our website www.ejaypee.com, for detailed information on nursing books, visit our website www.ejaypee.com, for detailed information on nursing books, visit our website www.ejaypee.com,



Nursing Practice
Concept Maps and Case Studies

Editor-in-Chief
Girdhar Gyani

Associate Editor
Davinder Kaur

JAYPEE

Contents

1.	Professional Nursing Practice	1
2.	Empowering Nurses in Healthcare Delivery System	5
3.	Technological Advancements in Nursing Practice	9
4.	Perioperative Nursing	15
5.	Child Health Nursing	19
6.	Midwifery, Obstetrics and Gynecological Nursing	43
7.	Mental Health Nursing	58
8.	Oncology and Hematology Nursing	74
9.	Critical Care Nursing	81
10.	Cardiology and Cardiothoracic Nursing	97
11.	Orthopedic Nursing	113
12.	Transplant Nursing	126
13.	Gastroenterology Nursing	133
14.	Respiratory Nursing	140
15.	Geriatric Nursing	155
16.	Plastic and Reconstructive Nursing	168
17.	Nephrology and Urology Nursing	177
18.	Emergency and Trauma Nursing	188
19.	Palliative and End-of-Life Care	195
20.	Neurological and Neurosurgical Nursing	204
21.	Role of Nurses in Disaster Management	211
List of Annexures		*217*

5

CHAPTER

Child Health Nursing

Poonam Thakur, Vandna

JAYPEE BROTHERS

OBJECTIVES

- Understand nursing assessment tools for different age groups in children.
- Identify the etiology, clinical manifestations, diagnostic evaluation and management of common pediatric diseases.
- Enhance decision making and critical thinking skills in the care of children with various health conditions.
- Apply the nursing process in planning and implementing comprehensive care for pediatric population.
- Educate families and care givers on home care, disease prevention and rehabilitation of children with acute and chronic condition.

ASSESSMENT OF NEONATES AND THEIR SPECIFIC NEEDS ALONGSIDE GENERAL AGE GROUP

NORMAL PARAMETERS OF A NEWBORN BABY

Physical growth (0–12 weeks)	• Week (Birth weight: 2.5–4 kg) ▪ (1–2 weeks may lose up to 10% of birth weight, regained by day 10–14) ▪ 4 weeks (1 month) Gains: 150–200 g/week • Length: 45–50 cm • Head circumference: 35 cm • Length: 52–54 cm • Head Circumference: 36–37 cm • 8 weeks (2 months) ~5–6 kg (Height: 56 cm) (HC: 38–39 cm) • 12 weeks (3 months) ~5.5–6.5 kg (Height: 58–62 cm) (HC: 40–41 cm)
Motor development (gross and fine)	• **0–2 weeks** ▪ Primitive reflexes ▪ (Moro, rooting, grasp), moves all limbs symmetrically hands mostly fisted • **3–4 weeks:** Lifts head briefly when prone begins to unfits hands intermittently • **6 weeks** ▪ Holds head briefly when sitting with support, turns head side to side ▪ Opens hands more frequently • **8 weeks** ▪ Lifts head and chest in prone (45°), improved head control ▪ May swipe at toys • **12 weeks** ▪ Holds head still when sitting upright, starts to push up on arms ▪ Brings hands to mouth, bats at toys
Language and hearing	• **0–2 weeks:** Startles to loud noises (Moro), calms to soothing voice • **4 weeks:** Cries differently for hunger or discomfort • **6 weeks** ▪ Starts cooing, smiles at voice ▪ 8 weeks ▪ Turns head to sound ▪ 12 weeks ▪ Cooing more varied; social smiling increases

Contd...

Contd...

Cognitive development	• **0–4 weeks:** Responsive to high-contrast objects (faces, lights) • **6 weeks:** Begins following faces/objects side to side • **8 weeks** ▪ Visually recognizes caregivers ▪ 12 weeks ▪ Uses mouth to explore, follows moving objects 180°
Social and emotional development	• **0–2 weeks** ▪ Exhibits distress (crying), calms when picked up 6 weeks ▪ Social smile emerges • **8 weeks:** Smiles responsively, enjoys eye contact • **12 weeks:** Enjoys social interaction, may laugh out loud
Red flags in early weeks	• No social smile by 8–10 weeks • Repeated hypotonia or hypertonia • No response to loud noises • Not visually following by 2–3 months • Inefficient feeding or weight gain

NEEDS OF A NEWBORN BABY

1. Nutrition	• Exclusive breastfeeding for the first 6 months • Every 2–3 hours or 8–12 times/day • Supplies all the necessary nutrients and antibodies • If not breastfed, infant formula according to pediatric recommendation
2. Warmth and temperature regulation	• Newborns lose heat rapidly—need warm clothing and an unopened space • Skin-to-skin contact (particularly with mom) maintains the body temperature • Room temp is 25–28°C • Admitted use of caps, mitts, socks, and wrapping as needed
3. Sleeping	• Newborns sleep 16–18 hours/day in short episodes • Sleep on back to decrease risk of sudden infant death syndrome (SIDS) • Safe sleeping area: firm mattress, no pillows or toys in crib
4. Hygiene and skin care	• Daily washing in lukewarm water (daily bath not required) • Cord care: keep dry and clean until it drops off • Regular diaper changes to avoid rashes • Mild soap and moisturizing
5. Psychological and emotional needs	• Cuddling, skin-to-skin contact, and soothing voice for bonding and attachment • Attentive caregiving—soothing during crying, regular attention instills trust • Touch and eye contact promote brain growth
6. Health and medical care	• Immunizations: BCG, OPV-0, hepatitis B at birth (according to national schedule) • Regular checkups and monitoring of growth • Look out for danger signs: poor feeding, fever, drowsiness, difficulty in breathing
7. Safe environment	• Smoke-free, not too noisy, and not too many visitors • Clean hand handling to prevent infections • Safe sleeping space and safe handling to avoid harm

ASSESSMENT OF A TODDLER (1–3 YEARS)

System ↓/Age →	*12 Months (1 year)*	*18 Months (1.5 years)*	*24 Months (2 years)*	*36 Months (3 years)*
Central nervous system	Walks alone, speaks 1–2 words	Identify body parts and says 10–20 words	Combines 2 words ("more juice") and follows two step instructions	Names colors, counts three objects, rides a tricycle
Respiratory	Check for wheezing/croup; teach airway protection	Check for asthma symptoms, if frequent infections	Identify the dangers of foreign body aspiration	Teach proper inhaler technique whenever required
Cardiovascular	Check heart rate and murmur during a routine examination	Screen for congenital problems if not done earlier.	If at risk, keep an eye on blood pressure	Check for obesity and start taking BP monitoring early
Gastrointestinal	Switch to whole milk, finger foods	Wean off bottle and encourage self-feeding	Monitor bowel movements and evaluate constipation.	Stress the importance of fiber diet and toilet training progress

Contd...

JAYPEE BROTHERS

Contd...

Musculoskeletal	Stands, cruises, first steps	Runs clumsily, climbs furniture	Jumps with two feet, kicks ball	Hops, balances on one foot
Vision/Hearing	Red reflex, tracking	Check for eye alignment and audiometry if speech delay	Screening of vision (photo screeners)	Formal visual acuity test begins
Psychosocial/ Behavior	Check for stranger anxiety and attachment to caregiver	Parallel play and adults' imitation	Temper tantrums peak; strong "no" phase	Emergence of cooperative play and imaginative play
Nutrition	Introduce family foods, limit juice	Encourage for three meals and two snacks a day	Self-feeding with spoon	Teach healthy eating habits
Skin	Examine the skin for eczema and also provide dry skin care.	Watch for diaper rash and injury prevention	Use Sun protection measures and assess for rashes	Educate on injury prevention and management of burns

ASSESSMENT OF A PRESCHOOLER (3–6 YEARS)

System ↓/Age →	*3 Years (36 months)*	*4 Years (48 months)*	*5 Years (60 months)*	*6 Years (72 months)*
Central nervous system	Rides tricycle, names colors and speaks simple sentences	Copies shapes, counts objects, full sentences	Draws person with body parts, begins to read letters	Copies complex shapes, understands left/right
Respiratory	Screen for asthma signs, allergy risk	Teach breathing exercises if needed	Monitor for persistent cough/allergies	Reinforce good respiratory hygiene
Cardiovascular	Routine BP screening if risk factors	Listen for innocent murmurs	Teach heart-healthy habits (diet/activity)	For early (prevention, monitor weight and blood pressure)
Gastrointestinal	Assess toilet training completion	Encourage for bowel/ bladder habits	Monitor for picky eating/ nutrition gaps	Encourage independent healthy food choices for better health
Musculoskeletal	Hops on one foot and climbs well	Throws ball overhead and improvement in balance	Skips and jumps rope	Good hand-eye coordination, prepares for sports
Vision/hearing	Vision test (Snellen chart if possible)	Hearing screening for speech delays	Vision check before school entry	Confirm normal vision/hearing for learning
Psychosocial/ behavior	Imaginative play, parallel to cooperative play	Understands rules, begins group play	Develops friendships and empathy	Better impulse control, group activities
Nutrition	Balanced diet education; limit sugar	Encourage fruits/ vegetables, watch portions	Address junk food cravings	Teach "healthy plate" model independently
Skin	Monitor for eczema, infections	Teach basic hygiene (hand washing)	Sunscreen use, injury prevention	Monitor for skin conditions, early signs of infections

ASSESSMENT OF SCHOOLER AGE CHILD (6–12 YEARS)

System ↓/Age →	*6–7 Years*	*8–9 Years*	*10–12 Years*
Central nervous system	Concrete thinking begins, understands time and reads simple books	Improved logic, problem solving and memory increases	Abstract thinking begins, improved judgment and starts doing complex tasks
Respiratory	Monitor for asthma/allergy triggers; teach breathing exercises	Encourage respiratory hygiene, manage chronic conditions	Puberty-related airway changes possible (esp. in boys, voice heaviness)
Cardiovascular	Routine BP checks; assess heart sounds	Encourage physical activity; screen lipids if obese	Begin discussions on lifelong heart-healthy habits
Gastrointestinal	Monitor for constipation, encopresis in school stress	Emphasize on fiber rich diet, hydration and assess eating patterns for healthy living	Watch for eating disorders or body image issues (esp. girls)
Musculoskeletal	Growing pains common; assess gait and posture	Check for scoliosis signs	Check for growth spurts; monitor posture and back pain
Vision/Hearing	Annual vision/hearing screens; correct early	Watch for new glasses needs (myopia peaks)	Monitor for learning difficulties linked to vision or hearing
Psychosocial/Behavior	Learns rules, fairness and understand peers' importance	Friendships deepen; risk of bullying starts	Strong peer influence, body image awareness arises and independence grows

Contd...

JAYPEE BROTHERS

Contd...

