DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE

ANNUAL REPORT

APRIL 1, 2006 – MARCH 31, 2007

Pathology and Molecular Medicine
KINGSTON GENERAL HOSPITAL
CLINICAL LABORATORY SERVICES

Mission:
"Together, we proudly serve our regional community through the provision of expert laboratory and clinical services, education and research."

Vision:
"We strive to be national leaders in advanced diagnostic services, employee success, student achievement and knowledge discovery."

Values:
"In our pursuit of excellence, we value people by practicing mutual respect, professionalism, teamwork, integrity, trust and accountability."

For more detailed information about our Department and its activities, please visit our website at: ***http://www.path.queensu.ca***

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1. EXECUTIVE SUMMARY

1.1 PREAMBLE

The Department of Pathology and Molecular Medicine at Kingston General Hospital and at Hotel Dieu Hospital is closely integrated with KGH Clinical Laboratory Services. The Department is organized into five divisions: Anatomical Pathology, Clinical Chemistry, Clinical Microbiology, Hematopathology, and Genetics. Management and medical direction for the hospitals' Infection Prevention and Control Service and the Transfusion Medicine Service are the responsibility of our Department. However, the annual reports for those services are presented separately to the MAC and are not included as part of this departmental report.

In addition to providing clinical service, education and research, several departmental faculty members have significant administrative responsibilities for co-supervision of technical staff and co-management of clinical laboratory operations.

1.2 WORKLOAD AND UTILIZATION TRENDS

Workload increases were documented in nearly all of the Clinical Laboratories, especially Genetics, General & Special Hematology, General Chemistry and Microbiology. Surgical Pathology, which comprises the bulk of day-to-day service work for most Anatomic Pathologists, showed a minor decline in overall case numbers with the exception of gastrointestinal cases that have undergone an 11% one year increase.

1.3 QUALITY IMPROVEMENT ACTIVITIES

A well-developed quality assurance program is in place, which has documented excellent overall lab performance, with standards not only being met but also exceeded in many areas. The Clinical Laboratories were leaders at Kingston General Hospital in the implementation of Lean Process excellence, initially in the Core Laboratory and subsequently in the Histology Laboratory.

1.4 MULTIDISCIPLINARY COLLABORATION

We continue to support well-established regional initiatives (e.g. Lab Outreach Program, Forensic Unit, Genetics Program in Peterborough) and multidisciplinary activities (e.g. Regional Cancer Centre Tumour Boards and Disease Site Groups, Regional Infection Control Program, Transfusion Medicine Service, and Stem Cell Transplant Program). New initiatives this year included participation in institution-wide pandemic planning and amniotic membrane tissue banking.

1.5 TEACHING AND RESEARCH

The departmental educational mission crosses multiple programs at KGH and Queen's as well as at St. Lawrence College and the Michener Institute in Toronto. Departmental members teach extensively in the undergraduate medical curriculum**.**

The Department has a substantial graduate program that includes 42 students. Departmental laboratories also support 9 postdoctoral research fellows. Faculty offer approximately 10 courses in Pathology, Genetics and Molecular Medicine within undergraduate Life Sciences and graduate programs and also participate in courses within the Nursing program at Queen's. Departmental members play a significant role in supervising and training general Medical Laboratory Technology students from St. Lawrence College and also Cytology and Laboratory Genetics students from the Michener Institute.

Enrolment in our residency training programs has enjoyed resurgence during the last several years. Current enrolment is at 80% of capacity with 12 of 15 resident positions in Anatomic Pathology, Hematopathology and General Pathology being filled). Our departmental members also have significant teaching and training responsibilities for residents in other programs, most notably Hematology, General Surgery, Radiation Oncology, Diagnostic Radiology, Obstetrics/Gynecology, Urology and Pediatrics. . The Department also administers a postdoctoral training program in Clinical and Laboratory Genetics and one fellow is currently enrolled in the Laboratory Genetics program.

The Department's biomedical research programs continue to be highly successful. . In 2006, total research funding in the Department approximated $5.8M. Lists of departmental research grants, publication records and scholarly presentations are available within the Department upon request.

Continuing medical education is widely supported within the Department with nearly all teaching rounds being MOC accredited and meeting Royal College requirements.

1.6 STAFFING ISSUES

In the Division of Anatomic Pathology, staffing improved somewhat compared to the previous year due to the recruitment of two new full time faculty members and the return to full time status of Dr. S. Ludwin. However, effective strength remains less than optimal with one Anatomic Pathologist away on long-term disability leave. Future challenges will include replacement of up to three Pathologists due to retirements over the next three years and the need for development of greater depth of coverage for areas of increasing workload (GI pathology, forensics).

In the Division of Clinical Chemistry, an international search is underway to recruit a Service Chief.

Dr. M. Khalifa's resignation in Clinical Genetics will necessitate a recruitment to fill this vacancy. The Clinical Genetics program was transferred from our Department to Department of Pediatrics effective July 1, 2007.

2. CURRENT STAFFING ISSUES

2.1 DIVISION OF ANATOMIC PATHOLOGY

Faculty	Main Administrative Responsibilities	FTE in Department		Main Clinical Service Responsibilities
		Nominal	Effective	
Boag, A.	Service Chief, Anatomic Pathology	1.0	1.0	GU, Lung, Cytology, Autopsy
Childs, T.	Director, Post-Graduate Education	1.0	1.0	Gyne, Cytology, Perinatal, Autopsy
Dexter, D.	Clinical Director, Autopsy Service & Regional Forensic Unit; Director, Point-of-Care Testing Program	1.0	1.0	GI, Lymphoma, Soft Tissue/Bone, Head/Neck, Autopsy, Forensics
Farmer, J.	N/A	0.05	0.05	Ophthalmic Path.
Farmer, P.	N/A	1.0	1.0	Lymphoma, Breast, Gyne, Autopsy
Hurlbut, D.	N/A	1.0	1.0	GI, Head/Neck, Autopsy, Forensics
Isotalo, P.	N/A	1.0	0	GU, Breast, Lung, Head/Neck, Autopsy
Lebrun, D.	Clinical Director, Immunohistochem.Lab	1.0	1.0	Lymphoma, Autopsy
Ludwin, S.	Vice President & Assoc. Dean, Research (Health Sciences)	1.0	1.0	Neuropathology, Autopsy
Manley, P.	N/A	1.0	1.0	GI, Head/Neck, Dermatopath, Autopsy
Rossiter, J.	Clinical Director, Neuropathology	1.0	1.0	Neuropathology, Autopsy
Rowlands, C.	Clinical Director, Cytology Service	1.0	1.0	Cytology, Dermpath, Gyne, Autopsy
SenGupta, S.	Medical Director, Clinical Laboratories; Deputy Head of Dept.	1.0	1.0	Breast, Gyne, Soft Tissue/Bone, Autopsy
Tron, V.	N/A	1.0	1.0	Dermpath, Autopsy
Young, I.	Head of Dept. & Pathologist-in-Chief	1.0	1.0	Dermpath, GU, Renal, Forensics
Total FTE		14.05	13.05	

Staffing Notes:

1. Dr. S. Ludwin returned to the Department on a full time basis on January 1, 2007.
2. Dr. P. Isotalo started long term medical disability leave in January 2007.
3. Dr. P. Farmer joined the Department on July 1, 2006. Approximately 25% of her time is devoted to clinical service in the Division of Hematopathology. She also provides bi-weekly on-site laboratory services at L&A County General Hospital.
4. Dr. J. Farmer is a new recruitment with a primary appointment in the Department of Ophthalmology and a cross-appointment in Pathology and Molecular Medicine. He started January 1, 2007. His Anatomic Pathology responsibilities are restricted to the sign-out of Ophthalmic Pathology specimens (part-time basis).
5. Dr. S. SenGupta is also the Laboratory Director at the Perth & Smiths Falls District Hospital (P&SF) and at Ongwanada.
6. Dr. D. Dexter also provides occasional on-site laboratory services at P&SF and is the Medical Director for MDS Laboratories (Kingston). He also provides clinical service in the Division of Hematopathology.
7. The main challenges in future staffing include: a) service coverage for growing GI and forensic services; b) filling vacancies due to expected retirements over next 1-3 years.

