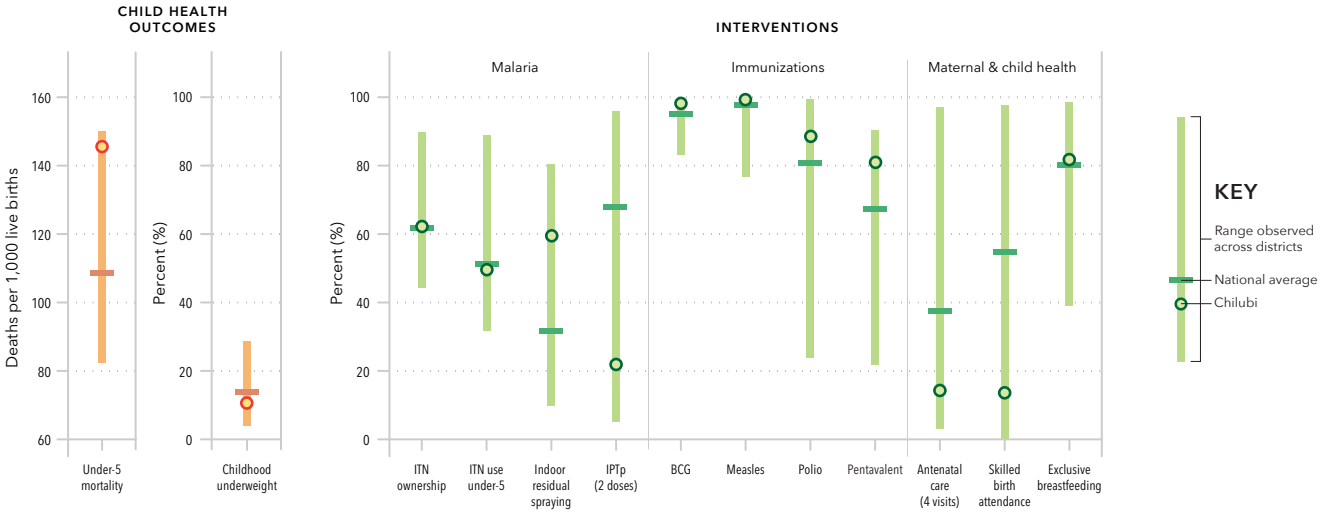
Northern province

Chilubi



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

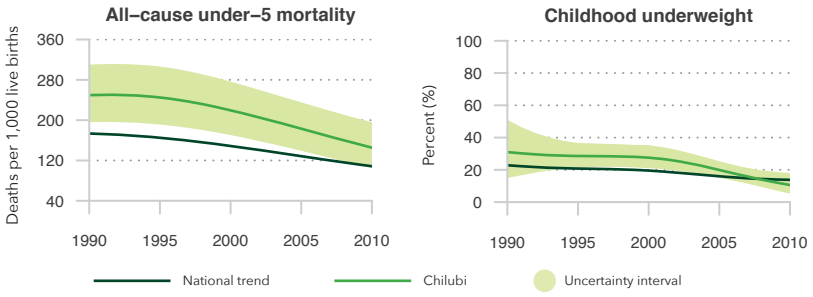
Chilubi substantially reduced all-cause under-5 mortality and childhood underweight between 1990 and 2010, but its mortality levels remained among the highest in the country in 2010. Prioritizing ways to further accelerate gains for child health outcomes should be considered.

The district scaled up IRS coverage to some of the highest levels in Zambia, and successfully increased pentavalent coverage above the national average in 2010. High levels of BCG and measles coverage were maintained, and polio immunization exceeded the national average starting in the late 2000s. Exclusive breastfeeding rose to levels comparable to the national average in 2010.

However, amidst these gains, several worrisome trends were identified and warrant further attention. ITN coverage declined in 2010, and IPTp2 coverage fell sharply to some of the lowest levels in Zambia. Skilled birth attendance remained very low from 1990 to 2010, and ANC4 steadily decreased to some of the lowest levels of coverage in the country during the late 2000s.

In 2010, Chilubi generally met or exceeded national levels for immunizations and malaria interventions (with the clear exception of IPTp2), but equaled or fell below for maternal and child health interventions. In comparison with the national average, Chilubi showed much higher levels of mortality and lower levels of childhood underweight.

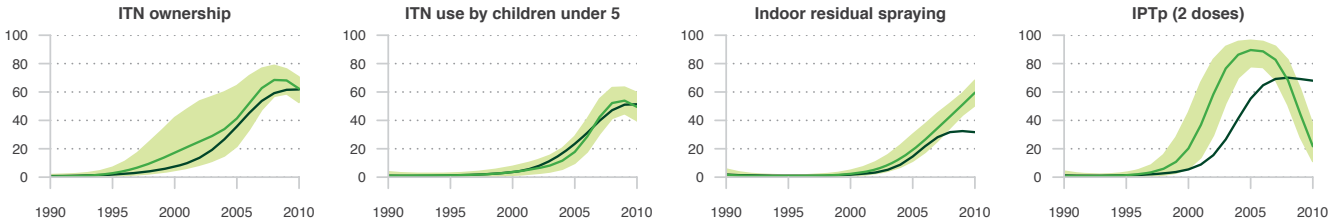
CHILD HEALTH OUTCOMES



From 1990 to 2010, Chilubi recorded a significant reduction in all-cause under-5 mortality, dropping 42% from 250 deaths per 1,000 live births in 1990 (95% CI: 198, 308) to 146 in 2010 (95% CI: 108, 194). In 2010, the district's under-5 mortality remained much higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116) and was among the highest in Zambia. However, it is important to note that the gap between Chilubi's level of under-5 mortality and the national level has decreased since 1990.

The proportion of children who were underweight substantially declined from 31% in 1990 (95% CI: 16%, 50%) to 11% in 2010 (95% CI: 6%, 17%), which was lower than the national average of 14%. Chilubi's reduction in underweight is particularly notable given that its prevalence of childhood underweight was higher than the national average in 1990.

MALARIA INTERVENTIONS



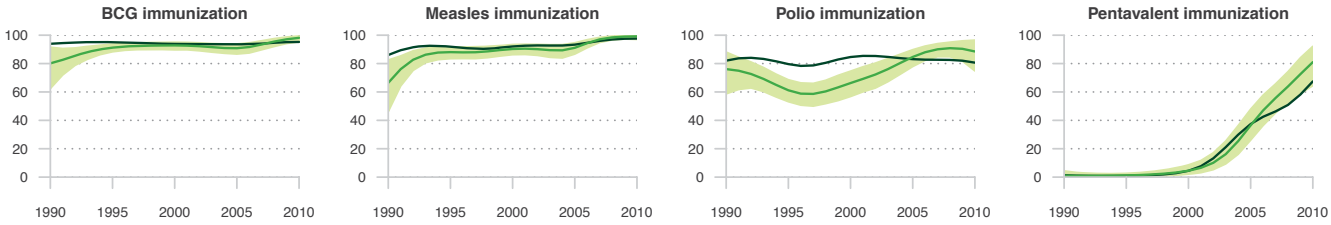
ITN ownership remained under 10% until 1998, after which coverage rapidly increased to 68% in 2008 (95% CI: 57%, 79%). Ownership slipped to 62% in 2010 (95% CI: 53%, 70%), equaling the national average for that year.

ITN use by children under 5 years old quickly rose to 54% in 2009 (95% CI: 45%, 63%) before dropping to 50% in 2010 (95% CI: 40%, 60%). This level of ITN use was similar to the national average of 51% for 2010. The difference between ITN ownership and use (12 percentage points) in Chilubi was comparable to what was observed at the national level for 2010.

Chilubi formally implemented IRS activities in 2008, and reached 60% of households in 2010 (95% CI: 50%, 68%). This scale-up of IRS was on the higher end as compared to other districts that also began IRS in 2008. Further, Chilubi recorded one of the highest levels of IRS in Zambia for 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 1999, after which coverage rapidly increased to 90% in 2005 (95% CI: 78%, 96%). IPTp2 coverage fell as quickly as it rose, declining to 22% in 2010 (95% CI: 11%, 37%), among the lowest in Zambia. The district's steep decrease in IPTp2 coverage is cause for concern.

IMMUNIZATIONS



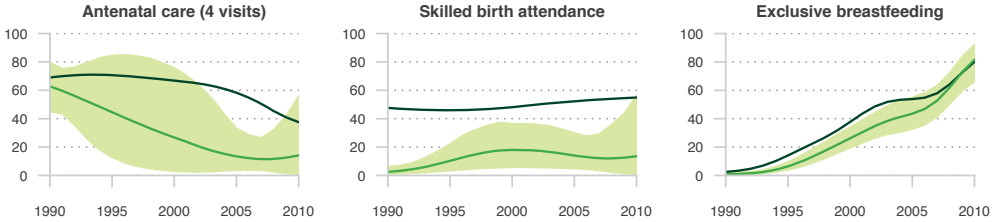
BCG coverage generally increased between 1990 and 2010, rising from 80% in 1990 (95% CI: 62%, 91%) to 98% in 2010 (95% CI: 95%, 99%). This level of BCG immunization was higher than the national average of 95% in 2010.

Measles immunization increased from 66% in 1990 (95% CI: 46%, 83%) to 99% in 2010 (95% CI: 97%, 100%), slightly exceeding the national average of 98%.

Coverage of polio immunization dropped from 76% in 1990 (95% CI: 59%, 88%) to 59% in 1996 (95% CI: 51%, 66%) before rising to 91% in 2008 (95% CI: 85%, 95%). Polio coverage decreased slightly to 89% in 2010 (95% CI: 75%, 97%), but remained higher than the national average of 81%.

After the pentavalent vaccine was formally introduced in Chilubi in 2005, coverage increased to 47% in 2006 (95% CI: 36%, 58%) and 81% in 2010 (95% CI: 64%, 92%), exceeding the national average of 67% for 2010.

MATERNAL AND CHILD HEALTH INTERVENTIONS

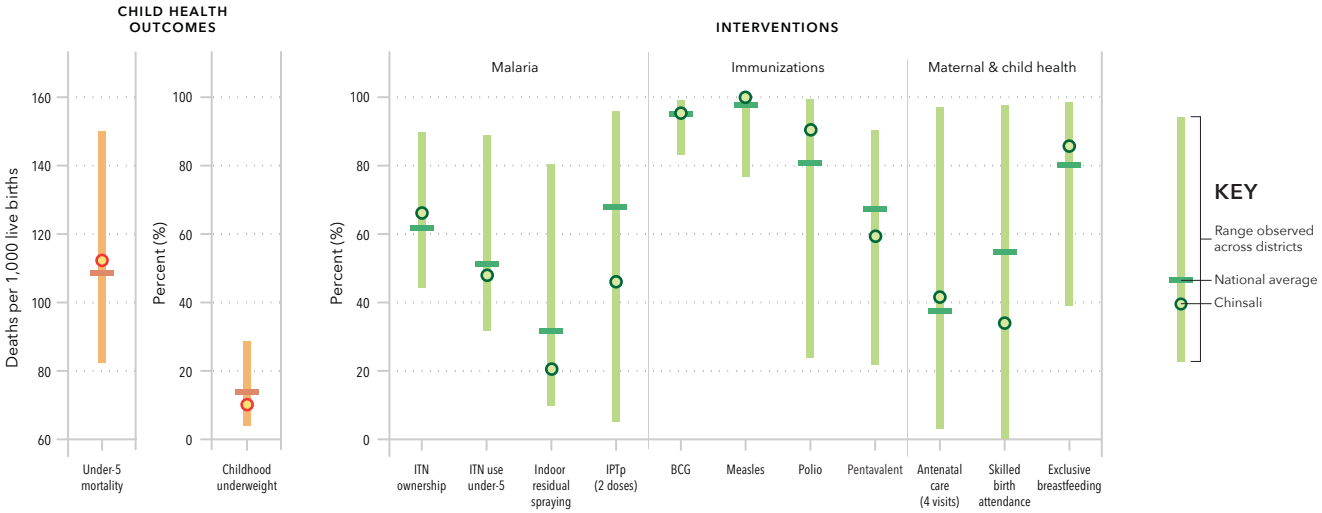


ANC4 coverage decreased from 63% in 1990 (95% CI: 45%, 80%) to 12% in the mid-2000s. Coverage slightly increased to 14% in 2010 (95% CI: 1%, 56%), but remained among the lowest in Zambia. The finding that Chilubi's levels of coverage fell 49 percentage points between 1990 and 2010 is troubling.

Skilled birth attendance steadily increased from 2% in 1990 (95% CI: 1%, 6%) to 18% in the early 2000s, after which coverage fell slightly to 12% during the late 2000s. SBA coverage rose to 14% in 2010 (95% CI: 1%, 56%), which remained below the national average of 55%. Chilubi's consistently low levels of SBA coverage are cause for concern.

The proportion of children who were exclusively breastfed remained below 20% until 1999, after which coverage increased to 82% in 2010 (95% CI: 66%, 92%). This level of coverage was comparable to the national average of 80% for 2010.

Chinsali



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

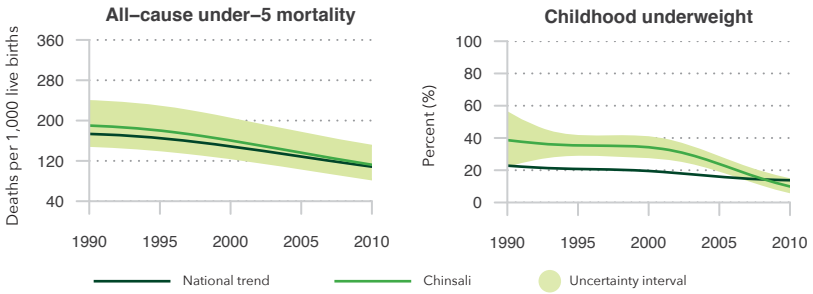
Chinsali substantially reduced all-cause under-5 mortality and childhood underweight from 1990 to 2010, but its levels of under-5 mortality remained slightly higher than the national average in 2010. More progress was made for childhood underweight, especially given the district's high levels in 1990. Prioritizing ways to further accelerate gains for child health outcomes, especially under-5 mortality, should be considered.

The district expanded ITN ownership to national levels in 2010, and also scaled up coverage of exclusive breastfeeding to levels comparable to the national average. Chinsali recovered from dips in vaccine coverage, increasing BCG, measles, and polio immunization to or above the national average in 2010. Further, Chinsali recorded one of the highest levels of measles coverage in Zambia for 2010.

However, amidst these gains, some troubling trends were identified and warrant further attention. IPTp2 coverage substantially decreased from its peak in 2006, and Chinsali's scale-up of the pentavalent vaccine consistently lagged behind the national trend. Despite small gains in coverage, skilled birth attendance and ANC4 remained quite low in 2010.

In 2010, Chinsali generally met or exceeded national levels for immunizations (with the exception of the pentavalent vaccine) and maternal and child health interventions (excluding skilled birth attendance). For malaria interventions, the district had a more mixed performance. In comparison with the national average, Chinsali showed slightly higher levels of mortality and lower levels of underweight.

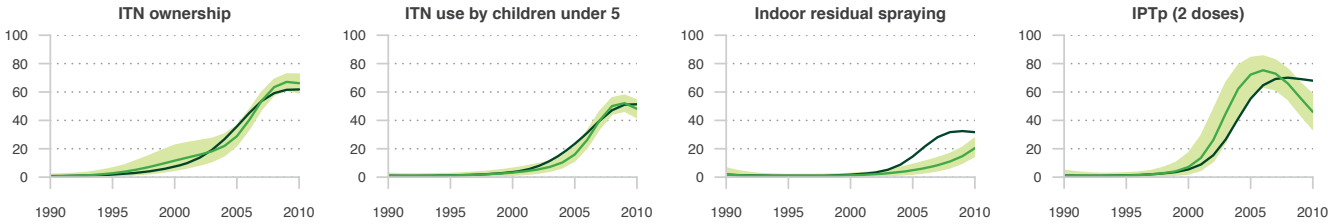
CHILD HEALTH OUTCOMES



From 1990 to 2010, Chinsali recorded a significant reduction in all-cause under-5 mortality, dropping 41% from 190 deaths per 1,000 live births in 1990 (95% CI: 150, 239) to 112 in 2010 (95% CI: 83, 150). In 2010, the district's under-5 mortality remained slightly higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116).

