

# Reproductive, Maternal, Newborn and Child Health:

## Progress, Challenges and the Way Forward

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# Outline of Presentation

- **Maternal, Newborn and Child Health**

**Current status -**

**how well are we doing?**

- **How did we get to where we are?**

- **Where are we headed – future challenges?**



# How well are we doing?



**UNICEF: State of the World's Children**

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**WHO: Health Metrics Network**

**National Demographic and Health Surveys**

**In-Depth Network**

**Disease specific annual reports**

**\*Institute for Health Metrics and Evaluation**

# Maternal Mortality: Key Facts

- **Every day in 2017, approximately 810 women died from preventable causes related to pregnancy and childbirth.**
- **Between 2000 and 2017, the maternal mortality ratio (MMR, number of maternal deaths per 100,000 live births) dropped by about 38% worldwide.**
- **94% of all maternal deaths occur in low and lower middle-income countries.**
- **Young adolescents (ages 10-14) face a higher risk of complications and death as a result of pregnancy than other women.**

# Greatest global inequalities in maternal deaths

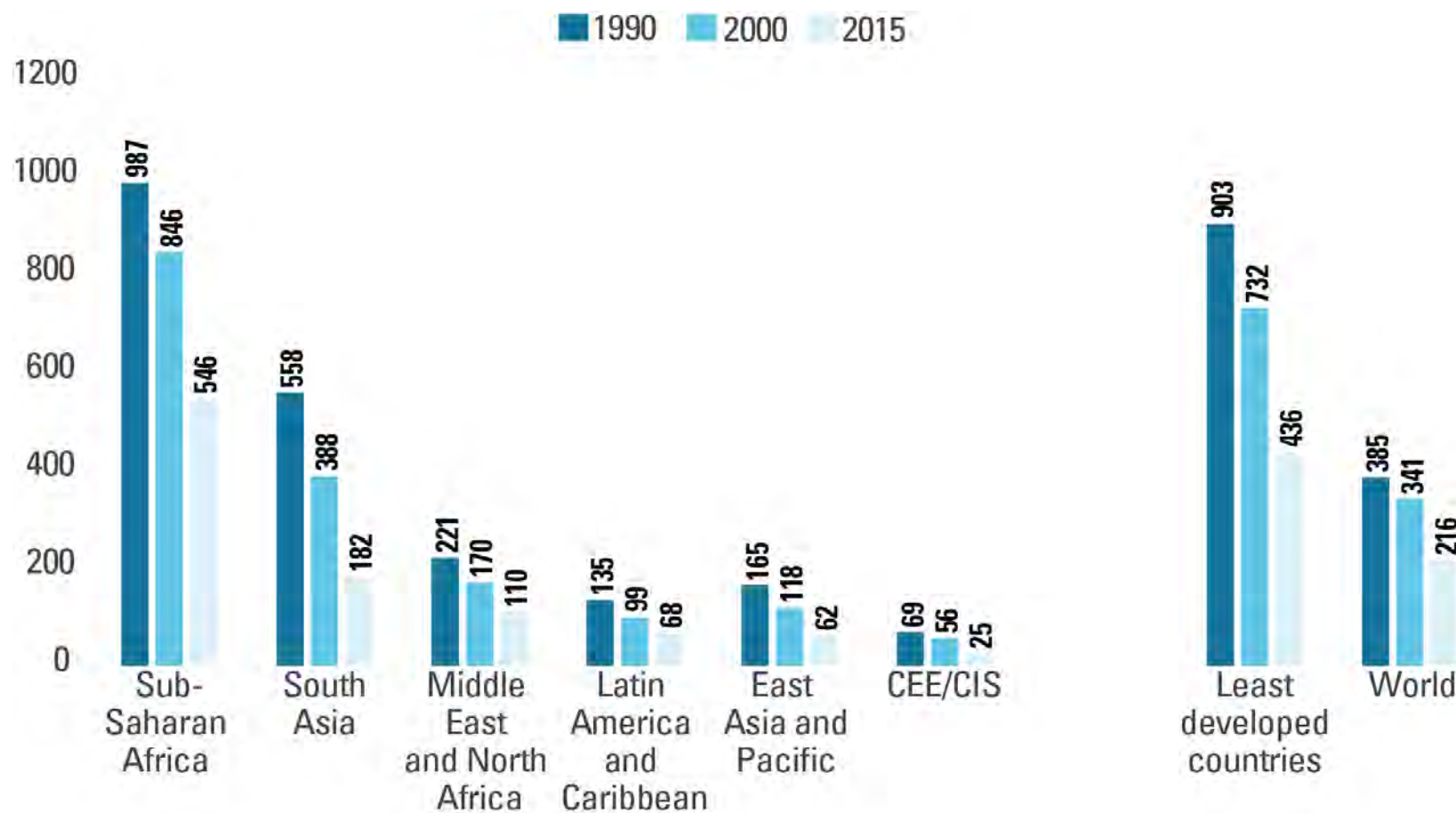
- **Maternal Mortality Ratio:**

# deaths during pregnancy and 42 days postpartum

100,000 live births

- The maternal mortality ratio in developing countries in 2015 was 239 per 100 000 live births versus 12 per 100 000 live births in developed countries.
- Top 25 countries in SSA
- Sierra Leone 1,360                      Canada 6

# MMR trends



# Maternal Mortality

Maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births.