2.2 DIVISION OF HAEMATOPATHOLOGY

Faculty	Main Administrative Responsibilities	Main Clinical Service Responsibilities
Dexter, D.	N/A	General Hematology
Farmer, P.	N/A	General Hematology
James, P.	N/A	After hours coverage
Lee, D.	N/A	After hours coverage
Lillicrap, D.	Director, Regional Hemophilia Clinic	Hemostasis, Hemophilia Clinic
Mathews, J.	N/A	After hours coverage
Rapson, D.	Service Chief, Hematopathology	General & Special Hematology, Hemostasis
Shepherd, L.	Clinical Director, Blood Bank; Director, Hematopathology Post Graduate Program	General Hematology, Immunology, Transfusion Medicine

Staffing Notes:

1. Drs. Lee, Matthews, and James are cross-appointees from the Department of Medicine.

2. The time commitment to Laboratory Haematology varies amongst the members: Dr. Rapson - 1.0 FTE; Dr. L. Shepherd - 0.5 FTE; Dr. D. Lillicrap - 0.25 FTE, Dr. P. Farmer - 0.25 FTE, Dr. D. Dexter - 0.2 FTE.
3. Dr. D. Rapson is also the Laboratory Director at the L&A County General Hospital.

2.3 DIVISION OF CLINICAL CHEMISTRY

Dr. L. Seargeant	-	Clinical Biochemist and Service Chief (see Note 1)
Dr. C. Collier	-	Clinical Biochemist

Staffing Notes:

1. Dr. Seargeant resigned his position effective December 15, 2006. The Service Chief position is currently vacant. Recruitment is underway.
2. Dr. C. Collier also provides outreach Clinical Chemistry consultation to QHC – Belleville General Hospital Laboratory (approximately 2 days per month).
3. Dr. M. Raymond is providing part time locum coverage during the ongoing recruitment for a Service Chief. He continues to also provide Clinical Chemistry consultation for laboratory outreach clients (L&A County General Hospital, Perth & Smiths Falls District Hospital, Weeneebayko General Hospital).

2.4 DIVISION OF CLINICAL MICROBIOLOGY

Dr. D. Zoutman	-	Service Chief, Clinical Microbiology
	-	Medical Director, Infection Prevention & Control Service, KGH, HDH & Providence Care
	-	Chair, Division of Infectious Diseases, Department of Medicine
Dr. R. Liao	-	Clinical Microbiologist
Dr. L. Tomalty	-	Clinical Microbiologist

Staffing Notes:

1. Dr. R. Liao is the lead faculty member in the molecular microbiology program.
2. Dr. L. Tomalty's appointment is part-time. He has senior administrative responsibilities in the Faculty of Health Sciences (Associate Dean, Continuing Education)
3. Dr. D. Zoutman is also the Medical Director of the Regional Infection Control Network, Southeastern Ontario (1 day per week). He also provides Infection Control consultation for several community hospitals within the LHIN.
4. Dr. D. Zoutman is also the Laboratory Director for Providence Care, St. Mary's of the Lake campus.

2.5 DIVISION OF GENETICS

Dr. D. Lillicrap	-	Service Chief, Division of Genetics (see Note 1)
Dr. K. Harrison	-	Clinical Director, Cytogenetics
Dr. S. Taylor	-	Clinical Director, Molecular Genetics

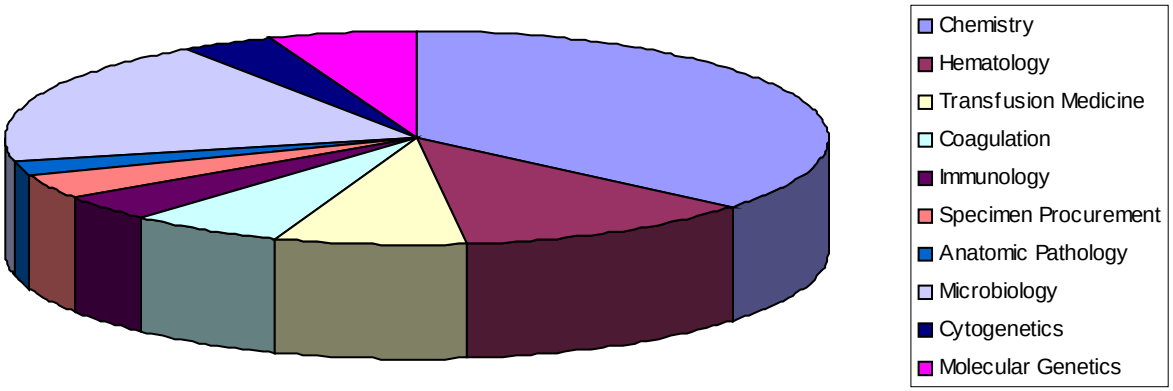
Dr. H. Feilotter	-	Molecular Geneticist
Dr. M. Khalifa	-	Pediatric, Adult & Metabolic Genetics (see Note 2)
Dr. J. Mackenzie	-	Pediatric and Metabolic Genetics
Dr. C. Forster-Gibson	-	Adult and Cancer-related Genetics

Staffing Notes:

1. Dr. D. Lillicrap stepped down as Service Chief, effective January 31, 2007. The position was vacant for the duration of the period of reporting.
2. Dr. M. Khalifa resigned his position effective May 1, 2007 for a position in the United States.
3. Drs. J. Mackenzie and C. Forster-Gibson are part-time cross-appointees in the Department of Pathology & Molecular Medicine.
4. Dr. O. Ginsburg, Medical Oncologist and lead for the Familial Oncology program, returned to Toronto but is continuing, for the present time, to provide on-site support for the program.

3. PROFILE OF ACTIVITIES

Clinical Laboratory Services: Breakdown of Workload



3.1 DIVISION OF ANATOMIC PATHOLOGY

3.1.1 Surgical Pathology

Activity Indicator	Calendar 2006	Change in Activity	
		One Year	5 Years
Total Cases	22,092	- 2.2%	- 8.5%
Indicator subspecialties			
Gastrointestinal	5,977	11.3%	23.9%
Urologic	1,814	0.4%	3.5%
Lymphoma	223	3.7%	3.4%
External consultations	1,359	-1.6%	-12%
Orthopedic	821	- 4.6%	-26.6%
Dermatologic	5,224	-6.4%	-24.4%
Breast	1,415	-13.5%	-16.2%

Comment:

Total surgical pathology case count has shown a minor decrease but a significant increase in gastrointestinal specimens continues. Furthermore, the announcement of the Ministry of Health's new Colorectal Cancer Screening Program, anticipated to start next year, is expected to add 1500 more colonoscopy cases to hospitals in our LHIN for whom we provide surgical pathology services.

3.1.2 Cytopathology

Activity Indicator	Calendar 2006	Change in Activity	
		One Year	5 Years
Total Cases	15,662	- 7.8%	- 37.6%
Non-gynecological cases			
Total	7,029	-5.7%	3.2%
Fine needle aspirations	1,011	-12.7%	0.4%
Cervical ("pap") smears	8,633	- 9.5%	- 51.4%

Comment:

The main trend in Cytology continued to be a reduction in the number of pap smears being sent in from the community.

