Chapter 13

Calculations for Billing Compounds

You may have been thrilled
to help the folks who were ill,
but now you must bill
for the prescriptions you filled.
--Sean Parsons

Billing for compounded preparations can vary greatly from pharmacy to pharmacy, but the following formula is a common method for calculating the cost:

	Cost of ingredients
+	Dispensing fee
+	Cost of time
	Final Cost

Cost of ingredients – Just like the phrase implies, it is the cost of all the ingredients used to prepare a compound.

Dispensing fee – This represents the charge for the professional services provided by the pharmacy when dispensing a prescription and includes a distribution of the costs involved in running the pharmacy such as salaries, rent, utilities, costs associated with maintaining the computer system, etc. This is sometimes also referred to as a professional fee.

Cost of time – As compounding a prescription is often more time consuming then just filling a traditional prescription, the pharmacy will need to charge for the time required from the staff to make these preparations.

Let's look at a couple of example problems, one where we've already been given the cost of ingredients and another where we need to calculate the cost of ingredients.

Examples:

1) Calculate the cost of 50 g of a 20% salicylic acid ointment that took 15 minutes to prepare if the cost of ingredients were only $1.03, your pharmacy has a standard dispensing fee of $5.00, and your cost of time is based on $35.00 per hour.

   Since we already know our cost of ingredients and our dispensing fee the only thing we need to figure out before we add everything up is our cost of time.

$$\frac{15\,minutes}{1}\times\frac{\$35.00}{60\,minutes}=\$8.75$$

now we can simply add all of our costs together.

Cost of ingredients	$ 1.03
+ Dispensing fee	$ 5.00
+ Cost of time	$ 8.75
Final Cost	**$14.78**

2) You make the following compound in approximately 10 minutes:

> Rx clindamycin phosphate 1200 mg in Cetaphil Lotion
> Disp: 120 mL
> Sig: aa hs ud

Use the following information to determine the final cost.

clindamycin phosphate 150 mg/mL, 4 mL vials, $4.12/vial
Cetaphil Lotion 480 mL bottle, $9.44/bottle
dispensing fee is $5.00
cost of time is $35.00/hour

We will need to determine the cost of each ingredient.

clindamycin phosphate

$$\frac{1200\,mg}{1}\times\frac{mL}{150\,mg}=8\,mL$$

$$\frac{8\,mL}{1}\times\frac{vial}{4\,mL}\times\frac{\$4.12}{vial}=\$8.24$$

Cetaphil Lotion

$$120\,mL-8\,mL=112\,mL$$

$$\frac{112\,mL}{1}\times\frac{bottle}{480\,mL}\times\frac{\$9.44}{bottle}=\$2.20$$

You've been given the dispensing fee, but you'll need to determine the cost of time.

$$\frac{10\,minutes}{1}\times\frac{\$35.00}{60\,minutes}=\$5.83$$

Now you can add all your costs up.

	Cost of ingredients	$ 8.24
+		$ 2.20
+	Dispensing fee	$ 5.00
+	Cost of time	$ 5.83
	Final Cost	**$21.27**

Now we should look at some practice problems.

Practice Problems:

1) Calculate the cost of 60 g of a 7.5% ibuprofen cream that took 20 minutes to prepare if the cost of ingredients were only $2.48, your pharmacy has a standard dispensing fee of $5.00, and your cost of time is based on $35.00 per hour.

2) You compound the following prescription in approximately 15 minutes:

Rx metoprolol tartrate 6.25 mg/tsp in a 50:50 mixture of Ora-Plus and Ora-Sweet
Disp: 300 mL
Sig: i tsp po bid

Use the following information to determine the final cost. (*Hint: expect the powder volume from the crushed up metoprolol tartrate tablets to be negligible*)

metoprolol tartrate 25 mg/tablet, $0.08/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle
dispensing fee is $5.00
cost of time is $35.00/hour

1) $19.15 2) $35.89

Worksheet 13-1

Name:

Date:

Solve the following problems using the formula:

	Cost of ingredients
+	Dispensing fee
+	Cost of time
	Final Cost

Use $5.00 for the dispensing fee and a rate of $35.00 per hour for the cost of time calculations.

