Paediatric case for review

Dr Keong Liew Mok

Objective

- Case overview
- To understand, introduce and learn a practical, basic approach to clinical assessment.
- Looking at the tools/resources available
- Questions & answer

Case Overview

Baby M

- 8-month-old baby girl

Presenting complaint

“Concern about development “

“Regression of motor function”

History of Presenting Complaint

- Past 2 months (since 6 month of age)
- “Not using her legs”
- Previously:

- stand (weight bearing) and sit with some support.

- Currently:

- needing more support when she is sitting, not
- able to roll from front to back but not back to front.

- Her symptoms -STATIC

History of Presenting Complaint

- “Meeting all the milestones”

- until 2 months ago

- Started after a viral like illness

- Had runny nose & cough

- Irritable

- No trauma

Other Development “Normal”

- Hearing and vision
– turn to sound & fix and follow
- Social smiles, good eye contact
- Babble a lot and can say “Dada”.
- Grab things with her hands, transfer and put things in her mouth.

Birth history

- Normal vaginal delivery
- Term at 39 weeks gestation
- Birth weight of 3.29 kg
- Normal pregnancy
- Mum was on Sertraline but no other drugs or alcohol.
- Good APGARS – no resuscitation
- No Newborn unit admission

Others

- Happy with growth
- Feeding well
- Formula and solids

- No choking or coughing during feeds

- No medication
- No allergies
- Immunizations up to date

Clinical examination

- Weight was 8.16 kg (tracking 75th to 91st centile),
- Height was 70 cm (50th to 75th centile)
- Head circumference is 45 centimetres(tracking 75th to 91st centile).

- Well, No dysmorphic features
- Cardio respiratory system was normal.
- Her abdomen was soft non-tender with mass.

“What happen to the legs?”

Clinical examination- Lower limb

Lying on the bed

Lower limb

- Passive

- Limited/nil spontaneous lower limb movement.

- Active

- Pull her leg up when stimulated

- move her legs, intermittently she would push my hands (tone and power (3-4/5) was decreased)

Clinical examination

She had good head control when pulling from lying to sitting.

She was able to sit with support

She was not putting weight on her legs when I supported her standing.

On ventral suspension – good head control but leg flop

On her tummy she can push herself up with her hands and head

Clinical examination

Rest of development

- Social smile and was constantly babbling.
- She turned to sounds.
- Her hands are very active.

- grab things with her hands
- put objects in the mouth with good coordination.

Clinical examination

- Rest of examination
- Eye movements was normal with no obvious nystagmus.
- Upper limb neurology was normal (tone, power and reflexes).
- There was no obvious spinal or bony tenderness.

Impression

……

“The leg is not working and I don’t know what is happening ….

Get this blood test done and I will contact Neurology and get back to you”

Disease	Upper motor neuron	Anterior horn cell ▪ SMA ▪ Poliomyelitis	Neuromuscular junction ▪ Myasthenia gravis ▪ infant botulism	Peripheral nerve ▪ Hereditary Sensory Muscle Neuropathy	Muscle
Tone	↑	↓↓	variable	↓	N/↓↓
Distribution	hemiparesis paraparesis etc	variable, asymmetric LL>UL prox > distal	fluctuating cranial n involved	distal>proximal	proximal>distal (except myotonic dystrophy)
Reflexes	↑	↓/ normal	normal	↓/ absent	N/↓
Babinski	Upgoing	-	-	-	-
Special clinical features	↓ cognition atrophy late	fasciculations atrophy no sensory involvement	fluctuating course	sensory involved atrophy occ fasciculations	no sensory loss
Other		▪ CK – normal/ ↑	▪ anti-Ach antibodies (+ve in 90%) ▪ ANA, immune complexes	▪ CK – normal ▪ Nerve biopsy – ↓ large myelinated fibres	CK –↑

Lower limb weakness

Started acutely 2 months ago following a viral like illness.

Non-progressive

Likely LMN/? UMN lesion

Neurometabolic work-up :
for possible ADEM like illness/flaccid paralysis/ infectious /inflammatory and structural.

Diagnosis

- Went for semi – urgent MRI brain and spine under GA on the same week with plans for CSF collection.
- Scan showed mass on the chest with spread to the spinal cord
- Likely Neuroblastoma

Neuroblastoma

- most common extracranial solid tumour of childhood
- neural crest cells in the developing sympathetic nervous system.
- along the sympathetic chain
- most frequently arises from the adrenal gland
- Adrenal medulla - modified postganglionic *sympathetic* neurons
- prognosis for neuroblastoma varies widely.

- Neck-chest, chest-abdomen, abdomen-pelvis

Neck

- Tumor encasing carotid and/or vertebral artery and/or internal jugular vein
- Tumor extending to base of skull
- Tumor compressing the trachea

Cervico-thoracic junction

- Tumor encasing brachial plexus roots
- Tumor encasing subclavian vessels and/or vertebral and/or carotid artery
- Tumor compressing the trachea

Thorax

- Tumor encasing the aorta and/or major branches
- Tumor compressing the trachea and/or principal bronchi
- Lower mediastinal tumor, infiltrating the costo-vertebral junction between T9 and T12

Thoraco-abdominal

- Tumor encasing the aorta and/or vena cava

Abdomen/pelvis

- Tumor infiltrating the porta hepatis and/or the hepatoduodenal ligament
- Tumor encasing branches of the superior mesenteric artery at the mesenteric root
- Tumor encasing the origin of the coeliac axis, and/or of the superior mesenteric artery
- Tumor invading one or both renal pedicles
- Tumor encasing the aorta and/or vena cava
- Tumor encasing the iliac vessels
- Pelvic tumor crossing the sciatic notch

Intraspinal tumor extension whatever the location provided that:

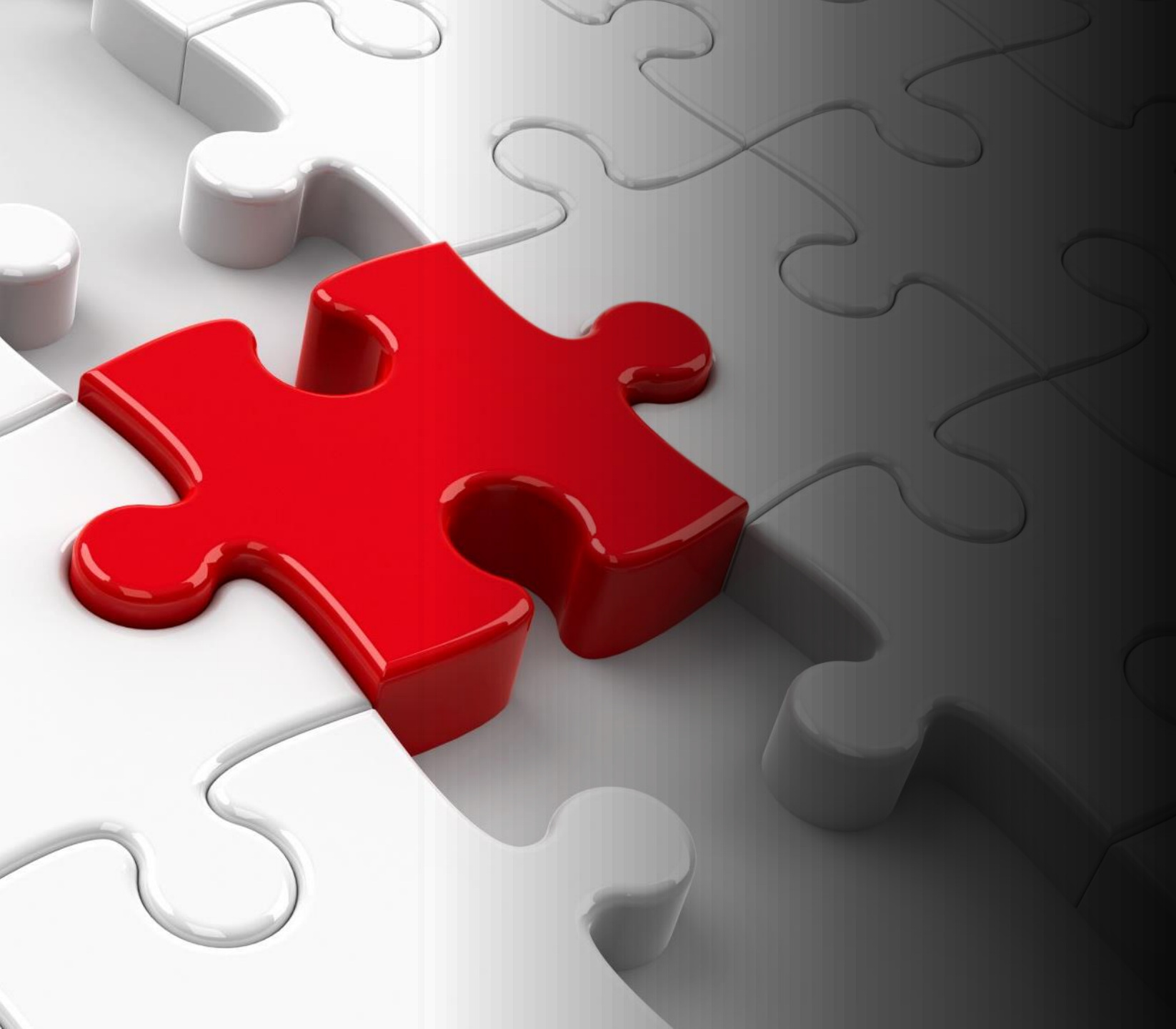
- More than one third of the spinal canal in the axial plane is invaded and/or the perimedullary leptomeningeal spaces are not visible and/or the spinal cord signal is abnormal

