BURKINA FASO RCT: MIDLINE RESULTS

DMI

EXECUTIVE SUMMARY

DMI is conducting a three-year randomised controlled trial in Burkina Faso, to test the proposition that a radio campaign focused on child health can reduce under-five mortality. This is the most rigorous trial ever conducted of a mass media health intervention. For details, visit www.developmentmedia.net.

Our endline results, which will measure mortality reductions by surveying 100,000 households, will be available in 2015. However we are now publishing our midline results, which provide an indication of the extent to which we have changed our target behaviours after 20 months of broadcasting. This independent survey was supervised by Professor Simon Cousens and Dr Sophie Sarrassat at the London School of Hygiene & Tropical Medicine, and is based on interviews with 5,000 mothers in our seven intervention zones and seven control zones. The table below summarises the coverage of 10 key behaviours at baseline and midline, in our control and intervention zones.

The results show that behaviours in the intervention zones have all improved (ranging from 9.3% to 25.5%). When changes in the control zones are subtracted from these results, the *difference in difference* is substantial (in the 8.5% to 23.3% range) in 6 out of 10 cases. This represents, even at this preliminary stage, the first randomised controlled trial to demonstrate that mass media can cause behaviour change. We expect the endline results to be stronger still.

Target behaviours	Control zones			Intervention zones			Difference in difference[1]
	Baseline	Midline	Change	Baseline	Midline	Change	
Sought treatment for diarrhoea at a clinic	57.8%	66.4%	8.6	44.9%	65.0%	20.1	16.0*
Received ORT or increased liquids for diarrhoea	42.0%	43.5%	1.5	32.4%	57.9%	25.5	23.3
Received antibiotics for pneumonia (fast/difficult breathing)	28.2%	38.7%	10.5	27.0%	45.2%	18.2	14.8*
Sought treatment for fever at a clinic	63.7%	72.4%	8.7	50.2%	65.9%	15.7	9.1*
Women sleeping under a bed net during pregnancy	65.6%	78.2%	12.6	62.5%	80.0%	17.5	3.4
Household ownership of latrines	21.0%	30.6%	9.6	24.3%	35.2%	10.9	2.3
Early initiation of breastfeeding (2 hours of birth)	45.3%	42.8%	-2.5	39.0%	49.4%	10.4	10.7
Exclusive breastfeeding aged 0 to 5 months	34.0%	48.1%	14.1	29.4%	41.6%	12.2	-1.8
Gave birth in a health facility or with skilled attendant	81.8%	93.3%	11.5	56.0%	65.3%	9.3	0.2*
Saved money for an emergency during pregnancy	62.8%	68.4%	5.6	56.4%	69.8%	13.4	8.5
Average (mean) behaviour change			**8.0**			**15.3**	**8.7**

There is a strong correlation between the intervention 'dose' (the number of weeks each message was broadcast) and the impact on behaviours, as the chart on the right indicates. This analysis is based on the 'difference in difference' between the intervention zones and control zones, showing that at higher doses of broadcasting, the difference in difference is larger.

When all of our messages are included in the dose analysis, the correlation co-efficient is 0.57.

An important outcome of these results is that we have been able to adjust the weight (and hence broadcast dose) given to each message for the rest of the trial.
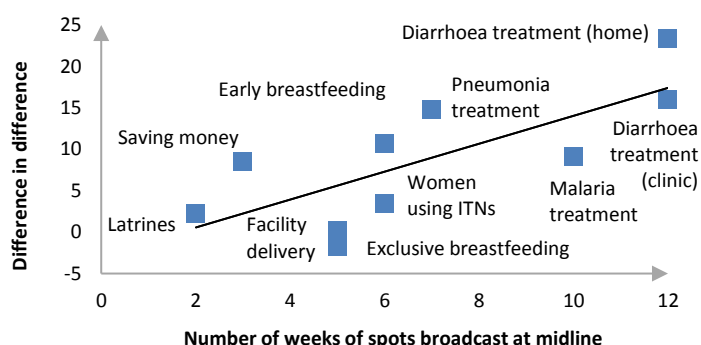
For more information, contact Will Snell, Director of Development, Development Media International
+44 (0)20 3058 1631 | will.snell@developmentmedia.net | www.developmentmedia.net