Nutrition	Teach healthy choices, limit fast food	Promote balanced meals, address picky eating	Watch for fad diets, excessive snacking; prepare for puberty nutrition
Skin	Sports injuries are common, teach wound care	Monitor for infections like impetigo and lice, etc.	Acne may start; focus on hygiene and self-care

ASSESSMENT OF ADOLESCENTS (12–18 YEARS)

System ↓/Age →	*Early adolescence (12–14 years)*	*Middle adolescence (15–16 years)*	*Late adolescence (17–18 years)*
Central nervous system	Abstract thinking begins, impulsivity common	Improved problem solving, questioning authority	Mature decision-making skills
Respiratory	Monitor for asthma, allergies; educate about smoking risks	Risk-taking behavior may include vaping/smoking	Reinforce long-term respiratory health and smoking cessation
Cardiovascular	Check BP, monitor heart murmurs; screen lipids if risk factors	Reinforce healthy lifestyle habits	Prepare for adult BP and cholesterol screening routines
Gastrointestinal	Increased appetite during growth spurts	Risk of poor eating habits (fast foods, irregular meals)	Monitor for eating disorders and body image concerns
Musculoskeletal	Rapid growth and assess for scoliosis	Peak height velocity and increased chances of sports injuries	Skeletal maturity approaching, monitor joint health
Vision/Hearing	Watch for refractive errors worsening	Corrective lenses common; monitor screen time strain	Final vision correction before adulthood
Psychosocial/Behavior	Identity formation begins.	Risk-taking behavior peaks; emotional volatility	More stable self-concept, future planning (college, career)
Nutrition	High nutritional needs (calcium, iron)	Risk of nutritional deficiencies with dieting trends	Counseling on lifelong healthy eating habits
Skin	Acne common due to hormonal changes	Continued acne management, monitor for scarring	Skin health education including sun protection and hygiene

JAYPEE BROTHERS

NEONATAL ASSESSMENT

Introduction

Neonatal assessment is a comprehensive examination carried out to evaluate the overall health and functioning of a newborn baby. It includes a systematic review of physical, neurological, and behavioral parameters to identify any deviations from normal. The neonatal period, typically the first 28 days of life, is crucial for early detection and intervention for congenital or acquired conditions.

Purposes

- To determine the normality of different body system for healthy adaptation to extra uterine life.
- To detect significant medical problem for immediate assessment.
- To detect any congenital problem
- To assess the need for resuscitation.

Steps

Assessment of newborn can be divided into following steps:

1. Immediate assessment with APGAR score
2. The transitional assessment during period of reactivity

1. Immediate assessment:

- The initial assessment of neonate is a very important activity immediately after birth.
- The most essential assessment is the first cry. Good cry helps in establishment of satisfactory breathing.
- The respiration, heart rate, and skin color are the basic criteria which should be evaluated immediately to determine the need for life saving support, i.e., resuscitation.
- For assessment of the baby immediately after birth, Apgar scoring is done.
- Apgar score is a quantitative method of assessing the infant respiratory, circulatory and neurological status. It is done at 1 min and 5 min after birth. The criteria are

respiration, heart rate, muscle tone, reflex irritability and skin color.

APGAR SCORE

Score	*0 Point*	*1 Point*	*2 Points*
Appearance	Blue, pale	Pink body, Blue extremities	Pink
Pulse	Absent	Below 100b/min	Over 100b/min
Grimace	Floppy	Minimal response to stimulation	Prompt response to stimulation
Activity	Absent	Flexed arm and legs	Active
Respiration	Absent	Slow and irregular	Vigorous cry

- When score between 7 and 10 it indicates that newbom is easily adjust to extra uterine environment.
- The score between 4 and 6 indicates moderately difficulty to adjust extra uterine environment
- The score between 3 or below the neonates is severe distress which must be treated immediately.

2. **Transitional assessment**: Immediately after birth neonates tries to cope up with the extra uterine environment. Newborn during first 24 hours gets various changes in the vital function such as heart rate, respiration, motor activity, color and bowel activity, these changes occurs in orderly manner. It is known as period of reactivity.
   a. *First period of reactivity:* After birth during first 6–8 hours, the newborn passes through the first period of reactivity. During first 30 minutes of period of reactivity. The neonates is alert, active, cries and has strong sucking reflex. This is the good time for breast feeding and eye to eye contacts with mothers. Respiratory rate over 60 per minute and heart rate is 160 per minute.
   Bowel sounds are heard and mucus secretions are increased, and exposure to environment should be avoided to maintain the vital signs. During this time following assessment is done—
      - General examination
      - Anthropometric assessment
      - Head to toe examination
      - Neurologic examination
      - Reflexes
      - Estimation of gestational age.
   b. *Second period of reactivity* is starts when neonates awake from first sleep. It is a about 6–8 hours after the birth. This period last for about 2–5 hours. In this period, the neonates again become alert, active and responsive, respiration rate and heart rate will also slightly increase. During this period the stabilization of physiological system will occur.

Assessment in this period includes:

A. General examination:

Posture; In full term babies, generalized flexion is seen. The neck and extremities are flexed. Preterm babies may lie in frog like structure.

Activity—normal neonates are alert and active. The baby may be irritable or drowsy if having any neurological problem.

Cry—normal neonates cries when hungry or wet. Weak cry is seen in preterm or low birth weight baby. High pitch cry is seen in babies with raised intracranial pressure.

Color the entire body and extremities are pink. If the baby is having respiratory distress extremities may be blue.

Vital sign—TPR are checked. The temperature of newborn babies' ranges between 35.5°C and 37.5°C. the heart rate should be auscultated with stethoscope when the baby is calm normally ranges from 120–140 beats/min the respiratory rates ranges from 40 to 60 breaths/min.

B. Anthropometric assessment:

Weight—the body weight of neonates on an average is 2.5 to 3kg, the neonates loses about 10% weight in the first ten days of life. There after babies gains about 25–30 g/days.

Length—the averages length of a neonates is 45–50 cm

Head circumferences—Immediately after birth, molding of skull may give inaccurate measurement of head circumferences. So, it should be measures after 48 hours of birth the normal head circumferences is 33–3 cm it may be larger in cases of hydrocephalus and smaller in microcephaly.

Chest circumferences- it is about 31–33 cm. It is 2–3 cm less than head circumferences.

C. Head to toe examination:

Skin—the neonates skin is soft, smooth and puffy. At birth it is covered with white cheesy substances known as vernix caseosa. Vernix caseosa act as a insulating layer and it have antibacterial or bacteriostatic power. Skin should be observed for cyanosis, jaundice, pallor. Check the hair distribution or lanugo hairs, Mongolian spots on skin. Check skin turgor for dehydration.

Head—Head of the neonates consists skull bones that are not close completely, due to this skull is easily molded during the passage through the birth canal at the time of birth, where the suture lines are joined, they form the fontanelles.

Anterior fontanelle

- Bounded by the parietal and frontal bone
- It is diamond in shape

JAYPEE BROTHERS

- It is about 2.5 cm long and 4 cm wide
- It is closed at 12–18 month of age
- It is also called bregma

Posterior fontanelle

- Bounded by occipital and parietal bones
- It is triangular in shape. It is about 2.5 cm wide and 2.5 cm long
- It is also called Lambda.
- It is closed in 2 month
- If the suture are wide and fontanelles are budged indicates increased intracranial pressure which is commonly seen in hydrocephalus condition. When fontanelle depressed it indicates dehydration. We should also observe the caput succedaneum and cephalohematoma. Face-examine the face for any asymmetry or malformations.

Eyes—eyes of newborn should be checked for oedema, conjunctivitis, discharge, color of sclera yellow color indicates jaundice. Position of eyes and distance between inner canthus of both eyes should be checked, it should be 2 cm in diameter. If it is more than 2 cm known as hypertelorism and if it is less than 2 cm than known as hypotelorism. Neonates' pupils are round in shape and react to the light. There is no tear formation in the neonates.

Ears—it should be examined for size and shape. The ear cartilage is full term infant is fully developed and ear returns its shape. Observe the startle reflex by the loud noise which indicates audibility of the neonates.

Nose—it is examined for potency, depression or low nasal bridge, assess for nasal discharge, deviated nasal septum, nasal firing. Press the nasal tip and check for color, if it is yellowish color for long duration, it indicate jaundice.

Mouth and throat—it can be examined when the neonates is yawning or crying. Mouth should be assessed for cleft palate. Observe the natal teeth. Assess oral thrush white patches on oral cavity due to fungal infection.

Neck—neck of the newborn is short and having various folds. It should be checked for mobility, any fracture of clavicle bone, observe any mass and webbing neck, etc.

Chest—observe shape and size of chest. Normally chest is barrel shaped. Observe the nipple and breast tissues, observe witch's milk which is milky discharge due to effect of maternal hormones. Check the rate and rhythm of respiration, neonate's abdomen rises and falls during each breathe.

Abdomen—it should be observed for shape and distention. Check bowel sounds, observe the umbilical cord for infection any discharge, redness and observe two arteries and one vein. Check for any hernia or any anomalies. Abdomen should feel soft during palpation.

Genitalia—In full term female neonates the labia majora cover the labia minora and clitoris is visible on separating labia. Urethral opening should be below the clitoris. Pink red mucous vaginal discharge may be found during first week due to sudden decrease of maternal hormones, which is known as pseudo menstruation of age.

Male neonates should be inspected for testes descend, scrotum appears pigmented and wrinkled with rugae. Penis should be inspected for urethral opening check for hydrocele and inguinal hernia. The absence of testes in the scrotum may be seen in premature baby, full term baby usually have both testes in scrotal sac.

Back and spine—back should be checked for abnormal spinal curvature, hair on skin, depression in the spine, spina bifida, meningocele, meningomyelocele etc. should be observed.

Buttocks—buttocks should be observed for nay mass. Perianal area should be checked for anal opening, anal fissure or any other abnormalities.

Extremities—extremities are examined for nay fracture, range of motion, check the reflexes and muscle tone. Fingers and toes should be observed for increased or decreased in number. Check for club foot, club nails, etc.

D. Neurological assessment

It is very important in neonates. Neurological mechanism are immature by both anatomically and physiologically, which results in disturbances of temperature regulation, uncoordinated movements and lack of control over musculature.

The neurological assessment is based on four fundamental observations:

i. **Muscle tone**—this is assessed by three parameter posture, passive tone, active tone
ii. **Joint mobility—**In preterm baby the joints are relatively stiff so the degree of flexion at ankle and wrist is limited. In term baby joints are more flexible and relaxed.
iii. **Automatic reflexes**: The presence of certain automatic reflexes such as Moro's reflex, pupillary reflex, blinking reflex, grasp, rooting and sucking reflex, help in establishing neurological health of the neonates. These reflexes disappear after maturity of the nervous system.
iv. **Body movements:** The neonates if not sleeping, is active and alert. The baby moves extremities actively.

