
FEVER
IN
CHILDREN

FEVER IN CHILDREN

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NOTICE: This booklet is for information only and should never take the place of your physician's advice. The information in this booklet is only information that you can use to help you in your discussions with your physician. This information is general in scope and medical guidelines are always changing based on new information and research. Therefore, this information cannot be used to apply to any one specific person. **NEVER** attempt to treat yourself or others based on this information. Although focused on children, adults should also benefit from much of this information. This information applies to fever in general and may not apply to specific individuals with fever. Always consult your doctor for your child’s illness.

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INTRODUCTION

PARENTS SHOULD HAVE A **THERMOMETER**, **ACETAMINOPHEN**, AND **IBUPROFEN** IN THE HOME FOR THE CARE OF THEIR CHILDREN WITH FEVER.

Fever! It happens every day. Fever is the most common complaint of children seen in the emergency department. Parents discover their child has a fever. The doctor's office is closed. They are worried and wonder what should be done next. They've heard the stories of seizures, meningitis, brain injury, and death. Then it's off to the emergency department to see a doctor that they have never seen before and who is not familiar with the child. Once the child is in the emergency room, the doctor must consider multiple options. Is the fever due to a mild or serious illness? From where is the fever coming? Are tests needed? Are antibiotics needed? Should the child be managed at home or in the hospital? What should the management plan include? While this book cannot take the place of your doctor, it can reduce your fears and help you to understand fever and the initial treatment. Armed with these facts, the next time your child has a fever, you may not need to rush off to the emergency department and you will have a better idea of when to call or visit your doctor. Understanding the significance of fever will help in the treatment of fever. There is an enormous amount of misunderstanding and confusion regarding the meaning and treatment of fever. Fever is among the major reasons that children are brought to the physician. Approximately 10% of visits to the physician's office are children up to 36 months of age with fever. In the emergency department, half of all children seen are 3 to 36 months of age, and 25% of these visits are for fever. Usually, fever is present in a minor illness and is not dangerous nor is it an emergency. The most common cause of fever in children is a viral upper respiratory infection for which antibiotics are not required. However, fever can indicate a serious problem that requires emergency attention. High fever has a high correlation with serious illness. However, the lack of fever does not rule out the presence of bacteria or other serious disease.

TEMPERATURE AND FEVER

A normal temperature is approximately 98.6 F when taken orally and 99.6 F when taken rectally. A fever is an oral temperature above 99.4 F or a rectal temperature above 100.4 F. Temperature in children is normally higher than in adults. Infants not only produce more heat per body weight than adults, but their temperature may also be increased due to crying, agitation, activity, or by the amount of and type of clothing they are wearing. Adult women's temperature also varies cyclically and therefore does not have a defined dependable normal range. The normal temperature definitions are used when assessing women, but women's cyclically variations should also be considered. As seen below, the normal temperature can vary by as much as 3 degrees F. Rectal temperatures are usually 1 degree F (0.6 C) higher than oral temperatures. Rectal and tympanic temperatures can be considered equivalent, but a rectal temperature is the current standard. Tympanic membrane scan thermometers have variable reliability and can be dependent on the technique of the operator. I believe that axillary temperature measurements are unreliable in the evaluation and treatment of children with fever and I do not recommend axillary temperatures. The newer temporal artery scan digital thermometer has several studies of accuracy. Temporal artery scan temperature is close to rectal temperature, but almost 1 degree Fahrenheit (or 0.5 degrees Celsius) higher than an oral temperature, and 2 degrees Fahrenheit (1 degree Celsius) higher than an underarm temperature.

Heat Loss From The Body

1- **Radiation (60%)** – Heat loss from the body to the surrounding air.
Removing bundling (sheets, blankets, coats, etc) from the child will increase heat loss by radiation.
2- **Evaporation (25%)** – Heat loss from the body through liquid (water, sweat, etc) on the body surface.
Hydrating the child with fluids and sponging the child will help heat loss by evaporation.
3- **Convection (10%)** – Heat loss from the body to air blowing over the skin.
4- **Conduction (5%)** – Heat loss from the body to a solid surface against the body's surface.
Hospital cooling blanket are use for increasing heat loss by conduction.

