



UPSC CMS

PEDIATRICS PYQ

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Which one of the following statements is correct regarding a normal newborn's growth?

(a) Weight loss may be 8-10% of birth weight in the initial two weeks of life.

★ (b) Birth weight is regained by 7-10 days of age.

(b)

(c) Birth weight is regained within first week of life.

(d) Weight loss may be 12-15% of birth weight in the initial two weeks of life.



Weight: The average birth weight of Indian neonates is about 3 kg. During the first few days after birth, the newborn loses extracellular fluid equivalent to about 7 to 10% of the body weight. Most infants regain their birth weight by the age of 10 days. Subsequently, they gain weight at approximately 20–40 g per day for the first three months of life. After that, they gain about 400 g of weight every month for the remaining part of the first year. An infant usually doubles his birth weight by the age of 5 months. The birth weight triples at one year and is four times at two years of age. Thus, the weight at five months, one year, and two years is approximately 6, 9, and 12 kg, respectively. A child's weight at the age of 3 years is about five times that of the birth weight. The expected weight can be calculated at five years by multiplying the birth weight by 6, 7 years

Table 2.3: Approximate anthropometric values by age

Age	Weight (kg)	Length or height (cm)	Head circumference (cm)
Birth	3	50	34
6 months	6 (doubles) 5M	62 ^{2x} 65	43
1 year	9 (triples) ✓	75 ^{3x} 75	46
2 years	12 (quadruples) ✓	87 ^{4x} 87	48
3 years	15	95	49
4 years	16	100 ^{5x} 100	50

Handwritten notes: $2\text{cm} \rightarrow 1\text{cm} \rightarrow 0.5$ (with $1\div 2$, $2\div 2$, $2\div 4$ below) and $5M$ (with $5M$ below) are written in purple. A large purple bracket groups the length and head circumference columns from 6 months to 4 years.



For developmental assessment of a baby, grasp is best assessed by offering the child

(a) a red ring

(b) a red cube → grasp

(c) red pellets → fine grip

(d) multicoloured pellets



A child can ride a tricycle^{3yrs}, hop^{4yrs} on one foot but cannot skips^{5yr}. He uses alternate feet^{4yrs.} while going downstairs. Which one of the following motor skills should he be able to perform at this developmental level?

4yrs

(a) Copy a triangle → ^{5yrs}



• vertical / circular stroke
↓
2yrs

(b) Copy a cross

(c) Build a gate with blocks

→ ^{5yrs}

→ ^{4yrs} Bridge

(d) Copy a rectangle x ^{4.5yrs} square



Table 3.1: Key gross motor developmental milestones

Age	Milestone
3 months	Neck holding ✓
5 months ✓	Rolls over
6 months	Sits in tripod fashion (sitting with own support)
8 months	Sitting without support
9 months	Stands holding on (with support)
12 months	Creeps well; walks but falls; stands without support
15 months	Walks alone; creeps upstairs 148
18 months	Runs; explores drawers 148s
2 years	Walks up and downstairs (2 feet/step); jumps
3 years	Rides tricycle; alternate feet going upstairs
4 years	Hops on one foot; alternate feet going downstairs
5 years	Skips

Table 3.2: Key fine motor milestones

Age	Milestone
4 months	Bidextrous reach (reaching out for objects with both hands)
6 months	Unidextrous reach (reaching out for objects with one hand); transfers objects
9 months	Immature pincer grasp; probes with forefinger
12 months	Pincer grasp mature
15 months	Imitates scribbling; tower of 2 blocks
18 months	Scribbles; tower of 3 blocks
2 years	Tower of 6 blocks; vertical and circular stroke
3 years	Tower of 9 blocks; copies circle
4 years	Copies cross; bridge with blocks
5 years	Copies triangle; gate with blocks



Table 3.4: Key language milestones

Age	Milestone
1 month	Alerts to sound / fixation vision → looks at mother
3 months	Coos (musical vowel sounds)
4 months	Laugh loud ✓ fute
6 months	Monosyllables (ba, da, pa), ah-goo sounds
9 months	Bisyllables (mama, baba, dada) / bye bye
12 months	1-2 words with meaning
18 months	8-10 word vocabulary
2 years	2-3 word sentences, uses pronouns "I", "me", "you"
3 years	Asks questions; knows full name and gender
4 years	Says song or poem; tells stories
5 years	Asks meaning of words.

wife

Table 3.3: Key social and adaptive milestones

Age	Milestone
2 months	Social smile (smile after being talked to)
3 months	Recognizes mother; anticipates feeds ^{three}
6 months	Recognizes strangers, stranger anxiety
9 months	Waves "bye bye"
12 months	Comes when called; plays simple ball game
15 months	Jargon / scribble
18 months	Copies parents in task (e.g. sweeping) ^{domestic miming}
2 years	Asks for food, drink, toilet; pulls people to show toys
3 years	Shares toys; knows full name and gender
4 years	Plays cooperatively in a group; goes to toilet alone
5 years	Helps in household tasks, dresses and undresses



