



**Outcomes of  
6-year Follow-up of  
a Cohort of Infants of Substance Abusing Mothers Showed  
that  
The New Community Paediatric Service Model Achieved All  
the Objectives of  
Comprehensive Child Development Service (CCDS)**

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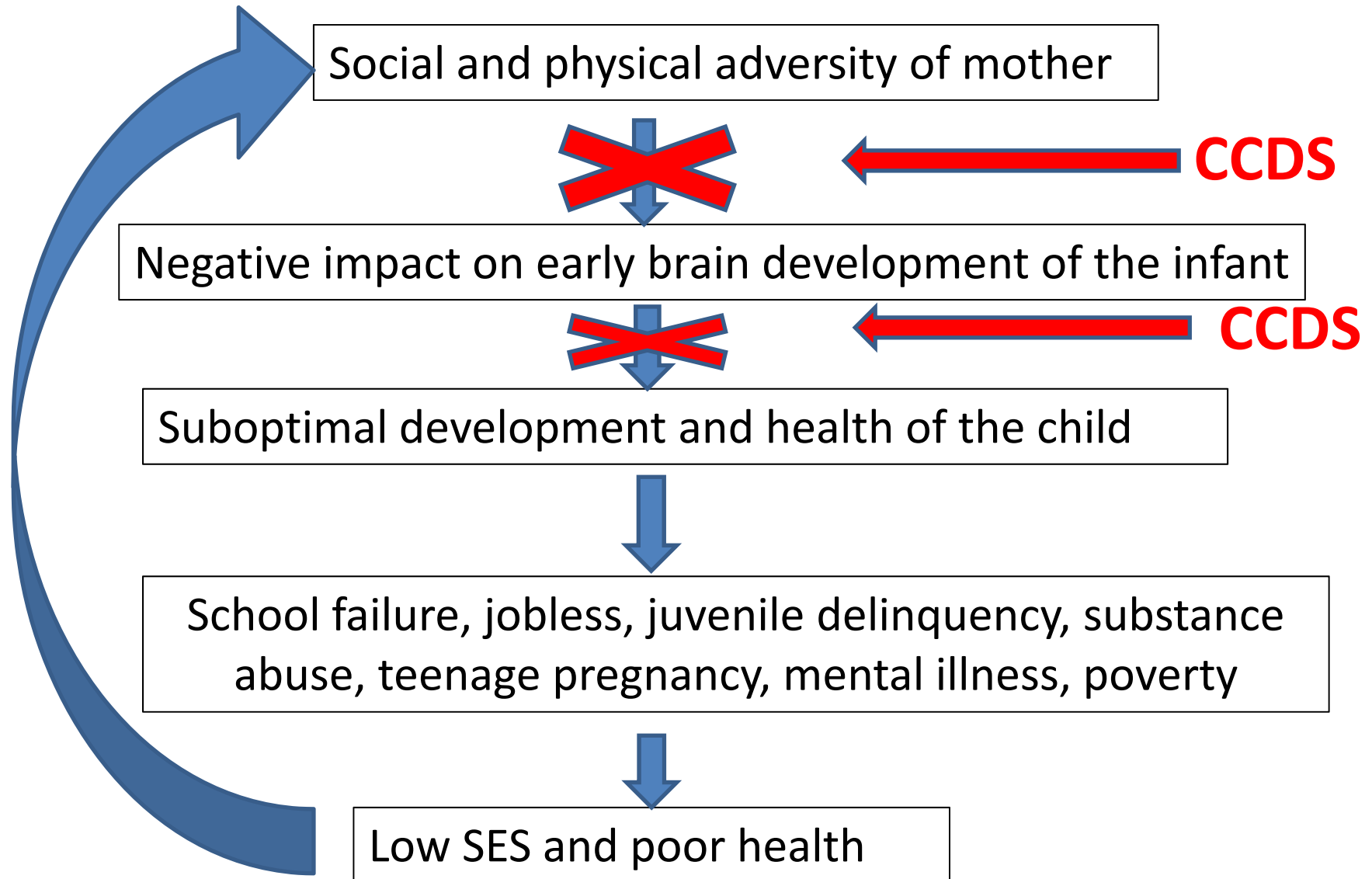




