

COURSE 221.841.01, 4<sup>TH</sup> QUARTER 2012-2013  
Large-scale effectiveness evaluations  
of health programs

# **How has Niger reduced deaths among children by 40% in a decade?**

Agbessi Amouzou

# Presentation Outline

1. Background
2. Case study methods
3. Results
4. Implications for Niger and the region
5. Questions

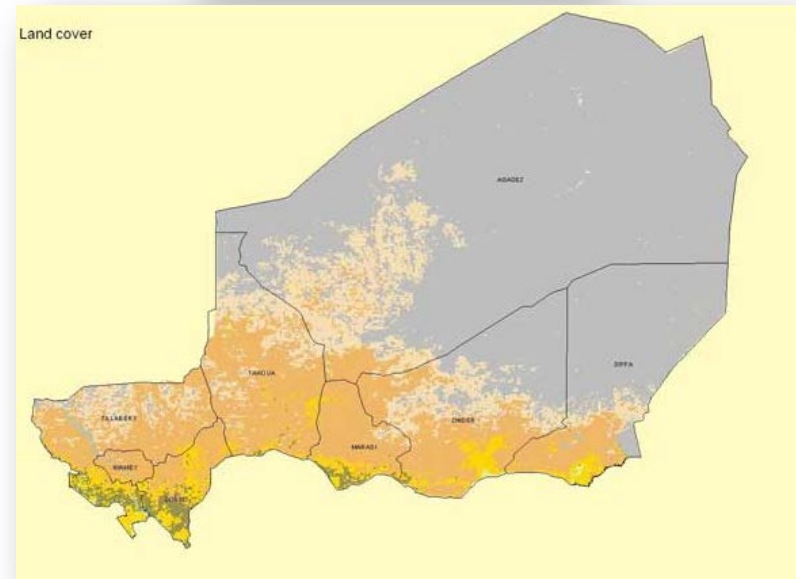
Section 1:

# **BACKGROUND**

# Niger:

## A land of challenges

- Landlocked; 80% Sahara desert
- Population 16.2 million , 75% in five southern most regions
- Poor: In 2011, ranked 186 of 187 countries on the Human Development Index



# Niger:

## A land of challenges

Characteristic	Value	Source (date)
Total Fertility Rate	7.6	DHS 2012
Percent of households living at or below poverty level	60	OECD 2012
GDP per capita	278	WHO 2010
Government expenditure on health per capita	9.1	Niger MOH (for 2009)
Percent of births to women with secondary school +	4.8	National Survey (for period 2008-2010)

## But substantial progress was made in the past decade in child survival

- Recent 2010 Mortality survey suggested a decline in U5MR from 226 in 1998 to 127 in 2009
- Report of rapid increases in coverage of key child survival indicators
- Annual surveys on child health and nutrition are conducted since 2005 and provide a wealth of data for trends analysis

# Objectives of the case study

- Investigate factors of the rapid improvement in child survival in such challenging conditions focusing on:
  - Policies and programs actually implemented and contextual factors
  - Reanalysis of trends in coverage of child survival indicators
  - Reanalysis of mortality trends

Study commissioned by Countdown to 2015

Section 2:

# **CASE STUDY METHODS**



# Four subcomponents

## Mortality

- National mortality survey 2010, with full birth history
- Careful data quality assessment

## Coverage

- 8 nationally-representative household surveys, 1998-2010
- Recalculation and quality assessment of all indicators

## Program documentation

- Independent review of documents & data bases
- 40 key informant interviews
- Tracking of contextual factors

## Lives Saved Tool (*LiST*)

- Determination of consistency between *LiST* estimates and measured estimates for 2009
- Analysis of contribution of specific interventions and reductions in risk factors