The proportion of children who were underweight substantially decreased from 39% in 1990 (95% CI: 23%, 56%) to 10% in 2010 (95% CI: 6%, 14%), which was lower than the national average of 14%. Chinsali's progress is particularly notable given how high its prevalence of underweight was in the 1990s.

MALARIA INTERVENTIONS



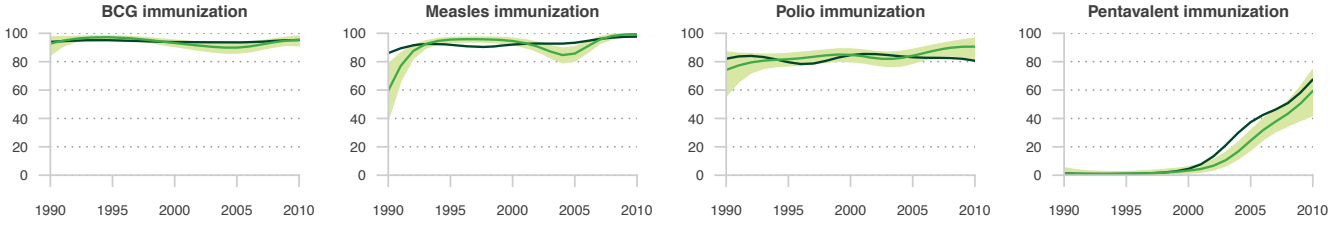
ITN ownership remained below 10% until 2000, after which coverage quickly increased to 67% in 2009 (95% CI: 61%, 73%). Ownership slightly slipped to 66% in 2010 (95% CI: 59%, 73%), but remained above the national average of 62%.

ITN use by children under 5 years old rapidly increased to 52% in 2009 (95% CI: 47%, 58%), but dropped slightly to 48% in 2010 (95% CI: 42%, 54%). This level of ITN use was marginally lower than the national average of 51% for 2010. The difference between ITN ownership and use (18 percentage points) was higher in Chinsali than what was observed at the national level (11 percentage points) for 2010.

Chinsali formally implemented IRS activities in 2010, and reached 20% of households that year (95% CI: 15%, 27%). This scale-up of IRS was on the lower end in comparison with the other districts that also began IRS in 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2001, after which coverage rapidly increased to 75% in 2006 (95% CI: 63%, 85%). IPTp2 coverage steadily fell to 46% in 2010 (95% CI: 34%, 58%), which was well below the national average of 68%. The district's recent declines in IPTp2 coverage are cause for concern.

IMMUNIZATIONS



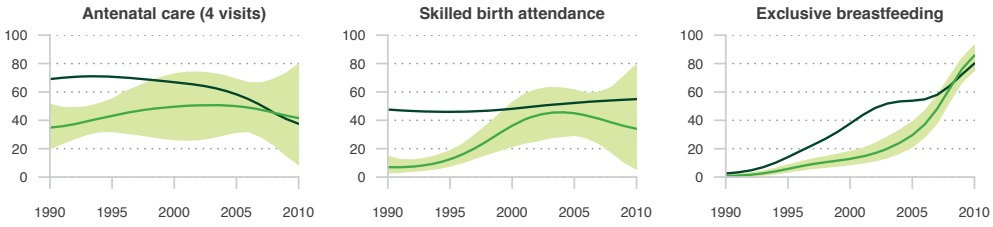
BCG immunization increased to 97% in the mid-1990s before declining to 90% in the mid-2000s. Coverage then rose to 95% in 2010 (95% CI: 91%, 98%), equaling the national average for that year.

Measles immunization quickly increased from 60% in 1990 (95% CI: 39%, 78%) to 96% in the mid- to late 1990s. Coverage dipped below 90% during the mid-2000s, but climbed to 100% in 2010 (95% CI: 98%, 100%), rising to among the highest in Zambia for 2010.

Coverage of polio immunization steadily rose from 74% in 1990 (95% CI: 56%, 87%) to 85% in 1999 and 2000. Polio coverage briefly fell to 82% in the mid-2000s, but increased to 91% in 2009 (95% CI: 83%, 95%). This level of coverage was sustained through 2010, far exceeding the national average of 81%.

After the pentavalent vaccine was formally introduced in Chinsali in 2005, coverage increased to 38% in 2007 (95% CI: 31%, 46%) and 59% in 2010 (95% CI: 42%, 74%). This level of pentavalent coverage was lower than the national average of 67% for that year.

MATERNAL AND CHILD HEALTH INTERVENTIONS

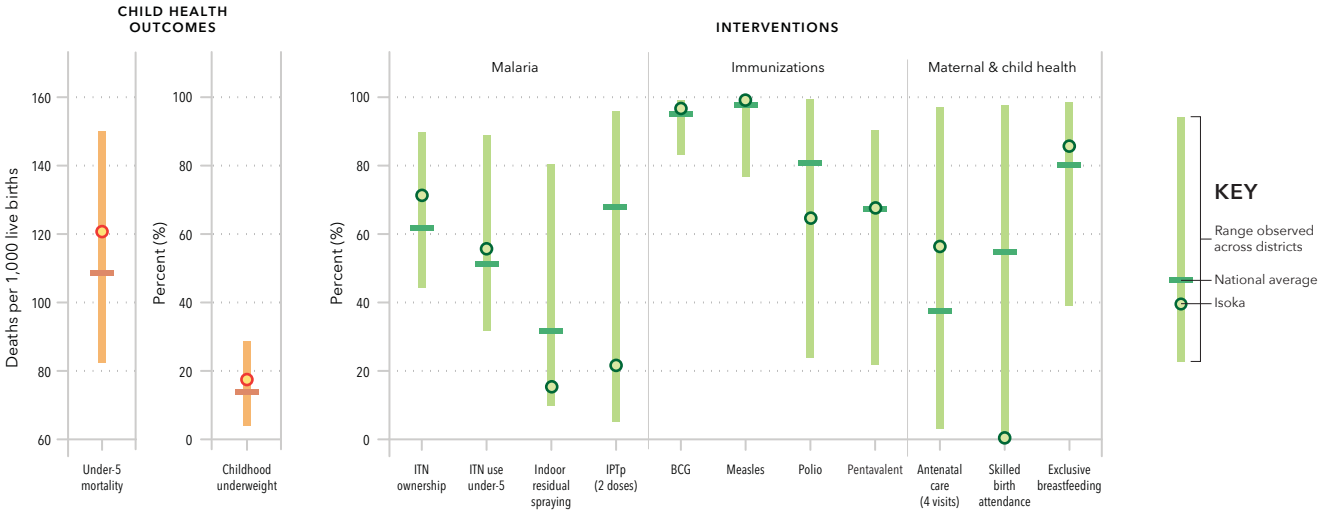


ANC4 coverage gradually increased from 35% in 1990 (95% CI: 20%, 51%) to 50% in the early 2000s, after which coverage slowly declined to 42% in 2010 (95% CI: 9%, 80%). While ANC4 coverage in Chinsali was higher than the national average of 37% in 2010, its levels remained lower than optimal.

Skilled birth attendance substantially increased from 7% in the early 1990s to 46% in 2004 (95% CI: 29%, 63%), but then declined to 34% in 2010 (95% CI: 6%, 79%), falling below the national average of 55%. Chinsali's marginal progress in improving SBA over time is worrisome.

The proportion of children who were exclusively breastfed remained below 20% until 2003, after which coverage rapidly increased to 86% in 2010 (95% CI: 75%, 93%), exceeding the national average of 80%.

Isoka



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

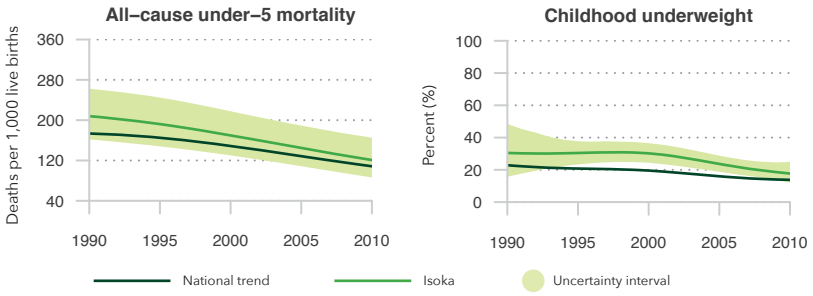
Isoka substantially reduced all-cause under-5 mortality and childhood underweight from 1990 to 2010, but both child health outcomes remained above the national average in 2010. Prioritizing efforts to further accelerate gains for child health outcomes should be considered.

The district recorded an impressive scale-up of ITNs and did so without seeing declines in 2010. After a slight decrease in coverage during the mid-2000s, BCG and measles immunization rebounded to high levels in 2010. Isoka's scale-up of the pentavalent vaccine closely followed the national trend, and the district consistently recorded high levels of exclusive breastfeeding since the late 2000s.

However, amidst these gains, some troubling trends were identified and warrant further attention. The district's scale-up of IPTp2 was minimal, and polio coverage fell in recent years. After steady gains, ANC4 coverage dropped during the late 2000s. Isoka's extremely low levels of SBA coverage are of greatest concern, as it appeared that few, if any, women delivered with a skilled birth attendant in 2010.

In 2010, Isoka generally met or exceeded national levels for immunizations (except for polio immunization) and maternal and child health interventions (with the clear exception of skilled birth attendance). For malaria interventions, the district had a more mixed performance. In comparison with the national average, Isoka showed higher levels of mortality and underweight.

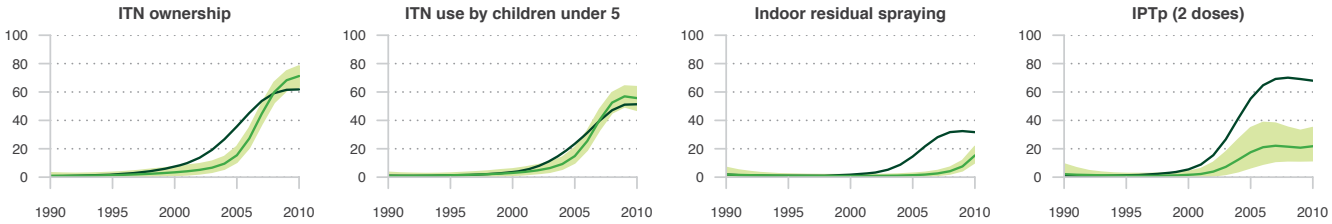
CHILD HEALTH OUTCOMES



From 1990 to 2010, Isoka recorded a significant reduction in all-cause under-5 mortality, dropping 42% from 208 deaths per 1,000 live births in 1990 (95% CI: 164, 260) to 121 in 2010 (95% CI: 88, 163). In 2010, the district's under-5 mortality remained well above the national average of 109 deaths per 1,000 live births (95% CI: 104, 116).

The proportion of children who were underweight decreased from 30% in 1990 (95% CI: 16%, 48%) to 18% in 2010 (95% CI: 13%, 24%); nonetheless, this level of underweight remained above the national average of 14% for that year.

MALARIA INTERVENTIONS



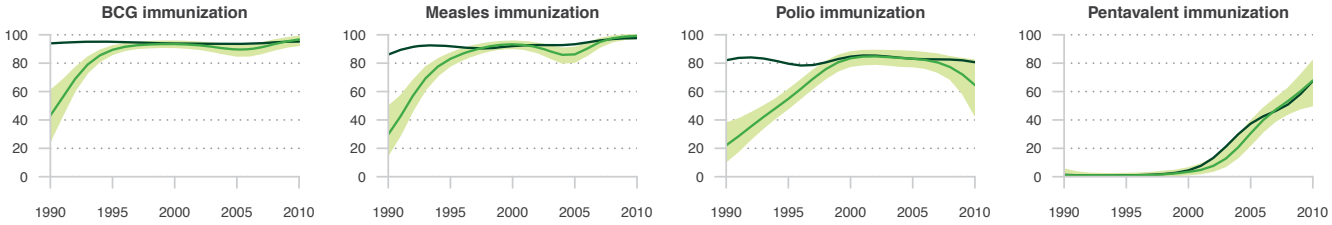
ITN ownership remained below 10% until 2004, after which coverage quickly rose to 71% in 2010 (95% CI: 63%, 78%), exceeding the national average of 62%. Isoka's rapid increase in ITN ownership is notable given that the district's initial scale-up lagged well behind the national trend.

ITN use by children under 5 years old increased to 57% in 2009 (95% CI: 50%, 64%), but slipped to 56% in 2010 (95% CI: 47%, 64%). This level of ITN use remained higher than the national average of 51% in 2010. The difference between ITN ownership and use (15 percentage points) was higher than what was observed nationally (11 percentage points) for 2010.

Isoka formally implemented IRS activities in 2010, and reached 15% of households that year (95% CI: 10%, 22%). This scale-up of IRS was on the lower end compared to other districts that also began IRS in 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2004, after which coverage rose to 22% in 2007 (95% CI: 11%, 38%). Gains in IPTp2 stalled, with coverage slipping to 21% in 2008 and 2009 before returning to 22% in 2010 (95% CI: 12%, 35%), which was among the lowest in Zambia for that year. Isoka's marginal scale-up of IPTp2 coverage is cause for concern.

IMMUNIZATIONS



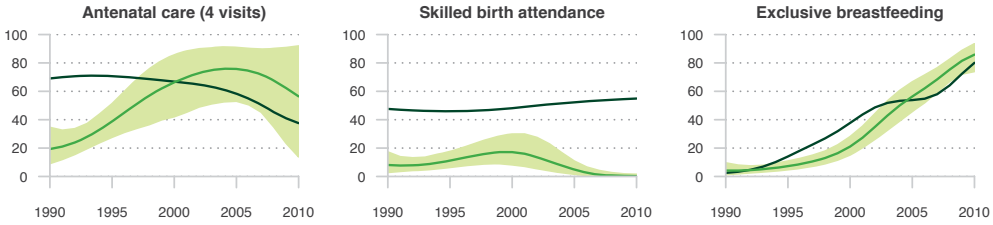
BCG coverage substantially increased from 43% in 1990 (95% CI: 25%, 61%) to 97% in 2010 (95% CI: 93%, 99%), which exceeded the national average of 95% for that year.

Measles immunization rapidly increased from 30% in 1990 (95% CI: 15%, 49%) to 93% in the early 2000s. Coverage slipped below 90% in the mid-2000s, but rose to 99% in 2009 (95% CI: 97%, 100%) and remained at 99% through 2010. This level of measles coverage was slightly higher than the national average of 98% for 2010.

Coverage of polio immunization quickly climbed from 22% in 1990 (95% CI: 11%, 38%) to 85% in the early 2000s. Polio coverage remained slightly above 80% until 2007, after which coverage dropped to 65% in 2010 (95% CI: 43%, 82%) and fell below the national average of 81%.

After the pentavalent vaccine was formally introduced in Isoka in 2005, coverage increased to 40% in 2006 (95% CI: 32%, 48%) and 68% in 2010 (95% CI: 50%, 82%), which was comparable to the national average of 67% for 2010.

