

ASSESSMENT OF IRON INTAKE AND MANAGEMENT OF IRON DEFICIENCY ANEMIA

Background

Childhood Anemia

Childhood anemia is a very common diagnosis and usually occurs due to an inadequate amount of dietary iron. Adequate iron storage is necessary to prevent anemia, but is also essential for brain development. In order to prevent iron-deficiency anemia, infants should be drinking either breast milk or iron-fortified formula. Toddlers and older children should eat a balanced, iron-rich diet.

Although iron deficiency is the most common etiology, anemia in childhood can be caused by a variety of conditions that are either congenital or acquired. Types of congenital anemia include sickle cell disease or thalassemia; acquired anemia includes such diagnoses as leukemia, gastrointestinal bleeding, and hemolytic disease. Congenital and acquired anemia generally is not iron-responsive. If a child presents with a pre-diagnosed anemia that is NOT iron-deficient, he/she should be referred to his/her provider for further management.

Sickle cell anemia can be easily ruled out by checking the status of the newborn screening. If sickle cell anemia is strongly suspected and an asymptomatic infant's disease status is unknown, refer to his/her provider, and delay replacement iron regimen until the results are available.

Adult Anemia

Anemia in adults is most commonly due to iron deficiency. In contrast to iron deficiency in childhood, which is most commonly caused by deficient dietary intake, the major cause of iron deficiency anemia is blood loss, which can be overt (trauma, hematemesis, melena, menorrhagia, etc.) or occult (e.g. via the gastrointestinal tract). Iron deficiency can also result from dietary deficiencies or reduced gastrointestinal absorption; however, blood loss should first be ruled out by the patient's primary care physician as a cause of iron deficiency before nutritional deficiency or malabsorption is assumed as a diagnosis.

Anemia Screening Procedure

Anemia screening is performed by checking hemoglobin levels. **Confirm abnormal/low hemoglobin levels with a second test at the same or a new site.** Make sure the skin is clean and dry before puncture. Avoid any squeezing of the digit after puncture. After the diagnosis of anemia, iron deficiency anemia is confirmed by administering a therapeutic regimen of iron and demonstrating a rise in hemoglobin of ≥ 1 g/dL after 4 weeks. If an infant fails to respond to therapy, referral shall be made to a physician or nurse practitioner for further evaluation.

SUBJECTIVE

Dietary assessment

- Inadequate consumption of dietary iron
- Consumption of whole cow's milk or formula with low iron or no iron
- Children > age 1 year: consumption of more than 24 ounces of milk daily

Menstrual history (if appropriate)

Patient reported history of gastrointestinal blood loss

Normal versus abnormal newborn state screen for sickle cell disease

Symptoms: Pallor, shortness of breath, tachycardia, decreased energy/fatigue/lethargy, dizziness

OBJECTIVE

Fatigued appearance

Pallor of skin and/or conjunctiva

Dyspnea

Tachycardia

Heart murmur

Abnormal/low hemoglobin (hgb), see chart below

Age	Criteria for anemia (hemoglobin concentration in g/dL)	
	Female	Male
6-12 months	<11.0	<11.0
1-2 years	<11.0	<11.0
2-5 years	<11.1	<11.1
5-8 years	<11.5	<11.5
8-12 years	<11.9	<11.9
12-15 years (non-pregnant)		
Nonsmoker	<11.8	<12.5
Smoke up to 1 pack/day	<12.1	<12.8
Smoke 1-2 packs/day	<12.3	<13.0
Smoke >2 packs/day	<12.5	<13.2
15-18 years (non-pregnant)		
Nonsmoker	<12.0	<13.3
Smoke up to 1 pack/day	<12.3	<13.6
Smoke 1-2 packs/day	<12.5	<13.8
Smoke >2 packs/day	<12.7	<14.0
>18 years (non-pregnant)		
Nonsmoker	<12.0	<13.5
Smoke up to 1 pack/day	<12.3	<13.8
Smoke 1-2 packs/day	<12.5	<14.0
Smoke >2 packs/day	<12.7	<14.2

Age	Criteria for anemia (hemoglobin concentration in g/dL)	
	Female	Male
PREGNANT: 1st Trimester		
Nonsmoker	<11.0	N/A
Smoke up to 1 pack/day	<11.3	N/A
Smoke 1-2 packs/day	<11.5	N/A
Smoke >2 packs/day	<11.7	N/A
PREGNANT: 2nd Trimester		
Nonsmoker	<10.5	N/A
Smoke up to 1 pack/day	<10.8	N/A
Smoke 1-2 packs/day	<11.0	N/A
Smoke >2 packs/day	<11.2	N/A
PREGNANT: 3rd Trimester		
Nonsmoker	<11.0	N/A
Smoke up to 1 pack/day	<11.3	N/A
Smoke 1-2 packs/day	<11.5	N/A
Smoke >2 packs/day	<11.7	N/A

ASSESSMENT

Not at risk for iron depletion with normal hemoglobin

OR

At risk for iron depletion with normal hemoglobin

- Infant at risk: preterm, low birth weight, diet of non-iron fortified infant formula, introduction of cow's milk prior to 12 months of age, or breastfed infant who is receiving inadequate dietary iron after six months of age
- Toddler/child/adolescent at risk: consumption of more than 24 ounces of cow's milk daily, low dietary iron intake/picky eaters, previous history of iron deficiency

OR

Anemia, suspect iron-deficiency

PLAN

For those not at risk for iron depletion with a normal hemoglobin

Instruct in age appropriate diet high in iron

Certification for WIC if eligible

Educate regarding the importance of iron for both blood and brain development

For those at risk of iron depletion with a normal hemoglobin

Instruct in age appropriate diet high in iron

Issue age-appropriate multivitamin with iron or write prescription:

- Infant/toddler multivitamin with iron drops at dose of 1 ml daily **OR**
- Children's chewable multivitamin at dose of one tablet daily per manufacturer's directions
- **NOTE:** If multivitamins with iron are used in an infant who is not anemic, the daily dose should not exceed 15 mg elemental iron daily or 2 mg/kg/day. Most infant/toddler *multivitamin* with iron drops contain 10 mg elemental iron per milliliter. Most chewable multivitamins with iron for toddlers and older children/adolescents contain 15-18 mg elemental iron per tablet. These should be administered according to package instructions.

Give iron-related pamphlet

Certification for WIC if eligible

Educate regarding the importance of iron for both blood and brain development

For those with suspected iron deficiency anemia, see table below and refer to the Iron replacement Dosing Chart:

Age <6 months	Age 6-12 Months	Age 1-3 Years	Age 3-12 Years	Age 12-18 Years	>18 Years
Obtain dietary assessment	Obtain dietary assessment	Obtain dietary assessment	Obtain dietary assessment	Obtain dietary assessment	Evaluate for blood loss (history, physical, hemocult)
Instruct to use breast milk or iron fortified formula	Instruct in adequate consumption of dietary iron	Instruct in adequate consumption of dietary iron	Instruct in adequate consumption of dietary iron	Instruct in adequate consumption of dietary iron	Consider referral to MD or NP
Supplement with iron according to the dose based on body weight (see dosing chart)	Give iron-related pamphlet Refer to WIC if eligible	Decrease milk if necessary to 16 ounces or less daily Give iron-related pamphlet	Decrease milk if necessary to 16 ounces or less daily Give iron-related pamphlet	Decrease milk if necessary to 16 ounces or less daily Give iron-related pamphlet	Instruct in adequate consumption of dietary iron and Vitamin C
Refer to WIC if eligible	Supplement with iron according to dose based on body weight (see dosing chart)	Refer to WIC if eligible Supplement with iron according to dose based on body weight (see dosing chart)	Refer to WIC if eligible (< 5 yrs.) Supplement with iron according to dose based on body weight (see dosing chart)	Supplement with iron according to dose based on body weight (see dosing chart)	Dispense Ferrous Sulfate (FeSO ₄) 325mg by mouth three times per day.