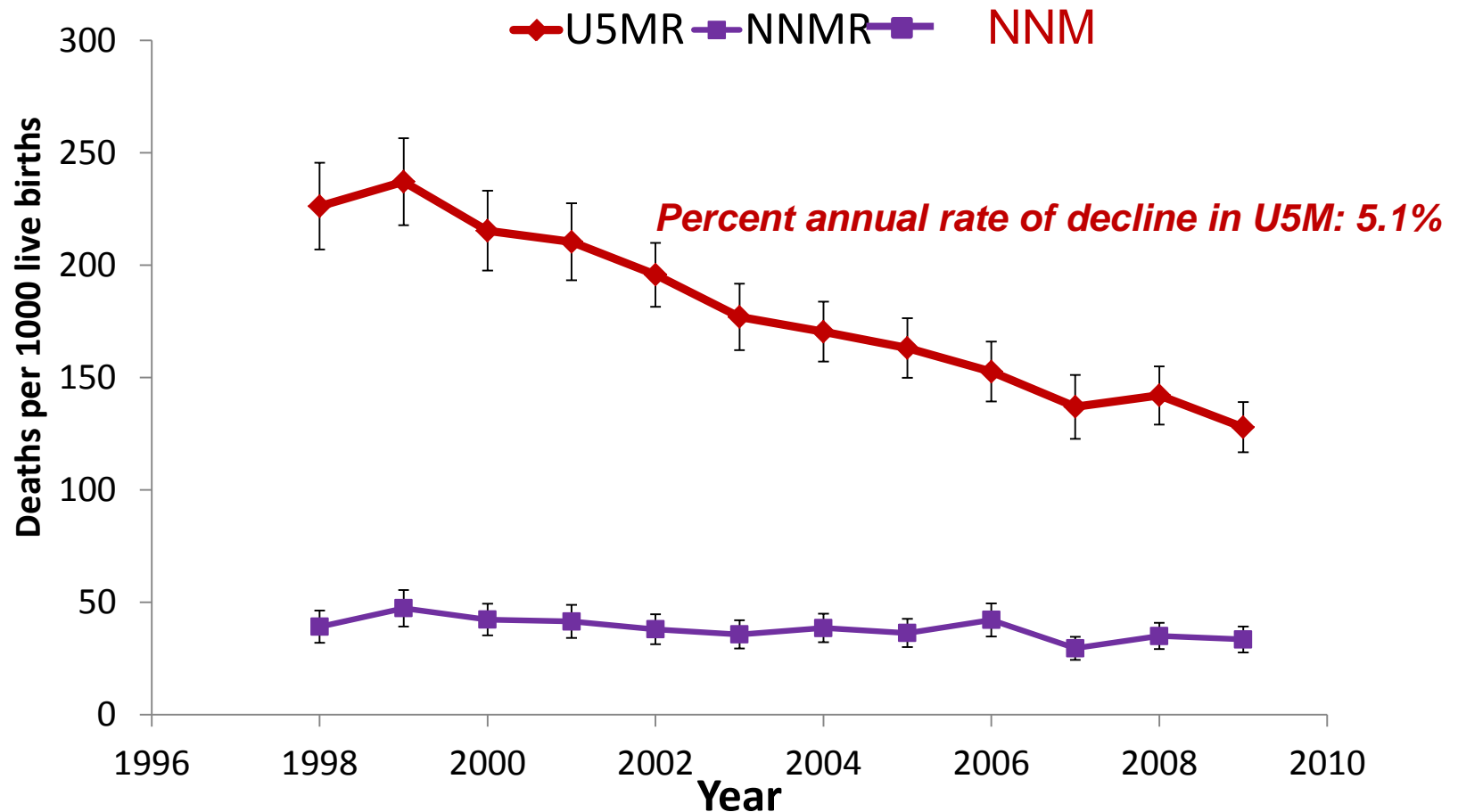
**Analysis and writing workshop  
to bring components together.**

Section 3:

