Driving Imaging Delivery Performance via a Department Scorecard – Review of a 7-Year Experience

Lane F. Donnelly, Kevin E. Gessner, Julie M. Dickerson, Todd W. Lehkamp, Jay Moskovitz, Bernadette L. Koch, Alexander J. Towbin, Alan S. Brody, Blaise V. Jones

Background

At Cincinnati Children's Hospital Medical Center (CCHMC), Departments and Divisions are organized into business units. These business units integrate the physician, hospital, and administrative leaders and operations into one unit. Business Units present quarterly to the executive cabinet of the institution with updates on progress in clinical care delivery, quality improvement, research, and finance. One of the items presented at each business unit is a scorecard. The Department of Radiology at CCHMC has been presenting the current form of the scorecard since 2002 (7 years). We report on the structure of our scorecard and lessons learned over the past 7 years.

Radiology Scorecard

The aggregate department radiology scorecard is organized into 6 areas: *Clinical Services, Education, Research, Professionalism/Communication/ User Satisfaction, Finance/Administration, and Staffing.* In each area, there are multiple measures. List for each measure is the goal, current measure, interval at which the measures are posted, date of last update, and prior value of the measure at time of previous measurement. Depending upon the nature of the measure, the interval of measurement may be quarterly, biannual, or annual. Values meeting goals are colored in green.

What makes an excellent radiology department is often difficult to define and even more difficult to measure. Often things easy to measure do not reflect the true nature of excellence in imaging services delivery. Ideal parameters for performance measurement should be evidence-based, built by consensus, reproducible, attributable to radiology performance, and occurring in numbers where statistical evaluation is measureable. Such parameters may be difficult to identify in great quantity. We have chosen our parameters based on a balance between critical nature to quality improvement efforts in the department and availability and amount of additional work to collect accurate data. Parameters may be added to or dropped off the scorecard as issues/poor performance is corrected and new areas of improvement are identified.

Results thus Far

Of the 33 parameters, measures showed improvement in 20 (61%), stability in 11 (33%), and decreased performance in 2 (6%). Measures were at goal in 29 (88%) and not at goal in 4 (12%). Measures were at goal and improved in 18 (54%), at goal and stable in 11 (33%), not at goal but improved in 2 (6%), and not at goal and decreased performance in 2 (6%).

Important Concepts

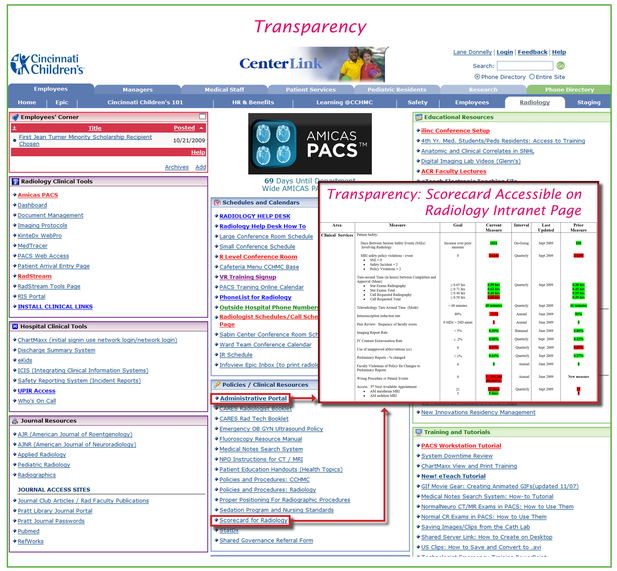
"Public Display of Data" as a Motivating Factor

Our experience has been that the transparent display of data concerning both our aggregate department data as well as display of individual performance is the strongest motivational tool available and is more successful typically than financial motivation. Our Department Scorecard is both presented to the institution, at faculty meeting, at department updates, and is available to all employees by access through our intranet site. You definitely "get what you measure". Measuring both before and after an intervention is planned is key.

Administrative Simplicity

Our institution is administratively simple. We have one CEO. All subspecialty physicians are employees. We do not have separate administrative entities for the hospital, university, and physician groups. Radiology is one single entity. We strongly believe that administrative simplicity renders us more nimble. This has been conducive to us promoting a quality improvement agenda.