Health Teaching

Oral iron may cause constipation and turn stool black

Establish regular time for drug administration

Iron drops may harmlessly coat the teeth

Oral iron may interfere with absorption of tetracycline
 Vitamin C will enhance absorption
 Iron absorption is inhibited by antacids, Vitamin E, eggs, coffee, tea, and milk
ORAL IRON IS A SERIOUS POTENTIAL POISON - Issue safely

Referral Indicators

Premature infant
 Poor weight gain/abnormal growth pattern
 Symptomatic anemia (see “objective” for list of possible symptoms)
 Heart murmur present
 Pregnancy
 Pre-diagnosed anemia that is NOT iron-deficient
 Sickle cell disease and other hemoglobinopathies
 Symptoms of gastrointestinal bleeding (dark tarry stools, blood in toilet bowl or on toilet paper, large amounts of blood passed from the rectum, vomiting blood)
 Special health needs that increase the risk of iron-deficiency (chronic infection, inflammatory disorders, chronic or acute blood loss, restricted diets, use of medications that interfere with iron absorption)
 Parent needs further guidance/education (subjective evaluation by RN/RD)
 Inadequate response to therapy

CRITICAL VALUES:

For ages <5: Refer immediately for hemoglobin of **8.5 or less** or if the patient is symptomatic

For ages 5 and up: Refer immediately for hemoglobin of **10 or less** or if the patient is symptomatic

*For all ages, if the patient is symptomatic, they should be referred to their primary care provider immediately

Follow-up

For individuals with normal hemoglobin or iron depletion with normal hemoglobin:

Screen for anemia at routine intervals during WIC visits and/or preventive care visits (EPSDT exams)

For individuals with suspected iron deficiency anemia:

Evaluate for compliance to dietary and iron therapy

Repeat hemoglobin in 4 weeks, confirm at least 1 g/dL increase in hemoglobin

- **If there less than a 1 g/dL increase in hemoglobin after 4 weeks of iron supplementation, confirm that the dose is appropriate, there is no dairy overconsumption, and that the patient is compliant. If there are no confounding factors and the hemoglobin has not gone up, refer to health care provider.**

- **If there is at least 1g/dL increase in hemoglobin, continue iron supplementation for 8 weeks after hemoglobin confirmed normal.**

Refer to health care provider if compliant infant shows inadequate response to therapy or hemoglobin remains below normal range despite 6-8 weeks of iron supplementation.

Iron Replacement Dosing Chart

All treatment of iron deficiency anemia is two-fold, a diet high in iron rich foods and therapeutic regimens of iron.

If concentrated iron drops, elixir or tablets are used in an infant or child that is anemic, the dose should not exceed 6 mg/kg of elemental iron daily to a maximum of the standard adult dose. Replacement iron doses may be divided into two or three daily doses. Liquid concentrated iron preparations are generally accepted but may not be palatable. If a child refuses to take the prescribed preparation, another may be used as long as the daily dose of elemental iron remains consistent.

All doses referenced in this protocol and on the dosing chart refer to either:

- **Concentrated ferrous sulfate drops that contain 15 mg/1.0 ml elemental iron.**
OR
- **Ferrous sulfate elixir that contain 44 mg/5.0 mL elemental iron.**
OR
- **325 mg ferrous sulfate tablets that contain 65 mg elemental iron per tablet.**

Instruct the caregiver regarding measurement using calibrated, oral medication syringes. Doses in milliliters require a precise dropper or oral syringe with well-marked increments of 0.1 ml.

Maximizing the dose for body weight is very important.

Iron Replacement Dosing Chart

Weight		Dosing Script (Write This on Prescription)		
Lbs	Kgs	IRON DROPS (15 mg / 1.0 ml)	ELIXIR (44 mg / 5.0 ml)	TABLETS (65 mg / tablet)
10	4.5	10.2 mg elemental iron (0.7 ml) po bid		
11	5.0	11.3 mg elemental iron (0.8 ml) po bid		
12	5.5	12.3 mg elemental iron (0.8 ml) po bid		
13	5.9	13.3 mg elemental iron (0.9 ml) po bid		
14	6.4	14.3 mg elemental iron (1.0 ml) po bid		
15	6.8	15.3 mg elemental iron (1.0 ml) po bid		
16	7.3	16.4 mg elemental iron (1.1 ml) po bid		
17	7.7	17.4 mg elemental iron (1.2 ml) po bid		
18	8.2	18.4 mg elemental iron (1.2 ml) po bid		
19	8.6	19.4 mg elemental iron (1.3 ml) po bid		
20	9.1	20.5 mg elemental iron (1.4 ml) po bid		
21	9.5	21.5 mg elemental iron (1.4 ml) po bid		
22	10.0	22.5 mg elemental iron (1.5 ml) po bid		
23	10.5	23.5 mg elemental iron (1.6 ml) po bid		
24	10.9	24.5 mg elemental iron (1.6 ml) po bid		
25	11.4	25.6 mg elemental iron (1.7 ml) po bid		
26	11.8	26.6 mg elemental iron (1.8 ml) po bid		
27	12.3	27.6 mg elemental iron (1.8 ml) po bid		
28	12.7	28.6 mg elemental iron (1.9 ml) po bid		
29	13.2	29.7 mg elemental iron (2.0 ml) po bid		
30	13.6	30.7 mg elemental iron (2.0 ml) po bid		
31	14.1	31.7 mg elemental iron (2.1 ml) po bid		
32	14.5	32.7 mg elemental iron (2.2 ml) po bid		
33	15.0	33.8 mg elemental iron (2.3 ml) po bid	33.8 mg elemental iron (3.8 ml) po bid	
34	15.5	34.8 mg elemental iron (2.3 ml) po bid	34.8 mg elemental iron (4.0 ml) po bid	
35	15.9	35.8 mg elemental iron (2.4 ml) po bid	35.8 mg elemental iron (4.1 ml) po bid	
36	16.4	36.8 mg elemental iron (2.5 ml) po bid	36.8 mg elemental iron (4.2 ml) po bid	
37	16.8	37.8 mg elemental iron (2.5 ml) po bid	37.8 mg elemental iron (4.3 ml) po bid	
38	17.3	38.9 mg elemental iron (2.6 ml) po bid	38.9 mg elemental iron (4.4 ml) po bid	
39	17.7	39.9 mg elemental iron (2.7 ml) po bid	39.9 mg elemental iron (4.5 ml) po bid	
40	18.2	40.9 mg elemental iron (2.7 ml) po bid	40.9 mg elemental iron (4.6 ml) po bid	
41	18.6	41.9 mg elemental iron (2.8 ml) po bid	41.9 mg elemental iron (4.8 ml) po bid	
42	19.1	43.0 mg elemental iron (2.9 ml) po bid	43.0 mg elemental iron (4.9 ml) po bid	
43	19.5	44.0 mg elemental iron (2.9 ml) po bid	44.0 mg elemental iron (5.0 ml) po bid	
44	20.0		45.0 mg elemental iron (5.1 ml) po bid	

