

DMI delivers mass media campaigns to change behaviours and improve healthcare outcomes in developing countries. It is the first media organisation to use scientific modelling in order to maximise impact and cost-effectiveness.

How mass media can increase healthy and health-seeking behaviours

Scientific evidence (from the 2003 Lancet Child Survival Series) suggests that two-thirds of under-five deaths could be avoided by increasing coverage of simple, existing interventions. Many people cannot recognise when their child has a dangerous illness, or do not know what to do about it, so many deaths are due to lack of knowledge rather than lack of healthcare services.

For example, in Uganda, malaria is the leading cause of under-five mortality, but only 10% of children sleep under bed nets. Diarrhoea is the second biggest cause of child deaths, but only 39% of children with diarrhoea receive oral rehydration and continued feeding. Mass media campaigns can generate dramatic increases in the uptake of these and other basic interventions.

Mass media campaigns are the most cost-effective and scalable way of increasing health outcomes, in two linked ways:

- Creating awareness and encouraging *healthy* behaviours (for household interventions, such as breastfeeding)
- Creating awareness and encouraging *health-seeking* behaviours (building demand for healthcare services)

Unlike health services, media campaigns can be taken to national scale rapidly and relatively cheaply, even in countries where healthcare service provision is weak. The main requirement is high media penetration. In most African countries over 75% of people regularly listen to radio or watch TV, and these numbers are increasing every year. It is possible to reach a target audience by broadcasting on a small number of popular stations (even if that audience is poor, rural women). Because of their ability to scale, mass media campaigns are over 100 times more cost-effective per person reached than community-level behaviour change interventions, such as street theatre or peer-group education.

Mass media campaigns can target multiple causes of child and maternal mortality, rather than focusing on a vertical intervention. In each case, the messages can be designed to raise awareness of the symptoms and to increase demand for commodities by encouraging treatment-seeking behaviour where appropriate. They can also encourage adherence to a treatment regime. A twelve-month radio campaign could focus on the following areas, one month at a time:

January:	Breastfeeding	April:	Pneumonia
February:	Water and sanitation	May:	Malaria
March:	Diarrhoeal diseases	June:	Ante-natal care

Radio and television spots are short, entertaining, and can be repeated hundreds of times. They can also be produced in all languages. Radio phone-in programmes are an excellent vehicle for maximum interactivity and audience-driven content. Their low production costs make them the most sustainable of all media formats (a phone-in show set up in Vietnam by DMI's CEO in 1998 is still the country's most popular radio youth programme today). By broadcasting on a number of national and local stations in several languages six times per day for a period of six months to three years, a mass media campaign can reach a large number of listeners, even in remote areas.

There is also scope for mass media campaigns to increase demand for commodities among healthcare providers. Campaigns can be specifically aimed at frontline healthcare workers (and may take other forms than adverts; for example, soap operas based in healthcare settings can motivate, inform and empower listeners at the same time).

Maximising the effectiveness of mass media campaigns

Despite their potential benefits, mass media health campaigns in developing countries have been run for decades with mixed results. Many have spent huge amounts of money on airtime and yet have failed to achieve lasting, measurable health impacts. There are three main reasons for this:

- They have not developed messages that address the cultural and practical barriers to behaviour change

- They have not selected the appropriate media partners and platforms to reach rural target audiences
- They have focused on a single issue, such as breastfeeding or malaria, and thus have failed to capitalise on the significant economies of scale derived from focusing on multiple causes of mortality among mothers and children

Three elements are needed to make a mass media health behaviour change campaign successful:

- **Scale.** Even a perfect set of media spots will fail if they are not broadcast frequently enough. But airtime is expensive, particularly when a campaign requires repeated waves of campaigning. The traditional advertising-based model of producing in a small production house and buying airtime is not only expensive but more importantly, once the money has been spent, no capacity has been built. A more cost-effective approach is to work with the Ministry of Health and to convert their priorities into a set of incentives for a country's own mass media institutions. Capacity-building and training is then bartered for airtime with local broadcasters: a win-win exchange. This formula has been successfully pioneered in 12 countries. A successful campaign focused on adverts (spots) should be broadcasting at least six spots per day for a sustained period in order to maximise its impact.
- **Message precision.** A campaign should be preceded by a robust research process, using focus groups and other qualitative techniques to understand what the target audience's key values are, and what the barriers are to behaviour change. This research should then be converted into creative outputs tailored to local values, culture and sensitivities, before being pre-tested using focus groups. Detailed audience research is necessary to ensure that messages are transmitted through the right media and at the right times to reach their target audience.
- **Rigorous monitoring and evaluation.** Baseline and endline surveys to measure impact. Ideally, concurrent comparison techniques (such as the use of randomised controls) should be used to provide a more robust attribution of impact to the campaign, although alternatives (such as measuring dose-response) can be effective.

