



Annual Report 2009

Mission Statement

The Program provides a community of cooperation and education to enhance the sharing of resources to improve quality and maximize the efforts of Regional Laboratory Services in providing a high level of service to our member hospitals and communities.

Values

Integrity	We act honestly, ethically and impartially at all times.
Professionalism	We encourage self-improvement and aim for scientific excellence.
Quality Assurance	We ensure that all our work is carried out in accordance with recognized standards.
Teamwork	We recognize the participation, initiative and cooperation of all the laboratories as being essential to our success.
Client Focus	We strive to recognize and anticipate the needs of clients by working openly and cooperatively to meet those expectations.

Board of Directors

Robert Wilson	Atikokan General Hospital
Wade Petranik	Dryden Regional Health Centre
Mark Balcaen	Lake of the Woods District Hospital
Janice Mullin	Red Lake Margaret Cochenour Memorial Hospital
Wayne Woods	Riverside Health Care Facilities, Inc.
Roger Walker	Sioux Lookout MenoYaWin Health Centre

Regional Office

Kenora-Rainy River Regional Laboratory Program, Inc.
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Chief Operating Officer:	Wade Petranik
Laboratory Director:	Dr. J. Kerry MacDonald
Executive Director:	Anna Robinson
Executive Assistant:	Marilyn Rustan

Organizational Chart

(See Appendix A)

Executive Summary

The Kenora -Rainy River Regional Laboratory Program (KRR RLP) exists to provide leadership in all aspects of Laboratory Medicine, including service and education with the pursuit of excellence, encouragement of innovation and adherence to regulatory and professional standards. The mission of the Program shall be supportive of the missions of the participating hospitals.

This year marked the introduction of a new three-year plan. As a result the Program is pleased to report that through a series of RFPs the following has been accomplished:

- Acquisition of a suitable Hematology analyzer for all sites
- Placement of PCR equipment into one site

Regional educational activities are driven by the Program as a commitment to lifelong learning. Besides the annual Fall Symposium the Program continues to develop Newsletters to share information with both Laboratory and non-Laboratory professionals. This year, in response to a regional request, the Program also arranged a workshop in effective communication.

Medical Laboratories are in a state of on-going change. In part this is due to the new requirements laid out by Ontario Laboratory Accreditation (OLA). One of the Program's objectives was to assist 6 Laboratories in their preparations for Peer Assessments by OLA in 2010. Extensive work and collaboration took place and the Laboratories should be positioned to achieve a four-year accreditation.

In the absence of a Quality Coordinator at four sites the Program took the lead with orchestrating and reviewing Quality audits performed by each facility. The audits were performed at predefined time intervals with clearly-defined measureables allowing for the opportunity to implement effective action plans.

The Program updated its reference library to include current additions of particular textbooks as well as an internet library. This allowed for preparation and introduction of updated regional manuals in October 2009.

The Laboratory Director continues to sit on the OLA Advisory Committee and the Executive Director(E.D.) of the Program remains a Council member for CMLTO. The E.D. was elected President of CMLTO for 2010.

Detailed Description of Activities

Equipment / Test Menus

When one considers that 70% of diagnostic and treatment decisions are based on laboratory tests, it is easy to see the crucial role laboratory medicine plays in patient care in our hospitals. In 2009, the region performed 1,300,000 laboratory tests. This is a decrease of 100,000 tests over the last 3 years. The decrease is attributed to streamlined menus, use of more appropriate tests and clinical education.

Site specific, the Program worked in collaboration to prepare business plans for Point of Care Testing and PCR. Point-of-care testing (POCT) remains in the forefront of the Program's plans noting it has the potential to significantly reduce call backs and enhance the quality of care. Additional research is needed to identify the best methods for integrating POCT into daily clinical processes and monitoring its use as required by Ontario Laboratory Accreditation. As well, additional man hours would be needed to train and recertify operators in the proper use of POCT devices.

Education

The Program organizes continuing medical and technical education in a variety of forums: conferences, teleconferences, workshops, presentations and lectures. It is committed to helping the medical and technical personnel be the best they can be. This year it was the only Regional Program to host an annual Conference in Ontario outside of a provincial initiative.

Details of this year's Symposium are outlined in **Appendix B**.