Weight		Dosing Script (Write This on Prescription)		
Lbs	Kgs	IRON DROPS (15 mg / 1.0 ml)	ELIXIR (44 mg / 5.0 ml)	TABLETS (65 mg / tablet)
45	20.5		46.0 mg elemental iron (5.2 ml) po bid	
46	20.9		47.0 mg elemental iron (5.3 ml) po bid	
47	21.4		48.1 mg elemental iron (5.5 ml) po bid	
48	21.8		49.1 mg elemental iron (5.6 ml) po bid	
49	22.3		50.1 mg elemental iron (5.7 ml) po bid	
50	22.7		51.1 mg elemental iron (5.8 ml) po bid	
51	23.2		52.2 mg elemental iron (5.9 ml) po bid	
52	23.6		53.2 mg elemental iron (6.0 ml) po bid	
53	24.1		54.2 mg elemental iron (6.2 ml) po bid	
54	24.5		55.2 mg elemental iron (6.3 ml) po bid	
55	25.0		56.3 mg elemental iron (6.4 ml) po bid	
56	25.5		57.3 mg elemental iron (6.5 ml) po bid	
57	25.9		58.3 mg elemental iron (6.6 ml) po bid	
58	26.4		59.3 mg elemental iron (6.7 ml) po bid	
59	26.8		60.3 mg elemental iron (6.9 ml) po bid	
60	27.3		61.4 mg elemental iron (7.0 ml) po bid	
61	27.7		62.4 mg elemental iron (7.1 ml) po bid	
62	28.2		63.4 mg elemental iron (7.2 ml) po bid	
63	28.6		64.4 mg elemental iron (7.3 ml) po bid	
64	29.1		65.5 mg elemental iron (7.4 ml) po bid	One tablet (65.0 mg elemental iron) po bid
65	29.5		66.5 mg elemental iron (7.6 ml) po bid	One tablet (65.0 mg elemental iron) po bid
66	30.0		67.5 mg elemental iron (7.7 ml) po bid	One tablet (65.0 mg elemental iron) po bid
67	30.5		68.5 mg elemental iron (7.8 ml) po bid	One tablet (65.0 mg elemental iron) po bid
68	30.9		69.5 mg elemental iron (7.9 ml) po bid	One tablet (65.0 mg elemental iron) po bid
69	31.4		70.6 mg elemental Iron (8.0 ml) po bid	One tablet (65.0 mg elemental iron) po bid
70	31.8		71.6 mg elemental iron (8.1 ml) po bid	One tablet (65.0 mg elemental iron) po bid
71	32.3		72.6 mg elemental iron (8.3 ml) po bid	One tablet (65.0 mg elemental iron) po bid
72	32.7		73.6 mg elemental iron (8.4 ml) po bid	One tablet (65.0 mg elemental iron) po bid
73	33.2		74.7 mg elemental iron (8.5 ml) po bid	One tablet (65.0 mg elemental iron) po bid
73 - 95	33.2 43.2		86.0 mg elemental iron (9.8 ml) po bid	One tablet (65.0 mg elemental iron) po bid
> 95	> 43.2		64.8 mg elemental iron (7.4 ml) po tid	One tablet (65.0 mg elemental iron) po tid

Writing a Prescription for Iron Replacement **Provider and Pharmacist Prescription Guidance**

When writing a prescription for ferrous sulfate, the dosage should be based strictly on the exact weight of the child. Use the following format when writing prescriptions for iron replacement. This format will help to standardize the instructions given to pharmacists and should help minimize dosing errors if the pharmacy needs to provide the medication in another formulation.

<i>For liquid iron preparations, write:</i>	<i>Example:</i>
Ferrous sulfate drops (15mg elemental iron/1.0 mL) Sig (insert dosing script from dosing chart) #QS 1 month, 3 refills	Ferrous sulfate drops (15 mg elemental iron/1.0 mL) Sig 10.2 mg elemental iron (0.7 mL) po bid #QS 1 month, 3 refills
Or	Or
Ferrous sulfate elixir (44mg elemental iron/5.0 mL) Sig (insert dosing script from dosing chart) #QS 1 month, 3 refills	Ferrous sulfate elixir (44 mg elemental iron/5.0 mL) Sig 66 mg elemental iron (7.5 mL) po bid #QS 1 month, 3 refills
<i>For iron tablets, write:</i>	<i>Example:</i>
Iron tablets (65 mg elemental iron/tablet) Sig (insert dosing script based from dosing chart) #QS 1 month, 3 refills	Iron tablets (65 mg elemental iron/tablet) Sig one tablet (65 mg elemental iron) po tid #QS 1 month, 3 refills

REFERENCES

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- Tennessee Laboratory Policy & Procedure Manual for Local Health Departments, revised 2000.
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INVASIVE *HAEMOPHILUS INFLUENZA TYPE B*, DISEASE CONTACT

Background

Before the introduction of effective vaccines, *Haemophilus influenzae* type b (Hib) was the leading cause of bacterial meningitis in the United States among children younger than 5 years old. Widespread use of Hib conjugate vaccine has virtually eliminated invasive Hib disease in the United States and other countries where vaccination is routine. Hib is spread by direct contact with a patient's oral secretions. Hib can be spread by people who have the bacteria in their noses or throats but who do not show symptoms. The incubation period is unknown.

SUBJECTIVE

Referred to Health Department with history of recent (within 1 week) contact to confirmed case of invasive *Haemophilus influenzae* type B disease and other resources for patient to purchase medication is not available

OBJECTIVE

Chemoprophylaxis with Rifampin Recommended

For all household contacts in the following circumstances:

- Household with at least 1 contact younger than 4 years of age who is unimmunized or incompletely immunized

- Household with a child younger than 12 months of age who has not completed the primary Hib vaccine series

- Household with a contact who is an immunocompromised child, regardless of that child's Hib immunization status

For preschool and childcare center contacts when 2 or more cases of Hib invasive disease have occurred within 60 days

For the index patient, if younger than 2 years of age, or a member of a household with a susceptible contact and treated with a regimen other than cefotaxime or ceftriaxone.

Consult with Regional Health Officer as needed for further identification/clarification of contacts needing chemoprophylaxis

Chemoprophylaxis Not Recommended

For occupants of households with no children younger than 4 years of age other than the index patient

For occupants of households where all household contacts 12 through 48 months of age have completed their Hib immunization series and when household contacts younger than 12 months of age have completed their primary series of Hib immunization

For preschool or childcare contacts of one index case

For pregnant women

Observe for symptoms of fever, malaise, nausea, vomiting, severe headache, increased sensitivity to light, altered mental status or confusion.

