

# Strengthening Maternal Nutrition

## *within Antenatal Care in Burkina Faso*

### KEY FINDINGS FROM IMPLEMENTATION RESEARCH

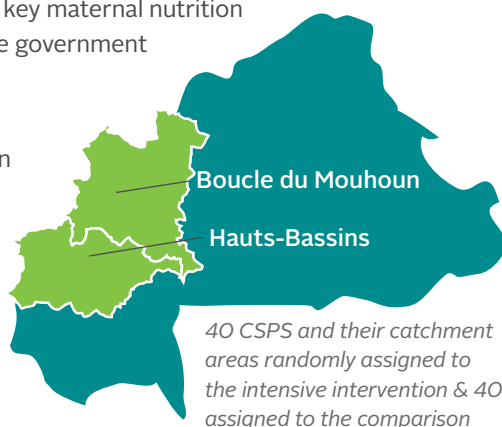
In Burkina Faso, maternal and neonatal mortality remain high, and undernutrition is highly prevalent among women and children. Anemia, a contributor to maternal mortality, affects more than half of women of reproductive age in the country. Low birthweight stands at 13 percent, and one-quarter of children under five are stunted (Countdown 2030). These data indicate the need to reinforce nutrition interventions during pregnancy. The ANC platform provides an opportunity to provide this essential care. Among mothers who recently gave birth, attendance of ANC with a qualified provider was reported to be as high as 83 percent (PMA Nutrition Survey, 2020).

Since 2014, Alive & Thrive (A&T) has been working in partnership with the government of Burkina Faso to improve maternal, infant, and young child nutrition. Early on, A&T's support focused on assisting in the scale up of the government's infant and young child (IYCF) feeding guidance and services. In 2017, the government adopted the new maternal nutrition guidelines in response to the revised 2016 WHO ANC guidelines. In 2019, national directives were developed to deliver these guidelines. A&T worked in collaboration with the government and other partners to strengthen the package of maternal nutrition interventions for ANC and carried out implementation research to assess the feasibility and impact of integrating this package of maternal interventions into existing ANC services at primary health centers, known as *Centre de Santé et de Promotion Sociale* (CSPS) and into community-based health services delivered by the *Agents de Santé à Base Communautaire* (ASBC) community health workers. This brief shares the results of the implementation research conducted in two regions of Burkina Faso.

### Research design and study location

The research design was a two-arm cluster-randomized, non-masked trial, consisting of cross-sectional surveys at baseline and endline in Hauts-Bassins and Boucle du Mouhoun regions. The study focused on these questions:






- Can the **coverage and utilization** of key maternal nutrition interventions be improved within the government ANC service delivery platforms?
- What **factors influence** integrating and strengthening maternal nutrition interventions into the government ANC service delivery platform?
- What are the **impacts** of the maternal nutrition intervention package on the knowledge and practices of service providers and pregnant women?



### ABOUT THE SAMPLE

The endline evaluation included the following:

#### Cross-sectional endline survey

	<b>960</b> Pregnant women
	<b>1,920</b> Recently delivered women (RDW)
	<b>842</b> Husbands of RDW
	<b>79</b> Nurse-midwives
	<b>175</b> ASBCs



#### Health facility assessments

	<b>80</b> Health center checklists
	<b>158</b> ANC observations

### CHARACTERISTICS OF THE SAMPLE

Most of the nurse-midwives at the health facilities were female, while ASBCs in the communities were mostly male. There were two ASBCs per village. These community health agents were mostly farmers who worked as ASBCs part-time.

#### Gender

	Nurse-midwives <b>77% female</b>
	ASBCs <b>73% male</b>

## INTERVENTION OVERVIEW

### THE PACKAGE OF ANC SERVICES

These maternal nutrition services were added or strengthened:



### DELIVERY OF ANC SERVICES

The enhanced ANC package was delivered to pregnant women during their regular ANC visits at health facilities and supported through home visits by ASBCs who are present in every village and assist nurse-midwives with counseling and measurements at the health facilities.



### SYSTEM STRENGTHENING INPUTS

Health system support included:

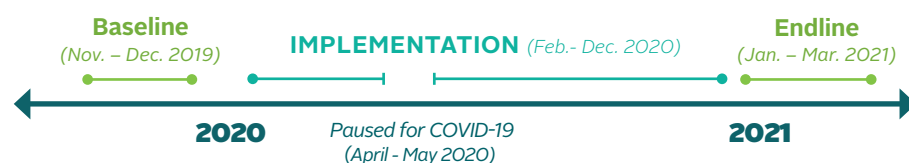
- Training and coaching and provision of job aids on nutrition package of interventions
- Training on filling out data registers; mother's cards; and reviewing data to identify gaps in coverage of services
- Semi-annual joint supervision of the district level by the regional and central levels
- Quarterly supportive supervision of health facilities by district health management team (DHMT)
- Monthly supportive supervision of ASBCs by health providers from their health facilities
- Monthly reviews between health facility staff and ASBCs
- Support for weekly IFA stock monitoring



### COMMUNITY MOBILIZATION

Local support for maternal nutrition was garnered through advocacy and mobilization efforts with traditional and religious leaders, local associations, women's groups, husbands and mothers-in-law. Early identification of pregnancies in the first trimester was emphasized.

### TIMELINE



## CHARACTERISTICS OF THE SAMPLE (CONT.)

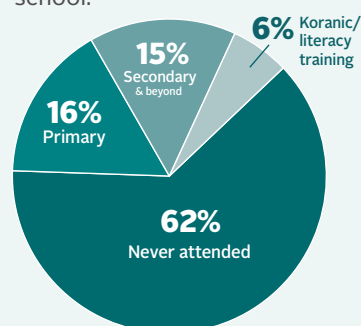
On average, pregnant and RDW were in their late 20s. Just over 10 percent were adolescents under 20. Characteristics of the RDW in the intervention areas at the endline are shown below. †

### Age

RDW were, on average, **27 years old**

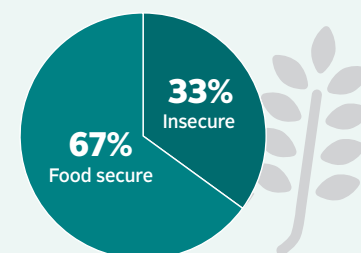
### Education

Most RDW had never attended school.