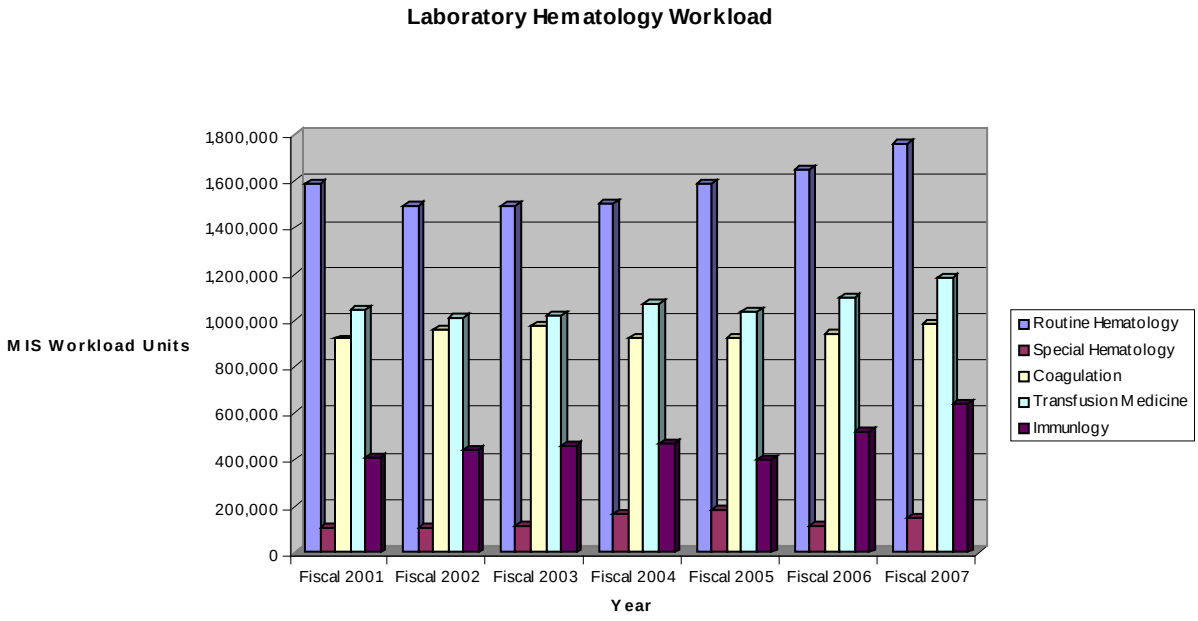
3.1.3 Autopsy Service

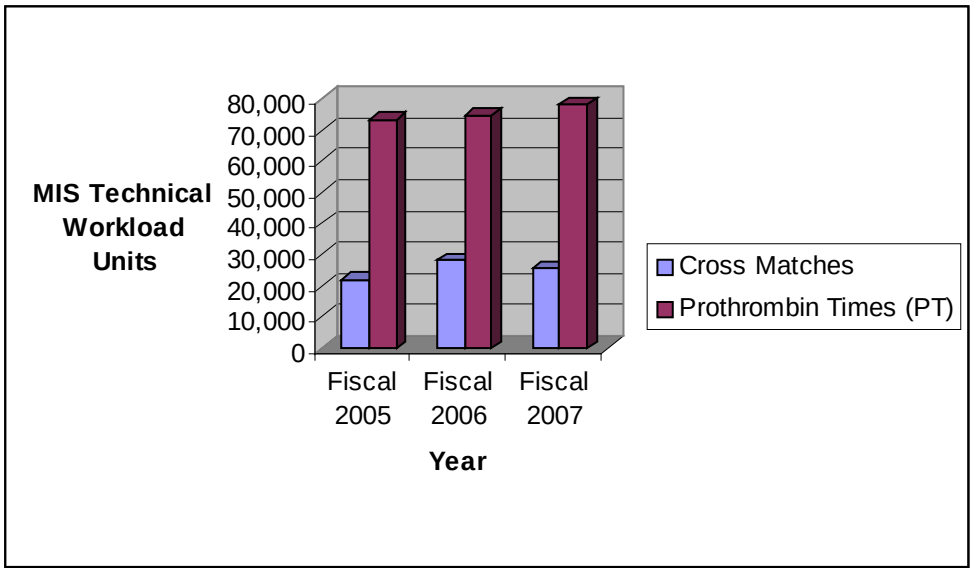
Activity Indicator	Calendar 2006	Change in Activity	
		One Year	5 Years
Hospital Cases	76	- 8.4%	- 34%
Coroners' Cases	233	5.0%	20%
Total Cases	309	1.3%	- 1.5%

Comment:

The ongoing shift from hospital to coroner's cases continued on the Autopsy Service. Total caseload remained stable. We were able to make enhancements to the Regional Forensics Unit, thanks to one-time special funding from the Government of Ontario.

3.2 DIVISION OF HEMATOPATHOLOGY



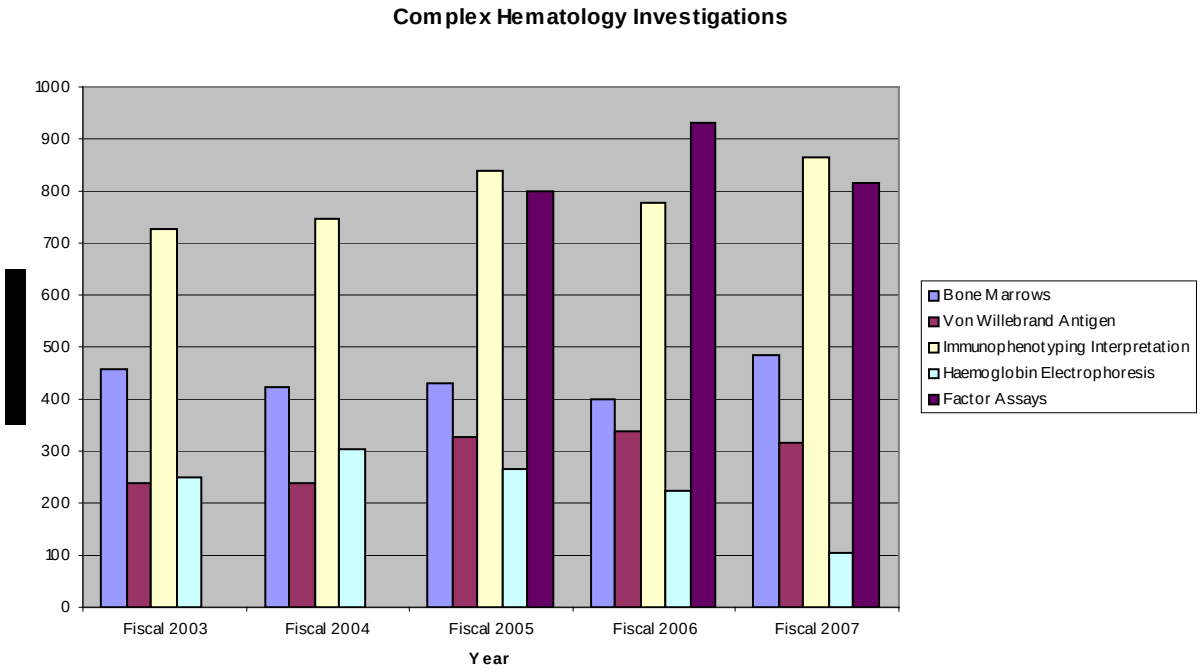


Comments:

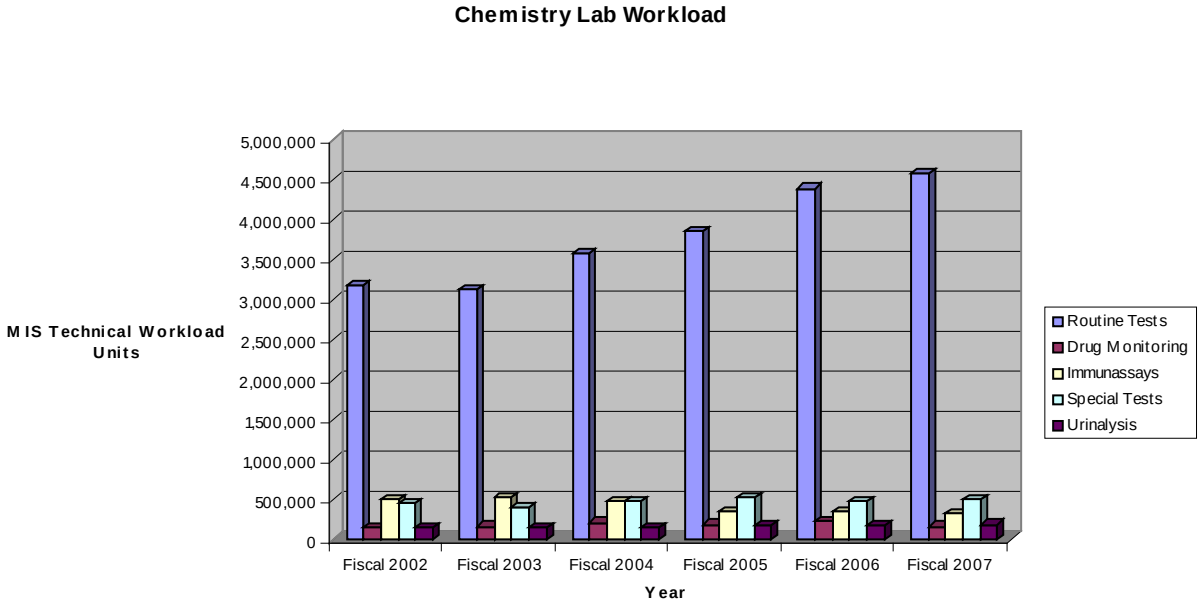
Workload has increased significantly in many areas of the Division of Hematopathology, including for resource intense professional activities such as bone marrow interpretation and immunophenotyping interpretation.

The decrease in the number of crossmatches likely reflects, at least in part, better blood utilization practices related to the educational activities of the Transfusion Nurse Coordinator, as well as a revised Maximum Surgical Blood Order Schedule (MSBOS). The activities of the Transfusion Nurse Coordinator have included involvement in preadmission assessment, wide ranging in-hospital education of nursing staff, review of transfusion procedures, as well as being a major player in the Autologous Donation Program. Approximately two-thirds of autologous donors received autologous transfusion. None required supplementation with allogeneic blood, so the goals of the program were achieved. Our contributions to the Autologous Stem Cell Program increased in 2006-07 with the number of autologous transplants rising to 17. Planning to introduce an allogeneic programme has begun in collaboration with the Department of Oncology.

Two new state-of-the-art hematology analyzers were introduced to replace aging instrumentation. These perform the vast majority of routine testing (e.g. CBC's).



3.3 DIVISION OF CLINICAL CHEMISTRY



Comments:

Overall workload in the Chemistry laboratory increased by 2.5% over the previous year. There has been a 30% increase in workload between 2001 and 2007.

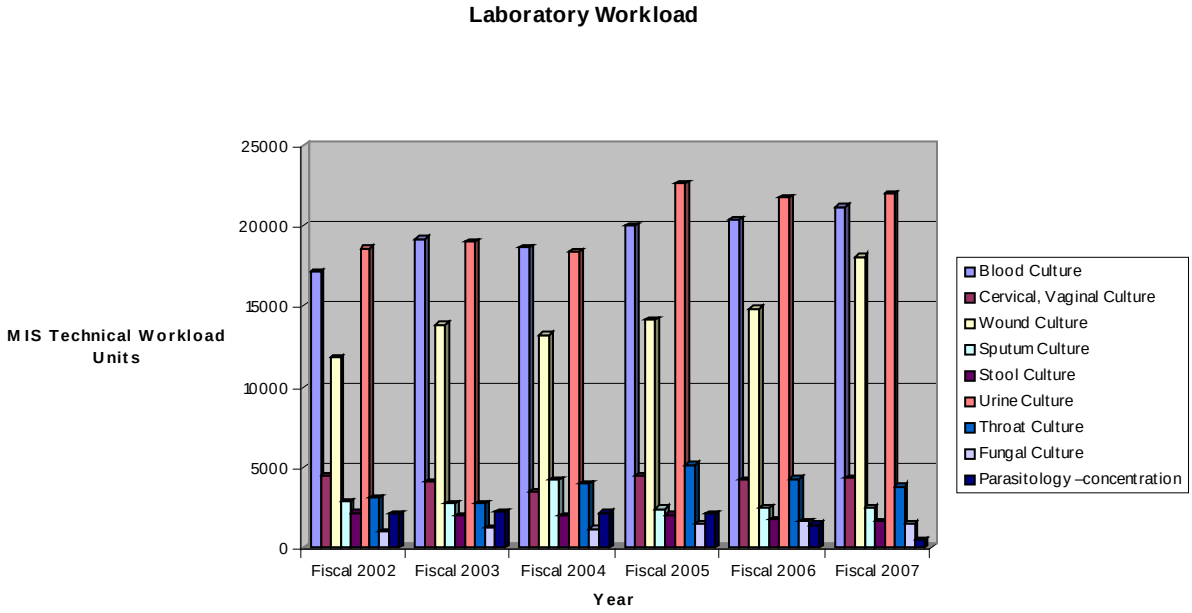
Five new tests were added to our on-site testing menu:

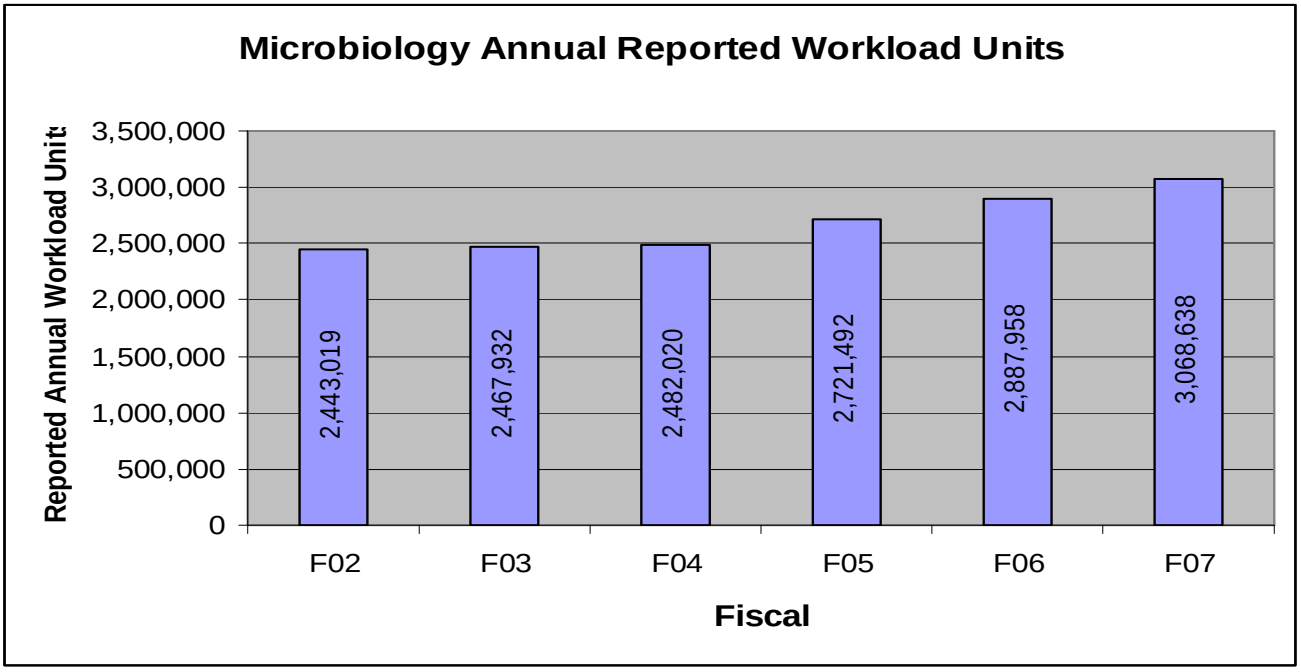
1. **Insulin** was introduced with the processing of > 3000 samples for research at Queen's.
2. **Macro-Prolactin** was implemented after years of investigation of confirmatory testing of high serum prolactin results by a PEG precipitation method. The OMA's Quality Management Program (QMP-LS) commented upon the importance of this test shortly after we introduced testing.
3. **Fetal Fibronectin** was introduced through a business case with the support of Dr. Graham Smith, Department of Obstetrics & Gynecology. There are specific clinical indications for the performance of this test which is expected to help avoid unnecessary admissions and save the hospital ~$60,000 annually.
4. **Beta-hydroxybutyrate** (BOHB) was implemented to provide a specific and quantitative measure of serum ketones for patients presenting with diabetic ketoacidosis. BOHB is actually the predominant ketone in serum and is thus a better indicator than the serum ketone dipstick method which mainly detects acetoacetate.
5. The method for **amniotic bilirubin** scans using a new scanning spectrophotometer was evaluated and implemented, thus restoring our ability to provide urgent testing for fetal/maternal blood group incompatibilities.