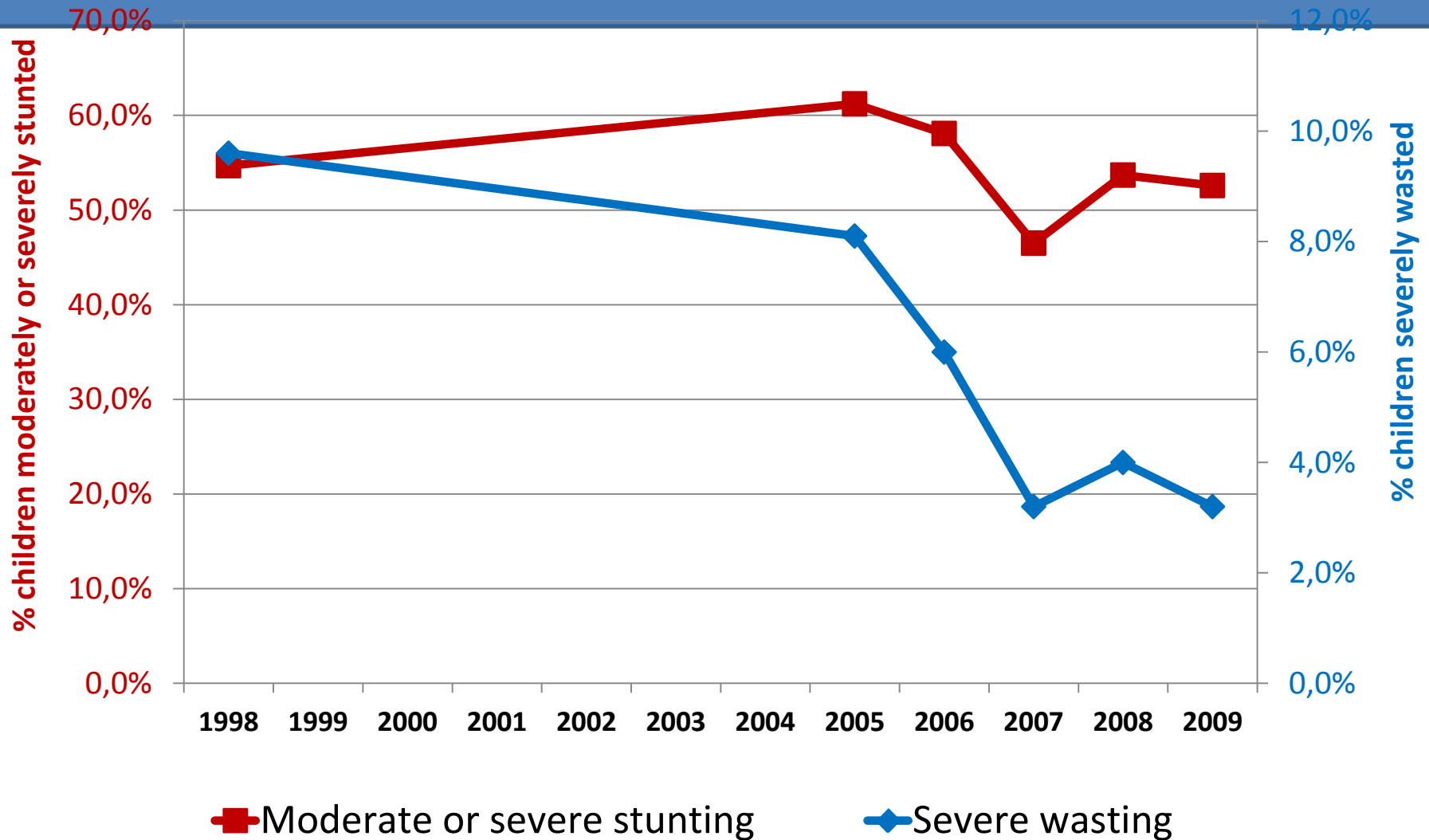
# **RESULTS**

# Steep declines in under-five mortality; No significant decline in neonatal mortality

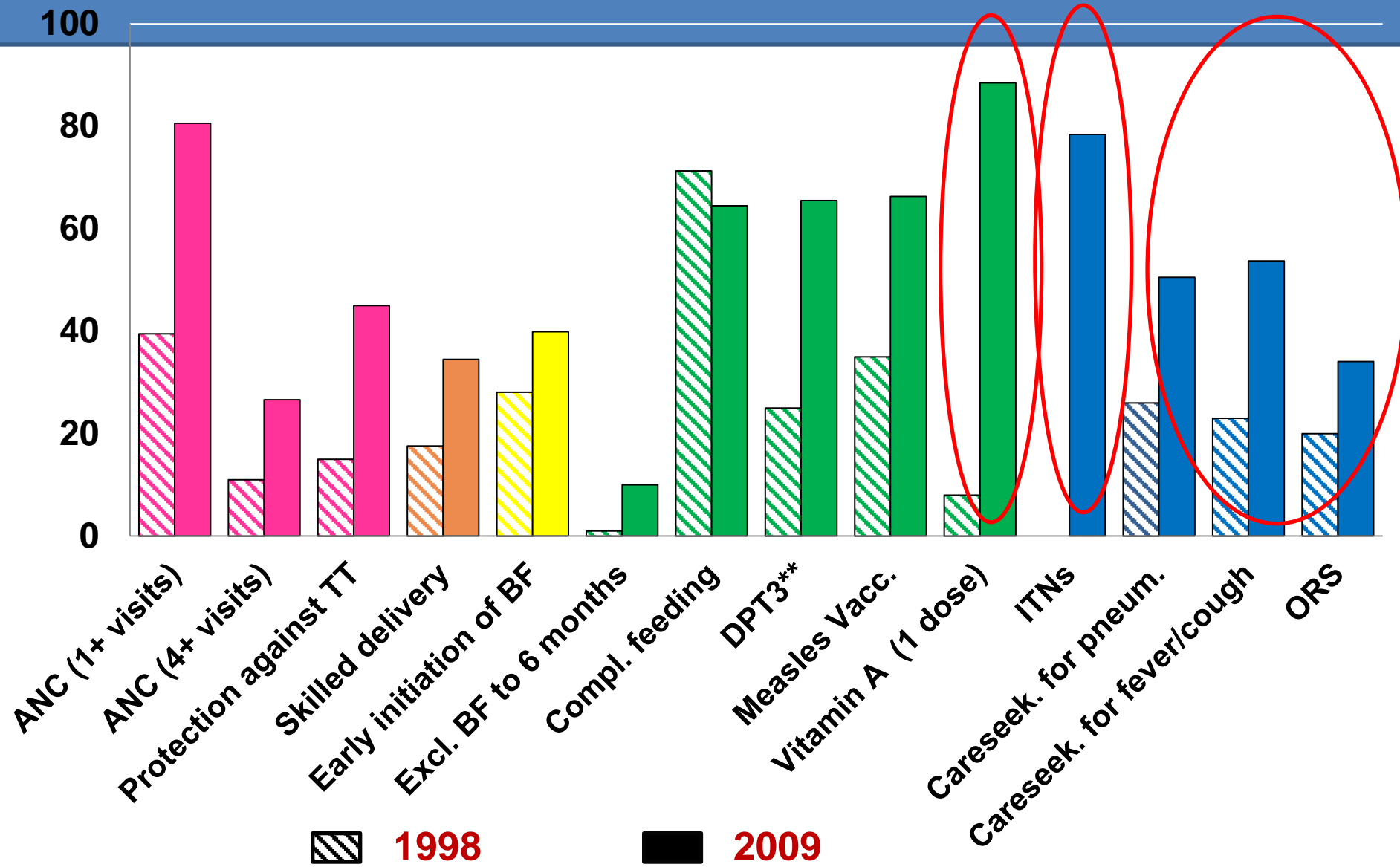
Under-five and neonatal (NN) (U5MR) mortality rates from 1998 to 2009, Niger, ESM 2010



