

U C L A

Health System

PEDIATRIC AGE SPECIFIC

Self Learning Module

For Clinical Staff

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Pediatric Age Specific Self Learning Module

Instructions:

- Review the objectives
- Read the module content
- After reading the module, please go to Mosby's Skills and complete the Self Learning Pediatric Age Specific Post Test.

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Course Objectives:

At the completion of this self learning module the user will be able to:

1. State normal vital signs for an infant and when to notify the MD.
2. Calculate IV maintenance for a child weighing 15 kgs.
3. State normal urine output for a child weighing 8 kgs.
4. Name the correct muscle(s) used for IM injections.
5. Describe the emotional support needed for an infant, toddler, preschooler and school age child.
6. Identify the proper dose for Epinephrine and defibrillation.
7. State 3 milestones observed in the infant, toddler, preschooler and school age child.
8. Describe how a three year old will react to pain and your actions for it.
9. Identify major treatments/actions in pediatric emergency care.

CARE OF THE PEDIATRIC PATIENT

Growth and Development

General Concepts/Milestones per Age Group:

Infants: Birth to 1 year

- Develops trust as his physiological and emotional needs are met by the caretakers.
- Likes routine schedules for eating and sleeping/needs consistent care takers
- Sucking, swaddling and talking soothes him.
- Excessive handling is not recommended.
- Enjoys looking at mobiles and pictures of familiar faces.

Toddlers: One year to 3 years

- Play is extremely important
- Terrified of strangers, equipment and strange environments.
- Does not understand deaths, views it as reversible
- Experiences three distinct phases of crisis when separated from parents: Protest, despair and denial.
- Does not understand concept of time

Preschool child: 3 to 5 years

- Shame and guilt not to be used as a punishment
- Asks “Why” questions
- Very concrete needs to see, feel, touch, smell
- Fear of bodily injury and mutilation
- Needs play activity to decrease trauma of hospitalization

School child: 6 to 12 years

- Sense of industry being developed, enjoys accomplishments
- Begins to understand relationships of events, parts, etc.
- Enjoys computer games, video games, etc.
- Likes to be heroic, please others and be in control
- Death is irreversible

Adolescents: 12 to 18 years

- Are very conscious of body image
- Contact with peers is very important
- Becomes isolated if unable to develop intimacy
- Able to think abstractly and project into the future
- Think they are immortal

EFFECTS OF HOSPITALIZATION AND REACTIONS TO PAIN

Key Concepts

INFANT:

A. Effects of Hospitalization

- Multiple care takers and unfamiliar faces.
- Disruption of daily routines, i.e., bath and feeding times.
- Excessive handling/stimulation may cause the infant to avoid people, change posture and experience sleep/wake cycle disturbances.

Nursing Interventions:

- Reduce number of caretakers/stimulation.
- Consistent care taker.
- Use mobiles, toys, music.
- Include parents in the care as much as possible.
- If all possible continue home routines.

B. Reactions to Pain

- Irritable and restlessness
- Poor feeding
- Disturbed sleep pattern
- Tachycardia
- Increased RR
- Lethargy

TODDLER:

A. Effects of Hospitalization

- Fear of strangers, painful events and noisy equipment.
- Nightmares.
- Regression to an earlier stage.

Nursing Interventions:

- Care for the child while parent(s) at the bed side.
- Encourage parent(s) to stay at the bed side.
- Allow play time as much as possible.
- If all possible take the child to the treatment room for any type of painful procedure.
- Ask parents to bring favorite toys/books/music from home.

B. Reactions to Pain

- Physiological responses, i.e., increased HR, RR and BP.
- Crying.
- May verbalize intensity and area of pain.
- Protecting the part that is painful.

PRESCHOOLER:

A. Effects of Hospitalization

- Increased anxiety/fear.
- Regression to an earlier stage.

Nursing Interventions:

- Explain in advance about treatments, meds.
- Encourage play therapy/play room as much as possible.
- Be concrete and simple in your explanation.
- Be honest and give reinforce positive behavior.
- Do not use phrases i.e. "if you don't stay still will have to stick you again" or "will have to give you a shot".
- Encourage the child to draw or paint.

B. Reactions to Pain

- Physiological responses i.e. increased HR, RR and BP.
- Crying.
- Protecting the part that is painful.
- Verbalizes the intensity and location of pain in simple terms.
- Refuses to eat or participate in activities.

SCHOOL AGE CHILD:

A. Effects of Hospitalization

- Feel loss of control over their bodies.
- Remember previous hospital experiences or experiences of others.
- Fear of body mutilation.

Nursing Interventions:

- Encourage sibling visitation.
- Play Therapy.
- Give some control.

B. Reactions to Pain

- Physiological responses.
- Expresses pain in terms of onset, location, intensity and quality.
- Excessive sleep.

ADOLESCENTS:

A. Effects of Hospitalization

- Loss of control and identity.
- Separation from peers.
- Altered body image.

Nursing Interventions:

- Encourage visitation from peers/friends.
- Give some control over their daily routines/treatments.
- Provide own telephone and encourage to bring own radio.

B. Reactions to Pain

- Explains type, intensity, location and duration of pain.
- Asks for pain relief.