This year the Program continued in its educational commitment by producing a series of newsletters for physicians and technologists to provide authoritative information, advice and instruction on the utility of specific laboratory tests. **Appendix C**.

The Laboratory Director continues to provide onsite education to a variety of health care providers. The presentations included topics such as community acquired MRSA and cognitive error.

At the request of the Laboratory Managers, a workshop was hosted on communication strategies in order that staff could be more effective as trainers. Jim Lees, a Counselor and Coordinator of Student Services Confederation College, provided a one day workshop to ten (10) participants.

The time given to provide these resource activities and support its users is extensive.

Onsite Visits

In addition to monthly or bi-monthly teleconference meetings with the Laboratory Managers, onsite visits have occurred in the region by the Laboratory Director and/or the Executive Director, 3 times. **Appendix D.**

The Laboratory Managers also meet with the Laboratory Director and Executive Director bi-annually for 2-day sessions to deal with strategic planning, new initiatives and complex projects. These meetings provide guidance to the Laboratories in order to meet the clinical needs and established goals in each facility.

A regional Microbiology Committee actively meets to provide a forum for technologists working in this discipline to connect with their peers and discuss related issues. This has led to quality improvements to individual operations and the regional manuals.

In preparation for OLA, the Executive Director visited each site to perform a simulated assessment of their Quality Management Systems. Non-conformances to the requirements were documented allowing Laboratories enough time prior to their Peer Assessment to correct any non-conformances.

Recruitment

The Program is committed to the training students pursuing a career as medical laboratory technologists (MLT). Staff members at LOWH worked closely with Cambrian College by helping to train students in their clinical year. The Executive Director of the Program sits on the Professional Advisory Committee (PAG) for Cambrian College.

The Executive Director is the Chair of the PAG for the MLA/T Program at Confederation College. The six facilities in the KRRRLP have agreed to work collaboratively with the College to provide students with the training needed to transition them into a MLA/T career path hopefully within North Western Ontario.

The Pathologists also provided training to a fifth year Pathology resident.

EQA Challenges

The Quality Management System - Laboratory Services (QMP-LS) and DigitalPT provide external quality assurance programs specifically designed for Ontario laboratories. The goal is to provide a confidential assessment by which a laboratory can compare its internal test results to those of other laboratories.

A Regional review of EQA challenges has revealed improvement in performance when compared to previous years. **Appendix E.**

This year there were 15 letters of non-conformance received:

	Non-conformances
Statistical/method bias	5
Technical - misinterpretation of results, calculation errors, QC limits sample mix-up, random error	3
Materials - defective reagents/unsupported reagents, mishandling QMP-LS samples	2
Failure to follow SOP	1
Equipment function	0
Organizational Factors- communication, training, missing SOP information	4
Random Error	0

Corrective actions for the most part included re-education and training of staff, and contacting manufacturers regarding problems with materials or analytical performance.

Audits

Audits are an essential OLA management tool to be used for verifying objective evidence of processes, to assess how successfully processes have been implemented, for judging the effectiveness of achieving any defined target levels, to provide evidence concerning reduction and elimination of problem areas. As a result and for the benefit of four sites without a Quality Coordinator, the Program lead quality auditing to globally assess evidence, determine non-conformances and participate in the implementation of corrective actions.

Approximately 30 audits were performed by each site in 2009. The statistical data from these audits were submitted by the Laboratory Manager as part of a Management Review to Senior Administration so are not part of this Report.

In summary, the Laboratories are meeting defined target levels. Any corrective action items have been acted on expeditiously and again the Laboratories are in position to meet the OLA requirements.