E. Assessment of reflexes:

- ***Reflexes of eye:***
  1 **Blinking reflex:** When we expose the eyes of neonate to the bright light or approach of any

JAYPEE BROTHERS

objects towards eyes, then neonate protect the eyes by rapid closure of the eyelid.
Age of appearance: Birth
Age of disappear: Does not disappear.

2. **Pupillary reaction**
Pupils constricts when bright birth light falls on it.
Age of appearance: Birth
Age of disappear: Does not disappear

3. **Doll's eye reflex**
When we turn the neonates head to right and left side, the eyes do not adjust immediately to the new position of the head, they bag behind, same like a dolls eye.
Age of appearance: Birth
Age of disappear: 3–4 months

– ***Reflexes of nose***

4. **Sneezing reflex**
Spontaneous responses of nasal passage to any irritant.
Age of appearance: Birth
Age of disappear: Does not disappear

5. **Glabellar reflex**
When we tap the glabella (the meeting point of forehead and nose) the neonates react by closure of eyes are blinking.
Age of appearance: Birth
Age of disappear: Does not disappear

– ***Reflexes of mouth***

6. **Rooting reflex**
When we touch the check along the side of the mouth, the neonate will turn his head towards the same side, to find out the food.
Age of appearance: Birth
Age of disappear: 3–4 months

7. **Sucking reflex:** when we touch the roof of the neonate mouth with breast nipple or with any other object, neonates produce sucking movement to take it inside.
Age of appearance: Birth
Age of disappear: Begins to diminish at 6 months

8. **Gag reflex:** The gag reflex also known as the pharyngeal reflex or laryngeal spasm. stimulation of posterior pharynx by food, suction or passage of a tube causes infant to gag.
Age of appearance: Birth
Age of disappear: Does not disappear

9. **Extrusion reflex:** When tongue is touched or depressed, infant respond by forcing it outward.
Age of disappear: 4 months

– ***Reflexes of extremities***

10. **Grasp reflex:**
a: Palmar reflex: When we place any object in neonate palm neonate holds it by closing all the finger around the object, it means whole palm and finger used.
Appearance: At birth
Disappear: 3 months
b: Plantar reflexes: When we place any object at plantar surface near to the toes, e.g., finger the newborn react by flexion of all toes to grasp the object.
Appearance: Birth
Disappear: 8 months

11. **Babinski reflex:** When we stroke the outer aspect of the sole of the neonate foot from the heel to base of the toes by a firm object like finger neonate responds by dorsiflexion of the big toe and hyperextended toes.
Appearance: Birth
Disappearance: 1 year

– ***Mass reflexes***

12. **Startle reflexes**: When we produce a sudden loud sound near to neonates, then neonate react by abduction of arms and flexion of elbows, hand remains clenched.
Appearance: Birth
Disappearance: 3–4 months

13. **Crawl reflexs**: When we place the baby on abdomen or flat surface, baby makes crawling movement with arms and legs.
Appearance: Birth
Disappearance: 6 weeks

F. Assessment of gestational age: The assessment of gestational age of baby can be done using New Ballards Scale. It assigns a score to various criteria, the sum of all of which is then extrapolated to the gestational age of the fetus. These criteria are divided into physical and neurological criteria. This scoring allows for the estimation of age in the range of 20–44 weeks of gestation; with accuracy to +2 weeks.

1. The neuromuscular criteria
These are:

- **Posture**—Assess posture for the degree of flexion of the extremities. At term, a newborn's legs and arms are moderately flexed at rest. Preterm newborns show lesser degrees of flexion the younger the gestational age, the less flexion the newborn demonstrate
- **Square window**—Assess square window by grasping the newborns forearm and gently flexing the wrist toward the inner arm. Do not allow rotation of the wrist. Measure the angle that forms where the hand meets the wrist. At term, the hand should touch the wrist, resulting in a 0° angle. Preterm newborns show greater angles of flexion at the wrist: the younger the gestational age, the less flexibility at the wrist. Very preterm newborns have an angle of wrist flexion of 90° or more

JAYPEE BROTHERS

- **Arm recoil**—Measure arm recoil by first flexing and holding both forearms for 5 seconds, then extending the arms and hands fully at the newborn's side. Next, release the hands and allow the arms to recoil (return to flexion). Term newborns demonstrate full recoil to a position of flexion while preterm newborns show less flexion. Measure the angle of flexion at the elbow to determine the arm recoil score.
- **Popliteal angle—**With the newborn's thigh pressed against his abdomen, measure the popliteal angle by moving the foot gently toward the head until you meet resistance. At this point, measure the angle behind the knee in the popliteal area. Term newborns are less flexible, with about a 90° angle. With very preterm newborns, the leg straightens to a 180° angle.
- **Scarf sign—**Assess the scarf sign by grasping the newborn's hand and attempting to cross the arm over his body at the neck. The arms of term newborns meet resistance before crossing midline, while preterm newborns cross the elbow past midline.
- **Heel to ear—**Assess heel to car by raising the newborn's heel toward his head in an attempt to bring the foot to the ear. Do not raise the newborn's buttocks off of the examination surface. Stop when you meet resistance and measure the degree of extension of the leg. With preterm newborns, you'll come close to touching the heel to the ear, while you'll meet resistance almost immediately with term newborns

2. ***The physical criteria***

These are:

- **Skin**—The skin ranges from translucent and friable in preterm newborns to leathery, cracked, and wrinkled in post-term newborns. Assess the skin for transparency, cracks, veins, peeling, and wrinkles.
- **Ear/eye**—The eye/ear assessment is an analysis of the ear cartilage and shape of the pinna. The pinna is less curved in preterm newborns, while term newborns have a well-curved pinna with firm cartilage. Determine car recoil by folding the pinna down and assessing how quickly it returns to is previous position. Also, very preterm newborns may have fused eyelids. You'll score the degree of fusion for these newborns.
- **Lanugo hair**—Largo is very fine body hair. Extremely premature newborns have none. During the middle of the third trimester, most fetuses have plentiful lanugo. Closer to term, this body hair begins to thin. Terms newborns have very little, and it is nearly absent in post-term newborns.
- **Plantar surface—**Inspect the plantar surface of the foot for creases. Term newborns have creases over the entire plantar surface, while the creases of a preterm newborn range from absent to faint red markings.
- **Breast bud—**Inspect the breast to assess the size of the breast bud in millimeters and the development of the areola. Preterm newborns back developed breast tissue. Term newborns have a raised to a full areola with breast buds that are 3–10 millimeters in diameter.
- **Genitals—**Observe the genitals for physical maturity. With males, the testes usually descend near term and rugae (ridges or folds) are visible on the scrotum. Palpate the testes to determine if they have descended and note the rugae. With extreme prematurity, the scrotum is flat and smooth. With female newborns at term, the labia majora are larger than the clitoris and the labia minora. Preterm newborns have a prominent clitoris and small labia minora. Base your scores on the degree of development of the labia.

FEEDING BEHAVIOR AND ELIMINATION PATTERN

Feeding Behavior in Neonates

Feeding is a vital function in neonates, essential for growth, energy, and immune defense. It is also a key indicator of neonatal well-being.

Types of Feeding

- **Breastfeeding (recommended):** Exclusive breastfeeding is advised for the first 6 months.
- **Formula feeding:** If breastfeeding is not possible, iron-fortified formula is used.
- **Mixed feeding:** A combination of breast milk and formula.

Assessment of Feeding Behavior

The assessment involves observing feeding cues, the act of feeding, and postfeeding behavior:

Parameter	*Normal findings*	*Abnormal findings*
Feeding initiation	Starts rooting/sucking within 30–60 minutes after birth	Delay in initiating feeding (>2 hrs), no rooting
Sucking reflex	Strong, rhythmic sucking with good latch	Poor latch, weak or absent sucking

JAYPEE BROTHERS

Feeding frequency	8–12 times/day (on demand)	Too frequent/rare, refusal to feed
Duration of feeding	10–30 minutes/ session	Too short (<5 mins) or too long (>45 min)
Swallowing	Audible swallowing, visible	Choking, coughing during feeding

	Jaw movement	
Postfeed behavior	Appears content and sleepy	Crying, irritability, hunger cues persist

Red Flags in Feeding

- Inability to latch
- Vomiting or projectile vomiting
- Decreased urine output
- Weight loss >10% of birth weight after 3–5 days

Elimination Pattern in Neonates

Elimination (urination and defecation) provides insight into hydration, kidney function, and gastrointestinal health.

A. **Urinary elimination**
- *First void:* Should occur within 24 hours after birth.
- *Normal pattern:* 6–8 wet diapers/day by day 4 or 5.
- *Color:* Pale yellow, odorless urine is normal.
- *Abnormal signs:*
  - No urination in 24 hrs (may indicate renal issues or dehydration)
  - Orange crystals in diaper (urates): Normal in the first days, but prolonged presence suggests dehydration

B. **Bowel movement**
- *Meconium:* Passed within 24–48 hours. Thick, sticky, green-black stool.
- *Transitional stools:* Days 2–4; greenish-brown/yellow.
- *Breastfed stools:* Yellow, seedy, 3–8/day.
- *Formula-fed stools:* Firmer, tan/yellow, 1–4/day.

Documentation during assessment
- Record feeding type, frequency, duration, and problems encountered.
- Note urine and stool output daily, especially in the first week.
- Track weight gain to assess feeding adequacy (10–30 g/day is expected).
- Use feeding charts and elimination logs in NICU and postnatal care units.

NEEDS OF THE NEWBORN (NEONATE)

The neonatal period (first 28 days of life) is a critical time of rapid physiological changes and development. Proper care during this phase ensures survival, growth, and development. The needs of a neonate are broadly categorized into physical, emotional, and developmental domains:

Thermal Regulation

Newborns have a limited ability to regulate body temperature. They lose heat quickly due to a large surface area relative to body weight and thin skin.

Need: Maintain a warm environment (25–28°C), use of warm clothing, skin-to-skin contact (Kangaroo Mother Care), and radiant warmers in hospitals.

Goal: Prevent hypothermia which can lead to respiratory distress, hypoglycemia, or even death.

Adequate Nutrition

Breast milk provides complete nutrition, immunological protection, and supports the neonate's development.

Need: Exclusive breastfeeding on demand, at least 8–12 times in 24 hours.

Goal: Ensure optimal growth, enhance immunity, and reduce risks of infections and malnutrition.

Hygiene and Skin *Care*

Newborn skin is delicate and prone to irritation and infection

Need: Gentle cleaning, appropriate bathing schedule, and diaper care to prevent rashes or infections.

Goal: Prevent hospital-acquired infections and promote skin integrity.

Safe Sleeping Environment

Newborns sleep around 16–18 hours/day but are vulnerable to sudden infant death syndrome (SIDS).

