"Child Developmental Screening 2020"

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UNIT NO. 1

CHILDHOOD DEVELOPMENTAL SCREENING FROM BIRTH UNTIL 18 MONTHS IN SINGAPORE: UPDATE ON CLINICAL PRACTICE

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ABSTRACT

Child development starts from conception until early childhood. It is influenced by antenatal, perinatal as well as early childhood factors. Social and environmental factors also affect child development. The National Childhood Immunisation Programme and Childhood Developmental Screening programme provide crucial touchpoints for primary care practitioners to screen, assess and refer cases of developmental delay. At the same time, good parent-child interaction can be promoted during these visits.

Keywords: Child development, Developmental Screening, Parent-child interaction

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INTRODUCTION

Child development embodies the holistic development of a child from birth; broadly categorised into domains of gross motor, fine motor, language, and social-emotional domains.[1] Development starts from conception until early childhood. Developmental problems are increasingly recognised and can result in long term consequences such as learning disability, school failure, secondary mental health issues and family distress. If developmental issues are detected, and intervention started early, many of the conditions will have a good outcome or can be ameliorated to a great extent. However, parents are frequently unaware and developmental concerns for their child are rarely the chief medical complaint of a clinic visit. The primary care setting with definite touchpoints for vaccination and well-child visits present unique opportunities for developmental screening and referral for intervention.[2]

Background

About 4000 new patients were diagnosed by the Child Development Programme (CDP) at the KK Women's and Children's Hospital and National University Hospital, Singapore in 2015. The four most common conditions are speech and language delays, autism spectrum disorders, behavioural problems and global developmental delay. Behavioural problems include temper tantrums, bullying and refusing to go to school. In the literature, global developmental delay affects one to three percent of children. Five to ten percent of children have a specific learning disability in a single domain; one to two percent have a mild learning disability and 0.5 percent have a severe learning disability. Some children do not have readily identifiable risk factors such as at-risk antenatal history, prematurity and significant perinatal event. They may not be detected if there is no systematic surveillance. Undetected cases cause loss of a child's potential, familial distraught, social issues, and dependence on community resources in later life.

Children develop at different rates. It is important to bear in mind the age range of attainment of various developmental milestones. Early evaluation reassures parents and relieves their anxiety when their child is assessed to be developing within the acceptable range. When a developmental delay is detected early, an intervention can be promptly instituted. Many of the conditions can be ameliorated, and a significant number of children will be able to function normally, leading independent lives. In cases where the condition has a genetic basis, e.g. Fragile X and Prader Willi, parents can be provided with genetic counselling and antenatal diagnosis for subsequent pregnancy if they desire.

Risk and resilience factors

There are known medical risk factors causing developmental delay: maternal illness during pregnancy, a preterm infant below 37 weeks gestation; low birth weight, intrauterine growth restriction, low Apgar score at birth, perinatal events and medical conditions such as genetic, cardiac or respiratory illness. Family history and social set up may also play a role; e.g. family history of developmental delay or mental illness, incomplete family unit, housing or food instability. Certain resilience factors are recognised to be protective and helpful for child development; positive parent-child interaction, parental engagement, parental motivation, well-adjusted siblings, a strong social support structure such as grandparents or committed domestic helper.

Primary care challenges and opportunities

Primary care providers face the challenge of time for each clinic visit.[3] In the short clinic visit, the doctor has to perform a physical examination, address parents' common concern about growth and diet. Another challenge is that a different doctor or nurse practitioner is present for each visit. Not uncommonly, the primary care provider may not be comfortable with delivering difficult news. In some instances, parents may not be receptive of the results of the assessment.

Many parents are not aware and would not bring their child for a medical consult for developmental concerns. However, they will bring the child for National Childhood Immunization which starts at birth and ends at about 18 to 24 months of age.

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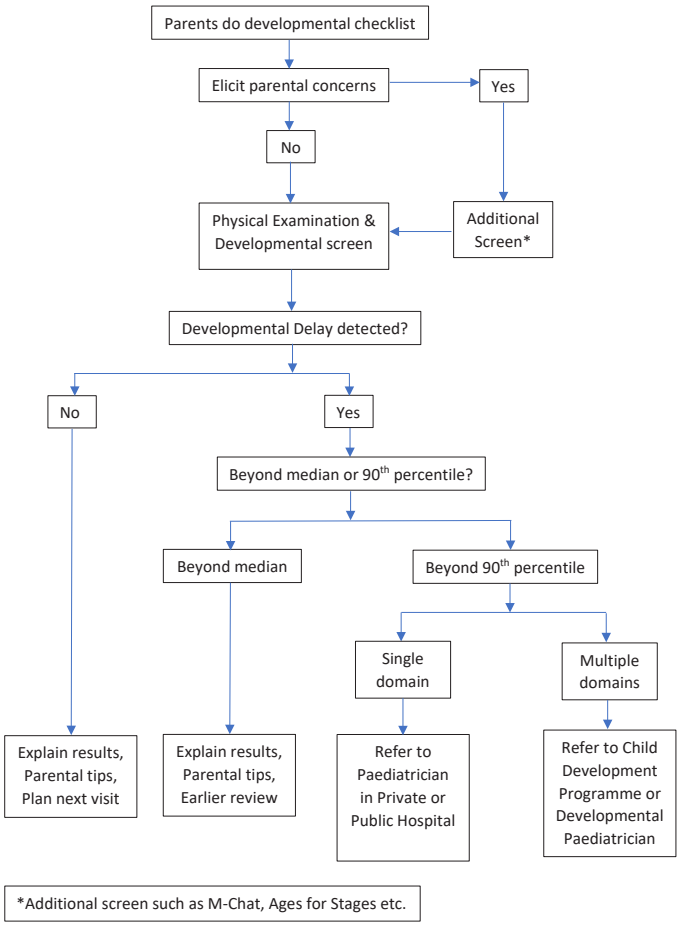
The revised Childhood Developmental Screening (CDS) provides for touchpoints at four weeks, 3, 6, 12, 18, 30 and 48 months. These visits can serve as the basic structure for systematic surveillance of each child's developmental progress from birth till pre-school. Many children are attending pre-school as early as 18 months. Good feedback can be obtained if early childhood educators are trained to pick up tell-tale signs.