IF SYMPTOMATIC DO NOT PROVIDE PROPHYLAXIS, REFER IMMEDIATELY FOR DEFINITIVE DIAGNOSIS AND TREATMENT

ASSESSMENT

Provide chemoprophylaxis and immunization as indicated

PLAN

Rifampin is the drug of choice for chemoprophylaxis

Obtain order from physician to dispense Rifampin (for individual with no known allergy to Rifampin)

Obtain Rifampin from regional pharmacy; ask regional pharmacist to re-package tablets for adults and mix suspension for children; if necessary, Rifampin may be provided to a local pharmacist for re-packaging

Rifampin Dosage:

Adults: 600 mg/day (single dose) x 4 days, by mouth

Children (1 month-12 years): 20 mg/kg/day (single dose) x 4 days,
not to exceed 600 mg per dose, by mouth

Infants (less than 1 month): 10 mg/kg/day (single dose) x 4 days, by mouth

Instruct patient regarding medication side effects and contraindications

Immunization

Children in the household and younger than age 5 years who are incompletely immunized against Hib disease according to the Hib immunization schedule should be administered a dose of Hib-containing vaccine and, if necessary, educated to return for the next dose when due. A single dose of Hib vaccine completes the series for any child age 15 months through 59 months.

Health Teaching

Advise barrier method (foam and condoms) for oral contraceptives

Advise contact lens wearers that tears will be orange and stain contacts; urine may be orange

Notify Regional Health Officer, Communicable Disease Director and Nursing Supervisor

Referral Indicators:

Symptomatic for meningitis

Unable to tolerate, or allergy to, Rifampin

REFERENCES

CDC. Meningitis – Bacterial

www.cdc.gov/meningitis/bacterial

American Academy of Pediatrics. Haemophilus influenzae infections. In: Pickering, LK, Baker CJ, Kimberlin DW, Long SS, eds. *Red Book: 2012 Report of the Committee on Infectious Diseases*. Elk Grove Village, IL: American Academy of Pediatrics; 2012:345-352.

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Manual for Surveillance of Vaccine-Preventable Diseases, Centers for Disease Control and Prevention, 5th Edition, 2012

Yeh, S. Prevention of Haemophilus influenza infection. In: UpToDate, Torchia, M (Ed), Waltham, MA, 2013

MENINGOCOCCAL DISEASE (Case)

BACKGROUND

Meningococcal disease is an acute, severe illness caused by the bacterium *Neisseria meningitidis*. *Neisseria meningitidis* is rare, but is the leading cause of bacterial meningitis and is considered a medical emergency. About 1,000 cases occur in the U.S. each year. Meningococcal disease is spread person to person through exchange of respiratory and throat secretions such as coughing, kissing or sharing eating utensils. Household contacts living with a case in the week before illness onset are at the greatest risk of illness. The incubation period of meningococcal disease is 3–4 days, with a range of 2–10 days.

SUBJECTIVE

Meningococcal disease is a reportable condition under Tennessee Reportable Disease Regulations. Meningococcal disease may be reported to the health department by physician, physician's office or hospital
Meningococcal meningitis due to *Neisseria meningitidis* confirmed by laboratory results

OBJECTIVE

Symptoms include sudden onset of fever, headache, stiff neck often accompanied by nausea, vomiting, sensitivity to light and altered mental status. A non-blanching, red purpuric rash may be present on the skin.

PLAN

Determine if chemoprophylaxis is indicated for contacts. Consult Regional Medical Director and Regional Communicable Disease Director

Educate patients that all exposed close contacts who develop febrile illness should **receive prompt medical evaluation.**

Notify nursing supervisor

Complete Case Report in the National Electronic Disease Surveillance system (NEDSS).

REFERENCES

Immunization Action Coalition, Meningococcal: Questions and Answers Information about the disease and vaccines, March 2012

<http://www.immunize.org/catg.d/p4210.pdf>

CDC. Meningococcal Disease

www.cdc.gov/meningococcal/about/symptoms.html

Kaplan SL, & Pentima CD. Meningitis in Children Beyond the Basics, In: UpToDate, Torchia, MM (Ed), Waltham, MA, 2013

MENINGOCOCCAL, INVASIVE DISEASE, Contact

BACKGROUND

Invasive infections with *Neisseria meningitidis* may present as meningococemia (an infection of the bloodstream), meningococcal meningitis (inflammation of the protective membranes that cover the brain and spinal cord), or both. Invasive meningococcal disease is rare (about 1,000 cases occur in the United States each year) and serious. About 10% of cases die. Among survivors, 11-20% suffer neurologic damage or loss of limbs. Invasive meningococcal disease is spread person to person through exchange of respiratory and throat secretions such as coughing, kissing or sharing eating utensils. The incubation period of meningococcal disease is 1-10 days, usually less than 4 days. Meningococcal vaccines cannot prevent all cases of meningococcal disease and is not a factor in decisions concerning chemoprophylaxis of contacts.

SUBJECTIVE

Referred to Health Department with history of exposure to confirmed case of invasive meningococcal disease within 7 days of onset of disease in the index case and less than 2 weeks after exposure and other resources not available for patient to purchase medication.

OBJECTIVE

Chemoprophylaxis recommended (high risk)

Chemoprophylaxis is indicated for the following close contacts, ideally within 24 hours of diagnosis of *Neisseria meningitidis* invasive disease in the index case, but *not* more than 2 weeks after exposure.

- Household members, roommates, intimate contacts in the 7 days prior to disease onset
- Child care or preschool contacts any time during 7 days before onset of illness
- Direct exposure to index patient's oral secretions through kissing or through sharing toothbrushes, cigarettes, drinks or eating utensils, markers of close social contact, at any time during 7 days before onset of illness.
- Mouth-to-mouth resuscitation, *unprotected* endotracheal intubation or endotracheal tube management during 7 days before onset of illness
- People who frequently slept in the same dwelling as index patient during 7 days before onset of illness
- Passengers seated directly next to the index patient during airline flights lasting more than 8 hours

Consult with Regional Health Officer as needed for further identification/clarification of contacts needing chemoprophylaxis

Observe for symptoms of fever, malaise, nausea, vomiting, severe headache, increase sensitivity to light, altered mental status or confusion

IF SYMPTOMATIC, DO NOT PROVIDE PROPHYLAXIS, REFER IMMEDIATELY FOR DEFINITIVE DIAGNOSIS AND TREATMENT

ASSESSMENT

Provide chemoprophylaxis as indicated

PLAN

Obtain order from health care provider to dispense Rifampin (no known allergy to Rifampin)

Obtain Rifampin from regional pharmacy; ask regional pharmacist to repackage tablets for adults and mix suspension for children

Rifampin: **Adults:** 600 mg every 12 hours x 2 days
 Children: (1 month-12 years) 10 mg/kg/dose every 12 hours x 2 days not to exceed 600 mg/dose
 Infants: (less than 1 month) 5 mg/kg/dose every 12 hours x 2 days

Ciprofloxacin: 500 mg STAT dose may be dispensed or prescribed as an alternate treatment for persons **over age 18** years

Health Teaching

Counsel patient that chemoprophylaxis is not 100% protective, review the signs and symptoms of meningococcal disease (sudden onset of fever, chills, malaise, muscle pain or a rash), advise to seek immediate medical attention should these signs develop.

