

# Ensuring Healthy Outcomes from the Start: Pediatric Development Clinic Model for Health, Nutritional, and Developmental Follow-up and Early Interventions for small and sick newborns

Mathieu Nemerimana  
Partners In Health/Inshuti Mu Buzima  
Rwanda



# 30 MILLION SMALL AND SICK NEWBORNS REQUIRE INPATIENT CARE



2.5 million neonatal deaths

**Millions who survive** are at risk of mild to severe disability and **require follow-up care**

There is a lack of **scalable models** to reduce mortality and morbidity of at-risk newborns in LMICs

# Pediatric Development Clinic (PDC)

- Started in 2014 in Rwinkwavu by PIH/IMB in collaboration with MOH and UNICEF; expanded to Kirehe in 2016
- PDC: Integrated model of structured medical, nutritional & developmental follow-up for high-risk infants, 0 – 5 years
  - **Low birth weight & Prematurity**
  - **Brain injury (encephalopathy following asphyxia)**
  - **Hydrocephalus**
  - **Cleft lip/palate**
  - **Trisomy 21**
  - **Global developmental delay**
  - **Severe acute malnutrition <12 months old child**
  - **Post-CNS infection (cerebral malaria, meningitis)**
- Integrated into public health facilities
- Using task-shifting approach - trained nurses and social workers deliver PDC services



# Pediatric Development Clinic (PDC)

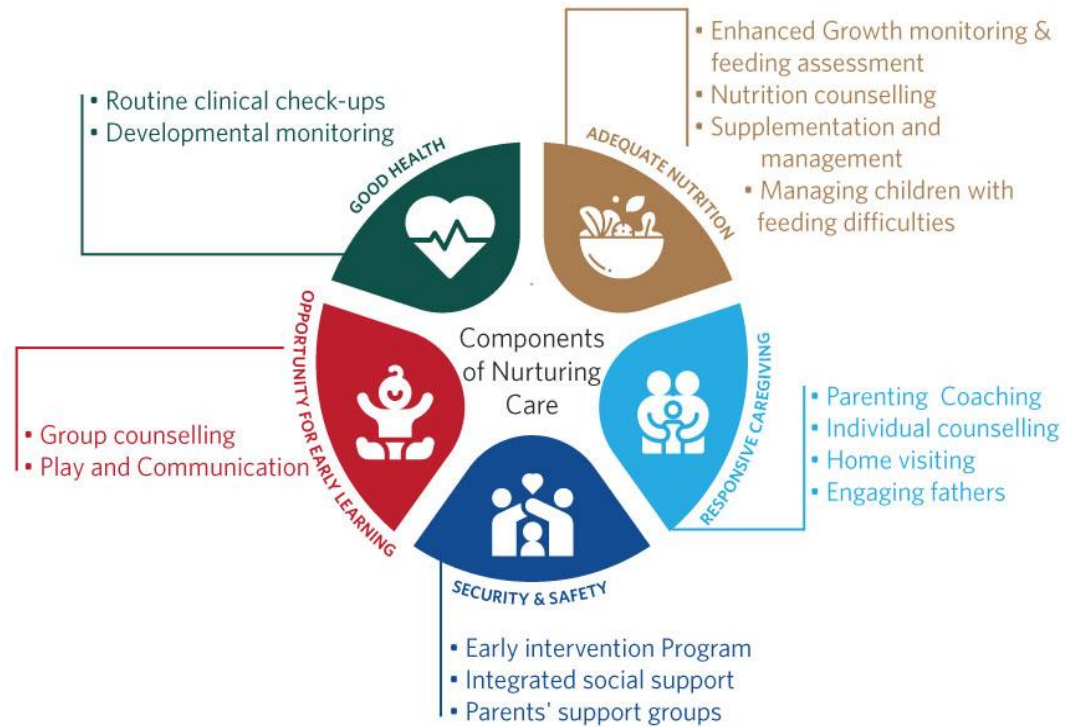
## Approach For Follow-up Care Of Small And Sick Newborns

Children born preterm, low birth weight or with other perinatal conditions are referred to PDC

### RISKS

- Poor health status and early mortality
- Malnutrition
- Sub-optimal development or disability
- Sub-optimal home environment (stigma, poor caregiver mental health)

