INTEGRATED SYSTEMS MANAGEMENT

AS THE FOUNDATION FOR EFFECTIVE REDUCTION OF DIAGNOSTIC ERROR IN MEDICINE

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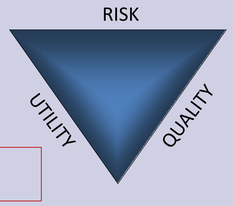

1. Identify the three critical components of effective healthcare management. 2.Describe how an integration of these three components provides the most effective means of reducing error in diagnostic medicine. 3.Explain how to design and implement such an integrated system at the strategic level.

SITUATION

Over the past 60+ years our ability to make accurate medical diagnoses has grown explosively as have the number of diagnosable and treatable diseases. Increased diagnostic capability has lead to increased complexity and so, paradoxically, increased ***Risk*** for diagnostic error along with increased ***Perception*** of this error. Therefore, we require an equally capable system to manage this complexity to better control both

Risk and Perception.

Present approaches do not effectively integrate three separate but interrelated and potentially conflicting components of healthcare management required to achieve the goal of **reduced diagnostic error**.

PROBLEM

How do we establish effective and comprehensive control over our increasingly complex profession to:

Reduce Diagnostic Error?

SOLUTION

Integrated Systems Management [ISM] is the solution. [1,2] It requires a transformation of healthcare cultural to integrate and prioritize:

⇨ ***RISK***
⇨ **QUALITY**
⇨ **UTILITY**

In my experience this is the best approach to achieving an ***Acceptable Balance*** between benefits and risks when applying complex diagnostic modalities to our patient's best interests.

IMPLEMENTATION

Successful implementation of ISM requires both an educational and organizational effort to bring together these three health care activities:

⇨ ***RISK*** **MANAGEMENT**[3]
⇨ **QUALITY ASSURANCE**[4]
⇨ **UTILITY REVIEW**[5]

into a single integrated structure that assures close cooperation between those engaged in improving health care today.

AXIS	PRIORITY	GOAL	MEASURABLE OBJECTIVE
RISK	1st	ASSURE PATIENT SAFETY	MINIMIZE [DO NO] HARM
QUALITY	2nd	MAKE THE PATIENT FEEL GOOD	⬇PAIN, SUFFERING, INCONVENIENCE
UTILITY	3rd	DO WHAT WORKS	EFFICIENT AND EFFICACIOUS

ISM – BASIC STRATEGIC STEPS TO REDUCE DIAGNOSTIC ERROR

#	STEP		DESCRIPTION
1	ESTABLISH PURPOSE	INTENDED USE	Screening, Diagnosis, Prognosis, Therapy, Management
2	DEFINE OUTCOMES	BENEFITS	⬆***Patient Safety*** ⬆**Quality of Service** ⬆**Efficiency and Efficacy**
3	DO ISM ANALYSIS	RISK QUALITY UTILITY	Determine potential adverse outcomes Determine potential quality issues Determine appropriateness of intended use and total cost
4	***ACCEPTABLE RISK***	FMEA – Data Collection and Risk Assessment	Establish maximum ***Acceptable Risk*** for benefits attained: Determine most critical risks, attempt to estimate: ➡Frequency ➡Severity ➡Perception of cost to patient and society
5	***RISK*** STRATIFICATION	AVOID	Determine if the activity should be implemented at all
		PREVENT	Determine adverse events to be prevented if implemented
		MITIGATE	Determine what residual ***Risk*** can be monitored and mitigated
		DEFER	Determine what adverse outcomes should be insured against
6	ACTIVITY DESIGN	FMEA (again!)	The four basic components of the activity are designed
		SYSTEM	Design logical flow – **safest way** to achieve intended outcome
		TOOLS	Establish what is the **right equipment/resources** to do the job
		PROCESSES	Develop **best procedures** to complete each task in order
		SERVICES	Establish **minimal personnel qualifications** to run the system
7	DOCUMENT SYSTEM	DOCUMENTS	**Document Management System** [**DMS**] to codify activity
		MISSION	Brief statement of the purpose of activity along ISM lines
	DOCUMENTS: Drive the IMPLEMENTATION	PLANS	**Strategic**: Goals – Written by Leadership/Chief Physicians **Operational**: Objectives – Written by Middle Management **Technical**: Tasks – Written by those who carry them out *Develop Top Down and Bottom Up iteratively*
		POLICIES	Each measurable objective is established in a short policy
		PROCEDURES	Each self contained set of tasks is organized procedurally
		GUIDELINES	**Knowledge Management**, Decision Branch Points codified
		FORMS	Data acquisition to monitor and evaluate activity for meeting ***Risk***, ***Quality***, and ***Utility*** Goals through Measurable Objectives
8	IMPLEMENTATION		Carried out in concert with development of DMS
	KNOWLEDGE MANAGEMENT: Those with wisdom, judgment, and experience train and educate incoming personnel	ORIENTATION	Developing *Cultural Reference Frame* to an activity
		PRIMING	Developing *Receptivity* in learning a task properly
		TRAINING	Developing *Proficiency* in carrying out tasks properly
		EDUCATION	Developing *Competency* to prevent systematic error
		EXPERIENCE	Developing *Reliability* to recognize and mitigate error
		JUDGEMENT	Developing *Capability* to recover from serious error
		WISDOM	Developing *Insight* into the activity allowing ongoing redesign

REFERENCES – SELECTED:

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COST/BENEFIT

Effective **ISM** requires careful investigation of a proposed activity to delineate if and how to implement a **System** of Logic that uses Physical and Informational **Components**, via a **Process**, carried out by properly prepared **Personnel** to achieve a positive balance:

QUALITY ATAINED + **UTILITY** VALUE > ***RISKS*** INCURRED

The actual evaluation of a proposed activity will require comparing ***Risks*** against **Quality** issues, ***Risks*** against **Utility** values, as well as **Quality** against **Utility**; **AND** even ***Risk*** against ***Risk***.[6]

IN BRIEF – EXAMPLE 1

A Reference Laboratory Pap smear division had a 5% error rate in reports - 10,000 out of 200,000 each year. One significant cause of adverse outcomes was an imbalance between:

QUALITY: [**Patient Convenience**] over emphasized
RISK: [**Patient Safety**] under emphasized

Priority placed on turn-around-time in the face of inadequate computer and personnel resources lead to significant adverse outcomes that was corrected through application of **ISM**.

IN BRIEF – EXAMPLE 2[7]

A hospital Coumadin Clinic wished to implement **POCT** for **PT/INR** to make it more ***Convenient*** for patients and to reduce ***Risk*** due to delay in modification of treatment when studies were done in the main lab. Inherent limitations of the **POCT** instrument were not taken into account. This lead to **Systematic** over treatment at **PT/INR** results near the **Medical Decision Point [MDP]** for reducing Coumadin dosages. A rise in bleeding events ensued. One of clinical significance lead to re-evaluation and a change to another instrument with modification of intended use.

CONCLUSION

The judicious application of **Integrated Systems Management** to the increased complexity of our healthcare system can achieve significant reduction in **Diagnostic Error** by establishing a balance between ***Risk***, **Quality**, and **Utility** with an eye to determine what ***Acceptable Risk*** we can reasonably incur in return for the **Benefits** obtained for our patients. THE TAKE HOME LESSON:

RISK – QUALITY – UTILITY

IN THAT ORDER!