Instruct patient regarding side effects and contraindications of chemoprophylaxis

Advise barrier method (foam, film or condoms) for oral contraceptive clients

Advise that tears will be orange and stain contacts lenses; urine may be orange

Notify regional health officer, communicable disease director and nursing supervisor

Should check to see that index case received Rifampin post treatment to eradicate upper respiratory tract colonization of organism

Referral Indicators:

Symptomatic for meningitis

Unable to tolerate Rifampin

REFERENCES

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SARCOPTES SCABIEI (Scabies)

BACKGROUND

Scabies is found worldwide and affects people of all races and social classes. Scabies is an infestation of the skin by the human itch mite (*Sarcoptes scabiei* var. *hominis*). The microscopic scabies mite burrows into the upper layer of the skin where it lives and lays its eggs. The most common symptoms of scabies are intense itching and a pimple-like skin rash. The scabies mite usually is spread by direct, prolonged, skin-to-skin contact with a person who has scabies.

The incubation period in a person who has never had scabies before is 4-6 weeks while in a person who has had scabies before, symptoms usually appear much sooner (1-4) days after exposure. It is important to remember that an infested person can spread scabies during this time, even if he/she does not have symptoms yet.

Institutions such as nursing homes, extended-care facilities, and prisons are often sites of scabies outbreaks. Child care facilities also are a common site of scabies infestations.

SUBJECTIVE

Intense itching (pruritus) of affected area, especially at night

A pimple-like (papular) itchy rash that can include tiny blisters (vesicles) and scales.

The itching and rash each may affect much of the body or be limited to common sites such as:

- Fingers and webbing between the fingers
- Skin folds around the wrists, elbows, and knees
- Armpits
- Area surrounding the nipples (particularly in women)
- Waist
- Male genitalia (penis and scrotum)
- Lower buttocks and upper thighs
- Sides and bottoms of the feet

OBJECTIVE

Small vesicle may be visible at point of entrance of the mite

Tiny burrows sometimes are seen on the skin; these are caused by the female scabies mite tunneling just beneath the surface of the skin. These burrows appear as tiny raised and crooked (serpiginous) grayish-white or skin-colored lines on the skin surface.

They are found most often in the webbing between the fingers, in the skin folds on the wrist, elbow, or knee, and on the penis, breast, or shoulder blades.

The head, face, neck, palms, and soles often are involved in infants and very young children, but usually not adults and older children.

ASSESSMENT

Sarcoptes Scabiei (scabies) – suspected

PLAN

Treatment of choice is Permethrin Cream 5%

Treatment is recommended for household members and sexual contacts, particularly those who have had prolonged direct skin-to-skin contact with the infested person within the preceding month. All members of the household should be treated at the same time to prevent reinfestation

Instruct children and adults

Read the package instructions carefully before use

Thoroughly wash and dry skin

Massage permethrin (Elimite 5% cream) into the skin from the head to the soles of the feet paying special attention to creases in the skin, hands, feet, between fingers and toes, underarms, and groin. Scabies rarely infests the scalp of adults

The hairline, neck, side of the head, and forehead may be infested in older people and in infants

Infants should be treated on the scalp, side of the head, and forehead. Do not use around eyes, including eyelashes or eyebrows

Leave the permethrin cream on the skin for 8 to 14 hours.

Wash off by taking a shower or bath.

Put on clean clothes.

Itching may continue for up to 4 weeks after treatment

Contraindications include:

Known hypersensitivity to Pyrethroid or pyrethrin or chrysanthemums

Precautions (requiring physician consultation or referral) include:

Infants under 2 months of age

Pregnant or nursing women

Adverse reactions include:

Mild and transient burning and stinging

Pruritus

Infrequent erythema, numbness, tingling and rash

Health Teaching:

Treatment may temporarily exacerbate pruritis, edema, and erythema

One application is usually curative but that itching may persist for several weeks post-treatment

An OTC oral antihistamine medication, diphenhydramine (Benadryl), may be judiciously used to interrupt the itch/scratch cycle, or for sedation; warn regarding drowsiness effect of antihistamine therapy

May need to apply topical corticosteroid preparation if itching persists

Skin sores that become infected should be assessed by a physician for treatment

Children should be allowed to return to childcare or school after treatment has been completed

Teach mode of transmission- prolonged direct skin-to-skin contact. Animals do not spread human scabies. Although very uncommon, scabies can be spread by sharing a towel or item of clothing that has been used by a person with scabies

Teach prevention of spread – environmental controls and personal hygiene
Scabies mites do not survive more than 2-3 days away from human skin. Bedding, clothing and towel used by a person with scabies can be decontaminate by machine washing in hot water and drying using the hot cycle. Items that can not be washed can be decontaminated by removing from any body contact for 72 hours.

Environmental treatment is unnecessary

Referral Indicators:

Infants under 2 months of age
Pregnant or nursing women

Follow-Up

Patient/parent will be asked to contact health provider if recurrence of symptoms after 2 weeks

REFERENCES

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HERPES SIMPLEX (GENITAL HERPES)

BACKGROUND

Genital Herpes is a common sexually transmitted disease caused by the herpes simplex virus, usually type 2 (HSV-2). While HSV-2 causes mainly genital infections, HSV-1 is associated primarily with oral infection, however either type can infect any site. It is a life-long viral infection that can be transmitted through anal, vaginal, or oral sex.

The majority of genital herpes infections are transmitted by persons unaware that they have the infection or who are asymptomatic when transmission occurs. The average incubation period after exposure is 4 days with a range of 2 to 12 days.

Transmission from an infected male to his female partner is more likely than from an infected female to her male partner.

SUBJECTIVE

Primary infection:

Symptoms occur from 3 to 7 days after contact

Uniform shaped blisters that become painful ulcers. New lesions may develop for up to 5 – 7 days after the first group appears. Symptoms tend to resolve within 2-3 weeks.

Local pain, itching, and burning may be present at the affected site.

Dysuria (may lead to urinary retention)

May experience flu like symptoms including headache, low grade fever, muscle aches and swollen inguinal lymph nodes

Recurrent infection:

Common, particularly during the first year of infection.

May be brought on by alteration in the immune system, fatigue, stress, and local skin trauma.

Symptoms are typically shorter in duration and less severe than the first outbreak

OBJECTIVE

Multiple vesicular or ulcerative lesions that are uniform in size

Lesions may appear anywhere on genitalia, mouth, throat or anus

Tender enlarged nodes may be palpated in groin

Patient may have an elevated temperature and flu-like symptoms

ASSESSMENT

Possible genital herpes

PLAN

If available, culture for herpes

Refer to physician or clinician for prescription or order for acyclovir

Counsel regarding medication:

FIRST CLINICAL EPISODE of genital herpes, recommended regimen:

Acyclovir 400 mg orally three times a day for 7-10 days
OR
Acyclovir 200 mg orally five times a day for 7-10 days

EPISODIC RECURRENT INFECTION of genital herpes, recommended regimen:

Acyclovir 400 mg orally three times a day for 5 days
OR
Acyclovir 800 mg orally twice a day for 5 days
OR
Acyclovir 800 mg orally three times a day for 2 days

Suppressive therapy is a low dose antiviral treatment that is taken every day to prevent future outbreaks and to prevent spread to sex partner(s). Patients may discuss with the APN or MD to determine if suppressive therapy is an appropriate treatment option for their situation.

Provide STD counseling, screen for gonorrhea and chlamydia, offer testing for HIV and syphilis as indicated

Palliative measures:

Tepid water sitz bath 2-4 times daily while lesions are present (do not allow anyone else to use same towel). Urinating while sitting in a tub of tepid water may relieve the burning associated with voiding.