⚙ LINEAR



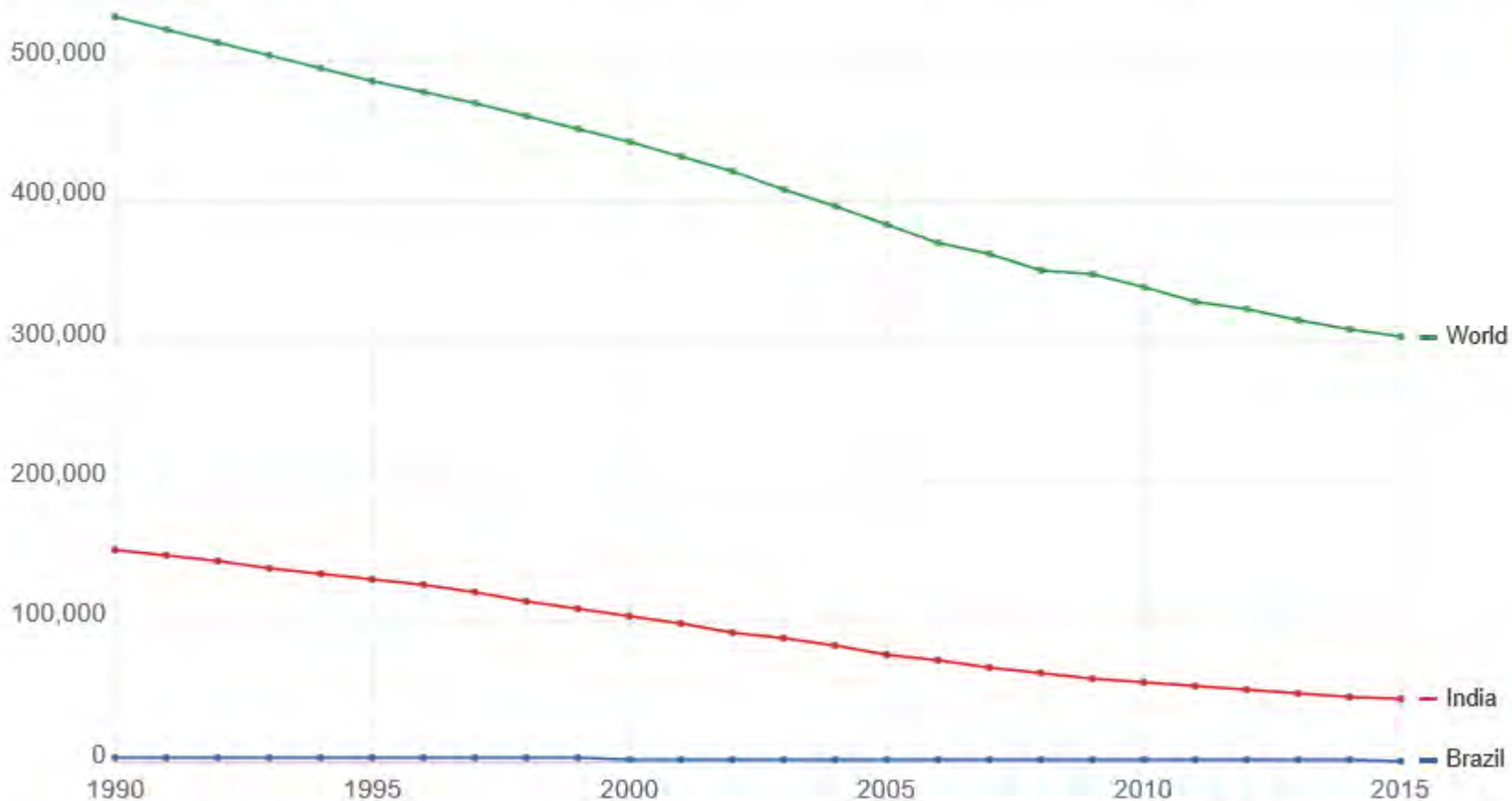
Source: Gapminder (2010) and World Bank (2015)

OurWorldInData.org/health-meta/ • CC BY-SA



## Number of maternal deaths

Shown is the number of deaths of women while pregnant or within 42 days of termination of the pregnancy, from causes related to or aggravated by the pregnancy.

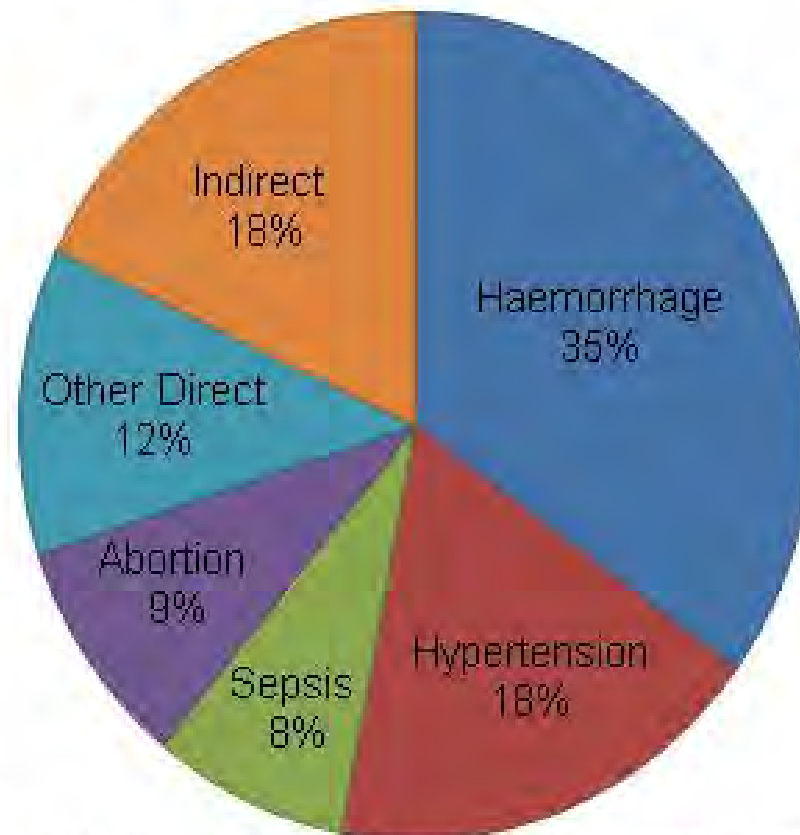


Source: World Bank – WDI

OurWorldInData.org • CC BY-SA



## Direct Causes of Maternal Mortality



Source: Countdown to 2015 Decade Report (2000-2010), World Health Organization (2010)

# Reproductive Health Issues

- Safer sex
- Reproductive health rights
- Rape, non-consensual sex
- Birth control, family planning
- Abortion
- Pregnancy and childbirth

# Safer Sex

**Sexual activity engaged in by people who have taken precautions to protect themselves against sexually transmitted infections**

**Condoms**

**Male circumcision**

**Safer partner selection (“sugar daddies”)**

# Rape/Non-consensual sex

- **Worldwide, 35% of women report sexual violence. Majority by husbands or family members.**
- **SA survey: 62% of adolescent boys view nothing wrong with forced sex**
- **Grossly under-reported: # cases/100,000 pop'n**

<b>South Africa</b>	<b>132</b>	<b>#1</b>
<b>Sweden</b>	<b>63</b>	<b>#6</b>
<b>US</b>	<b>14</b>	<b>#14</b>
<b>Canada</b>	<b>2</b>	<b>#97</b>
<b>India</b>	<b>NR</b>	

# Reproductive Human Rights

Reproductive rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. They also include the right of all to make decisions concerning reproduction free of discrimination, coercion and violence.

This includes abortion, access to family planning, no forced sterilization, reproductive health education. (UNICEF, WHO)

Mexico City Policy

# Mexico City Policy

Sometimes referred to by critics as the global [gag rule](#), is a United States government policy that blocks US federal funding for non-governmental organizations that provide counselling or referrals, advocate to decriminalize abortion or expand abortion services.

Implemented in 1984 (Reagan)

Terminated in 1993 (Clinton)

Reinstated in 2001 (Bush)

Terminated in 2009 (Obama)

Reinstated in 2017 (Trump)

Trump 2019: extended to include any partner organization

# Abortion

- **Illegal in all but 3 countries in South America, Africa and South Asia**
- **Legal exceptions, e.g. “menstrual regulation”**
- **Unsafe abortion 4<sup>th</sup> leading cause of MMR**
- **20 million unsafe abortions/year**
  - **70,000 deaths**
  - **95% in LICs**
- **Unwanted children - infanticide**







WRITE — UNICEF IN FULL

AFRIPAD



# Adolescent pregnancy 2016

## Key facts

- About 16 million girls aged 15 to 19 and some 1 million girls under 15 give birth every year—most in LMICs.
- Complications during pregnancy and childbirth are the second cause of death for 15-19 year-old girls globally.
- Every year, some 3 million girls aged 15 to 19 undergo unsafe abortions.
- Babies born to adolescent mothers face a substantially higher risk of dying than those born to women aged 20 to 24.