Consider the following statements with respect to developmental milestones at **9 months of age**:

1. ✓ At this age, child develops **immature pincer** grasp. P-9
2. ✓ At this age, child can say **bisyllables** (mama, dada, etc.). /bye
3. ✓ At this age, child can wave **bye-bye**.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3 ✓



A child requires detailed developmental evaluation if the developmental quotient is below

- (a) 70%
- (b) 75%
- (c) 80%
- (d) 85%

DQ < 70% → evaluation.

$$DQ = \frac{DA}{CA} \times 100.$$

• upto 24w age → corrected
preterm → 34wks (40wks)
corrected age → subtract 6wks from CA



What are the upper age limits by which a child should start walking alone, and be able to speak single words?

- (a) 12 months, 15 months respectively
- (b) 15 months, 18 months respectively
- (c) 15 months, 15 months respectively
- (d) 18 months, 18 months respectively

Q visual → 2m.

stands w support → 12m

stand alone → 17m

W → walk words → 18m.

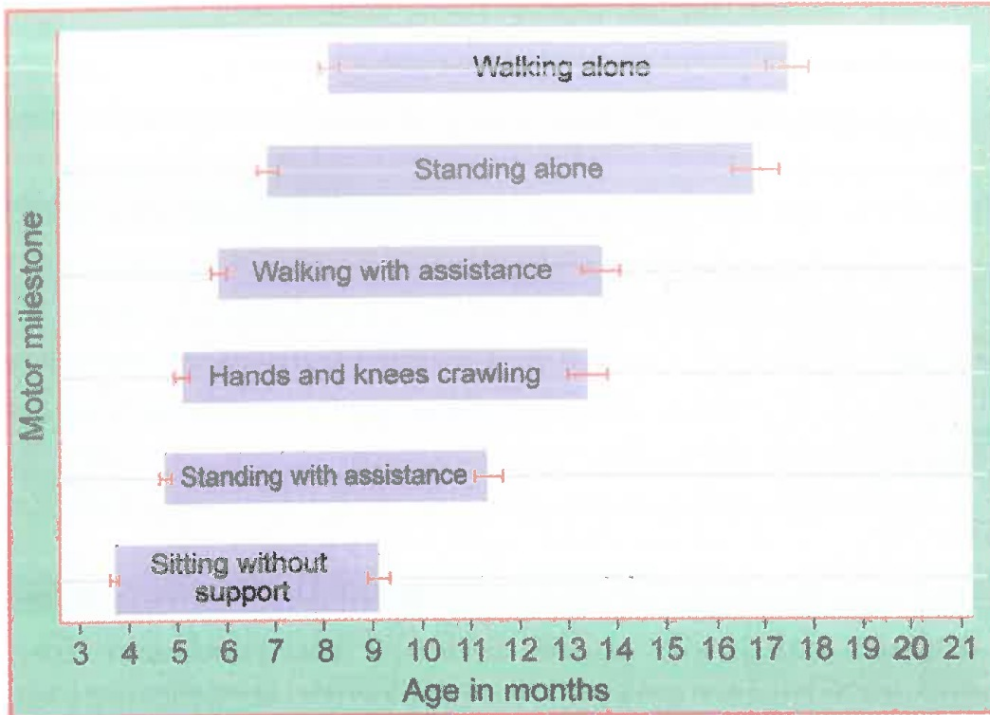


Fig. 3.61: Windows of achievement of six major motor milestones. The box denotes the age range for a given milestone between 3rd and 97th percentiles. The orange bars at both the ends of the boxes represent 95% confidence intervals of 3rd and 97th percentiles, respectively (WHO; Multicenter Growth Reference Study Group, 2006).

Table 3.5: Upper limit of age for the attainment of milestones

Milestone	Age
Visual fixation ^{1m} or following <i>eyes</i>	2 months
Vocalization	6 months
Sitting without support <i>9m</i>	10 months
Standing with assistance <i>9m</i>	12 months
Hands and knees crawling → on all 4	14 months
Standing alone → stand seventeen	17 months
Walking alone	18 months
Single words <i>W → Eighteen.</i>	18 months
Imaginative play - free - three	3 years
Loss of comprehension, single words or phrases at any age	at any age



Which one of the following can be used for developmental screening for use in **community** to identify children (aged **0-6 years**) with **developmental** delay?



