Questions?

- What develops in the child?

- What enables and facilitates early childhood development?

- How can we monitor our progress to improve childhood development?

Brain development – from conception

- Almost all our brain cells (**neurons**) are laid down during pregnancy

- Before and after birth, connections between them (**synapses**) develop rapidly

- Synapses develop, strengthen or weaken in response to stimulation

What develops?

- Communication, trust and identification with other people

- Increasing abilities **to acquire human culture** (sensory, motor, cognition, language etc)

How?

- Through sensitive support by parents and families

Observing development

- A camera behind mother and one behind baby
- Fed into a mixer
- So we can "see inside" their interaction

3-week-old mother and baby

What do we see?

- Mother "talks to" her baby
- She "responds" to what he "says" (coughs, makes sounds)
- She pauses, doesn't "speak" over him
- She "creates" a conversation between them
- **Most important:**
  - **She sees her baby as a person who wants to communicate**

3-month-old mother and baby

What do we see?

- Communication has grown, extended
- Mother imitates baby cough
- Baby enjoys the imitation and responds

- **Most important:**
  - Mother sees her baby responding to her
  - **Both enjoy their interaction**

5-month-old mother and baby

What do we see?

- Mother and baby play "a game"
- Both know the ending, but build suspense ("eg round and round the garden", "this little piggie went to market"
- Demonstrates understanding and trust

- **Most important:**
- Mother and baby are **confident in and "understand" one another**

9-month-old mother and baby

What do we see?

- Mother and baby share communication and meaning
- The baby is acquiring conventions of interaction ("wave bye bye", "kiss daddy" etc
- Children's learning and language builds on this platform of emotional communication

What have we learnt over that last 50y?

- Babies' abilities develop fast – physical, emotional, cognitive, language

- Mother/parent/caregiver supports her child's development at every stage

- Babies "show" caregivers what they are ready to do

- Mothers watch their babies and respond to these signs of readiness = sensitivity

The first 1000 days of life

= 270 days of pregnancy + 365 days year 1 + 365 days year 2

Critical for life-long development

- Physical structures are laid down

- Functionality develops

Highly responsive to environment

- Physical – senses, nutrition, injury

- Psychological – attachment, protection, learning

Evidence of long-term impact

Retrospective & prospective studies in low-, middle- & high-income countries of early exposures and later outcomes

- Pregnancy nutrition, mental health, IPV
- Birth term, birth weight
- Breastfeeding, infant feeding
- Child growth (weight and height)
- Separation from mother, family care
- Neglect, maltreatment
- Adverse childhood experiences

- **Childhood, adolescence**
  - Height
  - Cognition, schooling
  - Emotional adjustment
- **Adulthood**
  - Cardiovascular health
  - Mental health
  - Social stability
  - Earnings
  - Crime

Example: Early intervention in Jamaica

Mental Development of Undersized Children (Low Height for Age): The Jamaican Study

Labor market returns to an early childhood stimulation intervention in Jamaica

Paul Gertler,[1,2]* James Heckman,[3,4,5] Rodrigo Pinto,[3] Arianna Zanolini,[3] Christel Vermeersch,[6] Susan Walker,[7] Susan M. Chang,[7] Sally Grantham-McGregor[8]

Intervention group - 25% higher wages than the control group in adulthood

Effects of nutrition alone washed out by age 7 years

A unique period in life

- The brain changes continually through life

- But it is **built only once** – during the First 1000 Days

- A period of **extremely rapid learning** that realises all basic structures and functions

- In a **unique parenting environment**

Summarised in the Nurturing Care Framework

What children need to develop

How the environment supports children's development

Nurturing care of the developing child

- Health care, at home and in health services
- Adequate nutrition – exclusive breastfeeding
- Security and safety
- Opportunities for early learning – in interaction with others
- Responsive caregiving – as seen in the videos

Nurturing care of mother and family

- Mental health, protection, information

- Support from partner, family & community

- Services – health, nutrition, social services

- Policies – social protection, free or subsidised essential services
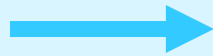
Measuring childhood development

- Measure changes in **children's behaviour**

- Measure **support from the environment**
  - Caregivers
  - Families
  - Safe circumstances
  - Community networks
  - Services
  - Child- and family-supportive policies
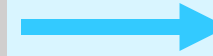
Main purposes of monitoring