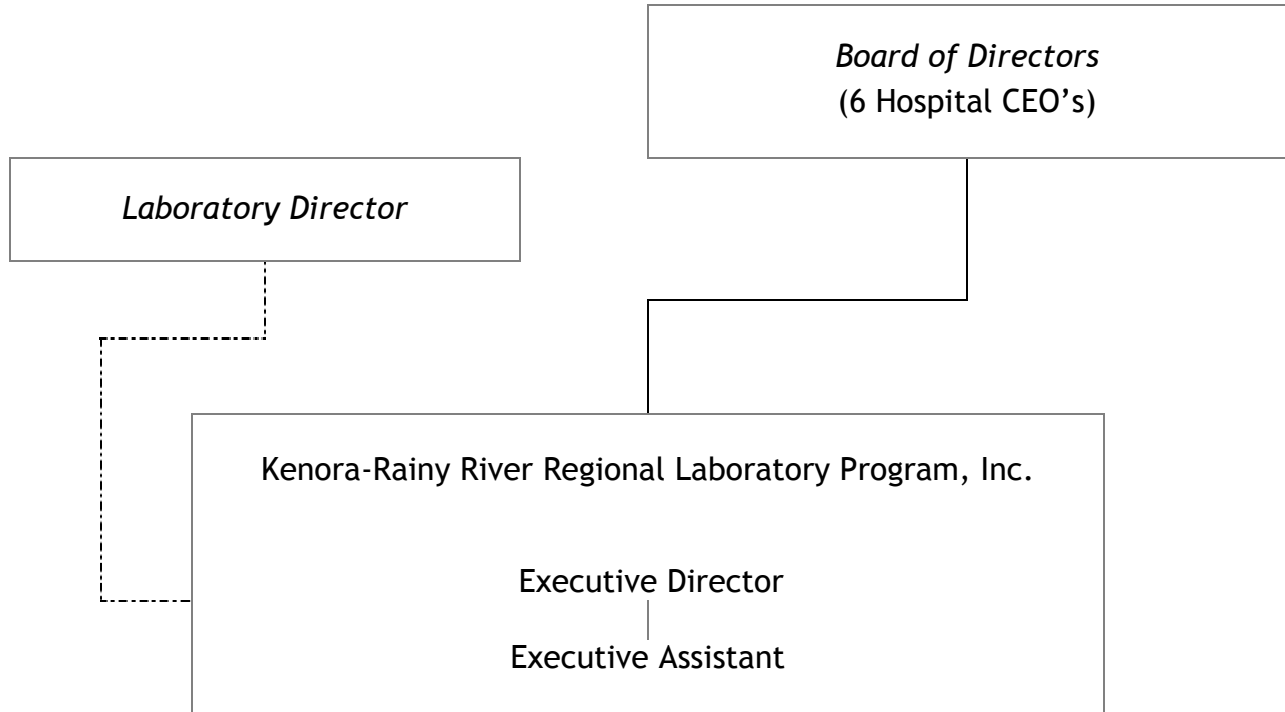
Goals for 2009:

- Revisit BNP testing: *deferred until a regional decision is made for POCT testing*
- Evaluate the availability of Octaplex on site: *newsletters circulated to introduce the product. Availability on site is at the discretion of the hospital pending a re-distribution plan to prevent outdating of the product.*
- RFP--PCR testing in three sites. Implemented in 1 site. *Chromogenic media to be implemented in 2 sites.*
- RFP -POCT-examine other testing available for small hospital laboratories: *RFP complete and shortlisting has occurred. Will be revisited following OLA Accreditation.*
- Roll out Regional benchmarks to assist in compliance with the OLA requirements. *Twenty-two audits were performed to measure performance against established benchmarks. Audits ongoing to monitor quality improvement activities.*
- Act as unbiased third party in monitoring laboratory quality processes. *Audits collated and examined regionally to prevent bias. Ongoing activity.*

Goals for 2010:

- Assist Laboratories in achieving a 4-year accreditation. Act on areas of non-conformance.
- BNP and POC testing: continue from 2009.
- Measurement of Uncertainty: Fully measure analytical bias on appropriate tests and have available for clinical use.
- Succession Planning: Pursue the development of Lab personnel in the region to fill the position of Executive Director.
- Provide Clinical presentations on Reversal of Warfarin and Hemolytic Anemias
- Establish an Immunohaematology Committee

Organizational Chart



Annual Fall Symposium 2009

Summary

The 18th Annual Fall Symposium, “Striving for Excellence”, was held September 15, 16 and 17 2009, at laPlace Rendezvous in Fort Frances

Twenty-eight delegates attended this year’s Symposium:

▪ Atikokan General Hospital:	4	
▪ Dryden Regional Health Centre:	1	
▪ Lake of the Woods District Hospital:	8	<i>(Includes Laboratory Director)</i>
▪ Red Lake MC Memorial Hospital:	1	
▪ Riverside Health Care Facilities:	8	
▪ Sioux Lookout Meno-Ya-Win Health Centre:	5	
▪ KRR RLP	2	

The educational format consisted of five (5) guest speakers who provided presentations relating to laboratory management and medicine.