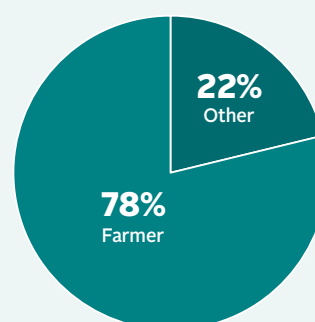
### Household food security

Most households of RDW that were surveyed using the Household Food Insecurity Access Scale were food secure.



### Household income source

Most households of RDW were headed by farmers.



† Characteristics of pregnant women in the sample are not shown, but they were similar to RDW.

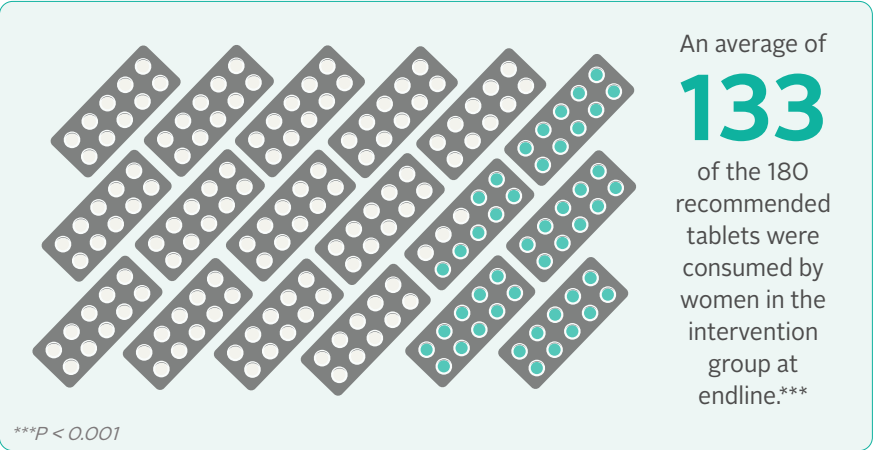
# Results

## IFA SUPPLEMENTATION

### IFA consumption

- In both the intervention and comparison groups, pregnant women took more IFA tablets during their pregnancies over time. The number of IFA tablets increased significantly among the intervention group at endline.
- Although nearly all RDW (99 percent) consumed some IFA tablets during their last pregnancy, only a quarter in the intervention group reported that they consumed the recommended 180 tablets. However, this was still a significant increase in the intervention group compared to the baseline, and well above the comparison group (13 percent) at endline.

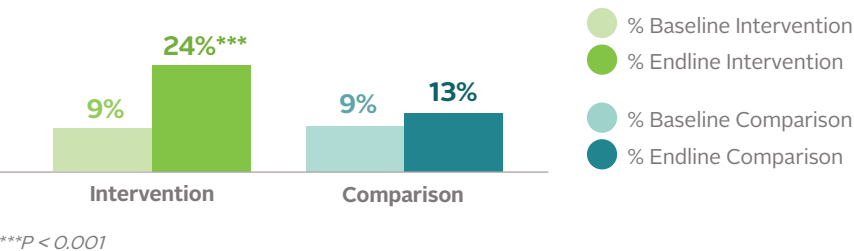
### IFA tablets consumed by RDW during last pregnancy



That's  
**26 more tablets**  
than the intervention group  
at baseline...

...and  
**18 more tablets**  
than the comparison group  
at endline.

### RDW who consumed 180+ IFA tablets during pregnancy



The differences between intervention group, accounting for clustering are designated as follows for all results in this document:

\*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001

# MATERNAL DIET

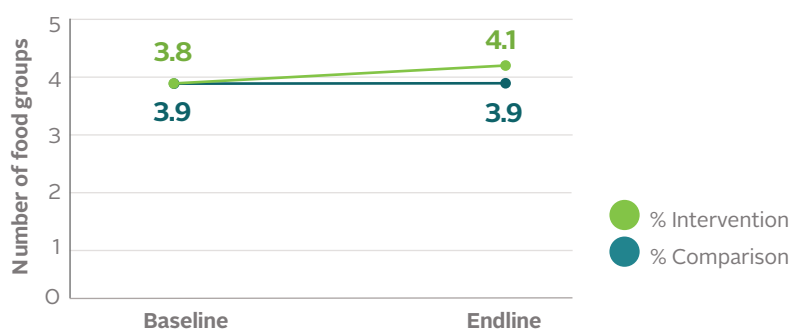
## Dietary diversity

- Minimum dietary diversity requires women to eat at least 5 of 10 recommended food groups daily. On average, across both intervention and comparison groups, pregnant women consumed foods from four food groups.
- The proportion of women with a diverse diet improved slightly in the intervention group, but the change was not significant.
- At endline, approximately 1 in 3 pregnant women consumed food from at least 5 food groups in the last 24 hours.