1) Calculate the cost for 60 g of a 10% phenytoin in zinc oxide ointment that takes 20 minutes to prepare if the cost of ingredients are $3.17.

2) Calculate the cost for 120 g of a 2% testosterone and 4.33% menthol in hydrophilic petrolatum that takes takes 30 minutes to prepare if the cost of ingredients are $11.09.

3) Calculate the cost for 60 mL of celecoxib 100 mg/5 mL suspension if it took 10 minutes to prepare and the ingredients to make it cost $22.97.

4) Calculate the cost for 50 g of erythromycin ophthalmic ointment that requires 35 minutes to prepare if the cost of ingredients come to $53.50.

5) Calculate the cost for 11 g of a 2% naproxen gel if it takes 20 minutes to prepare and the ingredients to compound it cost $21.86.

6) How much should you charge to dispense 300 mL of a mouthwash that has a recipe of 170 mL diphenhydramine elixir, 50 mL lidocaine viscous, 200 mL nystatin suspension, 52 mL erythromycin ethyl succinate suspension, and 28 mL cherry syrup to make 500 mL of mouthwash if it took you 20 minutes to prepare. (*Note: you will need to determine how much of each ingredient you actually needed to prepare this suspension in order to calculate your costs.*)

diphenhydramine elixir 12.5 mg/5 mL, 120 mL/bottle, $7.36/bottle
lidocaine viscous 2%, 100 mL/bottle, $3.42/bottle
nystatin suspension 100,000 units/mL, 473 mL/bottle, $68.29/bottle
erythromycin ethyl succinate suspension 200 mg/5 mL, 480 mL/bottle, $23.50/bottle
cherry syrup, 480 mL/bottle, $6.24/bottle

7) You compound the following prescription in approximately 15 minutes:

Rx allopurinol liquid 20 mg/mL in a 1:1 mixture of Ora-Plus and Ora-Sweet
Disp: 200 mL
Sig: 2/3 tsp po bid p meals

Use the following information to determine the final cost. (*Hint: expect the powder volume from the crushed up allopurinol tablets to be negligible*)

allopurinol 100 mg/tablet, $0.08/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

8) You compound a prescription for 30 g of equal parts triamcinolone 0.1% cream and Lamisil cream in approximately 15 minutes. How much should you charge for this compound?

triamcinolone 0.1% cream, $3.75/80 g
Lamisil cream, $32.00/15 g

9) You compound a prescription for 60 g of 2.5% hydrocortisone in Eucerin cream in approximately 20 minutes. How much should you charge for this compound?

hydrocortisone powder, $175.00/100 g
Eucerin cream, $9.45/454 g

10) How much should the following compound cost if it took 10 minutes to prepare?

Rx Rifampin 600 mg/60 mL in Simple Syrup
Disp: 240 mL
Sig: 600 mg qd x 4 days

Rifampin 300 mg/capsule, $1.89/capsule
Simple Syrup 16 fl. oz./bottle, $16.45/bottle

Worksheet 13-2

Name:

Date:

Solve the following problems using the formula:

	Cost of ingredients
+	Dispensing fee
+	Cost of time
	Final Cost

Use $5.00 for the dispensing fee and a rate of $35.00 per hour for the cost of time calculations.

1) You compound a prescription for 60 g of equal parts hydrocortisone 2.5% cream and Lamisil cream in approximately 15 minutes. How much should you charge for this compound?

   hydrocortisone 2.5% cream, $5.46/30 g
   Lamisil cream, $32.00/15 g

2) The pharmacy prepared 300 mL of diltiazem suspension 12 mg/mL in approximately 15 minutes using 90 mg diltiazem tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

   diltiazem 90 mg/tablet, $0.10/tablet
   Ora-Plus 473 mL bottle, $33.02/bottle
   Ora-Sweet 473 mL bottle, $33.02/bottle

3) You make the following compound in approximately 10 minutes:

Rx tobramycin 800 mg in Cetaphil Lotion
Disp: 60 mL
Sig: aa hs ud

Use the following information to determine the final cost.

tobramycin 40 mg/mL, 30 mL MDV, $27.50/vial
Cetaphil Lotion 480 mL bottle, $9.44/bottle

4) How much should you charge to dispense 120 mL of G.I. Cocktail that has a recipe of 120 mL Donnatal elixir, 120 mL lidocaine viscous, and 480 mL of Mylanta to make 720 mL of G.I. Cocktail if it took you 20 minutes to prepare. (*Note: you will need to determine how much of each ingredient you actually needed to prepare this suspension in order to calculate your costs.*)

Donnatal elixir, 473 mL/bottle, $67.45/bottle
lidocaine viscous 2%, 100 mL/bottle, $3.42/bottle
Mylanta 720 mL/bottle, $8.89/bottle

5) How much should you charge to make the following medication stick if it took 30 minutes to prepare:

Rx Acyclovir 1200 mg
silica gel micronized 0.12 g
PEG 4500 MW 6.5 g
PEG 300 MW 15 mL
Disp: tube i
Sig: Apply to lips tid prn cold sores

acyclovir 200 mg/capsule, $0.15/capsule
silica gel micronized $30.00/100 g
polyethylene glycol (PEG) 4500 MW $37.10/500 g
polyethylene glycol (PEG) 300 MW $37.10/500 mL

6) The pharmacy prepared 200 mL of metformin 100 mg/mL suspension in approximately 15 minutes using 1000 mg metformin tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

   metformin 1000 mg/tablet, $1.44/tablet
   Ora-Plus 473 mL bottle, $33.02/bottle
   Ora-Sweet 473 mL bottle, $33.02/bottle

7) The pharmacy prepared 60 mL of a 5 mg/mL baclofen suspension in 20 minutes with 20 mg baclofen tablets, 5 mL of glycerin, and a sufficient quantity of simple syrup. Assuming that the powder volume from crushing the baclofen tablets was negligible, how much should you charge for this compounded prescription?

   baclofen 20 mg/tablet, $0.09/tablet
   glycerin solution $2.97/480 mL
   Simple Syrup 16 fl. oz./bottle, $16.45/bottle

8) The pharmacy prepared 160 mL of amiodarone 5 mg/mL suspension in approximately 15 minutes using 200 mg amiodarone tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

   amiodarone 200 mg/tablet, $3.30/tablet
   Ora-Plus 473 mL bottle, $33.02/bottle
   Ora-Sweet 473 mL bottle, $33.02/bottle

9) The pharmacy prepared 120 mL of acetazolamide suspension 25 mg/mL in approximately 15 minutes using 250 mg acetazolamide tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

acetazolamide 250 mg/tablet, $0.44/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

10) You make the following compound in approximately 10 minutes:

Rx atenolol suspension 2 mg/mL
in Cherry Syrup
Disp: 150 mL
Sig: i tsp po qd

Use the following information to determine the final cost.

atenolol 25 mg/tablet, $0.10/tablet
cherry syrup, 480 mL/bottle, $6.24/bottle

Worksheet 13-3

Name:

Date:

Solve the following problems using the formula:

	Cost of ingredients
+	Dispensing fee
+	Cost of time
	Final Cost

Some pharmacies may use a sliding scale for their dispensing fees based on the cost of the ingredients used. Use the following chart to determine the dispensing fee based on the cost of the ingredients used:

Cost of Ingredients	*Dispensing Fee*
Less than $20.00	$3.50
$20.00 - $50.00	$5.00
Greater than $50.00	$7.50

Continue using a rate of $35.00 per hour for the cost of time calculations.

1) How much should you charge for the following medication stick if it took 30 minutes to prepare:

   Rx valacyclovir 1000 mg
   silica gel micronized 0.12 g
   PEG 4500 MW 6.5 g
   PEG 300 MW 15 mL
   Disp: tube i
   Sig: Apply to lips tid prn cold sores

   Valtrex (valacyclovir) 500 mg/tablet, $5.93/tablet
   silica gel micronized $30.00/100 g
   polyethylene glycol (PEG) 4500 MW $37.10/500 g
   polyethylene glycol (PEG) 300 MW $37.10/500 mL

2) How much should be charged for a 1 liter SMOG enema if it takes 10 minutes to prepare? A SMOG enema is equal parts sorbitol solution, magnesium hydroxide suspension, mineral oil, and glycerin.