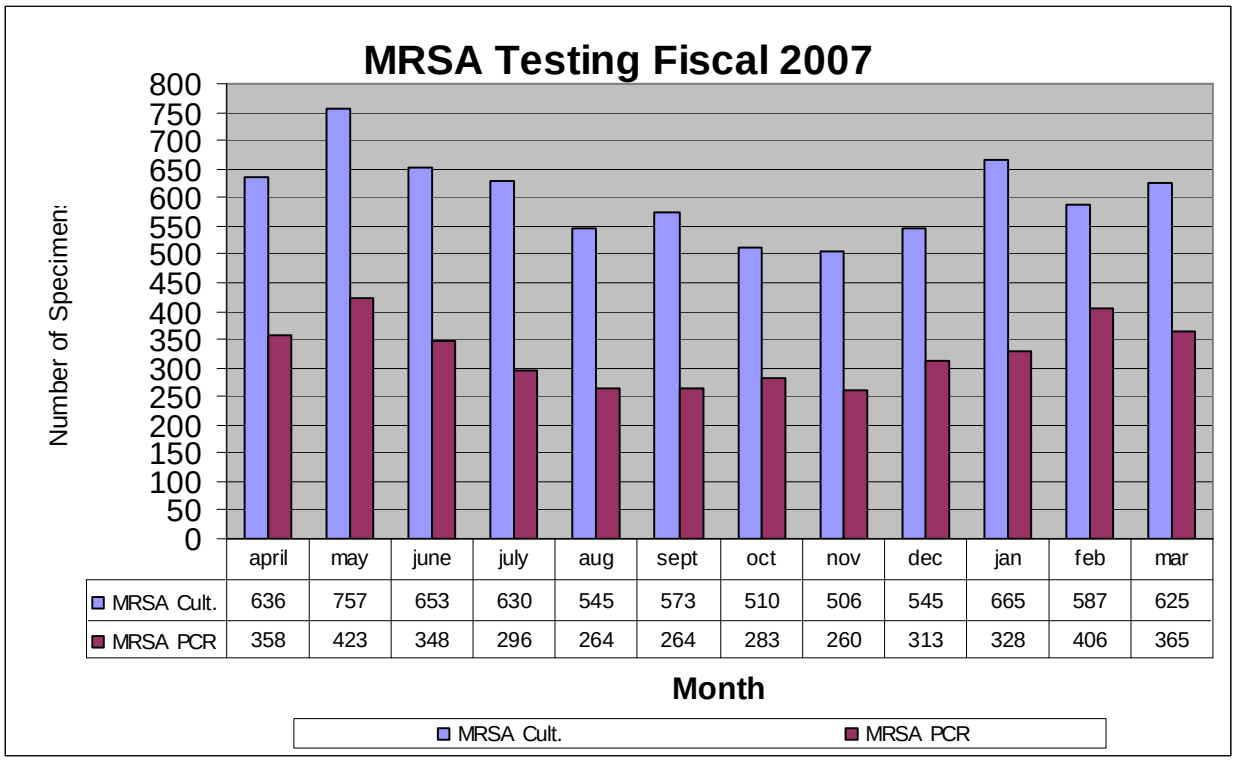
Thanks to a gift from the Hotel Dieu Hospital's Women's Auxiliary, a second instrument was implemented for **HbA1c testing** in children with diabetes. This instrument will allow the laboratory to better handle the testing requested by HDH diabetes clinics in real time.

The Chemistry laboratory has also worked on method evaluations in anticipation of changes in **urinalysis testing** and **drugs of abuse screening**. We are looking forward to the implementation of an automated urinalysis reader for use in the central laboratory. This was introduces as a regional initiative and will bring our laboratory more up-to-date with other laboratories with respect to this testing. Developmental work has also started on our new gas chromatography/mass spectroscopy instrument. In addition to routinely analyzing volatile substances, such as methanol and ethylene glycol, we are working on some new methods for drugs of abuse confirmatory testing, as our current instrumentation (high performance liquid chromatography by REMEDI) will be obsolete by the end of 2008.

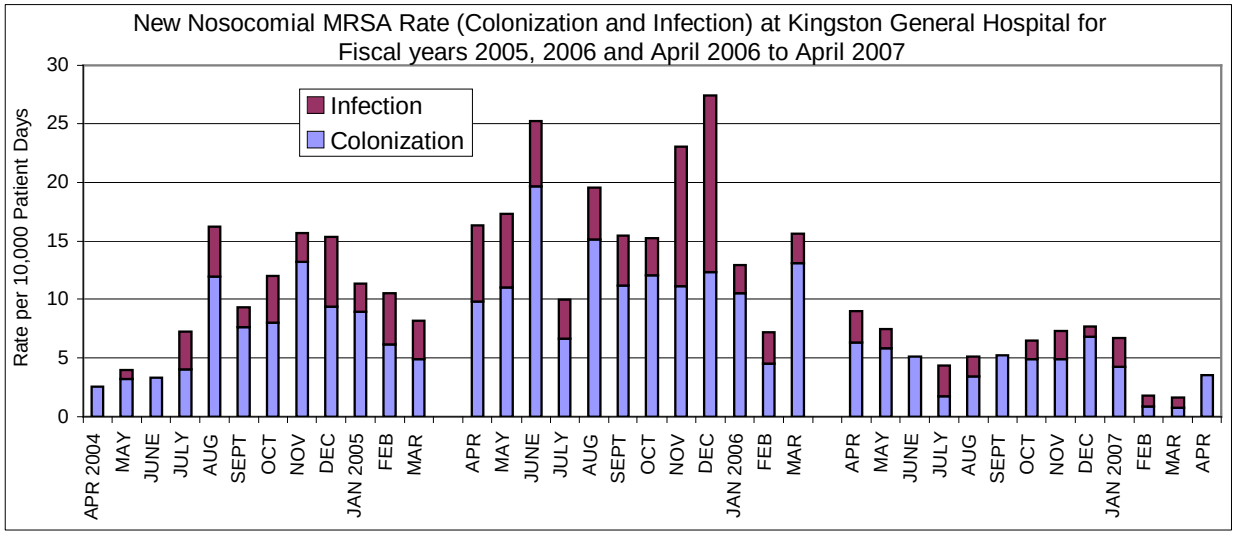
3.4 DIVISION OF CLINICAL MICROBIOLOGY







	april	may	june	july	aug	sept	oct	nov	dec	jan	feb	mar
MRSA Cult.	636	757	653	630	545	573	510	506	545	665	587	625
MRSA PCR	358	423	348	296	264	264	283	260	313	328	406	365