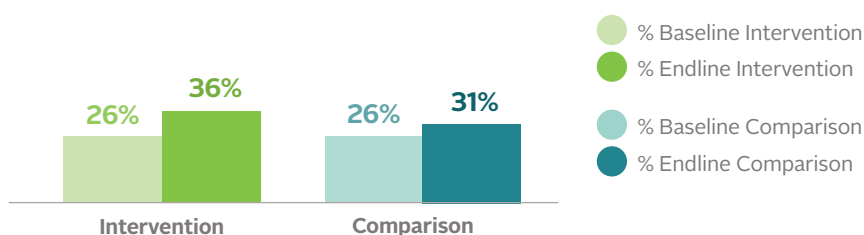
## Types of foods consumed

- All pregnant women ate grains in the last 24 hours.
- Only 2 percent of pregnant women ate eggs in the last 24 hours.
- About two-thirds of women consumed nuts and seeds and green leafy vegetables.
- Consumption of other vegetables increased significantly in the intervention group from 65 percent at baseline to 85 percent at endline, compared to 80 percent in the comparison group at endline.
- Consumption of milk or milk products, and meat, poultry or fish increased in all areas.
- Overall, pregnant women's consumption of sweets and sweetened beverages in the past 24 hours was very high in both groups.

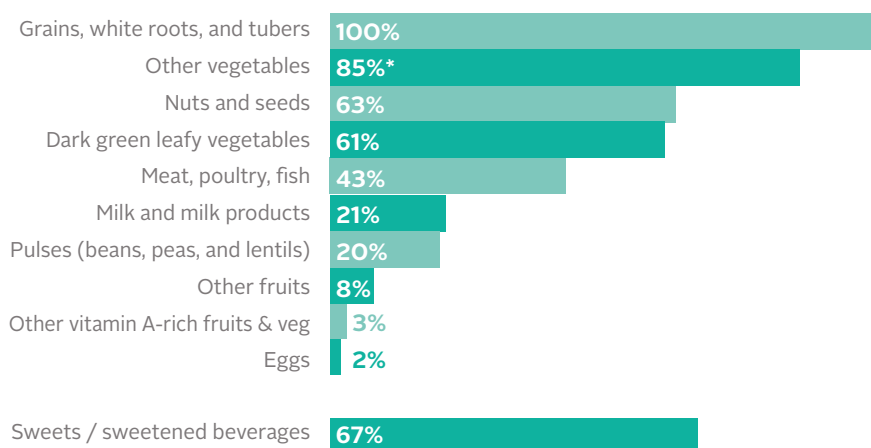
## Average number of food groups consumed by pregnant women



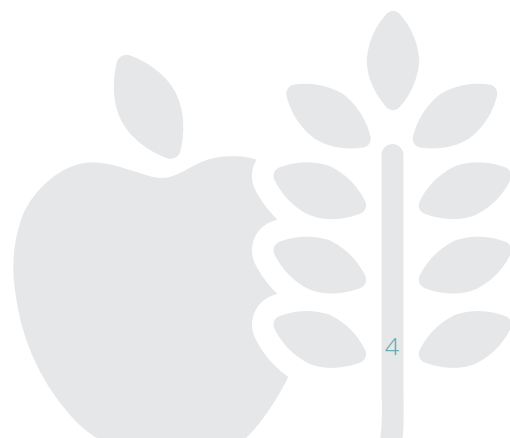
## Pregnant women who consumed at least 5 food groups in last 24 hours



## Food groups consumed by pregnant women in last 24 hours<sup>†</sup>



<sup>†</sup> From intervention group at endline  
\*P < 0.05

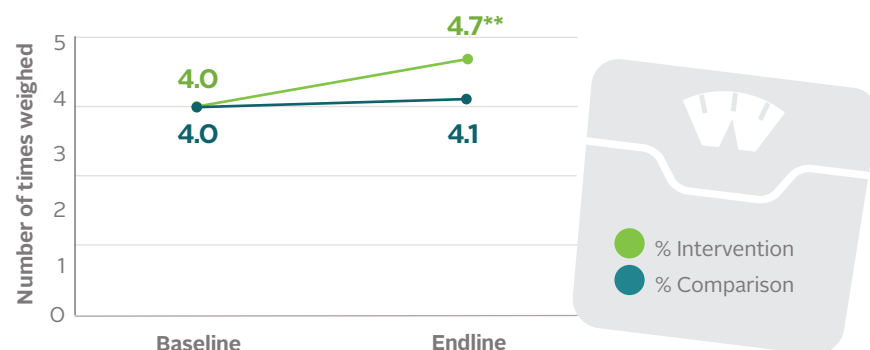


# MATERNAL WEIGHT GAIN

## Weight gain monitoring

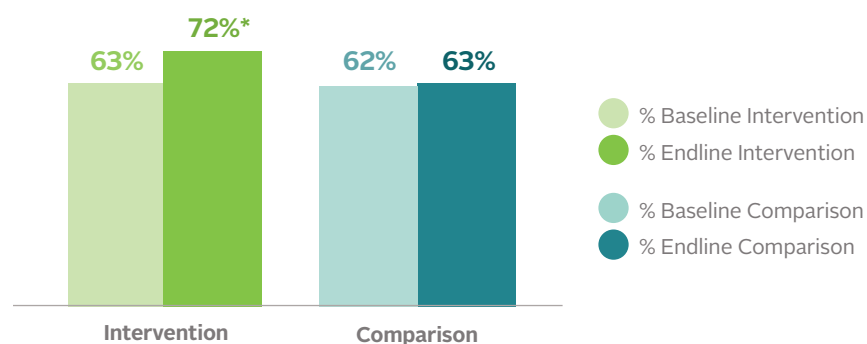
- Almost all women were weighed at some point during their ANC contacts.
- At endline, RDW in the intervention group were weighed 4.7 times during pregnancy.
- Also, at endline significantly more women in the intervention group were weighed four or more times during their pregnancy than those in the comparison group.