DMI

---

[1] There were significant discrepancies – arising from the randomisation process – in baseline mortality and behaviour coverage levels between the intervention and control zones. Mortality levels were higher, and behaviour coverage levels lower, in our intervention zones; there are also twice as many health centres in the control zones as in the intervention zones. Figures with asterisks are for facility-dependent behaviours, which have been adjusted for distance to a health facility. This adjustment was not necessary for household behaviours. All 'difference in difference' figures are based on cluster-level analysis. Our endline results will be adjusted for all potential confounders.

HOW TO READ THE RESULTS

The *graphs* show changes in the percentage coverage of key behaviours, comparing baseline with midline coverage levels in the control zones (green) and intervention zones (blue). The grey lines show 95% confidence intervals.

We have included one additional behaviour below in addition to the ten behaviours in the executive summary: 'treatment-seeking', which aggregates behaviours related to diarrhoea, pneumonia and malaria.

Below each graph is the difference in difference and corresponding p-value. These are based on cluster-level analysis (and thus differ from the 'crude' figures in the graphs). Facility-dependent behaviours have been adjusted for distance to a health facility; this was not necessary for household behaviours.
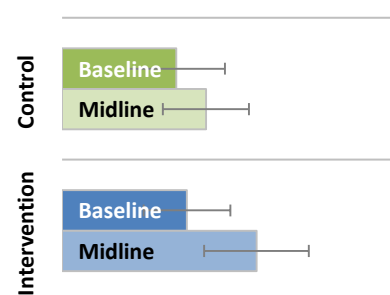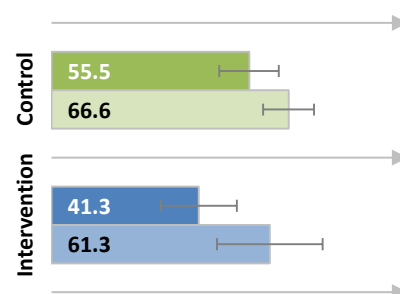

TREATMENT-SEEKING

Children taken to a health facility for any illness

Overall, the proportion of parents taking a sick child (with fever, cough, rapid breathing or diarrhoea) to receive treatment at a health facility increased by 20.0 percentage points in intervention zones, compared to 11.1 in control zones (a difference in difference of 8.9). Adjusted for proximity to a health centre, the difference in difference is 12.9.

This result is particularly important because of its contribution to our objective of reducing child mortality. Treatment-seeking behaviour is very important in this context, because it targets the three main causes of under-five deaths in Burkina Faso: malaria (22% of under-five deaths), pneumonia (13%) and diarrhoea (11%).
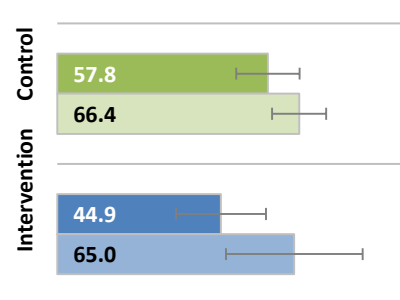

Adjusted difference in difference: 12.9 (p=0.063)

DIARRHOEA

Sought treatment for diarrhoea at a clinic

The proportion of parents taking children with diarrhoea to a health facility for treatment increased by 20.1 percentage points in our intervention zones, compared to 8.6 in our control zones (a difference in difference of 11.5). Adjusted for proximity to a health centre, the difference in difference is 16.0.

This indicates a positive relationship between our intervention and the treatment-seeking behaviour. Parents in intervention areas are significantly more likely to have changed this behaviour compared to parents in control areas.


