

AN IN-SOURCING DECISION IN THE HEALTH CARE INDUSTRY: SHOULD AN ORTHOPEDIC PRACTICE BUY AN MRI?: A CASE STUDY

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CASE DESCRIPTION

The primary subject matter of this case is a capital budgeting decision. Capital budgeting issues are appropriately discussed in accounting and/or finance disciplines, as well as healthcare management courses. The case and teaching note support the discussion and analysis of several secondary issues, in addition to the quantitative and qualitative factors incorporated in capital budgeting decisions. These issues include, but are not limited to, ethical issues, government policy practices, and sensitivity analysis. The quantitative analysis requires the student to demonstrate an understanding of the complexity that may be involved in determining relevant factors included in a capital budgeting decision, as contrasted with the simplicity of most textbook capital budgeting problems. The case is appropriate for use in junior level classes (level three) and above. There is a great deal of flexibility incorporated in the case, dependent on the instructor's desire to pursue, or not pursue, discussion of the secondary issues. This flexibility makes the case suitable for advanced analysis and discussions at higher course levels, up to and including first year graduate levels (level five). The number of class hours required to teach the case is dependent on the depth explored by the individual professor. However, class hours would be expected to range from one to two hours; preferably over two class meetings. Preparation hours required of the student are expected to average two to four hours.

CASE SYNOPSIS

This case considers the dilemma being confronted by an orthopedic physicians group. The practice is facing shrinking revenues driven by government plans to reduce Medicare reimbursements. In an effort to avoid salary cuts to physicians that appear imminent, members of the practice suggest raising rates to private payers. When this alternative is ruled out, it is decided that an expansion of ancillary services may provide a solution to the dilemma. The primary decision is whether to expand services by in-sourcing the Magnetic Resonance Imaging (MRI) diagnostic tool. Quantitative analysis of this decision requires the student to identify and determine the

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projected cash flows, associated with acquiring the MRI, over a twelve year period using net present value analysis. The realism of this decision problem is enhanced due to the fact that the physician's group serves several different classes of customers as well as using the MRI as a diagnostic tool for a variety of ailments/injuries. Each patient group and procedure results in a different reimbursement amount. This analysis is then expanded with two potential alternatives; a ten percent increase in prescribed MRIs or elimination of service to Medicare/Medicaid patients. Students should identify the quantitative impact of acquiring the MRI versus the status quo, as well as the ethical considerations associated with eliminating services to Medicare/Medicaid patients. This addition invites the discussion of business ethics from a stakeholder perspective.

INSTRUCTORS' NOTES

Recommendations for Teaching Approaches

In the following sections we propose questions to be used in conjunction with the case and offer solutions and suggestions for stimulating classroom discussion.

DISCUSSION QUESTIONS

1. Calculate the NPV of the project given the current patient mix of POGI and the proposed 800 MRI procedures per year.

Table 3: Projected MRI Revenue by Procedure Type and Patient Group (Percentages reflect the proportion of the 800 expected MRIs per year for each procedure and patient type)								
		Spines	Knees	Hips	Shoulders	Wrist/arm	C-spine/head	Bi-lateral Knee
Procedure Mix		20%	30%	25%	5%	5%	10%	5%
Patient Mix								
Medicare	25%	\$850	\$400	\$750	\$440	\$325	\$700	\$770
Private Pay	40%	\$1,084	\$538	\$918	\$640	\$452	\$1,116	\$985
Workers' Comp	20%	\$1,020	\$480	\$900	\$528	\$390	\$840	\$924
Medicaid	10%	\$550	\$285	\$475	\$350	\$225	\$225	\$550
Uninsured	5%	\$434	\$215	\$367	\$256	\$181	\$446	\$394

This table projects the revenue from the 800 expected MRIs by type of MRI and by type of patient. For example, 20% of the MRIs (160) will be of the spine. Of those 160 spine MRIs, 25% (40) will be provided to Medicare patients. The projected reimbursement for a spine MRI for a Medicare patient is \$850.