Transparency



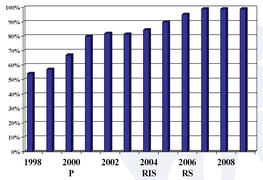
Clinical Services

Area	Measure	Goal	Current Measure	Interval	Last Updated	Prior Measure
Clinical Services	Patient Safety:					
	Days Between Serious Safety Events (SSEs) Involving Radiology	Increase over prior measure	1031	On-Going	Sept 2009	939
	MRI safety policy violations / event • SSE = 0 • Safety Incident = 2 • Policy Violations = 2	0	2/2420	Quarterly	Sept 2009	2/4355
	Turn-around Time (in hours) between Completion and Approval (Mean) • Stat Exams Radiography • Stat Exams Total • Call Requested Radiography • Call Requested Total	≤ 0.65 hrs ≤ 0.71 hrs ≤ 0.48 hrs ≤ 0.58 hrs	0.59 hrs 0.63 hrs 0.49 hrs 0.60 hrs	Quarterly	Sept 2009	0.38 hrs 0.42 hrs 0.25 hrs 0.39 hrs
	Teleradiology Turn Around Time (Mode)	< 60 minutes	49 minutes	Quarterly	Sept 2009	41 minutes
	Intussusception reduction rate	80%	76%	Annual	June 2009	90%
	Peer Review: frequency of faculty errors	0 MDs > 2SD mean	1	Annual	June 2009	1
	Imaging Repeat Rate	< 5%	4.36%	Biannual	June 2009	4.80%
	IV Contrast Extravasation Rate	≤ .2%	0.08%	Quarterly	Sept 2009	0.12%
	Use of unapproved abbreviations (cc)	0	0.02%	Quarterly	Sept 2009	0.05%
	Preliminary Reports - % changed	< 1%	0.34%	Quarterly	Sept 2009	0.27%
	Faculty Violations of Policy for Changes to Preliminary Reports	0	1	Annual	June 2009	1
	Wrong Procedure or Patient Events	0	5 / 215,304 (00.0023%)	Annual	June 2009	New measure
	Access: 3rd Next Available Appointment • AM anesthesia MRI • AM sedation MRI	21 5	22 days 7 days	Quarterly	Sept 2009	28 7

Parameters include those related to patient safety – including day between Serious Safety Events (SSE) [events where deviation from best practice care results in significant patient harm]. We have deployed a multi-faceted patient safety program [1, 2] that has increased our days between radiology contribution to a SSE from 1/200 days to 1/939 days currently. Other parameters relate to report timeliness, peer review (faculty performance), access to historically limited access areas, and areas of technical performance. The parameter related to "Wrong Procedure or Patient Events" relates to a recently identified issue around a low but significant rate of radiology personnel failing to follow policies of using two patient identifiers for portable XR or US examinations resulting on exams on wrong patients. A plan is being developed to improve reliability in this area.

Clinical Services

Cincinnati Children's Hospital Medical Center — End Proc to Signoff % within 24 hours



Education

Education	Faculty attendance at Monday/Thursday AM conference	Mean ≥ 40%	81%	Quarterly	Sept 2009	40%
	# ACGME Pediatric Radiology 1st year Fellowship Positions filled	≥ 7	8	Annual	June 2009	8
	ACGME fellow case requirements met	100%	100%	Annual	June 2009	100%
	% Faculty who meet state licensing CME Requirements	100%	100%	Annual	June 2009	New measure
	% Rotating Residents whom pass pediatric section of ABR oral boards	100%	100%	Annual	June 2009	New measure

Parameters revolve around pediatric radiology fellowship and rotating residents. Monday/ Thursday AM conference are case discussions and presence of faculty is important to quality of conference.