- Primary care monitoring – detect, support, refer

- Individual monitoring – diagnose, intervene

- Programme monitoring – evaluate interventions

- Population monitoring – advocacy, targeting, policy change, check progress, accountability

Individual child monitoring

Primary care monitoring of all children	→	Family support, referral	→	Clinical assessment and intervention

Examples: Primary care monitoring

- Growth and development on Road to Health clinic cards
  eg milestones

- Parent Evaluation Developmental Status (PEDS, 10 items, 0-8y)

- Observation child, mother and interaction

Monitoring children's development in primary care services:
moving from a focus on child deficits to family-centred participatory support

Report of a virtual technical meeting
9 – 10 June 2020

World Health Organization

Observing caregiver-child interactions

Observe the signs of responsive caregiving during the visit. *Tick the boxes that would be most feasible for providers of health and nutrition services to assess routinely.*

☐ **How does the caregiver show that he or she is aware of the child's movements?**

Does the caregiver look at the child, shift positions, or move to respond to the child? Responsive caregivers are aware of the sounds and movements of their children. They follow the children's leads and interests. They are "in tune" with their children, even when they are engaged in another task, such as a discussion with the provider.

☐ **If the child fusses, how does the caregiver comfort the child and show love?**

Does the caregiver look into the eyes of the child and talk softly? Does the caregiver hold the child closely and firmly, rather than roughly bounce the child or scold the child? Does the caregiver bring the child closer, or push the child away?

☐ **If the caregiver disapproves of what the child is doing, how does the caregiver correct the child?**

How does the caregiver distract the child away from the unwanted activity or object? Does the caregiver reinforce the child's shift in behaviour with kind words or gestures? Does the caregiver scold or physically punish the child?

☐ **Does the child look at or reach for the caregiver?**

All children—including children who are blind or have other difficulties—search for a response from their caregivers, visually or by touch or movement. Does the child avoid the eyes of the caregiver? When caregivers do not respond, their young children stop looking at them and often look to others, even strangers, for a response. This avoidance of the caregiver may be a *danger sign*. The caregiver may not be responding consistently with the child's attempts to reach out for care, attention, and affection.

From: WHO and UNICEF Care for Child Development (2012)

Examples: Individual child assessment

- Bayley Scales of Infant Development (1-42m)

- Griffiths Scales of Children's Development (1-72m)

- Ages and Stages Questionnaire (ASQ) (1-72m)

- International Guide for Monitoring Child Development (GMCD) (1-36m)

- Global Scales of Infant Development (LONG) (1-36m)

- **Adaptation**, translation, standardization, reliability, validity

- Administered, interpreted by **trained assessors**

Programme evaluation and population monitoring

Assessment of defined groups, not individuals

→

Programme evaluation (n=10's or 100's)

- Shorter, less intense assessment
- Less precise
- Adapted, translated
- Tested for reliability and validity

Population assessment (n=1000's)

Programme monitoring

- **Process, outputs**
  - Coverage, dosage (intensity), quality
- **Criterion-referenced tests**
  - Assess against benchmarks eg some ECDI items (pick up a small object)
- **Norm-based tests**
  - Eg Bayley, Griffiths etc
  - Compare child's performance to norm group (usually Western norms, unless re-standardised locally)
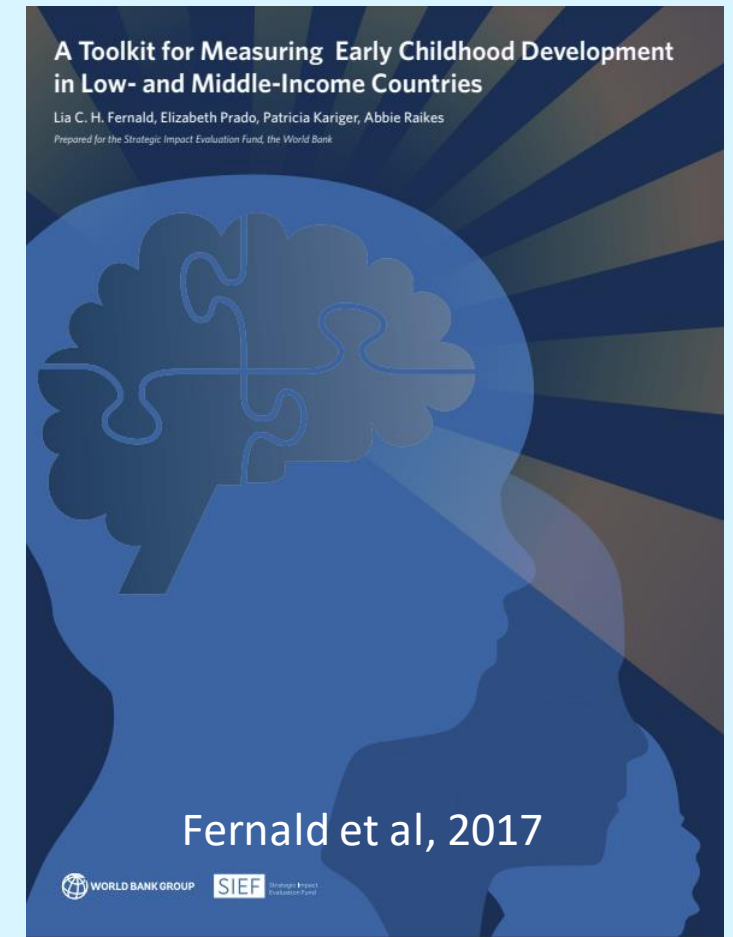
Programme evaluation designs