Table 4: Annual Revenue Generated by Procedure and by Patient Group

Procedure	Number of Mris	Medicare	Private Pay	Workers' Comp	Medicaid	Unisured	Revenue
Spines	160	40	64	32	16	8	
Revenue		\$34,000	\$69,376	\$32,640	\$8,800	\$3,469	\$148,285
Knees	240	60	96	48	24	12	
Revenue		\$24,000	\$51,648	\$23,040	\$6,840	\$2,582	\$108,110
Hips	200	50	80	40	20	10	
Revenue		\$37,500	\$73,440	\$36,000	\$9,500	\$3,672	\$160,112
Shoulders	40	10	16	8	4	2	
Revenue		\$4,400	\$10,240	\$4,224	\$1,400	\$512	\$20,776
Wrist/arm	40	10	16	8	4	2	
Revenue		\$3,250	\$7,232	\$3,120	\$900	\$362	\$14,864
C-spine/head	80	20	32	16	8	4	
Revenue		\$14,000	\$35,712	\$13,440	\$1,800	\$1,786	\$66,738
Bi-lateral Knee	40	10	16	8	4	2	
Revenue		\$7,700	\$15,760	\$7,392	\$2,200	\$788	\$33,840
Total Number of Mris	800	200	320	160	80	40	
Total Revenue		\$124,850	\$263,408	\$119,856	\$31,440	\$13,170	\$552,724

This table develops the total annual revenue from each procedure by patient type. The table is developed by multiplying the reimbursement by patient type and procedure in Table 3 for the number of MRIs for each procedure and patient type. For example, the reimbursement rate for a Medicare patient that receives a spine MRI is \$850. Forty Medicare patients are projected to receive spine MRIs. Therefore, projected revenue for this procedure and patient type is $\$850 \times 40 = \$34,000$

Table 5: Projected Cash Expenses

Incremental Expenses	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Tech (full time) wages	\$37,440	\$38,938	\$40,495	\$42,115	\$43,800	\$45,551	\$47,374	\$49,268	\$51,239	\$53,289	\$55,420	\$57,637
Tech (full time) tax and fringe	10,109	10,513	10,934	11,371	11,826	12,299	12,791	13,302	13,835	14,388	14,963	15,562
Malpractice	25,000	26,250	27,563	28,941	30,388	31,907	33,502	35,178	36,936	38,783	40,722	42,758
Film	24,000	24,480	24,970	25,469	25,978	26,498	27,028	27,568	28,120	28,682	29,256	29,841
Maintenance contract / warranty		16,000	16,000	16,000	16,000	20,000	20,000	20,000	20,000	20,000	25,000	25,000
Property Insurance	8,000	8,160	8,323	8,490	8,659	8,833	9,009	9,189	9,373	9,561	9,752	9,947
Training and Cert (average)	2,500	2,600	2,704	2,812	2,925	3,042	3,163	3,290	3,421	3,558	3,701	3,849
Total Incremental Cash Expenses	\$107,049	\$126,941	\$130,988	\$135,197	\$139,576	\$148,130	\$152,867	\$157,796	\$162,925	\$168,261	\$178,815	\$184,594

This table presents the annual operating expenses associated with the acquisition of an MRI. The expenses are determined from the information provided in Table 2 of the case.

Table 6: Projected Before Tax Cash Flows

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Projected Revenue	\$552,724 ^a	\$580,360	\$609,378	\$639,847	\$671,839	\$705,431	\$740,703	\$777,738	\$816,625	\$857,456	\$900,329	\$945,346
Projected Expenses	\$107,049 ^b	\$126,941	\$130,988	\$135,197	\$139,576	\$148,130	\$152,867	\$157,796	\$162,925	\$168,261	\$178,815	\$184,594
Projected Cash Flow	\$445,675	\$453,419	\$478,390	\$504,650	\$532,264	\$557,302	\$587,836	\$619,942	\$653,700	\$689,195	\$721,515	\$760,751

This table provides the projected cash flows associated with acquiring the MRI machine and serving 800 patients annually.

^a Year 1 projected revenue is determined in Table 4. Revenue (reimbursement) is expected to increase 1.5% per year.

^b Projected expenses were determined in Table 5.