## CCDS – early identification and holistic management of at-risk children and families

- Policy Address 2005: Hong Kong Government Child Development Pilot Project
- **Piloted in PMH in 2005**
- Aim to reduce intergenerational poverty by:
  - improve the developmental outcome of children of high risk families
  - break the vicious cycle of intergenerational poverty
- Integrated, interdepartmental, multidisciplinary service for children of high risk families
- **Inclusion: Children of:**
  - **Substance abusing mothers**
  - Mothers with history of mental illness or postnatal depression
  - Teenage mothers

# Intergenerational poverty



# Introduction and Background:

- Baby born by substance abusing mothers were well known to be at high risk of delayed development (due to in-utero exposure of developing brain to illicit drug) and suboptimal child care and parenting due to the drug-dependent lifestyle of the mother



# Before the establishment of CCDS

## Healthcare service for infants of SA mothers

- HA neonatal clinic: follow-up for their growth and development.
- Maternal and Child Health Centres (MCHC): universal child health and vaccination program
- According to the statistic reviewed between Jan 2002 to Dec 2004 by Clinical Data Analysis and Reporting System, the *follow-up rate* for those infants of heroin abusing mothers in neonatal clinic in Princess Margaret Hospital (PMH) was **46.8%** only.



# Pre-CCDS surveillance for children of methadone using women in SARDA

- 2005: Pre-CCDS health and development surveillance of children of women in Shamshuipo methadone clinic :
- **Results:**
  - Vaccination rate: 77%
  - ~25% developmental problem <2yr old



# Identification of service needs

- Infants of substance abusing mothers:
  - 1) High default rate of child health services
  - 2) Incomplete or delayed vaccination
  - 3) Developmental or behavioural problems



# Inverse care law

*‘the availability of good medical care tends to vary inversely with the need for it in the population served’: in other words, those who need health care most are least likely to have access to it.*

*Julian Tudor Hart, Lancet 1971*

**In the setting of CCDS, families with the highest risk tend to default healthcare follow-up, hence the children cannot receive proper healthcare services**





# Objectives of CCDS

1. **Early identification** of pregnant women with substance abuse habit and provide early intervention and support
2. **Improve engagement** in follow-up
3. **Modify high risk behaviour** of mothers and empower them for proper parenting
4. Ultimate objective of **improving the developmental outcome** of infants of substance abusing mothers



# New Community Paediatric Service Model

**Community-based, child-centred, family-focused, integrated, multidisciplinary service:**

- Early identification of high risk families in **antenatal clinic**
- Community-based outreach **paediatric clinic** in **Maternal and Child Health Centre** (improve accessibility and reduce stigmatization)
- **Integrated, multidisciplinary team:**
  - Dept of Obstetrics, Paediatrics, Psychiatry
  - MCHC
  - family social worker
  - Substance Abuse Clinic or NGOs for substance abuse treatment.  
(provide **pregnant-women-specific services** to tackle the complicated bio-psycho-social problems of the families)



***improve acceptability and accessibility to service***

***→ improve engagement***



# Method of study:

- Retrospective review of **PMH CCDS** database of **children of substance abusing mothers**
- **Inclusion:**
  - All children of SA mothers follow-up in PMH CCDS clinics
  - **DOB:** Jan 2011 to Dec 2014
  - Age: 3yr to 6.99yr at time of review
- **Exclusion criteria:**
  - Preterm <32wk
  - Congenital anomalies
  - Leave HK <1.5yr old
  - Early transfer to other MCHC



# Outcome indicators

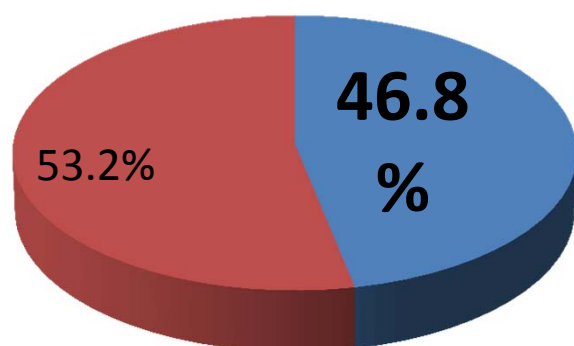
- Attendance rate of PMH CCDS clinic follow-up
- Nutritional status of infants
- Vaccination rate
- Neurodevelopmental outcome of the children
- Detoxification rate of the mothers