Need: Supine sleep position (on the back), firm mattress, no soft toys or bedding in the crib.

Goal: Reduce risk of SIDS and ensure safe rest.

Bonding and Emotional Support

Newborns respond to touch, sound, and smell of their caregivers.

Need: Immediate and frequent skin-to-skin contact, eye contact, soothing voice of parents.

Goal: Promote emotional security, cognitive development, and mother-infant bonding.

Immunizations and Prophylaxis

Timely immunization prevents life-threatening infections.

Need: Birth dose vaccines (BCG, OPV, hepatitis B), vitamin K injection to prevent bleeding disorders.

Goal: Provide immunity and prevent vaccine-preventable diseases.

JAYPEE BROTHERS

Monitoring for Danger Signs

Early identification of warning signs is vital.

Need: Observe for lethargy, poor feeding, fever/hypothermia, respiratory difficulty, jaundice, or convulsions.

Goal: Immediate intervention to prevent complications.

Elimination Monitoring

Urine and stool output reflect hydration and feeding adequacy.

Need: Track number of wet diapers (6–8/day) and stools (3–4/day in breastfed babies).

Goal: Ensure effective feeding and identify signs of dehydration or feeding issues.

Sensory Stimulation

The neonatal brain is rapidly developing and needs proper stimuli.

Need: Exposure to soft light, gentle sounds, colorful objects, and soft textures.

Goal: Enhance neural connections and early developmental milestones.

Regular Monitoring and Follow-up

Neonates should be checked regularly for growth and development.

Need: Weekly checkups for weight, jaundice, feeding issues, and overall health.

Goal: Detect and manage any emerging health concerns early.

NEONATE ASSESSMENT IN DAYS/WEEKS

System/Neonate Stage	*Day 1*	*Days 2–3*	*Days 4–7*	*Weeks 2*	*Weeks 3–4*
General appearance	Observe color (pink, cyanosis), tone, activity, birth injuries	Monitor jaundice, alertness, weight changes	Assess feeding ability, hydration signs, behavior changes	Weight monitoring, parental bonding, general responsiveness	Evaluate growth, sleep-wake cycle, and temperament
Respiratory system	Assess breathing rate (30-60/min), grunting, nasal flaring	Monitor for transient tachypnea, abnormal breath sounds	Check for signs of infection or apnea	Observe breathing during feeding, chest wall movement	Evaluate cry strength and respiratory rhythm
Cardiovascular system	Check heart rate (120-160 bpm), murmurs, pulses	Assess perfusion (cap refill), color changes	Monitor for PDA murmur or signs of CHF	Blood pressure monitoring if indicated, heart auscultation	Ongoing evaluation of perfusion and murmurs
Gastrointestinal system	Evaluate feeding (breast/bottle), suck-swallow coordination	Monitor for regurgitation, stool color and frequency	Assess for colic, abdominal distension, jaundice-related feeding issues	Track weight gain and bowel movement patterns	Evaluate tolerance to increasing feed volume
Genitourinary system	Check urine output (should void within 24 hrs), genitalia exam	Monitor hydration status (wet diapers, fontanelle)	Assess for any discharge, swelling, or infections	Ensure urination is regular, monitor diaper rash	Evaluate hydration and elimination patterns
Neurological system	Check primitive reflexes (Moro, rooting), tone	Evaluate eye tracking, startle response	Monitor irritability, sleep patterns, and muscle tone	Assess head control and alertness	Observe interaction with environment
Musculoskeletal system	Inspect for birth trauma (fractures, asymmetry)	Evaluate spontaneous movement of limbs	Check hip stability (Barlow/Ortolani test)	Monitor muscle tone and symmetry	Encourage tummy time and observe posture
Skin	Inspect for vernix, lanugo, birthmarks	Monitor for jaundice progression (cephalocaudal), rashes	Check skin hydration, peeling, and any lesions	Evaluate for erythema toxicum or diaper dermatitis	Assess skin color, texture, and turgor
Sensory (eyes, ears)	Red reflex check, response to loud sound	Follow light or faces briefly, hearing screen if not done at birth	Monitor for eye discharge or abnormal movements	Evaluate auditory response to voices	Assess visual tracking and sound localization
Developmental assessment	Track reflexes, interaction with caregiver	Monitor alertness to environment, response to voice	Check developmental reflexes, sleep-wake cycles	Observe bonding behavior and vocal responses	Continue tracking milestones and caregiver interaction

JAYPEE BROTHERS

CONCEPT MAP OF BIRTH ASPHYXIA

Initial assessment
Vital signs
HR–110 bpm Temp–36.7
Respiration rate–66
BP–90/60 mm Hg 02–92%

Physical examination
Lethargic and weak
Grunting and respiratory distress

Lab investigation
CBC normal
Electrolytes–sodium 110 mg/dL
C -15.02

Clinical feature
- Weak reflexes
- Lack of breathing or difficulty breathing
- Seizures
- Poor circulation
- The baby being limp or lethargic

Diagnostic test
CBC
Biochemistry test
Head USG
MRI
CT head
ABG

Nursing management

Assess general condition of baby
Assess vital sign of the baby
Monitor intake and output of the baby
Assess the respiratory status of the baby

B/o Sapna newborn male was admitted in NICU with chief complaint of tachypnea, grunting, abnormal movement respiratory distress. Respiratory rate is 66 b/min. Baby is intubated and put on ventilator

Causes of birth asphyxia

Prolonged labor

Diabetes mellitus

Anemia

Cord prolapse

Placental insufficiency

Cesarean section

Birth asphyxia

Past medical history
Nothing significant

Medication
Inj capnea
Inj vancomycin
Syp gardinal
Allergies
Not known

Social history
Family belongs to lower middle class family
Family history
All family members are healthy

Present illness

Baby was admitted in NICU with chief complaint of tachypnea, respiratory distress, abnormal body movement, grunting

Treatment

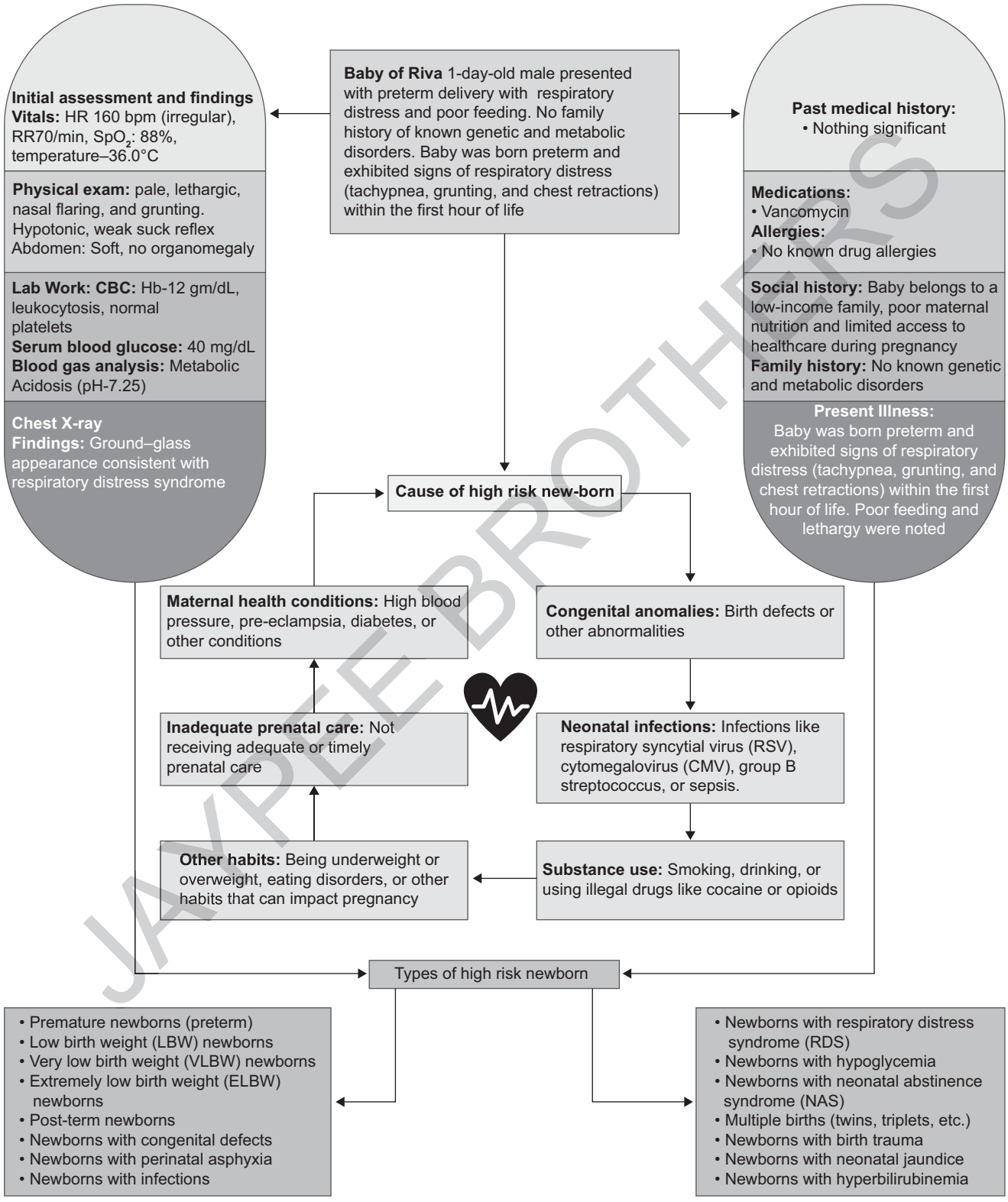
Treat hypoglycemia
Medication
Inj dopamine
Inj dobutamine
Inj vancomycin
Syp gardinal
Ventilatory support
Monitor urine output
Maintain thermoregulation

Nursing diagnosis

1. Ineffective tissue perfusion related to impaired transport of oxygen across alveolar and capillary membrane as evidenced by baby on ventilator support
2. Imbalanced nutrition less than body requirement related to weak sucking reflexes or unconsciousness as evidenced by reduction of weight
3. Fluid volume deficit related to failure of regulatory mechanism as evidenced by edematous body parts
4. Parental knowledge deficit related to disease condition as evidenced by parent asking question regarding disease
5. High-risk of impaired gas exchange related to decreased production of surfactant
6. Risk of infection related to immature organ or weak, immunity

JAYPEE BROTHERS

CONCEPT MAP OF HIGH-RISK NEWBORN



JAYPEE BROTHERS

High risk newborn

Clinical feature
- **Low birth weight:** Weighing less than 2,000 g
- **Premature:** Born before 37 weeks of gestation
- **Respiratory distress:** Grunting sounds when breathing, flaring nostrils, or working hard to breathe
- **Apnea:** Stopping breathing for more than 20 seconds
- **Hyperglycemia:** High blood sugar
- **Heart conditions:** Heart problems
- **Brain conditions:** Brain problems
- **Intestinal conditions:** Intestinal problems
- **Seizures:** Suspected seizures