Table 7: Net Present Value Analysis

Year	Before Tax Cash Flow	Depreciation	Taxable Income	Tax Expense	After Tax Cash Flow	Pv Factor	Discounted after Tax Cash Flow
0	(\$1,375,000)					1	(\$1,375,000)
1	445,675	\$275,000	\$170,675	\$59,736	\$385,939		
2	453,419	\$440,000	13,419	\$4,697	448,722		
3	478,390	\$264,000	214,390	\$75,037	403,354		
4	504,650	\$158,400	346,250	\$121,188	383,463		
5	532,264	\$158,400	373,864	\$130,852	401,412		
6	557,302	\$79,200	478,102	\$167,336	389,966		
7	587,836	\$0	587,836	\$205,743	382,093		
8	619,942	\$0	619,942	\$216,980	402,962		
9	653,700	\$0	653,700	\$228,795	424,905		
10	689,195	\$0	689,195	\$241,218	447,977		
11	721,515	\$0	721,515	\$252,530	468,985		
12	760,751	\$0	760,751	\$266,263	494,488		
							\$3,121,269.68
						NPV =	\$1,746,269.68

This table provides the net present value analysis associated with the acquisition of the MRI machine, using a discount rate of 8%.

2. Which of the following would have a more significant impact on the NPV of the project?

a) a ten percent increase in the number of MRI s performed?

The only variable cost associated with the increased number of procedures is the cost of film. The NPV increases by \$330,610.

		Spines	Knees	Hips	Shoulders	Wrist/arm	C-spine/head	Bi-lateral Knee
Procedure Mix		20%	30%	25%	5%	5%	10%	5%
Patient Mix								
Medicare	25%	\$850	\$400	\$750	\$440	\$325	\$700	\$770
Private Pay	40%	\$1,084	\$538	\$918	\$640	\$452	\$1,116	\$985
Workers' Comp	20%	\$1,020	\$480	\$900	\$528	\$390	\$840	\$924
Medicaid	10%	\$550	\$285	\$475	\$350	\$225	\$225	\$550
Uninsured	5%	\$434	\$215	\$367	\$256	\$181	\$446	\$394

This table projects the revenue from the 880 expected MRIs by type of MRI and by type of patient. For example, 20% of the MRIs (176) will be of the spine. Of those 176 spine MRIs, 25% (44) will be provided to Medicare patients. The projected reimbursement for a spine MRI for a Medicare patient is \$850.

Procedure	Number of MRIs	Medicare	Private Pay	Workers' Comp	Medicaid	Uninsured	Revenue
Spines	176	44	70	35	18	9	
Revenue		\$37,400	\$76,314	\$35,904	\$9,680	\$3,816	\$163,113
Knees	264	66	106	53	26	13	
Revenue		\$26,400	\$56,813	\$25,344	\$7,524	\$2,841	\$118,921
Hips	220	55	88	44	22	11	
Revenue		\$41,250	\$80,784	\$39,600	\$10,450	\$4,039	\$176,123
Shoulders	44	11	18	9	4	2	
Revenue		\$4,840	\$11,264	\$4,646	\$1,540	\$563	\$22,854
Wrist/arm	44	11	18	9	4	2	
Revenue		\$3,575	\$7,955	\$3,432	\$990	\$398	\$16,350
C-spine/head	88	22	35	18	9	4	
Revenue		\$15,400	\$39,283	\$14,784	\$1,980	\$1,964	\$73,411
Bi-lateral Knee	44	11	18	9	4	2	
Revenue		\$8,470	\$17,336	\$8,131	\$2,420	\$867	\$37,224
Total Number of Mris	880	220	352	176	88	44	
Total Revenue		\$137,335	\$289,749	\$131,842	\$34,584	\$14,487	\$607,997

^a Some revenue amounts are rounded due to truncating.
This table develops the total annual revenue from each procedure by patient type. The table is developed by multiplying the reimbursement by patient type and procedure in Table 3-A for the number of MRIs for each procedure and patient type. For example, the reimbursement rate for a Medicare patient that receives a spine MRI is \$850. Forty four Medicare patients are projected to receive spine MRIs. Therefore projected revenue for this procedure and patient type is $\$850 \times 44 = \$37,400$

Table 5A: Projected Cash Expenses

Incremental Expenses	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Tech (full time) wages	37440	38938	40495	42115	43800	45551	47374	49268	51239	53289	55420	57637
Tech (full time) tax and fringe	10109	10513	10934	11371	11826	12299	12791	13302	13835	14388	14963	15562
Mal-practice	25000	26250	27563	28941	30388	31907	33502	35178	36936	38783	40722	42758
Film	26400	26928	27467	28016	28576	29148	29731	30325	30932	31550	32181	32825
Main-tenance contract / warranty		16000	16000	16000	16000	20000	20000	20000	20000	20000	25000	25000
Property Insurance	8000	8160	8323	8490	8659	8833	9009	9189	9373	9561	9752	9947
Training and Cert (average)	2500	2600	2704	2812	2925	3042	3163	3290	3421	3558	3701	3849
Total Incremental Cash Expenses	109,449	129,389	133,485	137,744	142,173	150,779	155,570	160,553	165,737	171,129	181,740	187,578

This table provides the annual operating expenses associated with the acquisition of an MRI. The expenses are determined from the information provided in Table 2 of the case and applied to the patient/procedure mix in Table 4-A.