# Wasting is down sharply; only small decline in stunting

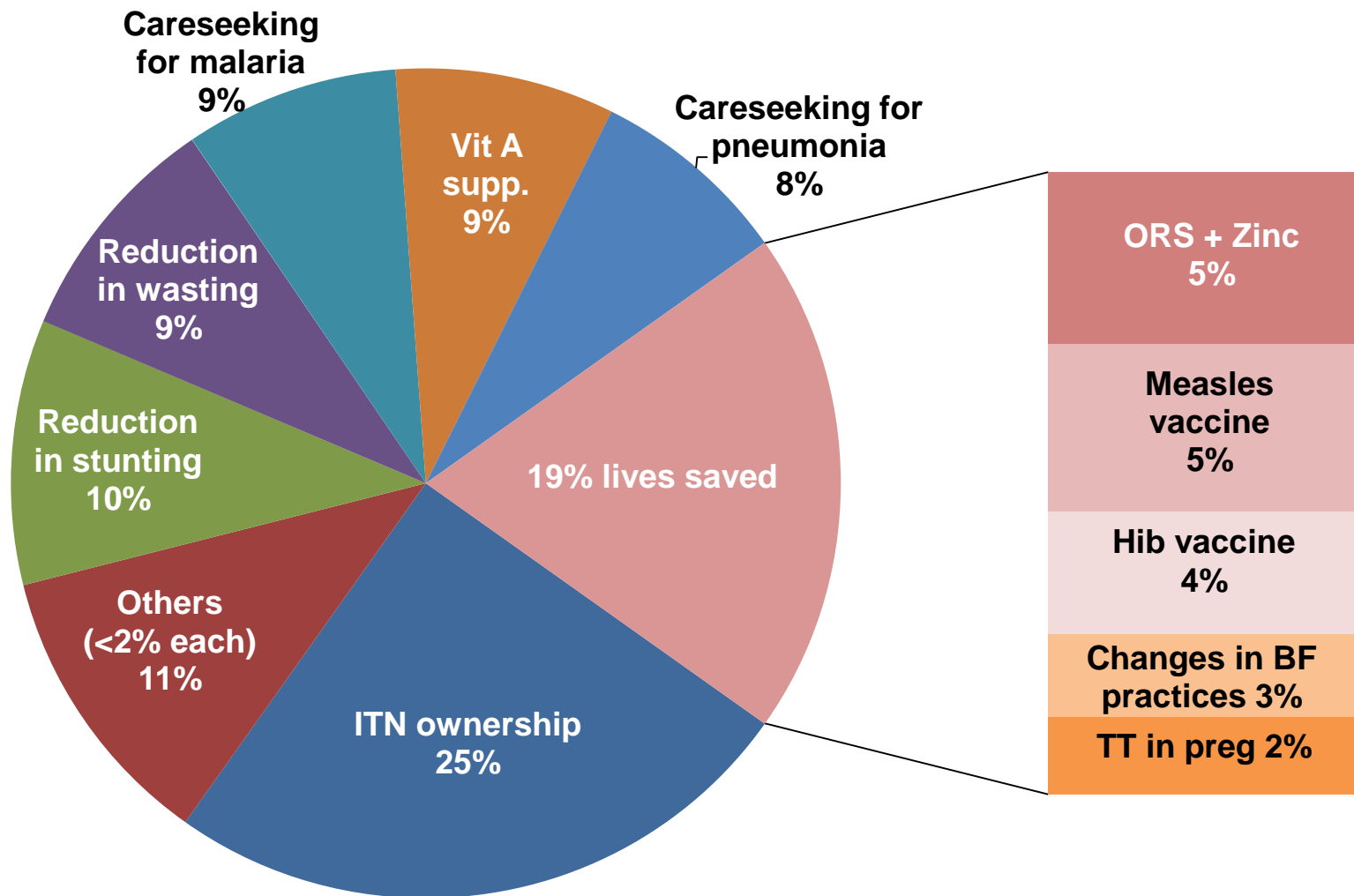


# Dramatic increases in coverage across the continuum of care, 1998 to 2009



# Proportion of child lives saved in 2009, by intervention or risk factor reduction

**Total lives saved in 2009: 58,795**



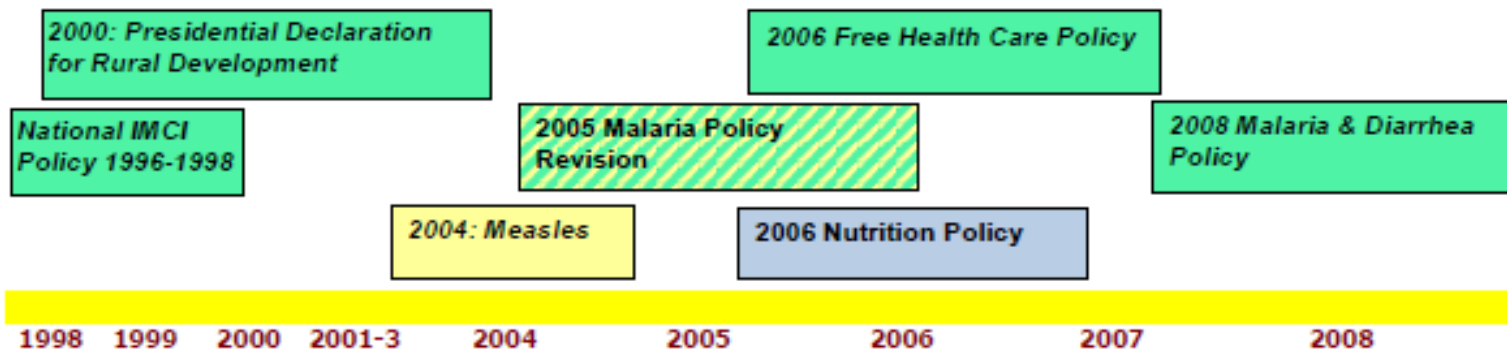