Diagnosis

Monitoring
- **Breathing and heart rate:** Constantly monitored
- **Fluid input and output:** Tracked to see how much fluid the baby takes in and loses

Blood tests
- **Blood sample:** A few drops of blood are taken from the baby's heel and sent to a lab for testing
- **Blood sugar and calcium levels:** Checked to monitor important substances in the baby's blood

Imaging tests
- **Echocardiography:** An ultrasound of the heart to check for problems with its function
- **Ultrasound:** An imaging test of the brain to check for bleeding or fluid buildup

Treatment

Care in the NICU
- Temperature
  Keep the newborn warm by wrapping them in a towel or increasing the incubator temperature
- Feeding
  Feed the newborn breast milk or artificial milk. If they are unable to feed, they may be given intravenous fluids
- Monitoring
  Monitor the newborn's temperature, heart rate, respiratory rate, color, and tone

Antibiotics
If the newborn has an infection, they may be given antibiotics

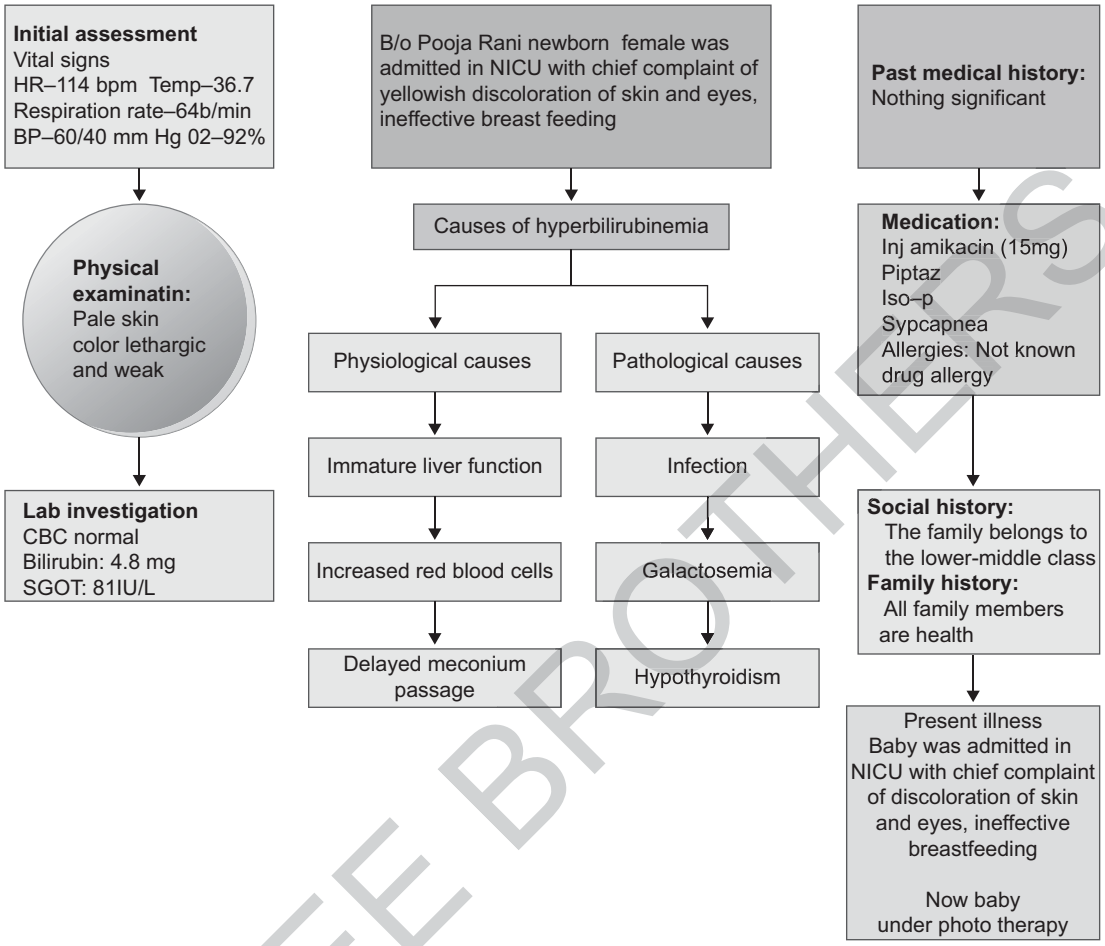
Follow-up care
- Follow-up assessments are more frequent immediately after discharge, and then become less frequent as the child gets older
- Monitor the child's weight, head circumference, and length
- Ensure the child receives the recommended immunizations
- Provide complementary foods, such as meat, poultry, fish, eggs, and vitamin A-rich fruits and vegetables

Nursing management

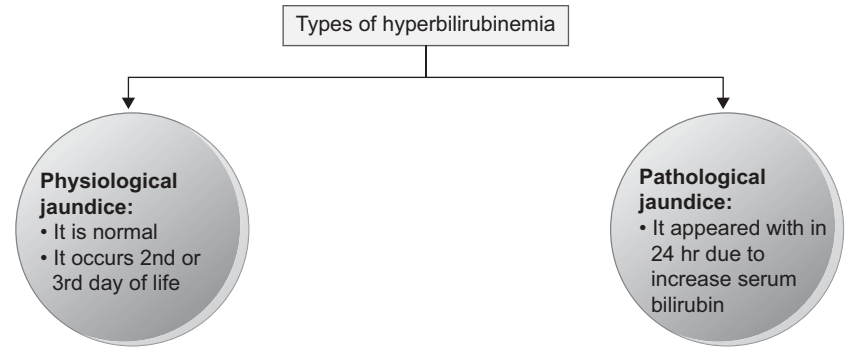
1 **Thermoregulation:** Keep baby in a neutral thermal environment using a radiant warmer or incubator
2 **Respiratory support:** Monitor respiratory rate, oxygen saturation, and CPAP settings
3 **Blood glucose monitoring:** Check glucose levels every 4–6 hours to prevent hypoglycemia
4 **Infection control:** Ensure strict aseptic techniques during all procedures
5 **Parental support:** Educate parents about preterm care, kangaroo mother care, and the importance of breastfeeding
6 **Communication**
Communicates with the parents about the newborn's condition and their concerns
Communicates with other professionals to reduce risk and hazards

JAYPEE BROTHERS

CONCEPT MAP OF HYPERBILIRUBINEMIA



JAYPEE BROTHERS



Clinical feature
- Yellowish discoloration of skin
- Lethargy
- Refusal to feed
- Dark urine and stool
- Excessive crying
- Irritable mood

Nursing management
- Vital signs: Monitor(HR), BP, SpO_2
- Monitor symptoms
- Promote breastfeeding
- Parent education: Teach parents to recognize signs of jaundice
- Emotional support for parents: Reduce anxiety

Diagnostic test
- CBC
- History taking
- Physical examination
- Noninvasive method: Ingram icterometer
- Serum bilirubin estimation

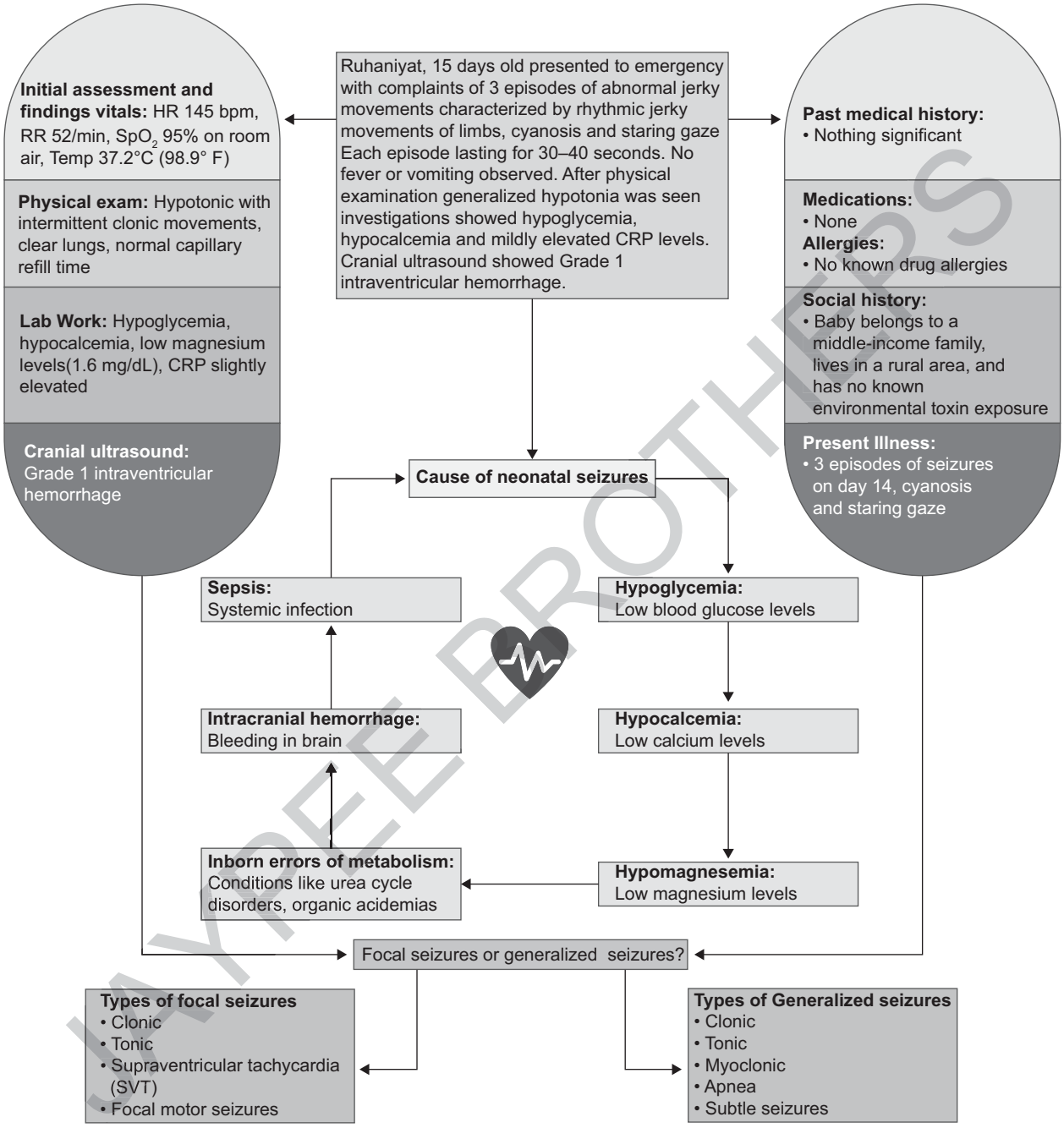
Nursing diagnosis
- Risk for injury related to elevated bilirubin levels
- Imbalanced nutrition: less than body requirements related to poor feeding
- Risk of fluid volume deficit related to increased insensible water loss during phototherapy
- Risk for altered sensory perception related to phototherapy treatment
- Risk for altered family processes related to neonatal illness
- Ineffective thermoregulation related to phototherapy or prematurity
- Deficit knowledge of parents related to disease condition
- Risk for infection related to invasive procedures

