



Block: Child Health
seminar: Developmental assessment
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Nelson Textbook of Pediatrics, 20th edition.

Nelson Essentials of Pediatrics, 7th Edition 2015

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Definition

Developmental assessment is the process of mapping a child's performance compared with children of similar age.

Growth and development of the brain and central nervous system is often termed psychomotor development and is usually divided into **four main domains**:

- 1. Gross motor**
- 2. Fine motor and vision**
- 3. Speech, language and hearing**
- 4. Social behavior**



The pattern of development is remarkably constant, within fairly broad limits, but the rate at which goals are achieved varies from child to child. Skills are acquired sequentially, with one goal acquired after another. Later goals often depend on achievement of earlier goals within the same field—for example, children must learn to sit independently before they can stand and then walk.

Developmental Milestones

Descriptions of normal development, linked to the ability to perform a particular task at a particular age, relate to the performance of the average child. The acquisition of a key performance skill, such as walking, is referred to as a **milestone**. For each skill, the normal age range for attainment of the milestone varies widely. A median age is the age at which half a population of children acquire a skill.



Factors influencing development

- **Genetic factors** may determine the fundamental developmental potential.
- **Environmental factors** have crucial influences on the profile achieved

Environmental causes of damage to brain development

Antenatal:

- Early maternal infections, such as rubella, toxoplasma, cytomegalovirus
- Late maternal infections, such as varicella, malaria, HIV
- Toxins—for example, alcohol, pesticides, radiation, smoking
- Drugs—for example, cytotoxics, antiepileptics

Postnatal:

- Infections—for example, meningitis, encephalitis, cytomegalovirus
- Metabolic disorders, such as hypoglycemia, hyponatremia or hypernatremia, dehydration
- Toxins—for example, lead, mercury, arsenic, chlorinated organic compounds, solvents
- Trauma, especially head injury
- Severe understimulation, maltreatment, or domestic violence
- Malnutrition, especially deficiency of iron, folate, and vitamin D
- Maternal mental health disorders, most commonly depression

developmental delay

Many clinicians use the term “**global developmental delay**” to mean a significant delay in two or more of the four main developmental domains

Significant delay is defined as performance two or more standard deviations below the mean on age- appropriate standardized norm-referenced testing .

Benefits of developmental assessment

- Early diagnosis and intervention

Early diagnosis of conditions with a genetic basis, such as Duchene muscular dystrophy and fragile X syndrome, facilitates genetic counselling for families

- Provides carers with reliable information before a developmental problem becomes obvious and gives them more time to adjust to the child's difficulty and make appropriate management plans for their family
- Carers are reassured and relieved of anxiety if assessment shows that the child is within the normal range
- Early assessments can be compared with later ones.
- Provides an opportunity to encourage good parenting and developmental stimulation

How do children present with developmental problems?

Children with developmental problems may present in several ways:

- In countries with routine child health surveillance or developmental screening practices, concerns may be raised at scheduled contacts
- In children with identified risk factors (such as prematurity) who have undergone developmental surveillance, developmental problems may be detected early
- Parents may recognize a delay or be worried about a child's behavior or social skills and seek professional advice (either through their health visitor, public health nurse, or general practitioner)
- Professionals in a nursery or day care setting may recognize deviant patterns of development and highlight their concerns to the family.

Suggested opportunistic screening questions

- Do you have any concerns about the way your child is behaving, learning, or developing?
- Do you have any concerns about the way he or she moves or uses his or her arms or legs?
- Do you have any concerns about how your child talks and understands what you say?
- Does your child enjoy playing with toys? Describe what he or she does while playing
- Has your child ever stopped doing something he or she could previously do?
- Does your child get along with others?
- Do you have any concerns about how your child is learning to do things for himself or herself?



Developmental variation

- Normal patterns
- Late talking or walking may be familial
- Language development may seem delayed at first in children of bilingual families, but counting total words in both languages typically compensates for perceived delay. Receptive language precedes language expression
- Black and Indian infants are more likely than white ones to have advanced motor skills

Correctable causes of slow development:

- Undernutrition (failure to thrive)
- Iron deficiency anemia
- Social isolation of the family or maternal depression
- Hypothyroidism



Parents and carers are usually more aware of norms for gross motor milestones, such as walking independently, than for milestones and patterns of normal speech, language acquisition, and play skills.

Age ?



Age?



Age?



Age?



Age?



Age?





Thank
You