The exhibition itself included 16 Booths with 22 vendors.

2009 Fall Symposium
at a glance

Tuesday, September 15

1330 - 1630	<p>Presentation: Biological Variation</p>
	<p>Clement Ares, BSc Senior Product Manager, Quality Systems Division, Bio-Rad Laboratories (Canada) Inc.</p>
	<p>This presentation investigates the advantages of using a feedback tool based on biological variation in an attempt to improve laboratory performance. The presentation will demonstrate that use of biological variation data provides a logical strategy for the laboratory to define and limit how much imprecision, bias and total error are allowable based on biology and not on some purely statistical model. A scheme that sets targets for analytical performance based on biology and provides a graphic plot to retrospectively review performance within total allowable error limits represents a powerful adjunct to traditional process control schemes (such as Westgard rules). Such a scheme is not intended to replace a traditional process control but to enhance it.</p>
	<p>Sponsored by: Bio-Rad Laboratories Canada</p>
1730 – 1930	<p>Meet & Mingle <i>Official Opening of</i> 2009 Annual Fall Symposium Exhibits</p> <p style="text-align: right;"><i>(Cash Bar)</i></p>
1930 – 2200	<p style="text-align: center;">The Great KRR RLP Chili Cook-Off</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid red; padding: 10px; width: 60%;"> <p>Become a “chili head”. Grab a Margarita and make your rounds with a special tasting kit then cast your ballot for your favorite chili. The chili receiving the most taster votes will receive a trophy for their version of “Redneck Sunday Dinner”.</p> <p>Watch 6 Labs, 2 pathologists and the Program vie for the coveted prize.</p> <p style="text-align: right;"><i>(Cash Bar)</i></p> </div> </div>

2009 Fall Symposium
at a glance

Wednesday, September 16

0900 – 1200	<p style="text-align: center;">Patient Safety</p> <hr/> <p style="text-align: center;">Tom Clancy, MLT, ART Director of Core Laboratory Services University Health Network Laboratory Medicine Program</p> <hr/> <p>Canadians should be able to count on receiving health care that is safe. To achieve this, a new health care delivery system is needed; a system that both prevents errors from occurring, and learns from them when they do occur. The development of such a system requires a commitment by all stakeholders to a culture of safety. Learn about best practices in patient safety to expand awareness of patient safety issues.</p> <hr/> <p>Sponsored by: Life Labs, Ortho Clinical Diagnostics & the University of Health Network</p>
1000 - 1100	<p>Refreshment Break & Exhibits</p>
1100 - 1200	<p style="text-align: center;">Patient Safety ... continued</p>
1200 - 1300	<p>Lunch & Exhibits</p>
1300 - 1400	<p style="text-align: center;">Finance for the Non-Finance Employee</p> <hr/> <p style="text-align: center;">Ernie Remillard, CGA Chief Financial Officer, Northern Lights Credit Union</p> <hr/> <p>This presentation is designed for Managers and professionals in non-financial roles who have responsibility for financial matters and those who need to know more about finance to improve their planning, costing and budgeting skills.</p> <hr/> <p>Sponsored by: Northern Lights Credit Union and Abbott Laboratories</p>
1400 - 1500	<p>Refreshment Break & Exhibits</p>
1500 - 1600	<p style="text-align: center;">Finance for the Non-Finance Employee ... continued</p>