Fever is an abnormal increase in body temperature over 100.4 F (38 C) rectally or 99.9 F (37.7 C) orally. An active normal child can have a temperature up to 100.4 F rectally. Temperature normally rises and falls during the day. It is usually at its lowest point between 4am and 6am and at it highest point between 4pm and 6pm. It is normal for children to have a higher temperature at night than in the morning. This fact may partially explain the larger percentage of children with fever seen in emergency departments nightly around 6pm. The temperature may be elevated from exercise or wearing heavy clothing. An oral temperature can by elevated by the recent intake of warm foods or drinks. Teething does not cause a significant elevation in temperature. The temperature must be measured with a thermometer! An accurate temperature cannot be obtained by "touch". Feeling the skin, forehead, or looking at the child's color is not sufficient for measuring a child's temperature. Always check the temperature with a thermometer. A rectal temperature in small children is more accurate than an oral or axillary (under the arm) temperature. Check the temperature at least every two to four hours. If the temperature is from 100 F to 101 F (orally or rectally), recheck the temperature in one hour. If you do not know how to use a thermometer, don't be embarrassed to ask a nurse, doctor, or someone to teach you.
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HOW A FEVER IS PRODUCED

Fever production begins when macrophages (immune system cells in the body) are activated by an infection or inflammation. These macrophages attack infections or inflammation and release pyrogens (interleukin-1, tumor necrosis factor, and interferon) into the bloodstream. This release causes the temperature regulatory area in the brain (the anterior hypothalamus) to allow the temperature to rise. This temperature regulatory area in infants and young children may not be well developed and can therefore result in wide variations in the temperature. See chart in supplemental information document on DocuVisit.com.

THE CAUSES OF FEVER IN CHILDREN

Viral Infections are the most common reason for fever in children. Some are roseola, rubeola, enteroviral infections, influenza, and respiratory syncytial virus. The most common rapid viral tests used in the emergency department are for influenza and respiratory syncytial virus (RSV). Fever after vaccinations can occur with an increased risk on the day of DTP vaccination (diphtheria/tetanus/pertussis) and increased risk 7 to 14 days after MMR vaccination (measles/mumps/rubella).

This following list of causes of fever in children is by no means complete. Some causes are:
Appendicitis
Bacteremia (blood infections)
Bronchiolitis (RSV)
Cellulitis (skin infections)
Croup (paramyxovirus)
Epiglottitis
gastroenteritis (stomach and intestinal infections)
Hand-foot-and-mouth disease (coxsackievirus)
Herpes stomatitis
Immunizations
Influenza
Intussusceptions
Juvenile rheumatoid arthritis
Kawasaki syndrome (unknown cause. Bacteria? Virus? Environmental?).
Meningitis.
Osteomyelitis (bone infections)
Otitis media (ear infections)
Pharyngitis (including herpangina, group A β-hemolytic streptococcus pharyngitis, and adenovirus pharyngoconjunctival fever)
Pneumonia
Pyelonephritis
Retropharyngeal abscess
Rheumatic fever
Roseola
Scarlet fever
Septic arthritis (joint infections)
Sinusitis
Upper respiratory infection
Urinary tract infection

Finding the cause of the fever in the child begins with the history.
Parents should be aware of any of the following history:
Length and duration of the illness.
Height of the fever.
Dosage and frequency of antipyretics.
Past medical problems.
Drug allergies.
Immunization status.
Possible exposure to a communicable disease.
Is the child acting normally at home in terms of feeding, playing, and speech?
Normal urine output and bowel movements?
Has the child has been exposed to other children with communicable diseases such as chicken pox, measles, viral croup, bacterial pneumonia, or meningitis?
Birth history of the child.
Travel history.

Otitis media, when present, should not be assumed to be the cause of the fever in the child and other sources of infection should be investigated.

The basic septic workup consists of laboratory tests to evaluate the child with fever. All of the tests are not always required and other test may be indicated.
--- Complete blood count with manual differential.
--- Blood culture.
--- Lumbar puncture with CSF analysis for cell counts, protein, glucose, and culture.
--- Chest x ray.
--- Urinalysis.
--- Urine culture.
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HOME CARE OF THE CHILD WITH FEVER

The goal of treating the fever is to reduce the temperature, reduce the risk of a febrile seizure, and to make the child more comfortable. The objective of the doctor in evaluating the child is to find the type of infection or inflammation that is responsible for the fever. Remember, treating the fever does not treat the illness. Treatment with acetaminophen or ibuprofen, fluids, sponging, etc often will lower the temperature, but often will not bring the temperature back to normal until the illness is gone.