Infiltration of adjacent organs/structures

- Pericardium, diaphragm, kidney, liver, duodeno-pancreatic block, and mesentery

Conditions to be recorded, but *not* considered IDRFs

- Multifocal primary tumors
- Pleural effusion, with or without malignant cells
- Ascites, with or without malignant cells



Neurodevelopmental assessment
- Infants < 1 years old

Infants

Infans in Latin means “unable to talk”

Infant

- Can’t tell you what is wrong
- If Baby M could talk

“I can’t move my legs”

Objective: Learn a practical systemic screening approach
Framework are:

A. Is there an evidence based methods for a systematic enquiry from parents

B. Structured observations of developmental abilities.

Developmental examination: Birth to 5 years. Ajay Sharma, Arch Dis Child Educ Pract Ed 2011;96:162–175. doi:10.1136/adc.2009.175901

Things to be aware before we even start:

- You only capture a moment of their life “snapshot”
- Delay vs Regression
- Don’t forget simple stuff height, weight and head circumference
- Your Question : Is the baby delay ?
- My question : Why is the baby delay?

B : Neurodevelopmental examination

Structured observations of developmental abilities.

Hearing and Vision

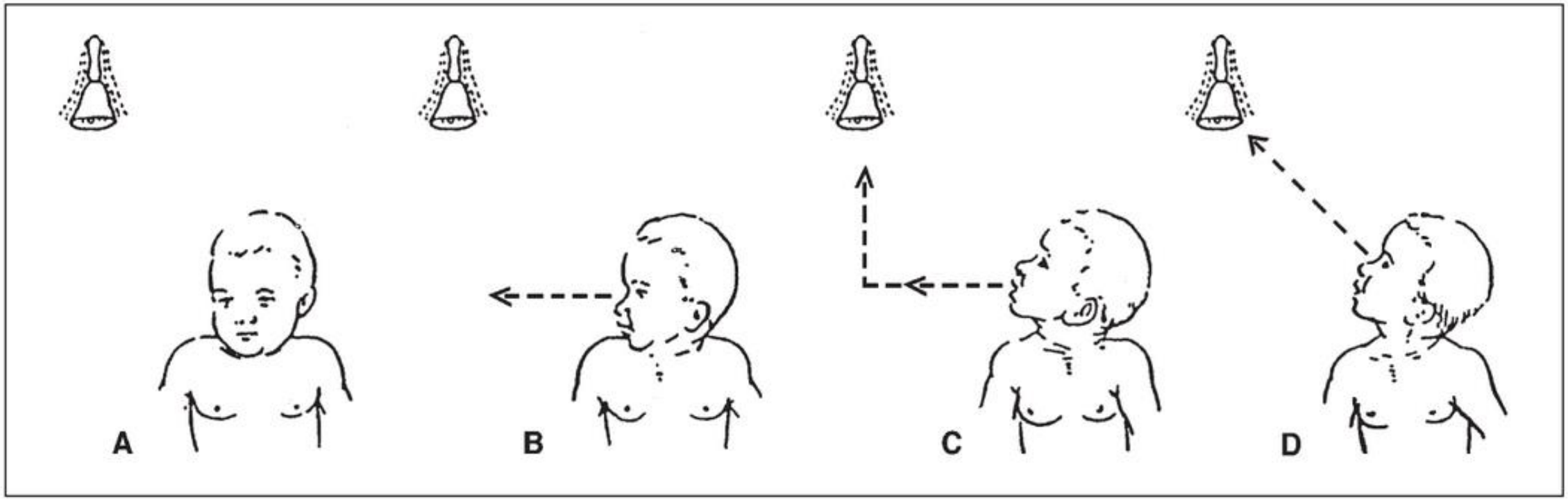


FIGURE 7. Orienting to sound of bell. In the first stage (5 months), when a bell is rung at one side of the infant's head (A), the infant turns horizontally to the correct side (B). In the second stage (7 months), when a bell is rung at one side of the head (A), the infant localizes the sound by a compound visual maneuver consisting of a horizontal followed by a vertical component (C). In the third stage (9½ months), when a bell is rung to one side of the head (A), the infant localizes the sound by a single visual movement (D). From Capute AJ, Accardo PJ. Clin Pediatr. *1978;17:850. Reprinted with permission.*

Primitive Reflex

Primitive Reflex		Maneuver	Ages
Palmar Grasp Reflex		Place your fingers into the baby's hands and press against the palmar surfaces. The baby will flex all fingers to grasp your fingers.	Birth to 3–4 months
Plantar Grasp Reflex		Touch the sole at the base of the toes. The toes curl.	Birth to 6–8 months
Rooting Reflex		Stroke the perioral skin at the corners of the mouth. The mouth will open and baby will turn the head toward the stimulated side and suck.	Birth to 3–4 months
Moro Reflex (Startle Reflex)		Hold the baby supine, supporting the head, back, and legs. Abruptly lower the entire body about 2 feet. The arms abduct and extend, hands open, and legs flex. Baby may cry.	Birth to 4 months
Asymmetric Tonic Neck Reflex		With baby supine, turn head to one side, holding jaw over shoulder. The arms/legs on side to which head is turned extend while the opposite arm/leg flex. Repeat on other side.	Birth to 2 months

Source : Bates' Guide to Physical Examination and History Taking, 11E 2012

Primitive Reflex (*continued*)

Primitive Reflex		Maneuver	Ages
Trunk Incurvation (Galant's) Reflex		Support the baby prone with one hand, and stroke one side of the back 1 cm from midline, from shoulder to buttocks. The spine will curve toward the stimulated side.	Birth to 2 months
Landau Reflex		Suspend the baby prone with one hand. The head will lift up, and the spine will straighten.	Birth to 6 months
Parachute Reflex		Suspend the baby prone and slowly lower the head toward a surface. The arms and legs will extend in a protective fashion.	8 months and does not disappear
Positive Support Reflex		Hold the baby around the trunk and lower until the feet touch a flat surface. The hips, knees, and ankles extend, the baby stands up, partially bearing weight, sags after 20–30 seconds.	Birth or 2 months until 6 months
Placing and Stepping Reflexes		Hold baby upright as in positive support reflex. Have one sole touch the tabletop. The hip and knee of that foot will flex and the other foot will step forward. Alternate stepping will occur.	Birth (best after 4 days). Variable age to disappear