## Number of times RDW were weighed during ANC in their last pregnancy



\*\*  $P < 0.01$

## Pregnant women weighed 4+ times during ANC



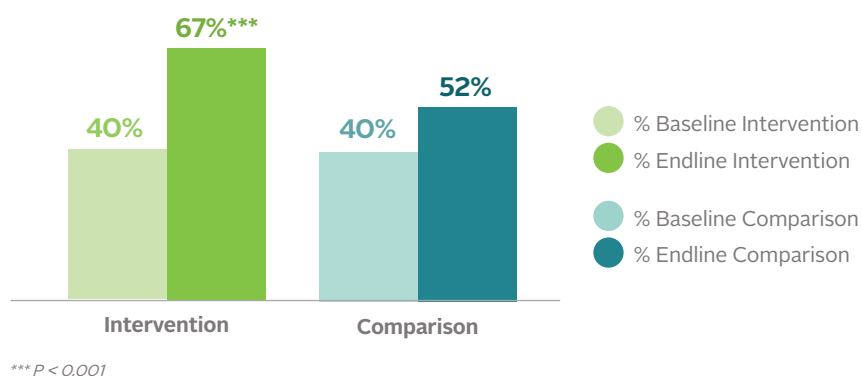
\*  $P < 0.05$

# BREASTFEEDING PRACTICES

## Early initiation of breastfeeding (EIBF)

- EIBF increased by more than 25 percentage points in the intervention group; a significant increase compared to the comparison group where EIBF only increased by about 10 percentage points.
- By endline, more than two-thirds of women in the intervention group initiated breastfeeding within one hour of delivery.

## Recently delivered women who breastfed within one hour of delivery



## Prelacteal and feeding other than breastmilk

- A few women continued to put something in their baby's mouth other than breastmilk immediately after birth and within the first 3 days. This practice was similar across the intervention and comparison groups and did not improve from baseline to endline.



# 16%

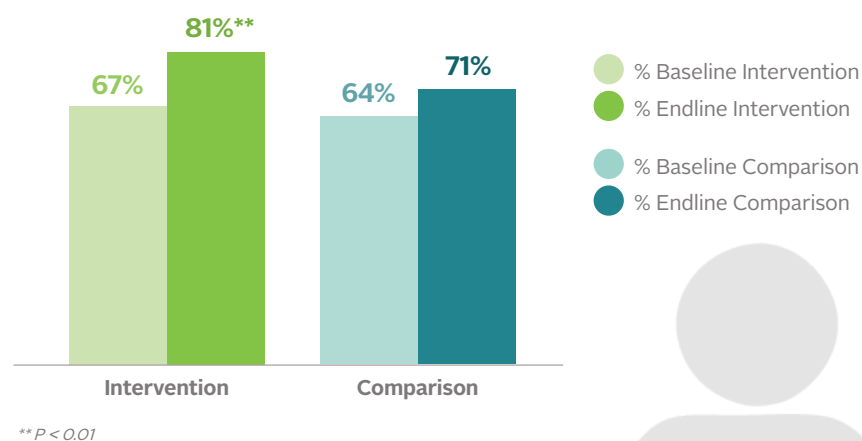
of mothers gave their newborns something other than breastmilk within the first 3 days.<sup>†</sup>

<sup>†</sup> From intervention group at endline. Comparison group was 17% at endline.

## Exclusive breastfeeding (EBF)

- Exclusive breastfeeding (EBF) of babies <6 months increased significantly in the intervention group compared to the comparison group.
- At endline, more than 80 percent of RDW in the intervention group reported that they exclusively breastfed their babies <6 months in the past 24 hours.
- EBF also increased in the comparison group to 71 percent, but the change was non-significant.

## RDW who gave only breastmilk to their babies <6 months in the past 24 hours



# USE AND DELIVERY OF ANC SERVICES

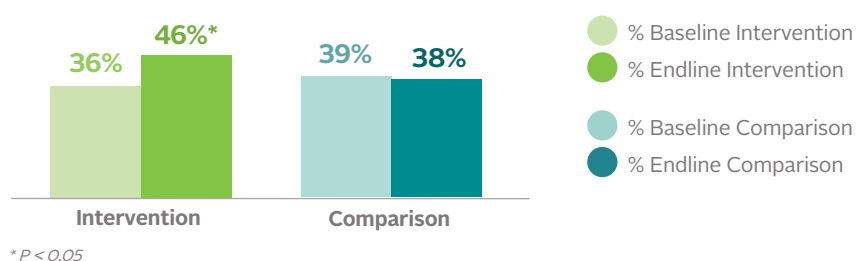
## ANC visits

- At baseline, about two-thirds of RDW attended 4+ ANC visits at health facilities during their pregnancy. This increased to 71 percent in the intervention group at endline, however this was not statistically significant. The number of ANC contacts stayed the same among the comparison group at baseline and endline.
- The proportion of RDW who attended their first ANC visit in the first trimester increased significantly in the intervention group, compared to the comparison group.

**71%** of RDW completed 4+ ANC visits during their last pregnancy<sup>†</sup>

<sup>†</sup> From intervention group at endline. Comparison group was 65% at endline.

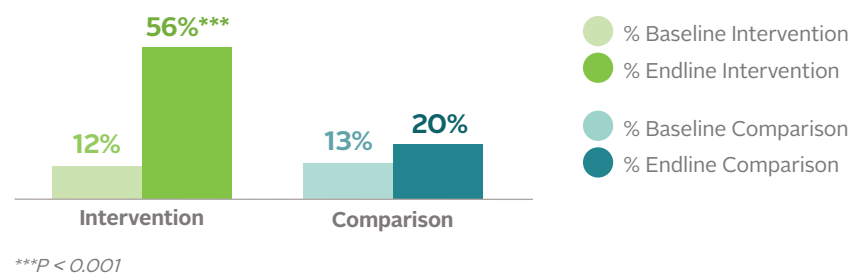
## Receipt of ANC at health facilities during first trimester



## Additional maternal nutrition contacts

- The exposure to maternal nutrition interventions increased significantly through community-level contacts between pregnant women and ASBCs. More than half of RDW in the intervention group were reached during their pregnancy in their homes or by attending the *Groupe d'Apprentissage et de Suivi des Pratiques de l'Alimentation du nourrisson et du jeune enfant* (GASPA) meetings, compared to only one-fifth of RDW in the comparison group.