Table 6A: Projected Before Tax Cash Flows

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Projected Revenue	607,997 ^a	638,397	670,317	703,833	739,024	775,975	814,774	855,513	898,288	943,203	990,363	1,039,881
Projected Expenses	109,449 ^b	129,389	133,485	137,744	142,173	150,779	155,570	160,553	165,737	171,129	181,740	187,578
Projected Cash Flow	498,548	509,008	536,832	566,088	596,851	625,196	659,204	694,960	732,552	772,073	808,623	852,303

This table presents the projected cash flows associated with acquiring the MRI machine and serving 880 patients annually.

^a Year 1 projected revenue is determined in Table 4-A. Revenue (reimbursement) is expected to increase 1.5% per year.

**TABLE 7-A
NET PRESENT VALUE ANALYSIS**

YEAR	BEFORE TAX CASH FLOW	DEPRECIATION	TAXABLE INCOME	TAX EXPENSE	AFTER TAX CASH FLOW	PV FACTOR	DISCOUNTED AFTER TAX CASH FLOW
0	(\$1,375,000)					1	(\$1,375,000)
1	498,548	\$275,000	\$223,548	\$78,242	\$420,306		
2	509,008	\$440,000	69,008	\$24,153	484,855		
3	536,832	\$264,000	272,832	\$95,491	441,341		
4	566,088	\$158,400	407,688	\$142,691	423,397		
5	596,851	\$158,400	438,451	\$153,458	443,393		
6	625,196	\$79,200	545,996	\$191,099	434,097		
7	659,204	\$0	659,204	\$230,721	428,483		
8	694,960	\$0	694,960	\$243,236	451,724		
9	732,552	\$0	732,552	\$256,393	476,159		
10	772,073	\$0	772,073	\$270,226	501,847		
11	808,623	\$0	808,623	\$283,018	525,605		
12	852,303	\$0	852,303	\$298,306	553,997		

**TABLE 7-A
NET PRESENT VALUE ANALYSIS**

							\$3,451,879.74
					NPV =		<u>\$2,076,879.74</u>

This table provides the net present value associated with the acquisition of the MRI machine when 880 patients are served, using a discount rate of 8%.

b) the elimination of Medicare and Medicaid patients while maintaining the 800 projected MRI procedures per year?

(Assume the 280 MRIs ordered for Medicare and Medicaid patients are replaced by Private Pay patients - 75%, Worker's Comp patients - 20%, and Uninsured patients - 5%.) The NPV increases by \$392,352; the 280 Medicare and Medicaid patients are distributed as follows: 210 to private pay, 56 to workers' comp, and 14 to uninsured.

**TABLE 3-B
PROJECTED MRI REVENUE BY PROCEDURE TYPE AND PATIENT GROUP**

(Percentages reflect the proportion of the 800 expected MRIs per year for each procedure and patient type)

	800	SPINES	KNEES	HIPS	SHOULDERS	WRIST/ARM	C-SPINE/HEAD	BI-LATERAL KNEE
PROCEDURE MIX		20%	30%	25%	5%	5%	10%	5%
PATIENT MIX								
PRIVATE PAY	66%	\$1,084	\$538	\$918	\$640	\$452	\$1,116	\$985
WORKERS' COMP	27%	\$1,020	\$480	\$900	\$528	\$390	\$840	\$924
UNINSURED	7%	\$434	\$215	\$367	\$256	\$181	\$446	\$394

This table projects the revenue from the 800 expected MRIs by type of MRI and by type of patient when Medicare and Medicaid patients are eliminated from the mix. For example, 20% of the MRIs (160) will be of the spine. Of those 160 spine MRIs, 66% (106) will be provided to Private Pay patients. The projected reimbursement for a spine MRI for a Private Pay patient is \$1,084.