MATERNAL AND CHILD HEALTH INTERVENTIONS

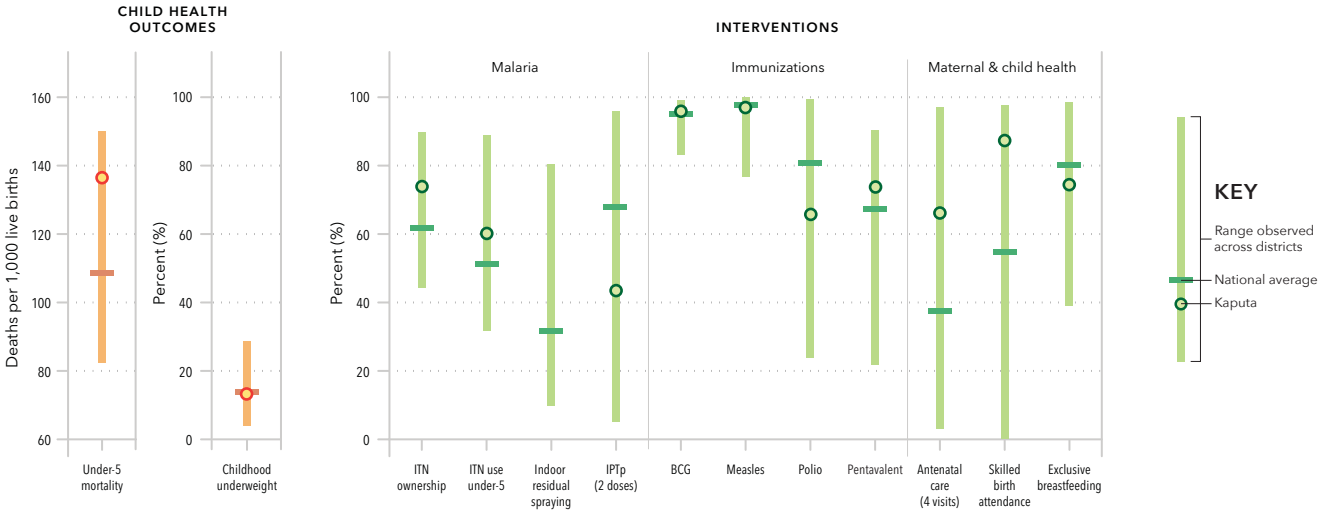


ANC4 coverage increased from 19% in 1990 (95% CI: 9%, 35%) to 76% in 2004 (95% CI: 53%, 91%), but decreased to 56% in 2010 (95% CI: 14%, 92%). While coverage in Isoka was higher than the national average of 37% for 2010, its ANC4 levels remained lower than optimal.

Skilled birth attendance rose above 10% in 1994, reaching 17% in 1999 (95% CI: 9%, 29%), but dropped to just over 0% in 2010 (95% CI: 0%, 2%), which was among the lowest in Zambia for that year. Isoka's extremely low levels of SBA coverage, especially in the late 2000s, are worrisome. Immediately addressing this serious service delivery gap should be a priority.

The proportion of children who were exclusively breastfed remained below 20% until 2000, after which coverage rose to 86% in 2010 (95% CI: 74%, 93%), exceeding the national average of 80%.

Kaputa



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green). IRS coverage was not included because Kaputa started IRS after 2010.

SUMMARY

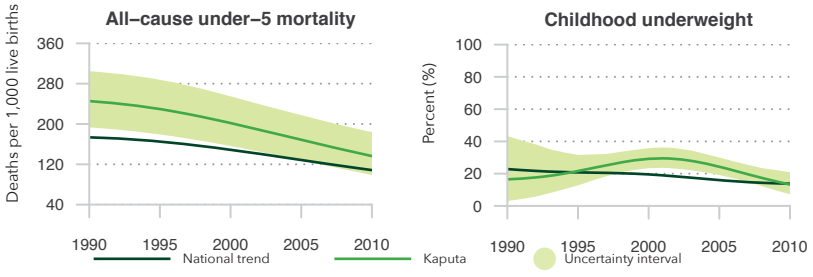
Kaputa substantially reduced all-cause under-5 mortality and childhood underweight from 1990 to 2010, but its levels of under-5 mortality remained among the highest in Zambia for 2010. Prioritizing ways to further accelerate gains for child health outcomes, especially under-5 mortality, should be considered.

The district scaled up ITN coverage and also achieved increases in pentavalent coverage by 2010. BCG and measles immunization recovered to high levels after a period of declines. Remarkably, skilled birth attendance rebounded from extremely low levels in the early 2000s, rising to among the highest levels of SBA coverage in 2010. Other districts may learn from Kaputa's experience in increasing skilled birth attendance.

However, amidst these gains, some troubling trends were identified and warrant further attention. IPTp2 coverage fell substantially from its peak in 2006, and polio coverage dropped in 2010. Coverage of exclusive breastfeeding remained below the national average in 2010, and alarmingly, ANC4 declined after substantially increasing coverage and maintaining high levels for several years.

In 2010, Kaputa generally met or exceeded national levels across interventions, with the exceptions of IPTp2, polio immunization, and exclusive breastfeeding. In comparison with the national averages, Kaputa showed much higher levels of mortality and similar levels of underweight.

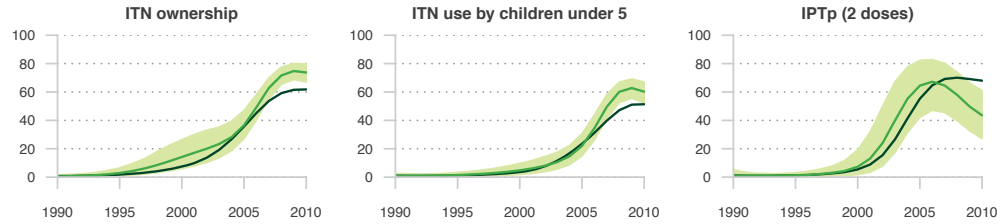
CHILD HEALTH OUTCOMES



From 1990 to 2010, Kaputa recorded a significant reduction in all-cause under-5 mortality, dropping 44% from 245 deaths per 1,000 live births in 1990 (95% CI: 195, 303) to 136 in 2010 (95% CI: 101, 182). In 2010, the district's under-5 mortality remained higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116) and was among the highest in Zambia.

The proportion of children who were underweight increased from 16% in 1990 (95% CI: 4%, 43%) to 29% in the early 2000s, after which levels of underweight fell to 13% in 2010 (95% CI: 8%, 20%). Kaputa's prevalence of underweight was comparable to the national average of 14% for 2010.

MALARIA INTERVENTIONS



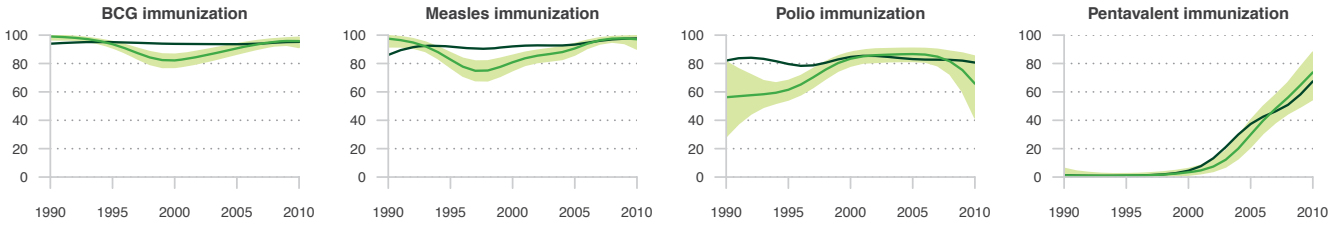
ITN ownership remained below 10% until 1999, after which coverage rapidly increased to 75% in 2009 (95% CI: 69%, 80%). Ownership slightly slipped to 74% in 2010 (95% CI: 67%, 80%), but still far exceeded the national average of 62%.

ITN use by children under 5 years old climbed to 63% in 2009 (95% CI: 56%, 69%), but dropped slightly to 60% in 2010 (95% CI: 52%, 67%). This level of ITN use remained higher than the national average of 51% for 2010. The difference between ITN ownership and use (14 percentage points) was higher in Kaputa than what was observed at the national level (11 percentage points) for 2010.

IRS coverage trends are not included because Kaputa did not begin formal IRS activities until after 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2001, after which coverage rose to 67% in 2006 (95% CI: 47%, 83%). IPTp2 coverage fell to 44% in 2010 (95% CI: 27%, 61%), one of the lowest levels in Zambia. The district's declines in IPTp2 coverage are cause for concern.

IMMUNIZATIONS



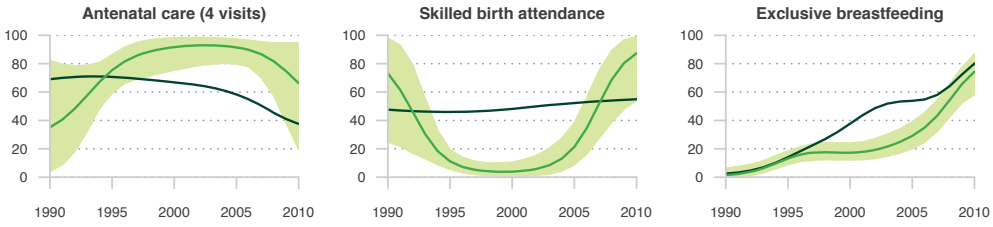
BCG immunization decreased from 99% in the early 1990s to 82% in 2000 (95% CI: 77%, 86%), but rose to 96% in 2009 (95% CI: 93%, 98%) and remained at 96% through 2010. This level of coverage was slightly higher than the national average of 95% for 2010.

Measles immunization declined from 97% in 1990 (95% CI: 92%, 100%) to 75% in the mid-1990s, but rose to 98% in 2008 and 2009. Coverage slipped to 97% in 2010 (95% CI: 90%, 99%), which was slightly lower than the national average of 98%.

Coverage of polio immunization increased from 56% in 1990 (95% CI: 29%, 81%) to 87% in the mid-2000s. Polio coverage remained above 80% until 2009, after which coverage dropped to 66% in 2010 (95% CI: 42%, 85%) and fell below the national average of 81%.

After the pentavalent vaccine was formally introduced in Kaputa in 2005, coverage increased to 40% in 2006 (95% CI: 31%, 50%) and 74% in 2010 (95% CI: 55%, 88%), exceeding the national average of 67% for that year.

MATERNAL AND CHILD HEALTH INTERVENTIONS

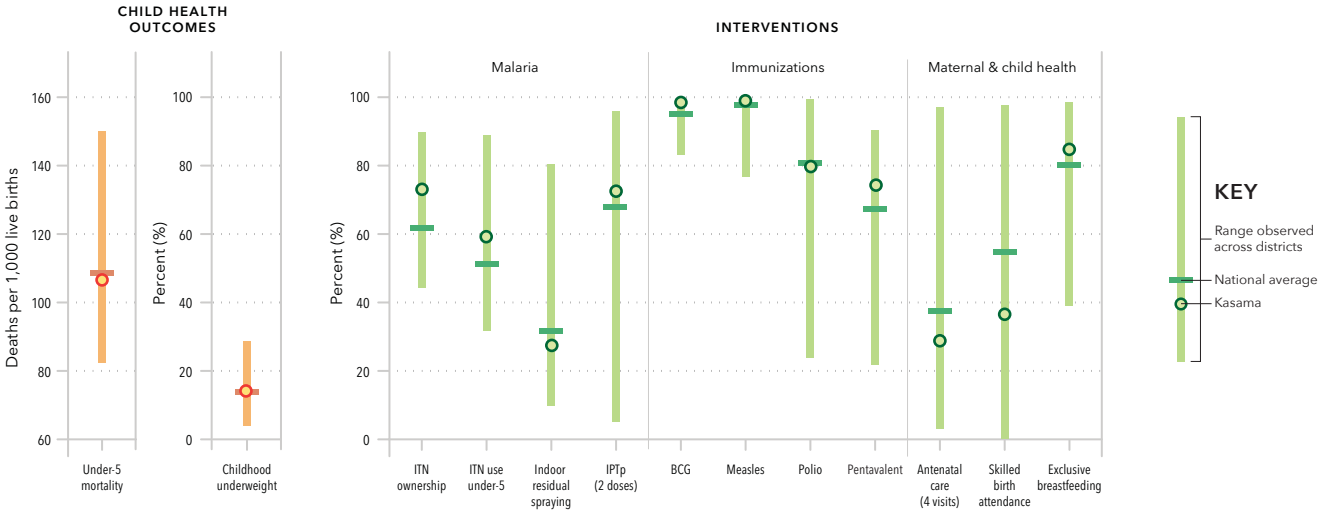


ANC4 coverage quickly increased from 35% in 1990 (95% CI: 4%, 82%) to 93% in the early 2000s, but then declined to 66% in 2010 (95% CI: 20%, 95%). While coverage in Kaputa was higher than the national average of 37% in 2010, its levels remained lower than optimal. Further, the recent reversal of the district's gains in coverage and maintenance of high ANC4 levels is cause for concern.

Skilled birth attendance fell sharply from 73% in 1990 (95% CI: 25%, 98%) to 4% in the late 1990s, but coverage rebounded to 87% in 2010 (95% CI: 54%, 99%), which was among the highest in the country for that year. Kaputa's gains are quite notable, and it is likely that other districts could learn from its progress in increasing SBA coverage.

The proportion of children who were exclusively breastfed remained below 10% until 1994, after which coverage rose to 29% in 2005 (95% CI: 20%, 39%). Gains in coverage then accelerated, with exclusive breastfeeding reaching 74% in 2010 (95% CI: 58%, 87%), which was lower than the national average of 80%.

Kasama



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

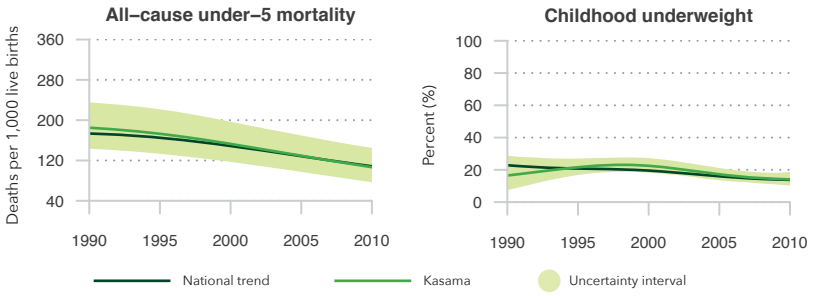
Kasama substantially reduced all-cause under-5 mortality and childhood underweight between 1990 and 2010, with both child health outcomes being comparable to the national average in 2010. The declines in childhood underweight occurred more recently, as prevalence actually increased until the late 1990s. Prioritizing ways to further accelerate gains for child health outcomes should be considered.

The district saw a large scale-up of ITNs through 2010, and IPTp2 coverage reached levels that were comparable to the national average in 2010. Exclusive breastfeeding steadily increased, and Kasama expanded pentavalent coverage above the national average in 2010. After experiencing declines in the early to mid-2000s, coverage of routine immunizations returned to high levels. BCG coverage rose to one of the highest levels in Zambia for 2010.

However, amidst these successes, some troubling trends emerged and warrant further attention. Kasama's scale-up of IRS was fairly minimal, and after making steady gains during the 1990s, skilled birth attendance declined through 2010. ANC4 steadily decreased from 1990 to 2010, with coverage levels being quite low in 2010.

In 2010, Kasama generally met or exceeded national levels for immunizations and malaria interventions (aside from IRS), and fell below for maternal and child health interventions (except for exclusive breastfeeding). In comparison with the national average, Kasma had similar levels of mortality and underweight.

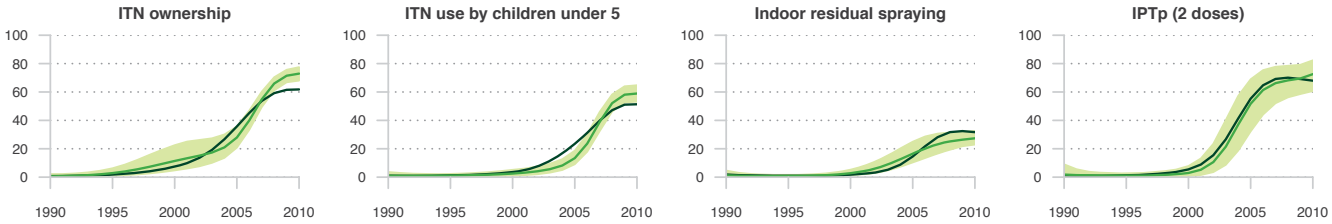
CHILD HEALTH OUTCOMES



From 1990 to 2010, Kasama recorded a significant reduction in all-cause under-5 mortality, dropping 42% from 185 deaths per 1,000 live births in 1990 (95% CI: 146, 233) to 107 in 2010 (95% CI: 79,143). In 2010, the district's under-5 mortality was similar to the national average of 109 deaths per 1,000 live births (95% CI: 104, 116).