- (a) Revised Denver Development Screening Test (Denver II)
- (b) Ages and Stages Questionnaire (ASQ-3)
- (c) Phatak's Baroda Development Screening Test
- (d) **Trivandrum Development Screening Chart**



Phatak's Baroda screening test: This is India's best-known development testing system that Dr. Promila Phatak developed. It is meant to be used by child psychologists rather than physicians. It is the Indian adaptation of the Bayley development scale and is applied to children up to 30 months.

Ages and stages questionnaire (ASQ-3): It consists of age-based, parent-completed questionnaires for children from one month to 5½ years of age. The questionnaire takes about 10–15 minutes for parents to complete and about 2–3 minutes to score. It assesses the following domains: Communication, gross motor, fine motor, problem-solving, and personal-social.

Denver II: The revised Denver Development Screening Test (DDST) or Denver II was revised in 1992 and assesses child development in four domains, i.e. gross motor, fine motor adaptive, language, and personal-social behavior.

Trivandrum Development Screening Chart (TDSC): It consists of 51 items for children of 0–6 years with items adapted from existing developmental charts/scales. It is primarily a screening tool for use in the community to identify children between 0 and 6 years with developmental delay.

Clinical adaptive test and clinical linguistic and auditory milestone scale (CAT/CLAMS): This easy-to-learn scale assesses the child's cognitive and language skills. It uses parental reports and direct testing of the children from birth to 36 months.

Goodenough-Harris drawing test: The child draws a man in the best possible manner, and the detail of the drawing determines the score of the child (Fig. 3.62; note the mature grip of pen, compare it with immature grip in Fig. 3.47). One can determine the mental age by comparing scores obtained with a normative sample.



A 3-year-old boy presents with parental concerns regarding **delayed** development, especially **speech**. On observation, the clinician notes **decreased eye contact**, inattentiveness, **unresponsive** to being called and **toe walking**. What is the most likely diagnosis?

- (a) Attention Deficit Hyperactivity Disorder →
- (b) Autism Spectrum Disorder
- (c) Cerebral Palsy
- (d) Social Communication Disorder



A 10-year-old child presents with difficulty in word recognition, word decoding abilities, difficulty in spelling with normal listening comprehension. The most likely diagnosis is :

- (a) Dyslexia ✱
- (b) Autism spectrum disorder
- (c) Rett syndrome → girls | stereotypical
- (d) Attention deficit hyperactivity disorder

MECP2
Tropenatide
hand wringing f.



Which one of the following is categorized as a specific learning disability?

(a) Dysgraphia

(b) Dystonia +

(c) Dysthymia \rightarrow Dys

(d) Dysphoria



Table 4.4: Clinical features of autism, ADHD and specific learning disability

Disorder	Salient clinical features
Autism spectrum disorder	<ul style="list-style-type: none">• Onset before 3 years of age• Impaired verbal and gestural communication• Defect in social and emotional reciprocity• Stereotypic and restrictive behavioral patterns
Attention deficit hyperactivity disorder (ADHD)	<ul style="list-style-type: none">• Onset up to 12 years of age• Present in at least 2 different social settings• Interfering with social, academic and occupational functioning• Inattention (difficulty sustaining attention, prone to careless mistakes, easily distracted)• Hyperactivity (often on the go, fidgety)• Impulsivity (intrusive, interruptive, cannot wait for turn)
Specific learning disability*	<ul style="list-style-type: none">• Dyslexia (difficulty in reading)• Dysgraphia (illegible handwriting, spelling mistakes)• Dyscalculia (difficulty performing simple calculations)

*Preserved intelligence, vision and hearing, persistent for at least 6 months despite interventions targeting specific disability



Atomoxetine is prescribed to children with Autism Spectrum Disorder to control symptoms of :

- (a) Anxiety
- (b) Sleep disturbances
- ~~(c)~~ Hyperactivity
- (d) Repetitive behaviour

Attention Deficit
atomoxetine



Table 4.5: Pharmacotherapy for autism spectrum disorder

Medication	Indication
Antipsychotics (risperidone, olanzapine)	Anxiety, aggression, repetitive behavior
Methylphenidate	Inattention, hyperactivity, impulsivity
Alpha-2 agonists (clonidine, atomoxetine)	Hyperactivity
Melatonin	Sleep-related problems
Iron supplements	If deficiency is documented



Fractional inactivated intradermal poliovirus vaccine is given at which ages in the National Immunization Schedule ? ✓ PCV same

- (a) 6 weeks and 10 weeks
- ✓ (b) 6 weeks and 14 weeks
- (c) 10 weeks and 14 weeks
- (d) 6 weeks, 10 weeks and 14 weeks xxyy

fipV3 → 9m



Table 10.3: Comparison of the national immunization schedule with the schedule recommended by the Indian Academy of Pediatrics