Keep genital area clean and dry. A hair dryer on cool setting may be used

May take Ibuprofen or Acetaminophen q 4 hrs/PRN for pain
Over the counter creams and ointments are generally not recommended

Increase consumption of water to keep urine dilute

Avoid tight or irritating underwear and clothing

Health Teaching:

Counsel patients regarding the natural history of the disease, with emphasis on the potential for recurrent episodes, asymptomatic viral shedding, and the risk for sexual transmission

Recurrent outbreaks are common but tend to become less frequent and severe after the first year. Recurrences may be triggered by emotional stress, illness, sunlight and fatigue. Many patients experience mild symptoms called prodromal symptoms before ulcers develop. These may

include itching, tingling or pain. Effective episodic treatment requires initiation of therapy within 1 day of lesion onset or during the prodromal period that precedes some outbreaks.

Encourage patient to inform their current sex partners that they have genital herpes and to inform future partners before initiating a sexual relationship

Advise to abstain from sexual activity when lesions or prodromal symptoms are present

Oral sex should be avoided if there are ulcers or blister around the mouth because a person with the oral form can give a partner genital herpes by performing oral sex.

Condoms used consistently and correctly may reduce the risk of herpes transmission

Do not touch the lesions or fluid from the lesions in order to avoid transfer of virus to other parts of the body, e.g., the eyes

Instruct patient in immediate and thorough hand washing after any genital contact or use disposable gloves

Assess and/or encourage Hepatitis B vaccination

Pregnant women should inform their doctor if they have ever experienced any symptoms of, been exposed to, or been diagnosed with genital herpes. HSV is of particular concern in pregnant women because the infection can be passed from mother to child during delivery resulting in a potentially fatal infection in the neonate.

REFERENCES

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TRICHOMONIASIS, Case or Contact

BACKGROUND

Trichomoniasis is considered the most common curable sexually transmitted disease. Infection is more common in women than in men. According to the CDC, about 70% of patients with trichomoniasis have no symptoms of the infection. This is true for most men and some women. The incubation period averages 1 week but ranges from 4-28 days.

SUBJECTIVE

In **women**, symptoms may include:

- Thin discharge with an unusual odor, may be clear, white, yellowish or greenish
- Itching, burning, redness or soreness of the genitals
- Discomfort with urination
- Painful sexual intercourse

In **men**, symptoms may include:

- Itching or irritation inside the penis
- Discharge from the penis
- Burning or pain during urination
- Burning after ejaculation
- Majority are asymptomatic

Referred by nurse practitioner, health department physician, or private physician
Contact to patient with positive wet mount or Pap smear indicating trichomoniasis
Self declaration of contact to trichomoniasis
Not pregnant

OBJECTIVE

Reported trichomoniasis on Pap smear not subsequently treated
Mobile trichomonads seen on normal saline slide preparation
LMP and pregnancy test, as indicated

ASSESSMENT

Trichomoniasis diagnosed on Pap smear or wet mount
Known or self reported contact to trichomoniasis case
Normal saline slide positive for mobile trichomonads

PLAN

All sexual partners should be treated at the same time. Instruct patient to abstain from sex until they and their sex partners have completed therapy and no longer have any symptoms
Determine any recent treatment with metronidazole

Treatment:**Non-Allergic, Non-Pregnant**

Metronidazole (Flagyl) 2 Gm bolus dose in clinic or after next meal
(may cause nausea if taken without food)

OR

Metronidazole (Flagyl) 500 mg twice a day for 7 days

Pregnant

Consult with Health Department physician, APN or patient's OB/GYN provider.
Metronidazole is not contraindicated in pregnancy.

Allergic

Refer to physician or APN

If treatment failure occurs, patient should be re-treated with Metronidazole 500 mg twice a day for 7 days

For repeated treatment failure, the patient should be treated with a single 2 Gram dose of Metronidazole once a day for 3-5 days

Health Teaching:

Offer condoms and encourage use during all sexual activity

Counsel on other STDs; test as indicated

Stress importance of completing medication as ordered

Avoid consumption of alcoholic beverages (includes all products that contain alcohol such as cough syrups) during treatment with metronidazole and for 24 hours after completion on medication after treatment

Advise that Metronidazole can cause gastro-intestinal upset; also causes urine to darken

Comfort and personal hygiene measures include: cotton underwear, loose clothing, avoidance of underpants while sleeping, avoid feminine hygiene sprays and deodorants, sitz bath for several symptoms

Stress trichomoniasis has been associated with adverse pregnancy outcomes, particularly premature rupture of membranes pre-term delivery, and low birth weight babies. Therefore, it is **very important that all pregnant females inform their OB/GYN** of any exposure, diagnosis or treatment of trichomoniasis during pregnancy.

Referral Indicators:

Known allergy to any component of drug
More than 2 infections within 6 months
Pap smear abnormalities
Sexual abuse indicators

REFERENCES

CDC. Sexually Transmitted Disease Treatment Guidelines, 2010: Diseases Characterize by Vaginal Discharge, <http://www.cdc.gov/std/treatment/2010/vaginal-discharge.htm>

CDC. Trichomoniasis – CDC Fact Sheet. National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention, Division of STD Prevention.
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LIST OF STANDARD ABBREVIATIONS

Revised November 2012

NOTE:

Region specific abbreviations may be used as long as they are approved by the region and are attached to the following list of approved standard abbreviations.

The use of abbreviations in standard program and laboratory manuals and Patient Tracking and Billing Management Information System (PTBMIS) are allowed.

The following Joint Commission on Accreditation of Healthcare Organization (JCAHO) prohibited abbreviations should not be used because potential for provider error:

qd /every day; qod / every other day; and U/ units

-A-

A&D	Alcohol & Drug
A & O	alert and oriented
Ab	abortion
Abd	abdominal, abdomen
Abn	abnormal
ac	before meals
ACHES	abdominal pain, chest pain, headaches, eye problems and severe leg pain
ADD	attention deficit disorder
ADHD	attention deficit hyperactive disorder
ad lib	as desired
ADL	activities of daily living
adm	admission, admit
AIDS	acquired immunodeficiency Syndrome
AKA	above knee amputation
ALT	anterio lateral thigh
Am	morning
AMA	against medical advice
amb	ambulatory
Amox	Amoxocillin
amp	amputation
amt	amount
ant	anterior
ant font	anterior fontanelle
appt	appointment
ARDS	Acute Respiratory Distress Syndrome

ASA	aspirin
ASAP	as soon as possible
ASHD	arteriosclerotic heart disease
AUB	abnormal uterine bleeding
auth #	authorization number
AV	anteverted

- B -

BC	birth control
BCA	bichloracetic acid
BCP	birth control pills
B/F	black female
BF	breastfeeding
BID	two times daily
Bil	bilateral
BKA	below knee amputation
BM	bowel movement
B/M	black male
BMI	body mass index
BMR	basal metabolic rate
B/P or BP	blood pressure
BOM	bilateral otitis media
BS or BG	blood sugar or glucose
BSE	breast self exam
BSO	bilateral salpingo oophorectomy
BTB	break through bleeding
BTL	bilateral tubal ligation
BUM	back up method
BV	bacterial vaginosis
BW	birth weight
BX	biopsy