**TABLE 4-B
REVENUE GENERATED BY PROCEDURE AND BY PATIENT GROUP ^a**

PROCEDURE	NUMBER OF MRIs	PRIVATE PAY	WORKERS' COMP	UNINSURED	REVENUE
SPINES	160	106	43	11	
REVENUE		\$114,904	\$44,064	\$4,683	\$163,651
KNEES	240	159	65	16	
REVENUE		\$85,542	\$31,104	\$3,486	\$120,132
HIPS	200	133	54	14	
REVENUE		\$121,635	\$48,600	\$4,957	\$175,192
SHOULDERS	40	27	11	3	
REVENUE		\$16,960	\$5,702	\$691	\$23,354
WRIST/ARM	40	27	11	3	
REVENUE		\$11,978	\$4,212	\$488	\$16,678
C-SPINE/HEAD	80	53	22	5	
REVENUE		\$59,148	\$18,144	\$2,411	\$79,703

**TABLE 4-B
REVENUE GENERATED BY PROCEDURE AND BY PATIENT GROUP ^a**

PROCEDURE	NUMBER OF MRIs	PRIVATE PAY	WORKERS' COMP	UNINSURED	REVENUE
BI-LATERAL KNEE	40	27	11	3	
REVENUE		\$26,103	\$9,979	\$1,064	\$37,146
TOTAL NUMBER OF MRIs	800	530	216	54	
TOTAL REVENUE		\$436,270	\$161,806	\$17,780	\$615,855

^a Some revenue amounts are rounded due to truncating.

This table develops the total annual revenue from each procedure by patient type. The table is developed by multiplying the reimbursement by patient type and procedure in Table 3 for the number of MRIs for each procedure and patient type. For example, the reimbursement rate for a Private Pay patient that receives a spine MRI is \$1,084. One hundred and six Private Pay patients are projected to receive spine MRIs. Therefore projected revenue for this procedure and patient type is $\$1,084 \times 106 = \$114,904$

**TABLE 5-B
PROJECTED CASH EXPENSES**

Incremental Expenses	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Tech (full time) wages	\$37,440	\$38,938	\$40,495	\$42,115	\$43,800	\$45,551	\$47,374	\$49,268	\$51,239	\$53,289	\$55,420	\$57,637
Tech (full time) tax and Fringe benefits	10,109	10,513	10,934	11,371	11,826	12,299	12,791	13,302	13,835	14,388	14,963	15,562
Malpractice	25,000	26,250	27,563	28,941	30,388	31,907	33,502	35,178	36,936	38,783	40,722	42,758
Film	24,000	24,480	24,970	25,469	25,978	26,498	27,028	27,568	28,120	28,682	29,256	29,841
Maintenance contract/Warranty		16,000	16,000	16,000	16,000	20,000	20,000	20,000	20,000	20,000	25,000	25,000
Property Insurance	8,000	8,160	8,323	8,490	8,659	8,833	9,009	9,189	9,373	9,561	9,752	9,947
Training and Cert (average)	2,500	2,600	2,704	2,812	2,925	3,042	3,163	3,290	3,421	3,558	3,701	3,849
Total Incremental Cash Expenses	\$107,049	\$126,941	\$130,988	\$135,197	\$139,576	\$148,130	\$152,867	\$157,796	\$162,925	\$168,261	\$178,815	\$184,594

This table presents the annual operating expenses associated with the acquisition of an MRI to serve 800 patients. The expenses are determined from the information provided in Table 2 of the case and applied to the patient/procedure mix in Table 4-B.

**TABLE 6-B
PROJECTED BEFORE TAX CASH FLOWS**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
PROJECTED REVENUE	615,855 ^a	646,648	678,980	712,929	748,576	786,004	825,305	866,570	909,898	955,393	1,003,163	1,053,321
PROJECTED EXPENSES	107,049 ^b	126,941	130,988	135,197	139,576	148,130	152,867	157,796	162,925	168,261	178,815	184,594
PROJECTED CASH FLOW	508,806	519,707	547,992	577,732	609,000	637,875	672,437	708,774	746,974	787,132	824,348	868,727

This table provides the projected cash flows associated with acquiring the MRI machine and serving 800 patients annually. In this scenario the patient mix consists of private pay, workers' comp and uninsured patients only.

^a Year 1 projected revenue is determined in Table 4-B. Revenue (reimbursement) is expected to increase 1.5% per year.

