An Inventory of Laboratory Patient Safety Initiatives Current (2001-2004) and Future

IQLM Quality Network Workgroup

INSTITUTE FOR QUALITY IN LABORATORY MEDICINE

Introduction

- Clinical laboratories regularly monitor errors and employ continual quality improvement processes to reduce errors.
- Continual quality improvement can be implemented with organized, planned initiatives designed with measurement systems and specific outcomes in mind.
- An inventory of best practices in quality improvement and patient safety, collected from a broad spectrum of laboratories, would be a helpful resource.
- Gathering this information can be a difficult task for individuals or institutions.
- Objective
  - Identify quality management activities through an on-line, voluntary and self-reported survey of hospital laboratory managers belonging to the Clinical Laboratory Management Association (CLMA)
- Section 1
  - Current (2001 - 2004) initiatives
- Section 2
  - Future proposed topics, benchmark initiatives

Methods - Survey Development

- Survey Prepared by CLMA
  - Reviewed and Revised by
    - CLMA's Quality Advisory Council
    - IQLM Network Workgroup
- Conducted trial survey with
  - Focus Group of Eight Laboratorians
  - CLMA Chapter Leader Volunteers
- Final Review and Revision by
  - CLMA's Quality Advisory Council
  - IQLM Network Workgroup

Methods - Survey Format

- Quality Initiatives Section Questions
  - Closed-ended response options
- Open-ended response options
  - With space for free text
  - Coded using categories
  - Represented as much detail as possible for sharing of information.

Methods - Survey Process

- On-line, voluntary and self-reported survey
- Sent in November 2004, to 2301 CLMA members with highest functional title in hospital laboratory
- Response rate was 25% or 572/ 2301
- Distribution of volunteer respondents
  - Nationwide sample
  - Correlates closely with the distribution of the CLMA membership
- • The responders of the survey indicated that 472 or 83% would be interested in being involved in an ongoing quality network to share and to disseminate best practice information

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CURRENT Significant Initiatives

1. Current, 2001 - 2004

What is the most significant initiative your laboratory implemented in the last three (3) years that effectively reduced laboratory errors or improved patient safety?

Table 1. Summary of Current Patient Safety Initiatives

Current Initiatives	% Responses; N=557	Table
Patient / specimen identification	50	1a
Information systems and technology	13	1b
Quality management systems	12	1c
System or process design	7	1d
Specific other	18	1e

50% of respondents initiated patient or specimen identification systems

Table 1a. Patient/Specimen Identification - 50% or 280/557

	Responses (Number)
General Process	84
Use of Bar Coding at Bedside	57
Use of 2 Identifiers	48
Use of Armbands	23
Use of Unique Blood Bank Identifier	17
Other	51

The most frequent single initiative involved the implementation of bedside bar code readers (10%, 57/557)

Table 1b. Information Systems/Laboratory Information Systems - 13% or 74/557

	Responses (Number)
Interfaces Established	17
Instrument Bar Coding	12
New LIS/Upgrade	10
Patient ID	5
Autovalidation	2
Other	23

Table 1c. Quality Improvement/ Management Systems - 12% or 66/557

	Responses (Number)
New Improved Quality Management Systems	43
Introduced: Six Sigma	6
Lean	5
Electronic Report	3
Safety Culture	3
Other	6

Table 1d. Process / System Design - 7% or 41/557

	Responses (Number)
Order Accuracy	19
Pre-Analytical	8
Reduced Aliquots	5
Specimen Processing	4
Specimen Integrity	4
Test Results	1

Table 1e. Other Specific 18% or 96/557

	Responses (Number)
Blood Bank Administration	19
Critical Value Reporting	19
Workflow/Technology	9
Lab Staff Assigned Blood Draws	8
Corrected Results	6
TAT – General	6
TAT – ED	5
Continuing Education	5
Histology/Surgical Specimen	4
Read Back on Verbal Orders/Results	4
Safety Needles	3
Blood Culture Contamination	2
Communication	2
Hand washing	1
Filling Staff Vacancies	1
Shifting Personal Schedules	1
Blood Collections	1

Discussion

The results of this pilot survey indicate that many laboratories have quality management systems in place and are enacting new quality procedures in a variety of areas. Many quality initiatives result from opportunities identified by the quality management system itself, while others stem from corrective actions for near-misses or complaints. If the pilot survey results can be confirmed, it indicates considerable quality activity in clinical laboratories.