The proportion of children who were underweight increased from 16% in 1990 (95% CI: 8%, 28%) to 23% in the late 1990s, but then decreased to 14% in 2009 (95% C1: 12%, 17%) and remained at 14% through 2010. This level of childhood underweight equaled the national average for 2010.

MALARIA INTERVENTIONS



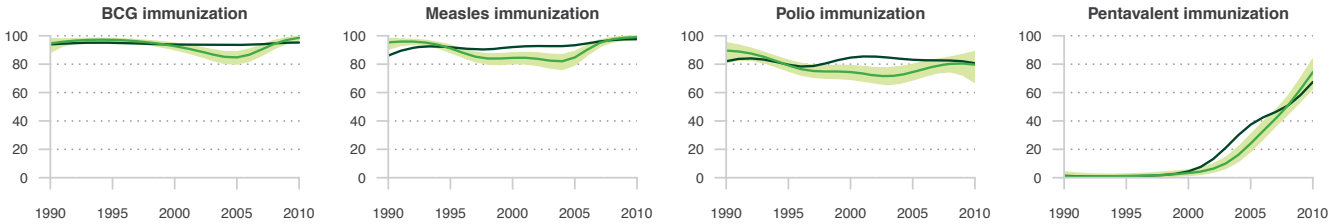
ITN ownership remained below 10% until 2000, after which coverage quickly increased to 73% in 2010 (95% CI: 68%, 78%), far exceeding the national average of 62%.

ITN use by children under 5 years old rapidly rose to 59% in 2010 (95% CI: 53%, 65%), which exceeded the national average of 51%. The difference between ITN ownership and use (14 percentage points) was slightly higher in Kasama than what was observed at the national level (11 percentage points) for 2010.

Kasama formally implemented IRS activities in 2008, and reached 27% of households in 2010 (95% CI: 23%, 33%). This scale-up of IRS was on the lower end compared to other districts that also began IRS in 2008.

The proportion of pregnant women who received IPTp2 remained below 10% until 2002, after which coverage rapidly increased to 73% in 2010 (95% CI: 61%, 82%), exceeding the national average of 68%.

IMMUNIZATIONS



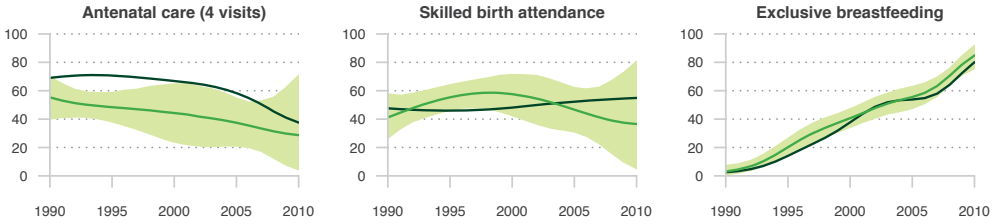
BCG immunization increased to 97% in the early to mid-1990s, but then decreased to 85% in the mid-2000s. Coverage rebounded, rising to 99% in 2010 (95% CI: 97%, 99%), among the highest in Zambia.

Measles immunization decreased from 96% in the early 1990s to 82% in the mid-2000s, but quickly rebounded to 99% in 2009 (95% CI: 97%, 100%) and remained at 99% through 2010. This level of measles coverage was slightly higher than the national average of 98%.

Coverage of polio immunization steadily declined from 90% in 1990 (95% CI: 81%, 95%) to 72% in the mid-2000s, but then increased to 80% in 2008 (95% CI: 75%, 85%). This level of polio coverage was maintained through 2010, which was comparable to the national average of 81%.

After the pentavalent vaccine was formally introduced in Kasama in 2005, coverage increased to 42% in 2007 (95% CI: 36%, 47%) and 74% in 2010 (95% CI: 63%, 83%), exceeding the national average of 67%.

MATERNAL AND CHILD HEALTH INTERVENTIONS

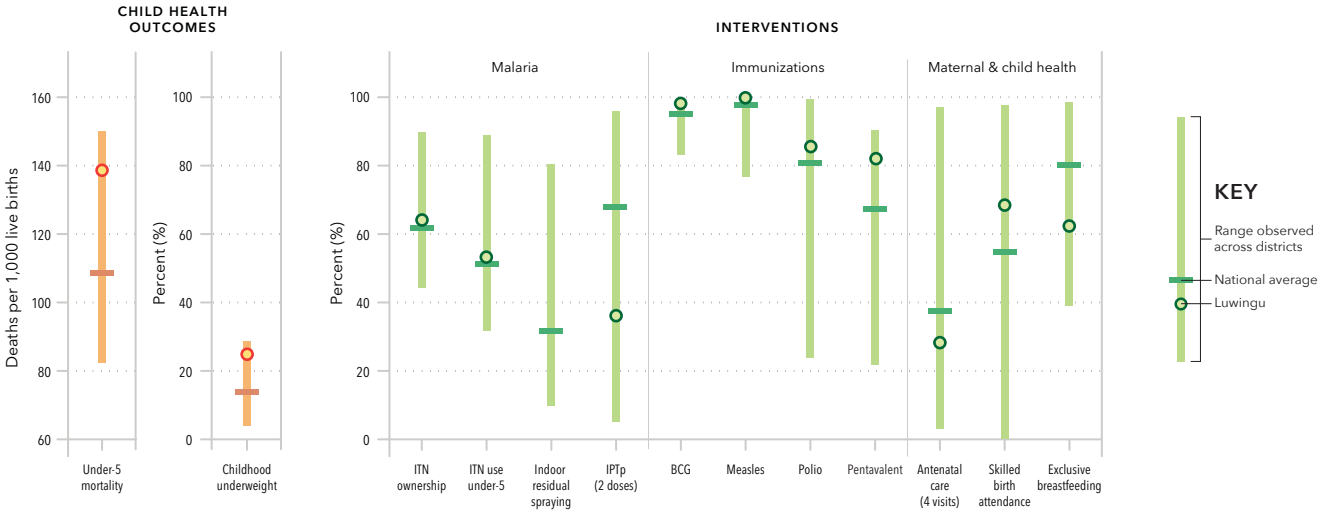


ANC4 coverage declined from 55% in 1990 (95% CI: 40%, 70%) to 29% in 2010 (95% CI: 4%, 71%), which was lower than the national average of 37%. The finding that Kasama's levels of coverage, which were already low, fell 26 percentage points from 1990 to 2010 is worrisome.

Skilled birth attendance gradually increased from 41% in 1990 (95% CI: 27%, 58%) to 59% in 1998 (95% CI: 48%, 69%) before dropping to 37% in 2010 (95% CI: 5%, 81%). This level of SBA coverage was lower than the national average of 55%, and Kasama's recent declines in SBA, which contrasted with steady gains at the national level, are cause for concern.

The proportion of children who were exclusively breastfed remained under 20% until 1995, after which coverage steadily increased to 85% in 2010 (95% CI: 76%, 92%), exceeding the national average of 80%.

Luwingu



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green). IRS coverage was not included because Luwingu started IRS after 2010.

SUMMARY

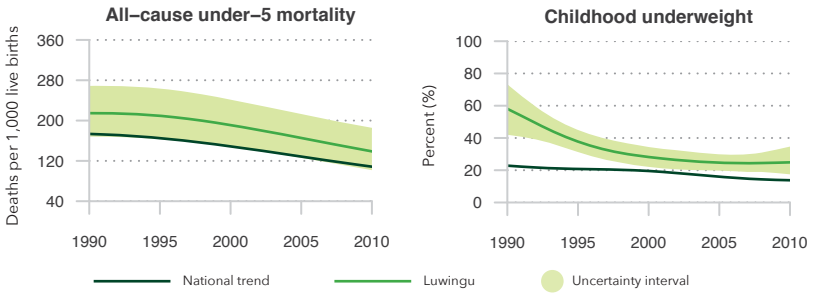
Luwingu substantially reduced all-cause under-5 mortality and childhood underweight from 1990 to 2010, but both child health outcomes remained among the highest in Zambia in 2010. The district's progress is notable, given how high under-5 mortality and underweight were in the 1990s, but efforts to further accelerate these gains should be considered.

The district rapidly scaled up ITNs through 2010, and coverage of the pentavalent vaccine far exceeded the national average in 2010. After recording consistently lower levels of coverage in the 1990s and early 2000s, Luwingu brought coverage of routine immunizations above national levels in 2010. Notably, Luwingu's measles coverage was among the highest in Zambia for 2010. Skilled birth attendance steadily increased over time, rising from very low levels in 1990 to above the national average in 2010.

However, amidst these successes, some worrisome trends were identified and warrant further attention. IPTp2 coverage fell sharply from its peak in 2006, and coverage of exclusive breastfeeding was among the lowest in Zambia for 2010. ANC4 coverage gradually increased until the mid-2000s, after which coverage quickly dropped to very low levels.

In 2010, Luwingu generally met or exceeded national levels for immunizations and malaria interventions (except for IPTp2), and fell below for maternal and child health interventions (aside from skilled birth attendance). In comparison with the national average, Luwingu showed much higher levels of mortality and underweight.

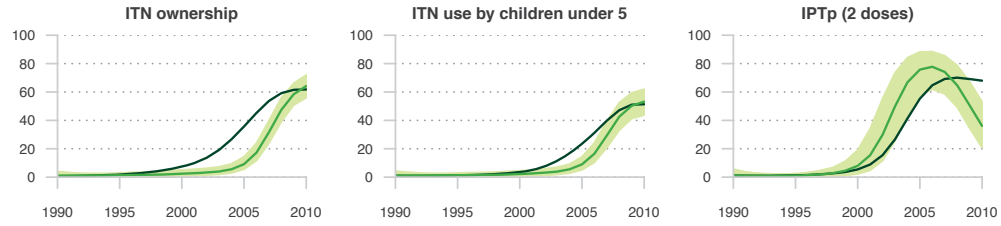
CHILD HEALTH OUTCOMES



From 1990 to 2010, Luwingu recorded a significant reduction in all-cause under-5 mortality, dropping 35% from 215 deaths per 1,000 live births in 1990 (95% CI: 170, 267) to 139 in 2010 (95% CI: 104, 184). In 2010, the district's under-5 mortality remained much higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116) and was among the highest in Zambia.

The proportion of children who were underweight substantially declined from 58% in 1990 (95% CI: 43%, 72%) to 25% in 2010 (95% CI: 18%, 34%). While this level of underweight was well above the national average of 14% in 2010, Luwingu made tremendous progress in reducing childhood underweight from extremely high levels in the 1990s. Nevertheless, much work remains, as the district's prevalence of underweight remained among the highest in Zambia for 2010.

MALARIA INTERVENTIONS



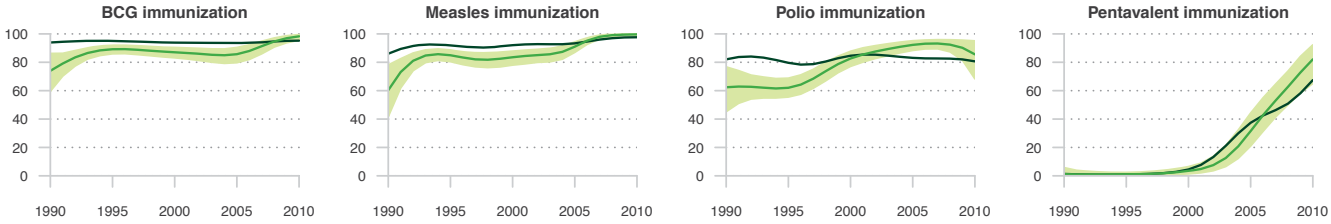
ITN ownership remained below 10% until 2006, after which coverage quickly increased to 64% in 2010 (95% CI: 56%, 72%), rising just above the national average of 62%. This rapid scale-up of ITN ownership is impressive given that the national gains in coverage started in the early 2000s.

ITN use by children under 5 years old rapidly rose to 53% in 2010 (95% CI: 44%, 62%), which was slightly higher than the national average of 51%. The difference between ITN ownership and use (11 percentage points) in Luwingu was comparable to what was observed at the national level for 2010.

IRS coverage trends are not included because Luwingu did not begin formal IRS activities until after 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2001, after which coverage rose to 78% in 2006 (95% CI: 62%, 88%). IPTp2 coverage then declined, steeply dropping to 36% in 2010 (95% CI: 21%, 53%) and falling to one of the lowest levels in Zambia. The district's steep declines in IPTp2 coverage since 2006 are cause for concern.

IMMUNIZATIONS



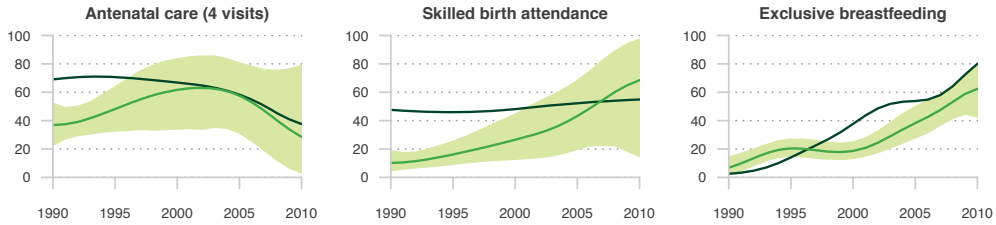
Aside from a small drop in coverage during the mid-2000s, BCG immunization generally increased from 74% in 1990 (95% CI: 60%, 86%) to 98% in 2010 (95% CI: 96%, 100%), rising well above the national average of 95%.

Measles immunization steadily climbed from 60% in 1990 (95% CI: 42%, 78%) to 100% in 2009 (95% CI: 99%, 100%). This level of measles coverage was maintained through 2010, exceeding the national average of 98% for that year. This level of measles immunization was among the highest in Zambia for 2010.

Coverage of polio immunization steadily increased from 62% in 1990 (95% CI: 45%, 77%) to 93% in the mid-2000s, but decreased to 86% in 2010 (95% CI: 68%, 95%). Despite this recent decline, Luwingu's level of polio coverage still exceeded the national average of 81% in 2010.

After the pentavalent vaccine was formally introduced in Luwingu in 2005, coverage increased to 43% in 2006 (95% CI: 31%, 55%) and 82% in 2010 (95% CI: 65%, 92%), exceeding the national average of 67% for that year.