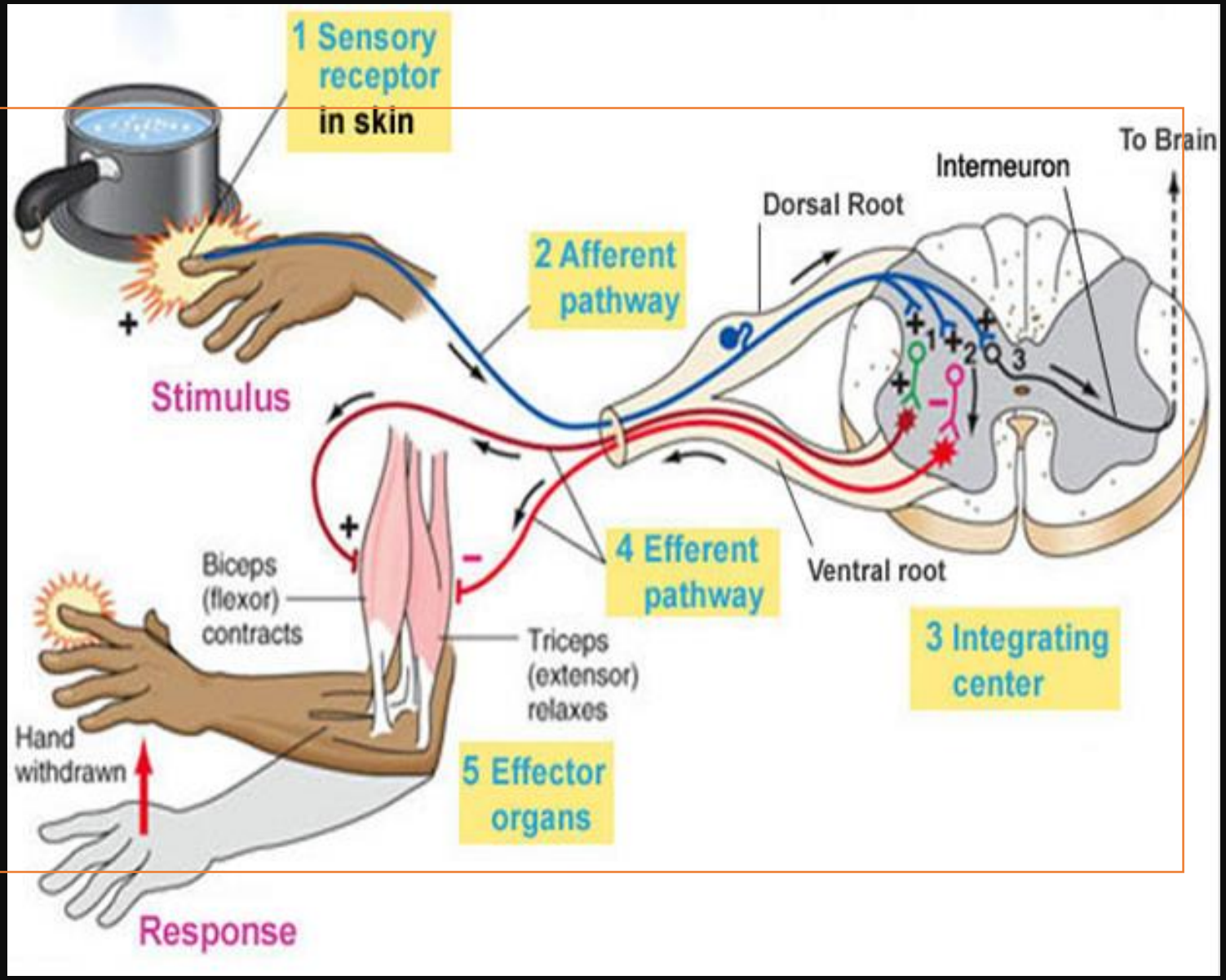
Other resources

Table 1 Neonatal primitive reflexes

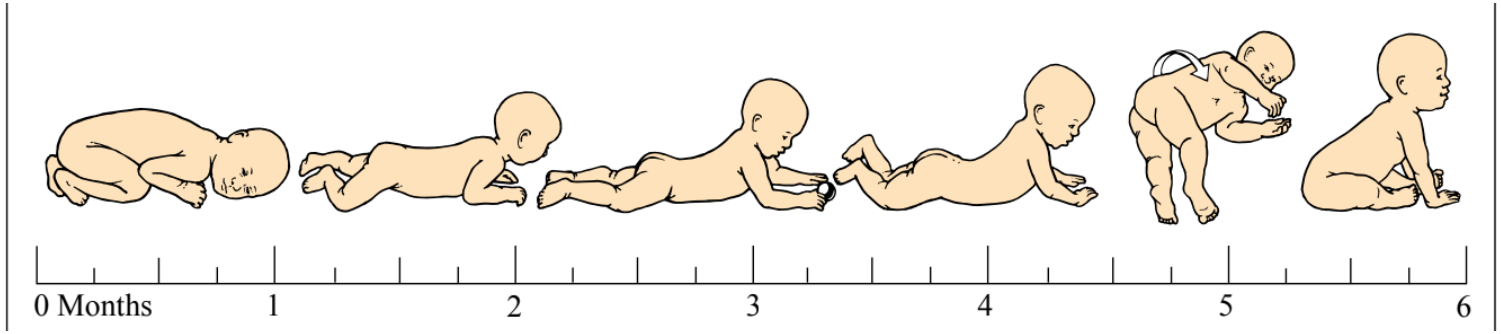
Reflex	Method to elicit	Response	Appears	Disappears
Moro	Suddenly extend head or arms	Symmetrical extension, abduction and the flexion of arms	Birth	6 months
Placing	Bring dorsum of foot up to edge of table	Foot is lifted and placed on surface	4 weeks	6 months
Stepping	Support in standing position	Alternate legs flex at knees and hips and baby 'walks' forward	Birth	3 months
Grasp	Place finger in palm of baby's hand	Fingers close tightly round examiner's finger	Birth	4 months
Asymmetric tonic neck (ATNR)	Hold shoulders flat and turn head to either side	Limbs on face side extend and on occiput side flex	Birth	6 months
Head righting	In supine position turn head to either side	Pelvis and shoulders turn in same direction	4 months	2 years
Parachute	From ventral suspension suddenly lower the baby towards a surface	Arms and legs extend and abduct	6 months	Persists

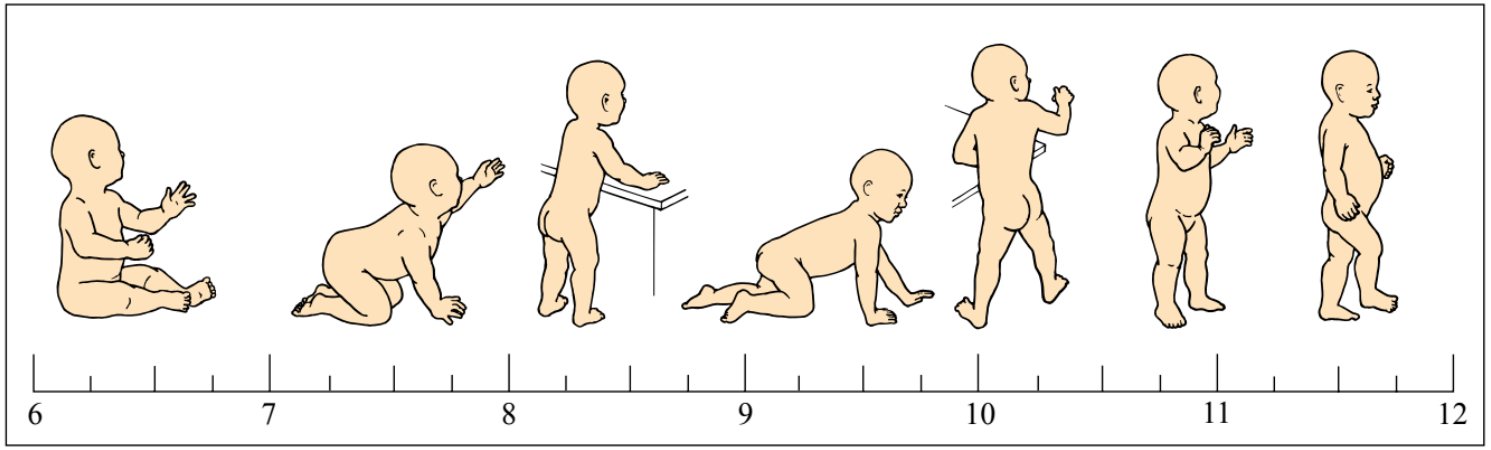
The normal child. Martin Bellman, ed Peile. Publish by ChurchHill Livingstone 2006.