# Safe(r) home delivery kits

- **Chlorhexidine, which is applied to the umbilical stump and reduces certain severe infections by 75 per cent and mortality from all causes by 25 to 40 per cent.**
- **Sterilized razor blade**
- **An emollient to promote skin integrity, helping to reduce infection and prevent hypothermia**
- **A handheld scale to identify low birth weight.**
- **ThermoSpot to continuously monitor temperature and identify hypothermia and fever.**
- **Mylar infant sleeve and reusable heating device to treat hypothermia.**
- **Qxytocin**

# Safe Deliveries

## Home deliveries

- Traditional birth attendants (TBAs)
- Trained TBAs
- Skilled birth attendants

## Facility-based deliveries

- Doctors, nurses, midwives, paramedics

# ThermoSpot



**Thermospot is a low-cost, reusable hypothermia indicator designed particularly for use by illiterate mothers. The LCD screen on the sticker changes color in accordance with the infant's core temperature.**

**Green, Red, Black, Blue**



# Mylar Infant Sleeve





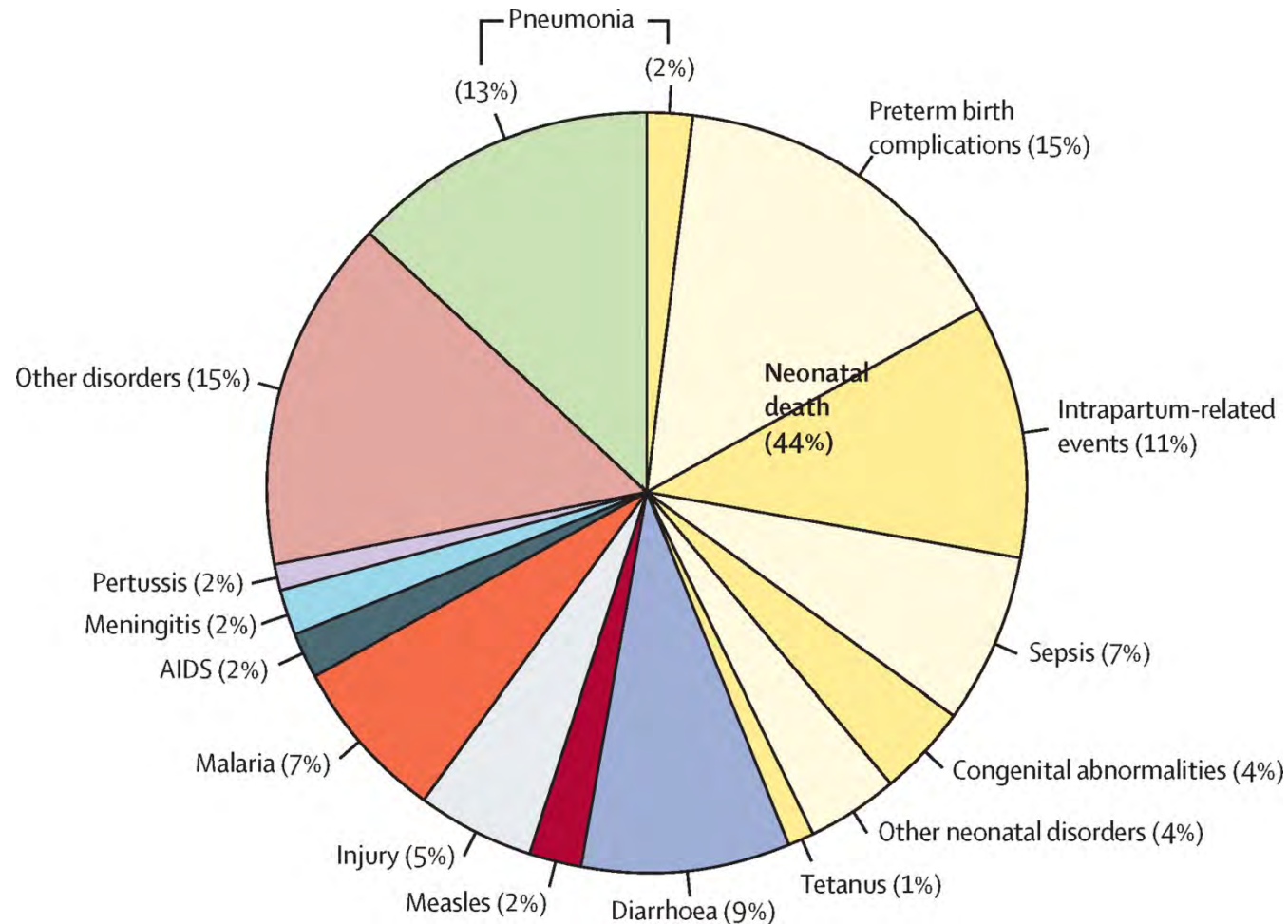
# Child Health



# **2015: 25<sup>th</sup> Anniversary of Convention on the Rights of Children**

- **6 million under-five deaths annually  
(17,000+/day)**
- **350 million children experiencing daily hunger**
- **75 million children 5-10 years old not in school**
- **22 million infants not immunized**
- **1 billion children under 15 subjected to  
violence/conflict**
- **150 million under 15 child laborers**