2009 Fall Symposium
at a glance


Wednesday, September 16

<p>1630 – 1800</p>	<p style="text-align: center;">Learn to Taste Wine like an Expert!</p> <div style="display: flex; align-items: center;">  <div> <p>Eyeballing wine, swirling and sniffing and swishing ... it may look complicated or even snobbish, but the traditional wine-tasting technique is actually based on common sense. It's simply a way to pause for a moment, to stop and think, and to pay attention to the ways that wine impacts on all your senses, from sight and scent to taste, aftertaste, and the overall impression that the wine leaves behind after you've finished.</p> </div> </div> <p>Join our local oenophile, Wayne Woods, CEO Riverside Health Care Facilities, for an introduction to tasting wine, including an appreciation of its sight, smell and taste; a look at the oddities of wine vocabulary with quick overviews of the wines of various countries and sparkling wines. Learn to sort out the variety of aromas and flavors found in wine.</p> <p style="text-align: right;">Cost to attend: \$10.00</p>
<p>1800 - 2000</p>	<p>Join us for Dinner following the Wine Tasting Class.</p> <p>Dress Code: Casual</p> <p style="text-align: right;"><i>(cash bar)</i></p>

2009 Fall Symposium
at a glance

Thursday, September 17

0900 – 1000	<p style="text-align: center;">Microbial Genomes</p> <p style="text-align: center;">Dr. Carney Matheson Associate Professor of Anthropology and Forensic Examiner and Scientific Officer (Paleo DNA Lab)</p> <hr/> <p>The emergence and reemergence of infectious diseases, an increasing rate of antibiotic-resistant variants of pathogens, and the threat of bioterrorism underscore the importance of bacterial genomes and infectious diseases, fundamental knowledge on the structure, organization, and evolution of bacterial genomes to better understand future testing.</p> <hr/> <p>Sponsored by: Oxoid Inc.</p>
1000 - 1100	<p>Refreshment Break & Exhibits</p>
1100 - 1200	<p style="text-align: center;">CSI Case Studies</p> <p style="text-align: center;">Dr. Carney Matheson Associate Professor of Anthropology and Forensic Examiner and Scientific Officer (Paleo DNA Lab)</p> <hr/> <p>Move over CSI, Northwestern Ontario has the real deal: Lakehead University's Paleo-DNA Laboratory. Hear about the forensic marvels of DNA analyses on severely degraded and ancient samples from around the world.</p> <hr/> <p>Sponsored by: Oxoid Inc.</p>
1200 - 1230	<p>Lunch</p>
1230 - 1330	<p style="text-align: center;">Clot Signature Curves</p> <p style="text-align: center;">Marc Lauzon National Applications Specialist - Coagulation Beckman Coulter Canada Inc.</p> <hr/> <p>When confronted with an unexpected or unusual result in the Coagulation Laboratory, there are many actions Laboratory Technologists might typically take. Often overlooked, is a useful tool that is standard on many coagulation analyzers: Clot Signature Curves. Learn more about them and other troubleshooting techniques to investigate problems.</p> <hr/> <p>Sponsored by: Beckman Coulter Canada Inc.</p>
1330 - 1345	<p>Refreshment Break</p>
1345 - 1445	<p style="text-align: center;">Clinical Utility and Laboratory Aspects of D-Dimer Testing</p> <p style="text-align: center;">Marc Lauzon continued</p> <hr/> <p>Sponsored by: Beckman Coulter Canada Inc.</p>

		
KRR RLP Fall Symposium September 14, 15 & 16, 2009		
Income:		
Booth Space:	\$19,280.00	
Sponsorship:	\$1,000.00	
Registration:	\$190.00	
Cookbook Sales	\$15.00	
Total Received:		\$20,485.00
Expenses:		
Accommodation:	\$9,301.60	
Catering:	\$8,522.03	
Chili CookOff	\$209.16	
Other Expenses	\$102.32	
Transportation:	\$3,126.44	
Total Expenses:		\$21,261.55
2009 KRR RLP Fall Symposium		-\$776.55



KRR RLP Fall Symposium
September 14, 15 & 16, 2009
Evaluation Form - Exhibitors

	Unsatisfactory			Excellent	
KRR RLP:	1	2	3	4	5
Registration Process				17%	83%
Communications				17%	83%
Welcome Packages				33%	67%
Onsite Assistance				17%	83%
Organization				17%	83%
	Unsatisfactory			Excellent	
Symposium:	1	2	3	4	5
Location of Conference				17%	83%
Timing of the Conference				33%	67%
Booth Pricing				33%	67%
Exhibit Area			17%	17%	67%
Facilities: Food				33%	67%
Service & Accommodation				17%	83%
	Not Enjoyable			Very Enjoyable	
Social Events:	1	2	3	4	5
Chili CookOff				33%	67%
Mix & Mingle			16%	17%	67%
Wine Tasting			33%	17%	50%
Wednesday Dinner				50%	50%
	Unsatisfactory			Excellent	
Overall Rating of Conference:	1	2	3	4	5
				33%	67%