Fluids

Oral cool fluids are very important for children with fever. Fluids help heat loss by evaporation. 25 per cent of heat loss in children occurs by evaporation, so encourage the child to drink useful fluids such as juice, broth, Popsicle, water, sherbet, Jell-O, Pedialyte, Gatorade, or carbonated beverages (e.g. 7-UP). These fluids will help cool the child and replace water lost through the skin from fever. Solid foods are not essential over a few days time but it is important to keep the child well hydrated with fluids.

If the child hydration is adequate:

a) The child's tongue and the inside of the mouth should appear moist.
b) The child's eyes should not appear sunken.
c) The child should be urinating as frequently or more than normal (a minimum of three times every 24 hours.
d) The child should have tears when crying.
e) An infant should not have a depressed or sunken fontanel (the soft spot on top of the head.

Acetaminophen And/Or Ibuprofen

A decrease in the temperature after giving acetaminophen or ibuprofen does not indicate any change in the risk of the child developing bacteremia. Acetaminophen and/or ibuprofen will not cure a cold or the flu (influenza), but they will lower the temperature and make the child feel better. Acetaminophen and/or ibuprofen will lower temperature and make the child feel better after recent immunizations. Antibiotics are needed for bacterial infections such as Strep Throat. Acetaminophen and/or ibuprofen will not eliminate the infection.

If the child is less than 3 months of age, do not give acetaminophen or any other medication without your doctor's advice. If the child has a fever, acetaminophen is given every 3-4 hours and not to exceed 5 doses in 24 hours. Ibuprofen is given every 6-8 hours and not to exceed 4 doses in 24 hours. The amount of acetaminophen or ibuprofen the child will need changes as your child ages and grows. Always check the dosage chart with the medication to verify dose for age and weight. Acetaminophen and ibuprofen are effective in about 30 to 60 minutes. The standard dose of acetaminophen (10-15 mg/kg every 4 hours) when given as a suppository has variable absorption and usually does not obtain an effective blood level. This should be noted if you are using the suppositories and the fever is not responding. Do not increase the dose for suppository use without specific instructions from your physician (as a suppository dose of 40-45 mg/kg may be required). It is probably better to use the acetaminophen drops containing 80 mg/0.8ml and give an oral dose instead of a larger suppository dose. Keep the child calm to reduce vomiting and to keep the medication down for at least 30 minutes. See "How To Use Suppositories".

Acetaminophen or ibuprofen usually will need to be given more than one time because acetaminophen or ibuprofen will not prevent the temperature from rising again after a few hours. The fever should and will continue to return until the illness runs it course or until the illness is treated. Recheck the temperature at least every two to four hours. If the temperature is 103 F or more, recheck the temperature every 10 to 15 minutes until it is below 102 F. If the fever returns, give the appropriate dose of acetaminophen or ibuprofen again as directed. If the child is well hydrated and the temperature remains high with the appropriate dose of acetaminophen alone, you may alternate acetaminophen and ibuprofen using the regular doses interval for each medication (such as acetaminophen at 1pm, ibuprofen at 2pm, acetaminophen at 5pm, ibuprofen at 8pm, acetaminophen at 9pm). Alternatively, you can give both acetaminophen and ibuprofen at the same time, which reduces temperature for 6 hours instead of 4 hours. Continue rechecking the temperature until the child has several normal temperatures. Giving a larger than recommended dose of acetaminophen or ibuprofen does not improve the response and is harmful. Do not give aspirin to reduce the fever in children, especially if they have viral illnesses such as flu

USING A THERMOMETER

Taking a rectal temperature:

This may not be the best method in children with rectal irritation, diarrhea, or stool present in rectum. There are now digital thermometers for measuring rectal, oral, tympanic (ear), and forehead temperature. Digital thermometers will indicate the site of use. The following instructions are for the older mercury thermometers which are no longer recommended due to mercury being toxic and the risks of exposure if the thermometer is broken. Recommendations are that mercury thermometers should be removed from homes. However, for those that have these thermometers and no other means of taking the temperature, the following instructions are included.