# Under-five mortality: about 6 million preventable deaths/year

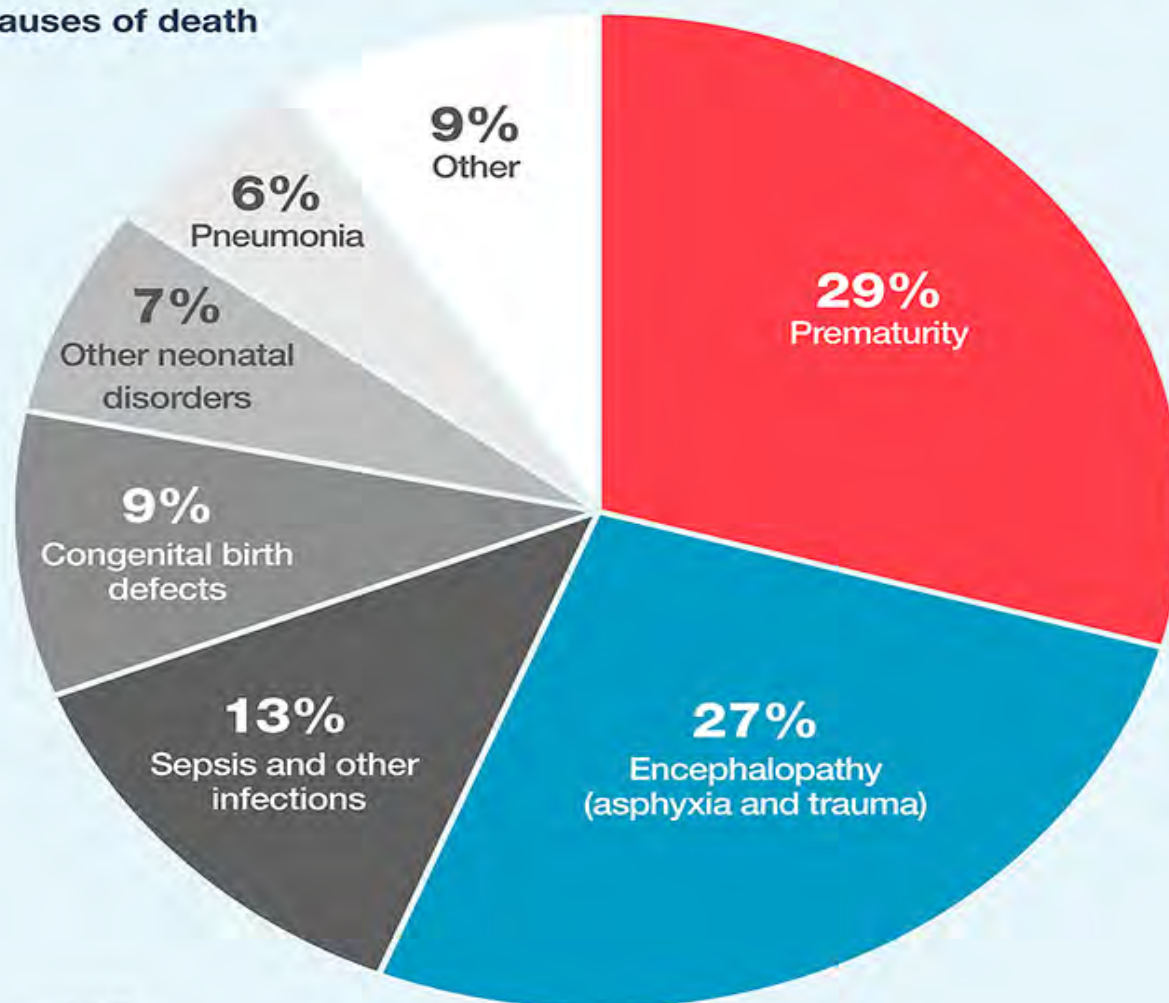


**Global causes of child deaths**

# ***Still Too Many***

In 2015, 2.6 million children died in their first month of life

## **Causes of death**



Source: IHME

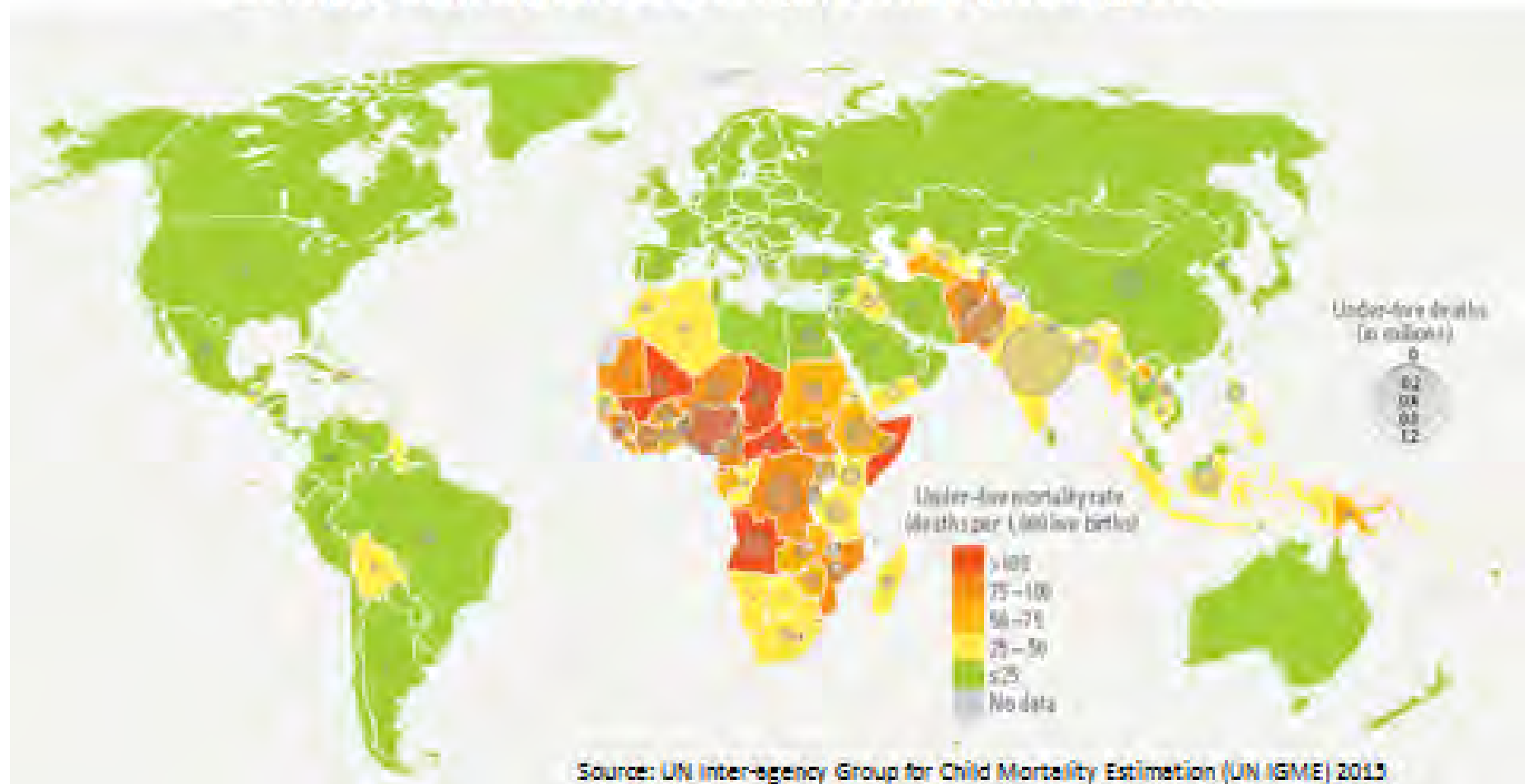


## Where under-five deaths are occurring:

The highest under-five mortality rates are in sub-Saharan Africa

- In Sub-Saharan Africa 1 in 12 die before age 5, in high income countries 1 in 147 die before age 5; Sub-Saharan Africa and South Asia account for more than 80% global under-five deaths