Complications
- Kernicterus
- Cerebral palsy
- Encephalopathy

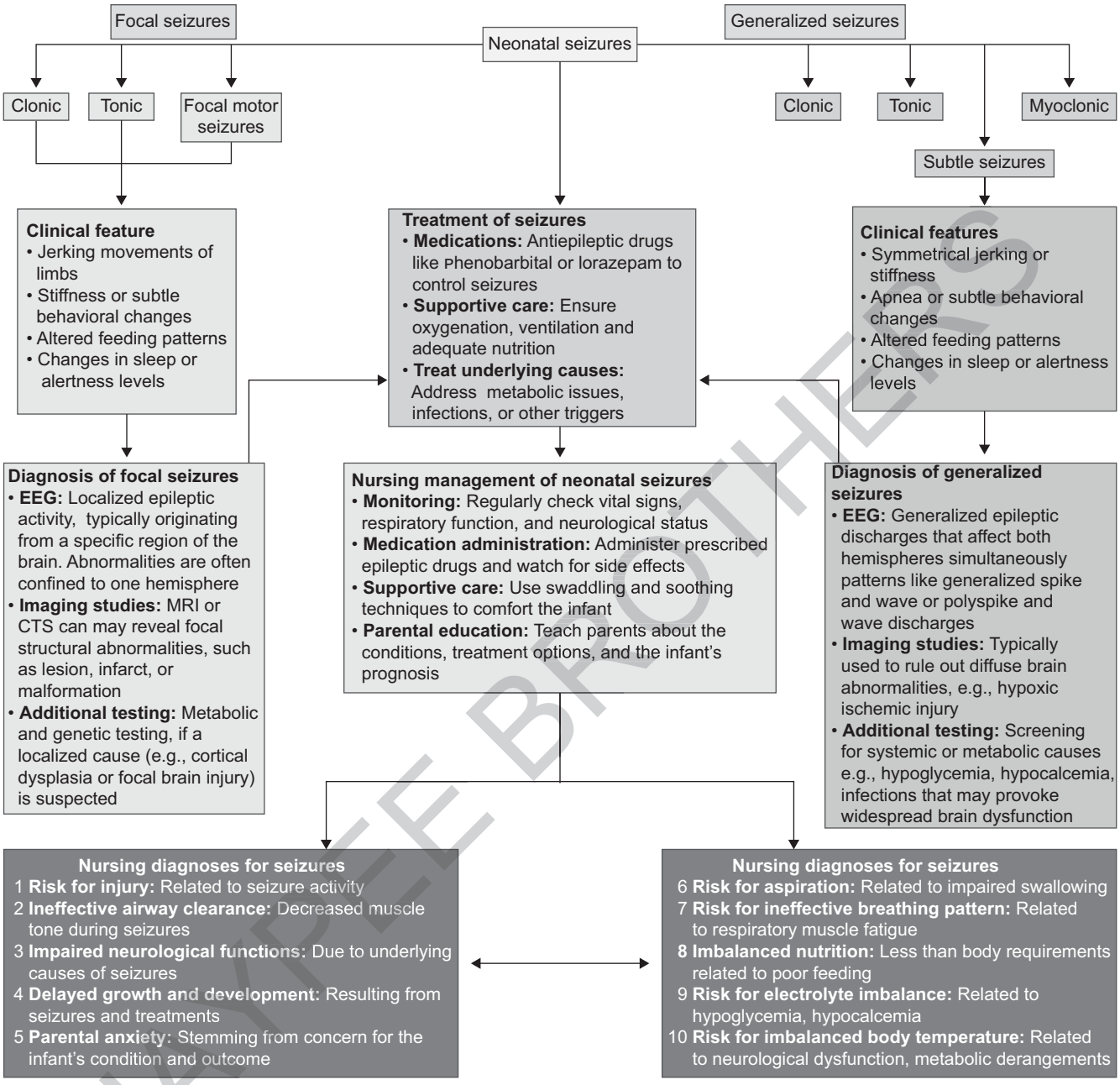
Treatment
- Phenobarbitone
- Metalloporphyrins
- Exchange blood transfusion
- Phototherapy

JAYPEE BROTHERS

CONCEPT MAP OF NEONATAL SEIZURES

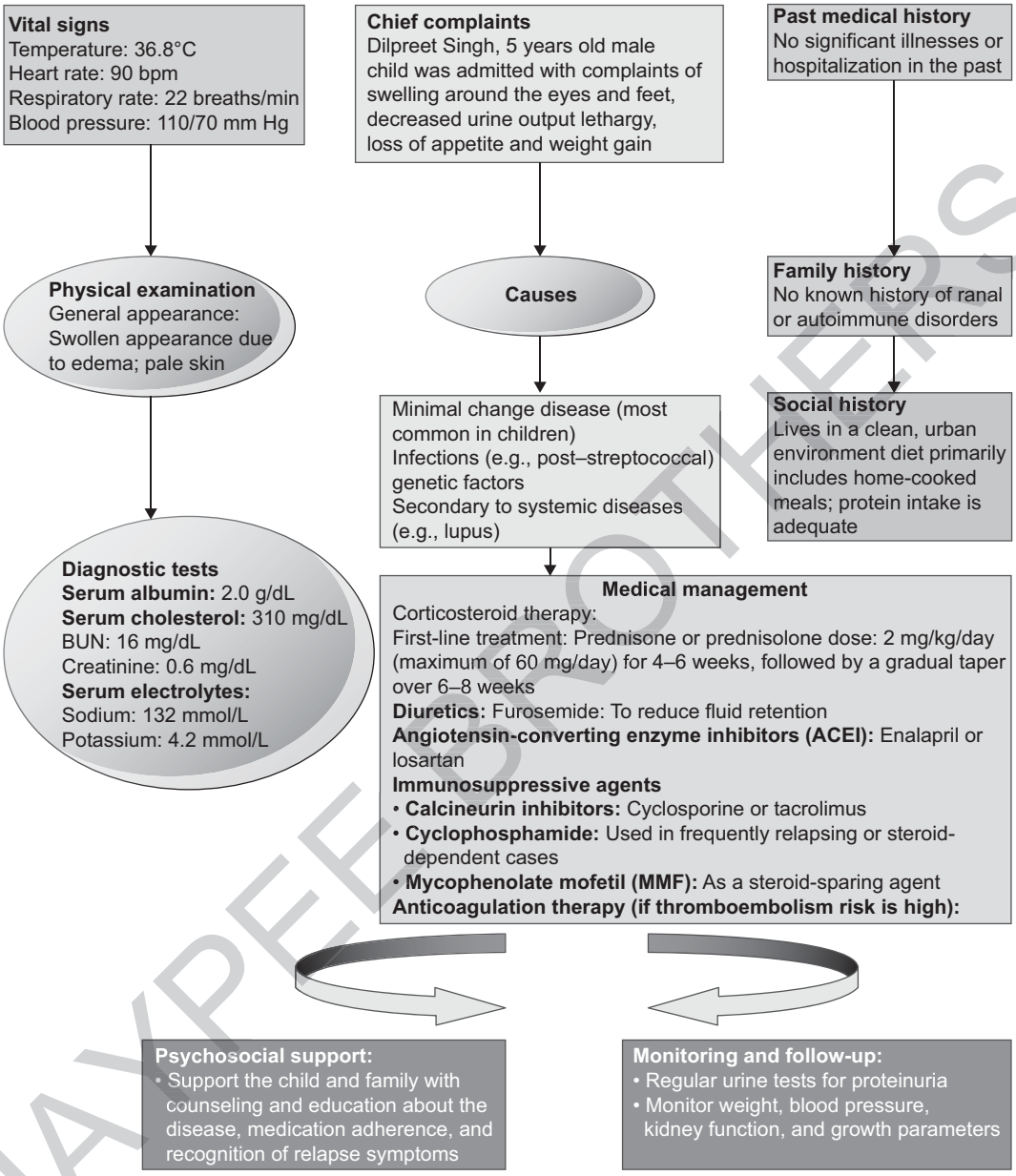


JAYPEE BROTHERS



JAYPEE BROTHERS

CONCEPT MAP OF NEPHROTIC SYNDROME



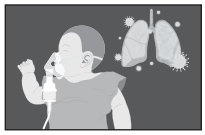
JAYPEE BROTHERS

CONCEPT MAP OF BRONCHOPNEUMONIA

Clinical features
- Fever (38.5°C) for 4 days
- Persistent productive cough
- Shortness of breath and wheezing
- Fatigue and decreased appetite
- Occasional chest pain

Causes
Bacterial infections:
- ***Streptococcus pneumonia***
- *Haemophilus influenza*
- *Staphylococcus aureus*
- *Klebsiella pneumonia*
- **Viral infections:**
- Influenza (flu)
- **Respiratory syncytial virus (RSV):**
- Coronavirus (includind SARS-coV-2)
- Parainfluenza virus
- **Fungal infections**
- **Histoplasmosis**
- Coccidioidomycosis (valley fever)
- **Aspergillus species:**
- **Aspiration pneumonia**
- Chronic diseases