MATERNAL AND CHILD HEALTH INTERVENTIONS

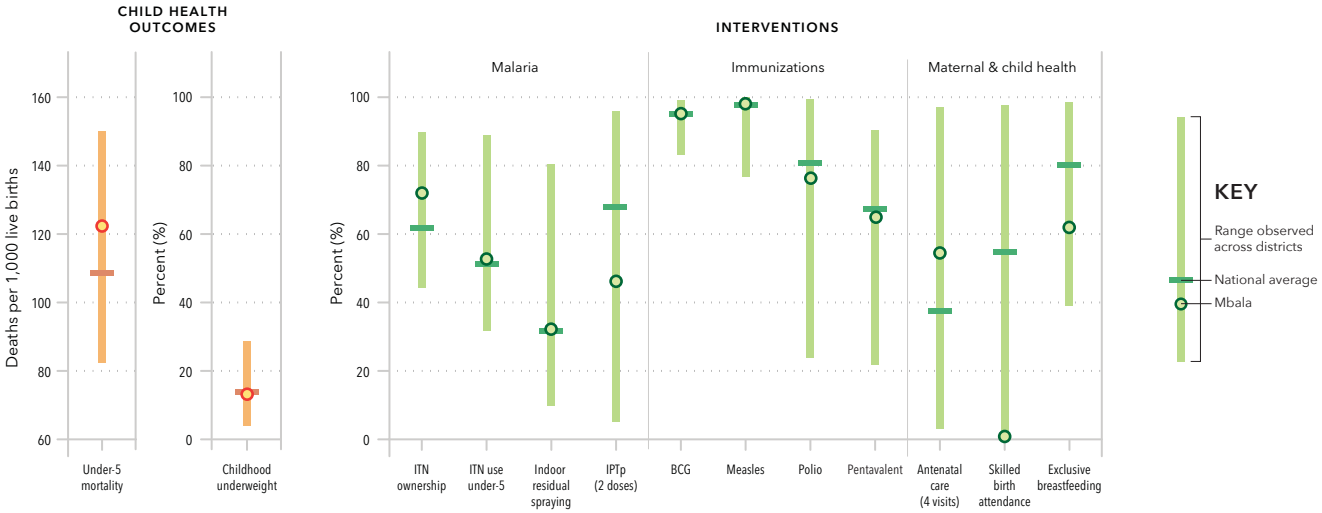


ANC4 increased from 37% in 1990 (95% CI: 23%, 52%) to 61% in 2004 (95% CI: 35%, 83%), but coverage then dropped considerably to 29% in 2010 (95% CI: 3%, 79%), falling below the national average of 37%. The finding that Luwingu's levels of ANC4 coverage fell more than 30 percentage points in six years is particularly troubling.

Skilled birth attendance gradually increased from 10% in 1990 (95% CI: 5%, 19%) to 69% in 2010 (95% CI: 15%, 97%), which was higher than the national average of 55%.

The proportion of children who were exclusively breastfed remained below 20% until 1995, after which coverage steadily rose to 62% in 2010 (95% CI: 43%, 79%). This level of exclusive breastfeeding was well below the national average of 80% for 2010, and was among the lowest in Zambia.

Mbala



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

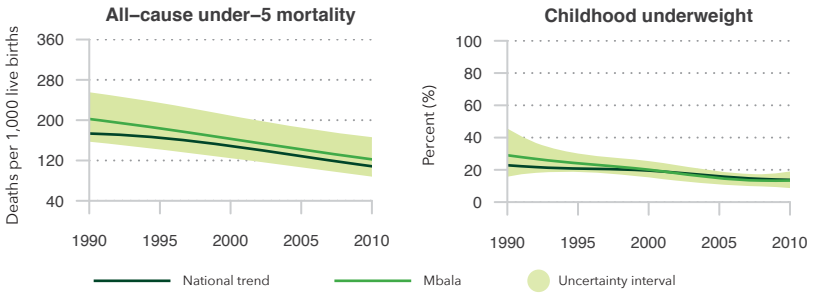
Mbala substantially reduced all-cause under-5 mortality and childhood underweight from 1990 to 2010, but its levels of under-5 mortality remained among the highest in Zambia for 2010. The district's prevalence of underweight, however, was comparable to the national average in 2010. Prioritizing ways to further accelerate gains for child health outcomes, especially under-5 mortality, should be considered.

The district was able to rapidly scale up ITNs through 2010, and IRS coverage was higher than the national average in 2010. Mbala recorded steady growth in pentavalent coverage, and BCG and measles immunization rebounded to high levels after declines during the mid-2000s.

However, amidst these gains, several troubling trends were identified and warrant further attention. IPTp2 coverage remained low, falling well below the national average in 2010. Polio coverage remained lower than the national average, and increases in exclusive breastfeeding largely stalled through the 2000s. ANC4 gradually decreased over time, but its levels remained low. Alarmingly, after a period of steady increases of coverage during the 1990s, skilled birth attendance declined to some of the lowest levels in Zambia by 2010.

In 2010, Mbala generally met or exceeded national levels for immunizations and malaria interventions (excluding IPTp2), but fell below the national average for maternal and child health interventions (with the exception of ANC4). In comparison with the national average, Mbala showed much higher levels of mortality and similar levels of underweight.

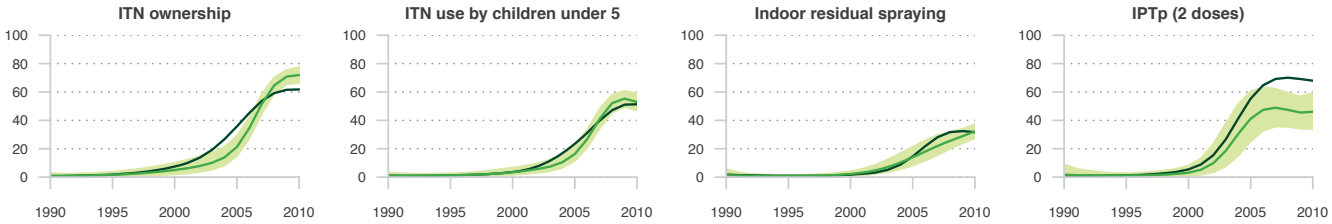
CHILD HEALTH OUTCOMES



From 1990 to 2010, Mbala recorded a significant reduction in all-cause under-5 mortality, dropping 40% from 202 deaths per 1,000 live births in 1990 (95% CI: 159, 253) to 122 in 2010 (95% CI: 90, 164). In 2010, the district's under-5 mortality remained much higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116) and was among the highest in Zambia that year.

The proportion of children who were underweight substantially declined from 29% in 1990 (95% CI: 16%, 45%) to 13% in 2010 (95% CI: 9%, 18%), which was comparable to the national average of 14% for 2010.

MALARIA INTERVENTIONS



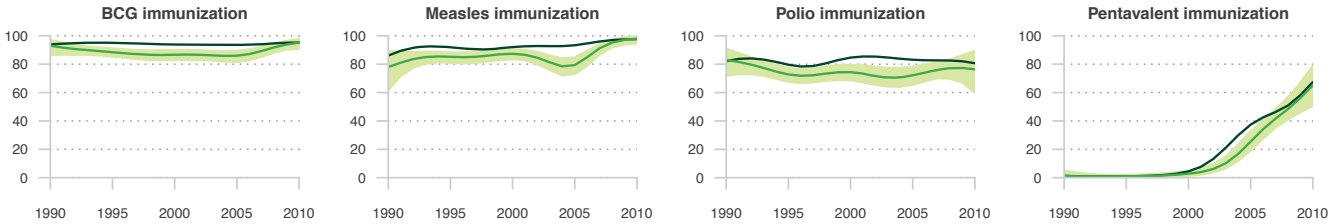
ITN ownership remained below 10% until 2003, after which coverage rapidly increased to 72% in 2010 (95% CI: 66%, 77%), exceeding the national average of 62% for that year.

ITN use by children under 5 years old rose to 55% in 2009 (95% CI: 49%, 61%), but slipped to 53% in 2010 (95% CI: 47%, 59%). This level of ITN use was slightly higher than the national average of 51%. The difference between ITN ownership and use (19 percentage points) was higher than what was observed nationally (11 percentage points) for 2010.

Mbala formally implemented IRS activities in 2008, and reached 32% of households in 2010 (95% CI: 27%, 37%). This scale-up of IRS was on the lower end compared to other districts that also began IRS in 2008.

The proportion of pregnant women who received IPTp2 remained below 10% until 2002, after which coverage quickly increased to 49% in 2007 (95% CI: 36%, 62%). IPTp2 coverage decreased slightly to 46% in 2010 (95% CI: 34%, 59%), falling much lower than the national average of 68%.

IMMUNIZATIONS



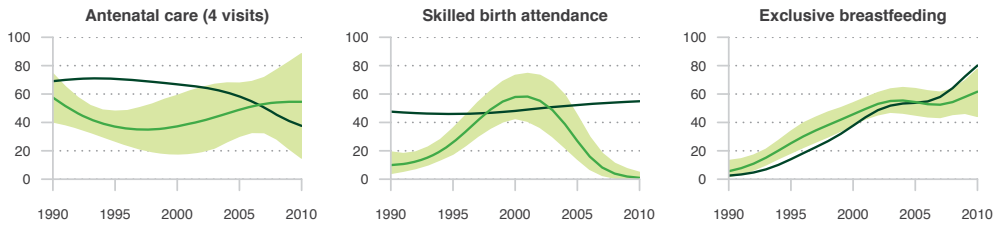
BCG coverage decreased from 93% in 1990 (95% CI: 86%, 97%) to 86% in 1999 (95% CI: 83%, 90%), after which coverage hovered around 87% until 2006. BCG immunization then steadily increased, reaching 95% in 2010 (95% CI: 91%, 98%) and equaling the national average for that year.

Measles immunization gradually increased from 78% in 1990 (95% CI: 61%, 90%) to 87% in the early 2000s, but dropped below 80% during the mid-2000s. Measles coverage rose soon after, climbing to 98% in 2010 (95% CI: 94%, 100%) and equaling the national average for that year.

Coverage of polio immunization decreased from 83% in 1990 (95% CI: 72%, 91%) to 71% in the mid-2000s, after which polio coverage increased, reaching 77% in 2008 and 2009. Coverage slightly slipped to 76% in 2010 (95% CI: 60%, 89%), which was lower than the national average of 81%.

After the pentavalent vaccine was formally introduced in Mbala in 2005, coverage increased to 34% in 2006 (95% CI: 27%, 41%) and 65% in 2010 (95% CI: 50%, 79%), which was slightly lower than the national average of 67%.

MATERNAL AND CHILD HEALTH INTERVENTIONS

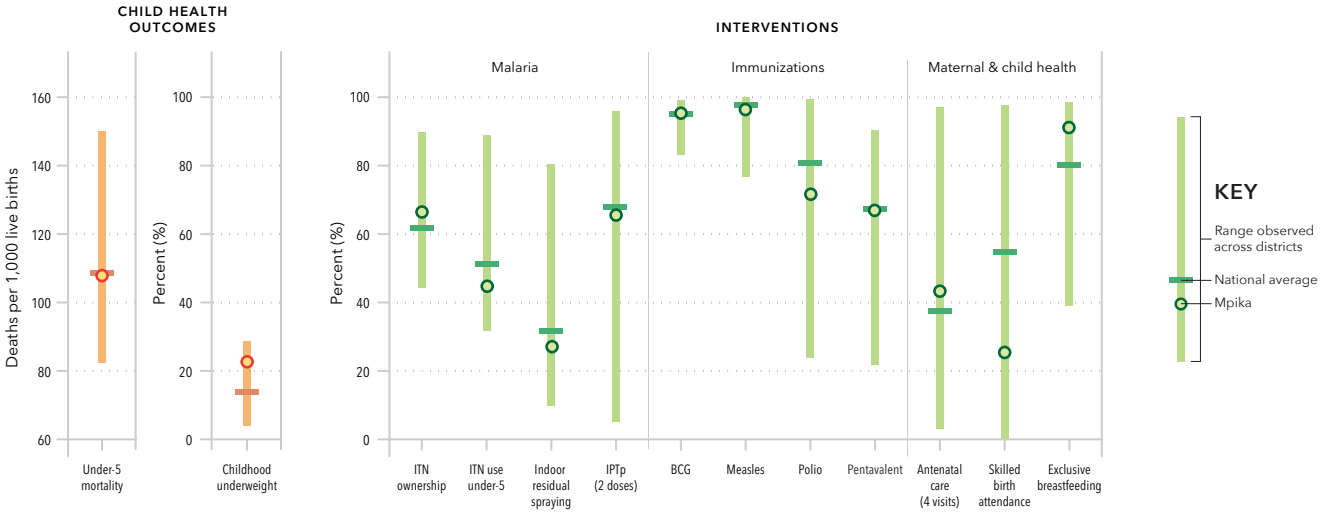


ANC4 coverage decreased from 57% in 1990 (95% CI: 40%, 74%) to 35% in the late 1990s before gradually rising to 55% in 2009 (95% CI: 21%, 82%). This level of ANC4 coverage was maintained through 2010. While coverage in Mbala was higher than the national average of 37% in 2010, its levels remained lower than optimal.

Skilled birth attendance increased from 10% in 1990 (95% CI: 4%, 19%) to 58% in the early 2000s, but then dropped to 1% in 2010 (95% CI: 0%, 5%). Mbala had one of the lowest levels of SBA in Zambia for 2010, and the district's abrupt decline after a period of gains is cause for concern.

The proportion of children who were exclusively breastfed steadily rose from 6% in 1990 (95% CI: 2%, 13%) to 55% in the mid-2000s. Gains stalled for several years before levels of exclusive breastfeeding increased to 62% in 2010 (95% CI: 44%, 77%), which was still among the lowest in Zambia.

Mpika



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

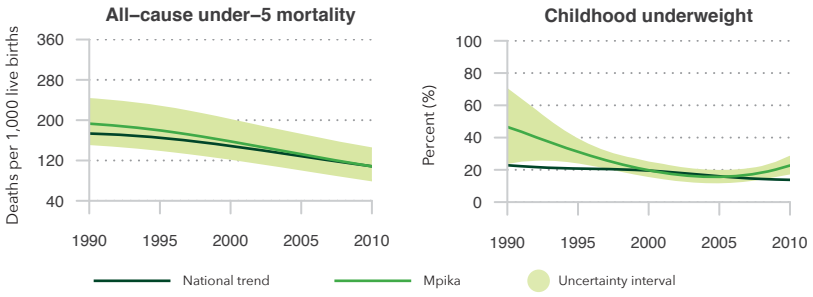
Between 1990 and 2010, Mpika reduced its all-cause under-5 mortality. At the same time, childhood underweight actually increased between 2006 and 2010, and rose to among the highest in Zambia in 2010. Prioritizing ways to accelerate gains for child health outcomes, especially childhood underweight, should be considered.

Mpika increased ITN ownership to levels higher than the national average in 2010, and recorded steady gains in bringing up coverage of the pentavalent vaccine. Exclusive breastfeeding coverage climbed well above the national average in 2010. Coverage of BCG and measles immunization recovered after declines during the mid-2000s.

However, amidst these gains, some troubling trends were identified and warrant further attention. IPTp2 coverage fell substantially from its peak in 2006, and less progress was made in scaling up IRS. Polio immunization declined throughout the 2000s, and skilled birth attendance remained quite low. ANC4 coverage dropped considerably from very high levels during the early 1990s.

In 2010, Mpika generally met or exceeded national levels for immunizations and maternal and child health interventions (excluding polio coverage and skilled birth attendance), but equaled or fell below for malaria interventions. In comparison with the national average, Mpika showed similar levels of mortality and much higher levels of underweight.

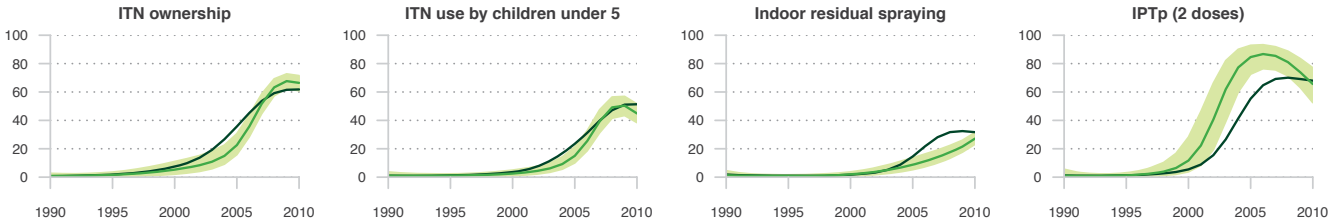
CHILD HEALTH OUTCOMES



From 1990 to 2010, Mpika recorded a significant reduction in all-cause under-5 mortality, dropping 44% from 193 deaths per 1,000 live births in 1990 (95% CI: 153, 242) to 108 in 2010 (95% CI: 80, 144). In 2010, the district's under-5 mortality was comparable to the national average of 109 deaths per 1,000 live births (95% CI: 104, 116).