1. Use only a rectal thermometer (it has the short stubby round tip).
2. Shake the thermometer down to below 97 F (36 C).
3. Lubricate the silver bulb end of the thermometer with Vaseline, petroleum jelly, or cold water.
4. Hold the child still down on the stomach. It is often helpful to hold the child's stomach down on you lap by applying mild pressure to the child's back.
5. Spread the buttock to see the anal opening.
6. Gently insert the silver bulb end of the thermometer 1/2 inch into the anal opening (rectum).
7. To prevent injury, hold the thermometer firmly between the fingers while also using the palm of the hand on the buttocks to prevent movement of the child and do not let go of the thermometer..
8. Leave the thermometer in place for 1 to 3 minutes.
9. Do not leave the child unattended.
10. Remove the thermometer.
11. Read the thermometer by turning the thermometer's slightly in each direction until you see the silver mercury column.
12. The temperature is the number at the end of the silver column. The lines between the major degree numbers on the thermometer are 0.2 F on the Fahrenheit thermometer and 0.1 C on the Celsius thermometer.
13. Write the temperature down.
14. When finished, shake the thermometer down below 97 F (36 C), wash the thermometer with soap and cool water, dip it in alcohol, gently wipe it off, and put it up in a safe place, make plans to remove it from the house and to purchase a digital thermometer in the future.

Taking an oral temperature:

This may not be the best method in children with oral lesions, mouth breathing, seizures, or children unable to cooperate. There are also digital thermometers for measuring oral, rectal, tympanic (ear), and forehead temperature. . Digital thermometers will indicate the site of use. The following instructions are for the older mercury thermometers which are no longer recommended due to mercury being toxic and the risks of exposure if the thermometer is broken. Recommendations are that mercury thermometers should be removed from homes. However, for those that have these thermometers and no other means of taking the temperature, the following instructions are included.

1. Use only an oral thermometer (it has the elongated tip).
2. Shake the thermometer down to below 97 F (36 C).
3. Have the child open the mouth.
4. Place the silver bulb end of the thermometer under the tongue.
5. Have the child close his lips around the thermometer.
6. Instruct the child not to bite the thermometer and not to talk with the thermometer in the mouth.
7. Leave the thermometer in place for 3 minutes.
8. Do not leave the child unattended.
9. Remove the thermometer.
10. Read the thermometer by turning the thermometer's slightly in each direction until you see the silver mercury column.
11. The temperature is the number at the end of the silver column. The lines between the major degree numbers on the thermometer are 0.2 F on the Fahrenheit thermometer and 0.1 C on the Celsius thermometer.
12. Write the temperature down.
13. When finished, shake the thermometer down below 97 F (36 C), wash the thermometer with soap and cool water, dip it in alcohol, gently wipe it off, and put it up in a safe place, make plans to remove it from the house

CRITERIA AND MANAGEMENT STRATEGIES OF PHYSICIANS

There are several studies considered by physicians in the management of children with fever. Some of those studies are referred to as The Rochester Criteria, The Philadelphia Criteria, and The Boston Criteria. They attempt to identify children with fever that have a high risk of a serious bacterial infection. Each of the criteria has its own definitions of the low risk and high risk children. While informative and helpful, these individual criteria are not universally accepted.

AGE OF CHILD

Philadelphia Criteria
29 to 60 days.

Rochester Criteria
Less than or equal to 60 days.

Boston Criteria
28 to 89 days.

LOW RISK PHYSICAL EXAM FINDINGS

Philadelphia Criteria
Child appears well. Physical exam unremarkable.

Rochester Criteria
Child appears well. No ear, soft tissue, or bone infections.

Boston Criteria
Child appears well. No ear, soft tissue, or bone infections.

LOW RISK LABORATORY VALUES
BOSTON CRITERIA

CSF less than 10 WBC/mm3.
Urinalysis has less than 10 WBC/hpf.
Chest x-ray (if done) has no infiltrates.
White Blood Count less than 20,000/mm3.

MANAGEMENT OF
LOW RISK PATIENTS

Philadelphia Criteria
Discharge home without antibiotics. Follow-up required.

Rochester Criteria
Discharge home without antibiotics. Follow-up required.