*Under-five mortality rate and under-five deaths by country, 2015*



## Progress by 2018

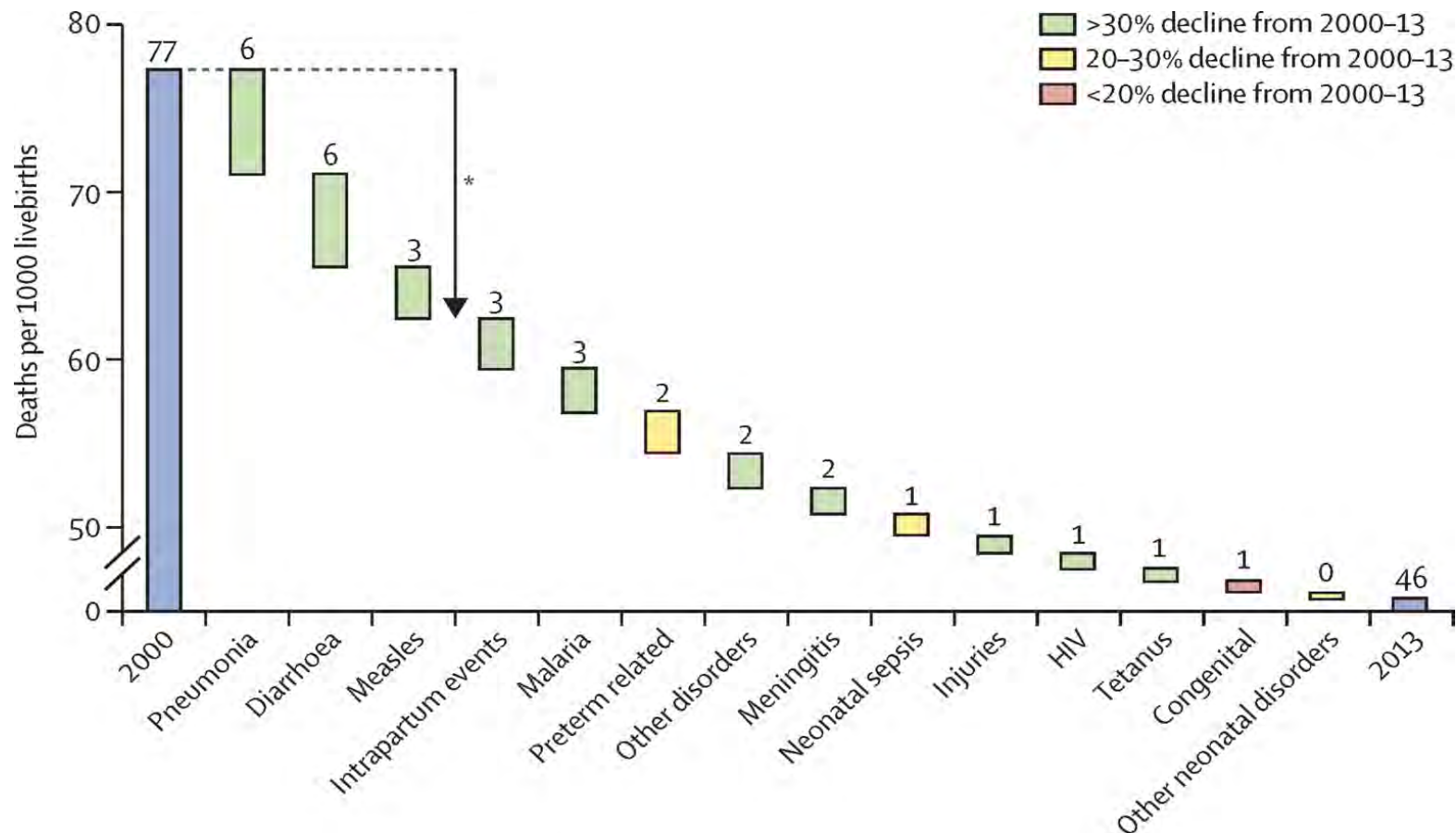
	1990	2018
• U5MR worldwide*	99	44**
• # under-five deaths	12.7 m	5.7 m
• Neonatal MR*	35	18
• # neonatal deaths	5.1 m	2.2 m

**U5MR SDG: <25 by 2030**

**\* per 1000 live births**

**\*\*>14,000 every day**

# Under-five mortality worldwide



**Global trends in cause-specific mortality rates in neonates and children aged 1–59 months, 2000–13**



# Reductions, yes, BUT huge disparities remain

	U5MR		%	Characterized
	1990	2015	drop	as
Brazil	62	14	-77	Emerging economy
Senegal	142	60	-57	Poor, but stable
Bangladesh	144	41	-71	
DRC	171	146	-15	Very poor & very unstable
Chad	209	150	-28	
Canada	7	5	-38	Rich, donor

Over 50% of U5MR now occurring in “security challenged” settings (war, violence/civil insecurity, displaced, natural disasters)