The proportion of children who were underweight substantially decreased from 47% in 1990 (95% CI: 24%, 70%) to 16% in the mid-2000s, but then levels increased to 23% in 2010 (95% CI: 18%, 28%), far exceeding the national average of 14%. This level of childhood underweight was among the highest in Zambia for 2010. While Mpika made remarkable progress in bringing down childhood underweight from very high levels, its recent rise in prevalence is cause for concern.

MALARIA INTERVENTIONS



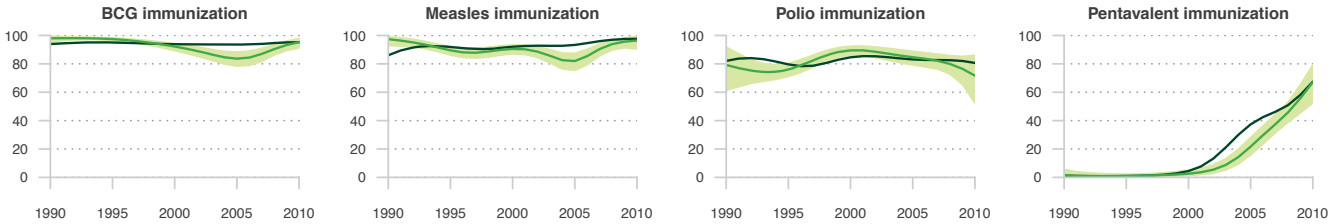
ITN ownership remained below 10% until 2003, after which coverage rapidly increased to 68% in 2009 (95% CI: 62%, 73%). Ownership slipped to 66% in 2010 (95% CI: 61%, 72%), but was still higher than the national average of 62%.

ITN use by children under 5 years old quickly rose to 50% in 2009 (95% CI: 43%, 57%), but dropped to 45% in 2010 (95% CI: 38%, 52%), falling below the national average of 51%. The difference between ITN ownership and use (21 percentage points) was much higher in Mpika than what was observed at the national level (11 percentage points) for 2010.

Mpika formally implemented IRS activities in 2008 and reached 27% of households in 2010 (95% CI: 23%, 31%). This scale-up of IRS was on the lower end compared to other districts that also began IRS in 2008.

The proportion of pregnant women who received IPTp2 remained below 10% until 2000, after which coverage rapidly increased to 87% in 2006 (95% CI: 76%, 93%). IPTp2 coverage then declined, dropping to 66% in 2010 (95% CI: 52%, 77%) and falling slightly below the national average of 68% in 2010.

IMMUNIZATIONS



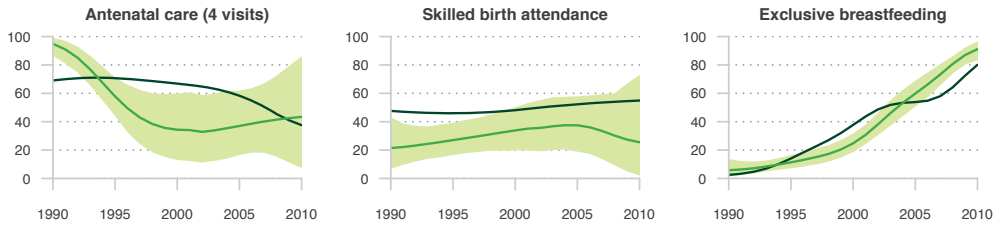
BCG coverage decreased from 98% in the early to mid-1990s to 84% in the mid-2000s, but then climbed to 95% in 2010 (95% CI: 91%, 98%), equaling the national average for that year.

After declining from 97% in 1990 (95% CI: 93%, 99%), measles immunization hovered around 90% until coverage dropped to 82% in 2005 (95% CI: 75%, 87%). Measles coverage then rebounded, rising to 96% in 2009 (95% CI: 91%, 98%) and staying at this level of coverage through 2010. Nonetheless, Mpika's measles coverage remained below the national average of 98% for 2010.

Coverage of the polio immunization decreased to 74% in the mid-1990s before rising to 90% in 2001 (95% CI: 86%, 92%). Polio coverage then dropped to 72% in 2010 (95% CI: 52%, 86%), falling below the national average of 81%.

After the pentavalent vaccine was formally introduced in Mpika in 2005, coverage increased to 38% in 2007 (95% CI: 32%, 44%) and 67% in 2010 (95% CI: 52%, 79%), equaling the national average for 2010.

MATERNAL AND CHILD HEALTH INTERVENTIONS

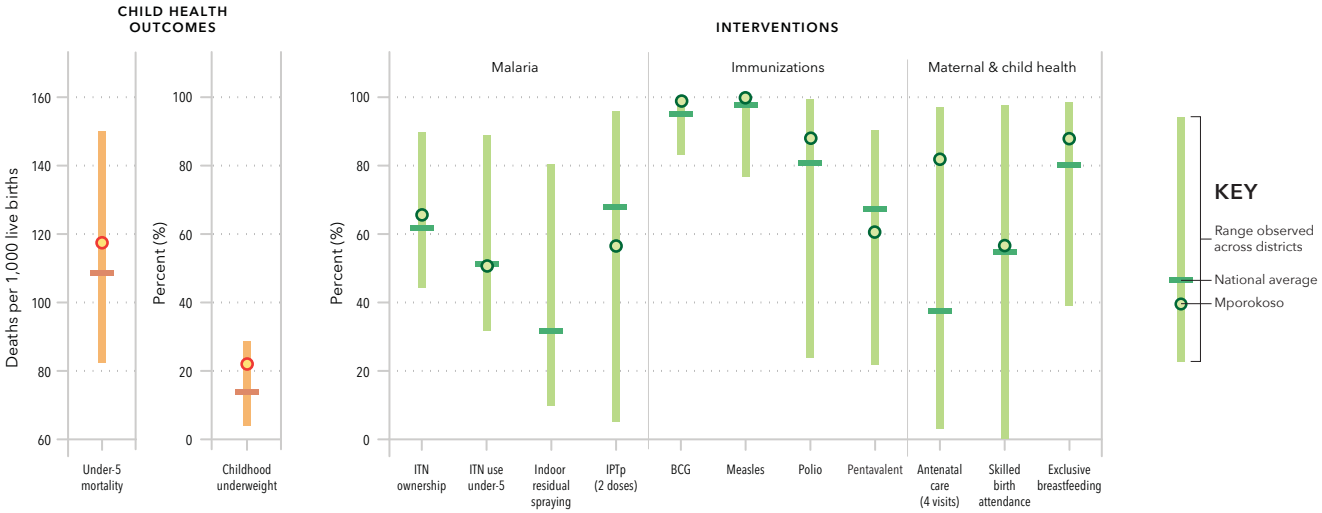


ANC4 coverage fell sharply from 95% in 1990 (95% CI: 87%, 98%) to 33% in 2002 (95% CI: 12%, 58%) before gradually increasing to 43% in 2010 (95% CI: 8%, 85%). Although Mpika showed some recent improvement, the finding that the district's levels of coverage were more than 50 percentage points lower in 2010 than in 1990 is quite worrisome.

Skilled birth attendance slowly increased from 21% in 1990 (95% CI: 8%, 42%) to 38% in 2004 (95% CI: 21%, 57%), but then declined to 26% in 2010 (95% CI: 3%, 72%). This level of SBA coverage was lower than the national average of 55% in 2010, and Mpika's consistently low levels of skilled birth attendance over time are cause for concern.

The proportion of children who were exclusively breastfed remained below 20% until 1999, after which coverage steadily increased to 91% in 2010 (95% CI: 84%, 96%), far exceeding the national average of 80% for that year.

Mporokoso



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green). IRS coverage was not included because Mporokoso started IRS after 2010.

SUMMARY

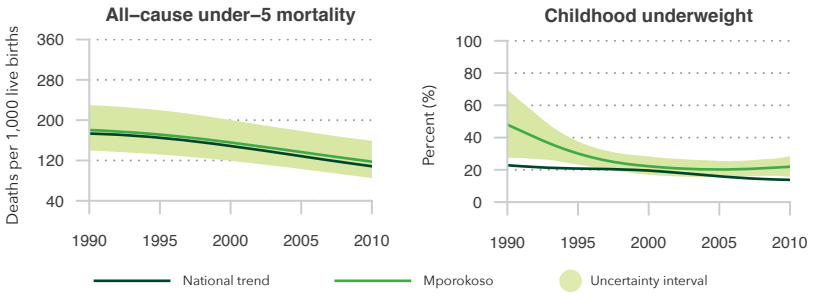
Mporokoso substantially reduced all-cause under-5 mortality and childhood underweight, but levels of both child health outcomes remained higher than the national average for 2010. Further, the district's level of underweight was among the highest in Zambia in 2010. Prioritizing ways to further accelerate gains for child health outcomes should be considered.

ITN coverage was quickly scaled up in Mporokoso, and the district brought coverage of exclusive breastfeeding above the national average in 2010. Coverage of routine immunizations remained high in 2010, with BCG and measles coverage rising to among the highest levels in Zambia. Impressively, Mporokoso increased ANC4 coverage over time, which is in stark contrast to the dramatic declines observed at the national level. It is likely that much could be learned from the district's antenatal programs.

However, amidst these gains, some troubling trends were identified and warrant further attention. IPTp2 coverage declined considerably from its peak in 2006, and pentavalent coverage remained below the national average in 2010. Although skilled birth attendance gradually increased over time, its coverage remained lower than optimal.

In 2010, Mporokoso generally met or exceeded national levels across interventions, with the exceptions of IPTp2 and pentavalent coverage. In comparison with the national averages, Mporokoso showed higher levels of mortality and underweight.

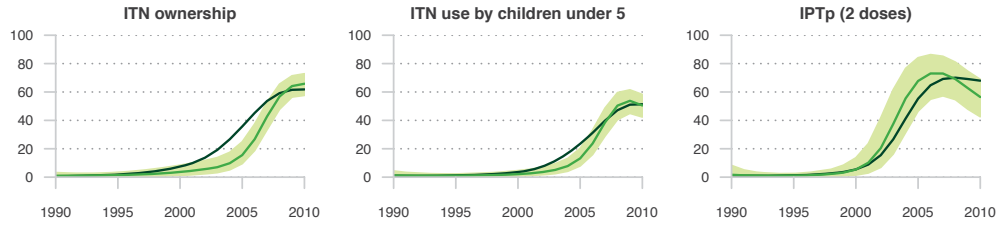
CHILD HEALTH OUTCOMES



From 1990 to 2010, Mporokoso recorded a significant reduction in all-cause under-5 mortality, dropping 35% from 180 deaths per 1,000 live births in 1990 (95% CI: 142, 228) to 118 in 2010 (95% CI: 87, 157). In 2010, the district's under-5 mortality remained higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116).

The proportion of children who were underweight substantially declined from 48% in 1990 (95% CI: 28%, 69%) to 22% in 2010 (95% CI: 16%, 28%). While this level of underweight was well above the national average of 14% in 2010, Mporokoso made much progress in bringing down childhood underweight from very high levels in the 1990s. Nevertheless, much work remains, as the district's prevalence of underweight remained among the highest in Zambia for 2010.

MALARIA INTERVENTIONS



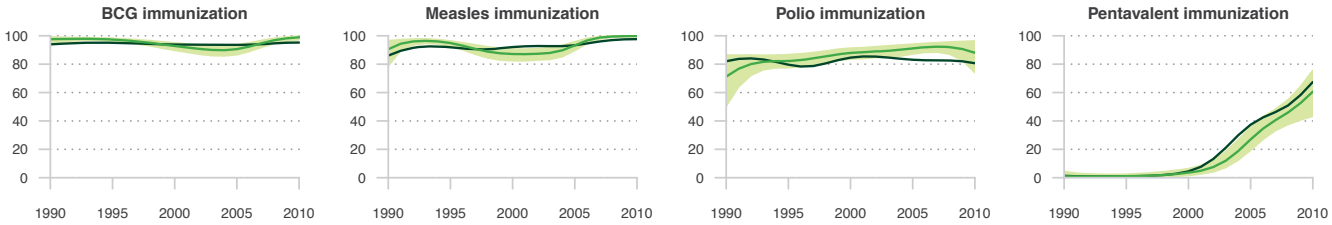
ITN ownership remained below 10% until 2004, after which coverage rapidly increased to 66% in 2010 (95% CI: 58%, 73%), slightly exceeding the national average of 62%.

ITN use by children under 5 years old quickly rose to 54% in 2009 (95% CI: 45%, 62%), but slipped to 51% in 2010 (95% CI: 42%, 58%), equaling the national average for 2010. The difference between ITN ownership and use (15 percentage points) was higher in Mporokoso than what was observed at the national level (11 percentage points) for 2010.

IRS coverage trends are not included because Mporokoso did not begin formal IRS activities until after 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2001, after which coverage rapidly increased to 73% in 2007 (95% CI: 57%, 85%). IPTp2 coverage then declined, dropping to 56% in 2010 (95% CI: 43%, 69%) and falling below the national average of 68%.

IMMUNIZATIONS



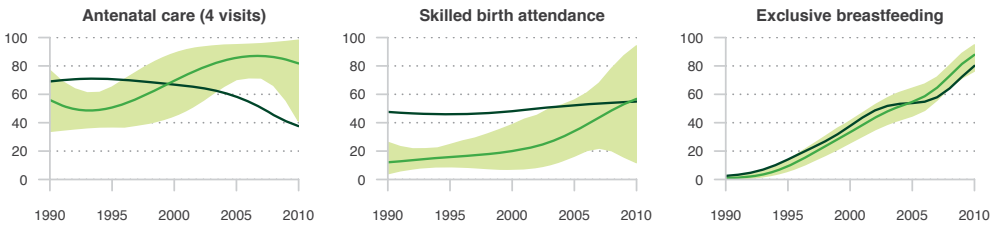
BCG immunization decreased from 98% in the early 1990s to 90% in the mid-2000s, but rebounded to 99% in 2010 (95% CI: 97%, 100%), far exceeding the national average of 95%. This level of coverage was among the highest in Zambia for 2010.

Measles immunization fell from 96% in the mid-1990s to 87% in the early 2000s before rising to 100% in 2009 (95% CI: 99%, 100%). This level of measles coverage was maintained through 2010, exceeding the national average of 98% and rising to among the highest in Zambia in 2010.

Coverage of polio immunization increased from 71% in 1990 (95% CI: 50%, 86%) to 92% in the mid-2000s, after which coverage fell to 88% in 2010 (95% CI: 74%, 96%). Nonetheless, this level of polio coverage remained higher than the national average of 81% for 2010.

After the pentavalent vaccine was formally introduced in Mporokoso in 2005, coverage increased to 35% in 2006 (95% CI: 27%, 43%) and 61% in 2010 (95% CI: 43%, 76%), which was lower than the national average of 67% for that year.