### TARGETED NURTURING CARE INTERVENTIONS IN PDC



### GOAL

Children **thrive** and reach their full developmental potential

## Referral to and Enrollment in Pediatric Development Clinic (PDC)

High-risk infant identified at birth and referred to the hospital neonatal unit

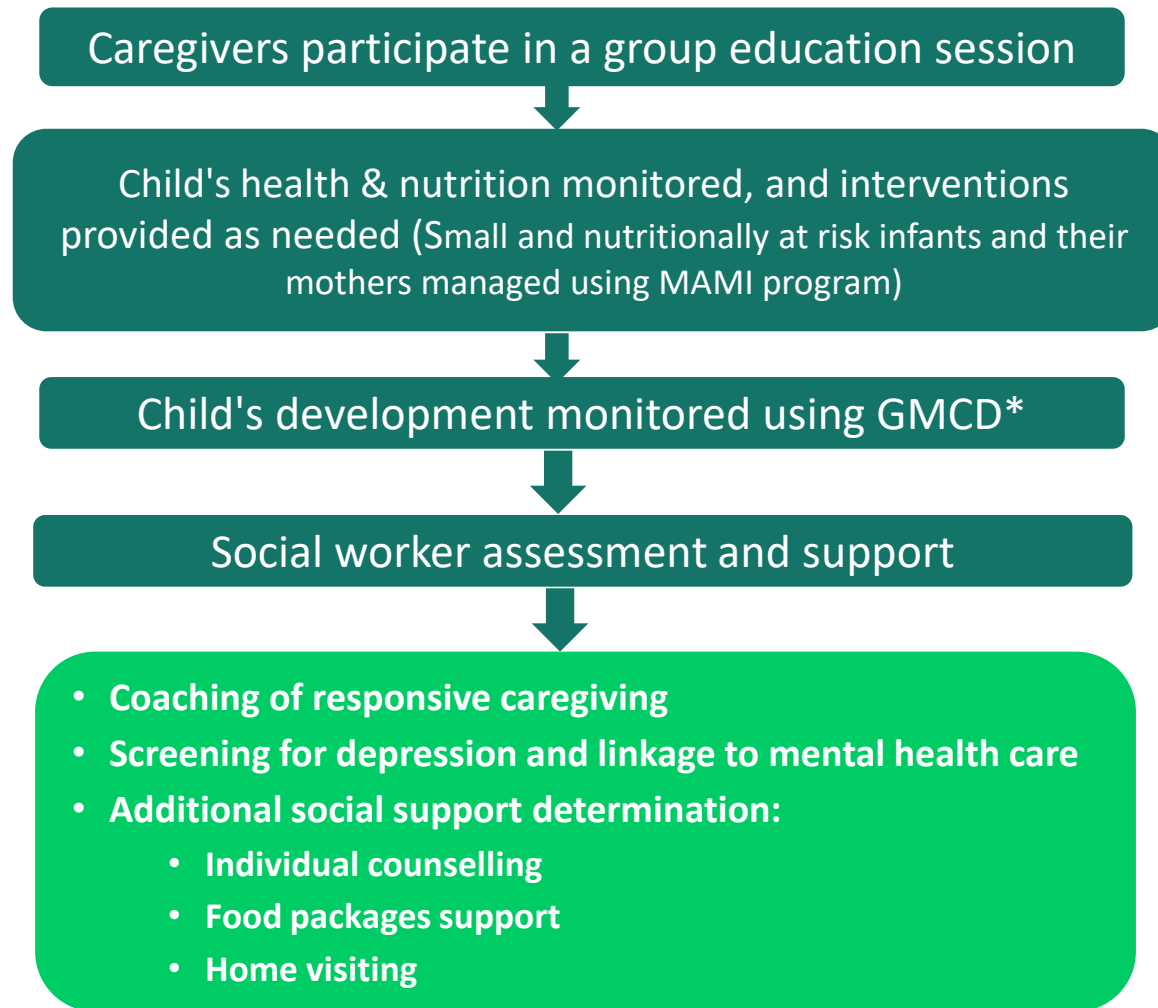
Newborn managed in neonatology until stable and safely gaining weight

Newborn discharged from hospital and referred directly to PDC for outpatient follow-up

Child enrolled at the PDC closest to their home and starts regular follow-up schedule