Implementation of planned and organized quality initiatives can be taken as a measure of a matured quality management system because they require a pre-existing system for monitoring and capturing significant non-compliances, near-misses, and complaints. Quality initiatives that are monitored are an important process of continual improvement.

Quality initiatives may also be accepted as evidence of preventive action, if the intent is to improve processes and avoid patient safety errors before they occur

Table 2

What was the event that stimulated the initiative? N = 557	Response (Percent)
Existing Quality Improvement System	47%
Near Miss or Adverse Event	13%
Complaints (Physician, Employee, Patient)	13%
Regulatory Compliance	11%
Management Initiated	7%
Information System Needs	7%
Uncertain	2%

47 % of respondents reported the stimulus for change was most frequently the result of self-query through an existing quality improvement system

13% of respondents reported corrective action cases were initiated as the result of laboratory-based near-misses or logged complaints

Table 3

	How was the impact measured? N = 572	Response (Percent)
1.	Monitoring Mechanism	80%
	Monitoring for Repetition of Occurrence	54%
	Monitoring a Metric	22%
	Independent Audit	4%
2.	Not Monitored	20%

80% of respondents implemented a measurement or monitoring mechanism along with corrective action

Table 4

Changes that resulted from the initiative N = 572	Response (Percent)
Processes and Procedures	85%
Training	75%
Policies	65%
Information systems	26%
Staffing	16%
Instrumentation	16%
Other	7%

Over 60% of respondents implemented a new process, procedure, training or policies as a result of the initiative

FUTURE Significant Initiatives

2. Future

What topics would you like to see for future surveys that could help you benchmark or give you ideas on how to improve laboratory medicine?

Table 5. Summary of Future Topics for Initiatives and Benchmarking

	Future Topic	Response (Percent) N=831	Table
1.	Quality improvement and benchmarks	17%	6
2.	Personnel issues	16%	6
3.	Pre-analytical patient and specimen identification	13%	6
4.	Appropriate clinician ordering and utilization	12%	6
5.	Turnaround times	8%	6
6.	Cost analysis/financial justification	4%	6
7.	Information systems	4%	6
8.	Point of Care testing/services	3%	6
9.	Instrument/process automation technology	3%	6
10.	Other – specific	20%	7

Table 6

Future Topics for Patient Safety Initiatives and Benchmarks

	Total # of Responses – 831	Responses (Number)	% of Total
1.	Quality Improvement and Benchmarks		17% (139/831)
	How to do Quality Improvement?	68	
	Access to Patient safety/quality benchmarks/best practices	71	
2.	Personnel Issues		16% (133/831)
	Staff productivity	64	
	Staff recruitment/retention	29	
	Staff assessment/competency	25	
	Staff enhancement/training	10	
	Continuing education	1	
	Staff safety	4	
3.	Pre-Analytical Patient and Specimen ID		13% (106/831)
	Patient identification	26	
	Specimen identification	32	
	Patient/specimen identification technology (e.g. barcode)	15	
	Specimen integrity in phlebotomy	31	
	Specimen processing	2	
4.	Appropriate clinician ordering/utilization ❑ Reflex ordering ❑ Algorithms ❑ Practice guidelines ❑ Evidence based medicine ❑ Cardiac care lab Info ❑ Outcomes	100	12% (100/831)
5.	Turnaround Times in Emergency Medicine	13	
	Turnaround Times In General	51	8% (64/831)
6.	Cost Analysis/Financial Justifications	35	4% (35/831)
7.	Information Systems	17	
	Laboratory Information Systems (LIS)	13	4% (30/831)
8.	Point of Care Testing/services	28	3% (28/831)
9.	Instrument/Process Automation Technology	24	3 % (24/831)

