within the Basic Package of Health Services system is carried out in the future, it would be important to engage female assessors who could observe actual antenatal care and postpartum care service delivery sessions and determine the type and sufficiency of patient information or counseling provided.

e. Basic Package of Health Services doctors' and midwives' familiarity with the Ministry of Public Health issued guidelines on prevention and treatment of anemia in pregnant and postpartum women

None of the healthcare providers had heard of the National Micronutrient Guidelines most likely because the document had only been released about two weeks to one month before the interview time, and the non-governmental organization headquarters had not been able convey the information to the Basic Package of Health Services facilities. Additionally, none of the healthcare providers had specifically studied the antenatal care and postpartum care guidelines irrespective that they were published several years ago. Every doctor and midwife felt that instead of the detailed guideline documents, a simple (1-page) "clinical protocol" on prevention and treatment of anemia in pregnancy and postpartum would be helpful in enabling them to provide better care for their patients. Finally, because the vast majority of Afghan physicians and midwives that provide antenatal and postpartum care services in the country complete their studies in medical universities and midwifery training programs in Afghanistan, it would be important for the Ministry of Public Health to work with those institutions to ensure that their curricula include the appropriate content related to the prevention and treatment of vitamin and mineral deficiencies, especially iron and folic acid in the antenatal and postpartum periods.

Recommendations for national guidelines on the prevention and treatment of anemia:

- Public Nutrition Department in collaboration with Reproductive Health Directorate should develop and disseminate to all healthcare providers (public and private sector) a clinical protocol on the prevention and treatment of anemia among pregnant and postpartum women (and preferably among young children as well).
- In a future study, engage female assessors to observe actual antenatal care and postpartum care service delivery sessions to assess the quality and content of the nutrition related education and counseling provided by the Basic Package of Health Services facility midwives and physicians.
- Ensure that the iron and folic acid supplementation guidelines of Ministry of Public Health are incorporated in the training and continuing education programs for physicians and midwives.

2. Vitamin and mineral supplements in Basic Package of Health Services facilities' pharmacies

As mentioned above, in addition to briefly interviewing the pharmacists, the information on the labels of the containers of the iron and folic acid supplements in the pharmacies of the Basic Package of Health Services facilities visited was recorded.

a. How and how often iron and folic acid supplements are procured, and the pharmacists' perceptions about the overall availability and quality of the products

The United States Agency for International Development procures the vitamin and mineral supplements directly from a single supplier (International Development Association Foundation - based in Amsterdam) according to supply requirements of its funded non-governmental organizations. The non-governmental organizations determine the quantities of iron and folic acid based on the estimated population of pregnant and postpartum women per district as well as the annual quantities of supplements distributed vs. remaining in-stock. The non-governmental organizations in the European Union and World Bank supported provinces receive the funds from the European Union and the Ministry of Public Health and are responsible for procurement of iron and folic acid supplements in the open market. The non-governmental organizations require that prospective suppliers should have official permits from the Ministry of Public Health to import the supplements (as the bulk of drugs and supplements are imported into Afghanistan). Furthermore, the non-governmental organizations in the European Union and World Bank funded provinces determine the iron and folic acid supplements to purchase based on availability and cost; NOT based on the nutrient content of the supplements as stated in the Ministry of Public Health guidance documents.

The Ministry of Public Health also has procured the iron and folic acid supplies for the Strengthening Mechanism supported Basic Package of Health Services facilities in the market, but not followed its own guidelines regarding the doses of iron and folic acid supplements for pregnant and postpartum women. (*Upon completion of the assessment, it was learned that the Ministry of Public Health recently arranged to procure the needed drugs and supplements through United Nations Children's Fund. Thus, it is likely that similar iron and folic acid supplements will be available in Strengthening Mechanism funded Basic Package of Health Services facilities in the near future; however, it is not clear if the dosage of the nutrients will meet the Ministry of Public Health guidelines*). The Basic Package of Health Services facilities typically order additional supplies of supplements from the central stock of their parent non-

governmental organization on a quarterly basis and according to their available stocks and estimated distribution rates. They also use the "first in – first out" approach to minimize the chance of products becoming outdated. Some pharmacists also stated that when they have more supplies than can be used before the expiry date, they inform the non-governmental organization headquarters so that the extra supplies could be transferred to other Basic Package of Health Services facilities that need them. Although this rapid assessment did not address the issue of population coverage of iron and folic acid supplements, if a follow-up study is carried out in the near future, it also would be useful to explore if the availability of iron and folic acid supplements through local pharmacies or retails stores might help increase the proportion of pregnant and postpartum women who regularly use iron and folic acid supplements.