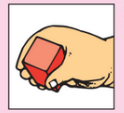
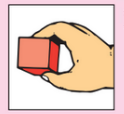
Withdrawal Reflex



Motor-Fine and Gross





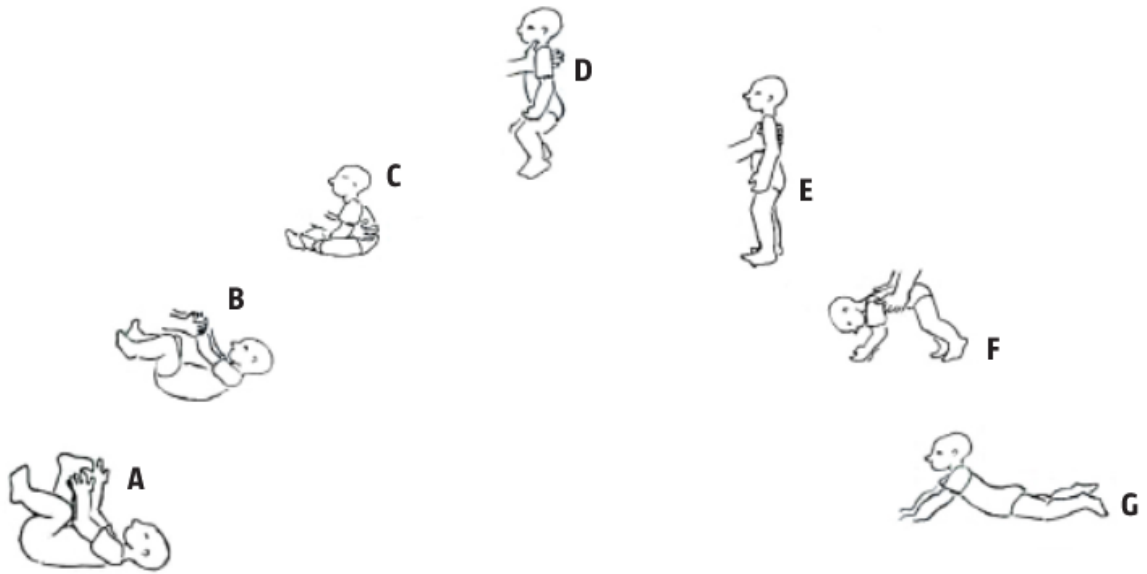
		RED FLAGS
1		
2		Rolling prior to 3 months may indicate hyperton
3		
4		
5		Poor head control
6		
7	 	W-sitting and bunn hopping, may indicate adductor spasticity or hypotonia
8		
9	 	Persistence of primitive reflexes may indicate neuromotor disorder

MOS.	GROSS MOTOR SKILLS	RED FLAGS
10	Cruises around furniture Walks with 2 hands held	 
11	Stands alone Walks with 1 hand held	
12	Independent steps Posterior protection	 Failure to develop protective reactions may indicate neuromotor disorder

Infant Growth and Development. Chris Plauche Johnson, MEd, MD* and Peter A. Blasco, MD†Pediatrics in Review Vol. 18 No. 7 July 1997

180 degree Approach (motor development) 2-10 month

180-gradersundersøgelsen. Et fem måneder gammelt, normalt udviklet barn undersøges. Det er særlig vigtigt at observere de nævnte forhold.



A. *Rygliggende:* Spontan motorik observeres. Stilling og bevægelser. **B.** *Obtrækning:* Søg efter øjenkontakt. Hovedkontrol, tabes hovedet bagover? **C.** *Siddende:* Hoved- og truncuskontrol. **D.** *Aksilhængegreb:* Tonus og kraft, benstilling. Glider barnet ud af grebet og mod underlaget? **E.** *Stående:* Vægtbæring. **F.** *Ventral suspension:* Hoved- og truncuskontrol. Benstilling. **G.** *Fremliggende:* Armstøtte. Hovekontrol.

Grafik: *Hanne Agerholm*

[The 180 degree study is a simple examination of the motor development of infants.] October 2013 Ugeskrift for Laeger 175(42):2475-2477

TABLE 3. Cognitive Development

AGE IN MONTHS	PROBLEM-SOLVING	LANGUAGE		RED FLAGS
		RECEPTIVE	EXPRESSIVE	
1	Fixes on red ring Follows face	Alerts to sound	Throaty noises Cries	Failure to alert to environmental stimuli may indicate sensory impairment
2	Tracks horizontally past midline Tracks vertically	Regards speaker	Social smile Coos Vocalizes single vowel sounds	
3	Regards a 1-inch block Follows ring circularly Visual threat		Chuckles Echoes speaker immediately Cry varies (hunger, pain)	
4	Reaches for objects Mouths objects Shakes rattle Regards objects while handling	Orients to voice	Laughs out loud "Ah-goo" Silent and listens to speaker; vocalizes when speaker stops	
5	Attains dangling ring Regards pellet	Orients Bell—I	Razzes (raspberries) Smiles and vocalizes to mirror Sing-song vocalizations that mimic speaker's voice	Failure to reach for objects may indicate motor, visual, and/or cognitive deficit
6	Looks to floor when drops toy Attains partially hidden object Removes cloth covering face Discriminates strangers		Babbles: "baba," "gagaga" Consonant production without symbolic meaning or communicative intent	Absent babbling may indicate hearing deficit
7	Bangs/shakes toys Attempts to grasp second cube; drops first Pats mirror image	Orients Bell—II	Adult reinforcement begins to give meaning to random babbling	Absent stranger anxiety may be due to multiple care providers (eg, neonatal intensive care unit)
8	Pulls string to obtain ring Inspects ring/bell Seeks yarn ball after fall; silent landing	Enjoys peek-a-boo and other gesture games	"Dada" inappropriately Mimics sounds already in repertoire	
9	Rings bell Bangs objects on table Uncovers hidden object under cloth	Associates words with meanings	"Mama" inappropriately Waves "bye bye"	
10	Bangs two cubes together Isolates index finger and explores by poking Looks at pictures in book	Comprehends "no" Orients to name Orients Bell—III	Dada/Mama appropriately	Inability to localize sound may indicate unilateral hearing loss
11	Uncovers toy under cup	Looks for familiar family member when named	First word Imitates simple sounds	
12	Looks selectively at round hole on form board	Follows command with gesture ("Give me.")	Immature jargoning Protoimpertive pointing	Persistent mouthing may indicate lack of intellectual curiosity

Infant Growth and Development. Chris Plauche Johnson, MEd, MD* and Peter A. Blasco, MD†Pediatrics in Review Vol. 18 No. 7 July 1997

TABLE 4. Psychosocial Development

AGE IN MONTHS	EMOTIONAL	SOCIAL	ADAPTIVE	RED FLAGS
1–3	Interest Disgust Distress (pain, hunger) Enjoyment (social smile)	Understands relationships between voices and faces Bonding (parent → infant) Smiles reciprocally Follows moving person with eyes	State regulation Requires only one night feeding	Irritability Sleep/eating disturbances
3–6	Anger Happiness Joy Pleasure Sadness Displeasure	Recognizes mother Attachment (infant → parent) Anticipates food on sight Smiles spontaneously		Absent smile may indicate visual loss, attachment problems, or maternal depression
6–9	Personality unfolds Fear	Discriminates emotional facial expressions and reacts differently Preference for a given person Stranger anxiety Understands means-to-an-end relationship in social interactions (act → clap → repeat act)	Gums/swallows cracker Places hands on bottle Takes solids well Finger feeds dry cereal	Absent stranger anxiety may be due to multiple care providers (eg, NICU care)
9–12	Assertiveness Cautiousness	Differential fear response based on gender and age Concept of self Social interactions become intentional and goal-directed Separation anxiety	Holds bottle Holds, bites, chews cracker/cookie Drinks from cup held for him or her	

Infant Growth and Development. Chris Plauche Johnson, MEd, MD* and Peter A. Blasco, MD†Pediatrics in Review Vol. 18 No. 7 July 1997