Age	National Immunization Schedule	Indian Academy of Pediatrics schedule ¹
At birth	BCG, bOPV-0, HBV-0	BCG, bOPV-0 [#] , HBV-1
6 weeks ✓	bOPV-1, Pentavalent-1, Rota-1, <u>fIPV-1, PCV-1</u>	DTP-1, Hib-1, HBV-2, IPV-1, Rota-1, PCV-1
10 weeks	bOPV-2, Pentavalent-2, Rota-2	DTP-2, Hib-2, HBV-3, IPV-2, Rota-2, PCV-2
14 weeks ✓	bOPV-3, Pentavalent-3, Rota-3, <u>fIPV-2, PCV-2</u>	DTP-3, Hib-3, HBV-4, IPV-3, Rota-3, PCV-3
6–9 months		Inactivated influenza-1 and -2 ² ; typhoid conjugate vaccine
9 months	<u>MR-1, JE-1³, PCV-3, fIPV-3</u> ✓	MMR-1
12–15 months		HAV-1, MMR-2, Varicella-1, PCV-B1, JE-1 ³
16–18 months	DTwP-B1, bOPV-B, JE-2 ³ , MR-2	DTP-B1, Hib-B1, IPV-B1, JE-2 ³
18–24 months		HAV-2, Varicella-2
5–6 years	DTwP-B2	DTP-B2, MMR-3, IPV-B2
10–12 years	Td ✓	Tdap ⁴
<u>9–14 years</u> ✓	<u>HPV-1, HPV-2⁵</u> ✓	HPV-1 and -2 (6 months apart) ⁶
16 years .	Td .	

¹3 booster; BCG Bacillus Calmette–Guerin; bOPV bivalent oral poliovirus; DTP diphtheria, pertussis, tetanus either whole cell (DTwP) or acellular (DTaP); fIPV fractionated inactivated poliovirus; HAV hepatitis A virus; HBV hepatitis B virus; Hib *Hemophilus (H.) influenzae b*; HPV human papillomavirus; IPV inactivated poliovirus; JE Japanese encephalitis; MMR mumps, measles, rubella; MR measles, rubella; PCV pneumococcal conjugate vaccine; Pentavalent DTwP + HBV + *H. influenzae b*; Rota rotavirus;

²Preferred schedule detailed under respective vaccines; vaccination in high-risk groups not shown; ²Doses given one month apart, then annually till 5-yr-old;

³Only in endemic areas; ⁴Subsequently, a dose of Td every ten years; ⁵Where implemented; ⁶If >15-yr-old, give three doses at 0, 1 and 6 months

HPV



A 4-year-old boy presents with ingestion of many tablets of salicylate. Which one of the following complications is he likely to develop?

- (a) Hyperkalemia
- (b) Rhabdomyolysis
- (c) Prolonged QRS complex in ECG
- (d) Metabolic acidosis

Salicylic acid
↓
HAGMA met acidosis
+ resp alkalosis
(Hyperventiln)

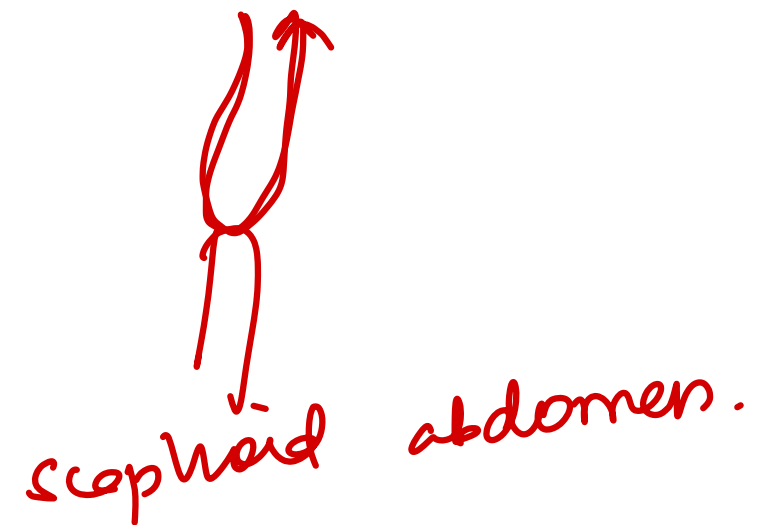


A mother with **polyhydramnios** gives birth to a term newborn infant who develops **choking** and **cyanosis on feeding** soon after birth. There is **excessive drooling and frothing from the mouth**. Most likely diagnosis is :

- (a) Anorectal malformation
- (b) Diaphragmatic hernia
- (c) Arnold Chiari malformation
- (d) Tracheoesophageal fistula

↳ git → endoderm

→ resp distress /





The recommended ratio for chest compression to breaths administered by a **single rescuer** during resuscitation of a child in cardiac arrest is :

- (a) 15 : 2 → 2 rescuers
- (b) 30 : 2**
- (c) 14 : 1
- (d) 7 : 1

	1 res	2 res
adult	30 : 2	30 : 2
ped	30 : 2	15 : 2 (30 : 4)

o neonatal → chest compressⁿ
HR < 60



A child presents with **headache and vomiting** in the emergency room **following a fall from the bed**. Which one of the following treatment modalities is **not** recommended in the emergency room?