- C -

C	centigrade/ Celsius
Ca	cancer
Ca+	calcium
CABG	coronary artery bypass with graft
CAD	coronary artery disease
Cal	calorie
cap	Capsule
Carb	carbohydrate
cath	catheterization
cc	cubic centimeter
CC	chief complaint
CCLG	Creative Curriculum Learning Games
CCU	Coronary Care Unit
CD	communicable disease
CEDEP	Communicable Environmental Disease & Emergency Preparedness
Cert	certify
CHA	Community Health Agency
CHF	congestive heart failure
Chol	cholesterol
CHR	child health record
CID	correction in documentation
Cigs	cigarettes
Circ	circumcision
ck	check
cm	centimeter
CMT	cervical motion tenderness
CMV	cytomegalovirus
CNS	central nervous system
c/o	complains of
Co	county
CO ₂	carbon dioxide
comp	comprehensive
colpo	colposcopy
cont	continue
COPD	chronic obstructive pulmonary disease
CPAP	continuous positive airway pressure
cryo	cryosurgery
C-section	cesarean section
CTA	clear to auscultation
CV	cardiovascular
CVA	cerebral vascular accident

CVAT	costo vertebral angle tenderness
Cx	cervix
CXR	chest x-ray

- D -

D	diarrhea
D & C	dilatation and curettage
dc, D/C	discontinue, discharge
DCS	Department of Children's Services
Del	delivery, delivered
delt	deltoid
dept	department
dev	development
DHS	Department of Human Services
diaph	diaphragm
diff	differential
Dir	Director
disc	discussed
disp	dispensed
DM	Diabetes Mellitus
DMPA, Depo	Depo-Medroxyprogesterone (Depo-Provera)
DOE	dyspnea on exertion
Doxy	Doxycycline
DTR	Deep tendon reflex
DTs	Delirium tremors
DVT	deep vein thrombosis
Dx	diagnosis
DZ	disease

- E -

ECC	endocervical curettage
ED	Emergency Department
edu/ed	education
EDC	estimated date of confinement
EDD	estimated date of delivery
EES, E-mycin	Erythromycin
EMS	Emergency Medical Services
enc	encourage
ENT	ear, nose, throat
Env	environment
ER	emergency room
eRx	e prescribe
esp	especially
etc	and so on
ETOH	alcohol

eval evaluate
 ex example
 ext external

- F -

F, Fa father
 FA Folic Acid
 FBD fibrocystic breast disease
 FBS, FBG fasting blood sugar or glucose
 fe female
 Fe iron
 FeSO₄ ferrous sulfate
 FM fetal movement
 font fontanel
 FH fundal height
 FHR fetal heart rate
 FHT fetal heart tone
 Fl fluoride
 freq frequent
 FSP Family Service Plan
 ft foot
 FTT failure to thrive
 f/u follow-up
 FUO fever of undetermined origin
 FVA Fluoride Varnish Application
 Fx fracture

- G -

GB gall bladder
 GC gonorrhea
 GERD gastro esophageal reflux disease
 GF grandfather
 GI gastrointestinal
 glu glucose
 Gm gram
 GM grandmother
 Gr grade
 gr grain
 GSE genital self-exam
 gtt drops
 G_P_A_ gravida __, para __, abortion_
 GYN gynecology

- H -

H₂O water
 H₂O₂ hydrogen peroxide

HOH hard of hearing
 HA headache
 HBV hepatitis B virus
 HC head circumference
 HCTZ hydrochlorothiazide
 HCV hepatitis C virus
 HCW health care worker
 HD health department
 HDV hepatitis D virus
 HEENT head, eyes, ears, nose, throat
 HH Home Health
 HMB heavy menstrual bleeding
 hosp hospital
 hr hour
 HR heart rate
 HRT hormone replacement therapy
 HS night, bedtime
 HSV herpes simplex virus
 ht height
 HTN hypertension
 Hx history
 hyst hysterectomy

- I -

IBW ideal body weight
 IBS irritable bowel syndrome
 ICU Intensive Care Unit
 I&D incision and drainage
 ID intradermal or identification
 IDDM insulin dependent diabetes mellitus
 i.e. such as
 IG immune globulin
 imm immunization
 in inches
 info information
 inj injection
 Ins insurance
 inst instruct, instructed, instructions
 IP intestinal parasite
 irreg irregular
 ISG immune serum globulin
 IUB Irregular uterine bleeding
 IUGR intrauterine growth retardation
 IUP intrauterine pregnancy
 IV intravenous

- J -

(none)

- K -

K+	potassium
Kcal	kilo calorie
KCL	potassium chloride
kg	kilogram
KUB	kidneys, ureters, bladder

- L -

L&D	labor and delivery
LAC	left antecubital
Lap	laparotomy
lat	lateral
lb	pound
LBW	low birth weight
LD	left deltoid
LE	lower extremity
LEEP	Laser Electrosurgical Excision Procedure
LEP	Limited English Proficiency
LFA	left forearm
lg	large
LG	left gluteus
LGA	large for gestational age
LGM	left gluteus maximus
liq	liquid
LLE	left lower extremity
LLL	Left Lower Lobe
LLQ	left lower quadrant
LMP	last menstrual period
LNMP	last normal menstrual period
LSB	left sternal border
LSC	last sexual contact
LT	left thigh
LUA	left upper arm
LUE	left upper extremity
LUQ	left upper quadrant
LHD	local health department

- M -

m	male
M, Mo	mother
Max	maximum

mcg	microgram
mcg/dl	micrograms per dilution
MCO	Managed Care Organization
MDI	Metered Dose Inhaler
med	medication
mg	milligram
MGF	maternal grandfather
MGR	murmur, gallop, rub
MGM	maternal grandmother
mgt/mgmt	management
MH	Mental Health
MI	myocardial infarction
min	minute
misc	miscellaneous
ml	milliliter
mm	millimeter
MNT	medical nutrition therapy
mo	month
mod	moderate
mono	mononucleosis
MRSA	methicillin resistant staph aureus
mtg	meeting
MVA	motor vehicle accident
MVI	multivitamin
MVP	mitral valve prolapse
MTZ	metronidazole

- N -

Na	sodium
N/A	not applicable
NaCl	sodium chloride
NAS	intranasal
N&V	nausea and vomiting
NAD	no apparent distress
NFP	natural family planning
NGU	nongonococcal urethritis
NICU	neonatal intensive care unit
NIDDM	non insulin dependent diabetes mellitus
NKA	no known allergies
NKDA	no known drug allergies
nl	normal
NN	nurses notes
NOS	not otherwise specified
NPO	nothing by mouth
NRF	no refills
NRT	nicotine replacement therapy

NSAIDS non-steroidal anti-inflammatory drugs
 Nsg nursing
 NSR normal sinus rhythm
 NSSC normal size, shape, and contour
 N/T non tender
 nutr, nutri nutrition

- O -

O₂ oxygen
 O & P ova and parasites
 OB obstetric
 oc oral contraceptive
 occ occasional
 OCP oral contraceptive pill
 OD overdose or right eye
 OM otitis media
 ortho orthopedic
 OS left eye
 OT Occupational Therapy
 OTC over the counter
 OU both eyes
 OV office visit
 oz ounce