   70% sorbitol solution, $5.40/480 mL
   magnesium hydroxide suspension 400 mg/5 mL, $2.06/480 mL
   mineral oil $65.98/1000 mL
   glycerin solution $2.97/480 mL

3) You make the following compound in approximately 10 minutes:

   Rx clindamycin phosphate 600 mg in Cetaphil Lotion
   Disp: 60 mL
   Sig: aa hs ud

   Use the following information to determine the final cost.

   clindamycin phosphate 150 mg/mL, 4 mL vials, $4.12/vial
   Cetaphil Lotion 480 mL bottle, $9.44/bottle

4) The pharmacy prepared 160 mL of a 1% hydrocortisone in Lubriderm Lotion in approximately 15 minutes. When calculating the cost for this prescription assume the powder volume from the hydrocortisone powder to be negligible.

   hydrocortisone powder, $175.00/100 g
   Lubriderm Lotion, $7.36/480 mL

5) You make the following compound in approximately 25 minutes:

Rx promethazine 30 mg and codeine 18.75 mg per Tbs
q.s. with cherry syrup
Disp: 20 fl oz
Sig: Tbs i po q4º prn

Use the following information to determine the final cost.

promethazine 50 mg/mL, 1 mL/vial, $0.50/vial
codeine phosphate 15 mg/mL, 2 mL/vial, $2.24/vial
cherry syrup, 480 mL/bottle, $6.24/bottle

6) The pharmacy prepared 4 fluid ounces of a 1 mg/mL amlodipine suspension in approximately 20 minutes using 5 mg amlodipine tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

amlodipine 5 mg/tablet, $1.85/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

7) You make the following compound in approximately 20 minutes:

Rx tetracycline HCl susp. 125 mg/tsp in
50:50 mixture of Ora-Plus and Ora-Sweet
Disp: 300 mL
Sig: tsp i po bid

Use the following information to determine the final cost.

tetracycline 250 mg/tablet, $0.07/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

8) The pharmacy prepared 120 mL of a 0.1 mg/mL clonazepam suspension in approximately 20 minutes using 1 mg clonazepam tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

clonazepam 1 mg/tablet, $0.90/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

9) The pharmacy prepared 2 fluid ounces of a 5 mg/mL bethanechol suspension in approximately 20 minutes using 10 mg bethanechol tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

bethanechol 10 mg/tablet, $0.08/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

10) The pharmacy compounded 8 fluid ounces of 1% glycopyrrolate topical solution with an appropriate quantity of glycopyrrolate powder, 1.7 mL of benzyl alcohol, and q.s. of purified water. How much should you charge if this medication took 10 minutes to prepare?

glycopyrrolate powder, $75.46/1 g
benzyl alcohol, $19.60/500 mL
Pharmacy maintains own water purifier and does not charge for it.

Worksheet 13-4

Name:

Date:

Solve the following problems using the formula:

	Cost of ingredients
+	Dispensing fee
+	Cost of time
	Final Cost

Some pharmacies may use a sliding scale for their dispensing fees based on the cost of the ingredients used. Use the following chart to determine the dispensing fee based on the cost of the ingredients used:

Cost of Ingredients	*Dispensing Fee*
Less than $20.00	$3.50
$20.00 - $50.00	$5.00
Greater than $50.00	$7.50

Continue using a rate of $35.00 per hour for the cost of time calculations.