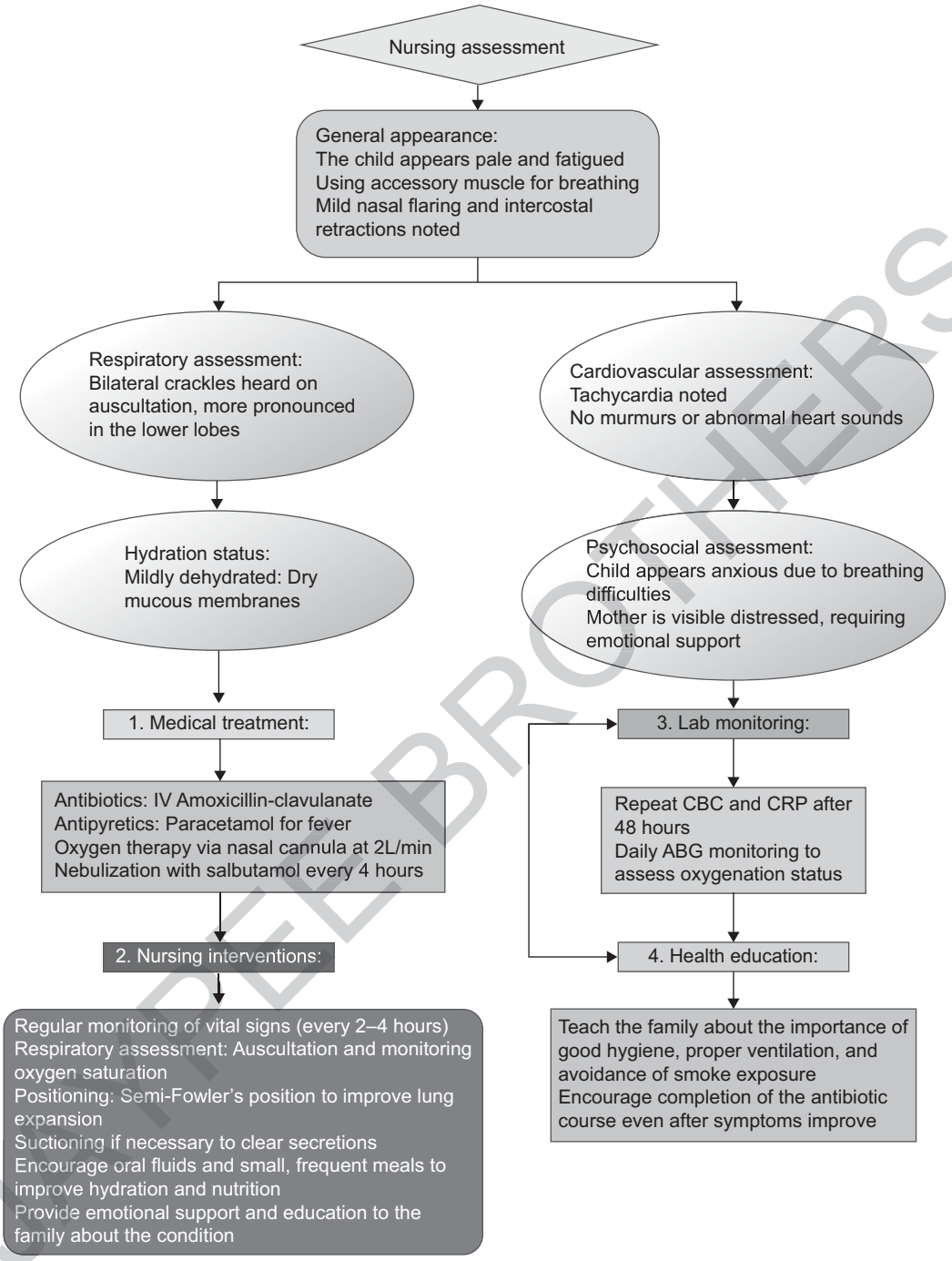
Vital signs
Temperature: 38°C
Heart rate: 125 bpm
Respiratory rate: 36 breaths/min
SpO_2: 96%



Lab investigations

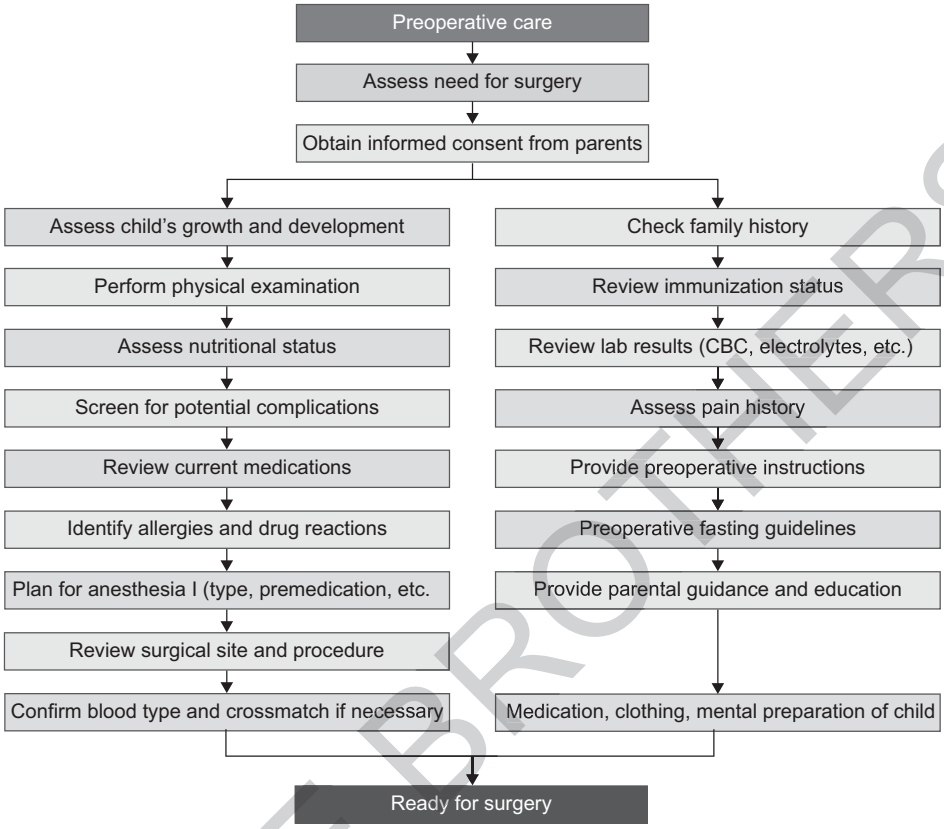
- **Complete blood count (CBC):**
- **C–reactive protein (CRP)** and **erythrocyte sedimentation rate (ESR)**
- **Blood cultures**
- **Sputum cultures** (if the child in old enough to produce sputum)
- **Nasopharyngeal or throat swabs** (for viral pathogens)
- Chest X-ray
- Pulse oximetry
- **Arterial blood gas (ABG)**
- **Microbiological and PCR testing for fungal infections**