Boston Criteria
Discharge home with antibiotics. Follow-up required.

MANAGEMENT OF HIGH RISK PATIENTS

Philadelphia Criteria
Hospitalize and antibiotics.

Rochester Criteria
Hospitalize and antibiotics.

Boston Criteria
Hospitalize and antibiotics.
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RECOMMENDATIONS FOR PHYSICIAN MANAGEMENT

The physician's evaluation and management of fever in children is fairly simple with toxic or sick appearing children or children with an identified source or cause of the fever. The evaluation and management strategies listed in this book are focused on **children with fever without an identifiable source**. The following recommendations are not set in stone and are subject to the individual physician's professional decision. Of major importance is the actual observation of the examiner. The recommendations have obvious limitations. The age cutoffs are not absolute, but serve as reference guides. The subject of evaluation and treatment of children with fever is varied and still being refined with medical research and studies. Most of the guidelines have not been fully reevaluated and studied since the use of immunization with Haemophilus influenza type b (HIB) and Streptococcus pneumoniae vaccines. This advancement could greatly change the evaluation and management of children with fever resulting in less testing and antibiotic treatments. The goals of the guidelines are to reach a level where children with significant bacterial infections are not missed and are treated promptly without having a significant number of children receiving unnecessary testing and treatments.

ALL CHILDREN

--- All children with fever and a toxic appearance should have a complete sepsis evaluation (complete blood count with manual differential, blood culture, lumbar puncture with CSF analysis (for cell counts, protein, glucose, and culture), chest x ray, and urine culture) and should be admitted until culture results are obtained or the cause of the fever is found and treated.

--- A chest x-ray in a child, over the age of 2 months (60 days), is recommended only if abnormal findings exist upon examination. Some experts recommend a chest x-ray in a child less than the age of 2 months before sending home a “low risk” child of this age group.

--- A stool test for blood and fecal leukocytes should be performed on children with watery or bloody diarrhea. A stool culture is indicated if there is blood or greater than 5 WBC/hpf present in the stool.

--- Meningitis should be considered but not mandatory in a child with a febrile seizure. However, some experts recommend that all children age 12 months or less should have a lumbar puncture if they have a febrile seizure.

--- Children who receive prophylactic antibiotics at the time of their febrile illness seem to do better than those who do not. The antibiotic ceftriaxone 50 mg/kg intramuscularly seems to be better than amoxicillin. Do not use the antibiotic ceftriaxone during the child’s first 30 to 60 days of life if there is clinical jaundice. The antibiotic displaces bilirubin from its serum binding sites.

CHILDREN UNDER 29 DAYS OF AGE

--- It is recommended to hospitalize any child less than 28 days old with a fever while awaiting the results of tests.

--- Admission is the rule for all infants under 28 days of age even when an identifiable source of fever, such as otitis media, is discovered.

--- Children younger than 29 days old with fever should have a complete sepsis evaluation (complete blood count with manual differential, blood culture, lumbar puncture with CSF analysis (for cell counts, protein, glucose, and culture), chest x ray, urinalysis, and urine culture) and should be hospitalized for intravenous antibiotics until culture results are obtained or the cause of the fever is found and treated. Also consider the need for herpes simplex virus infection (HSV) screening.

--- Infants usually do not have stiff necks with meningitis.

ACETAMINOPHEN DOSAGE

Age: 12 – 14 years
Weight: Over 95 pounds (Over 44 kilograms)
Dose of acetaminophen: **640mg**

--Drops 80mg/0.8ml (dropper) = **8 dropper (6.4ml)**
--Elixir or suspension 160mg/5ml = **4 teaspoons (20ml)**
--Children's chewable tablets 80mg = **8 tablets**
--Junior strength tablets or caplets 160mg = **4 tablets**
--Regular strength tablets 325mg = **2 tablets**
--Suppositories 325mg = **2 suppositories**

Maximum Total Dosage Per Day 50-75mg/kg/day = **2400-3200mg**

Acetaminophen dosage
Ibuprofen dosage
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IBUPROFEN DOSAGE