^b Projected expenses were determined in Table 5-B.

TABLE 7-B NET PRESENT VALUE ANALYSIS							
YEAR	BEFORE TAX CASH FLOW	DEPRECIATION	TAXABLE INCOME	TAX EXPENSE	AFTER TAX CASH FLOW	PV FACTOR	DISCOUNTED AFTER TAX CASH FLOW
0	(\$1,375,000)					1	(\$1,375,000)
1	508,806	\$275,000	\$233,806	\$81,832	\$426,974		
2	519,707	\$440,000	79,707	\$27,897	491,810		
3	547,992	\$264,000	283,992	\$99,397	448,595		
4	577,732	\$158,400	419,332	\$146,766	430,966		
5	609,000	\$158,400	450,600	\$157,710	451,290		
6	637,875	\$79,200	558,675	\$195,536	442,339		
7	672,437	\$0	672,437	\$235,353	437,084		
8	708,774	\$0	708,774	\$248,071	460,703		
9	746,974	\$0	746,974	\$261,441	485,533		
10	787,132	\$0	787,132	\$275,496	511,636		
11	824,348	\$0	824,348	\$288,522	535,826		
12	868,727	\$0	868,727	\$304,054	564,673		
							\$3,513,621.81
						NPV =	<u>\$2,138,622</u>
					IRR = 31.8%		
						NPV TABLE 7-A	<u>\$2,076,880</u>
						DIFFERENCE	\$61,742

This table provides the net present value associated with the acquisition of the MRI machine when services are provided to private pay, workers' comp and uninsured patients only. The difference between this second alternative and the first alternative (a 10% increase in MRIs) is also noted.

3. Would the profitability of the investment be significantly impacted if there were a change in cost of capital for the physicians' group?

NPV of the project has been calculated under each scenario using a discount rate of 8%. The Internal Rate of Return (IRR) under each scenario is between 28% and 32%. It would appear that any reasonable discount rate would result in a positive NPV making the analysis insensitive to minor fluctuations in cost of capital. (See Tables 7, 7-A, and 7-B)

4. Will the opportunity to provide "one stop" services improve the quality of care for the patients?

If patients are relieved of the "hassle" of scheduling an MRI appointment at the hospital and having to travel to another facility to receive the diagnostic treatment, patient (customer) satisfaction should increase. Offering the imaging service "in house" could reduce the time usually required to schedule at another facility as well as relieve the patient from providing another medical history at the MRI facility. In addition, the "turn around

time" in obtaining readings could be reduced. Each of these factors should enhance the quality of diagnostic treatment as well as the overall patient experience.

5. **What do you think that the impact will be on hospitals that provide MRIs at significantly higher prices than that charged by POGI if they acquire a magnet? Is there any potential impact on the long-term quality of care for patients of these hospitals?**

Magnetic Resonance Imaging is generally considered to be a profitable service. Hospitals that are burdened with significant overhead costs in addition to the responsibility to provide quality care to indigent patients will resent physicians' groups "pirating" this profitable service. Although hospitals may be unhappy with this situation they are not likely to be in a position to retaliate specifically against this physicians group or patients, thereof. However, if profitable offerings are diminished at the local hospital, the local hospital may have to rethink indigent care, staffing levels, and consider other "cuts" in services in order to remain financially viable. Decisions such as these could, in fact, have a long term impact on the quality of care provided by the affected hospitals.

6. **What, if any, ethical issues do you see surrounding the potential acquisition of MRI capabilities by POGI?**

One significant ethical issue looming is the potential to "over-prescribe". This may be kept "in check" from at least two different directions. One, private pay insurance company regulation may deter unnecessary MRI orders. Two, most doctors are, in fact, ethical and would not choose to intentionally prescribe unwarranted testing or procedures. A further ethical issue is the long term impact on quality of care provided by the local hospital, as referenced above.

Another ethical issue to consider is with respect to "dropping" Medicare/Medicaid patients from the patient mix. How difficult will it be for these patients to secure alternative care? Recent surveys regarding physicians providing care to the poor report mixed results. Modern Healthcare (Jan. 9, 2006) reports that, in spite of deep cuts in Medicare reimbursement that occurred four years ago and stagnant increases since, the physician in America are not closing doors to Medicare patients. About 73% in 2004-2205 accepted new Medicare patients, a two percentage point increase since the steep cut. The Associated Press reported on March 23, 2006, that the percentage of physicians who serve the poor has dropped to about 67%. As physicians leave solo practices to join large groups they lose control over patient mix and the larger the group the less likely that the poor (Medicaid patients) will be served. The report released by the Center for Studying Health System

Change disclosed that only 62% of physician groups with more than 50 physicians accept Medicare patients.