6 Exhibitors responded



KRR RLP Fall Symposium
September 14, 15 & 16, 2009
Evaluation Form - Delegates

Organization:	Unsatisfactory			Excellent	
	1	2	3	4	5
Registration Process			7%	43%	50%
Scheduling of Sessions & Events			8%	54%	38%
Facilities: Meeting Room & AV				64%	36%
Breakfast			8%	42%	50%
Service & Accommodation			7%	60%	33%
Trade Show and Exhibits					

Program:	Unsatisfactory			Excellent	
	1	2	3	4	5
Speaker: Clement Ares				38%	62%
Topic: Biological Variation				15%	85%
Speaker: Tom Clancy				50%	50%
Topic: Patient Safety				42%	58%
Speaker: Ernie Remillard		8%	42%	42%	8%
Topic: Finance for the Non-Financial Employee				8%	92%
Speaker: Dr. Carney Matheson				8%	92%
Topic: Microbial Genomes				25%	75%
Topic: CSI Case Studies				10%	90%
Speaker: Marc Lauzon			8%	25%	67%
Topic: Clot Signature Curves				40%	60%
Topic: Clinical Utility & Lab Aspects of D-Dimer				60%	40%

	Low Value			High Value	
	1	2	3	4	5
Educational Value				60%	40%
Social Value				53%	47%

Social Events:	Not Enjoyable			Very Enjoyable	
	1	2	3	4	5
Meet & Mingle			8%	69%	23%
Chili CookOff				31%	69%
Wednesday Dinner			14%	43%	43%
Wine Tasting Event				42%	58%

Overall Rating of Conference:	Unsatisfactory			Excellent	
	1	2	3	4	5
				60%	40%

15 delegates responded

Newsletters

Reducing Errors in Specimen Labeling and Ordering	2009-01
Protocol for Reporting Laboratory Test Results	2009-02
Lab Results and What They Mean: A Primer for Nursing Personnel and Collection Staff	2009-03
Expectorated Sputum	2009-04
Specimen Packaging and Transport	2008-05
Treatment of Uncomplicated UTI	2008-06
Guideline for Investigation of Suspected Transfusion Transmitted Bacterial Contamination	2009-07
Why is there never enough O Rh-negative blood?	2009-08

Regional Meetings 2009

Board of Directors	Regional Laboratory Managers
January 21	January 14
June 12	February 26
June 12 (Annual Meeting)	March 3
October 15	April 21 & 22
	June 17
	October 6 & 7
	December 16

Onsite Visits 2009

Atikokan General Hospital	Dryden Regional Health Centre	Lake of the Woods District Hospital	Red Lake MCM Hospital	Riverside Health Care Facilities, Inc.	Sioux Lookout MenoYaWin Health Centre
March 4	March 17		February 3	March 3	February 25
June 18	May 14		May 12	July 14	June 10
October 14	October 22		October 1	November 5	September 24

Appendix E
QMP-LS Non-Conformances per Discipline

	2009	2008	2007	2006	2005	2004	2003	2002
Chemistry*	4	0	1	6	2	6	1	8
Drug Monitoring**	4	1	4	10	5	2	5	2
Endocrinology	0	0	0	0	0	2	0	0
Enzymes	0	1	0	1	0	0	2	3
POCT	0	0	1	0	0	0	0	0
Hematology	2	4	5	4	1	0	0	3
Coagulation	2	4	6	0	1	0	1	0
Morphology	0	1	0	7	0	0	0	3
Transfusion Medicine	2	1	2	2	4	1	6	7
Bacteriology	1	6	8	6	4	3	5	6
Cytology	0	0	0	0	0	0	0	0
Virology	0	0	1	0	0	0	0	0
Totals	15	18	28	36	17	14	20	32