Comments:

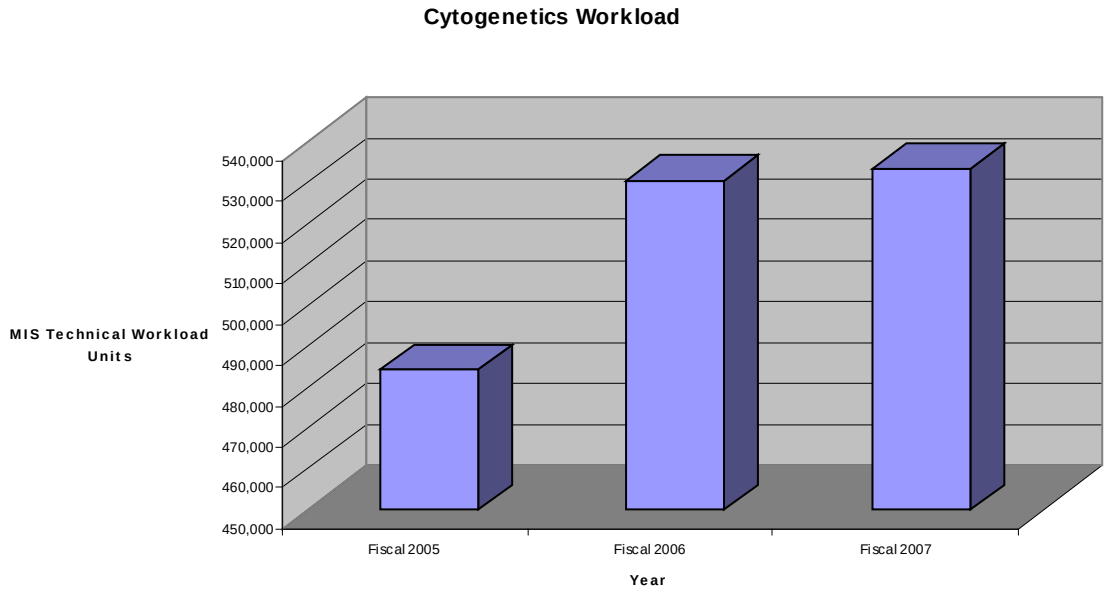
The Clinical Microbiology lab received a boost in 2006 through the implementation of MRSA testing by real time polymerase chain reaction (RT-PCR) for surveillance testing and testing of new patient admissions to KGH.

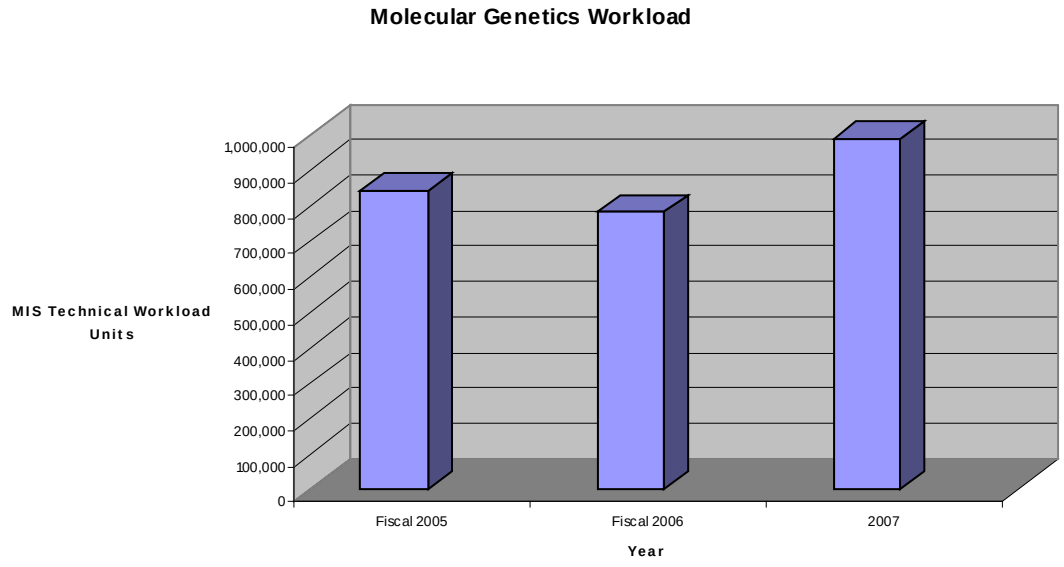
In March 2007 the completed medical directive and preprinted order forms for MRSA surveillance went into effect at KGH. This administrative tool will greatly streamline getting these essential cultures done. The combination of rapid and accurate MRSA testing by PCR with same day results and Infection Control efforts to achieve 85% success in getting the MRSA surveillance cultures done when indicated has resulted in a dramatic reduction of MRSA cases at

KGH. An additional Cephiad RT-PCR Smart Cycler and an air clean hood will be purchased to support the increase in the expansion of molecular microbiology testing.

3.5 DIVISION OF GENETICS

3.5.1 Laboratory Genetics





Comments:

Workload increased in both Cytogenetics and Molecular Genetics from the previous year:

- 15% increase in the number of requests for FISH aneuploidy screening
- 20% increase in the number of solid tumour cytogenetic testing
- 25% increase in the number of bone marrow specimens for cancer related cytogenetic testing
- 50% increase in requests for inherited and somatic molecular diagnostic cancer testing
- 50% increase in requests for sendouts

The challenge to meet increased workload is being met by submission of a business case for additional resources and by continuous monitoring of utilization and realignment of the use of laboratory resources. For example, Cytogenetics initiated a triage of bone marrow samples based upon hematopathologist's evaluation, which has resulted in 41% of marrow cases being discontinued.

In Molecular Genetics, changes in forensic patterns of practice have resulted in the development and implementation of a protocol to bank DNA samples from sudden death cases. The implementation of new instrumentation in the Molecular Genetics lab (a real time PCR platform) allowed us to improve efficiencies in the sign out of high throughput clinical tests (e.g. Factor V Leiden, Prothrombin, and Hemochromatosis genes).

3.5.2 Clinical Genetics

Genetics clinics take place at several sites including the Fraser Armstrong Outpatient Center (pediatric and adult genetics), Hotel Dieu Hospital (pediatric genetics), the Family Medicine Center (adult and developmental genetics), 20 Barrie Street offices (prenatal counseling) and off-site, at the Peterborough Public Health Unit and at outreach clinics in North Bay and Timmins.

The total number of patients managed through the 20 Barrie Street Clinical Genetics Program was 896 for Fiscal 2007.

- 268 prenatal counseling cases
- 507 genetic counseling consultations
- 62 ward consultations
- 26 telephone/postal consultations

An additional 102 patients were seen at the Family Medicine Center clinics supervised by Dr. Forster-Gibson. Finally, 6-12 patients with chronic metabolic diseases were seen each month for follow up.

Discussions were ongoing through the year relating to the new Provincial newborn screening program. This program will bring new resources to the center and will be primarily sited at the Hotel Dieu Hospital.

4. QUALITY & UTILIZATION IMPROVEMENT ACTIVITIES

Some highlights of the quality assurance activities of the Department are provided. The full range of activities is documented in the annual report of the Department's Quality & Utilization Improvement Committee - which is included as an Appendix to this report.

4.1 ANATOMIC PATHOLOGY

- Frozen section – final diagnosis agreement audits show results within expected range
- Pap smear diagnostic rate (LSIL, HSIL, ASCUS) monitoring – within standards
- Hospital autopsy turnaround time (TAT) remains outside of 30 day standard to complete 80% of cases; QA activities continue.