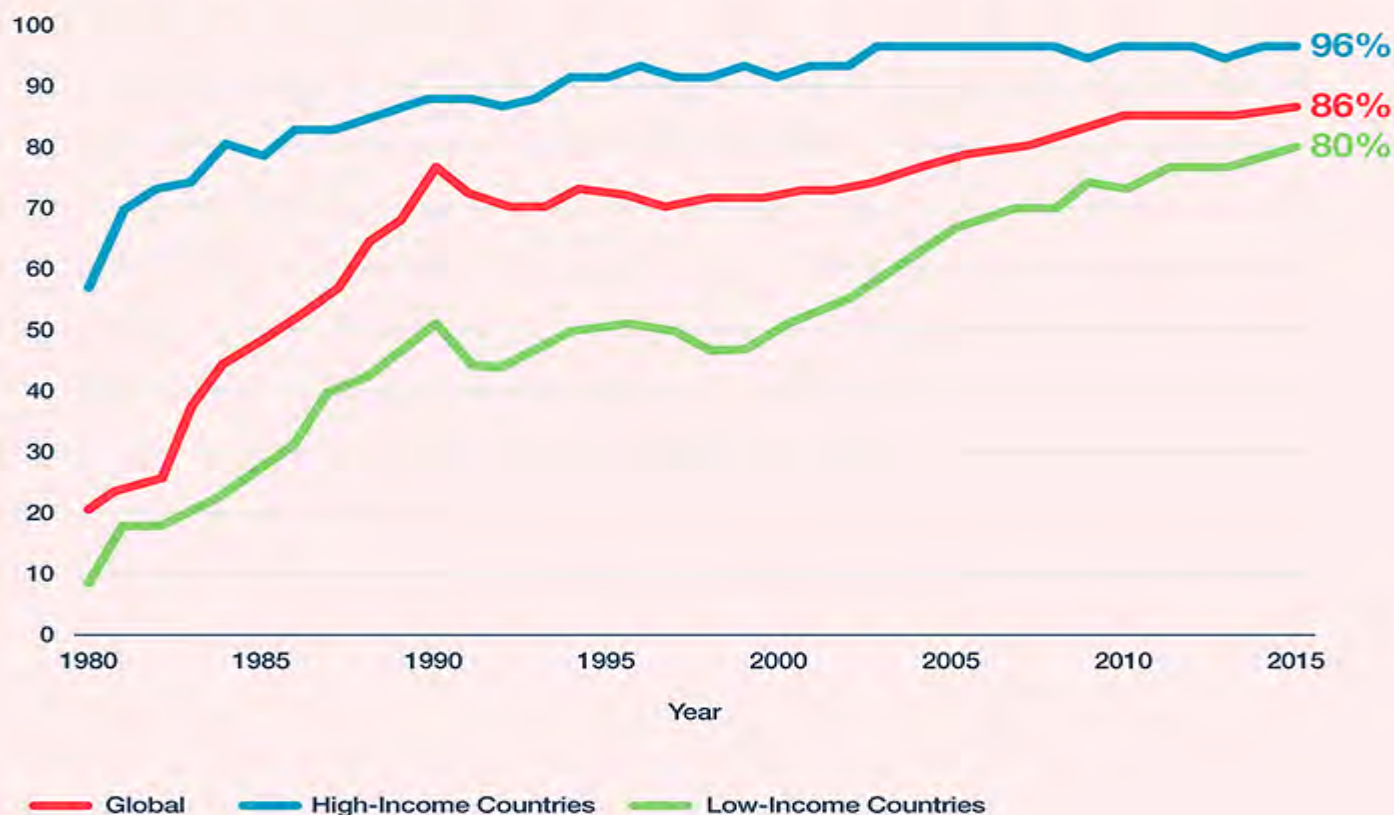
# Vaccination coverage 2016

## Key facts

- **Vaccine-preventable diseases: cervical cancer, diphtheria, hepatitis B, measles, mumps, pertussis (whooping cough), pneumonia, polio, rotavirus diarrhoea, cholera, rubella and tetanus.**
- **Uptake of new and underused vaccines is increasing.**
- **Immunization currently averts an estimated 2 to 3 million deaths every year. An additional 1.5 million deaths could be avoided, however, if global vaccination coverage improves.**
- **An estimated 19.4 million infants worldwide are still missing out on basic vaccines.**

# Global Vaccination Coverage at Its Highest

Coverage with three doses of diphtheria-, tetanus-, and pertussis-containing vaccines (DTP3), by country income levels, 1980–2015



Source: WHO/UNICEF

# MALNUTRITION



# Malnutrition terms

**Protein-energy malnutrition:** A broad (older) term from the 1970s when protein deficiency was felt to be the primary driver behind malnutrition.

**Micronutrient deficiency:** “hidden hunger”, a lack of one or more essential vitamins and minerals, such as Vitamin A, iron, iodine or zinc.

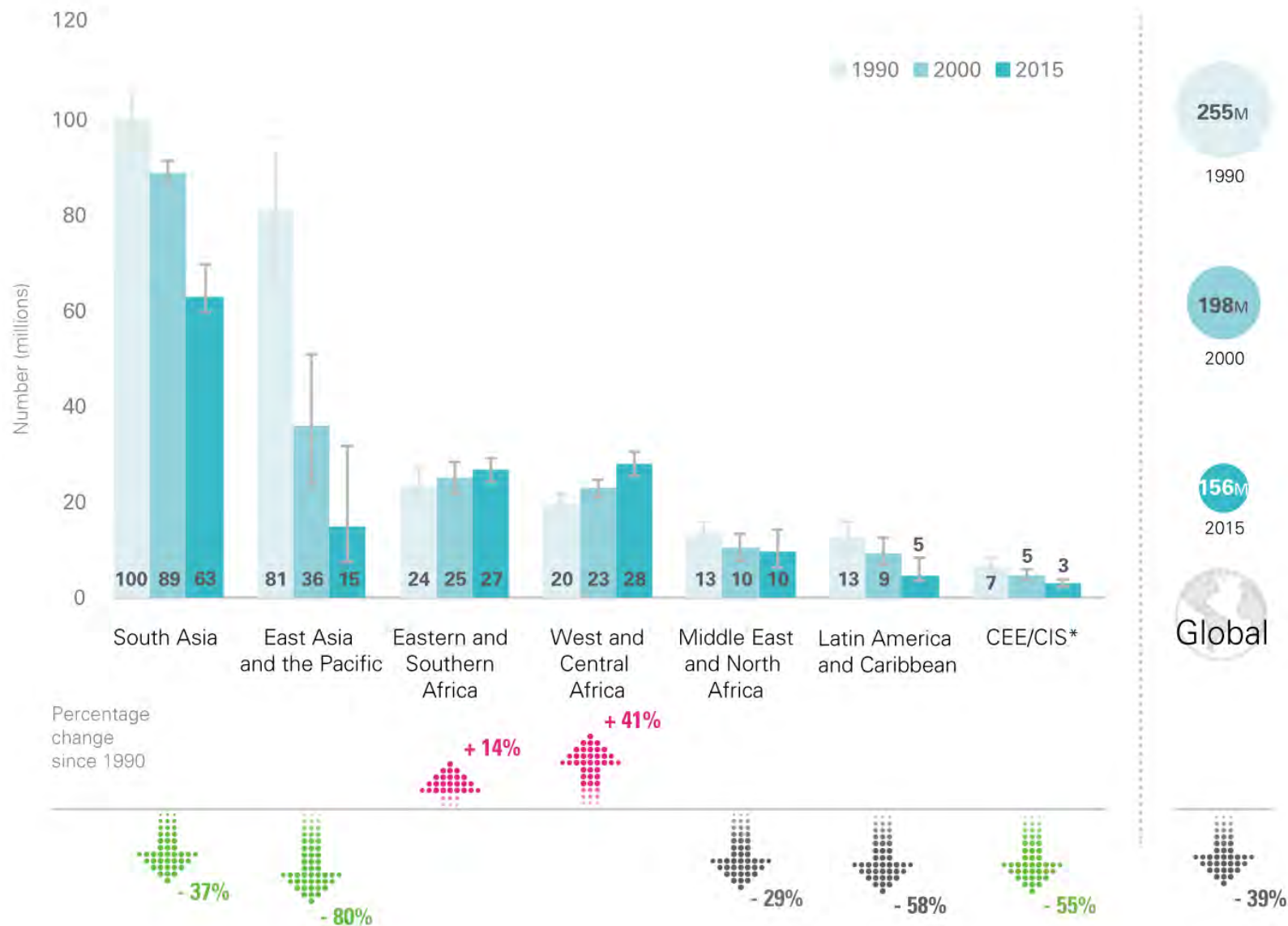
# Undernutrition

- **Underweight** (weight –for-age): a child has low weight for age. Composite measure includes chronic and acute malnutrition.
- **Stunting** (height-for-age): child short for their age as a result of chronic under nutrition during the most critical periods of growth and development in early life.
- **Wasting** (weight-for-height: child's weight is too low for their height as a result of acute under nutrition, can vary with the seasons. Reflects loss of muscle tissue and fat.