- (a) Intravenous mannitol administration
- (b) Administration of hypertonic (3%) solution
- (c) Elevate the head end by 30 degrees
- (d) Therapeutic lumbar puncture

↑ ICP → NO LP ∴ herniation

+ Hyperventilation ✓
steroids ✓



Table 19.12: Management of raised intracranial pressure

① Raise head end by 30°; keep head in midline

Hyperventilate to maintain PCO₂ at 30–35 mm Hg

Administer mannitol at 0.25–1 g/kg (1.25–5 mL/kg of 20% solution) as intravenous (IV) bolus; repeat every 8 hours for 48–72 hours

Administer hypertonic (3%) saline at 0.1–1 mL/kg/hr to maintain serum sodium at 145–155 mEq/L

Administer IV furosemide at 1–2 mg/kg/dose

Switch to oral acetazolamide (30–50 mg/kg/day) or glycerol when stable

Consider corticosteroids (oral or IV) for vasogenic edema

Consider decompressive craniectomy



A 4-year-old comatose child is assessed by the Modified Glasgow Coma Scale. Which of the following is the correct interpretation of the score given as E2V3M2 for the best eye opening response, best verbal response and best motor response respectively?

- (a) Eye opening to speech, makes incomprehensible sounds and abnormal flexion ✗
- (b) Eye opening to speech, inappropriate words and abnormal flexion ✗
- (c) Eye opening to pain, moans to pain and abnormal flexion ✗
- (d) Eye opening to pain, cries to pain and extension to pain ✓

inapp words

2 → shoe

↓ → extensⁿ → M₂

V₃ → Tree
 • speech
 • code lang^y
 • abn flexⁿ.

pressure Eq
 sound. V₂ ✓

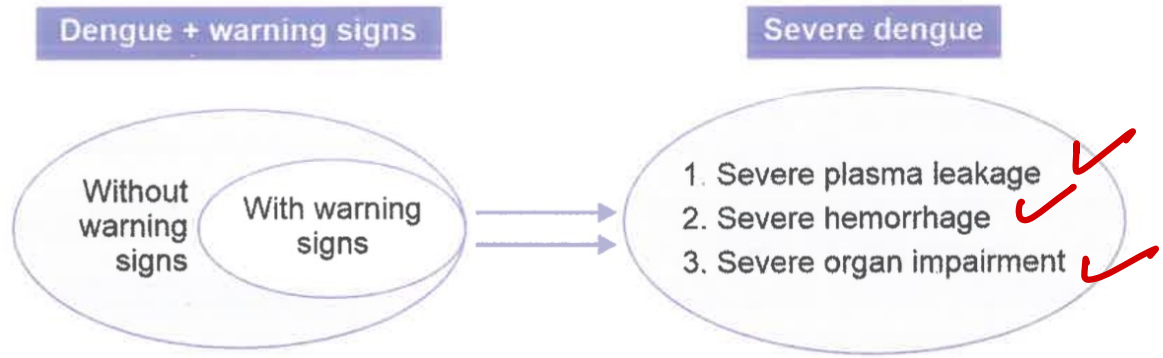
decerebrate — M₂
 decorticate — M₃ (abn flexⁿ)



A 10-year-old girl is diagnosed with dengue fever. She has abdominal pain and persistent vomiting. Examination reveals normal blood pressure but the hematocrit is found to be increased. Which of the following is the most appropriate initial fluid management ?