DEVELOPMENTAL MILESTONES

Motor skills

Table 2 Prone position (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Mean	Range
Lifts head momentarily	1 month	0.5–2 months
Lifts head about 45°	2 months	1–3 months
Head and upper chest up on forearms	3 months	2–5 months
Head and chest up on extended arms	6 months	4–8 months
Gets into crawling position	8 months	6–12 months

Table 3 Upright posture (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Mean	Range
Bears some weight on feet	7 months	6–9 months
Takes full weight	8 months	6–12 months
Stands holding on	9 months	7–14 months
Pulls to stand	10 months	9–10 months
Stands alone	11months	9–16 months

Table 4 Gross movements (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Mean	Range
Rolls (or squirms) forwards or backwards	8½ months	6–11 months
Crawls	9½ months	7–13 months
Walks with support	10 months	8–12 months
Walks alone	13 months	11–18 months
Squats to pick up object	14½ months	12–19 months
Runs	16 months	15–20 months
Jumps	18 months	
Walks on tiptoe	20 months	
Runs on tiptoe	24 months	
Hops on one foot	3 years	

Table 5 Stairs (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Mean	Range
Walks upstairs with hands held	16 months	12–24 months
Walks upstairs with two feet on each step	25 months	19–30 months
Walks upstairs, one foot per step and downstairs 2 feet per step	3 years	
Walks upstairs and downstairs one foot per step	4 years	

Manipulative skills

Table 6 Building with bricks (1 inch) (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

Number of bricks	Mean	Range
2	15 months	11–19 months
4	18 months	15–24 months
8	24 months	21–23 months
Bridge	3 years	27–39 months
3 steps	4 years	

Table 7 Drawing skills (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

Drawing skill	Mean
Scribbles	15 months
Imitates vertical line	2 years
Imitates horizontal line	2½ years
Imitates circle	3 years
Imitates cross	4 years

Language skills

Table 8 Speech (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

Speech sounds	Mean	Range
Grunts	4 weeks	1–6 weeks
Vocalizes (coo)	6½ weeks	4–9 weeks
Laughs	3½ months	2–5 months
Babbles (monosyllabic)	6½ months	4–8 months
Imitates sounds	10 months	8–12 months
Jargon	12 months	10–15 months
One word	15 months	12–18 months
1–6 words	18 months	15–21 months
7–20 words	21 months	18–24 months
50 words	2 years	18–27 months
Joins 2 words	2 years	18–30 months
200 words	2½ years	24–36 months
Joins 3–4 words	2½ years	2½–3 years
Questions (why, what, where, who)	3 years	2½–3½ years
Pronouns (I, you, he, she)	3½ years	3–4 years
Conjunctions (and, but)	4 years	3–4½ years
Sentences of 5+ words	4 years	3–4½ years
Complex explanations and sequences	4½ years	4–5½ years

The normal child. Martin Bellman, ed Peile. Publish by ChurchHill Livingstone 2006.

Table 9 Comprehension (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Mean	Range
Understands 'no'/bye-bye'	7 months	6–9 months
Recognizes own name	8 months	6–10 months
Recognizes familiar names	12 months	10–15 months
Selects 3 out of 4 objects	15 months	12–18 months
Points to body parts on person	15 months	12–18 months
Points to body parts on doll	18 months	15–21 months
Follows a 2-step command	2 years	18–27 months
Understands prepositions (in, on, under)	2½ years	2–3 years
Understands simple negatives	3 years	2½–3½ years
Follows a command with 2 instructions	3½ years	3–4 years
Understands complex negatives (neither/nor)	4 years	3½–5years
Follows a command with 3 instructions	4½ years	4–5½ years

Social skills

Table 10 Feeding (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Mean
Holds spoon but does not feed	12 months
Holds spoon, brings it to mouth but cannot prevent it turning over	15 months
Holds spoon and gets food safely to mouth	18 months
Eats skilfully with spoon	2–2½ years
Eats with fork and spoon	3 years
Eats skilfully with little help	3½–4 years
Copes with entire meal unaided	5 years

Table 11 Toileting (adapted from Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Range
Reflex emptying of bladder	Up to 6 months
Empties bladder less frequently (CNS inhibition of reflex)	6–12 months
Indicates or vocalizes toilet needs or wetness	1–2 years
Bowel control	2½–4 years
Dry during the day (occasional accident)	3–4 years
Dry at night (occasional accident)	3½–5 years
Able to control voiding, and micturate on command	4–5 years

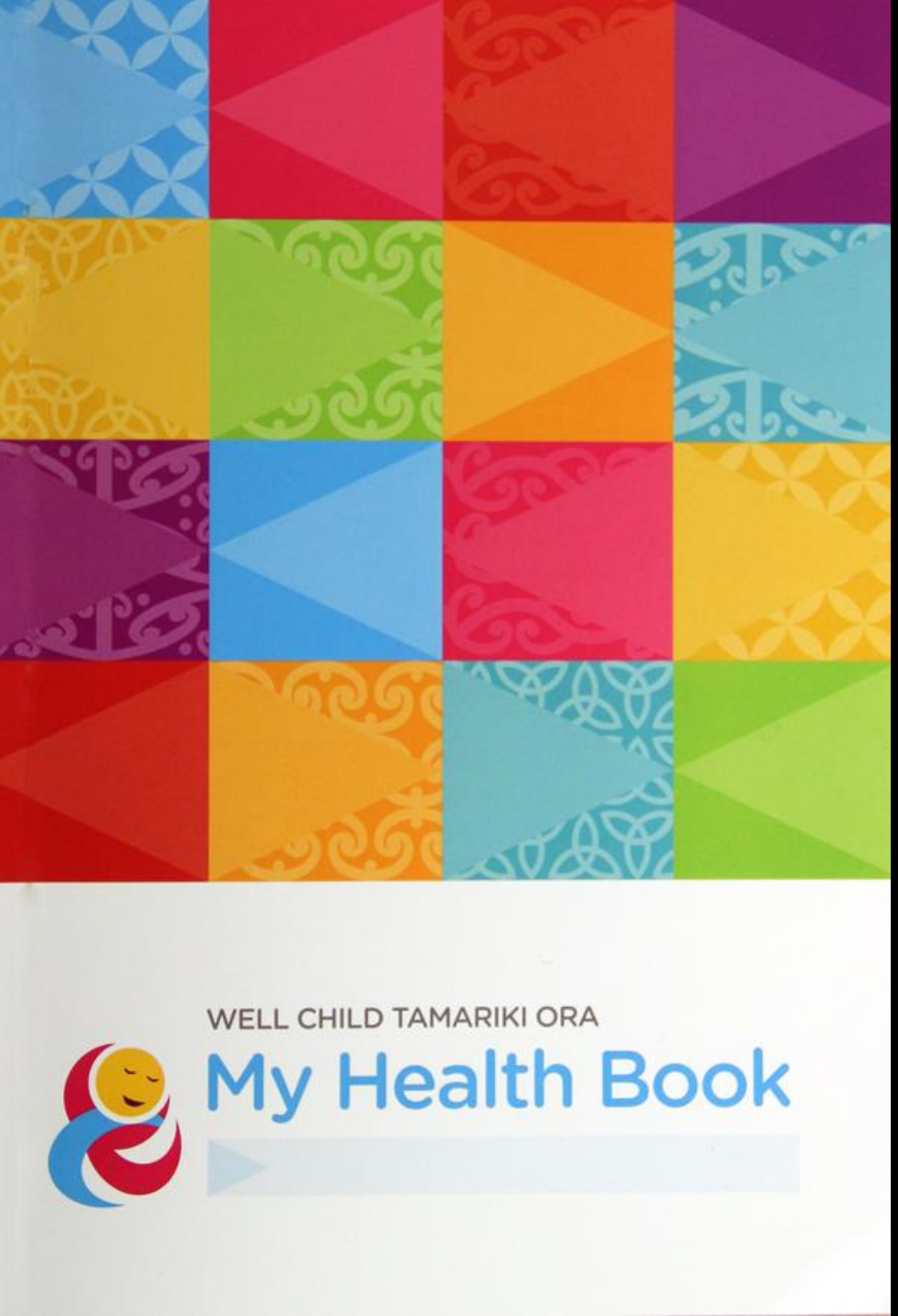
Table 12 Play (Bellman M, Lingam S, Aukett A 1966 The Schedule of Growing Skills II NFER-Nelson, Windsor)

	Range
Shakes rattle	3–6 months
Transfers objects from hand to hand	6–9 months
Plays 'pat-a-cake' and 'peep-bo'	9–11 months
Casts	12–15 months
Imitates domestic activities	18 months–2 years
Isolated pretend play	2–3 years
Cooperate play with other children	3–4 years
Takes turns to play	4–5 years
Plays games to rules	4½–6 years

The normal child. Martin Bellman, ed Peile. Publish by ChurchHill Livingstone 2006.