Ibuprofen is given **every 6 to 8 hours** with a maximum of 4 doses in 24 hours. The dose is 2.27mg/pound (5mg/kg) every 6 to 8 hours if temperature is at or under 102.5 F. The dose is 4.54mg/pound (10mg/kg) every 6 to 8 hours if temperature is above 102.5 F. Maximum dose is 18mg/pound/day (40mg/kg/day). Keep all medications out of the reach of children. **NOTE: "teaspoon" is used as a reference in this book. It DOES NOT refer to a common kitchen teaspoon.** Always use a liquid measuring item when giving ibuprofen in the liquid, suspension, or elixir form. Sometimes, the measuring item is included with the medication. You can also purchase one at your pharmacy. **DO NOT** USE THE COMMON HOUSEHOLD TEASPOON TO MEASURE THE AMOUNT OF IBUPROFEN TO BE GIVEN.

6-11 months / 13-17 pounds
12-23 months / 18-23 pounds
2-3 years / 24-35 pounds
4-5 years / 36-47 pounds
6-8 years / 48-59 pounds
9-10 years / 60-71 pounds
11-12 years / 72-95 pounds
12-14 years / over 95 pounds

Ibuprofen dosage
Acetaminophen dosage
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IBUPROFEN DOSAGE

Age: 12 – 14 years
Weight: over 95 pounds (over 44 kilograms)

Dose of ibuprofen if temp is at or under than 102.5 F (5mg/kg) = **225mg**
--Suspension 100mg/5ml = **2 1/4 teaspoons (11.25ml)**
--Tablets 50mg = **4 1/2 tablets**
--Tablets 100mg = **2 1/4 tablets**

Dose of ibuprofen if temp is over 102.5 F (10mg/kg) = **450mg**
--Suspension 100mg/5ml = **4 1/2 teaspoons (22.5ml)**
--Tablets 50mg = **9 tablets**
--Tablets 100mg = **4 1/2 tablets**

Maximum Total Dosage Per Day 40mg/kg/day = **1760-1800mg**

Ibuprofen dosage
Acetaminophen dosage
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APPENDIX LIST

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Appendix B
HOW TO USE THE CHILD WITH FEVER CHART

This chart can be found in supplemental information on the internet. The child with fever chart is very useful for documenting the important symptoms and history of the child's illness. Keeping this record will be very helpful not only to the parent, but also to the physician when or if the child is seen by a physician. First, **Save the original chart**. Make a copy of the original chart and complete the copy when documenting on the child with fever.

Fill in the child's name, date of birth, allergies, SS# (social security number), and age.

Weigh the child and enter it in the proper space. Be sure to indicate if this weight is in (lb) pounds or (kg) kilograms.

Look up the acetaminophen and ibuprofen dose recommended for the child. Enter the dose in "mg" and not as "drops" or "suppositories" or "tablets". After finding and entering this dose, you should then determine the number of tablets or drops to be given based on the type of acetaminophen or ibuprofen that you are using. This could be written at the top of the page as a reminder to you. If possible, use weight to find the recommended dose. If you cannot weigh the child, the age on the chart can also be used to find the recommended dose.

The name of the child's insurance company, insurance policy number, and insurance phone number should also be listed in the appropriate spaces.

Fill in the names of any medications that the child is taking.

Is the child's immunizations current (up to date)? Check the yes or no box.

List the child's past illnesses or surgeries.

It is important to list the name, address, and phone number (including area code) of the child's parents, physician, and hospital.

Use a separate line for each time the child is evaluated or given acetaminophen or ibuprofen.

Enter the date and time, the amount of acetaminophen or ibuprofen given, the child's heart rate, and the child's breathing rate.

Check the inside of the child's mouth and enter "yes" if it is moist and "no" if it is dry.

If the child (over 6 weeks of age) is crying, enter "yes" if tears or present and "no" if there are not any tears.

If the child has chills or shivering, enter "yes". If the child does not have chills or shivering, enter "no".

The Observation column is used to enter notations that represent the child's symptoms. Enter "A" in the column if the child has *Abdomen Pain*. Enter "B" in the column if the child has *Achiness*. Enter "C" in the column if the child has a *Cough*. Enter "D" in the column if the child has *Diarrhea*. Enter "E" in the column if the child has *Ear Pain*. Enter "G" in the column if the child has *No Energy*. Enter "H" in the column if the child has a *Headache*. Enter *"I"* in the column if the child is *Irritable*. Enter "J" in the column if the child has a *Seizure*. Enter "K" in the column if the child has *No Appetite*. Enter "L" in the column if the child has a *Runny Nose*. Enter "N" in the column if the child has *Neck Pain*. Enter "R" in the column if the child has *No urine* output. Enter "S" in the column if the child has a *Skin Rash*. Enter "T" in the column if the child has a *Sore Throat*. Enter "V" in the column if the child is *Vomiting*. Enter "Y" in the column if the child is *Sleepy*. Enter "Z" in the column if the child has a *Problem Sleeping*.