Evidence from previous mass media behaviour change campaigns

The quality and size of the evidence base for the impact of mass media on health behaviours has been limited by the quality of evaluation designs in many cases. In particular:

- Evaluations are often limited to indicators focusing on reported or intended, rather than observed, behaviour
- Many evaluations collect data on trends in health behaviours, but few have looked at impact on health outcomes

As a result, it is often difficult to attribute behaviour change outcomes to a mass media campaign. Nonetheless, a 2001 Cochrane review concluded that “despite the limited information about key aspects of mass media interventions and the poor quality of available primary research, there is evidence that these channels of communication may have an important role in influencing the use of health care interventions.”

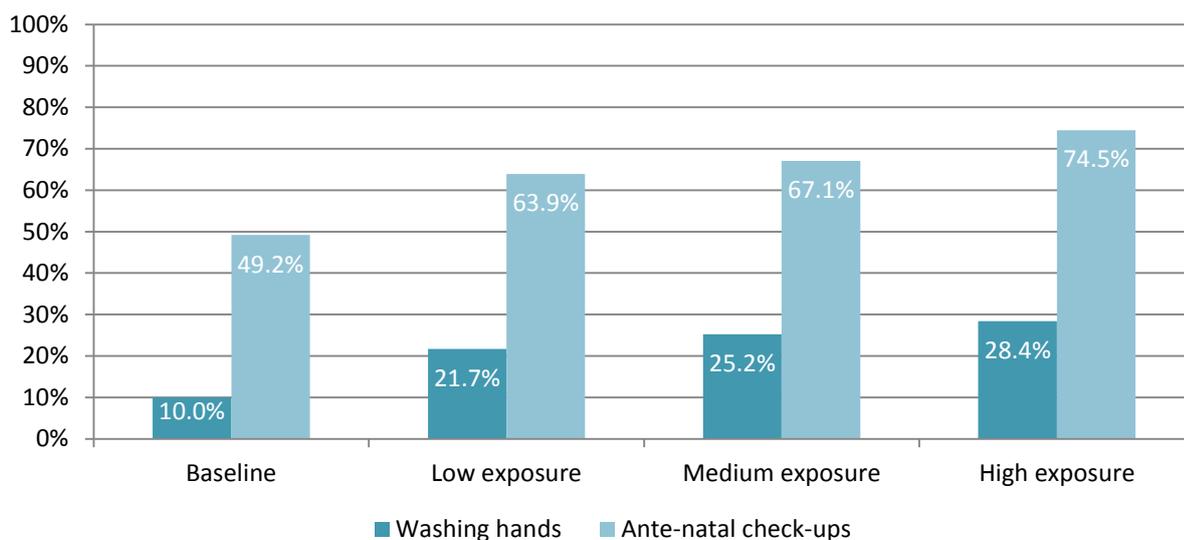
Campaigns run by DMI staff have used progressively more robust evaluation designs to measure impact. Many of our campaigns have demonstrated dramatic increases in the uptake of many basic interventions, and in knowledge that will lead to health-seeking behaviours where appropriate. For example:

Country	Year	Campaign	Indicator	Type	Baseline	Endline
Brazil	2006	Tuberculosis	Laboratory tests for TB (nationwide over three months)	Observed	266,016	335,991
Brazil	2003	Leprosy	Calls to leprosy hotline (nationwide over one month)	Observed	380	10,501
Cambodia	2006	MCH	Pregnant women using iron supplements	Reported	10%	44%
Cambodia	2006	MCH	Pregnant women attending ante-natal check-ups	Reported	63%	76%
Cambodia	2006	MCH	Parents who treated children with ORS for diarrhoea	Reported	25%	31%
Cambodia	2006	MCH	Pregnant women planning to use midwives	Reported	49%	63%
Cambodia	2006	MCH	Awareness of danger signs of ARIs	Reported	10%	40%
Cambodia	2006	MCH	Parents taking children for ARI treatment	Reported	51%	70%
Cambodia	2006	MCH	Condom usage at last sexual intercourse	Reported	56%	65%
Orissa	2009	MCH	Women planning to give birth in a health facility	Reported	76%	91%

We also have a strong body of evidence for changing behaviours and attitudes related to health:

Country	Year	Campaign	Indicator	Type	Baseline	Endline
India	1990	Leprosy	People unwilling to sit beside person with leprosy	Reported	47%	27%
Nepal	2003	Trachoma	Children observed with clean hands	Observed	67%	90%
Nepal	2003	Trachoma	Households reporting eye problems within last year	Reported	64%	29%
Ethiopia	2005	Trachoma	Children observed with dirty hands	Observed	74%	26%
Ethiopia	2005	Trachoma	Children observed with ocular discharge (no antibiotics)	Observed	72%	52%
Ethiopia	2005	Trachoma	Trachoma prevalence in areas receiving no antibiotics	Observed	51%	16%
Cambodia	2006	MCH	Parents reporting washing children's hands	Reported	10%	25%
Cambodia	2006	MCH	Awareness of need to breastfeed within an hour of birth	Reported	38%	67%
Orissa	2009	MCH	Mothers initiating breastfeeding within an hour of birth	Reported	77%	91%

We also have evidence of a ‘dose-response’ relationship, showing that people with higher exposure to the campaign exhibit higher rates of the targeted behaviours. This helps us to attribute impact to the campaigns themselves, rather than to other factors. Two examples from previous DMI campaigns are given below. Both are from a DMI maternal and child mortality campaign in Cambodia in 2006. They show the percentage of parents reporting washing their children’s hands to prevent diarrhoea, and the percentage of women reporting attendance of ante-natal check-ups.



