

Case Study no 2019/09/27

Traceability of Costs using Procedures as an example

Tracing Costs For A Procedure End-To-End

1. Introduction:

The purpose of this case study is to show how costs associated with a specific procedure are traced backwards to their source, so that a user can understand how the costs shown in IntelliMax are built up from underlying cost structure.

Consider the following report, which shows products or outputs associated with different equipment items

"Products By Equipment - Patient Measure Detail" under ->Technology->Reporting

Double-Clicking on a cell shows the patient lines for the equipment-procedure combination:



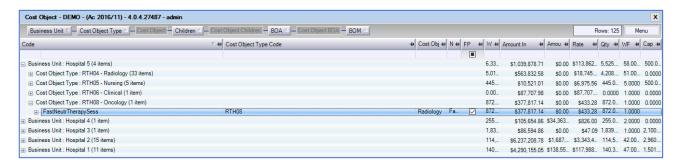
- Double-Clicking a cell in the patient code column will bring up the patient's details:



- Note that the rate for this procedure is \$433 this case study is to show how this cost is derived.
- Note that the product shown, "FastNeutrTherapySess", is a form of cancer treatment which uses specialized equipment. Product in this case study is understood to be a Procedure that the hospital will charge for.

2. The "FastNeutrTherapySess" product

Consider the following cost listing as shown in the Costing section of IntelliMax:



- Note the cost rate of \$433

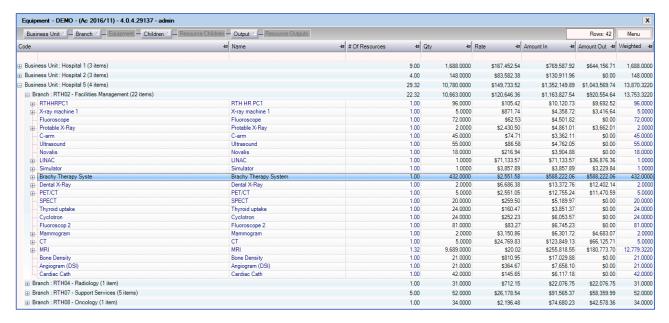
The costs contributing to the total cost for this product, are shown below:

DEMO			Cost Obj	ect Cost I	Detail			Version: Ac - Actual Period: 2016/11 - 2008 Nov		
BU	CC/Branch	Code	Name	UOM	Quantity	WF	WQ	Rate	Amount	
Hospital 5	RTH08	FastNeutrTherapy	FastNeutronTherapySession							
Bill of Activitie	Bill of Activities In		SVal	211.00	1.00	211.00	\$207.97	\$43,882.11		
Hospital 5	RTH08	FastNeutronTherapy	FastNeutronTherapy	\$Val	211.00	1.00	211.00	207.97	43,882.11	
Transfer In					873.00	1.00	873.00	\$674.45	\$588,791.17	
Hospital 5 Hospital 5	RTH02 RTH04	Brachy Therapy Syste RadiologyNurses	Brachy Therapy System RadiologyNurses	\$Val \$Val	872.00 1.00	1.00 1.00	872.00 1.00	673.79 1,242.91	587,548.26 1,242.91	
Total Input									\$632,673.28	
Net Amount / C	Cost Per Unit			SVal	872.00	1.00	872.00	\$725.54	\$632,673.28	

- Note that, in addition to the personnel costs to assist with the procedure, the biggest cost contribution comes from the Brachy Therapy System, so a drill-through to this system will be useful to understand the costs.

3. The Brachy Therapy System

The cost listing for the Brachy Therapy System is shown here:



Which has the following associated costs:

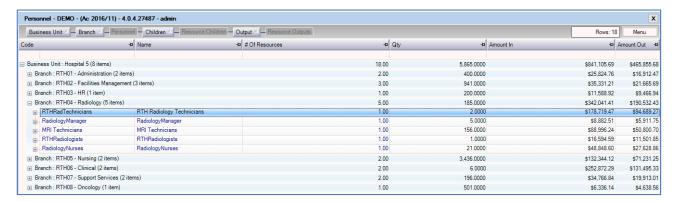
DEMO			Equipme	nt Cost I	Detail	Version: Ac - Actual Period: 2016/11 - 2008 Nov			
BU	CC/Branch	Code	Name	UOM	Quantity	WF	WQ	Rate	Amount
Hospital 5	RTH02	Brachy Therapy S	y Brachy Therapy System						
COC:GL Acc	ounts				0.00	0.00	0.00	\$14,202.50	\$14,202.50
Hospital 5	RTH03	Equipment	Equipment						14,202.50
GL Accounts					0.00	0.00	0.00	\$514,061.14	\$514,061.14
Hospital 5 Hospital 5 Hospital 5 Hospital 5	RTH02 RTH02 RTH02 RTH02	BrachyElec EquipmentDepreciatio EquipmentInstallatio EquipmentMaintenance	Brachy Electricity and Consumables Equipment Depreciation Equipment Installation Equipment Maintenance						32,340.00 130,006.14 264,590.00 87,125.00
Transfer In					6.00	1.00	6.00	\$9,993.07	\$59,958.42
Hospital 5 Hospital 5 Hospital 5 Hospital 5 Hospital 5 Hospital 5	RTH04 RTH04 RTH04 RTH04 RTH04 RTH04	RadiologyManager RadiologyNurses RTH - RadioInfoSys RTHRadBlock RTHRadiologists RTHRadTechnicians	RadiologyManager RadiologyNurses RTH - Radiology Information System RTH Radiology Block RTHRadiologists RTH RadiologyTechnicians	SVal SVal SVal SVal SVal	1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00	964.10 1,242.91 712.15 461.68 9,974.10 46,603.47	964.10 1,242.91 712.15 461.68 9,974.10 46,603.41
Total Input								_	\$588,222.06
Transfer Out				SVal	432.00	1.00	432.00	-\$1,361.63	-\$588,222.06
Hospital 5 Hospital 5	RTH08 RTH04	FastNeutrTherapySess RadiologyTrmtDeliver	FastNeutronTherapySession Radiology Treatment Delivery	SVal SVal	431.00 1.00	1.00 1.00	431.00 1.00	1,361.63 1,361.63	-586,860.43 -1,361.63
Total Output									-\$588,222.00

- Note that, in addition to direct costs for acquiring and installing the equipment, the Radiology Technicians and Radiologists make a significant contribution to the total cost of this equipment.

4. Brachy Therapy System Cost Contributors

The following shows a selection of cost contributions to the Brachy Therapy System:

4.1. The Radiology Technicians



A drill-through can then be done to see how the costs of the Radiology technicians is made up:

DEMO	Personnel Cost Detail							Version: Ac - Actual Period: 2016/11 - 2008 Nov	
BU	CC/Branch	Code	Name	UOM	Quantity	WF	wQ	Rate	Amount
Hospital 5	RTH04	RTHRadTechnicia	RTH Radiology Technicians						
Bill of Activit	ies In			SVal	1.00	1.00	1.00	\$2,118.21	\$2,118.21
Hospital 5	RTH03	PayRTHStaff	Pay RTH Staff	\$Val	1.00	1.00	1.00	2,118.21	2,118.21
GL Accounts					0.00	0.00	0.00	\$84,030.20	\$84,030.20
Hospital 5	RTH03	RTHPayroll	RTH Payroll						84,030.20
Transfer In					6.00	1.00	6.00	\$1,423.48	\$8,540.87
Hospital 5	RTH07	IT Manager	IT Manager	\$Val	1.00	1.00	1.00	2,285.78	2,285.78
Hospital 5	RTH02	Mammogram	Mammogram	\$Val	1.00	1.00	1.00	2,131.76	2,131.76
Hospital 5	RTH07	PC Workstations	PC Workstations	\$Val	1.00	1.00	1.00	2,034.73	2,034.73
Hospital 5	RTH04	Radiology Manager	RadiologyManager	\$Val	1.00	1.00	1.00	1,182.35	1,182.35
Hospital 5	RTH07	Workstation Licences	Workstation Software Licences	\$Val	1.00	1.00	1.00	718.75	718.75
Hospital 5	RTH07	Workstation Support	Workstation Support	\$Val	1.00	1.00	1.00	187.50	187.50
Total Input									\$94,689.27
Transfer Out				SVal	2.00	1.00	2.00	-\$47,344.64	-\$94,689.27
Hospital 5	RTH02	Brachy Therapy Syste	Brachy Therapy System	\$Val	1.00	1.00	1.00	47,344.64	-47,344.64
Hospital 5	RTH02	MRI	MRI	\$Val	1.00	1.00	1.00	47,344.64	-47,344.64
Total Output								_	-\$94,689.27
Net Amount /	Net Amount / Cost Per Unit					1.00	2.00	\$47,344.64	\$0.00

The technician costs consists not only of the Payroll costs but also the cost of all support services the technicians receive.

4.2. The Radiology Information System

Similarly, the following shows the situation for the Radiology Information System



- Note that the Radiology Information System takes costs from various IT-related sources, and passes those costs on to various kinds of equipment that use the Radiology Information System for storage, communication and analysis.