- Case-control

  - Comparison – selection of control group

- Pre- and post-programme assessment

  - Progress – factor in developmental change

- Randomised control trial

  - Random allocation to programme or control group

- All require **statistical expertise to analyse and interpret**
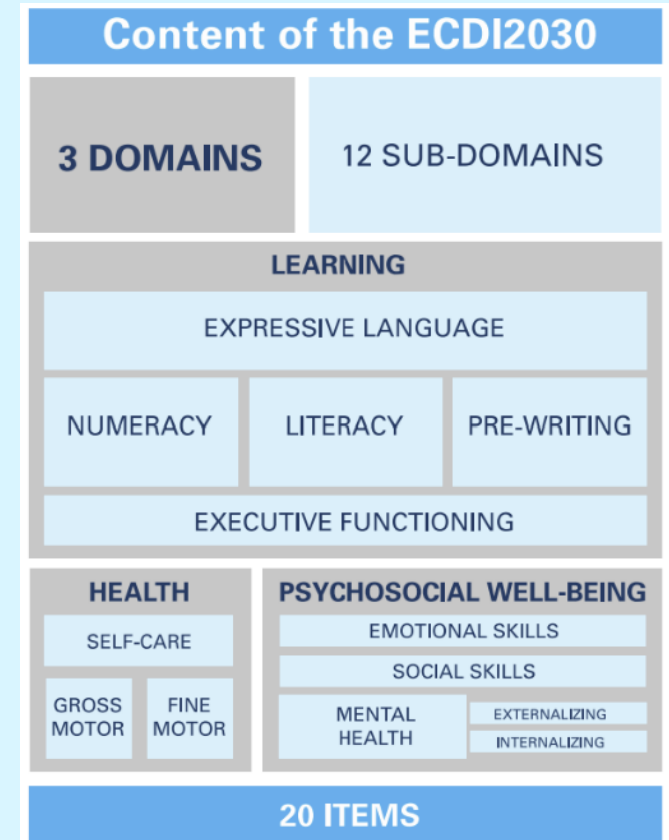
Population monitoring

Advocacy, progress, targeting, policy change, accountability

- Early Child Development Index (**ECDI 2030**) – 20 items, 2-6y

- Global Scales of Early Development (**GSED, SHORT**, ±10 items per age, 0-3y

- Anchor Items for the Measurement of Early Childhood Development (**AIM-ECD**) – Caregiver Report (66 items, 4-6 years)

A Toolkit for Measuring Early Childhood Development in Low- and Middle-Income Countries

Lia C. H. Fernald, Elizabeth Prado, Patricia Kariger, Abbie Raikes

Prepared for the Strategic Impact Evaluation Fund, the World Bank

Fernald et al, 2017

WORLD BANK GROUP SIEF Strategic Impact Evaluation Fund

ECDI 2030 – SDG indicator for 4.2.1

- **Target 4.2:** By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education

- **Indicator**: Proportion of children aged 24–59 months who are developmentally on track in at least three of the following domains: literacy-numeracy, physical development, social-emotional development and learning