## RDW who received maternal nutrition interventions through home visits or GASPA meetings

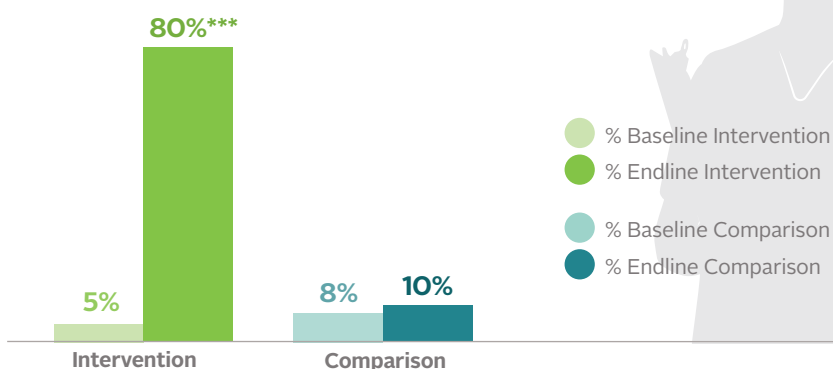


# HEALTH SYSTEM SUPPORT FOR ANC

## Frontline worker (FLW) training

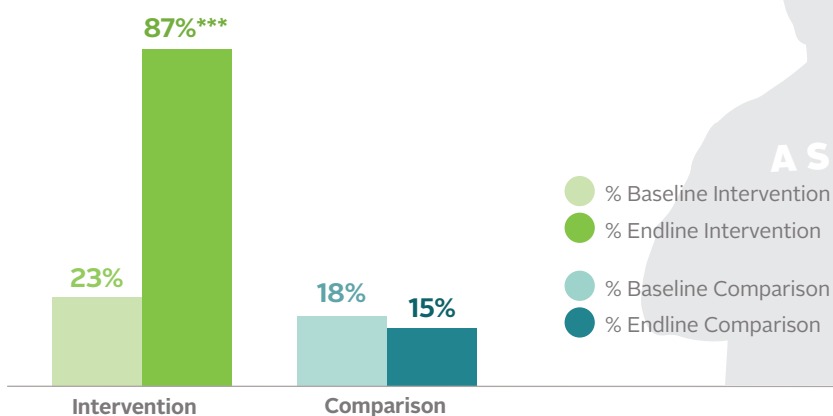
- The proportion of nurse-midwives who received training increased significantly in the intervention group during the study period. Prior to A&T interventions, only 5 percent of nurse-midwives had been trained on maternal nutrition. This increased to 80 percent at endline.
- Only 10 percent of nurse-midwives and 15 percent of ASBCs in the comparison group received training at endline.

## Nurse-midwives trained in maternal nutrition in the past 12 months



\*\*\*  $P < 0.001$

## ASBCs trained in maternal nutrition in the past 12 months



\*\*\*  $P < 0.001$



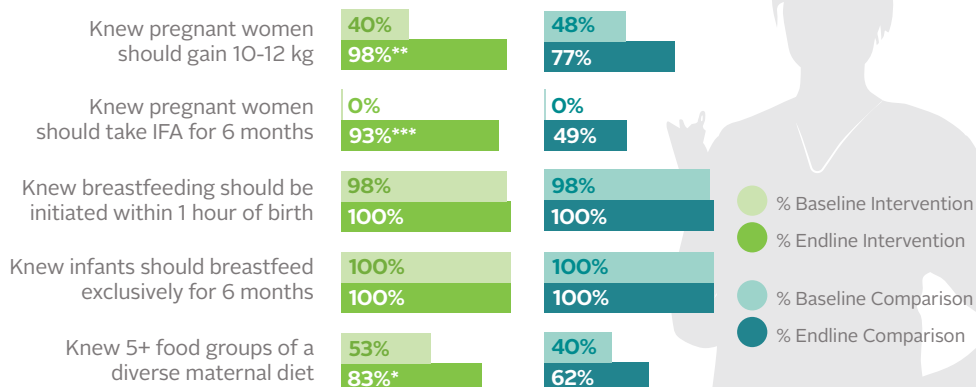


## HEALTH SYSTEM SUPPORT FOR ANC (CONTINUED)

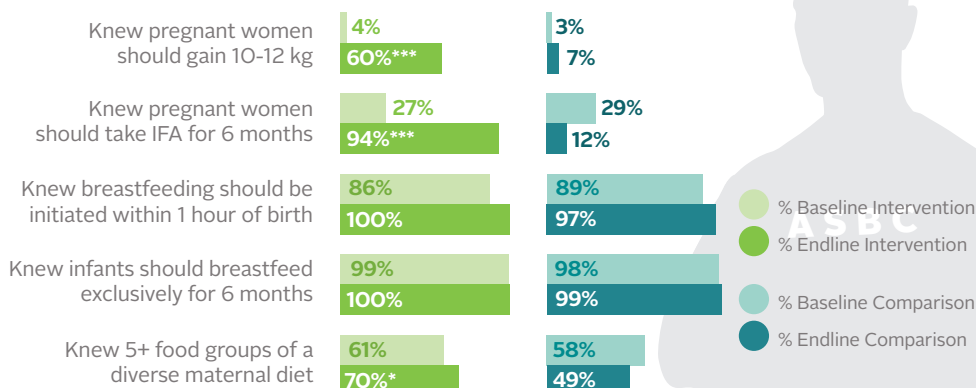
### FLW knowledge of maternal nutrition

- The intervention significantly improved nurse-midwives' and ASBCs' knowledge of appropriate weight gain during pregnancy.
- Almost all nurse-midwives and ASBCs knew about IFA before the intervention, but there was a significant increase in their knowledge about taking IFA tablets for 6 months during pregnancy.
- Nurse-midwives and ASBCs already had high knowledge about EIBF and EBF at baseline. Knowledge improved slightly over time in both groups with no significant differences. However, nurse-midwives had some significant knowledge gaps in important actions that can negatively impact EBF, including, knowing not to give water to a baby even when hot, and knowing not to stop breastfeeding when pregnant or ill. ASBCs across the study area were aware of these practices prior to the intervention.
- Nurse-midwives' and ASBCs' knowledge about maternal diet improved over time in the intervention groups. For some topic areas, nurse-midwives knowledge was significantly higher in the intervention group. More ASBCs in the intervention group had knowledge about dietary diversity compared to those in comparison group.