JAYPEE BROTHERS

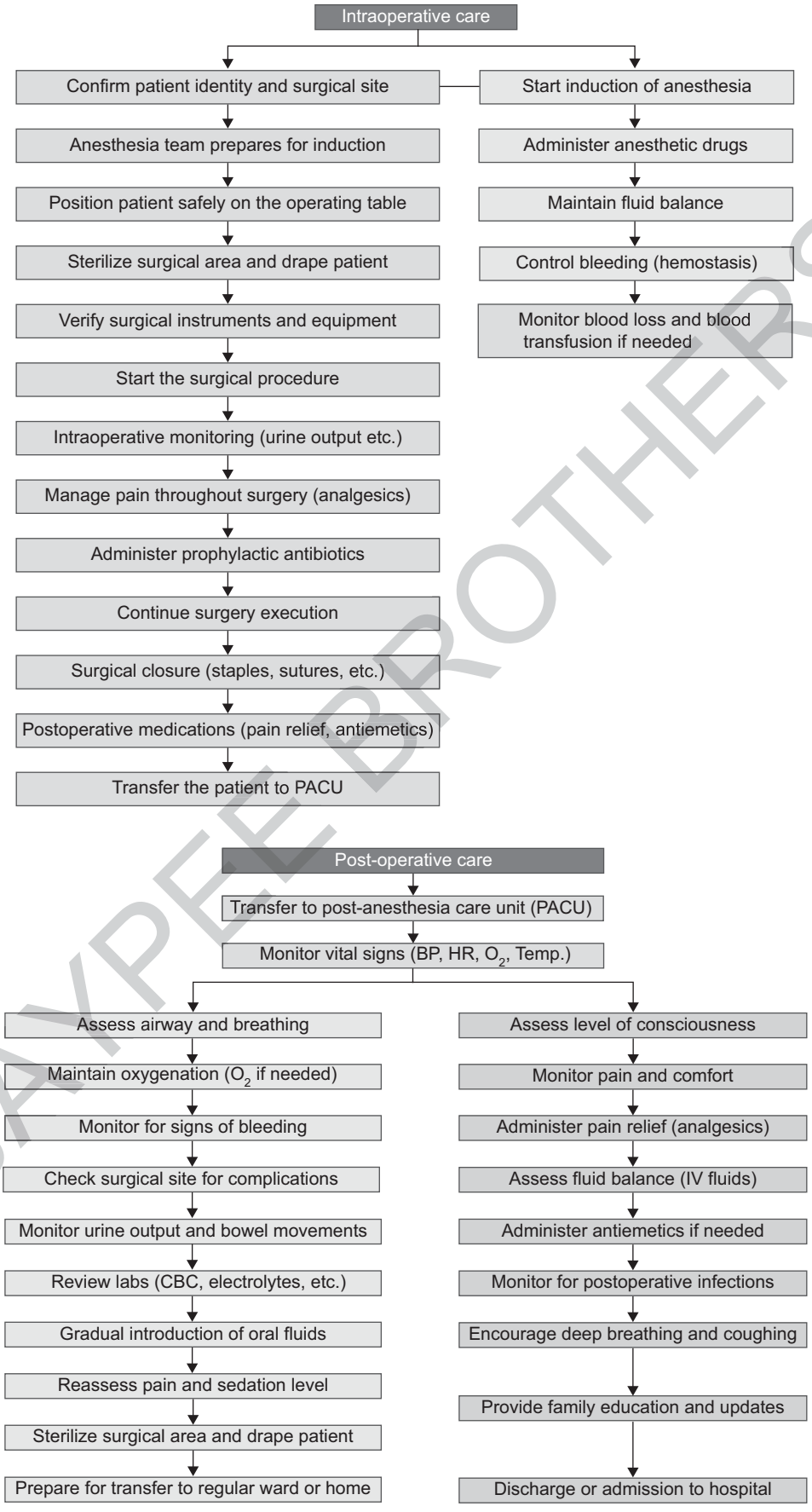


VIKAS BROTHERS

PREOPERATIVE, INTRAOPERATIVE, AND POSTOPERATIVE CARE OF A CHILD UNDERGOING SURGERY

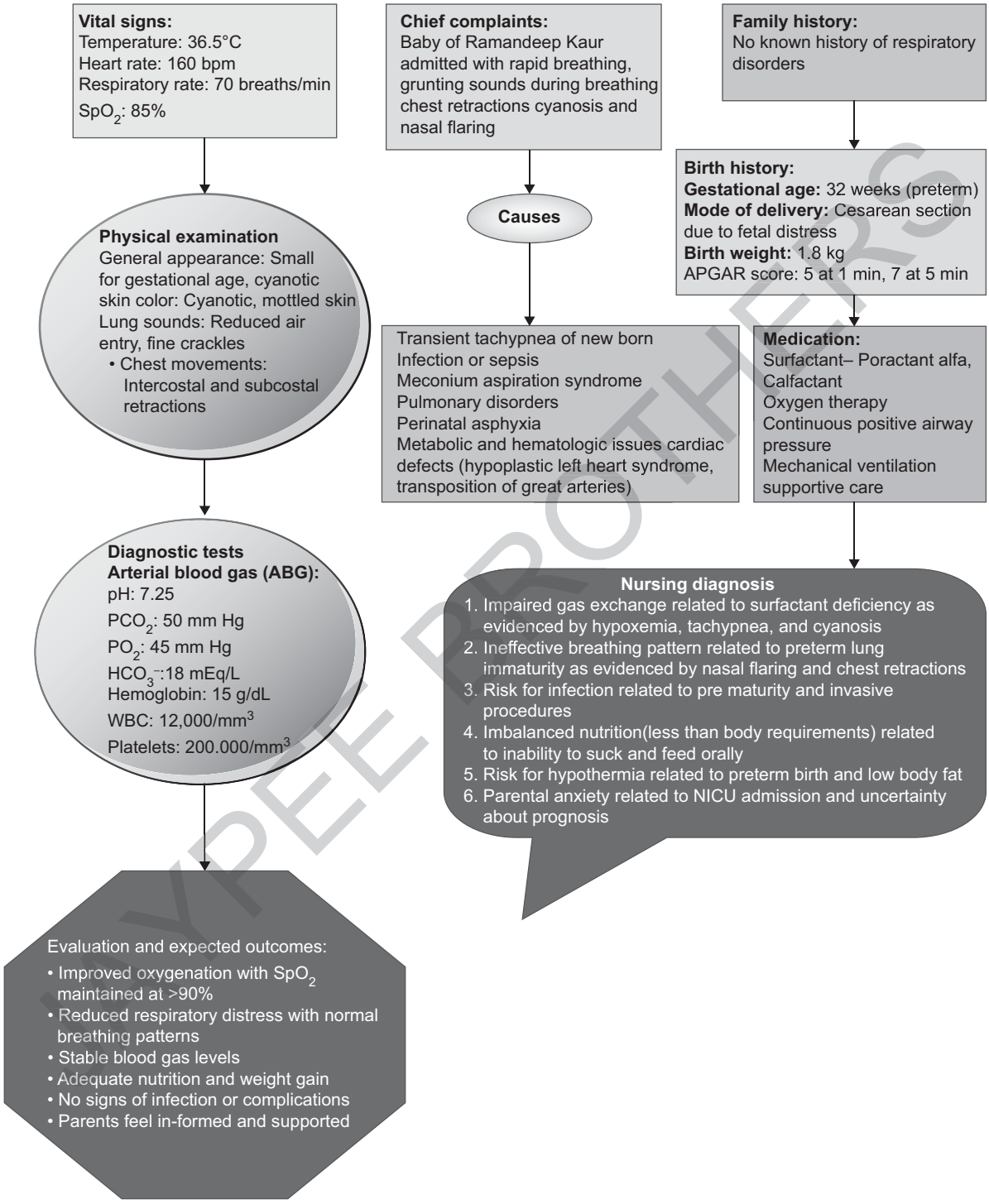


JAYPEE BROTHERS

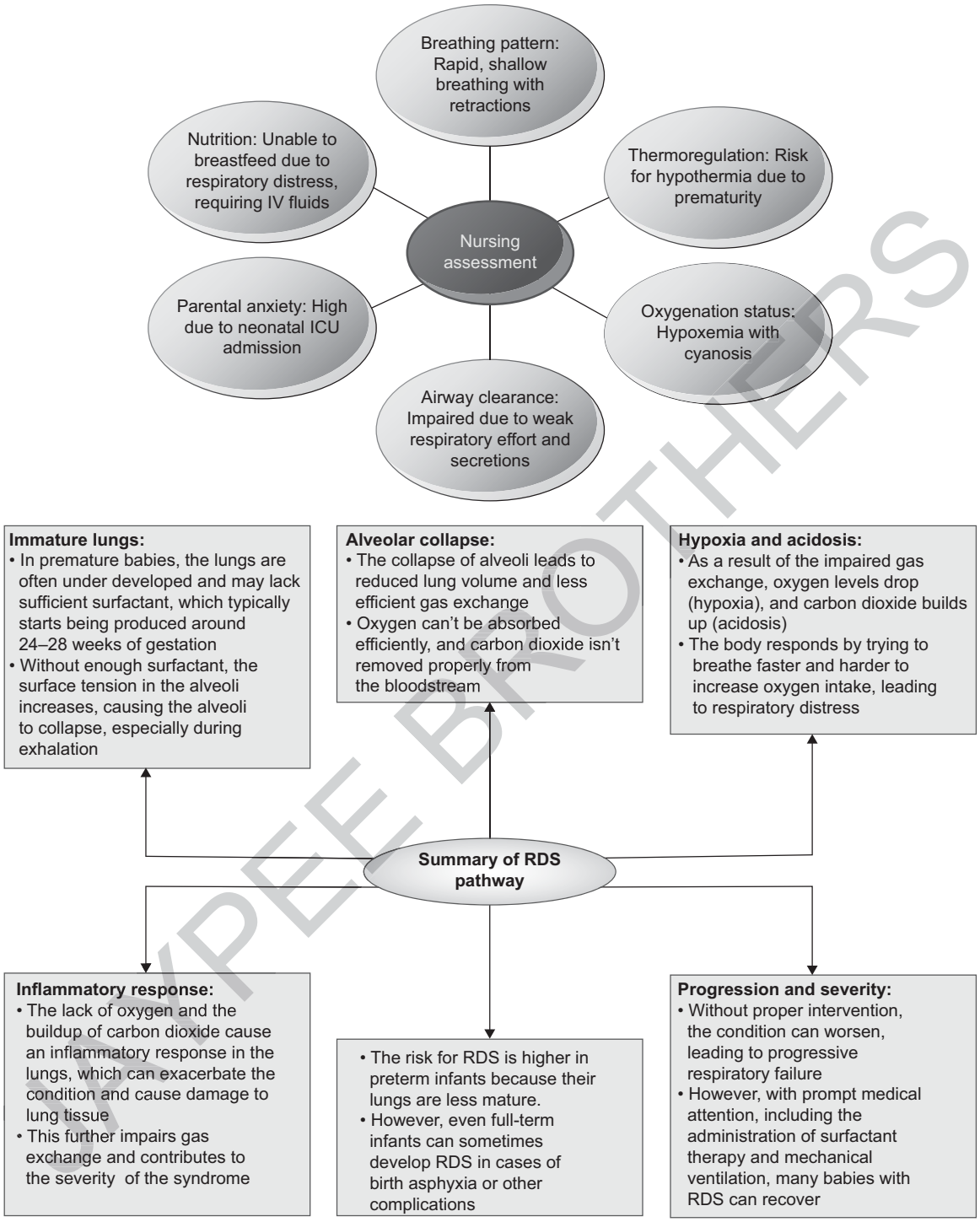


JAYPEE BROTHERS

CONCEPT MAP OF RESPIRATORY DISTRESS SYNDROME (RDS)



JAYPEE BROTHERS



MKPEE BROTHERS

SUGGESTED READINGS

1. American Academy of Pediatrics; American College of Obstetricians and Gynecologists. *Guidelines for perinatal care*, 8th edition. Elk Grove Village (IL): American Academy of Pediatrics; 2017.
2. Ball JW, Bindler RC. *Child health nursing: partnering with children and families*, 2nd edition. Boston: Pearson; 2013.
3. Cloherty JP, Eichenwald EC, Stark AR. *Manual of neonatal care*, 7th edition. Philadelphia: Lippincott Williams & Wilkins; 2012.
4. Fraser D, Cooper MA. *Myles textbook for midwives*. 16th edition. London: Churchill Livingstone Elsevier; 2013.
5. Ghai OP, Paul VK, Bagga A. *Essential pediatrics*. 9th edition. New Delhi: CBS Publishers; 2019.
6. National Neonatology Forum India. *Facility-based newborn care (FBNC) guidelines*. New Delhi: Ministry of Health and Family Welfare, Government of India; 2020.
7. World Health Organization. *Caring for the newborn at home: a training course for community health workers*. Geneva: World Health Organization; 2014. Available from: https://www.who.int/publications/i/item/9789241549295

for detailed information on nursing books, visit our website www.ejaypee.com, for detailed information on nursing books, visit our website www.ejaypee.com, for detailed information on nursin

Nursing Practice
Concept Maps and Case Studies

Salient Features

- The book presents nursing practice as a core component of the healthcare system, emphasizing holistic, patient-centered, and evidence-based care.
- It highlights the multifaceted role of nursing personnel in direct patient care, health education, disease prevention, and collaboration within multidisciplinary healthcare teams.
- It integrates concept maps as a powerful learning tool to help nurses visualize relationships between patient conditions, diagnoses, interventions, and outcomes.
- It uses case studies to bridge theory and practice, strengthening clinical reasoning, critical thinking, and decision-making skills.
- It encourages a systems-thinking approach to nursing care by combining clinical, psychosocial, and ethical dimensions of patient management.
- The book covers comprehensive nursing management across medical–surgical wards, critical care units, and operation theaters.
- It includes dedicated sections on mental health nursing, geriatric care, maternal health, emergency care, and disaster management.
- It addresses key aspects of professional ethics, patient safety, professional empowerment, and the need for technological advancement in nursing practice.
- The book is authored by experienced nursing professionals from across India, reflecting diverse clinical experiences and best practices.
- Finally, the book serves as a ready reference for nursing personnel and an effective guide for newly recruited nurses, enhancing confidence and competence in clinical practice.
- It supports the delivery of safe, compassionate, and high-quality nursing care, aligned with the evolving demands of modern healthcare.

Girdhar Gyani PhD ME FIE is the Director General of the Association of Healthcare Providers (India) (AHPI). Earlier, he served as Secretary General of the Quality Council of India (2003–2012), where he led the establishment of the National Accreditation Board for Hospitals & Healthcare Providers (NABH) in the year 2005–2006, significantly advancing patient safety and quality of care. A strong advocate of nursing leadership, he championed the inclusion of nurses in accreditation assessments and guided the development of the Nursing Empowerment framework (2011), which laid the foundation for Nursing Excellence Certification by NABH. AHPI under his leadership continues to recognize excellence in nursing practices by way of annual awards to hospitals since 2012.

Davinder Kaur PhD MSc Nursing (Medical-Surgical Nursing) is Principal, Gian Sagar College of Nursing, Patiala, Punjab, India. She is an exemplary leader with a strong dedication to advanced nursing practice. She brings with her 17 years of teaching experience and 10 years of clinical experience in critical care and emergency services. She is well known for actively sharing her extensive knowledge and expertise through workshops, conferences, and in-service training programs for the nursing fraternity at large. She has authored four books and several peer-reviewed articles.

Scan for more nursing titles...

Buy from ejaypee

JAYPEE BROTHERS

ISBN 978-93-7545-403-8