# How did Niger achieve these results?

## Three major child survival strategies since 2000

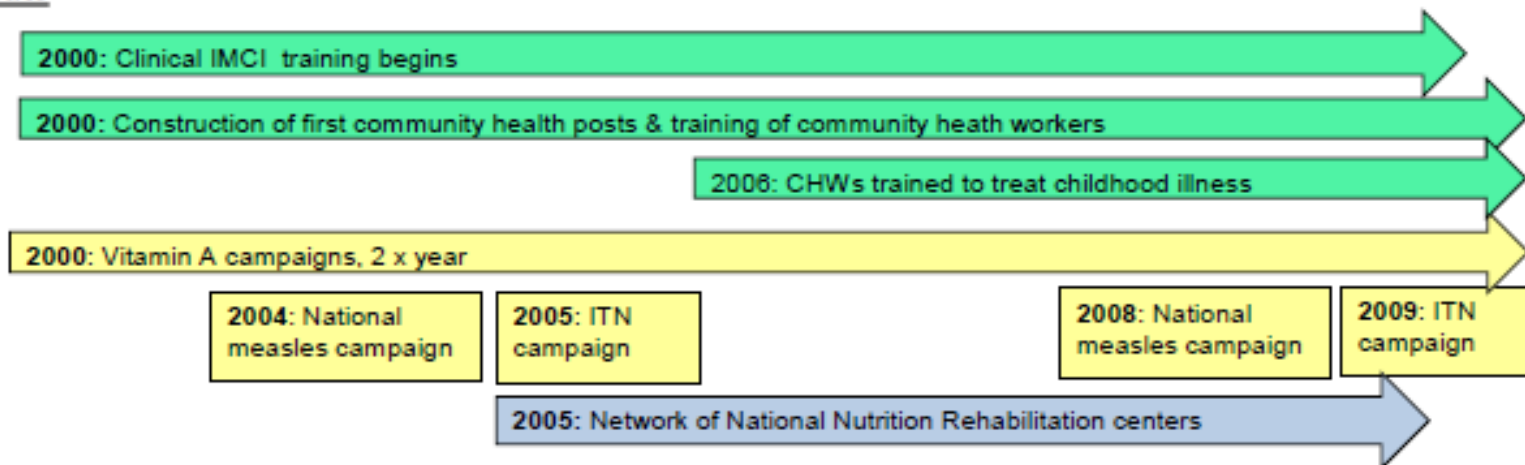
1. ***Increase access to primary health care*** for major child killers (malaria, pneumonia, diarrhea, measles)
2. ***Mass campaigns for rapid scale-up*** of insecticide-treated nets (ITNs), measles vaccination and vitamin A supplementation
3. ***Intensified efforts to address child undernutrition***