### Nurse-midwives' knowledge



### ASBCs' knowledge



\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

# MATERNAL NUTRITION COUNSELING

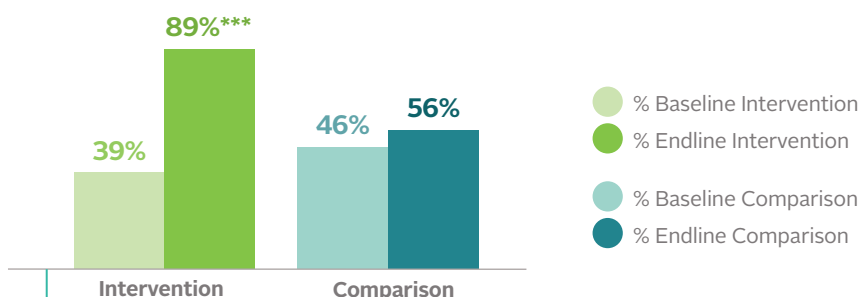
## Counseling during ANC visits

- Significantly more RDW in the intervention group—almost 90 percent—reported that they received maternal nutrition counseling during their last pregnancy, compared to about half of the comparison group.
- Counseling during ANC on breastfeeding, gaining weight and physical activity all significantly increased in the intervention group.
- Significantly more RDW in the intervention group received counseling on dietary diversity, consuming additional amounts of foods, eating nutrient-rich foods, and on IFA than those in the comparison group.

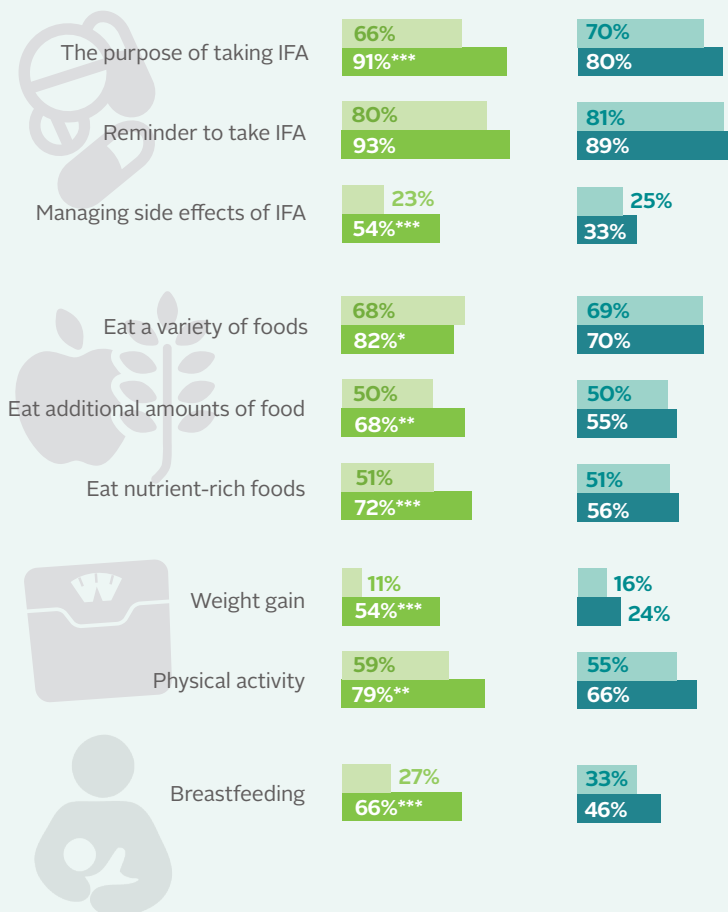
**89%** of RDW received maternal nutrition counseling during ANC visits<sup>†</sup>

<sup>†</sup> Reported by RDW from the intervention group at endline about their last pregnancy.