1) How much should you charge to dispense a 4% diclofenac gel compounded with diclofenac powder, 4.8 mL of 200 proof ethanol, 28.8 mL of lipoil, qs ad 120 g with 20% Polox gel (this will require approximately 70 mL of 20% Polox gel). This preparation took 35 minutes to prepare and below are the average wholesale prices for each ingredient.

   diclofenac sodium, USP, $156.00/100 g
   denatured ethyl alcohol 200 proof, $13.65/118.25 mL
   lipoil, $18.20/473 mL
   Polox 20% gel, $21.35/473 mL

2) You need to charge for 2 ounces of ichthammol ointment that took 20 minutes to prepare. The recipe for 1 kilogram of ichthammol ointment is as follows: 100 g of ichthamol, 100 g of lanolin and 800 g of white petrolatum. Below are the AWPs for the ingredients.

   ichthammol powder USP $52.01/454 g
   lanolin powder USP $27.03/454 g
   white petrolatum USP $10.22/454 g

3) You make the following compound in 25 minutes:

Rx Mudd Mixture
Disp: 184 mL
Sig: swish and swallow 23 mL q6h x 2 days

For every 23 mL of Mudd mixture you use 20 mL of nystatin (100,000 units/mL), 2 mL of gentamicin (40 mg/mL), and 1 mL of colistimethate (20 mg/mL). Calculate the charge for this extemporaneous compound.

nystatin 100,000 units/mL, 473 mL/bottle, $68.29/bottle
gentamicin 40 mg/mL, 20 mL/vial, $8.25/vial
colistimethate 150 mg/vial, $54.72/vial

4) You need to charge for the following compound that took 15 minutes to prepare:

Rx diclofenac sodium 8% in Pentravan cream
Disp: 60 grams
Sig: aa bid ut dict

Use the prices below to determine how much to charge.

diclofenac sodium, USP, $156.00/100 g
Pentravan cream $33.29/454 g

5) The pharmacy prepared 30 mL of a 0.1 mg/mL clonidine suspension in approximately 15 minutes using 0.2 mg clonidine tablets and Simple Syrup. How much should you charge based on the following information?

clonidine 0.2 mg/tablet, $0.05/tablet
Simple Syrup 16 fl. oz./bottle, $16.45/bottle

6) How much should you charge for the following medication stick if it took 30 minutes to prepare:

Rx vitamin E 1000 IU
zinc oxide 100 mg
silica gel micronized 0.12 g
PEG 4500 MW 6.5 g
PEG 300 MW 15 mL
Disp: tube i
Sig: Apply to lips tid prn cold sores

vitamin E 100 g/100 mL (1 mg = 1.1 IU), $70.70/100 mL
zinc oxide powder USP $10.85/454 g
silica gel micronized $30.00/100 g
polyethylene glycol (PEG) 4500 MW $37.10/500 g
polyethylene glycol (PEG) 300 MW $37.10/500 mL

7) The pharmacy prepared 100 mL of a 2 mg/mL dapsone suspension in approximately 15 minutes using 25 mg dapsone tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

dapsone 25 mg/tablet, $0.20/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

8) The pharmacy compounded 4 fluid ounces of a 50 mg/tsp dipyridamole suspension in approximately 15 minutes using 50 mg dipyridamole tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

dipyridamole 50 mg/tablet, $0.05/tablet
Ora-Plus 473 mL bottle, $33.02/bottle
Ora-Sweet 473 mL bottle, $33.02/bottle

9) The pharmacy prepared 100 mL of a 10 mg/mL disopyridamole suspension in approximately 10 minutes using 100 mg disopyridamole capsules and cherry syrup. How much should you charge based on the following information?

   disopyridamole 100 mg/capsule, $0.06/capsule
   cherry syrup, 480 mL/bottle, $6.24/bottle

10) The pharmacy compounded 120 mL of a levodopa/carbidopa suspension with a concentration of 25 mg of levodopa and 6.25 mg of carbidopa per teaspoonful in approximately 15 minutes using levodopa 100 mg/carbidopa 25 mg tablets and a 50:50 mixture of Ora-Plus and Ora-Sweet. How much should you charge based on the following information?

   levodopa 100 mg/carbidopa 25 mg tablets, $0.05/tablet
   Ora-Plus 473 mL bottle, $33.02/bottle
   Ora-Sweet 473 mL bottle, $33.02/bottle