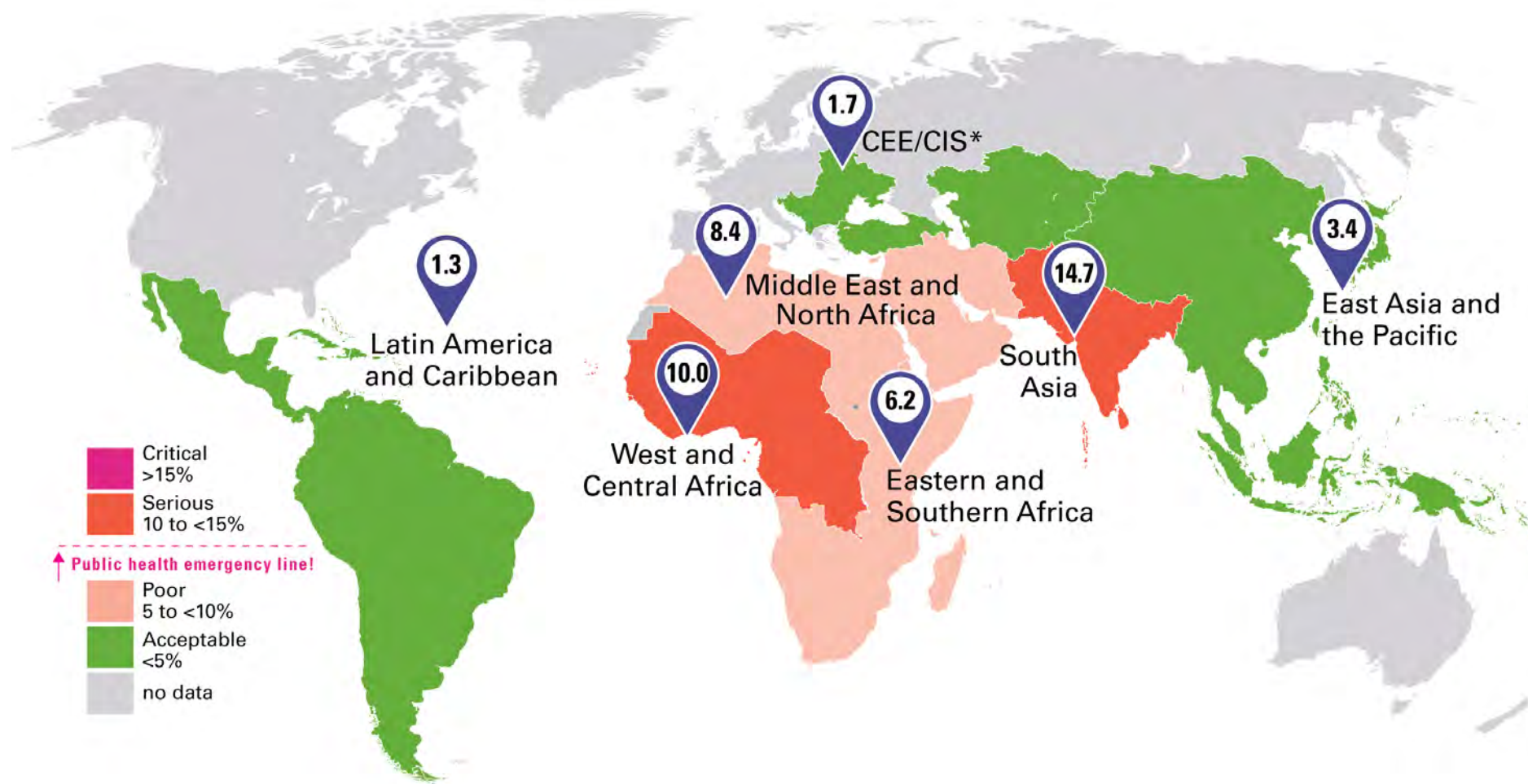
$$\text{Z-score} = (\text{actual} - \text{expected}) / \text{standard deviation}$$

Normal	z-score $\geq -1$
Mild	z-score $< -1$
Moderate	z-score $< -2$
Severe	z-score $< -3$





**Prevalence of moderate to severe stunting**



## Prevalence of moderate to severe wasting

# Marasmus

**The commonest form of malnutrition called marasmus results in an affected child being severely wasted, with no fat and very little muscle tissue left on his or her body. The child is left with no reserves to fight infection, and any illness that comes along is likely to be fatal.**



# Clinical signs: Marasmus



- **Severe Wasting, very thin**
- **Loss of Muscle Bulk,**
- **No subcutaneous Fat**
- **Loose skin folds, floppy buttocks**
- **Often reasonable appetite when no med complication**
- **Miserable, restless**
- **Apathy**

# Kwashiorkor

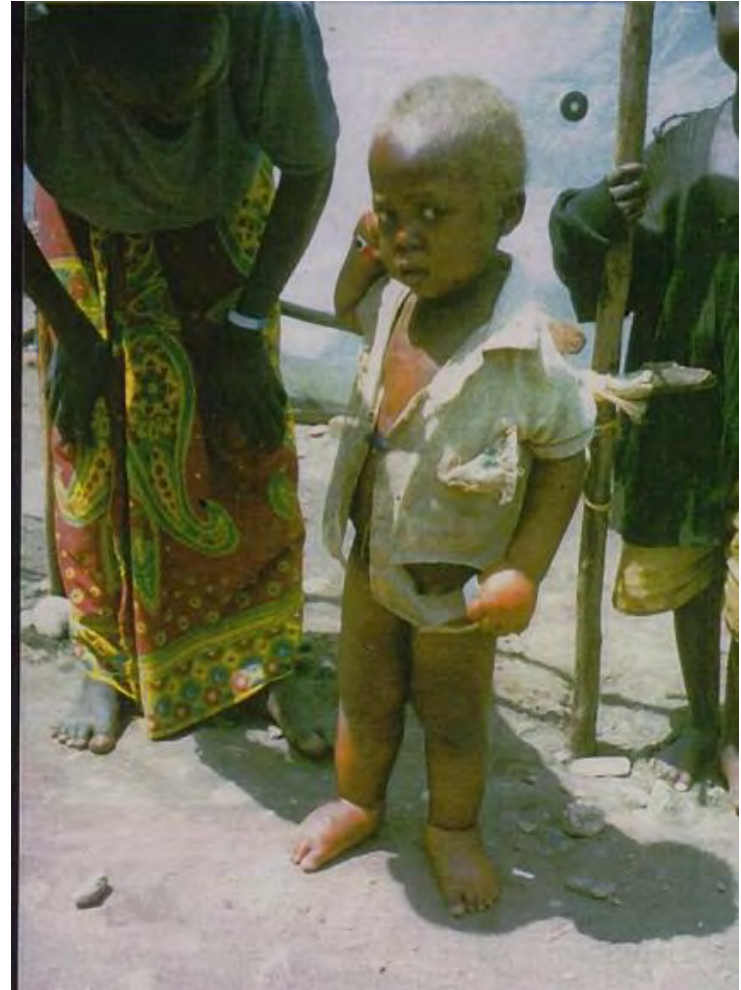
The other form of malnutrition, called kwashiorkor, in which the child's body is swollen, likewise kills by lowering resistance to infection. Kwashiorkor can also be fatal in its own right, because of the disturbed levels of salts and minerals (electrolyte imbalances) that accompany it.

Among severely cases, many deaths tend to occur at night. This is because these children are especially prone to low blood sugar (hypoglycaemia) and low body temperature (hypothermia).