→ warning sign

- (a) Ringer lactate @ 3 mL/kg/hour
- (b) Ringer lactate @ 5 mL/kg/hour
- (c) Ringer lactate @ 7 mL/kg/hour
- (d) Ringer lactate @ 10 mL/kg/hour



Criteria for Dengue ± warning signs		Criteria for severe dengue
<p>Probable dengue</p> <ul style="list-style-type: none"> Live in/travel to dengue endemic area Fever and 2 of the following <ul style="list-style-type: none"> Nausea, vomiting Rash Aches and pains Tourniquet test positive ① Leukopenia Any warning sign 	<p>Warning signs ✓</p> <ul style="list-style-type: none"> Abdominal pain/tenderness ✓ Persistent vomiting ✓ Clinical fluid accumulation Mucosal bleed ✗ Lethargy, restlessness Liver enlargement >2 cm Laboratory <u>increase in HCT</u> concurrent with <u>rapid decrease in platelet count</u> 	<p>① Severe plasma leakage Leading to... ✓</p> <ul style="list-style-type: none"> Shock (DSS) ✓ Fluid accumulation with <u>respiratory distress</u> <p>② Severe bleeding As evaluated by physician</p> <p>③ Severe organ impairment</p> <ul style="list-style-type: none"> Liver: <u>AST/ALT ≥1000 u/L</u> CNS: <u>Impaired consciousness</u> <u>Heart and other organs</u>
<p>Laboratory confirmed dengue</p>		

HCT hematocrit, DSS dengue shock syndrome, AST aspartate aminotransferase, ALT alanine aminotransferase, CNS central nervous system

ig. 11.15: Revised WHO classification of dengue infections. (Dengue Guidelines for Diagnosis, Treatment, Prevention and Control, Geneva, Switzerland: WHO; 2009)

