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PROBLEM 8.3

Activity-Based Costing

XYZ Diagnostic Center wants to develop a product cost for the following CT procedures using labor expense and supply expense to assign direct costs and machine minutes as a cost driver to assign indirect costs. Projected total costs for the CT department are \$10 million (\$6 million in direct costs and \$4 million in indirect costs). Assign costs to each procedure using the following information.

Procedure	Projected Volumes	Labor Expense	Supply Expense	Equipment Use (min.)
A: CT scan	1,000	\$60	\$30	30
B: Upper GI	2,000	50	20	30
C: Chest X-ray	4,000	25	10	20
D: Hand X-ray	5,200	20	5	10

Step 1: Calculate the direct RVU and the cost driver for each procedure, a two-part process.

Step 1, Part 1:

Divide total sample direct cost (labor expense + supply expense) by the GCD.

Total Sample

Direct





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Step 1, Part 1:

Divide total sample direct cost (labor expense + supply expense) by the GCD.

Procedure	Total Sample Direct Cost	÷	GCD	=	Direct RVU
A	\$90		5		18
B	70		5		14
C	35		5		7
D	25		5		5

Step 1, Part 2:

Divide total sample indirect cost by the GCD. Equipment use in minutes can be used as total sample indirect cost because it shows the same relationship as depreciation cost; however, if additional indirect cost drivers, such as the number of full-time equivalents, are used, then both would be converted to money, added together, and then divided by the GCD.

Procedure	Total Sample Indirect Cost	÷	GCD	=	RVU
A	\$30		10		3
B	30		10		3
C	20		10		2
D	10		10		1

Step 2: Calculate the total cost for each procedure, a seven-part process.



Step 2, Part 1:

Calculate the total projected direct RVUs by multiplying the direct RVUs per procedure by the projected volume per procedure.

Procedure	RVU	×	Projected Volume	=	Total RVUs
A	18		1,000		18,000
B	14		2,000		28,000
C	7		4,000		28,000
D	5		5,200		<u>26,000</u>
Total					100,000

Step 2, Part 2:

Calculate the total projected cost drivers by multiplying the RVUs per procedure by the projected volume per procedure.

Procedure	RVU	×	Projected Volume	=	Total Cost Drivers
A	3		1,000		3,000
B	3		2,000		6,000
C	2		4,000		8,000
D	1		5,200		<u>5,200</u>
Total					22,200

Step 2, Part 3:

Calculate the direct cost per RVU by dividing direct costs by total RVUs.

$\$6,000,000 \div 100,000 = \60



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Step 2, Part 4:

Calculate the indirect cost per cost driver by dividing indirect costs by total cost drivers.

$$\$4,000,000 \div 22,200 = \$180.18$$

Step 2, Part 5:

Calculate the direct cost per procedure by multiplying the direct cost per RVU by the RVUs in each procedure.

Procedure	Direct Cost/RVU	×	RVU	=	Direct Cost/Procedure
A	\$60		18		\$1,080
B	60		14		840
C	60		7		420
D	60		5		300

Step 2, Part 6:

Calculate the indirect cost per procedure by multiplying the indirect cost per cost driver by the number of cost drivers in each procedure.

Procedure	Indirect Cost/Cost Driver	×	Cost Driver	=	Indirect Cost/Procedure
A	\$180.18		3		\$540.54
B	180.18		3		540.54
C	180.18		2		360.36
D	180.18		1		180.18

Step 2, Part 7:

Calculate the total cost per procedure by adding



Step 2, Part 7:

Calculate the total cost per procedure by adding the direct cost per procedure and the indirect cost per procedure.

Procedure	Direct Cost/ Procedure	+	Indirect Cost/ Procedure	=	Total Cost/ Procedure
A	\$1,080		\$540.54		\$1,620.54
B	840		540.54		1,380.54
C	420		360.36		780.36
D	300		180.18		480.18

Note: RVU = relative value unit; CT = computed tomography; GI = gastrointestinal; GCD = greatest common denominator

The difference in the costs per procedure for job-order costing and activity-based costing in [problem 8.3](#) are a result of the more accurate method of assigning indirect costs using activity-based accounting. Generally speaking, more cost drivers provide a more accurate cost; however, cost-driver information is often expensive to collect. Therefore, only cost drivers that have a high correlation to the consumption of overhead should