A proposed cut in Medicare reimbursements of 10.1% was scheduled to be implemented in 2008. In light of proposed cuts, a more recent survey was conducted by the American Medical Association (AMA). They received responses from 2,216 members and nearly 56% of the respondents indicated they would stop accepting any new Medicare patients while 32.8% reported that they were unsure as to whether they could continue seeing their current Medicare patients (Champlin, 2006). A similar survey in Minnesota conducted by the Minnesota Medical Association reported that 53% of the physicians would reduce the number of Medicare patients they treat if a smaller (4.4%) Medicare reimbursement cut went through (Minnesota Medicine, 2007). In addition, the American Academy of Family Physicians reported that 30.5% of internists took no new Medicaid patients in 2005 (Finkelstein, 2006).

Congress passed a "stop gap" measure in December 2007, allowing payments to increase 0.5% and agreed to revisit the issue in June. This is the sixth year in a row that congress has acted to not implement cuts that are required by the sustained growth rate formula (Family Practice Management, 2008). On July 15, 2008, Congress voted to override President Bush's veto of another "stop gap" bill. The 10.1% cut in Medicare reimbursements has been delayed for 18 months with a 0.1% increase allowed for 2008 and 1.1% for 2009 (Cardiology Today). Physicians are subject to the formula-derived cuts but hospitals, insurance companies, and other entities are not, leading practitioners to believe they are being treated unfairly.

Nelson (2005) provides guidance to healthcare professionals when faced with difficult ethical decisions. His decision model is rooted in the concept of procedural justice and suggests the organization's mission and value statements may assist the organization when prioritizing and ranking the cost/benefit to stakeholders. The stakeholder theory advanced in business ethics would suggest that the rights, values, and interests of the individuals and groups affected by the decision must be considered (Mintz and Morris, 2008). In this case the predominant stakeholders are the physicians, the Medicare/Medicaid patients that may be "dropped", the local hospital, and the insurers. Asking students to address the potential issues from the perspectives of these stakeholders will likely result in a lively discussion about the complexity of decisions related to healthcare.

Capital budgeting decisions in the healthcare industry have more recently focused on investment in information systems, particularly in integrated networks (Morrissey, 1997). Morrissey contends that a healthcare facility manager's decision to invest in facilities or services previously focused on the issue of "impact on bottom line". Although profitability is still an important factor, a non economic question is typically included in the decision

process; "How will this investment provide a continuum of quality care?" (Addressed in Question 3, above.)

Weiss (2005) offers a number of additional factors to be considered when making a decision to expand services. She suggests that, first, a real need should be identified. Second, a sound cost analysis is required. Hire a consultant to assist not only in identifying the expenses but also to provide input to a lease versus buy decision. (Note that in the quantitative analysis of cash flows, an interest expense is not calculated in determining before tax cash flows associated with the investment. The interest expense is related to the financing decision not the capital budgeting decision. Likewise, evaluating lease versus buy would be the financing decision, not acquisition decision.) Investigate any restrictions from private payer insurance groups; are their patients required to go elsewhere. Assess the additional risk that you are adding by offering the service. The manner in which the new service will be marketed must be considered. And, finally, consult a healthcare attorney prior to adding the service. The Stark II ban prohibits self-referral. (O'Sullivan, 2004.) Noncompliance with the law, particularly with respect to referrals of Medicare/Medicaid patients, whether intentional or not, can result in fines, denial of reimbursements, or both. There are exceptions to the "self-referral" ban and those exceptions are met in this case. The only factor not specifically addressed in the case is that, to meet the provisions of the "exception" requirements, physician compensation cannot be tied to the service, i.e., the number of referrals.

With increasing revenue compression, physicians' groups are seeking alternative means to combat shrinking revenues and increasing costs. This case explores the alternative of expanding ancillary services to include offering MRI diagnostic procedures "in house". The financial issues to be evaluated in this decision, as well as qualitative factors including ethical issues, are considered in this case analysis.

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