Vital Signs

A. Normal Vital Signs:

<u>Infants:</u>	Heart Rate	120-160
	Blood Pressure	Systolic 74-100 Diastolic 50-70
	Respiratory Rate	30-60
<u>Toddlers:</u>	Heart Rate	90-140
	Blood Pressure	Systolic 80-112 Diastolic 50-80
	Respiratory Rate	20-40
<u>Preschoolers:</u>	Heart Rate	90-140
	Blood Pressure	Systolic 80-110 Diastolic 50-78
	Respiratory Rate	22-34
<u>School Age:</u>	Heart Rate	75-100
	Blood Pressure	Systolic 84-120 Diastolic 54-80
	Respiratory Rate	18-30
<u>Adolescents:</u>	Heart Rate	60-90
	Blood Pressure	Systolic 94-140 Diastolic 62-88
	Respiratory Rate	12-16

Key Points:

- If the temperature is over 38.5C, call MD for orders.
- No rectal temps. Unless specified by MD order or unit protocol.
- BP cuff should cover only 2/3 of the upper arm.
- Take apical pulse on infants and toddlers for 60 sec.
- Pediatricians will write specific parameters for vital signs and when to notify them.
- As the child gets older, the Heart Rate and RR decreases and BP increases.

Intake and Output

Key Points:

- Normal urine output for pediatric patient is at least 1mL/kg/hr.
- If the child has diarrhea stool or vomits, stools and emesis must be replaced mL/mL or ½ mL/mL, follow MD's orders.
- Calculations for Maintenance Fluid

Newborn: up to 72 hrs after birth	60-100mL/kg/day
Up to 10Kg	100mL/kg/day
11-20kg	1000mL+50mL/kg/day
21-30kg	1500mL+25mL/kg/day

 - For example:
 - 15kg baby should receive 1250mL/day
(1000mL+250=1250mL/day)
- Use non-sucking or dominant hand.
- Do not have an ID band on the IV hand. If the IV infiltrates the ID band may cut the circulation to the arm and hand.
- Burretrols must be used when delivering IV fluids.
- Do not fill the microdrip chamber with more than 2 hours worth of IV fluids.
- Check the IV site every 1 - 2 hours.
- Turn the control IV pump away from the child; children sometimes play with the dials.
- If you suspect IV infiltration, assess for redness, edema, coolness, slow infusion. If the blood does not flow back it does not mean the IV is infiltrated. Sometimes the vein's pressure is less then the IV fluid's pressure.

MEDICATIONS

Key Points:

- Medications must be calculated based on age, weight, body surface and sometime on previous reaction.

Psychosocial aspects in giving a medication:

- Before you approach the child with the medication explain to the patients based on his cognitive level about the route, pain involved if any, taste and how much he has to take.
- Never lie, be honest and give concrete explanation to their questions.
- Ask parents to assist you in giving medications.
- After administering medications, stay with the child and comfort him.

Oral Medication Administration:

- For oral meds use a liquid form. Use an oral plastic syringe to measure and administer.
- Mix medication in the smallest amount of liquid or solid as possible.
- The toddler does not understand the concept of mass, volume, and weight, therefore use a large container to administer the medication. For example, to administer 1ml of medication use a 3ml syringe rather than a 1ml syringe.
- Use a nipple to administer liquid meds to infants; hold the infant in your arm, gently squeeze cheeks and slowly administer medication at the side of the mouth.
- Use chewable or scored tablets if available. Do not cut unscored tablets.
- Mix crushed medication in cherry syrup, juice, ice cream, etc. if patient orders warrant
- Avoid mixing medications in foods or liquids that the child favors. Soon he will develop a dislike for that food.
- Do not force medications; the child may aspirate if meds are forced or administered when crying.
- If the child vomits the medication, check with the MD or pharmacist to see if the medication can be repeated.

IM Medication Administration:

- If compatible, IM medications can be mixed together, check with the pharmacist.
- IM injection amounts:
 - No more than 1ml for IM injection in infants.
 - No more than 2ml in toddlers
 - No more than 2.5ml in older children.
- Use vastus lateralis muscle in infants and toddler for IM injections; use gluteal region after toddler age.

- Ask for assistance from the parents or another nurse when giving IM meds. Assure the child the assistance is to help him to stay still. After the injection, provide a pediatric animated band aid.
- Use distraction when giving IM medications. Do not delay a painful experience; be firm, but give him some control. For example, if it is possible to allow him to have control where the IM medication is to be administered, give him realistic choices and then follow through.

IV Medication Administration:

- Mix IV medications in a minimum amount of IV fluid to prevent fluid overload.
- If uncertain about the amounts, check with the pharmacist.

OTHER AREAS OF ASSESSMENT

- Obtain history/records from the parents on the child's immunization. Record the information and the MD will advise you if the child needs further immunization before leaving the hospital.
- For children below 2 years of age, assess the child's weight, height and head circumference. Any discrepancy, double check with another nurse.
- Weight is done daily for almost all pediatric patients.
- Ask parents about the child daily routine, bath, feeding, sleeping.
- For feeding: ask what the child like or dislikes, if he takes formula warm, room temperature etc.
- For sleeping: if the child has certain toy/blanket that he uses at bed time, or favors a certain position. If at all possible, continue home's daily routine in the hospital.
- If the child's peripheral perfusion is more than 2 seconds it is considered abnormal.

EMERGENCY CARE

Key Points

- Assessment of respiratory distress prevents most of the children from experiencing cardiac arrest.
- If the newborn's heart rate drops below 80 initiate CPR
- Like adults, remember always to use the ABC approach. First establish the airway, check for breathing, if none ventilate and if no pulse, initiate CPR.
- Establish an IV line, peripheral or intraosseous.
- Give 20ml/kg for fluid management
- Epinephrine is the first drug of choice, draw 0.1ml/kg of 1:10,000 for the first dose. For subsequent doses please see PALS guidelines.
- Connect the child to an EKG machine and based on the rhythm initiate further actions.
- If defibrillation is required, the initial dose for pediatrics is 2 Joules/kg. Double the second dose.
- For Cardioversion the dose is 0.5 Joules/kg.
- If the child is unstable and unable to adequately oxygenate by mask/valve/bag, consider intubation.
- After intubation assess for breath sounds. They should be present bilaterally.

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