# Attendance rate of infants of SA mothers before and after CCDS

## Before CCDS

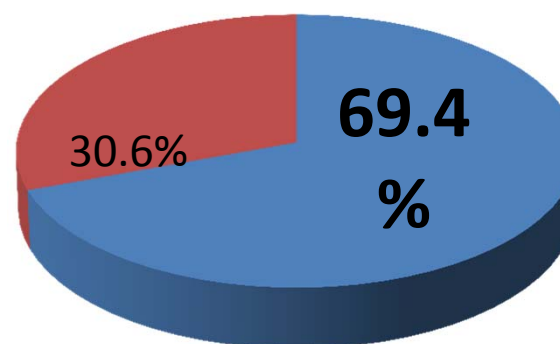
2002-04 infants of SA  
mothers attendance of  
PMH neonatal clinic



■ appointment attended  
■ appointment defaulted

## After CCDS

2013-2014 infants of SA  
mothers PMH CCDS clinic  
attendance



■ appointment attended  
■ appointment defaulted

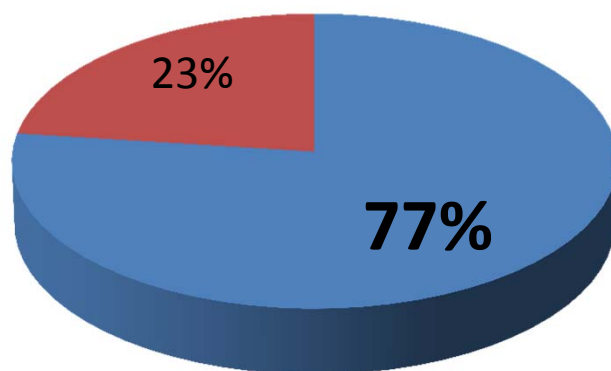
# Outcome of cohort born in 2011-14

- **Total no.= 193**
- Vaccination rate: 100%
- Failure to thrive:  $2/193 = 1\%$



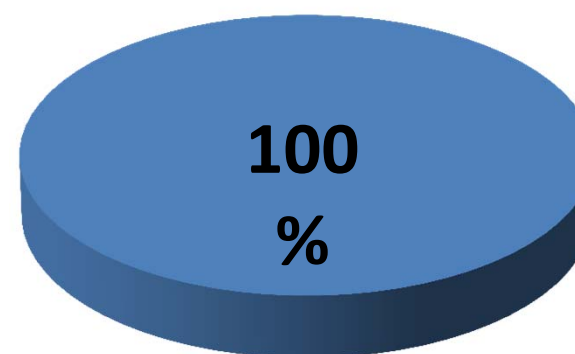
# Vaccination rate before and after CCDS

**Vaccination rate  
before CCDS  
(2005 survey in SARDA)**



■ completed vaccination  
■ incompleted vaccination

**Vaccination rate  
after CCDS  
(this study cohort)**



■ completed vaccination  
■ incompleted vaccination

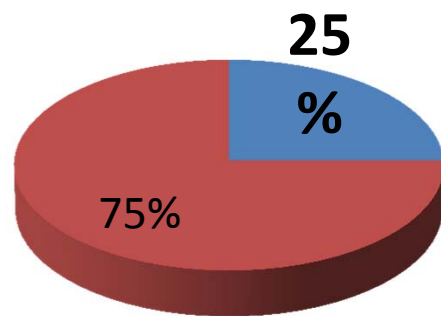
- Significant Language or developmental delay (dx by Child Assessment Centre to be borderline or delayed): 33/193 (17%)





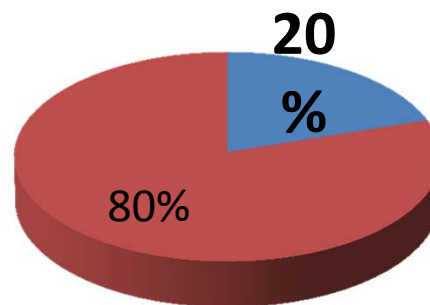
# Developmental outcome of infants of SA mothers