A:
Tools Available

Systematic enquiry from parents



Plunket book

- Plot growth
- Vision and hearing
- Page : 203 (speech and language)

Online journals and books

Developmental examination: birth to 5 years

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21 January 2011
Online First
2011

ABSTRACT

Developmental examination is part of the process of identifying children at risk of poor developmental outcomes. Development is a rapidly changing process with large variations within the population and for the same child, which limits the sensitivity and specificity of any examination method. There is now a good body of scientific knowledge and an evidence base for improving the examination method and clinical decision-making. The four main components of this examination are eliciting concerns, gathering information on social and biological risk factors, making structured observations of spontaneous and elicited behaviour, and interpreting findings with knowledge both of the features which raise significant concerns and of common behavioural phenotypes of developmental disorders. The focus of developmental examination needs to shift from simply 'measuring' development to informing the developmental profile of a child's needs and identifying children at risk of adverse outcomes. The objective of helping the child is best achieved when the interpretation of findings, management guidance and management plan are shared through good communication with parents, carers and other agencies.

INTRODUCTION

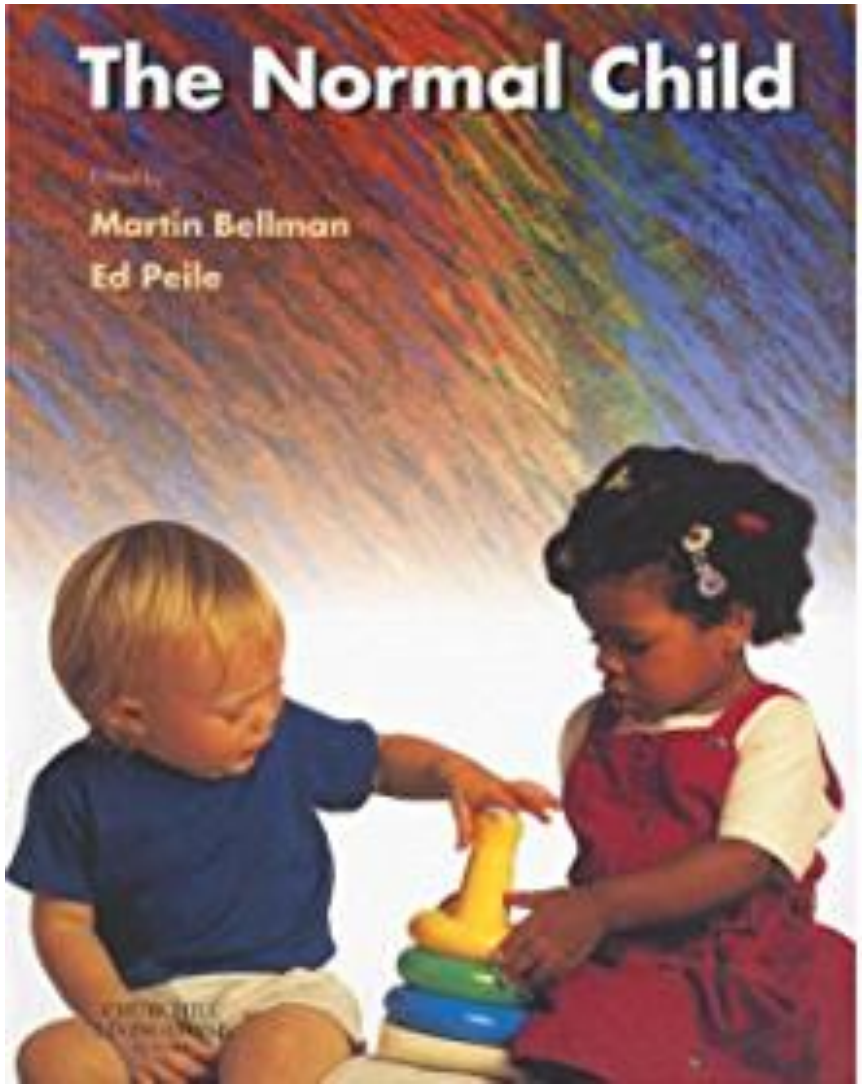
This article describes a developmental examination method which combines the scientific knowledge of developmental progression and social and biological risks with the tools of systematic enquiry and observation. It provides a practical stepwise approach for eliciting information on normative and qualitative aspects of developmental abilities to differentiate children with typical development from children who may have significant developmental impairments. It outlines key areas of associated psychological processes, knowledge of which is essential for making sense of children's developmental difficulties.

Developmental impairments are a heterogeneous group of conditions which start early in life and present with delay and/or an abnormal pattern of progression in one or more domains, for example, sensation, perception, cognition, language, communication, movement and behaviour. The complexity and severity of the impairment and its impact on the child's activity and social and educational participation is influenced by multiple biological, social and environmental factors which interact with each other.[1] Collectively, developmental impairments are common, with prevalence ranging from 5% to 15%.[2–4] They are often associated with health and behavioural problems, and are linked with long term problems of social adaptation, learning and adverse mental health outcomes.[5] There is now good evidence that early identification and early intervention improve the outcomes of children with developmental impairments.[6 7]

Developmental examination is part of a multistep process of early identification and management of developmental impairments (table 1). There are, however, wide variations in practice and a lack of agreement on how best to conduct this examination in a clinical paediatric setting. Subjective clinical impressions based on informal observations are often used, but they miss a significant proportion of children with problems, which may lead to delay in identification.[8 9] Standardised tests of development primarily differentiate children at different levels of performance on that particular test. These tests are considered as the gold standard by some but may be impractical in terms of time, unsuitable for the child's comprehension or motor abilities, and often too narrowly focus on *measuring* development.[10]

Process for identification of developmental impairments

	Objectives	Methods
e: universal, for all	Promoting health and development; promotion of good care and parenting; identification of risk factors; early presumptive identification of developmental difficulties[29]	Ongoing process involving parents (through the use of the Personal Child Health Record), health visitors and general practitioners[59]
ntal examination	To verify concerns, and elicit and categorise developmental	Clinical evaluation based on the knowledge and skills of general



Developmental examination: Birth to 5 years. Ajay Sharma, Arch Dis Child Educ Pract Ed 2011;96:162–175. doi:10.1136/adc.2009.175901

www.cdc.gov/actearly - Health pathways

Ages & Stages Questionnaires (ASQ)

ASQ-3 Ages & Stages Questionnaires®

14 Month Questionnaire

13 months 0 days through 14 months 30 days

Please provide the following information. Use black or blue ink only and print legibly when completing this form.

Date ASQ completed: _____

Baby's information

Middle

1. SCORE AND TRANSFER TOTALS TO CHART BELOW: See *ASQ-3 User's Guide* for details, including how to adjust scores if item responses are missing. Score each item (YES = 10, SOMETIMES = 5, NOT YET = 0). Add item scores, and record each area total. In the chart below, transfer the total scores, and fill in the circles corresponding with the total scores.