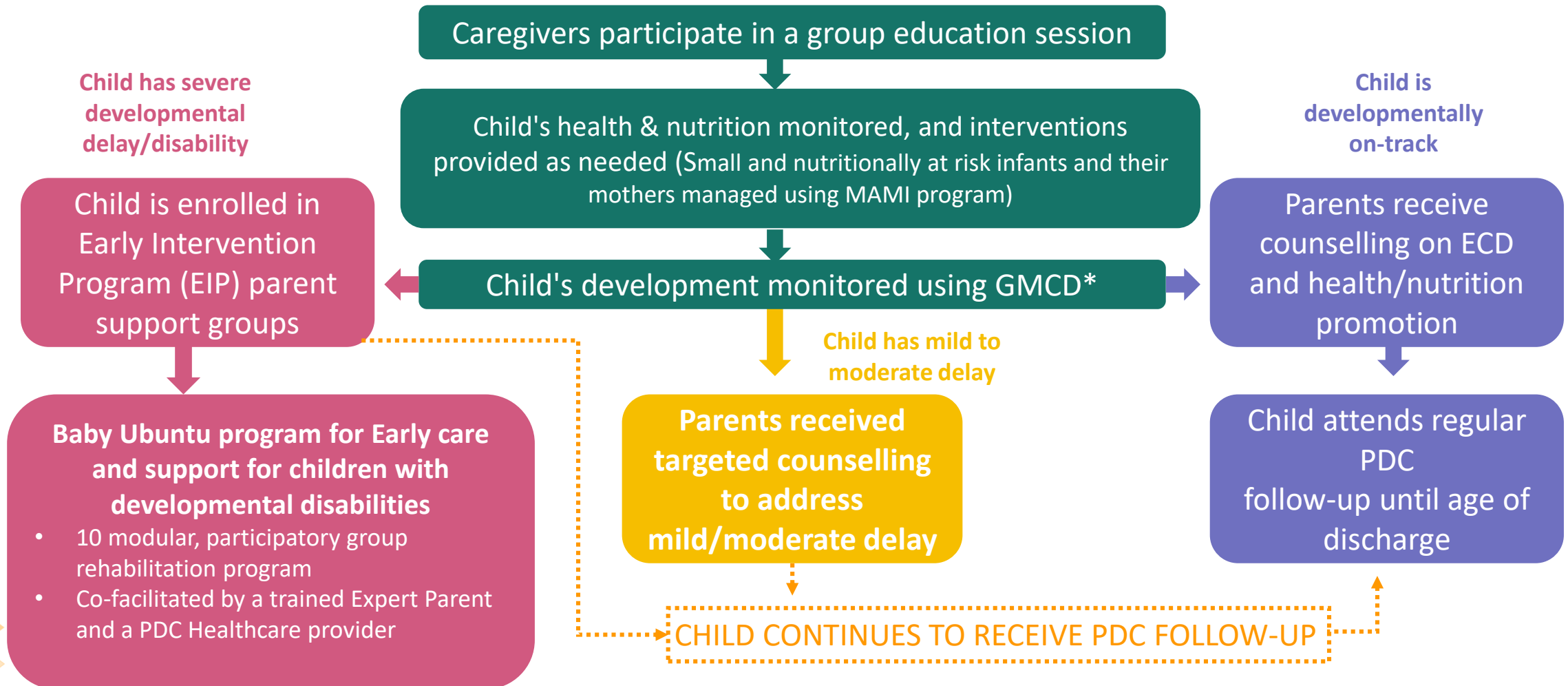


# Follow-up and Monitoring in the PDC During Routine PDC Visits



\*GMCD (Guide for Monitoring Child Development)

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# PDC Impact Evaluation - Methods (1/2)

- We aimed to assess the impact of PDC on survival, nutritional, and developmental outcomes at ages 11-39 months.
- Included children:
  - Discharged alive from the hospital neonatology care units
  - Born preterm (<37 weeks' gestation)
  - With low weight at birth (<2,000 grams)
  - or, with hypoxic ischemic encephalopathy (HIE)
- Conducted a quasi-experimental study to compare a historic control group to children receiving PDC intervention in Kayonza and Kirehe districts.
- Home-based cross-sectional surveys were conducted to collect data on outcomes on survival, nutritional and developmental status