Developmental  
problem in SARDA  
survey **before CCDS**



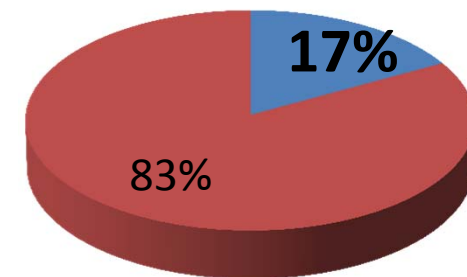
■ developmental delay  
■ normal development

Developmental  
outcome in **2006-09 heroin cohort** in  
WKMCHC



■ developmental delay  
■ normal development

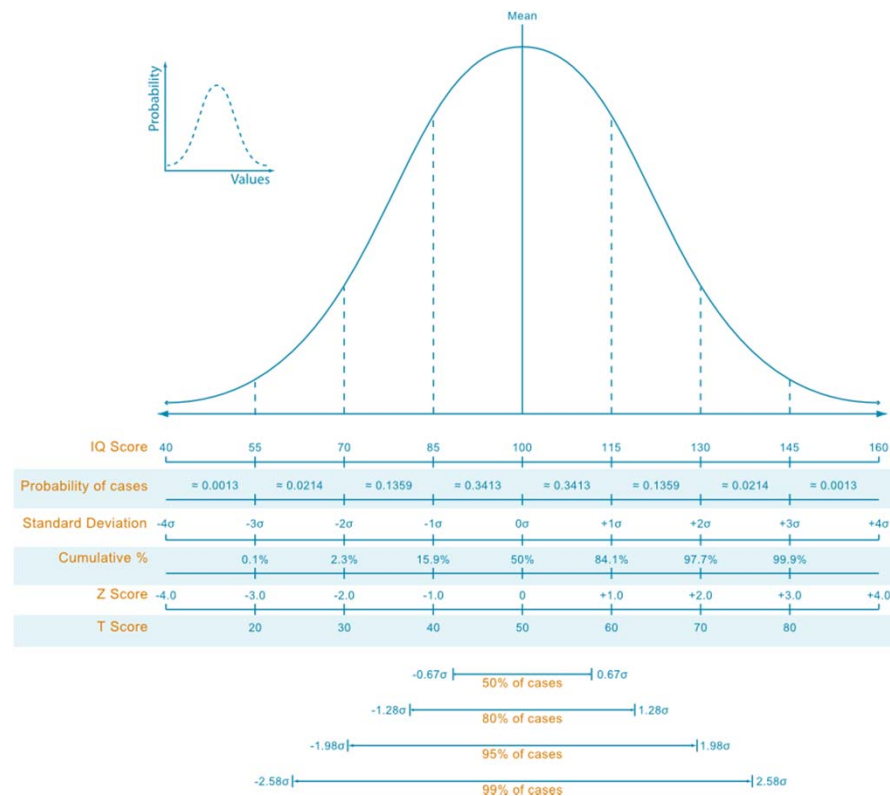
Developmental  
outcome in **this study cohort 2011-14**