Area	Cutoff	Total Score	0	5	10	15	20	25	30	35	40	45	50	55	60
Communication	17.40		●	●	●	●	○	○	○	○	○	○	○	○	○
Gross Motor	25.80		●	●	●	●	●	○	○	○	○	○	○	○	○
Fine Motor	23.06		●	●	●	●	●	○	○	○	○	○	○	○	○
Problem Solving	22.56		●	●	●	●	●	○	○	○	○	○	○	○	○
Personal-Social	23.18		●	●	●	●	●	○	○	○	○	○	○	○	○

2. TRANSFER OVERALL RESPONSES: Bolded uppercase responses require follow-up. See *ASQ-3 User's Guide*, Chapter 6.

1. Uses both hands and both legs equally well? Yes **NO**
   Comments:
2. Plays with sounds or seems to make words? Yes **NO**
   Comments:
3. Feet are flat on the surface most of the time? Yes **NO**
   Comments:
4. Concerns about not making sounds? **YES** No
   Comments:
5. Family history of hearing impairment? **YES** No
   Comments:
6. Concerns about vision? **YES** No
   Comments:
7. Any medical problems? **YES** No
   Comments:
8. Concerns about behavior? **YES** No
   Comments:
9. Other concerns? **YES** No
   Comments:

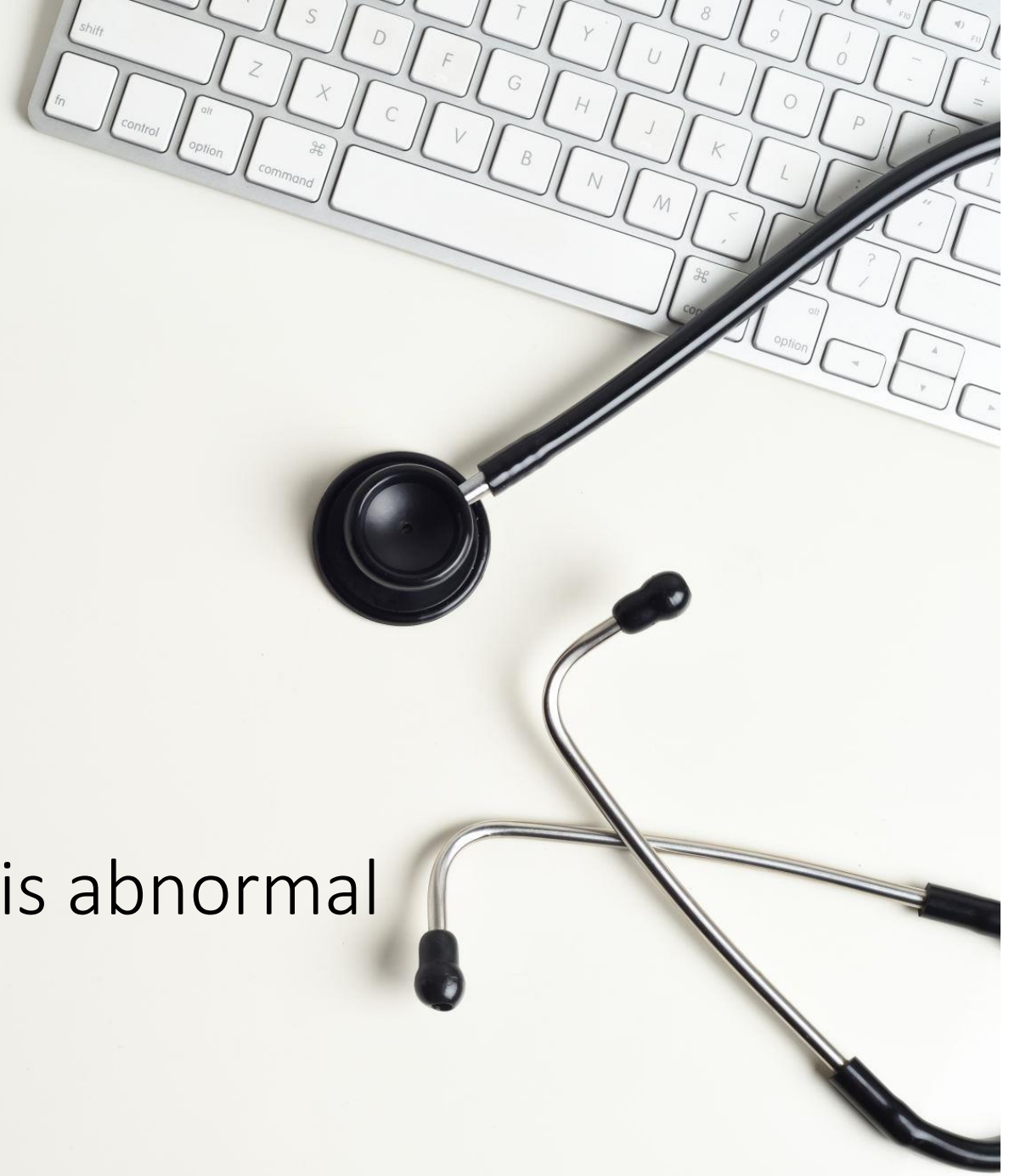
3. ASQ SCORE INTERPRETATION AND RECOMMENDATION FOR FOLLOW-UP: You must consider total area scores, overall responses, and other considerations, such as opportunities to practice skills, to determine appropriate follow-up.

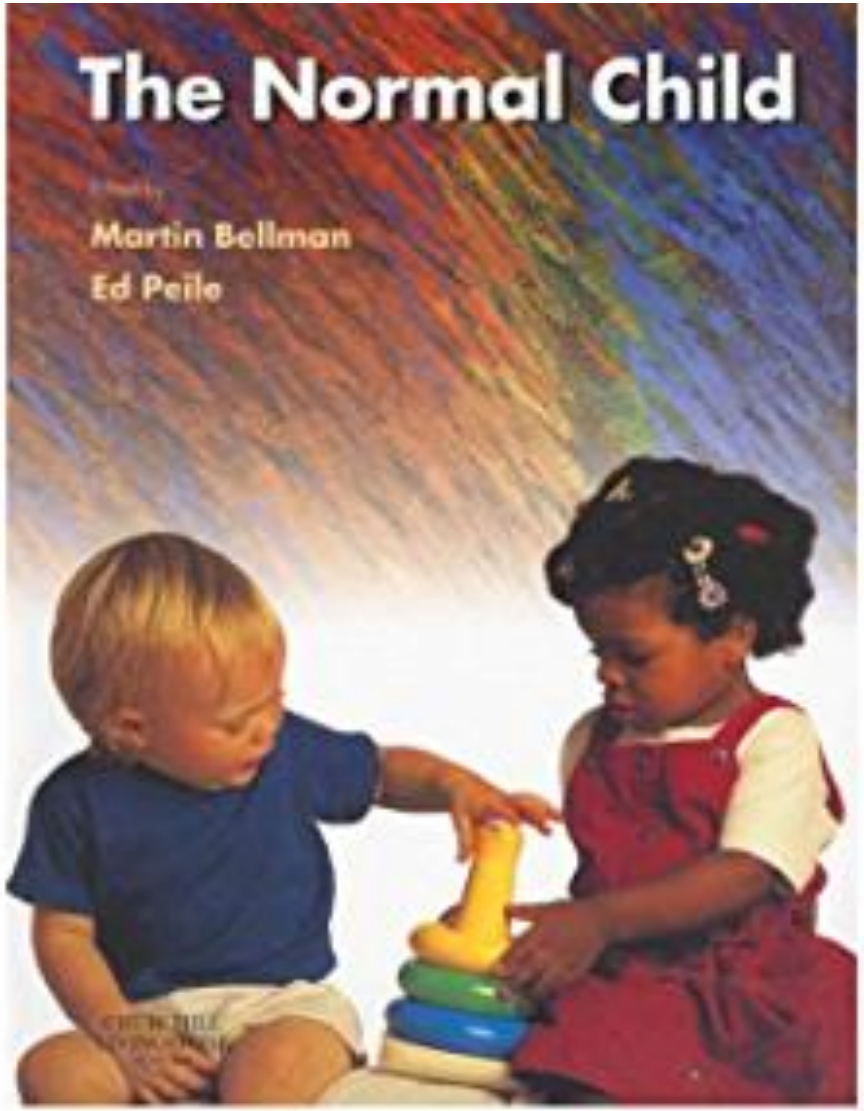
If the baby's total score is in the ▭ area, it is above the cutoff, and the baby's development appears to be on schedule.
If the baby's total score is in the ▭ area, it is close to the cutoff. Provide learning activities and monitor.
If the baby's total score is in the ■ area, it is below the cutoff. Further assessment with a professional may be needed.

https://steeplechasepedi.com/patient-corner/forms/ages-stages-questionnaires/

What is normal ?

