



Methods of Allocating Costs - Overview

1. Review the three Method of Allocating Costs.
 - Direct Method
 - Step Down Method
 - Reciprocal Method
2. Discuss the strengths and weaknesses of each method
3. Winery Problem – platform for discussing Joint Cost Allocations
4. Review remaining cost allocation problems.
5. Summarize and Review.



State College Community Hospital

State College Community Hospital has 2 Service Departments:

1. Maintenance
2. Food Services

The Hospital also has three patient care units:

1. General Medicine
2. OB
3. Surgery

Using the following information, we will allocate the costs of these 2 service departments to the 3 patient care units using the:

1. Direct Method
2. Stepdown Method – Maintenance First
3. Stepdown Method – Food Services First
4. Reciprocal Method



State College Community Hospital

Amount of Cost to be allocated:

Maintenance	\$8,000,000
Food Services	\$3,000,000

Allocation Methods:

Maintenance Costs are allocated based on square footage assigned to the unit.

Food Service Costs are allocated based on number of meals served to the unit.



State College Community Hospital

Expected Utilization Rates

	Sq Footage	Meals Served
Food Services	10,000	30,000
Maintenance	10,000	10,000
Surgery	20,000	40,000
OB	30,000	30,000
General Medicine	30,000	90,000
Total	100,000	200,000



State College Community Hospital

Allocate Based on Direct Method

	Allocated Maintenance Costs	Allocated Food Service Costs
Food Services		
Maintenance		
Surgery		
OB		
General Medicine		
Total		



State College Community Hospital

How do we allocate costs using the Direct Method?

1. All Costs of the Service Departments are allocated to the product.

2. Calculate Expected Utilization Rates

	Maintenance	Food Service
Surgery	25%	25%
OB	37.5%	18.75%
General Medicine	37.5%	56.25%

3. Multiply Expected Utilization Rate and amount of cost to be allocated.



State College Community Hospital

Step-Down Method Maintenance First

	Allocated Maintenance Costs	Allocated Food Service Costs
Food Services		
Maintenance		
Surgery		
OB		
General Medicine		
Total		



State College Community Hospital

How do we allocate costs using the Step-Down Method allocating Maintenance First?

1. All Costs of the Maintenance Department's to the four other divisions in the firm.
2. Calculate Expected Utilization Rates

Department	Expected use	Allocated Cost
Food Services	1/9	
Surgery	2/9	
OB	3/9	
General Medicine	3/9	

3. Multiply Expected Utilization Rate and amount of cost to be allocated.



State College Community Hospital

4. Then take the cost of Food Services + the allocated cost of Maintenance and allocate those costs to the patient care departments.

Food Services	3,000,000
Allocated Maintenance	<u>888,888</u>
Adjusted food service cost	3,888,888

	Expected Use	Allocated Cost
Surgery	25%	
OB	18.75%	
General Medicine	56.25%	
Total	100%	



State College Community Hospital

Step-Down Method Food Service First

	Allocated Maintenance Costs	Allocated Food Service Costs
Food Services		
Maintenance		
Surgery		
OB		
General Medicine		
Total		



State College Community Hospital

How do we allocate costs using the Step-Down Method allocating Food Service First?

1. All Costs of the Food Service Department's to the four other divisions in the firm.
2. Calculate Expected Utilization Rates

Department	Expected use	Allocated Cost
Maintenance	1/17	
Surgery	4/17	
OB	3/17	
General Medicine	9/17	

3. Multiply Expected Utilization Rate and amount of cost to be allocated.



State College Community Hospital

4. Then take the cost of Maintenance + the allocated cost of Food Services and allocate those costs to the patient care departments.

Maintenance	8,000,000
Allocated Food Service	<u>176,470</u>
Adjusted food service cost	8,176,470

	Expected Use	Allocated Cost
Surgery	25%	
OB	37.5%	
General Medicine	37.5%	
Total	100%	



State College Community Hospital

Reciprocal Method:

1. Determine total cost to be allocated for each department.

$$M = 8,000,000 + .10(M) + .05(F)$$

$$F = 3,000,000 + .15(F) + .10(M)$$

$$\text{Maintenance} = \$9,144,722$$

$$\text{Food Service} = \$4,605,000$$

2. Assign Costs Based on utilization rates for each department



State College Community Hospital

Maintenance:

	Expected Use	Allocated Cost
Surgery	20%	?
OB	30%	?
General Medicine	30%	?
Total	80%	?

Food Service:

	Expected Use	Allocated Cost	Food + Maintenance
Surgery	20%	?	?
OB	15%	?	?
General Medicine	45%	?	?
Total	80%	?	?



Direct Cost Allocation

Strengths:

1. Easy to Calculate
2. Easy to Implement

Weaknesses:

1. Misstates Opportunity Costs
2. Does not charge service departments for the use of other service departments



Step-Down Allocation

Strengths:

1. Reduces the subsidization of service department use of other service departments

Weaknesses:

1. Misstates Opportunity Costs
2. Some service departments are not charged for the use of other service departments.
3. Selection of which department is allocated first results in different cost allocations.



Reciprocal Method

Strengths:

1. Theoretically correct method of allocating costs
2. Closest measurement of opportunity cost

Weaknesses:

1. Seldom Used because math is misunderstood
2. Assumes all costs are variable, fixed costs should be allocated based on expected use, which introduce problems we have already discussed.



Joint Costs

1. Joint costs are similar to common costs, but instead of an assembly process we are talking about a disassembly process.

2. Be very Careful in using Joint Cost allocations in :
 - Pricing Decisions.
 - Product Line profitability

3. Use Net Realizable Value (NRV) for decisions on product line profitability such as:
 - Process beyond split-off.
 - Sell at split-off
 - Discard as waste



Net Realizable Value

Net realizable value is the same idea as a contribution Margin:

	<u>Total</u>	<u>Product A</u>	<u>Product B</u>
Selling Price	100	70	30
- Costs Incurred <u>beyond Splitoff</u>	<u>80</u>	<u>55</u>	<u>25</u>
Net Realizable Value	20	15	5
- Allocated Joint Cost	<u>10</u>	<u>7.5</u>	<u>2.5</u>
Profits	10	7.5	2.5



Net Realizable Value

Decision Rules for Net Realizable Value:

1. If total NRV exceeds total allocated joint costs you should incur the joint costs and disassemble the product.
2. If NRV for a product is positive consider incurring costs beyond split-off.
3. Compare the NRV to the selling price without additional processing. If NRV greater than selling price without additional processing, then incur additional processing.
4. If NRV is negative, compare NRV to disposal cost. Choose the least costly option.



Summary

1. Cost Allocations are important
 - Performance Measurement
 - Decision Making
 - Internal Tax
 - Subsidy
2. Review of how to calculate allocations using Direct Method, Reciprocal Method, and Step-Down Method.
3. Strengths and Weaknesses of each method.
4. Role of NRV in Joint Cost Decisions