4.2 HEMATOPATHOLOGY

- Ongoing Stem Cell audit showed a high level of concordance between KGH and Canadian Blood Services (Ottawa) for CD34 stem cell counts.
- Improvements in TAT's for CBC and PTT following implementation of Lean Process Excellence (see graphs below).
- Crossmatch: Transfusion ratio was consistent with acceptable practice.
- Serious Adverse Events in Transfusion Medicine: 5 events reported to Health Canada

4.3 MICROBIOLOGY

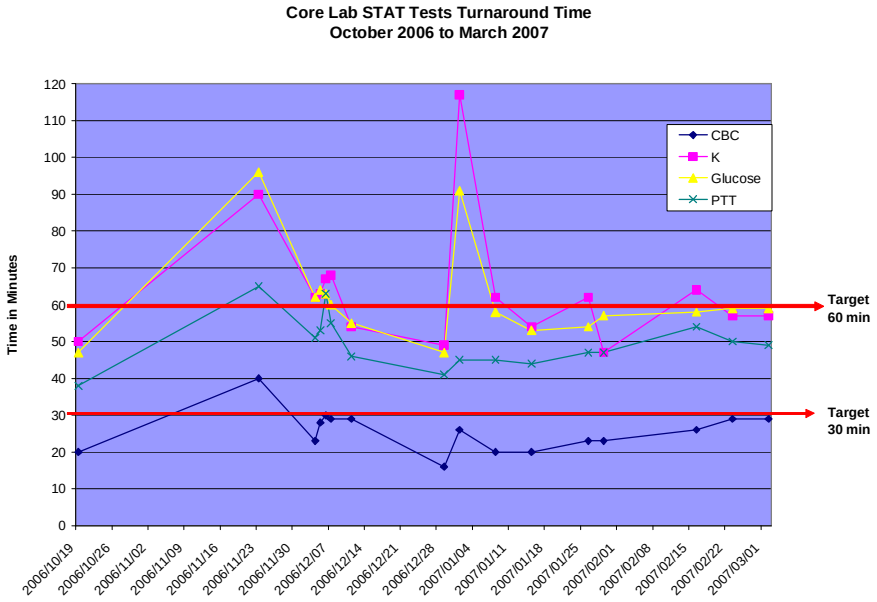
- Blood culture system: % Significant Positive Cultures & Contamination rates remain within acceptable limits.
- Notification of Positive Blood Cultures: Target of 80-100% reported within 1 hour was met.
- Detection of Influenza A and Respiratory Syncytial Virus (RSV): Target of 100% specificity and sensitivity not met (53% of positive Inf. A; 90% of positive RSV). Will pursue implementation of an improved method of detection, such as PCR.

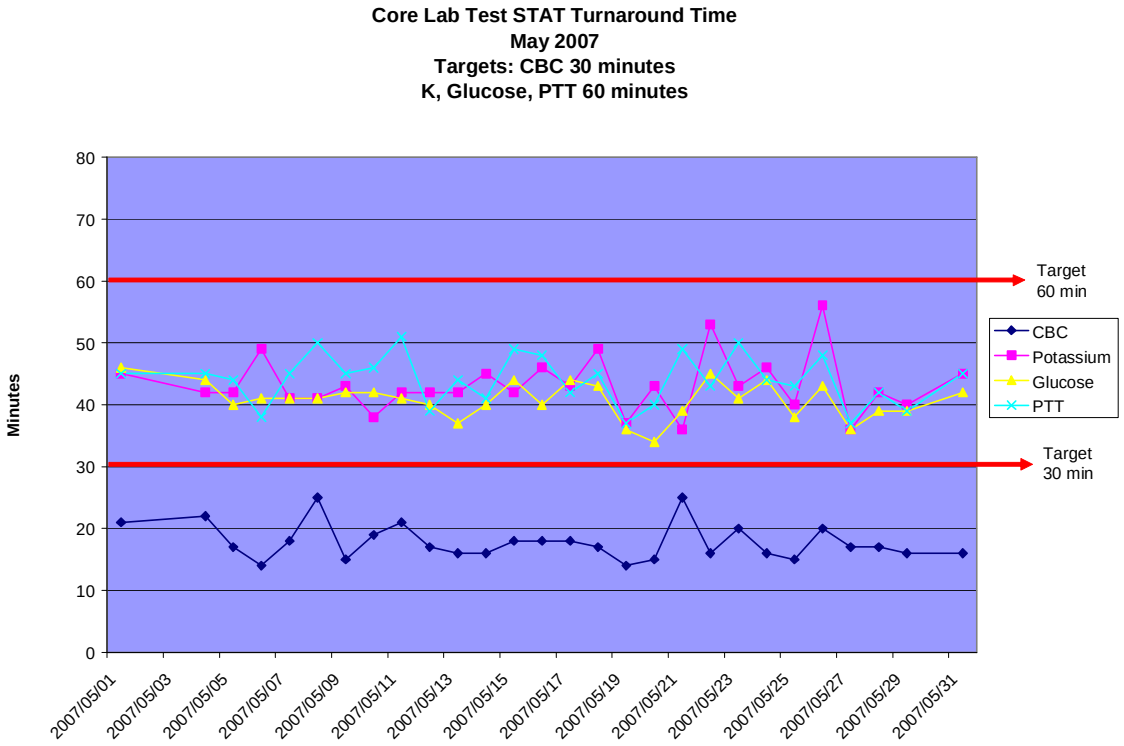
4.4 GENETICS

- Cytogenetics lab documented improved TAT for bone marrow tests through improvement to harvest procedures; backlog from previous year eliminated.
- Molecular genetics lab performed inter-laboratory validation studies for new test development: JAK2 (Halifax) and clonality testing (Banting Institute).
- Installation of the Shire information system for Clinical Genetics data management to track patient encounters.
- Clinical Genetics clinic coverage was redistributed between the clinicians and the genetic counsellors to decrease patient waiting times.

4.5 CLINICAL CHEMISTRY

- Implementation of Lean Process Excellence and re-engineering in the Core lab resulting in significant improvements in turnaround times for high volume STAT lab tests.
- Improvements in TAT for electrolytes following implementation of Lean Process Excellence (see graphs below).





5. REGIONAL AND MULTIDISCIPLINARY ACTIVITIES

5.1 ONGOING ACTIVITIES

We continue to provide a wide range of regional and trans-regional diagnostic and clinical services, largely through our regional laboratory and clinical genetics outreach programs. We also participate in numerous multidisciplinary activities within the Academic Health Sciences Centre. Some of these are listed below:

- Laboratory director and consultation service to community hospitals in Perth, Smiths Falls, Napanee, Belleville and Moose Factory. The KGH Clinical Laboratories receives reference testing specimens from these sites and several others, including Peterborough.
- The Peterborough genetics outreach program is coordinated out of the Peterborough Health Unit. It is supervised by Dr. Forster-Gibson.
- A regional immunohistochemistry service (e.g. advanced diagnostic workup for solid tumours). This service extends to LHIN to the west of us (i.e. Peterborough, Lindsay).
- Regional Cancer Centre new patient secondary pathology review (for cases arriving from community hospitals)
- Oncology multidisciplinary rounds (Tumour Boards and Disease Site Groups)
- Medical Mortality rounds, numerous specialty rounds
- Regional Forensic Pathology Unit
- Regional Pap smear screening program (via partnership with MDS Laboratories)
- Surgical Pathology Tumour Banking program
- Regional Hematopathology service (for blood smear and bone marrow interpretation, including second opinions; consultation for hemostasis problems, blood transfusion issues, etc.)
- Multidisciplinary Point of Care Testing Committee – addressing need for new bedside glucose meters and blood gas analyzers outside the main laboratory (eg. O.R.)
- National Program for Hemophilia Mutation Testing – Association of Hemophilia Clinical Directors of Canada

5.2 NEW ACTIVITIES

- The Clinical Labs were active participants in the KGH pandemic planning exercise. This included development of a plan that would identify what services would be offered if staffing was reduced to 35% due to illness.