Content of the ECDI2030

| 3 DOMAINS | 12 SUB-DOMAINS |

LEARNING

EXPRESSIVE LANGUAGE

| NUMERACY | LITERACY | PRE-WRITING |

EXECUTIVE FUNCTIONING

| HEALTH | PSYCHOSOCIAL WELL-BEING |

SELF-CARE

EMOTIONAL SKILLS

SOCIAL SKILLS

| GROSS MOTOR | FINE MOTOR | MENTAL HEALTH | EXTERNALIZING |
| | | | INTERNALIZING |

20 ITEMS

Fernald et al, 2017

ECD Countdown to 2030 – Country, regional and global data

Updated annually 2018-2023

Data

- UNICEF Multiple Indicator Cluster Surveys (MICS)
- USAID Demographic and Health Surveys (DHS)
- Other nationally representative household surveys and censuses
- Modelled estimates
- Country data published in high impact journals

Definitions, dates, and countries with available data

Fernald et al, 2017
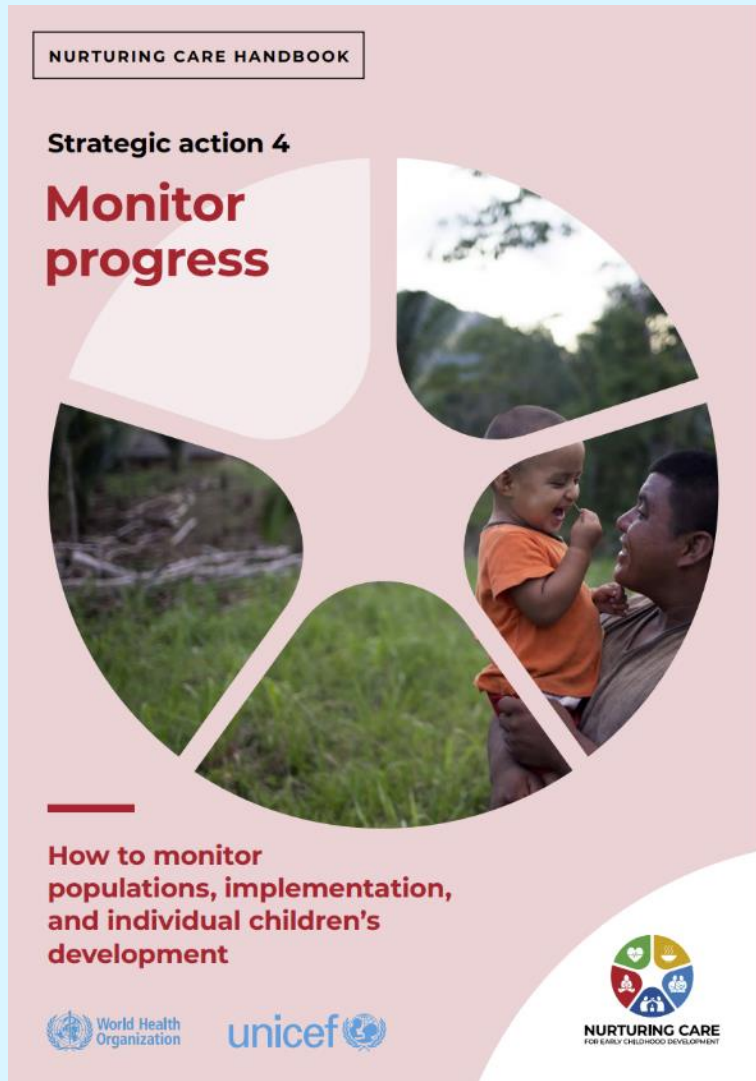
Technical appendix

Country profiles – 40 indicators
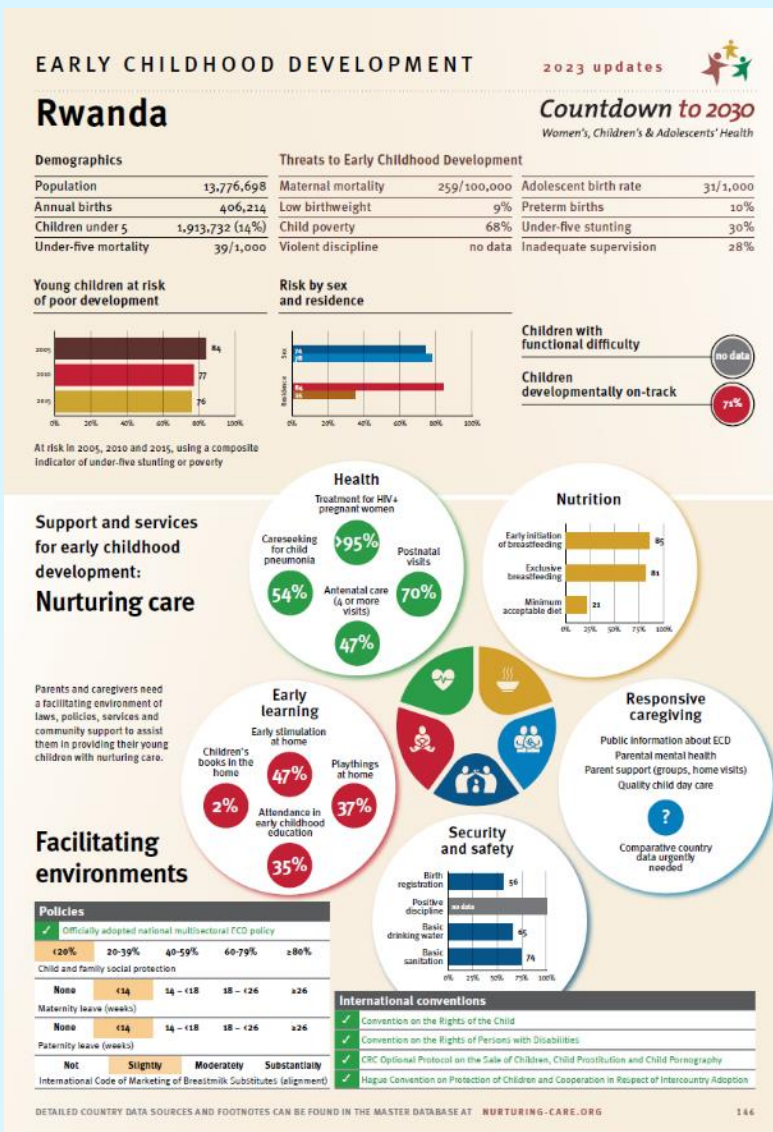
- **Demographics (4), threats to ECD (8)**
- **Outcomes/impact**
  - 2005-2015 trend in children at risk
  - Gender & residence differences
  - Children developmentally on track (ECDI)
  - Children with functional difficulties
- **5 components of nurturing care**
  - Health (4)
  - Nutrition (3)
  - Security and safety (4)
  - Early learning (4)
  - Responsive caregiving (TBD)
- **9 indicators of facilitating environment**
  - Policies (5)
  - International conventions (4)

Fernald et al, 2017

Signs of progress

NURTURING CARE HANDBOOK

Strategic action 4

Monitor progress

How to monitor populations, implementation, and individual children's development

World Health Organization · unicef

NURTURING CARE FOR EARLY CHILDHOOD DEVELOPMENT

- A monitoring plan (indicators of inputs, outputs, outcomes and methods for data collection and analysis)
- Tools for monitoring children's individual development integrated into frontline workers' counselling tools
- Frontline workers trained and supervised to contribute to implementation monitoring and monitoring individual children's development
- The health information system includes indicators for access, utilization, quality to support nurturing care
- Plans made for population monitoring of early childhood development, and available data have been collated and reviewed
- Multistakeholder meetings held regularly to inform planning, advocacy and investment in health and other sectors.

Wonder where this came from?

In low- and middle-income countries across the world, 250 million children (43%) under the age of five are at risk of not reaching their developmental potential because of poverty and stunting (or low height for age)