4.3. The Radiology Block (Premises)

This is the cost associated with the premises which houses the equipment



DEMO	Facilities Cost Detail								Version: Ac - Actual Period: 2016/11 - 2008 Nov		
BU	CC/Branch	Code	Name	UOM	Quantity	WF	wq	Rate	Amount		
Hospital 5	RTH04	RTHRadBlock	RTH Radiology Block								
Transfer In					1.00	1.00	1.00	\$9,233.58	\$9,233.58		
Hospital 5	RTH02	Buildings-Hospital 5	Buildings - Hospital 5	\$Val	1.00	1.00	1.00	9,233.58	9,233.58		
Total Input								<u> </u>	\$9,233.58		
Transfer Out				SVal	20.00	1.00	20.00	-\$461.68	-\$9,233.58		
Hospital 5	RTH02	Angiogram (DSI)	Angiogram (DSI)	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Bone Density	Bone Density	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Brachy Therapy Syste	Brachy Therapy System	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Cardiac Cath	Cardiac Cath	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	C-arm	C-arm	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	CT	CT	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Cyclotron	Cyclotron	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Fluoroscop 2	Fluoroscope 2	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Fluoroscope	Fluoroscope	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	LINAC	LINAC	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Mammogram	Mammogram	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	MRI	MRI	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Novalis	Novalis	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	PET/CT	PET/CT	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Protable X-Ray	Protable X-Ray	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Simulator	Simulator	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	SPECT	SPECT	\$Val	1.00	1.00	1.00	461.68	-461.68		
Hospital 5	RTH02	Thyroid uptake	Thyroid uptake	\$Val	1.00	1.00	1.00	461.68	-461.68		

- The Radiology Block takes costs from Hospital 5 Buildings, which in turn, takes the kind of costs one would expect to see for buildings:

DEMO			Facil	ities Cost De	etail	Version: Ac - Actual Period: 2016/11 - 2008 Nov			
BU	CC/Branch	Code	Name	UOM	Quantity	WF	wQ	Rate	Amount
Hospital 5	RTH04	RTHRadBlock	RTH Radiology Block						
Transfer In					1.00	1.00	1.00	\$9,233.58	\$9,233.58
Hospital 5	RTH02	Buildings-Hospital 5	Buildings - Hospital 5	\$Val	1.00	1.00	1.00	9,233.58	9,233.58
Total Input									\$9,233.58
Transfer Out				SVal	742.00	1.00	742.00	-\$12.44	-\$9,233.58
Hospital 5	RTH02	Angiogram (DSI)	Angiogram (DSI)	\$Val	20.00	1.00	20.00	12.44	-248.88
Hospital 5	RTH02	Bone Density	Bone Density	\$Val	10.00	1.00	10.00	12.44	-124.4
Hospital 5	RTH02	Brachy Therapy Syste	Brachy Therapy System	\$Val	110.00	1.00	110.00	12.44	-1,368.86
Hospital 5	RTH02	Cardiac Cath	Cardiac Cath	\$Val	16.00	1.00	16.00	12.44	-199.1
Hospital 5	RTH02	C-arm	C-arm	\$Val	24.00	1.00	24.00	12.44	-298.66
Hospital 5	RTH02	CT	CT	\$Val	23.00	1.00	23.00	12.44	-286.22
Hospital 5	RTH02	Cyclotron	Cyclotron	\$Val	22.00	1.00	22.00	12.44	-273.7
Hospital 5	RTH02	Fluoroscop 2	Fluoroscope 2	\$Val	45.00	1.00	45.00	12.44	-559.99
Hospital 5	RTH02	Fluoroscope	Fluoroscope	\$Val	52.00	1.00	52.00	12.44	-647.10
Hospital 5	RTH02	LINAC	LINAC	\$Val	100.00	1.00	100.00	12.44	-1,244.42
Hospital 5	RTH02	Mammogram	Mammogram	\$Val	43.00	1.00	43.00	12.44	-535.10
Hospital 5	RTH02	MRI	MRI	\$Val	44.00	1.00	44.00	12.44	-547.54
Hospital 5	RTH02	Novalis	Novalis	\$Val	10.00	1.00	10.00	12.44	-124.44
Hospital 5	RTH02	PET/CT	PET/CT	\$Val	18.00	1.00	18.00	12.44	-224.00
Hospital 5	RTH02	Protable X-Ray	Protable X-Ray	\$Val	64.00	1.00	64.00	12.44	-796.43
Hospital 5	RTH02	Simulator	Simulator	\$Val	10.00	1.00	10.00	12.44	-124.44
Hospital 5	RTH02	SPECT	SPECT	\$Val	22.00	1.00	22.00	12.44	-273.77
Hospital 5	RTH02	Thyroid uptake	Thyroid uptake	\$Val	54.00	1.00	54.00	12.44	-671.99
Hospital 5	RTH02	Ultrasound	Ultrasound	\$Val	34.00	1.00	34.00	12.44	-423.10
Hospital 5	RTH02	X-ray machine 1	X-ray machine 1	\$Val	21.00	1.00	21.00	12.44	-261.33
Total Output									-\$9,233.58

- Note that, upon reaching the GL accounts, the chain of costs has reached the point where the cost enters the IntelliMax costing system.

5. Conclusion

IntelliMax allows a user to trace costs from specific procedures (or products) that took place during a particular patient's visit, through intermediate steps, all the way back to the original General Ledger accounts which record the costs the Hospital has to cover in order to provide the service in question.