# Three major child survival strategies since 2000

## Policies



## Program inputs



 Increased access to primary health care

 Mass campaigns

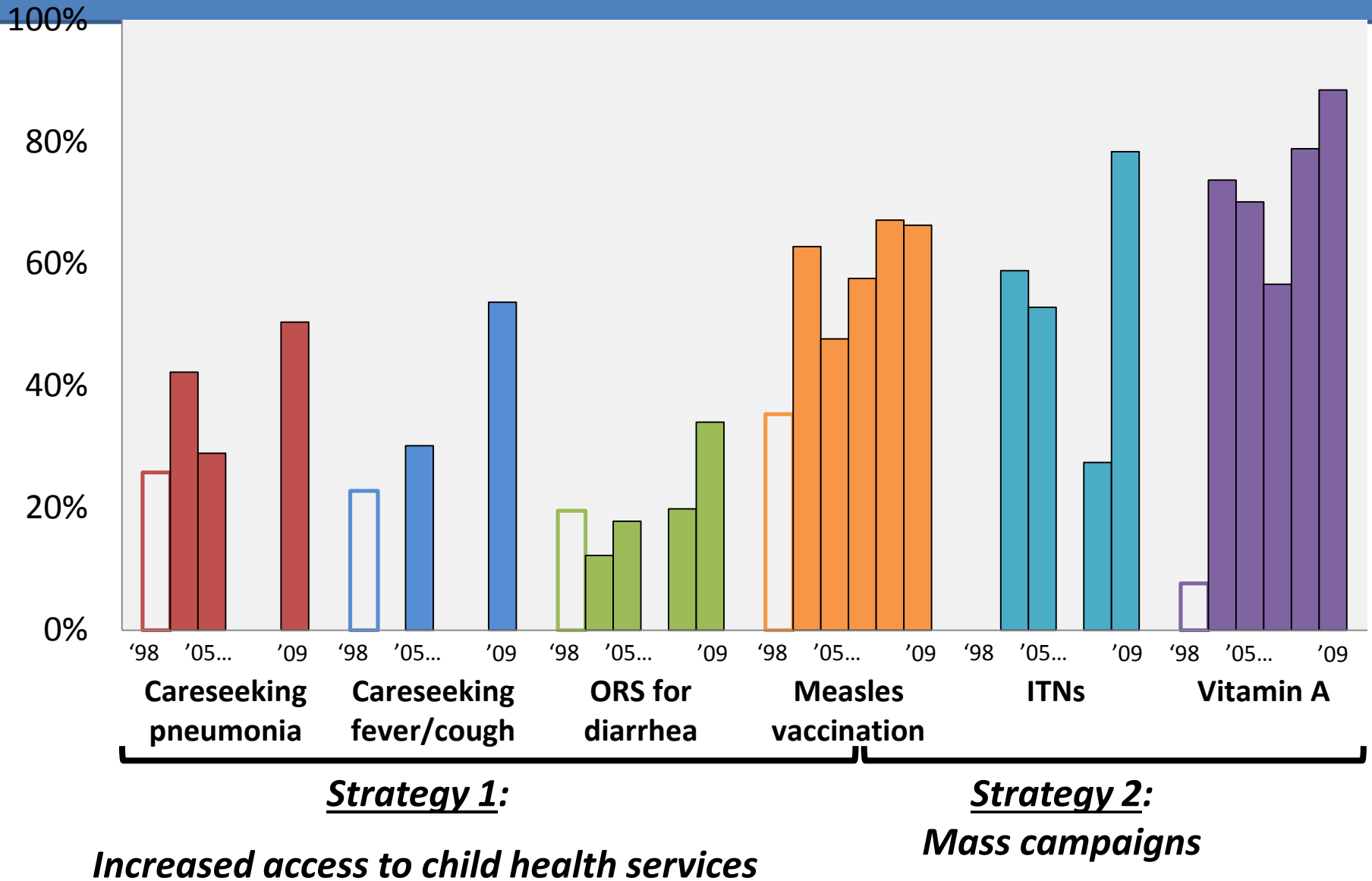
 Intensified nutrition programs



# New policies were effectively implemented

Health service indicator	1998	2009
Number of functioning health posts	0	1938
% population living within 5km of health post or health center	48%	80%
CHWs trained in management of childhood illness	0	2308
% of children with fever/cough for whom care was sought outside the home	23%	54%