However, until now, it has not been possible to estimate the direct impact on health outcomes, rather than behaviour change. In order to address this, DMI has worked with the London School of Hygiene and Tropical Medicine to produce a mathematical model, based on the 2003 and 2005 Lancet Child Survival Series, which allows us to predict and measure how many lives can be saved through mass media campaigns. The model combines the Child Survival Series data on intervention coverage and the impact of increasing interventions in each country (updated) with DMI’s evidence base for the impact of behaviour change campaigns (as outlined above). It has been peer-reviewed by the Wellcome Trust and will be published in the Lancet later in 2012.

The model predicts that a sustained, multi-disease campaign in a given country will reduce childhood mortality by 10 to 20% per year by year three. For example, this would reduce the number of children dying under the age of five every year in Angola from 165,000 to 138,000. The table below provides example data for a range of African countries:

Country	Child deaths (pa) ¹	Media penetration ²	Lives saved (pa) ³	Reduction in mortality ⁴	Cost/DALY ⁵
Angola	165,000	80%	26,919	16.3%	\$3.49
DRC	465,000	45%	50,834	10.9%	\$1.70
Ethiopia	321,000	28%	21,619	6.7%	\$4.20
Malawi	68,000	78%	9,591	14.1%	\$9.59
Mali	100,000	75%	16,437	16.4%	\$5.56
Mozambique	114,000	74%	12,723	11.2%	\$8.11

The model demonstrates that mass media campaigns are the most cost-effective of ALL currently available public health interventions. We worked with Professor Anne Mills, one of the world's leading health economists, to compare the cost of our campaigns (per 'disability-adjusted life year' saved, or DALY) to other interventions. The results were dramatic. The cheapest previous intervention (DCPII) was childhood immunisations (\$8 per DALY in Africa, \$16 in Asia). DOTS treatment for TB costs \$8-\$263; bednets for malaria cost \$2-\$24; antiretroviral treatment costs \$673-\$1494. Our campaigns cost just \$1-\$10 per DALY⁶.

The model also allows us to predict the impact on mortality of each message in each country. The data for DRC, for example, in terms of the predicted number of child deaths averted per year, is given below:

Intervention	Message	Lives saved ⁷
Breastfeeding	Exclusive breastfeeding for six months, continue for 24 months	6,088
Insecticide-treated bednets	Use bednets for the whole family, especially mother and baby	4,669
Extra care for low birth-weight infants	Feed small babies more often, keep them warm, avoid bathing	3,676
Oral rehydration therapy / ORS	Continue feeding and provide appropriate fluids	11,379
Antibiotics for pneumonia	Know danger signs of ARIs and seek treatment	2,859
Antimalarials	Recognise symptoms and seek treatment	5,212

We are now running a \$12m, five-year cluster-randomised controlled trial in Burkina Faso, funded by the Wellcome Trust and Planet Wheeler Foundation, to measure the impact on child mortality of mass media campaigns, and to test the predictions of our model. The trial uses radio broadcasts to change behaviours in order to improve child survival, covering a range of health issues as outlined above, and is the largest, most rigorous evaluation ever conducted of a mass media intervention. It will generate a substantial body of further evidence for the impact of mass media campaigns on a range of behaviours, including those linked to demand for healthcare services, and on child mortality. Midline results (on behaviour change) are expected in late 2013, with full endline data (including child mortality outcomes) being published in 2015. If lives are saved on the scale that the model predicts, this approach should become a high priority for governments across the developing world. If similar five-year campaigns are implemented in ten African countries, the model predicts that one million lives should be saved. This process would, for the first time, place mass media campaigns in the mainstream of public health interventions, based on robust scientific evidence.

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¹ Total number of under-five deaths in 2008. Source: Countdown to 2015.

² Percentage of men and women (averaged) who listen to the radio or watch television at least once a week. Source: DHS (year varies by country).

³ Number of child (under-five) lives we expect to save each year by running a campaign, from the third year of a campaign onwards. Source: DMI.

⁴ Reduction in under-five mortality rate from the third year of a campaign onwards. Source: DMI.

⁵ Cost per disability-adjusted life year. Source: DMI.

⁶ The model takes existing service provision into account when calculating the impact of behaviour changes that depend on services; so any increases in service provision (including greater availability of life-saving products) will further extend our impact.

⁷ Predicted number of lives saved, according to the DMI-LSHTM model, assuming one message only. When messages are aggregated, the model avoids double-counting of lives saved through different causes.