- P -

P pulse
 palp palpable
 PAP Patient Assistant Program
 PC Primary Care
 phone conference/call
 pc after meals
 PCN penicillin
 PE physical examination
 ped pediatric
 peri perineum
 PERRLA pupils equal, round, reactive to light and accommodation
 PGF paternal grandfather
 PGM paternal grandmother
 PHBC "Partners for Healthy Babies" curriculum
 PID pelvic inflammatory disease
 pk pack
 pkg package
 pm afternoon

PMH past medical history
 PMI point of maximum impulse
 PMS premenstrual syndrome
 pneu pneumonia
 PNV prenatal vitamins
 POC plan of care
 po by mouth
 post posterior
 pp post partum
 PPBS, PPBG post prandial blood sugar or glucose
 ppd packs per day
 PPNG penicillinase producing neisseria gonorrhoea
 preg pregnant
 prep preparation
 Pres Elig presumptive eligibility
 PRN as needed
 Prog program
 PROM premature rupture of membranes
 PSVT paroxysmal supraventricular tachycardia
 PT physical therapy or pregnancy test
 Pt patient
 p/u pick up
 PUD peptic ulcer disease
 Pul pulmonary
 pvt private
 psych psychiatric

- Q -

q every
 q ___ h every ___ hours
 QID four times a day
 qt quart

- R -

R or RR respirations
 RA rheumatoid arthritis
 RAC right antecubital
 RD right deltoid
 RDS respiratory distress syndrome
 re regarding
 Re√ re-check
 Rec recommend

rec'd received
 rev'd reviewed
 recert recertify, recertification
 ref referral, refer
 reg regulation, regular
 rehab rehabilitation
 resp respiratory
 req request
 RF refill
 RFA right forearm
 RG right gluteus
 RGM right gluteus maximus
 Rh serological blood grouping factor
 RLE right lower extremity
 RLL Right Lower Lobe
 RLQ right lower quadrant
 r/o rule out
 ROI release of information
 ROM range of motion
 ROS Review of Systems
 R/R reactive reparative changes
 RRR regular rate rhythm
 R/S resupply
 RSB right sternal border
 r/t related to
 RT Right Thigh
 RTC return to clinic
 RUA right upper arm
 RUE right upper extremity
 RUQ right upper quadrant
 RV retroverted
 Rx prescribed, prescription, treatment
 RxAP prescription assistance program

- S -

SAB spontaneous abortion
 SBE self breast exam
 SCJ squamocolumnar junction
 SE side effects
 SGA small for gestational age
 SIDS Sudden Infant Death Syndrome
 sl slight
 sm small
 SOB shortness of breath
 SOM serous otitis media

s/p status post
 spec specimen
 sq squamous
 SQ/SC subcutaneous
 SS Social Security
 s/s signs and symptoms
 SSI Supplemental Security Income
 ST Speech Therapy
 STAT immediately
 SVD spontaneous vaginal delivery
 SVT supraventricular tachycardia

T -

T/ temp temperature
 T & A tonsillectomy and adenoidectomy
 tab tablet
 TAH total abdominal hysterectomy
 Tbsp tablespoon
 TC throat culture
 TCA trichloroacetic acid
 TIA transient ischemic attack
 TID three times a day
 TM tympanic membrane
 TNTC too numerous to count
 TOC test of cure
 TNCare TennCare
 tol tolerated
 tr trace
 trach tracheostomy
 trich trichomoniasis
 TSE testicular self exam
 tsp teaspoon
 TTQL Tennessee Tobacco Quit Line
 Tx treatment

- U -

umb umbilicus
 UNK unknown
 UOQ upper outer quadrant
 URI upper respiratory infection
 US ultrasound
 UTD up to date
 UTI urinary tract infection
 UTV unable to void

- V -

VA	Veterans Administration
vag	vaginal
VBAC	vaginal birth after caesarian section
VCF	vaginal contraceptive film
vit	vitamin
VO	verbal orders
Vo	vouchers only
VOC	verification of certification
Voc. Rehab	Vocational Rehabilitation
Vol	volume
VP	venipuncture
VS	vital signs
vtx	vertex
VU	verbalized understanding

VACCINE MANUFACTURERS

CHI	Chiron
CSL	Commonwealth Serum Laboratories
GSK	GlaxoSmithKline
MBL	Massachusetts Biologic Labs
MI	MedImmune
MSD	Merck
NOV	Novartis
SP	sanofi pasteur
WL	Wyeth/ Lederle

- W -

W/F	white female
W/M	white male
w/c	wheel chair
wk	week
WNL	within normal limits
w/o	without
wt	weight

- X -

(none)

- Y -

y/o	year old
yd	yard
yr	year

- Z -

(none)

CREDENTIALS/PERSONNEL

APN	Advanced Practice Nurse	MSN	Master of Science in Nursing
BA	Bachelor of Arts	MSW	Masters in Social Work
BFPC/BFC	Breast Feeding Pear Counselor	NA	Nursing Assistant
BS	Bachelor of Science	NE	Nutrition Educator
BSN	Bachelor of Science in Nursing	NUTR	Nutritionist
BSW	Bachelor of Social Work	OT	Occupational Therapist
CA	Counseling Assistant	PA	Physician Assistant
CC	Care Coordinator	PCP	Primary Care Physician/Provider
CDA	Child Development Aide	PHN	Public Health Nurse
CNA	Certified Nursing Assistant	PHOA	Public Health Office Assistant
CNM	Certified Nurse Midwife	PHR	Public Health Representative
DA	Dental Assistant	PHOS	Public Health Office Supervisor
DDS	Dentist	PMD	Private Medical Doctor
DH	Dental Hygienist	PMP	Private Medical Provider
DIS	Disease Intervention Specialist	PTA	Physical Therapy Assistant
DO	Doctor of Osteopath	RD	Registered Dietitian
Dr.	Doctor	RN	Registered Nurse
EMT	Emergency Medical Technician		
HE	Health Educator	RN,C or	Registered Nurse, Certified
IBCLC	International Board Certified Lactation Consultant	RN-BC	
LC	Lactation Consultant	RN-ES	Registered Nurse with Expanded Skills
LCSW	Licensed Clinical Social Worker	RPh	Registered Pharmacist
LDN	Licensed Dietitian/Nutritionist	RPT	Registered Physical Therapist
LPN	Licensed Practical Nurse	SC	Social Counselor
LMSW	Licensed Medical Social Worker	ST	Speech Therapist
MD	Medical Doctor	SW	Social Worker
MHA	Masters in Health Administration		
MPA	Masters in Public Administration		
MPH	Masters in Public Health		
MS	Master of Science		
MSSW	Master of Science in Social Work		

SYMBOLS

\bar{p}	after	\downarrow	low, decreased, below
\bar{a}	before	$\♂$	male
&	and	\textcircled{M}	murmur
@	at	\emptyset or O	no or normal
~	approximate	#	number
b $\sqrt{\quad}$	breast check	\ominus	negative
$\sqrt{\quad}$	check, checked	/	per
Δ	change	%	percent
$^\circ$	degree	1 $^\circ$	primary
=	equal	+ or $\textcircled{+}$	positive
q	every	?	question
\textcircled{f}	female	\textcircled{R}	right
'	foot	2 $^\circ$	secondary
>	greater than	\bar{c}	with
\geq	greater than or equal to	\bar{s}	without
\uparrow	high, elevated, above, increase	X	times
"	inches	\therefore	therefore
\textcircled{L}	left		
<	less than		
\leq	less than or equal to		