# Child survival strategies are reflected in coverage trends



# Contextual factors

- **Large increases in financing**

Between 1998 and 2009/2010:

- ⇒ Total Official Development Assistance (ODA) increased 77% (US\$421.3 million to \$744.5 million)
- ⇒ ODA to maternal, newborn and child health increased 209% per livebirth and 474% per child
- ⇒ Government expenditure on health per head rose from US\$5.3 to \$9.1

- **No other changes that can explain declines in child mortality**

- ⇒ Small increase in % of births to women with secondary education or higher
- ⇒ No significant changes in other biodemographic indicators, e.g., fertility
- ⇒ No change in gross domestic product (GDP)

**Conclusion: Niger's success in reducing child deaths is the result of effective program actions, leading to rapid and large increases in coverage for effective interventions.**

# Summary of key results

- Niger reduced its under-five mortality rate by 43% between 1998 and 2005 – a rate of decline higher than needed to achieve MDG4
- The evidence indicates that this success was due to three scale-up strategies:
  - ⇒ Increased geographic and financial access to primary health care
  - ⇒ Mass campaigns for ITNs, measles vaccination and vitamin A supplementation
  - ⇒ Targeting child undernutrition through a network of services and emergency programs
- There were no changes in more distal determinants of child survival that can explain the mortality results

Section 3:

# **IMPLICATIONS FOR NIGER AND THE REGION**

# Lesson 1:

## Access to quality services matters!

- **Abolishing user fees** for pregnant women and children was key to Niger's success
- Moving **services closer to the communities** where children live (and fall ill) was an essential, complementary part of this strategy
- **Mass campaigns** offered a way to reach large numbers of children quickly, with selected interventions, but could not be used without strengthening the health delivery system more broadly
- **Nutrition** is a key part of child survival and must be more fully integrated into programming

## Lesson 2: Niger must stay the course!

- Supportive policies take time to translate into effective programs at scale
- Programs at scale produce mortality reductions only after several years
- The focus of program efforts must evolve over time, expanding to incorporate new delivery strategies and interventions (low-osmolarity ORS, Hib vaccine, CCM)
- Child survival work is not done! The next focus must be on saving more lives in the first month of life.

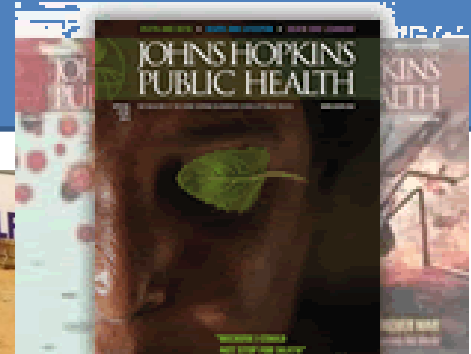
# Lesson 3:

## Good data + local use = effective programs

- Niger had regular, high-quality survey data on intervention coverage to guide its activities
- Local capacity to analyze and use data have expanded recently, permitting this and similar analyses
- Program monitoring is an essential part of program management, and is time- and resource-intensive



# JHSPH Magazine



NIGER'S TRIUMPH

## WAYS ONE OF THE WORLD'S POOREST COUNTRIES CUT CHILD MORTALITY IN HALF



### IN NIGER, DEATH HAS LONG BEEN A WAY OF LIFE.

The people of this West African nation endure pervasive poverty, persistent food shortages and a punishing climate. Especially vulnerable are the young; many children in Niger perish before their fifth birthday.

"Sometimes when you ask people how many children they have, they'll say, 'I have five children—three living and two dead,'" says Sarah Dalglish, MA, an International Health (IH) doctoral student.

A new study, however, suggests things have changed. Researchers found a direct connection between the country's child survival policies from 1998 to 2009 and a 43 percent drop in under-five deaths. The mortality rate plummeted from 226 deaths per 1,000 births to 128.

In 2009 alone, the measures saved the lives of nearly 60,000 children.

IH assistant scientist Aqbessi Amouzou, PhD, MHS, the study's lead author, partnered with UNICEF-Niger and Countdown to 2015 on the research. Jennifer Bryce, EdD, a study co-author and IH senior scientist, led the School-based group that analyzed the research data. The findings were published in *The Lancet* in September 2012.

"Niger ... has produced remarkable results for child survival that can set the bar for other countries in the region and worldwide," says Amouzou.

*Writer Jackie Powder spoke with Bloomberg School experts about four key strategies that contributed to Niger's success.*

### POSTING HEALTH IN COMMUNITIES

Central to Niger's dramatic child survival gains is the country's 2000 presidential declaration to deliver more and better health care to women and children—especially in the most rural and remote communities—by ramping up its network of health posts to provide basic preventive and curative care.