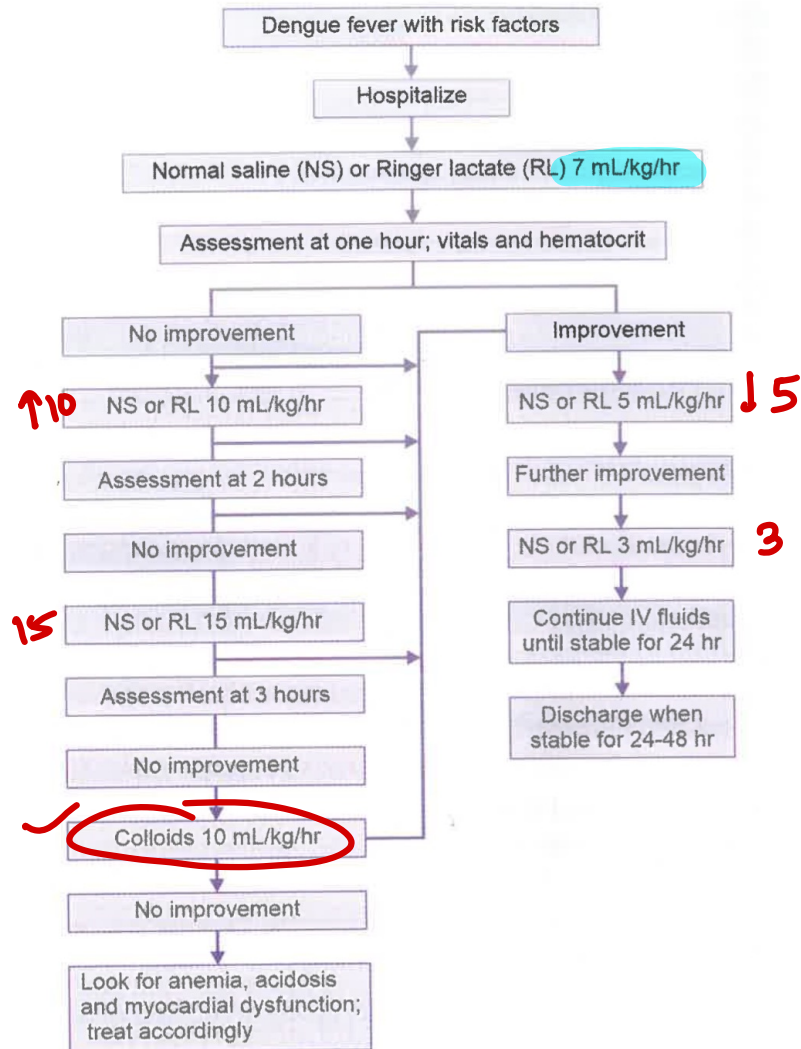


Fig. 11.16: Management of dengue fever with risk factors

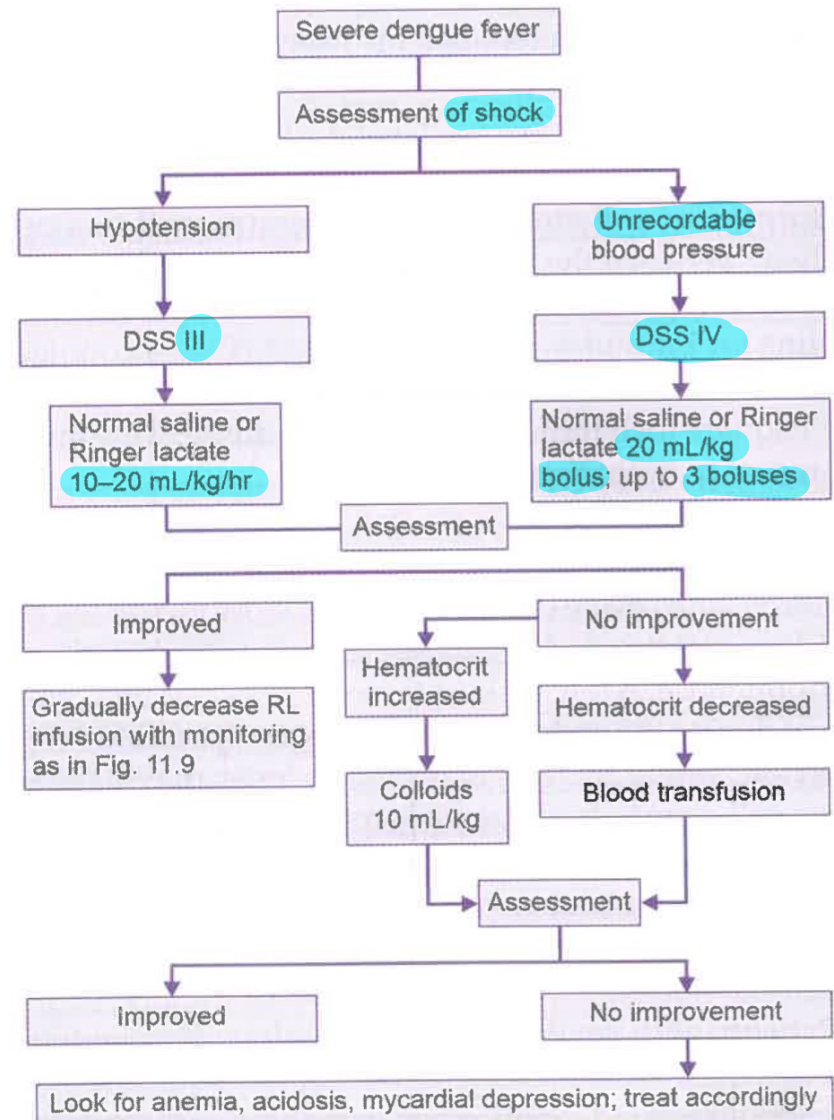


Fig. 11.17: Management of severe dengue fever



Management of Bleeding

Petechial spots or mild mucosal bleed, hemodynamically stable: Such patients need supportive care including bed rest, maintenance of hydration and monitoring. There is **no role for use of prophylactic platelet-rich plasma even with severe thrombocytopenia**. Procedures predisposing to mucosal trauma and IM injections are avoided.

Severe bleeding and hemodynamic instability, excessive mucosal bleed: These patients are treated with **blood transfusions** and monitoring. There is little evidence to support use of platelet concentrates and/or fresh-frozen plasma for severe bleeding. When massive bleeding cannot be managed with fresh whole blood/fresh-packed cells and there is possibility of DIC, combination of fresh frozen plasma and platelet concentrates should be considered.



. Which one of the following is the correct schedule for home visits by an Accredited Social Health Activist for facility-born newborn babies?

x → *home born*

- (a) *p* On 1, 3, 7, 14, 21 and 28 days of life
- (b) *p* On 3, 7, 10, 14, 21 and 28 days of life
- (c) On 3, 7, 14, 21, 28 and 42 days of life
- (d) *p* On 7, 14, 21, 28, 35 and 42 days of life



Home-based newborn care (HBNC)

Home visits by ASHAs (six for facility born babies, on days 3, 7, 14, 21, 28 and 42) an extra visit on day 1 for home births) ASHAs are paid incentive for the task.

Interventions for infants: Examination; counsel for warmth; breastfeeding; hygiene; extra care of low birth weight babies including kangaroo mother care; detection of sickness, referral

Interventions for mother: Postpartum care and counselling for family planning

Box 3.3: HOME-BASED YOUNG CHILD (HBYC) PROGRAM

HBYC program envisages home visits by ASHA in the 3rd, 6th, 9th, 12th and 15th month. The purpose is:

- Promoting good child nutrition
- Ensuring age appropriate immunization
- Ensuring optimal early childhood development (ECD)
- Promoting *swachh* practices
- Ensuring health care seeking behaviour

Under this program, ASHA counsels the family to promote child development using Mother-Child Protection Card and other tools.

young child.
3-15 months



Which one of the following diseases is covered under **Rashtriya Bal Swasthya Karyakram** (RBSK) ?