Adjusted difference in difference: 16.0 (p=0.014)

Received ORT or increased liquids for diarrhoea

The number of parents providing oral rehydration therapy or salts, or increasing the liquid intake of children who had diarrhoea, increased by 25.5 percentage points in intervention zones, versus 1.5 in control zones (a difference in difference of 24.0). Analysed at cluster level, the difference in difference is 23.3. This has been a prominent message in our campaign. It is reassuring to see that the high

'dose' of messaging has led to a significant impact. We focused less on promoting oral rehydration salts in the first year, as these have only recently become widely available in Burkina Faso. However, promoting ORS alone showed a difference in difference of 12 between the behaviour change in intervention zones and control zones. ORS promotion is an important message for the remainder of our campaign in 2014 and early 2015.
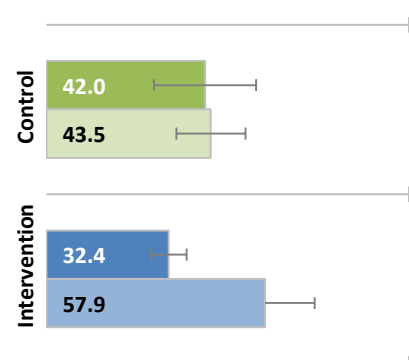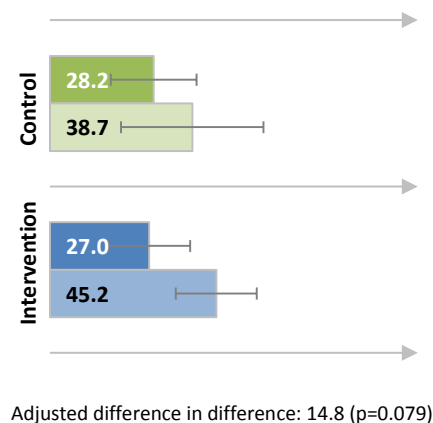

Difference in difference: 23.3 (p=0.012)

PNEUMONIA

Received antibiotics for pneumonia (fast/difficult breathing)

The number of children who received antibiotics for pneumonia symptoms (fast or difficult breathing) increased by 18.2 percentage points in the intervention zones, compared with 10.5 in the control zones (a difference in difference of 7.7). This is a very positive result despite the imbalance in access to health facilities between zones (at midline, 47% of women lived less than 2km from a health facility in control zones, compared to just 16% in the intervention zones).

Adjusted for proximity to a health centre, the difference in difference is 14.8. These results suggest a strong relationship between our intervention and the increased likelihood of children being treated with antibiotics for pneumonia. The proportion of parents seeking treatment for cough or fast/difficult breathing increased by 17.4 percentage points in intervention zones compared with 9.8 percentage points in control zones (an adjusted difference in difference of 10.3).

Control
28.2
38.7

Intervention
27.0
45.2

Adjusted difference in difference: 14.8 (p=0.079)

MALARIA

Sought treatment for fever at a clinic

The proportion of parents taking children with fever to a health facility for treatment increased by 15.7 percentage points in intervention zones, compared to 8.7 in control zones (a difference in difference of 7.0). Adjusted for proximity to a health centre, the difference in difference is 9.1. There is therefore a positive association between receiving our intervention and parents seeking treatment for a child with a fever. Malaria is the leading cause of post-neonatal child mortality in Burkina Faso. As a result, this is a very important message for mortality reduction, and will be a prominent message for the rest of our campaign.
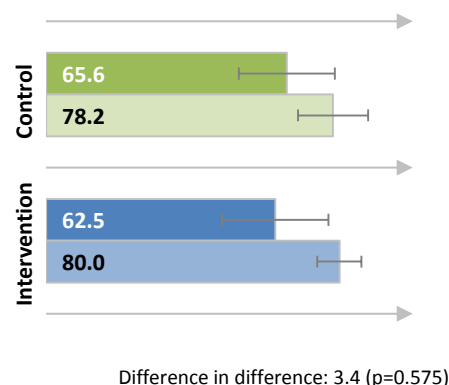
Control
63.7
72.4