Between 2000 and 2007, nearly 2,000 posts were established and staffed by community health workers trained to treat diseases that are frequently fatal in children. Severe cases are referred to centrally located health centers with professional staff.

During the study period, community workers continued to receive training, and when possible, the posts offered additional services, including nutrition screenings, educating parents on appropriate health care for sick children and distribution of contraceptives.

"If you look at the coverage data on how many children were taken for care for diarrhea, pneumonia and malaria, there are large increases that other countries have not been able to achieve," says Bryce, who notes that change takes time.

"Looking for success in two to three years is really not enough time," she says. "In Niger, it took three, five, seven years for sound policies to translate into strong programs and to save lives."

### NO CHARGE FOR MOTHERS & CHILDREN

A pivotal piece of Niger's child survival initiative is a program, launched in 2006, to provide free health care to pregnant women and children. Earlier, expansion of the country's rural health posts improved geographic access to care and led to steady increases in the use of health services among women and children. But visits to the posts spiked after the no-charge policy took effect, according to the study.

Removal of the cost barrier meant that mothers received antenatal care and children were treated earlier for life-threatening conditions and illnesses, including Niger's leading child killers: malaria, pneumonia, diarrhea and malnutrition.

"You can't separate free care from all the other successes—it underlies everything else," Dalglish says. "It gets people in the door to treat their children, get vaccinated and diagnose disease."

With Niger's widespread poverty and a fertility rate of seven children per woman, the country's health officials recognized free care as a top priority.

"Even very small fees are going to be too expensive for people," Dalglish says. "It's particularly true [in Niger], for example, right before the harvest. People have very little or no cash on hand."

### "A" POWERFUL SUPPLEMENT

Niger's impressive reductions in child mortality refute an old public health maxim that a country must increase its wealth before it improves its health, says Alfred Sommer, MD, MHS '73, Bloomberg School dean emeritus.

"Since this School was founded, we've taken the position that there are ways to improve health, largely through methods that don't require waiting until a country is wealthy," says Sommer. "They [countries] can leapfrog ahead by effectively deploying inexpensive, proven interventions, which is critical, since many won't be getting wealthy anytime soon."

There's no better example of a "health before wealth" intervention than vitamin A. Sommer's discovery that vitamin A supplements dramatically cut child mortality has saved millions of children worldwide.

Integral to Niger's child survival program are twice yearly mass campaigns to provide vitamin A supplements, along with insecticide-treated bed nets (see next story) and measles vaccinations. Of the strategies analyzed in the study, vitamin A supplementation and bed-net ownership showed the largest increases in usage.

"The question is, will this be a lasting change?" Sommer says. "While magic bullets are cheap, getting them to the people who need them is not cheap."

### NET GAINS AGAINST MALARIA

The use of long-lasting, insecticide-treated bed nets is a powerful malaria control weapon, even with a community coverage level just above 50 percent, says William Brieger, DPH '92, MPH.

"What's important is that insecticide-treated nets are a community protection; they don't just protect individuals," says Brieger, IH professor and senior malaria specialist at Jhpiego. "If you get enough treated nets being used in a village, you start to see the effects even though not everybody is using them."

In Niger, researchers found that the rapid scale-up of treated bed net distribution is responsible for saving one in four children in 2009.

Still, Brieger says that most demographic surveys on animalarial nets show that even in households that have nets, the most vulnerable groups don't use them enough. And there are frequent reports of people using nets for fishing, covering crops and even as wedding veils.

Another challenge relates to the lifespan of the long-lasting, insecticide-treated nets. After an international push for universal bed-net coverage between 2009 and 2011, Brieger says that millions of nets are nearing their expiration date.

"We're now looking at 2013, and there needs to be a lot of replacements," he says.

# Questions for discussion

- How does the approach used in the case study relate to what you have learned so far in terms of study design?
- Can you think of other alternative ways of assessing factors of mortality reduction in Niger?
- Are there any other factors that you would have also looked at?

# Thank you from the Niger Countdown Case Study Team

- For Technical support:

- National Ministry of Health, Niger
- National Institute of Statistics, Niger
- UNICEF Niger
- Countdown Technical Working Group on Health Systems and Policies
- LSHTM and the Countdown Technical Working Group on Financing and the London School of Hygiene and Tropical Medicine

- For Financial support:

- Countdown to 2015 for Maternal and Child Survival with funding from the Bill & Melinda Gates Foundation, the World Bank and the Governments of Australia, Canada, Norway, Sweden and the United Kingdom.
- Mortality analyses were supported by the Canadian International Development Agency through the Real-Time Results Tracking project, implemented by the Institute for International Programs at The Johns Hopkins Bloomberg School of Public Health.
- The application of the Lives Saved Tool (LiST) was supported through the WHO/UNICEF Child Health Epidemiology Reference Group (CHERG) by the Bill & Melinda Gates Foundation.

Thank you!