17% of respondents requested information on quality improvement (QI) and benchmarks

16% of respondents requested information on personnel issues, mainly staff productivity

Patient and specimen identification was requested by 13% of respondents

12% of respondents reported that they would like information on appropriate clinician ordering and utilization

Discussion

One of the top responses (Quality Improvement/Benchmarks) demonstrates the need for additional education and training in how to do quality improvement and the need for access to best practice and benchmarks for patient safety (See Table 5). This indicates that even though 47% of current safety initiatives (See Table 2) were initiated by existing quality management systems, there is an awareness that more needs to be done.

Personnel issues were also a top response, which indicates that there is continued concern about how quality is impacted by staff productivity, recruitment and retention, and competency and training.

The 106 responses requesting patient and specimen identification indicated that this will be a priority area for the future (See Table 6). The 280 respondents for current significant initiatives on patient identification (See Table 1a) could greatly assist this subset of respondents by sharing best practices. The intent is to improve processes and avoid patient safety errors before they occur.

Appropriate clinician ordering and utilization topics were indicated by 100 responses or 12% (See Table 5). The detail from this response suggests that the sharing of best practices for use of reflex ordering algorithms, practice guidelines, evidence based medicine, and outcomes, would benefit patient safety.

The other responses demonstrate the wide variation of needs for quality improvement in all areas of laboratory medicine and its operations (See Table 7).

Table 7

Future Topics for Patient Safety Initiatives and Benchmarks Continued

10. Other	Responses (Number)
Instrument Validation	1
Bioterrorism	1
Product Deviation	1
Material Management	1
Duplicate Testing	1
Individual Lab	1
Collection-Patient Wait Time	1
Blood Culture Contamination Pots	2
Technology Available	2
Proficiency Testing	3
POL	3
Document Control	4
QC	4
Management	4
Regulatory Compliance	4
Customer Service	5
Corrected Results	6
Operating Analysis	7
Lab Safety	8
How to get Resources for QI	9
Critical Value Reporting	11
Outreach/Market	14
Transfusion Administration, ID, Staff	14
No Comment/Not Sure	65
Total	172
Percent of Total	20% (172/831)

Summary/Conclusion

The CLMA respondents to this survey are interested and see the value in working with others to reduce errors and improve their laboratory services. Even though many laboratories have mature quality management systems that can detect errors, there appear to be no standardization of process or terminology based on the text responses and various requests for additional topics. The top response for future topics and initiatives was information on how to do quality improvement (QI) with access to benchmarks and best practices. There is a need for QI education and training.

We found overlap of quality focus areas such as in QI for patient identification. Fifty percent or 280 of responses indicated that patient identification was the most significant initiative in last three years and 13% or 108 responses requested information on the future topic of patient identification. There appears to be value in sharing the experiences and best practices of those who have completed their safety initiatives.

Thirteen percent or 74 respondents stated that their significant quality initiatives were stimulated by near misses or adverse events indicating ongoing concern in laboratory medicine for patient safety. It is the challenge of all involved to determine how to design the total testing process with monitoring systems to ensure that there are no near misses or adverse events.

The focus area of appropriateness of clinician ordering and use of test results information in patient care showed a low response in current quality initiatives and a high response rate for future initiatives. This response appears to indicate a growing awareness of this important quality component.

Patient safety is the responsibility of all involved and the CLMA responders indicated that 472 or 83% would participate in an ongoing quality network to share and receive best practice information. This high response indicates need and the desire to work together to reduce errors and ensure patient safety in laboratory medicine.

Acknowledgments

CDC
- Joe Boone
- James Handsfield
- Devery Howerton
- Colleen Shaw
- Susan Snyder
- Robin Stombler

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