## Receipt of maternal nutrition counseling during ANC at the health facility



### RECEIPT OF SPECIFIC MATERNAL NUTRITION COUNSELING



\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$

# MATERNAL NUTRITION COUNSELING (CONTINUED)

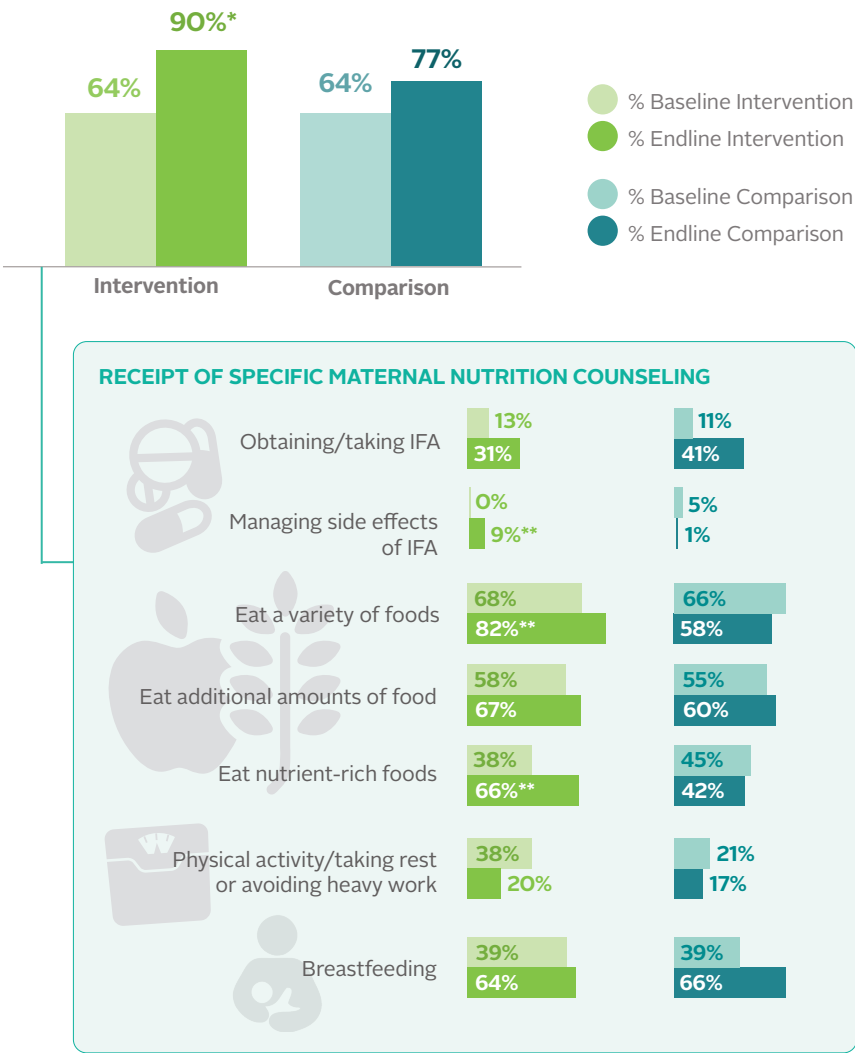
## Counseling through home visits

- Maternal nutrition counseling delivered through home visits increased significantly in the intervention group.
- Counseling on breastfeeding increased in both the intervention and the comparison groups during the research period. By endline about two-thirds of all women received breastfeeding counseling during a home visit.
- Among the topics discussed during nutrition counseling, a focus on eating a variety of foods and eating nutrient-rich foods increased significantly in the intervention area compared to the comparison area. Counseling on managing side effects of IFA also increased significantly but remained very low at less than 10%.

90% of RDW received maternal nutrition counseling during home visits<sup>†</sup>

<sup>†</sup> Reported by RDW from the intervention group at endline about their last pregnancy.

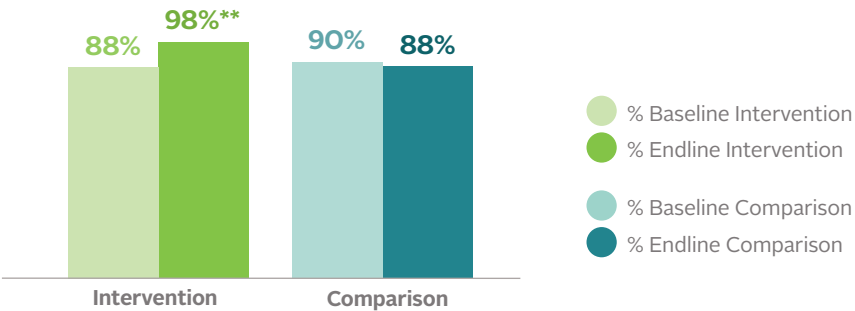
## Receipt of maternal nutrition counseling during home visits



## Counseling through GASPA

- Counseling on maternal nutrition was universal in the intervention group. It was also high in the comparison group where almost 90% were counseled.

## Receipt of maternal nutrition counseling during GASPA



\*P < 0.05; \*\* P < 0.01; \*\*\* P < 0.001

# FAMILY SUPPORT

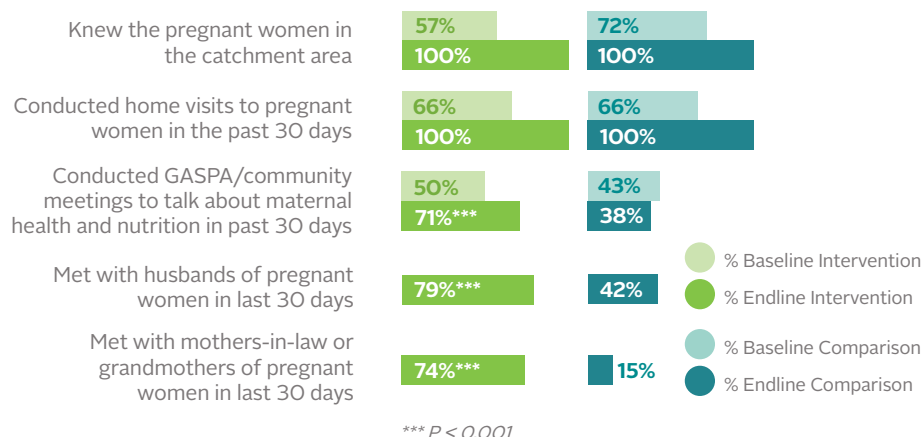
## Community mobilization for ANC

- There were large improvements over time and significant differences in the community support for maternal nutrition. At endline, all ASBCs in both groups reported that they knew the pregnant women in their catchment area and they conducted home visits in the past month.
- Significantly more ASBCs in the intervention group conducted GASPA/ community meetings on maternal nutrition, met with PW's husbands and mothers-in-law/grandmothers in the past month than in comparison group. ASBCs in the intervention area reached three-quarters of husbands and mothers-in-law or grandmothers.