- A MAC approved program to harvest placental amniotic membranes for use in corneal healing was initiated in conjunction with Dr. S. Baxter, Department of Ophthalmology.
- A molecular genetic testing algorithm for hereditary breast/ovarian cancer involves substantial coordination between six provincial molecular laboratories for sample sharing and collation of final reports.
- Dr. L. Shepherd became the Chair of the Regional Steering Committee of the newly developed Ontario Regional Blood Coordinating Network (a Canadian Blood Services provincial initiative).

6. GOALS & OBJECTIVES FOR 2007-2008

The following is a partial list of our goals and objectives as they relate to our departmental strategic priorities:

1. To recruit and retain a diverse group of highly skilled staff, faculty and students and provide an environment, which will enable them to achieve their highest potentials.
    - Recruit a new Service Chief for Clinical Biochemistry
    - Recruit a Clinical Geneticist (M. Khalifa position vacancy); responsibility transferred as of July 1, 2007 to Department of Pediatrics.

2. To provide clinical and diagnostic services and programs in education and research, which are recognized, nationally for their excellence.
    - Implement new molecular-based laboratory tests for cancer diagnosis, such as FISH screening for 1p/19q deletions in brain tumours
    - Repatriate molecular-based tests for virus detection (e.g. CMV) to provide improved turnaround time of results
    - Support the Department of Oncology's business case for the Allogeneic Bone Marrow Transplant program.

3. To employ sound business practices, to practice responsible stewardship of our resources, to embrace accountability for high standards of care and resource utilization.
    - Successfully implement the new Mysis LIS.
    - Transfer the Clinical Genetics service, and its administration, to the Department of Pediatrics and the Pediatrics Program Management.

7. KEY CHALLENGES

- ***Implementation of the new Laboratory Information System*:** Extensive preparation is required from all areas of the Clinical Laboratories, including considerable developmental work in improving and standardizing reporting formats for test results.

- ***Meeting clinical demand for new or enhanced testing:*** As a tertiary level academic health sciences centre, we need investment in Research and Development in our Clinical Laboratories so that new tests can be made available to clinicians in a timely fashion. Currently, we are unable to meet turnaround times for certain types of tests, e.g. virus detection, cancer molecular prognostic testing. A business case is being prepared to expand our menu of molecular-based diagnostic tests. The clinical demand for Point of Care Testing also continues to increase, particularly with the expansion of the ICU and ECU and the shift of more ambulatory care patients to HDH.

- ***Human resource issues:*** The Clinical Laboratories have an aging medical technologist workforce. For example, 65% of the current Cytogenetics staff and 80% of current Molecular Genetics staff will reach early retirement age within the next five years. Succession planning is underway but will require additional resources.

- ***Meeting increasingly stringent quality standards and regulatory requirements:*** Adherence to Ontario Laboratory Accreditation (OLA) standards is mandatory and consumes considerable resources to ensure compliance with >500 requirements for each laboratory discipline, and also Point of Care Testing. There is also a greater emphasis on patient safety. In the Clinical Laboratories, the attention is being focused upon correct patient identification and reducing the large number of specimen labeling errors.

APPENDIX 1

QUALITY & UTILIZATION IMPROVEMENT COMMITTEE (QUIC)

2006 - 2007 ANNUAL REPORT

1. Structure and Function of the Committee

The QUIC serves to plan, organize and oversee departmental and interdepartmental quality improvement activities and utilization initiatives. The QUIC membership, mandate and accountability are detailed in the Terms of Reference (Appendix 1). Over the past year the Committee membership has been updated, the Terms of Reference appropriately revised and an annual work cycle defined based on quarterly meetings.

2. Strategic Priorities

2.1. Ontario Laboratory Accreditation (OLA) Compliance

The required OLA midterm self-assessment was completed in Fall 2006, the labs having received a five-year accreditation in 2004 with a full assessment likely required again in 2009 (exact date pending). A total of 535 OLA requirements were self-assessed of which the KGH laboratories were found to be in conformance with 516 (96.5% conformance rate). Only two major non-conformances were identified, both in Transfusion Medicine with one related to lack of documented procedures for reporting results and the second related to the inability of our current laboratory information system (currently undergoing replacement) to accept comments regarding the quality of the specimen. Seventeen minor non-conformances were identified most of which were related to documentation of processes and procedures. The status of the non-conformances will be followed up at the September QUIC meeting according to the standard committee work cycle.

2.2. Occurrence Management

A comprehensive occurrence management system is in place and operated by the Senior Quality Technologist. Occurrences are categorized by laboratory involved and as pre-analytic, analytic or post-analytic in nature. This program has identified mislabelled and unlabelled specimens as the predominant occurrence management issue. This problem has been referred to the laboratory and hospital management groups and attempts to address it through educational initiatives with nursing have been made. Clinical order entry has been identified as offering potential for reduction in this area.

2.3. Risk Management

Risk Management issues and complaints are a standing agenda item. Principle areas of concern this year have been patient identification occurrences as noted in Section 2.2 and maintaining turnaround times sufficient for clinical needs which have been monitored as part of the lab report card and are being addressed through process re-engineering initiatives (Section 2.4)

2.4. Process Improvement

Lean process improvement initiatives in the Core Lab continue resulting in turnaround time improvements. A new program has been initiated in the Anatomic Pathology Lab with a focus on more rapid tissue biopsy slide cutting and staining.

2.5. Lab Test Utilization and Improvement

Utilization has historically not been a strong focus of this Committee in part because of limited IT infrastructure. The current LIS replacement with the expected eventual implementation of clinical order entry will be key tools to facilitate control of lab test utilization.

3. Other Quality Improvement Activities

3.1. EQA

The laboratory participates in external quality assurance programs offered through the College of Pathologists (CAP), BioRad External Quality Assessment (EQAS) and the Ontario Quality Management Program for Laboratory Services (QMP-LS). There were seventeen QMP-LS deficiencies identified during fiscal 2007 compared to 12 in fiscal 2006.

3.2. Education

A joint educational initiative between labs and nursing services was conducted entitled “Working Better Together” which highlighted the importance of communication between clinical staff requesting lab tests and those providing the services with the emphasis on the importance of accurately completing patient identification on lab requisitions.

3.3. Document Control

The labs instituted a standardized formatting and upkeep procedure for the Policies and Procedures Manual and secretaries were trained in this regard.

3.4. Physician Satisfaction Survey

A hospital survey regarding physician satisfaction with lab services was undertaken. This indicated the two main items of concern were turnaround time (36% unsatisfied) and report format (25% unsatisfied). Turnaround time issues are being addressed through the Lean process engineering approach while the implementation of the new lab system, currently underway, should enable improvement of report formatting.

3.5. Lab User Handbook Revision

The Laboratory User Handbook has been largely revised over the previous year and is expected to be reimplemented in a database format.

3.6. Laboratory Report Card

The Laboratory Report Card tool has now been completely implemented and has proved to be a useful indicator of overall lab quality and utilization issues. This highlights three key areas requiring ongoing improvement: Cytogenetics turnaround time, mislabelled/unlabelled specimens and Point of Care non-QC compliance. These issues have been referred to the Laboratory Management Group for action.

4. Conclusion

The QUIC is functioning well and oversees a comprehensive quality improvement program throughout the laboratories at Kingston General Hospital. Key issues requiring continued attention included turnaround time of certain tests and patient identification on submitted samples. The contributions of past members are acknowledged including Susan Pugh and the past Chair, Dr. Lorne Seargeant.