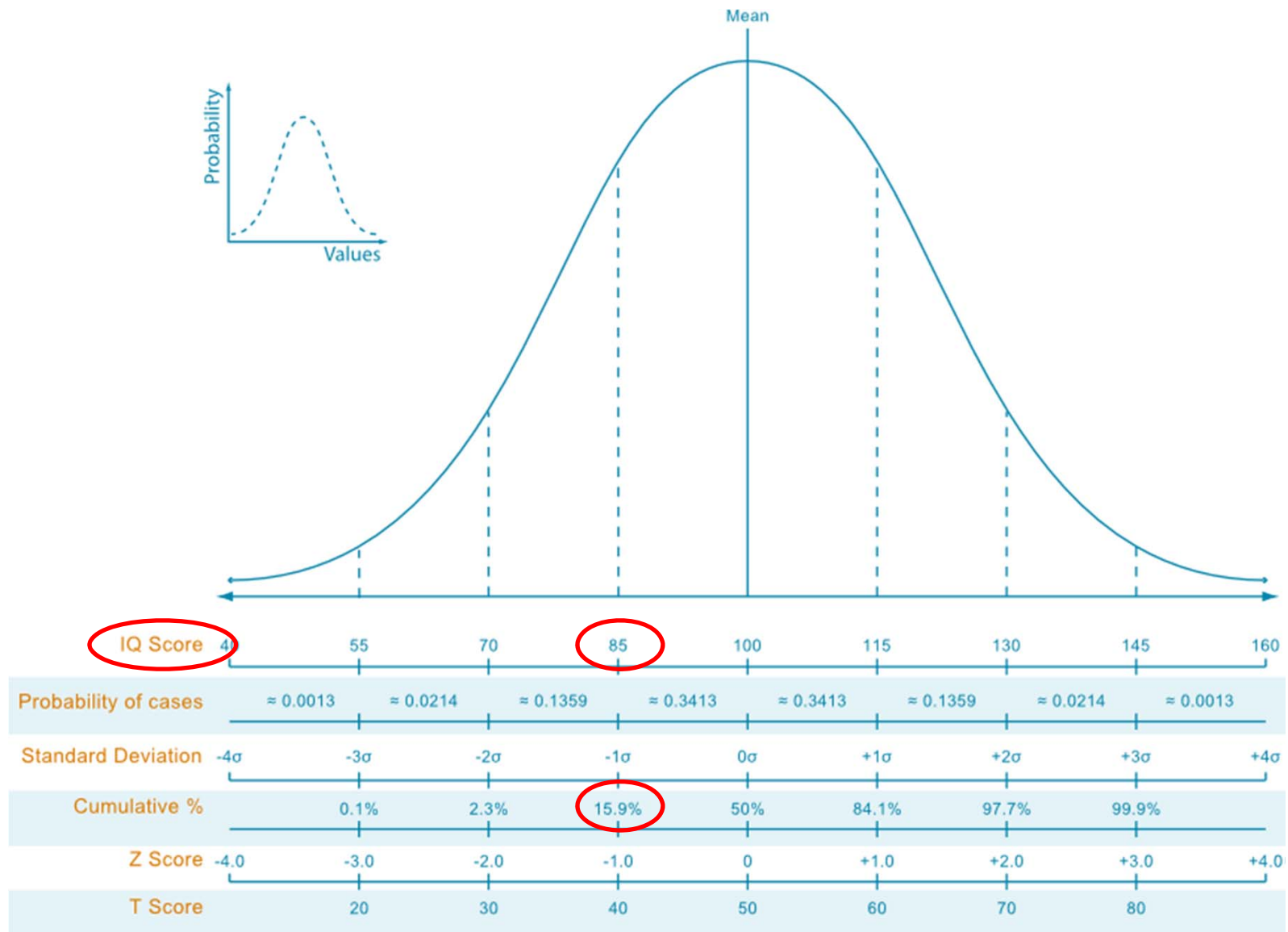


■ developmental delay  
■ normal development

# Developmental outcome in 2011-14 cohort

- Significant Language or developmental delay (dx by CAC to be borderline or delayed): 33/193 (**17%**)
- According to the normal distribution, Borderline IQ or below **~15-16%**





# Other neurodevelopmental problems

- Autism Spectrum Disorder (confirmed by CAC): 2 (1.0%)
- ADHD (dx by obvious features of or confirmed by CAC): 2 (1.0%) *(compared with 5-9% of school age children in HK)*



# Drug status of mothers

- Documented drug status of mothers: 175/193
- Detox rate:  $134/175 = 77\%$





# Conclusions



- The new community Paediatric service model has achieved all the objectives set out during the establishment of CCDS:
  - Early identification of pregnant women with substance abuse habit and provide early intervention and support
  - **Improve engagement** in follow-up
  - **Modify high risk behaviour** of mothers and empower them for proper parenting
  - Ultimate objective of **improving the developmental outcome** of infants of substance abusing mothers



**Thank you !**