Once we know normal
Then only you know what is abnormal





The normal child. Martin Bellman, ed Peile. Publish by ChurchHill Livingstone 2006.

Influences on development

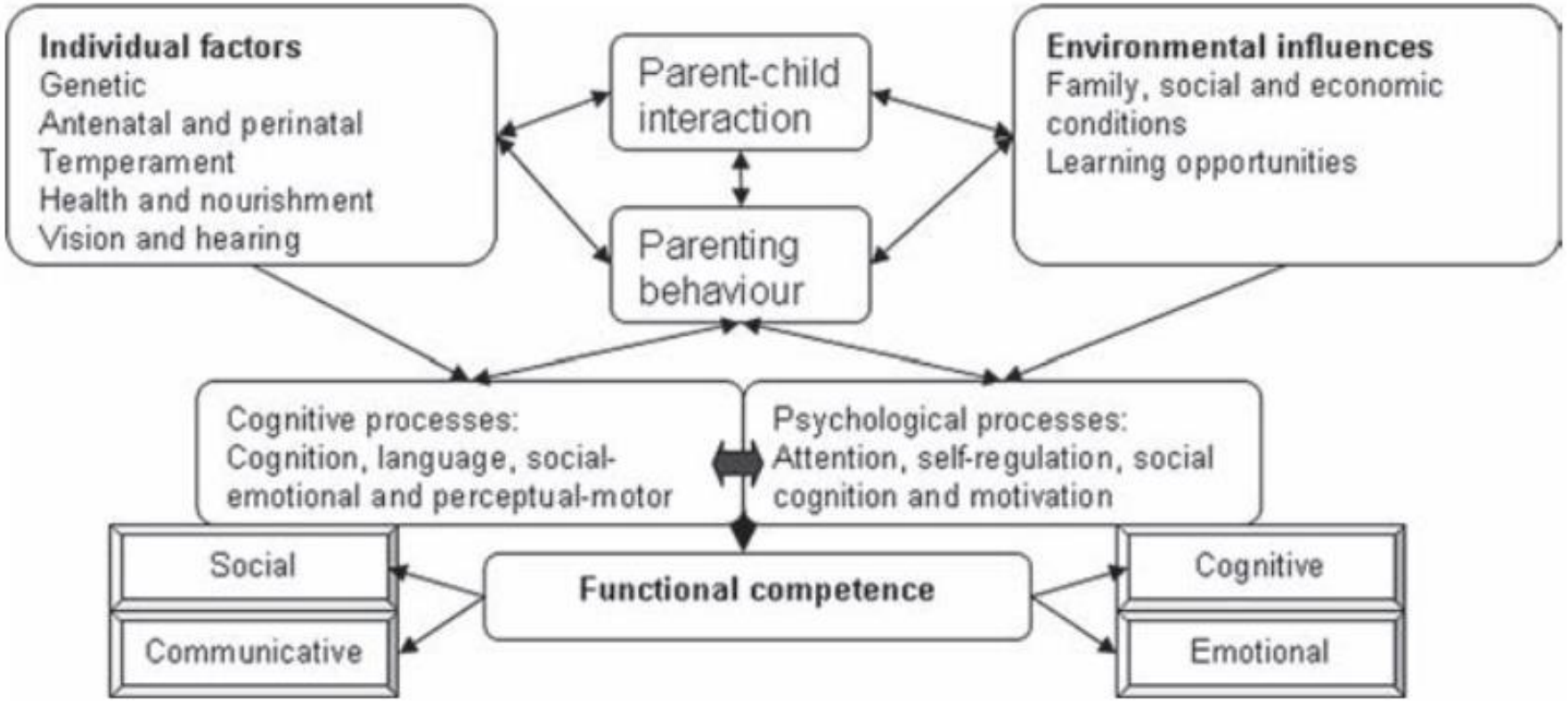


Figure 1 Influences on development

Developmental examination: Birth to 5 years. Ajay Sharma, Arch Dis Child Educ Pract Ed 2011;96:162–175. doi:10.1136/adc.2009.175901

We still cannot predict the future

- (7) DEAR FUTURE MOM | March 21 - World Down Syndrome Day | #DearFutureMom - YouTube

Influences on development

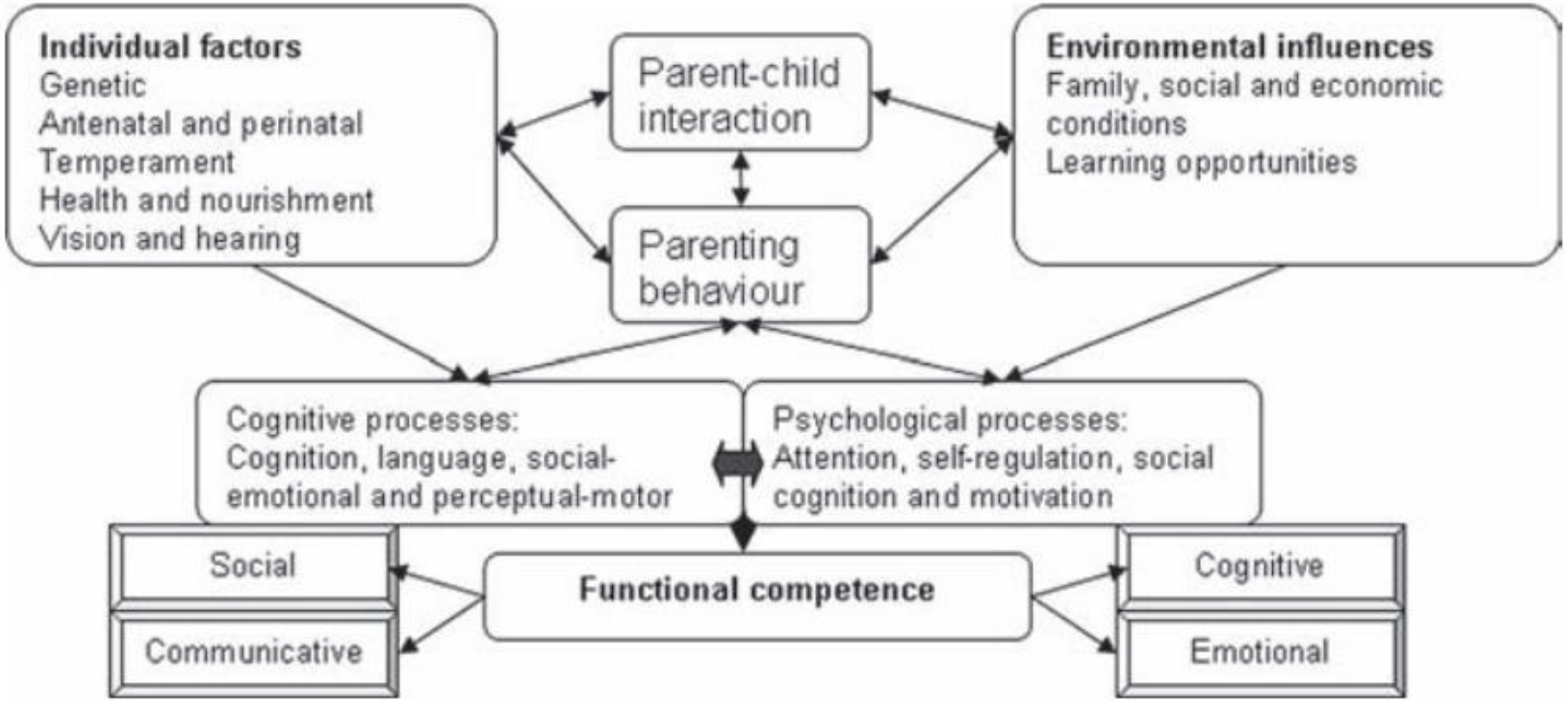


Figure 1 Influences on development

Developmental examination: Birth to 5 years. Ajay Sharma, Arch Dis Child Educ Pract Ed 2011;96:162–175. doi:10.1136/adc.2009.175901

Back to Baby M

Take home message

- Basic – History and examination
- You only see them for 5 minutes
- Use the systemic approach to examination
- If you don’t remember anything – RED FLAGS
- Use the Tools
- Call a Friend/Refer

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