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Appendix G
WEIGHT CONVERSIONS

Pounds (lbs) and Kilograms (kgs)

5 Pounds = 2.3 Kilograms
6 Pounds = 2.7 Kilograms
7 Pounds = 3.2 Kilograms
8 Pounds = 3.6 Kilograms
9 Pounds = 4.1 Kilograms
10 Pounds = 4.5 Kilograms
11 Pounds = 5.0 Kilograms
12 Pounds = 5.5 Kilograms
13 Pounds = 5.9 Kilograms
14 Pounds = 6.4 Kilograms
15 Pounds = 6.8 Kilograms
16 Pounds = 7.3 Kilograms
17 Pounds = 7.7 Kilograms
18 Pounds = 8.2 Kilograms
19 Pounds = 8.6 Kilograms
20 Pounds = 9.1 Kilograms
21 Pounds = 9.5 Kilograms
22 Pounds = 10.0 Kilograms
23 Pounds = 10.5 Kilograms
24 Pounds = 10.9 Kilograms
25 Pounds = 11.3 Kilograms
26 Pounds = 11.8 Kilograms
27 Pounds = 12.3 Kilograms
28 Pounds = 12.7 Kilograms
29 Pounds = 13.2 Kilograms
30 Pounds = 13.6 Kilograms
31 Pounds = 14.1 Kilograms
32 Pounds = 14.5 Kilograms
33 Pounds = 15.0 Kilograms
34 Pounds = 15.5 Kilograms
35 Pounds = 15.9 Kilograms
36 Pounds = 16.4 Kilograms
37 Pounds = 16.8 Kilograms
38 Pounds = 17.3 Kilograms
39 Pounds = 17.7 Kilograms
40 Pounds = 18.2 Kilograms
41 Pounds = 18.6 Kilograms
42 Pounds = 19.1 Kilograms
43 Pounds = 19.5 Kilograms
44 Pounds = 20.0 Kilograms
45 Pounds = 20.5 Kilograms
46 Pounds = 20.9 Kilograms
47 Pounds = 21.4 Kilograms
48 Pounds = 21.8 Kilograms
49 Pounds = 22.3 Kilograms
50 Pounds = 22.7 Kilograms
51 Pounds = 23.2 Kilograms
52 Pounds = 23.6 Kilograms
53 Pounds = 24.1 Kilograms

Appendix H
TEMPERATURE CONVERSIONS

Celsius is also known as **centigrade**

Fahrenheit To Celsius Conversion: C = (F-32) X 5/9
F to C: subtract 32 from the Fahrenheit temperature and multiply remainder by 5/9

Celsius To Fahrenheit Conversion: F = (C X 9/5) + 32
C to F: multiple the Celsius temperature by 9/5 then add 32

Celsius To Kelvin Conversion: K = C + 273.15
C to K: add 273.15 to the Celsius

Kelvin To Celsius Conversion: C = K – 273.15
K to C: subtract 273.15 from Kelvin

Fahrenheit (F) and Celsius (C)
95.0 F = 35.00 C
95.1 F = 35.06 C
95.2 F = 35.11 C
95.3 F = 35.17 C
95.4 F = 35.22 C
95.5 F = 35.28 C
95.6 F = 35.33 C
95.7 F = 35.39 C
95.8 F = 35.44 C
95.9 F = 35.50 C
96.0 F = 35.56 C
96.1 F = 35.61 C
96.2 F = 35.67 C
96.3 F = 35.72 C
96.4 F = 35.78 C
96.5 F = 35.83 C
96.6 F = 35.89 C
96.7 F = 35.94 C
96.8 F = 36.00 C
96.9 F = 36.06 C
97.0 F = 36.11 C
97.1 F = 36.17 C
97.2 F = 36.22 C
97.3 F = 36.28 C
97.4 F = 36.33 C
97.5 F = 36.39 C
97.6 F = 36.44 C
97.7 F = 36.50 C
97.8 F = 36.56 C
97.9 F = 36.61 C
98.0 F = 36.67 C
98.1 F = 36.72 C
98.2 F = 36.78 C
98.3 F = 36.83 C
98.4 F = 36.89 C