* Includes Blood Gases

** Includes Drugs of Abuse

QMP-LS Non-Conformances per Laboratory

	2009	2008	2007	2006	2005	2004	2003	2002
Atikokan General	1	2	3	3	1	0	3	3
Dryden Regional Health Centre	1	2	1	5	2	2	3	0
Lake of the Woods District Hospital	7	7	5	7	3	3	6	7
Red Lake Margaret Cochenour Memorial	1	0	2	6	2	0	2	4
Riverside Health Care Facilities, Inc.	1	2	7	6	6	6	2	7
SL MenoYaWin Health Centre	4	5	10	9	3	3	3	6
Totals	15	18	28	36	17	14	19	27

Appendix E
Explanation of Discordant Results 2009

Atikokan General Hospital (AGH)					
Survey	Error	Reference Lab Result	Laboratory Result	Root Cause	Corrective Action Plan
TMED-0904 Vial 8	Major	0	1	False positive reaction	Examine gel cards before use

Dryden Regional Health Centre (DRHC)					
Survey	Error	Reference Lab Result	Laboratory Result	Root Cause	Corrective Action Plan
COAG-0902-DD Vial 1 & 2	Minor			Incorrect units reported	Error noticed after submission of survey results. QMPLS notified to amend results

Red Lake MC Memorial Hospital (RL)					
Survey	Error	Reference Lab Result	Laboratory Result	Root Cause	Corrective Action Plan
T-MED-0905 Vial 8	Major	Antibody detection Positive	Antibody detection Negative	Environmental. Too many distractions	Appropriate staffing levels for each work day

Riverside Health Care Facilities, Inc. (RHCF)					
Survey	Error	Reference Lab Result	Laboratory Result	Root Cause	Corrective Action Plan
BACT-0908	Minor	Prevotella Melaninogenica	Bacteroides	Test Result misrepresented	Staff education

Appendix E

Lake of the Woods District Hospital (LoW)					
Survey	Error	Reference Lab Result	Laboratory Result	Root Cause	Corrective Action Plan
CHEM-0901 Vial 3 Magnesium	Minor	0.80	0.73	Test performance is less precise at the lower end of test range	Contact manufacturer to investigate.
MORPH-0901	Minor	Round Macrocytes	Did not report on Macrocytes	Lack of familiarity with QMP-LS electronic worksheet.	Reviewed with MLTs
DRUG-0904 Vial 1 & 2 Acetaminophen	Major	Vial 1 = 471 Vial 2 = 179	Vial 1 = 180 Vial 2 = 473	LIS labels placed on opposite QMP-LS vials	Reviewed with MLTs
Drug-0907 Vial 1&2 Digoxin	Minor	Vial 1 = 0.9 Vial 2 = 1.6	Vial 1 = 1.3 Vial 2 = 2.5	Old formulation of reagent slides caused Positive bias	Moved to new reagent formulation
CHEM-0910 Vial 3 Magnesium	Minor	0.87	0.75	Test performance is less precise at the lower end of test range	Manufacturer reports negative matrix effect with QMP-LS samples
DRUG-0910 Vial 1 & 2 Digoxin	Minor	1.3 1.5	0.8 0.9	Problem with reagent performance	Manufacturer reports negative matrix effect with QMP-LS samples
HEMA-0910-BF	Minor	5 cells	0 cells	Test performance is less precise at the lower end of test range	Develop policy regarding cells being present but not in counting grid

Appendix E

Sioux Lookout MenoYaWin Health Centre (SLMHC)					
Survey	Error	Reference Lab Result	Laboratory Result	Root Cause	Corrective Action Plan
CHEM-0901 Vial 3 Magnesium	Minor	0.80	0.72	Test performance is less precise at the lower end of test range	Contact manufacturer to investigate.
CHEM-0905 Vial 1,2, & 3 Bilirubin	Minor	Vial 1 = 4 Vial 2 = 4 Vial 3 = 4	Vial 1 = 8 Vial 2 = 8 Vial 3 = 8	QC variations not noticed. Analyzer due for calibration	Staff reminder to check drifts and trends. Bio-Rad QC program purchased
COAG-0902-DD Vial 1 & 2	Memo only				
DRUG-0910 Digoxin Vial 1 & 2	Minor	Vial 1 = 1.3 Vial 2 = 1.5	Vial 1 = 2.1 Vial 2 = 2.3	Unexplained	Work with Manufacturer