Figure 1. Workable process in primary care



When parents arrive at the clinic, the assistant should engage parents to complete the age-appropriate checklist and also elicit any concerns from parents, other caregivers or even infant care teachers.[4] In a previous survey, only about half of the parents attempted the checklist with minimal help from professionals.[5]

Clinical practitioners performing the assessment should be familiar with developmental milestones and common variations; sometimes among different ethnic groups. Intentional, systematic assessment is more effective than informal screen and random identification method. Additional screening tools such as Ages for Stages and M-CHAT [6,7] can be used if parents express specific concerns about their child.

Proper documentation of the history of risk factors at the first visit so that parents would not need to repeat the history during subsequent visits.

Longitudinal surveillance is very useful to detect 'catch-up' or 'regression' of the individual domains. Detailed documentation will allow the examining practitioner during each visit to be able to track the progress. A child with a delay in multiple domains is more worrying than one who has a delay in a single domain. Any child with regression in milestones should be referred urgently.

For mild delay in a single domain, an earlier follow-up visit would be appropriate. Parents and caregivers are given instructions to stimulate a child with age-appropriate activities to promote improvement in development in that particular domain. In the event of significant delay in a single domain, especially the motor domain, the child should be referred to a Paediatrician. If a child demonstrates delay in multiple domains, a referral is made to the Child Development Programme or Developmental Paediatrician. (Table 1)

Table 1. Child Development from Birth to 18 months

Median age #	Gross Motor	Fine Motor	Hearing & Language	Social - Emotional	Red Flags
4 weeks	Mild head lag	'Lightly clenched fist	Startles on loud sounds	Cries when hungry or uncomfortable	Floppy baby
	**1 month*	*1 month*	*1 month*	*1 month*	
3 months	Head up transiently when prone	Holds objects placed in hands	Coos and laughs	Social smile	Lack of social response or vocalisation
	5 months	*4 months*	*4.5 months*	*5 months*	
6 Months	Rolls over, Sits with support	Reaches for objects	Babbles	Stranger anxiety	Poor head control, not reaching for object, no babbling
	7.5 months	*7.5 months*	*7.5 months*	*10 months*	
12 Months	Stands with support, walks holding one hand	Pincer grasp, throws	Utters mama, papa	Waves bye, claps hands, points	Unable to stand with support, no pointing
	14.5 months	*13.5 months*	*14.5 months*	*13.5 months*	
18 Months	Walks well, walks upstairs holding one hand	Builds tower of three cubes, scribbles	10 single words with meaning, one step command	Symbolic play, eats with a spoon	Not walking without support; no meaningful single words
	21.5 months	*22 months*	*24 months*	*22 months*	

Median age at which the milestone is reached. *The italic number in the shaded box refers to the age by which 90 percent of children attain the milestone

At the conclusion of the assessment, the results or findings should be explained to the parents. When a developmental delay is detected, delicate skill in communication is required; avoid using diagnostic labels as the diagnosis will be confirmed by the referred centre. On the other hand, the language used should be strong enough so that parents will take the referral seriously.

To garner better acceptance by parents, the practitioner can describe referral in a positive light as early diagnosis will avail the child to interventional therapy and better long-term outcome. Support services are more widely available and affordable now, and the results of intervention have improved over the years as they are being undertaken at an earlier age.

Parenting activities and parent-child interaction

Apart from sharing about the results of the assessment, primary care providers can also provide suggestions for overcoming difficulties identified and for meaningful parent-child interactions such as reading, reciprocal play and physical training. Even when there is no delay detected, parents can be given child-safety instructions and encouraged to engage their

child and promote their child's physical and pre-academic development.

Support services

Primary care providers should be familiar with the various support services available in Singapore.[8] This will facilitate the referral process as well as reassure parents that assistance is available, and the diagnosis is not an end by itself.

Early Intervention Programme for Infants & Children (EIPIC)

The programme equips children up to the age of six with motor, communication, social, self-help and cognitive skills. Children participate in activities that maximise their developmental growth potential and minimise the development of secondary disabilities.

Development Support Programme (DSP)

DSP supports and prepares pre-schoolers with mild developmental needs in mainstream kindergartens and childcare centres for mainstream education. The support includes on-site intervention and learning support.

Special Education Schools (SPED)

There are currently 20 SPED schools in Singapore catering to different disabilities. The schools customise their programmes to nurture and maximise the students' potential.

CONCLUSION

Developmental and behavioural problems are important medical conditions that can adversely impact children, family and the society. Their importance is increasingly recognised, and significant advances have been made in the area of therapy and intervention. A critical element for success in intervention is early diagnosis and referral. Primary care practitioners are in the unique position to play the role of assessment, reassurance, referral for intervention and promotion of parent-child interaction.

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LEARNING POINTS

- **Child development issues may be subtle and can result in long term consequences**
- **Parental engagement and positive interaction play a very important role in child development**
- **Systematic longitudinal surveillance is more effective than informal screen**