MATERNAL AND CHILD HEALTH INTERVENTIONS

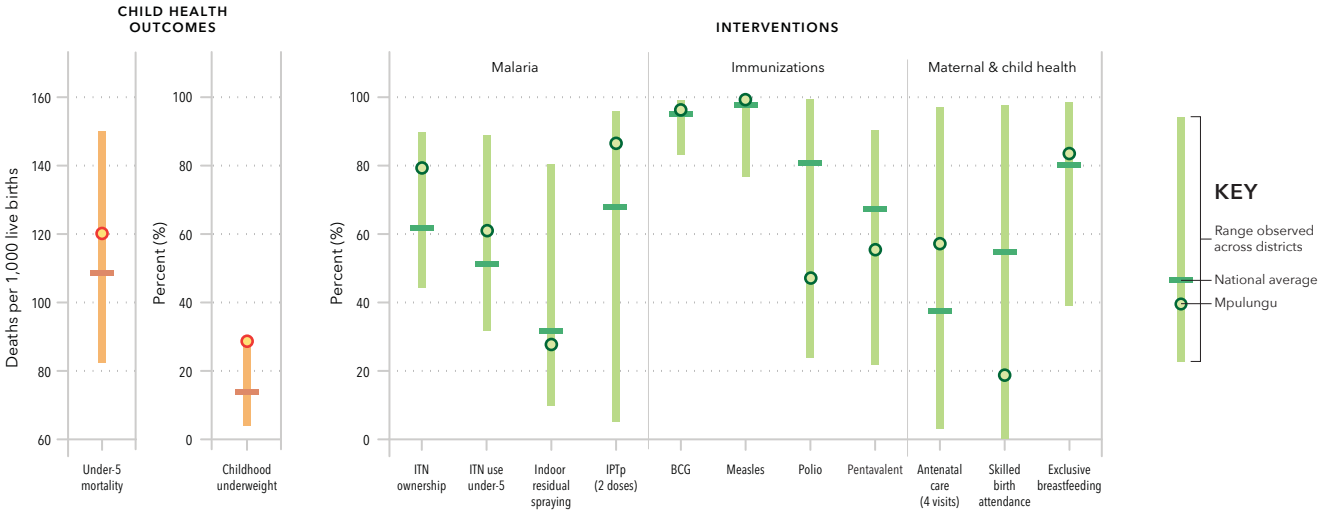


ANC4 coverage increased from 48% in 1993 (95% CI: 37%, 61%) to 87% in the mid-2000s. Coverage slipped to 82% in 2010 (95% CI: 41%, 98%), but remained one of the highest levels of ANC4 in Zambia in 2010. Further, Mporokoso did not experience the same steady decline in ANC4 documented at the national level, suggesting that much could be learned from the district's ANC4 programming approaches.

Skilled birth attendance increased from 12% in 1990 (95% CI: 4%, 26%) to 57% in 2010 (95% CI: 12%, 94%), which was comparable to the national average of 55%. This progress is notable given that SBA coverage had been consistently lower than the national average until the early 2000s; nonetheless, the district's level of SBA remained lower than optimal.

The proportion of children who were exclusively breastfed remained below 20% until 1998, after which coverage steadily increased to 88% in 2010 (95% CI: 77%, 95%), exceeding the national average of 80%.

Mpulungu



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green).

SUMMARY

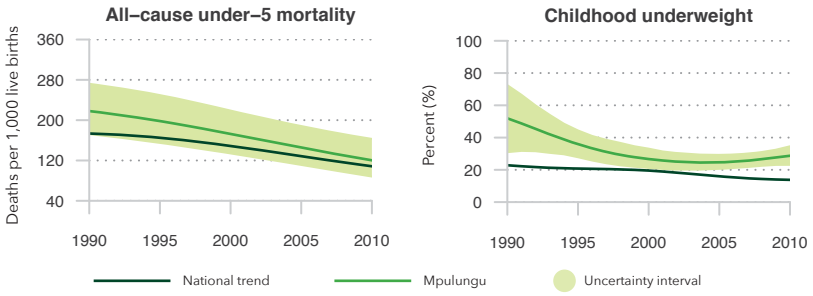
Between 1990 and 2010, Mpulungu substantially reduced all-cause under-5 mortality and childhood underweight from very high levels in the 1990s. Nonetheless, both child health outcomes were much higher than the national average in 2010, with childhood underweight being among the highest in Zambia in 2010. Prioritizing ways to accelerate gains for child health outcomes should be considered.

The district was able to scale up and sustain high levels of ITNs and IPTp2 through 2010. BCG coverage remained high, and measles immunization recovered from declines during the mid-2000s. Mpulungu quickly expanded coverage of exclusive breastfeeding in recent years.

However, amidst these gains, some worrisome trends were identified and warrant further attention. IRS coverage marginally increased in 2010, and polio immunization dropped to some of the lowest levels in Zambia. The pentavalent vaccine was minimally scaled up, with its coverage being among the lowest in the country for 2010. ANC4 coverage started to increase in the early 2000s, but progress stalled in recent years. Alarmingly, skilled birth attendance fell to very low levels after making steady gains during the 1990s.

In 2010, Mpulungu generally met or exceeded national levels for malaria interventions and maternal and child health interventions (excluding skilled birth attendance), but equaled or fell below for immunizations (with the exception of measles coverage). In comparison with the national average, Mpulungu showed higher levels of mortality and underweight.

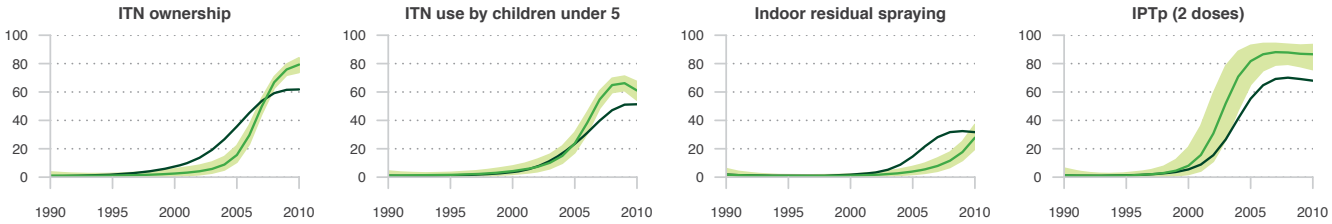
CHILD HEALTH OUTCOMES



From 1990 to 2010, Mpulungu recorded a significant reduction in all-cause under-5 mortality, dropping 45% from 218 deaths per 1,000 live births in 1990 (95% CI: 172, 272) to 122 in 2010 (95% CI: 88, 163). In 2010, the district's under-5 mortality remained higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116).

The proportion of children who were underweight substantially decreased from 52% in 1990 (95% CI: 31%, 72%) to 29% in 2010 (95% CI: 23%, 35%). While this level of underweight was among the highest in Zambia for 2010, Mpulungu made notable progress in reducing childhood underweight from very high levels in the 1990s.

MALARIA INTERVENTIONS



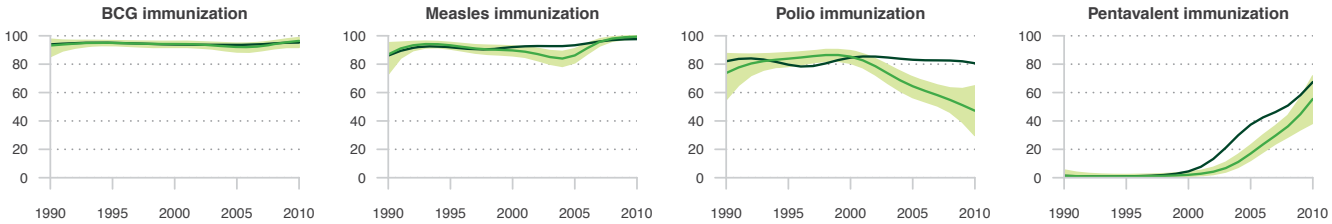
ITN ownership remained below 10% until 2005, after which coverage rapidly increased to 79% in 2010 (95% CI: 74%, 84%), far exceeding the national average of 62%.

ITN use by children under 5 years old rose to 66% in 2009 (95% CI: 61%, 71%), but slipped to 61% in 2010 (95% CI: 54%, 67%). This level of ITN use was much higher than the national average of 51% for 2010. The difference between ITN ownership and use (18 percentage points) was higher than what was observed nationally (11 percentage points) for 2010.

Mpulungu formally implemented IRS activities in 2010 and reached 28% of households that year (95% CI: 20%, 37%). This scale-up of IRS was on the lower end in comparison with other districts that also began IRS in 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2001, after which coverage rapidly rose to 88% in 2007 (95% CI: 79%, 94%). IPTp2 coverage declined slightly to 87% in 2010 (95% CI: 76%, 93%), but remained well above the national average of 68% for that year.

IMMUNIZATIONS



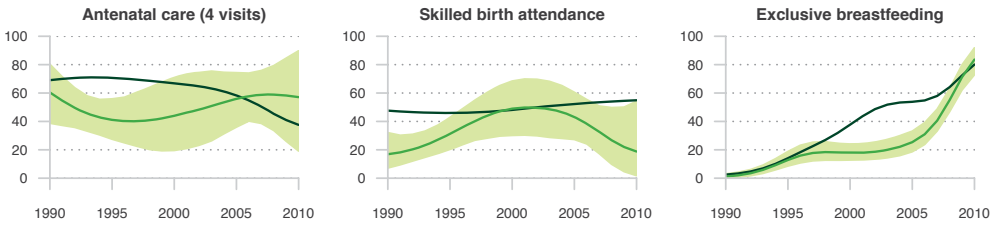
BCG coverage hovered around 95% until the mid-2000s, during which coverage decreased to 92%, but rebounded to 96% in 2010 (95% CI: 92%, 99%). This level of BCG coverage was comparable to the national average of 95% for 2010.

Measles immunization increased to 94% in the mid-1990s before decreasing to 84% in 2004 (95% CI: 79%, 89%). Coverage then climbed to 99% in 2009 (95% CI: 97%, 100%) and remained at this level through 2010. This level of coverage was slightly higher than the national average of 98% for 2010.

Coverage of polio immunization gradually rose from 74% in 1990 (95% CI: 55%, 87%) to 86% in the late 1990s, but then decreased, dropping to 47% in 2010 (95% CI: 30%, 65%) and falling to among the lowest levels of coverage in Zambia.

After the pentavalent vaccine was formally introduced in Mpulungu in 2005, coverage increased to 24% in 2006 (95% CI: 18%, 30%) and 55% in 2010 (95% CI: 38%, 72%), which was among the lowest levels in Zambia for 2010.

MATERNAL AND CHILD HEALTH INTERVENTIONS

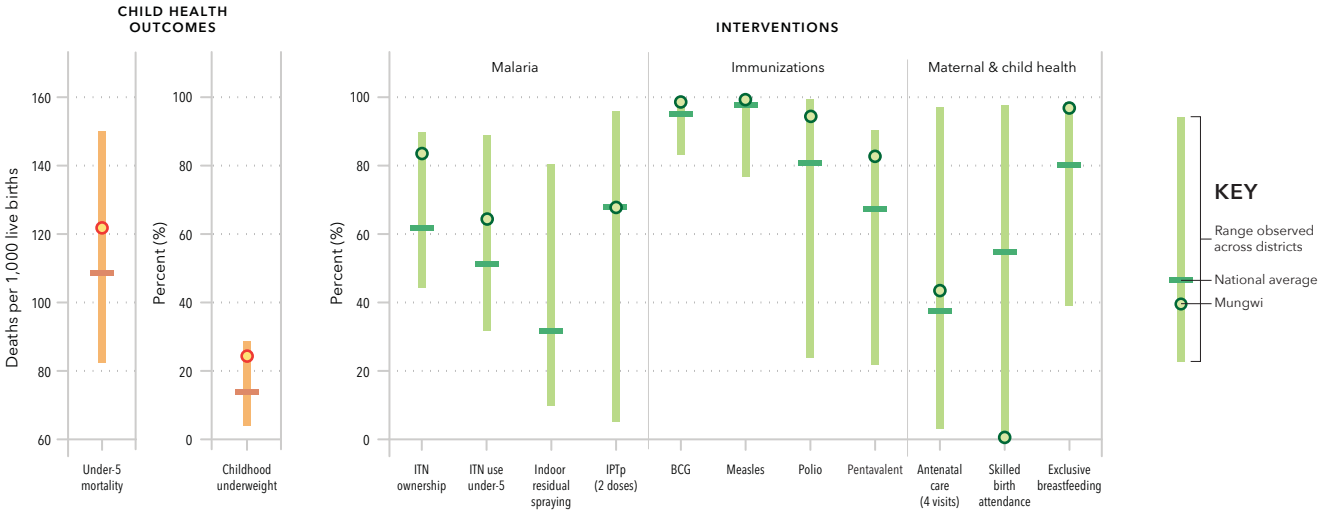


ANC4 coverage declined from 60% in 1990 (95% CI: 39%, 80%) to 40% in the mid-1990s before rising to 59% in the late 2000s. Coverage slipped to 57% in 2010 (95% CI: 19%, 90%), which was higher than the national average of 37%. While Mpulungu did not experience the same dramatic decline in ANC4 coverage observed at the national level, its coverage still remained relatively low.

Skilled birth attendance increased from 17% in 1990 (95% CI: 7%, 32%) to 50% in the early 2000s, but then steadily declined to 19% in 2010 (95% CI: 2%, 54%) and fell well below the national average of 55%. Mpulungu's decline in SBA coverage after a period of gains is cause for concern.

The proportion of children who were exclusively breastfed remained below 20% until 2003, after which coverage rapidly increased to 84% in 2010 (95% CI: 73%, 92%), exceeding the national average of 80%. The district's recent gains are notable given that its scale-up of coverage largely trailed behind the national trend until the late 2000s.

Mungwi



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green). IRS coverage was not included because Mungwi started IRS after 2010.

SUMMARY

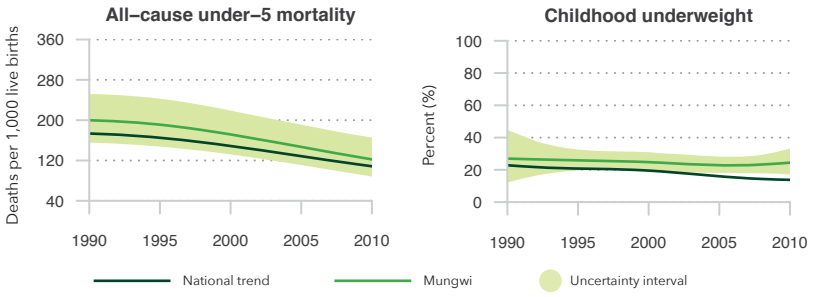
Mungwi substantially reduced all-cause under-5 mortality between 1990 and 2010, but its levels remained among the highest in the country in 2010. Minimal progress took place for childhood underweight, with Mungwi's prevalence of underweight being one of the highest levels in Zambia in 2010. Prioritizing efforts to accelerate gains for child health outcomes, especially for underweight, should be considered.

ITN coverage was scaled up to very high levels by 2010, while IPTp2 coverage closely followed the national trend. Exclusive breastfeeding increased to some of the highest levels in Zambia in 2010. Impressively, Mungwi recorded higher coverage for all immunizations—BCG, measles, polio, and pentavalent—than the national average in 2010, and was one of the only districts in Zambia to consistently perform this well for all vaccines.

However, amidst these gains, two alarming trends emerged and warrant further attention. ANC4 coverage substantially decreased, falling from very high levels in the 1990s. Skilled birth attendance was consistently low during the 1990s, but declined to some of the lowest levels in Zambia during the 2000s.

In 2010, Mungwi generally met or exceeded national levels across interventions, with skilled birth attendance as the stark exception. In comparison with the national average, Mungwi showed much higher levels of mortality and underweight.

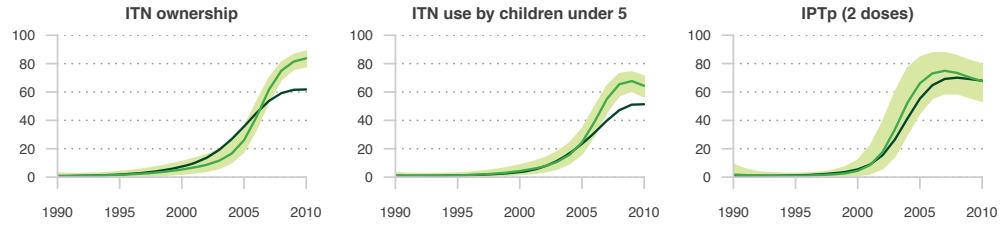
CHILD HEALTH OUTCOMES



From 1990 to 2010, Mungwi recorded a significant reduction in all-cause under-5 mortality, dropping 39% from 200 deaths per 1,000 live births in 1990 (95% CI: 157, 250) to 122 in 2010 (95% CI: 90, 163). In 2010, the district's under-5 mortality remained higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116) and was among the highest in Zambia.