Research

Research	Increased Department peer review publications	(> 5% mean - 2 yrs) 82	57 (↓28%)	Annual	June 2009	78 (↓3%)
	More scientific paper presentations at SPR than any other institution	Most	15 (Capped)	Annual	April 2009	22
	Direct funding per square foot	>CCRF (226)	132.2	Bi-Annual	June 2009	144.5
	% CCHMC external grant dollars utilizing IRC/Imaging support	> last year	12.3%	Annual	July 2009	9.6% New
	Fellows who complete research program requirements	100%	100%	Annual	July 2009	New measure
	CCHMC presentations at the following meetings: RSNA, SPR, ARRS, ISMRM, ASNR, SGR, ESPR	All	All	Annual	July 2009	New measure
	% presented scientific paper abstracts published (SPR / RSNA -2 & 3 years ago)	33%	61% (11/18)	Annual	July 2009	New measure
	IRB Violations	0	1	Annual	July 2009	New measure

Parameters related to number of peer review publications, presentation at national meetings, grant funding, and conversion of presented scientific abstracts into peer review published papers. Peer review publications were off in FY2009 partially related to timing. A large number of publications came out in July 2009 and will be counted in FY2010. Decreases in funding per square foot is partially related to newly started programs / space acquisition.

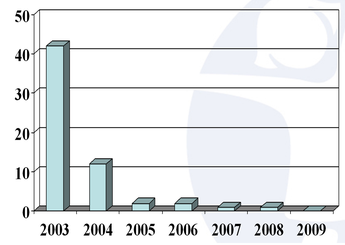
Professionalism, Communication, & User Satisfaction

Professionalism Communication User Satisfaction	# Parent/physician/coworker complaints to RIC concerning faculty behavior / professionalism / communication	< 1 per faculty per year (30)	1	Annual	June 2009	1
	Fellow Evaluation of Faculty Performance	mean > 3.5 / 4	4.7	Annual	June 2009	4.87
	Satisfaction with wait for imaging study	75%	88%	Quarterly	Sept 2009	86%
	Front desk treated with dignity / respect – % completely	95%	99%	Quarterly	Sept 2009	99%
	Technologist treated with dignity / respect – % completely	95%	94%	Quarterly	Sept 2009	96%
	Experience in Radiology - % excellent	70%	68%	Quarterly	Sept 2009	71%

We have implemented programs around professionalism and effective communication [3]. Scorecard parameters include complaints about behavior / professionalism / communication. This has decreased from a mean of 22 per year to typically 0 to 1 per year. Evaluation of the faculty in professionalism and effective communication by the fellows is included. Remainder of parameters are from patient/family satisfaction surveys. Percentages are those that gave a perfect 5/5 score.

Professionalism, Communication, & User Satisfaction

Complaints Concerning Faculty Behavior



Financial / Administrative

Financial / Administration	Department Contribution Margin %	53%	57%	Quarterly	Sept 2009	57%
	Clinical Faculty Revenue/Expense Ratio	mean > 1.3	1.41	Annual	June 2009	1.41
	RPF: total department reserves / annual expense	> 55%	73.6%	Quarterly	Sept 2009	80.8%
	Contribution Margin: variance from budget	> 0	$1,681,490	Quarterly	Sept 2009	$752,358
	Interventional Faculty Revenue/Expense Ratio	> 1.0	.98	Annual	June 2009	1.01
	Operational Expense / Procedure	Budgeted 6.6%	179.19 01.55%	Annual	June 2009	176.46 NEW

Parameters relatively self-explanatory. We recently added Operational Expense / Procedure as an internal measure to reflect efficiency and efforts in cost containment.

Staffing

Staffing	**Unfilled FTE / Budgeted FTE**					
	Technologists	< 10%	1.24/120.74 2.7%	Quarterly	Sept 2009	5.55/122.09 2.9%
	Faculty MD	< 10%	1/45 2.8%	Quarterly	Sept 2009	0/35 0%
	Research PhDs	< 10%	4/13 31%	Quarterly	Sept 2009	0/9 0%

Parameters relatively self-explanatory. 4 vacancies in research faculty related to newly created positions.

Conclusions

Having a department scorecard that is presented quarterly and available to all radiology employees via the intranet has helped to focus staff on quality improvement and drive department performance. Over a 7-year period, this tool has helped change our department culture towards one of quality improvement.

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