- (a) **Rheumatic heart disease**
- (b) Community acquired pneumonia ~~✓~~
- (c) Systemic onset juvenile idiopathic arthritis ~~✓~~
- (d) Nephrotic syndrome ~~✓~~



+ TB leprosy

Rashtriya Bal Swasthya Karyakram
(RBSK)

Child health screening and early intervention services through mobile health teams at block level. Screening of all children (0–6 years old) enrolled at least twice a year for 30 disorders (4Ds).

D **Defects** (neural tube defect, Down syndrome, cleft lip/palate, club foot, dysplasia hip, congenital cataract or deafness, congenital heart diseases and retinopathy of prematurity)

D **Deficiencies** (anemia, vitamin A deficiency, vitamin D deficiency, severe acute malnutrition and goiter)

D **Diseases** (skin conditions, otitis media, rheumatic heart disease, reactive airway disease, dental caries and convulsions)

D **Development delays and disabilities** (vision or hearing impairment, neuromotor impairment, motor delay, cognitive delay, language delay, behavior disorder, learning disorders, attention deficit hyperactivity disorder)

Optional (congenital hypothyroidism, sickle cell anemia, beta thalassemia) Free management of these children at district early interventions centres or identified tertiary level institutions

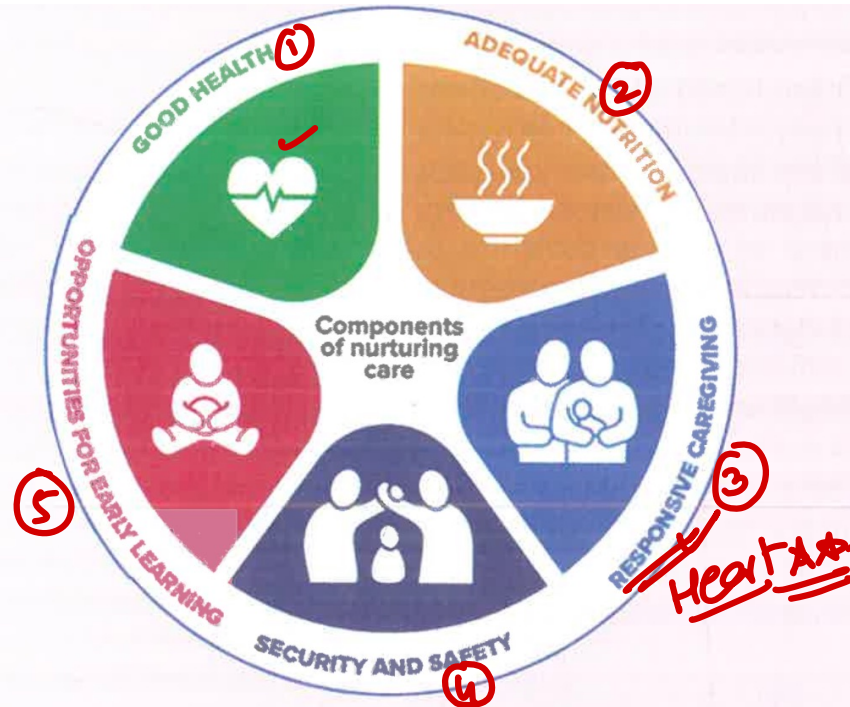


Which of the following are the five essential components of **nurturing care**?

1. Health ✓
2. Nutrition ✓
3. Breastfeeding ✗
4. Responsive caregiving ✓
5. Early learning ✓
6. Immunization ✗
7. Safety and security ✓
8. Supplementation ✗

Select the correct answer using the code given below.

- (a) 1, 2, 4, 5 and 7
- (b) 1, 2, 3, 4 and 5
- (c) 1, 4, 6, 7 and 8
- (d) 2, 3, 5, 6 and 8



Five components of nurturing child care

- ✓ 1. **Good health:** Children should have optimum health and well-being to achieve their developmental potential. Also, the caregivers have good physical and mental health to take care of their children well.
- ✓ 2. **Adequate nutrition:** The adequate nutrition of the mother during pregnancy and the child is essential for a child's optimum health. Good nutrition of the mother during pregnancy ensures that her unborn child receives optimum nutrition. Subsequently, optimum nutrition of the mother makes her better capable of providing adequate care to her young child.
- ✓ 3. **Safety and security:** The community where the family lives must be free from physical dangers, emotional stress, and environmental risks (e.g. pollution and toxins). There must be optimum access to food and safe water.
- ✓ 4. **Opportunities for early learning:** The child learns from his environment—the people, objects, and places around him. A child should have optimum opportunities and enabling environment to ensure adequate learning opportunities.
- ✓ 5. **Responsive caregiving:** The caregivers should be able to notice and understand the needs of the children, and respond timely and adequately in a positive manner. **Responsive caregiving lies at the heart of the other four components.**