Intervention
50.2
65.9
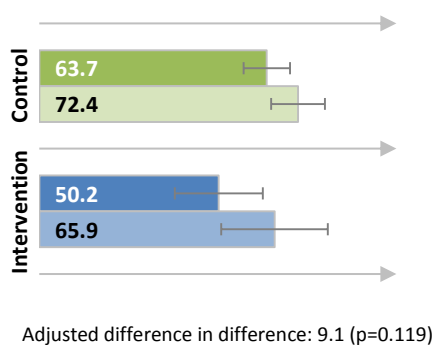
Adjusted difference in difference: 9.1 (p=0.119)

Women sleeping under a bed net during pregnancy

The proportion of women sleeping under an insecticide-treated bed net (ITN) during pregnancy increased by 17.5 percentage points in intervention zones, compared to 12.6 in control zones (a difference in difference of 4.9). Analysed at cluster level, the difference in difference is 3.4. A very important background trend is the almost universal household ownership of bed nets, which is a direct result of a national ITN distribution programme run by the Ministry of Health. The results of our midline survey indicate that this programme has been very successful: household ownership of ITNs was 95% at baseline in both intervention and control zones, leaving little room for improvement (the increase was 5% in intervention zones and 4% in control zones).

Control
65.6
78.2

Intervention
62.5
80.0

Difference in difference: 3.4 (p=0.575)

SANITATION AND HYGIENE

Household ownership of latrines

The proportion of households with a latrine increased by 10.9 percentage points in our intervention zones compared to 9.6 in our control zones (a difference in difference of 1.3). Analysed at cluster level, the difference in difference is 2.3. This result suggests that the considerable financial and practical barriers make it difficult to change this behaviour using a mass media intervention alone. This finding is borne out by our ongoing qualitative research programme in Burkina Faso. We have also been promoting hand washing, but an irregularity in data collection means that our midline results are not comparable to baseline. This issue will be corrected at endline.

Control
21.0
30.6

Intervention
24.3
35.2
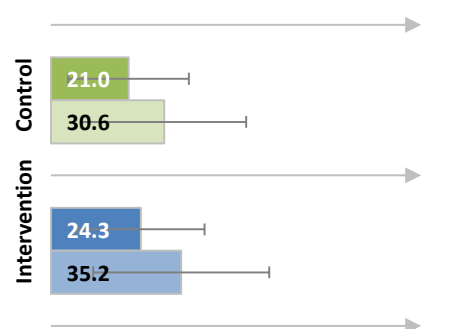
Difference in difference: 2.3 (p=0.713)

NUTRITION

Early initiation of breastfeeding (2 hours of birth)

The proportion of new mothers breastfeeding their babies within two hours of birth increased by 10.4 percentage points in our intervention zones, compared to a *reduction* of 2.5 percentage points in our control zones (a difference in difference of 12.9). Analysed at cluster level, the difference in difference is 10.7. This result suggests that being in the intervention arm is positively associated with mothers initiating breastfeeding early. In some ethnic groups in Burkina Faso women discard their first milk, because they believe that colostrum is 'bad' or 'dirty', and do not know about its health benefits for their baby. The midline results suggest that our messaging is beginning to reduce these barriers to behaviour change.

Control: 45.3, 42.8
Intervention: 39.0, 49.4

Difference in difference: 10.7 (p=0.171)
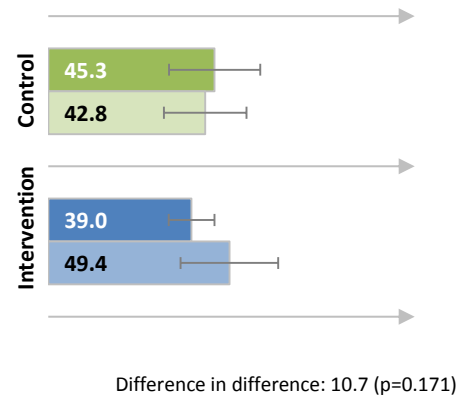
Exclusive breastfeeding aged 0 to 5 months