Recommendation on quality:

- The Ministry of Public Health should develop an appropriate mechanism to ensure the quality of the vitamin and mineral products that are procured for the Basic Package of Health Services network.

b. Types, formulations, and doses of iron and folic acid supplements usually in stock, based on interview and visual documentation of the available products

There was much variation in the types, formulations, and doses of iron and folic acid supplements. One common factor, however, was that none of the Basic Package of Health Services facilities visited stocked iron and folic acid supplements for pregnant and postpartum women that contained the dosage specified in the relevant Ministry of Public Health guidance documents (discussed above). Table 7 includes a list of the vitamin and mineral supplements observed. The "elemental" iron content of iron supplements differs based on its formulation (e.g. 30 mg of elemental iron is equivalent to 150 mg of ferrous sulfate heptahydrate, 90 mg of ferrous fumarate and 250 mg of ferrous gluconate). Thus, the products labeled as 150 mg ferrous fumarate are equivalent to 50 mg of "elemental" iron. Furthermore, women who are prescribed two iron and folic acid tablets per day (for treatment of anemia) would consume 1000 µg UL of folic acid when they are given products that contain 500 or 750 µg of folic acid per tablet.

Most of the pharmacists in the facilities that had supplements in blister packets and in jars indicated that their clients tend to prefer blister packets. Unfortunately, some of the pharmacists had not read the information on the labels of the vitamin and mineral supplements in their facilities, and were not aware of the specific types or doses or iron or the amount of folic acid in the supplements they gave to women.

Recommendations on iron and folic acid supplements in stock at Basic Package of Health Services facilities:

- The Ministry of Public Health should specify the dose of "elemental" iron in supplements to be prescribed for pregnant and postpartum women and Basic Package of Health Services providers should be informed about the differences in iron content of supplements depending on their formulation (e.g. ferrous sulfate vs. ferrous fumarate).
- The Strengthening Mechanism and non-governmental organizations should be better informed about the importance (and safety) of stocking iron and folic acid supplements with appropriate doses for non-anemic vs. anemic pregnant and postpartum women; they should

consider that 1000 µg per day is the tolerable upper intake level for folic acid and that it is better if women were not prescribed daily doses that exceed that amount.

- The Ministry of Public Health should ensure that the new supplies of iron and folic acid supplements procured for the Strengthening Mechanism supported Basic Package of Health Services facilities through the United Nations Children's Fund meet the Ministry of Public Health dosage requirements.
- The preventive vs. treatment doses of iron and folic acid should be posted and easily visible by doctors, midwives, and pharmacists in the Basic Package of Health Services facilities, and they should inform the non-governmental organization headquarters if they do not have products with the correct dosages for their patients.

Please continue to next page for Table 7.

Table 7. Types, formulations and doses of vitamin and mineral supplements seen in the Basic Package of Health Services facility pharmacies visited by Province.

Province	Supplement Type	Nutrient Content as Labeled	Container
Balkh	Iron+folic acid	150 mg ferrous fumarate 1000 µg folic acid	10 tablet blister packets
	Iron+folic acid	150 mg ferrous sulfate 750 µg folic acid	10 tablet blister packets
	Multivitamins without iron	Not recorded	10 tablet blister packets
	Folic acid	5 mg	44 tablet blister packets
Bamiyan*	Iron+folic acid	65 mg iron (as ferrous sulfate) 250 µg folic acid	1000 tablets/jar
	Multivitamins without iron	Not recorded	1000 tablets/jar
	Folic acid	5 mg	1000 tablets/jar
Nangarhar	Iron+folic acid	150 mg ferrous fumarate 500 µg folic acid	500 tablets/jar
	Iron	65 mg iron (as ferrous sulfate)	1000 tablets/jar
	Folic acid	5 mg	100 tablets/jar
Parwan	Iron+folic acid	65 mg iron (as ferrous sulfate) 500 µg folic acid	10 tablet blister packets

*All facilities visited carried the same type, formulation, and brand of products.