The proportion of children who were underweight gradually decreased from 27% in the early 1990s to 23% in 2003 (95% CI: 19%, 29%). Underweight stayed at 23% through 2008, after which prevalence increased to 24% in 2009 and 2010. This level of childhood underweight was among the highest in the country for 2010, and Mungwi's minimal progress in reducing underweight is cause for concern.

MALARIA INTERVENTIONS



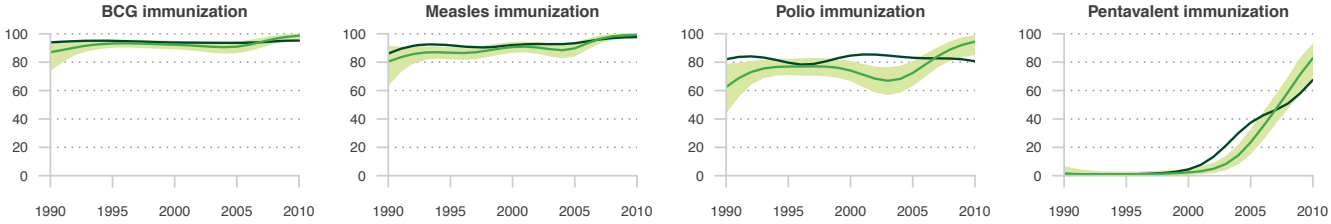
ITN ownership remained below 10% until 2003, after which coverage rapidly increased to 84% in 2010 (95% CI: 78%, 89%), rising to one the highest levels in Zambia.

ITN use by children under 5 years old quickly rose to 68% in 2009 (95% CI: 61%, 74%), but dropped slightly to 64% in 2010 (95% CI: 57%, 71%). This level of ITN use was higher than the national average of 51% for 2010. The difference between ITN ownership and use (20 percentage points) was much higher in Mungwi than what was observed at the national level (11 percentage points) for 2010.

IRS coverage trends are not included because Mungwi did not begin formal IRS activities until after 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2002, after which coverage rose 75% in 2007 (95% CI: 59%, 88%). IPTp2 coverage declined to 68% in 2010 (95% CI: 54%, 80%), equaling the national average for 2010.

IMMUNIZATIONS



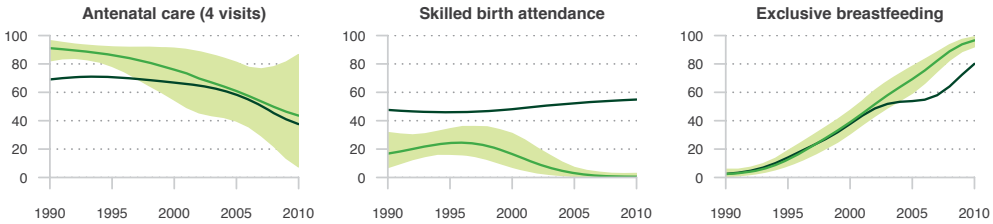
BCG immunization steadily increased from 87% in 1990 (95% CI: 75%, 94%) to 99% in 2010 (95% CI: 97%, 100%), and was among the highest levels in Zambia for that year.

Measles immunization increased from 80% in 1990 (95% CI: 64%, 91%) to 91% in the early 2000s. Coverage slipped below 90% in 2003 and 2004, but then increased to 99% in 2009 (95% CI: 97%, 100%) and remained at this level of coverage through 2010. Measles coverage in Mungwi was slightly higher than the national average of 98% for 2010.

Coverage of polio immunization increased to 77% in the mid- and late 1990s, but slipped below 70% from 2002 to 2004. Polio coverage then steadily climbed to 94% in 2010 (95% CI: 86%, 99%), which was much higher than the national average of 81% and among the highest in the country.

After the pentavalent vaccine was formally introduced in Mungwi in 2005, coverage increased to 35% in 2006 (95% CI: 26%, 44%) and 83% in 2010 (95% CI: 68%, 92%), far exceeding the national average of 67% for that year.

MATERNAL AND CHILD HEALTH INTERVENTIONS

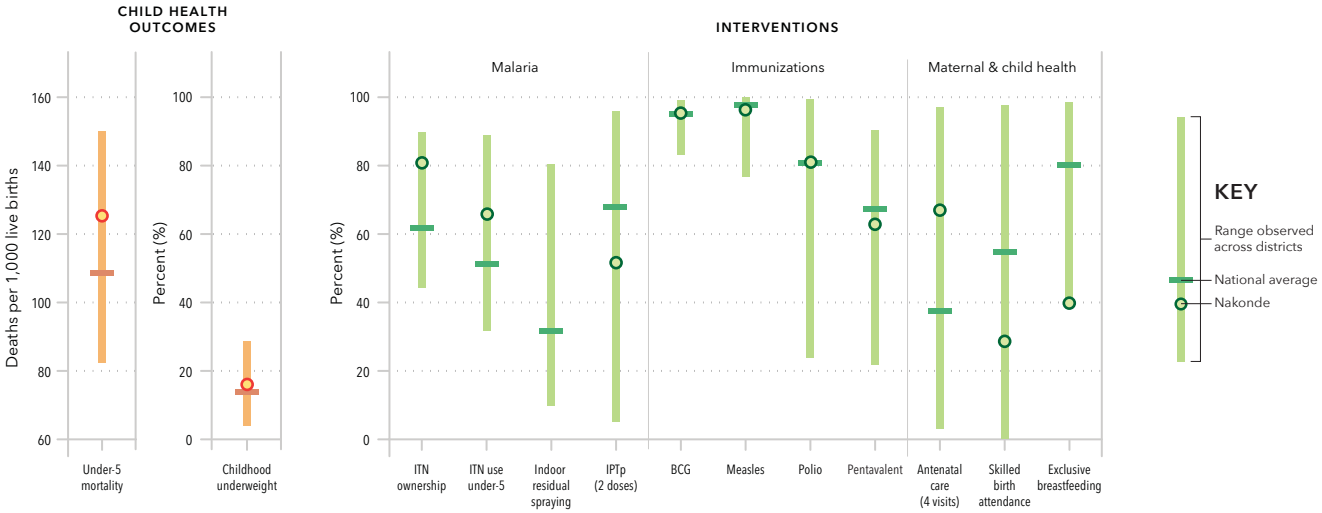


ANC4 coverage steadily decreased from 91% in 1990 (95% CI: 82%, 96%) to 44% in 2010 (95% CI: 8%, 86%), which was slightly higher than the national average of 37%. ANC4 dramatically decreased throughout Zambia from 1990 to 2010, and the finding that Mungwi's levels of coverage fell nearly 50 percentage points during this time is particularly worrisome.

Skilled birth attendance slightly increased from 17% in 1990 (95% CI: 7%, 32%) to 25% in 1996 (95% CI: 16%, 36%), but quickly fell to 1% in 2007 (95% CI: 0% to 4%). SBA coverage stayed at 1% through 2010, which was markedly lower than the national average of 55% and among the lowest in Zambia. Mungwi's extremely low levels of skilled birth attendance should be targeted for substantial improvement.

The proportion of children who were exclusively breastfed remained below 20% until 1997, after which it steadily increased to 97% in 2010 (95% CI: 92%, 99%). This level of exclusive breastfeeding far exceeded the national average of 80% and was among the highest in Zambia in 2010.

Nakonde



Note: Levels of child health outcomes and intervention coverage are for 2010. Better performance is reflected by lower levels of child health outcomes (orange) and higher levels of intervention coverage (green). IRS coverage was not included because Nakonde started IRS after 2010.

SUMMARY

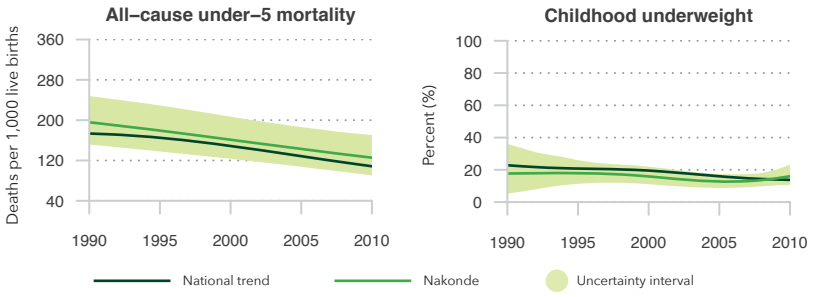
Nakonde substantially reduced all-cause under-5 mortality from 1990 to 2010, but its under-5 mortality remained one of the highest in Zambia for 2010. Minimal progress was made in reducing childhood underweight, and its prevalence even increased between 2006 and 2010. Prioritizing efforts to accelerate gains for child health outcomes should be considered.

Nakonde increased ITN ownership to among the highest levels in Zambia for 2010, and ITN use in the district exceeded the national average in 2010. Pentavalent coverage rose to national levels in 2010, and coverage of routine immunizations remained high after rising from very low levels during the early 1990s.

However, amidst these gains, some troubling trends were identified and warrant further attention. IPTp2 coverage declined sharply after its peak in 2006, and ANC4 coverage decreased after a period of steadily rising. Exclusive breastfeeding dropped to among the lowest levels in Zambia for 2010, and skilled birth attendance remained at consistently low levels over time.

In 2010, Nakonde generally met or exceeded national levels for immunizations and malaria interventions (except for IPTp2 coverage), and fell below for maternal and child health interventions (except for ANC4). In comparison with the national average, Nakonde showed higher levels of mortality and underweight.

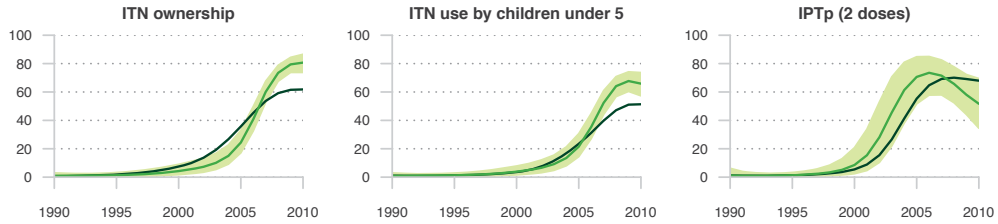
CHILD HEALTH OUTCOMES



From 1990 to 2010, Nakonde recorded a significant reduction in all-cause under-5 mortality, dropping 36% from 196 deaths per 1,000 live births in 1990 (95% CI: 154, 246) to 125 in 2010 (95% CI: 92, 168). In 2010, the district's under-5 mortality remained much higher than the national average of 109 deaths per 1,000 live births (95% CI: 104, 116) and was among the highest in Zambia for 2010.

The proportion of children who were underweight decreased from 18% in the 1990s to 13% in the mid-2000s, but then increased to 16% in 2010 (95% CI: 11%, 22%). This level of childhood underweight was slightly higher than the national average of 14% in 2010, and Nakonde's minimal progress in reducing underweight is cause for concern.

MALARIA INTERVENTIONS



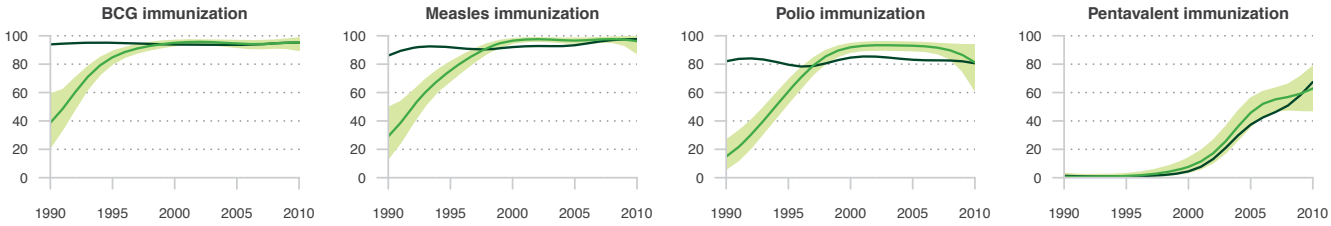
ITN ownership remained below 10% until 2003, after which coverage rapidly increased to 81% in 2010 (95% CI: 74%, 87%), far exceeding the national average of 62% and rising to among the highest levels in Zambia.

ITN use by children under 5 years old quickly rose to 68% in 2009 (95% CI: 60%, 74%), but slipped to 66% in 2010 (95% CI: 57%, 74%). This level of ITN use was much higher than the national average of 51% for 2010. The difference between ITN ownership and use (15 percentage points) was higher in Nakonde than what was observed at the national level (11 percentage points) for 2010.

IRS coverage trends are not included because Nakonde did not begin formal IRS activities until after 2010.

The proportion of pregnant women who received IPTp2 remained below 10% until 2001, after which coverage rapidly rose to 74% in 2006 (95% CI: 58%, 85%). IPTp2 coverage then decreased, dropping to 52% in 2010 (95% CI: 35%, 69%) and falling below the national average of 68%.

IMMUNIZATIONS



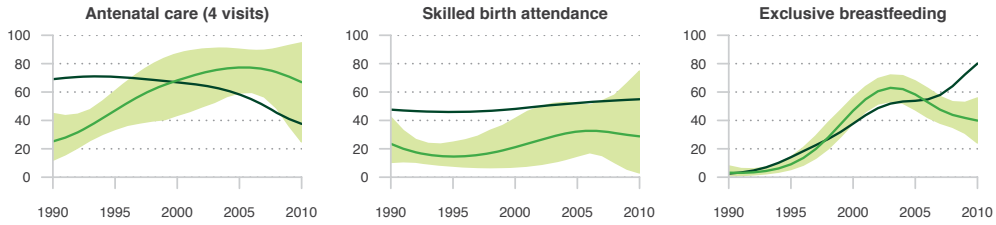
BCG immunization rapidly increased from 39% in 1990 (95% CI: 22%, 59%) to 96% in the early 2000s. Coverage decreased to 94% in 2006 and 2007, but rose to 95% in 2008 (95% CI: 91%, 97%) and remained at this level through 2010, equaling the national average.

Measles immunization quickly climbed from 29% in 1990 (95% CI: 14%, 49%) to 98% in 2002 (95% CI: 96%, 99%). Coverage hovered around 97% for several years before slipping to 96% in 2010 (95% CI: 88%, 99%), which was lower than the national average of 98%.

Polio immunization coverage rose from 15% in 1990 (95% CI: 6%, 26%) to 93% in 2001 (95% CI: 90%, 95%), which was sustained through 2006. Polio coverage then declined, dropping to 81% in 2010 (95% CI: 62%, 94%) yet still equaling the national average for that year.

After the pentavalent vaccine was formally introduced in Nakonde in 2005, coverage hovered around 55% through 2008 and then rose to 63% in 2010 (95% CI: 47%, 78%). This level of pentavalent coverage was lower than the national average of 67% for 2010.

MATERNAL AND CHILD HEALTH INTERVENTIONS



ANC4 coverage steadily increased from 25% in 1990 (95% CI: 12%, 45%) to 77% in the mid-2000s, but then declined to 67% in 2010 (95% CI: 25%, 95%). Although Nakonde's recent decrease in ANC4 is worrisome, its levels of ANC4 coverage remained higher than the national average of 37% for 2010.

Skilled birth attendance slowly climbed from 15% in the mid-1990s to 33% in 2006 (95% CI: 17%, 51%) before dropping to 29% in 2010 (95% CI: 3%, 75%). This level of SBA was lower than the national average, and Nakonde's consistently low levels of skilled birth attendance are cause for concern.

The proportion of children who were exclusively breastfed remained below 20% until 1997, after which coverage rapidly increased to 63% in 2003 (95% CI: 53%, 72%). Exclusive breastfeeding then decreased to 40% in 2010 (95% CI: 24%, 56%), falling well below the national average of 80%. This level of coverage was among the lowest in Zambia in 2010.