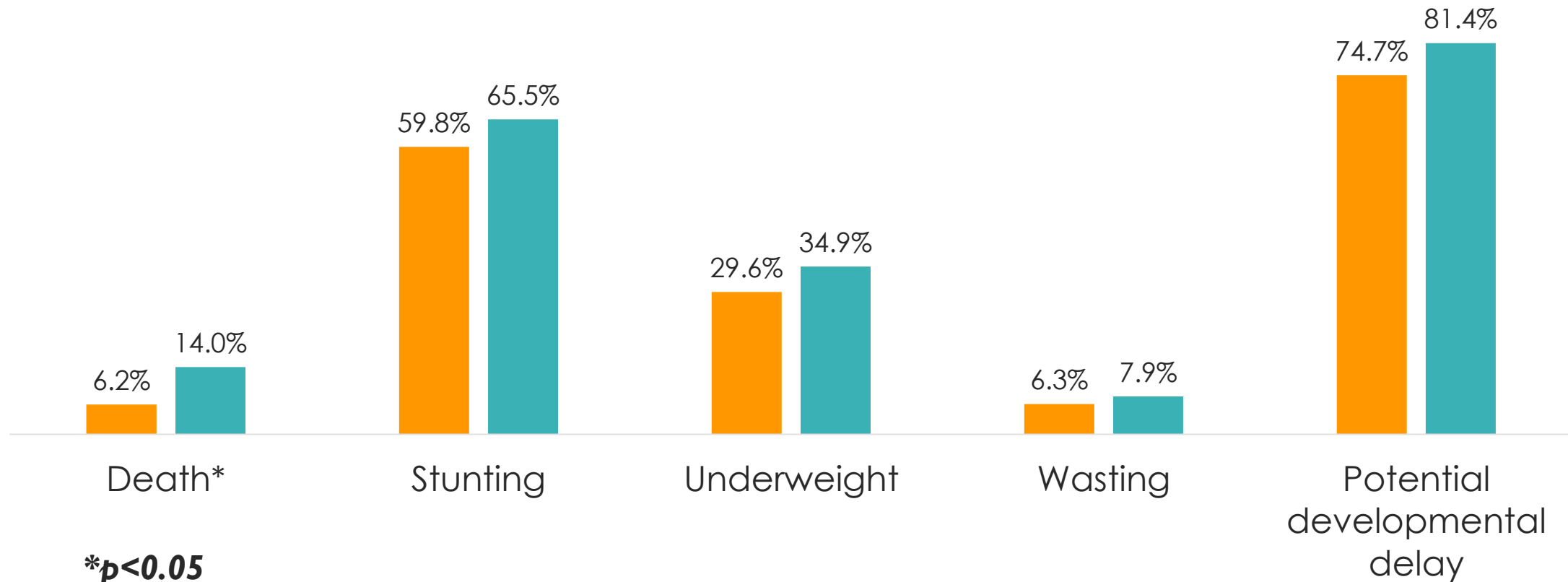


## PDC Impact Evaluation - Methods (2/2)

- Nutritional status was measured using the WHO's Child Growth Standards.
- Developmental status was measured using the Ages and Stages Questionnaire.
- Weighted logistic regression was used to control for confounding and differential non-participation in household surveys.

# Results - Survival, Nutrition, and Developmental Status (N=812)

■ PDC Intervention Group (N=464; 57.1%)    ■ Control Group (N=348; 42.9%)



\* $p < 0.05$

# Adjusted Results - Survival, Nutrition, and Developmental Status

- Overall, after accounting for confounding and non-participation in household surveys, PDC intervention was associated with:
  - 51% reduction in the odds of death (OR 0.49; 95% CI 0.26-0.92)
  - 52% reduction in the odds of developmental delay (OR 0.48; 95% CI 0.30-0.77).
- In Kayonza, PDC intervention was associated with 52% reduction in the odds of stunting (OR 0.52; 95% CI 0.28-0.98).
- PDC was not associated with a significant reduction in underweight or wasting.

## Empowering Caregivers

“I was taught how to interact with my child. Before I thought my child couldn’t learn anything [...] Before coming here I did not know I should do this. Now I see that he can still learn.”

*Mother in PDC Program*

“We learnt a lot from here, how we should look after and take care of children. [...] We should help each other. There shouldn’t be any dispute [in the family] about who should be looking after the kids. That is not reserved to women only. ”

*Father in PDC Program*

# Conclusions

- PDC is associated with improved survival and developmental outcomes among high risk children enrolled in PDC program.
- Providing integrated ECD services with early care and support interventions into primary healthcare for high risk infants is feasible in rural settings of Rwanda using task shifting approach.
- Continuous quality improvement of care for children with complex conditions and ongoing efforts for improvement of referral system to high level of care as well as specialized services.
- PDC decentralization to new 14 health centers in Kirehe for total district coverage.
- PDC Policy advocacy at the national level for its adoption and scale up across Rwanda



**Murakoze!**  
**Thank you!**



**Partners  
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