Appendix I
BRANDS OF ACETAMINOPHEN

Acephen Suppositories 120mg, 325mg, 650mg
Aceta Elixir 120mg/5ml
Aceta tablets 325mg, 500mg
Acetaminophen Capsules 500mg
Acetaminophen chewable tablets 80mg
Acetaminophen Drops solution 100mg/1ml
Acetaminophen Elixir 120mg/5ml, 160mg/5ml
Acetaminophen Liquid 160mg/5ml, 500mg/15ml
Acetaminophen Supp. 120, 300mg, 325mg, 650mg
Acetaminophen Tablets 325mg, 500mg, 650mg
Apacet chewable tablets 80mg
Apacet solution 100mg/1ml
Arthritis Foundation Aspirin Free Caplets 500mg
Aspirin Free Anacin Max. Strength Gelcaps 500mg
Aspirin Free Anacin Max. Strength Tablets 500mg
Aspirin Free Pain Relief Caplets 500mg
Aspirin Free Pain Relief Tablets 325mg, 500mg
Dapacin capsules 325mg
Dynafed E.X., Extra Strength tablets 500mg
Dynafed Jr, Children's chewable tablets 80mg
Fem-Etts tablets 325mg
Feverall Children's Capsules 80mg
Feverall Children's Sprinkle 80mg
Feverall Children's Suppositories 120mg
Feverall Infants Suppositories 80mg
Feverall Junior Strength Capsules 160mg
Feverall Junior Strength Sprinkle 160mg
Feverall Junior Strength Suppositories 325mg
Genapap Children's chewable tablets 80mg
Genapap Children's Elixir 160mg/5ml
Genapap Extra Strength Caplets 500mg
Genapap Extra Strength tablets 500mg
Genapap Infants' Drops 100mg/1ml
Genapap Tablets 325mg
Genebs Extra Strength Caplets 500mg
Genebs Extra Strength tablets 500mg
Genebs tablets 325mg
Halenol Children's Liquid 160mg/5ml
Liquiprin Drops For Children Solution 80mg/1.66ml
Mapap Children's Elixir 160mg/5ml
Mapap Extra Strength Tablets 500mg
Mapap Infant Drops 100mg/1ml
Mapap Regular Strength Tablets 325mg
Maranox tablets 325mg
Meda Cap Capsules 500mg
Meda Tab Tablets 325mg
Neopap Suppositories 125mg
Oraphen-PD Elixir 120mg/5ml
Panadol Caplets 500mg
Panadol Children's chewable tablets 80mg

Appendix J
BRANDS OF IBUPROFEN

Advil Caplets 200mg
Advil Liqui-Gels Capsules 200mg
Advil Children's Suspension 100mg/5ml
Advil Junior Strength Tablets 100mg
Advil Pediatric Drops 100mg/2.5ml
Advil Tablets 200mg
Arthritis Foundation Tablets 200mg
Bayer Select Pain Relief Formula Caplets 200mg
Dynafed IB Tablets 200mg
Genpril Caplets 200mg
Genpril Tablets 200mg
Haltran Tablets 200mg
Ibuprin Tablets 200mg
Ibuprofen Caplets 200mg
Ibuprofen Tablets 200mg
Menadol Tablets 200mg
Midol IB Tablets 200mg
Motrin Children's Suspension 100mg/5ml
Motrin Children's Tablet 50mg
Motrin Children's Tablets 100mg
Motrin IB Caplets 200mg
Motrin IB Gelcaps 200mg
Motrin IB Tablets 200mg
Motrin Oral Drops 50mg/1.25ml (dropperful)
Motrin Tablets 100mg
Nuprin Caplets 200mg
Nuprin Tablets 200mg
PediaCare Fever Drops 50mg/1.25ml (dropperful)
PediaCare Fever Liquid 100mg/5ml
Saleto-200 Tablets 200mg

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