This is perhaps the most perplexing of all our results. Whilst the proportion of new mothers who were exclusively breastfeeding increased by 12.2 percentage points in our intervention zones, it increased by 14.1 points in control zones (a difference in difference of -1.9). Analysed at cluster level, the difference in difference is -1.8. If accurate, these results would represent a massive leap forward for Burkina Faso – according to DHS surveys, national levels were 19% in 2003 and 25% in 2010. So levels of 48% in our control groups need explaining. It may be due to the increased resources given to breastfeeding promotion by the Ministry of Health or NGOs. Or it may be that the small sample size (361 in intervention zones, 291 in control zones) means that the result is unreliable – certainly the statistical significance of the result is very low (p=0.813). Meanwhile, our qualitative research suggests that the impact of our ongoing campaign on exclusive breastfeeding may be subject to a time lag because of deep-rooted socio-cultural beliefs and practices, such as giving babies herbal 'tisanes'. We are conducting ongoing research to investigate this result.


Control: 34.0, 48.1
Intervention: 29.4, 41.6

Difference in difference: -1.8 (p=0.813)
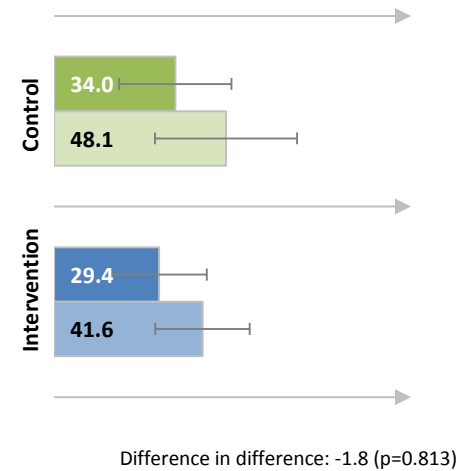
FACILITY DELIVERY

Gave birth in a health facility or with skilled attendant

The proportion of mothers giving birth in a health facility increased by 9.3 points in intervention zones, compared to 11.5 in control zones (a difference in difference of -2.2). Adjusted for proximity to a health centre, the difference in difference is 0.2. The difference in baseline levels between intervention and control zones (caused by the randomisation process) is striking. This was not a prominent message during the first 18 months of the campaign, and the low broadcast 'dose' may have reduced our impact. There remains significant room for improvement in the intervention zones, and we intend to increase the broadcasting dose during the remainder of the campaign.

Control: 81.8, 93.3
Intervention: 56.0, 65.3

Adjusted difference in difference: 0.2 (p=0.962)
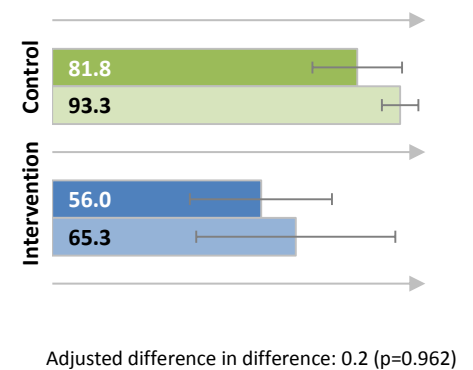
Saved money for an emergency during pregnancy

The proportion of parents reporting that they saved money during their last pregnancy increased by 13.4 percentage points in intervention zones, compared to 5.6 percentage points in control zones (a difference in difference of 7.8). Analysed at cluster level, the difference in difference is 8.5. Changing behaviours relating to financial habits is generally considered to be difficult. These findings, however, suggest there is a positive relationship between the intervention and parents saving money during pregnancy to help them care for their newborn child.

Control: 62.8, 68.4
Intervention: 56.4, 69.8

Difference in difference: 8.5 (p=0.033)