## Supportive practices by family members

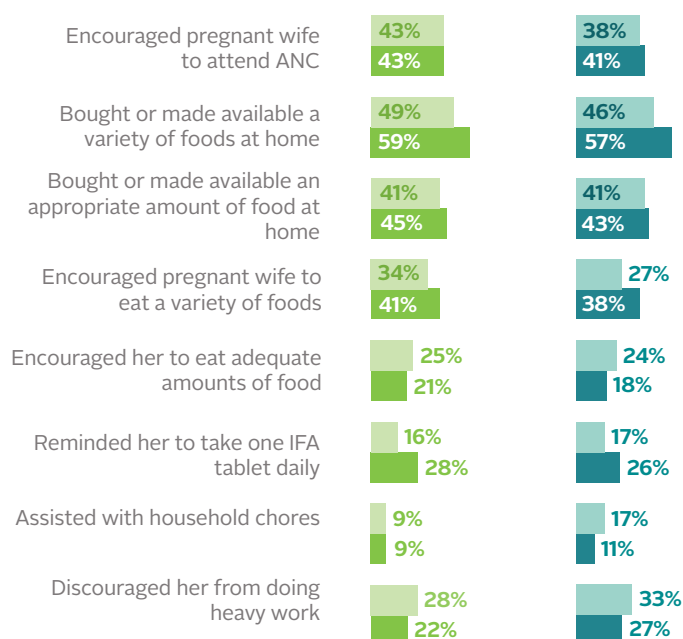
- Virtually all husbands in both the comparison and the intervention groups reported that they supported their pregnant wives.
- Husbands' support mainly consisted of making a variety and sufficient foods available, encouraging the pregnant wife to eat a variety of foods, and encouraging seeking ANC care.
- Fewer husbands reported reminding their pregnant wives to take IFA tablets, assisting with household chores, encouraging her to eat adequate amounts of foods, assisting with household chores or encouraging her to rest.

## ASBCs community support for maternal nutrition



**Nearly all husbands** in both intervention and comparison areas **provided support** to their wife during her last pregnancy.

## Types of support provided by husbands



# Conclusion

## KEY FINDINGS & OPPORTUNITIES FOR ACTION

1. Can the **coverage and utilization** of key maternal nutrition interventions be improved within the government ANC service delivery platforms?

**Yes, the coverage and utilization of key maternal nutrition interventions can be improved through health systems strengthening and social and behavior change communication (SBCC) approaches.** The study showed that it is feasible to integrate maternal nutrition interventions into the ANC services provided by the government health system in Burkina Faso and to increase the number of contacts with pregnant women. A&T's intervention significantly improved the percentage of women who attended 4+ ANC visits, early timing of the first ANC visit, and maternal nutrition contacts within the community.
2. What were the **impacts of the maternal nutrition intervention package** on the knowledge and practices of service providers and pregnant women?

**Consumption of IFA supplements, early initiation of breastfeeding, and exclusive breastfeeding all improved.** While the intervention package did not impact maternal diets, there were significant improvements in the numbers of IFA tablets consumed by pregnant women and their consumption of 180+ IFA tablets over time. EIBF increased by more than 25 percentage points in the intervention group, and by the endline more than 80 percent of RDW in the intervention group had exclusively breastfed their babies <6 months in the past 24 hours.
3. What **factors** influenced integration and strengthening of maternal nutrition interventions into the government ANC service delivery platform?

**Capacity of health workers to counsel and provide maternal nutrition.** Most of the nurse-midwives and ASBCs in the intervention group received training on maternal nutrition from A&T. Thus, nurse-midwives' knowledge about weight gain and IFA improved significantly over time in the intervention group, as did ASBCs' knowledge about maternal nutrition, weight gain, ANC visits and contacts, and IFA. As a result, the intervention improved the percentage of pregnant women who were counseled on maternal nutrition during ANC and on specific topics including: dietary diversity, food quantity, IFA, and weight gain. There were also large improvements over time in the intervention group for community maternal nutrition services provided by ASBCs, including home visits, holding GASPA meetings with pregnant women to talk about maternal nutrition, and meetings with husbands and mothers-in-law who traditionally have a great influence on maternal nutrition practices.

**Husbands' knowledge of maternal nutrition didn't translate into support for their pregnant wives.** Less than half of the husbands adopted positive practices including accompanying their wives to ANC, helping with transport, ensuring enough different types of foods at home, assisting with household chores, or encouraging their wives to rest and limit housework while pregnant. Social norms and cultural beliefs affect the adoption of behavioral recommendations and may require additional SBCC interventions.

**Spillover effects in the comparison areas potentially weakened the impacts and differences between groups.** There seemed to be some spillover of certain aspects of the program in the comparison areas. Even though the sample was randomized, this was unavoidable since the interventions involved strengthening the health system, which is interconnected beyond program sites' borders and lends itself to staff networking, co-learning, and movement of health workers. Given the extent of spillover, however, it is likely that this contributed to improvements observed at all levels in the comparison group and weakened the difference between program groups.

4. What are the **key takeaways** for future initiatives?

**Our study demonstrated that strengthening maternal nutrition service delivery and exposure was feasible through the ANC platform, with significant impact on some nutrition practices, even within less than a year of implementation.**

**A longer duration of implementation may be required to improve some maternal and child nutrition practices.** Maternal nutrition practices and behaviors that require complex tasks or equipment (e.g., weight gain measurement and monitoring) or shifting social norms, family support, or other behavioral determinants (aside from knowledge), require more time.

**Nurse-midwives need additional training in specific breastfeeding topics.** Nurse-midwives and ASBCs were very knowledgeable about EIBF and the fact that babies should be exclusively breastfed for six months, which may have translated into improved EIBF and EBF practices in the intervention group. Training nurse-midwives in detailed counseling messages that affect exclusive breastfeeding is advised.