# Clinical signs of Kwashiorkor

- **Oedema**
- **Loss of muscle & fat often masked by the oedema**
- **Anorexia**
- **Abdominal distention**
- **Hair losing color**
- **Apathetic/irritable, miserable**
- **Skin cracks/fragile, prone to infections**
- **Acutely sick**





# Where are we headed?

## Sustainable Development Goals 2016-2030

**17 Goals (up from 8)**

**1 goal directly addresses health (down from 3)**

**SDG 3: “Healthy lives and wellbeing”**

**Important indirect goals address**

**Poverty elimination**

**Nutrition**

**Water & Sanitation**

**Hunger**

**Equitable education**



# **SDG 3: Under-five Target**

**3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births**

# SDG 3: Healthy Lives and Wellbeing

## Other recommended targets

- ✓ End preventable deaths
- ✓ End epidemics (HIV, TB, Malaria)
- ✓ Universal health (insurance coverage) access
- ✓ Reduce injuries by 50%
- ✓ Reduce teenage pregnancies by 50%

Adopted by UN member states  
Sept/2015



# SDGs: How do we get there?

**Community case management linked to high quality facility care and follow up**

**Strengthened health systems/capacities**

**New Technologies/innovations**

**Better health metrics and MISs**

**Behavior change communication**

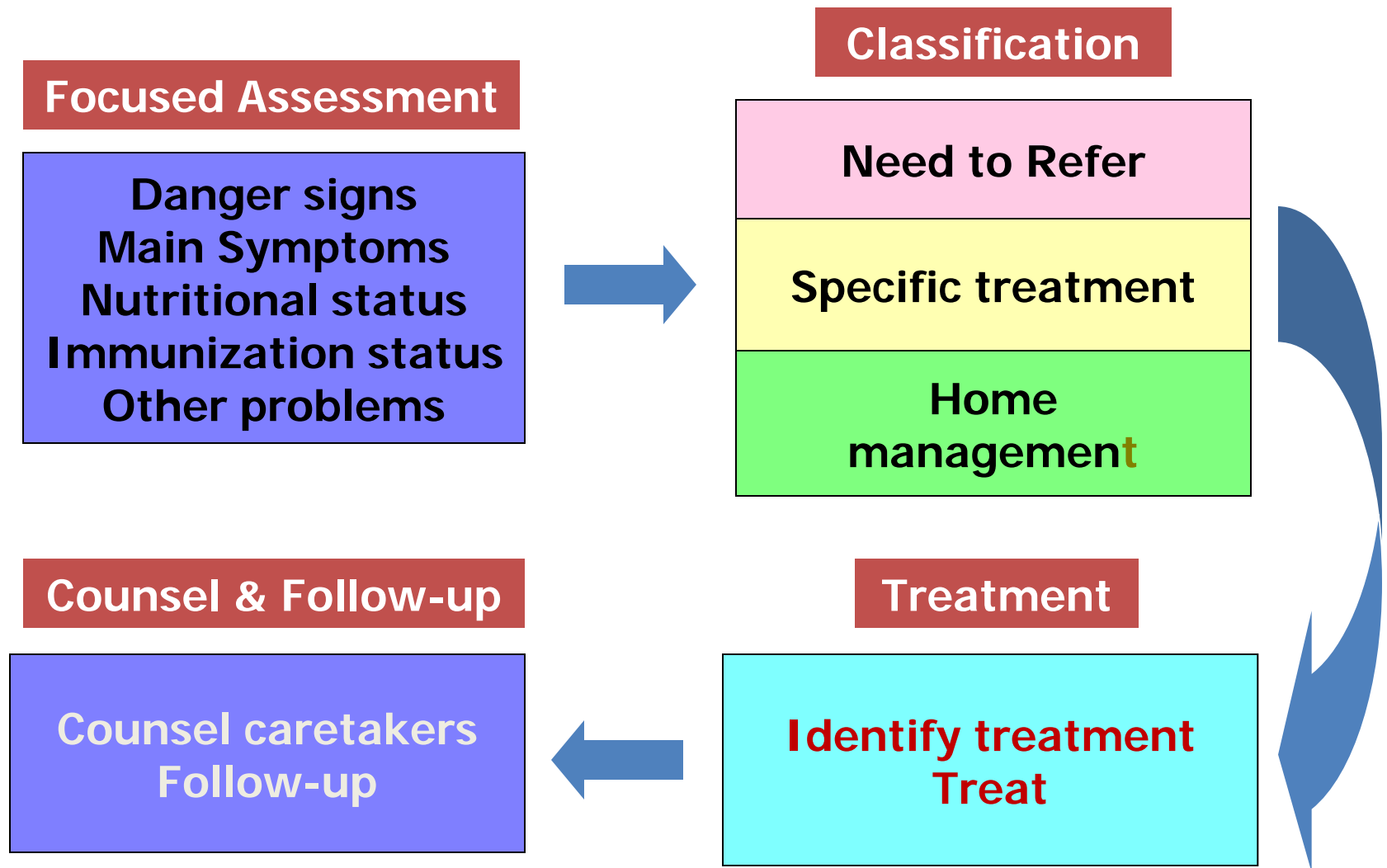
**Innovation → Transitioning to scale →  
Scaling up**



# Setting priorities: Which would you chose? Bring to scale?

- **Skilled antenatal care**
- **Screening/management of pre-eclampsia**
- **Micronutrient supplementation (Vit A, zinc)**
- **Community newborn care package**
- **Iron supplementation of under-five children**
- **Management of obstructive labor**
- **Nutritional supplements during pregnancy**
- **Community-based management of neonatal pneumonia**
- **Emergency neonatal care**
- **Insecticide treated nets**

# IMCI Case Management





# Integrated Community Case Management

	Promotion of growth (Preventive measures)	Response to sickness (curative care)
Home	<ul style="list-style-type: none"> <li>*Community/home-based interventions to improve Nutrition</li> <li>*Insecticide-impregnated bednets</li> </ul>	<ul style="list-style-type: none"> <li>*Early case management</li> <li>*Appropriate care seeking</li> <li>*Compliance with treatment</li> </ul>
Health facility	<ul style="list-style-type: none"> <li>*Vaccinations</li> <li>*Complementary feeding</li> <li>*Breastfeeding counselling</li> <li>*Micronutrient supplementation</li> </ul>	<ul style="list-style-type: none"> <li>*Case management of: <i>ARI, diarrhoea, measles, malaria, malnutrition, other serious infection</i></li> <li>*Iron treatment</li> <li>*Antihelminthic treatment</li> </ul>

# **Community Case Management: Training & provision of IM antibiotics to Village Health Workers (10 year FU)**

## **Newborns with suspected sepsis**

<b>if seen by</b>	<b>% died</b>
<b>No treatment or an unqualified medical provider</b>	<b>22%</b>
<b>Qualified medical provider</b>	<b>17%</b>
<b>Village health worker</b>	<b>5%</b>

# What do future initiatives need to have in common?

- **Local leadership**
- **Strengthened health systems**
- **Cross-disciplinary**
- **Institutional partnerships**
- **Family-community focus**
- **Communication strategies**
- **Implementation Research + monitoring and evaluation**



# Global Health Principles: CCGHR





**CCGHR**  
Canadian Coalition for  
Global Health Research

**CCRSM**  
Coalition canadienne pour la  
recherche en santé mondiale

**26 Canadian Universities (including McGill)**

**850+ individual members (40% SYPs)**

### **Resources**

- **Establishing Partnerships Guideline & toolkit**
- **Knowledge Translation curriculum**
- **Harmonization initiatives**
- **Global Health Research Principals (practice guidelines)**

**Student Young Professionals Network + 10 Students**

**[www.ccghr.ca](http://www.ccghr.ca)**





***Thank You***