Stunted — *Double count* — **Extreme poverty**

≥60%
40–59%
20–39%
<20%
Missing or excluded
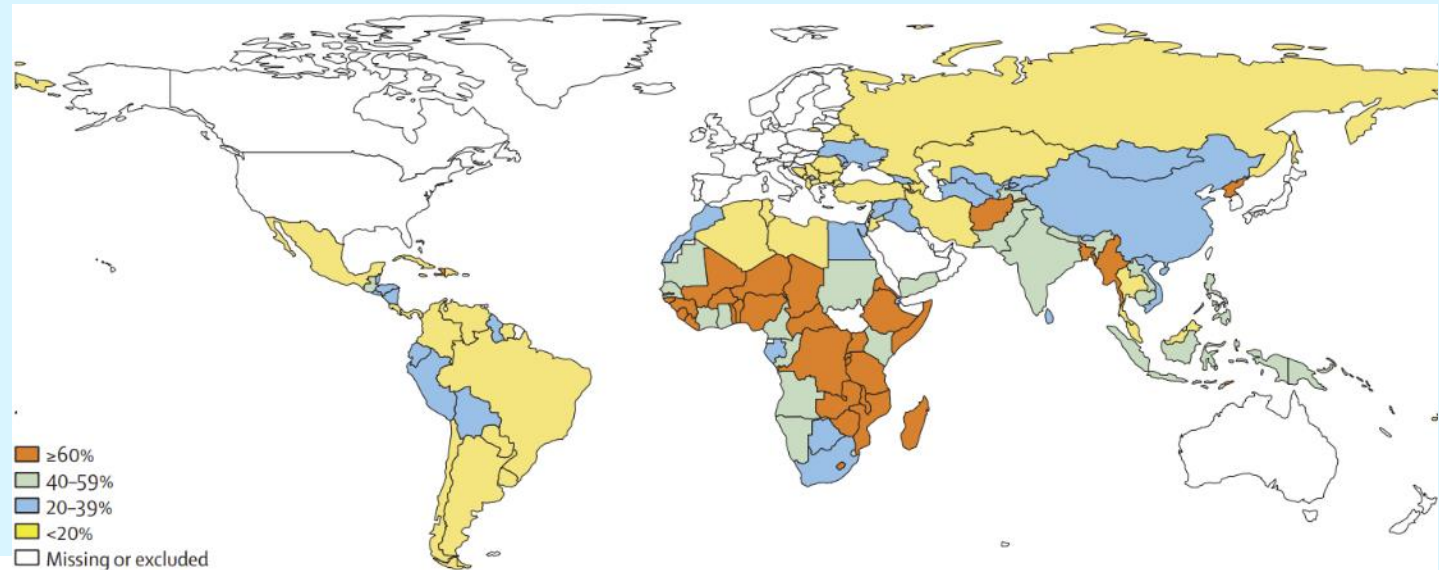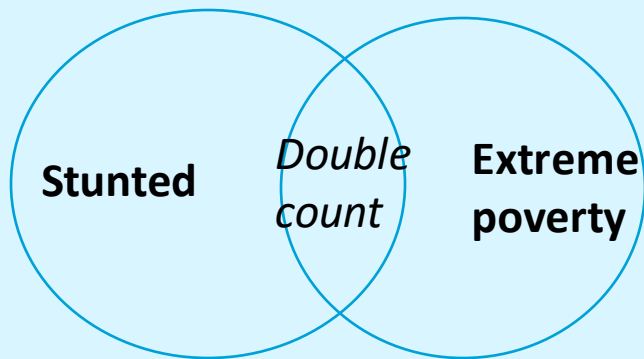
Risk of poor development in young children in low-income and middle-income countries: an estimation and analysis at the global, regional, and country level

Chunling Lu, Maureen M Black, Linda M Richter   Lancet Global Health (2016), 4, 916-922

> 66% of children <5y in sub-Saharan Africa are at risk of not reaching their human potential

Challenges?

- Bring clarity and certainly to **monitoring instrumentation**, to:
  - Improve monitoring
  - Convince stakeholders of the importance of monitoring
- Monitor **'development' – the ability to learn** autonomously and from others – in addition to a child's component skills (eg fine-motor coordination)
- Monitor **facilitating environments** in addition to children's developmental progression eg maternal mental health, extreme poverty, domestic violence etc

Challenges (cont 1)

- Ensure countries **conduct regular MICS surveys and/or regular DHS surveys** and include the MICS ECD modules

- Motivate for **public presentations of data** (TV, radio, newspapers etc) - updates, progress and areas needing attention

- Urge governments and CSO actors to **harmonise data reporting** eg Office on the Rights of the Child and alternative reports

Challenges (cont 2)?

- Why do funders insist on monitoring outcomes in programmes without sufficient coverage, dose/intensity or quality?

- Scale and impact require better implementation

- eg SPRING trial in Pakistan & India) – 2 459 children (Kirkwood et al, 2023)

"The lack of impact is explained by shortcomings in implementation factors. Important lessons were learnt. Integrating additional tasks into the already overloaded workload of CWs is unlikely to be successful without additional resources and re-organisation of their goals to include the new tasks. The NGO model is the most likely for scale-up as few countries have established infrastructures like the LHW programme. It will require careful attention to the establishment of strong administrative and management systems to support its implementation"