DEPARTMENT OF PATHOLOGY
AND
MOLECULAR MEDICINE

ANNUAL REPORT

APRIL 1, 2003 - MARCH 31, 2004

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."

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1. EXECUTIVE SUMMARY

1.1 PREAMBLE

The Department of Pathology and Molecular Medicine at Kingston General Hospital and Hotel Dieu Hospital is closely integrated with the KGH Division of Clinical Laboratory Services. The Department is organized into five divisions: Anatomical Pathology, Clinical Chemistry, Clinical Microbiology, Hematopathology, and Genetics.

In addition to providing clinical service, education and research, departmental faculty members have significant administrative responsibilities for clinical supervision of a large number of technical staff and co-management of operational and capital budgets.

1.2 UTILIZATION & WORKLOAD TRENDS

Surgical Pathology showed a slowing of the growth over recent years and some decline in certain areas. This appears to reflect an overall decrease in activity in general in the referring institutions in calendar year 2003, in part due to SARS induced restrictions. Initial workload data suggest that calendar 2004 case counts will revert to 2002 levels.

In Hematopathology, however, there continues to be a significant increase in diagnostic testing workload for faculty (e.g. interpretation of immunophenotyping studies and hemoglobin electrophoreses) – see accompanying tables in this report. Similarly, in Clinical Chemistry, we have noted an increase in immunoassays and therapeutic drug monitoring/toxicology tests over the past three years. Workload in Laboratory Genetics also continues to increase substantially, both in Cytogenetics and Molecular Genetics.

1.3 QUALITY IMPROVEMENT ACTIVITIES

A well-developed quality assurance program is in place, which has documented excellent laboratory performance, with standards not only being met but also exceeded in most areas. Major upgrades in laboratory document management and other areas of the clinical laboratories' policies and procedures were initiated to comply with new provincial standards under the Ontario Laboratory Accreditation (OLA) program.

1.4 TEACHING AND RESEARCH

The departmental educational mission crosses multiple programs at Queen's as well as other regional and transregional institutions. The department is extensively involved in the undergraduate medical curriculum and both intra- and extradepartmental residency programs.

The department has a substantial graduate program which includes 17 Master's students and 14 PhD students. There are also approximately 12 postdoctoral research fellows in departmental laboratories. The department offers 10 courses in pathology, genetics and molecular medicine within the undergraduate life sciences and graduate programs and also

participates in courses within the nursing, rehabilitation medicine and biology programs at Queen's. The department plays a significant role in the supervision and training of laboratory technology students from St. Lawrence College and the Michener Institute. Furthermore, the department coordinates an extremely successful course in the enrichment program given annually by Queen's to high school students.

The department has recently been extremely successful in rebuilding its pathology residency programs. From a nadir of a single resident in our department approximately two years ago, we now have ten residents in our programs, eight of whom are in anatomic pathology and two of whom are in hematopathology. We will continue to expand our postgraduate training programs during the next several years and we have an objective of achieving a stable program enrollment of fifteen residents.

The department's biomedical research programs continue to be very successful. The current total value of research grants and awards to primary appointees approximates $4.5 million. The productivity of the department's research enterprise during the reporting year approximates the following: 76 peer reviewed papers; 7 book chapters; and, 93 abstracts and presentations. Lists of departmental research grants, publication records and scholarly presentations are available upon request.

1.5 STAFFING ISSUES

We recruited Dr. Taadaki Hiruki, an Anatomical Pathologist, to the Department (filling the vacant S.Ford position). Dr. Hiruki, who started in October 2003, brings expertise in gastrointestinal pathology and medical informatics. We have also been successful in recruiting Dr. David Viswanatha, an experienced hematopathologist currently at University of New Mexico, who is expected to commence January 2005 (filling the vacant R. Kisilevsky position). Dr. Viswanatha will bring considerable expertise in advanced flow cytometry and hematologic molecular diagnostics.

Amongst our Ph.D. SEAMO faculty, we recruited Dr. Robert Liao, a clinical microbiologist who is completing his fellowship at University of Washington in St. Louis. Dr. Liao replaces Dr. Tim Karnauchow, who resigned his position in 2003. Dr. Liao will be instrumental in developing a molecular microbiology service at KGH using PCR techniques.

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

2. REVIEW OF GOALS & OBJECTIVES FOR THE PAST YEAR

Listed below are some of the key achievements within the Department during Fiscal 2004:

- Completion of revised Mission, Vision, and Values Statements
- Completion of a comprehensive strategic plan for the Department

- Implementation of a quality management system within the laboratories to meet stringent new provincial accreditation (OLA) standards
- Development of a regional laboratory equipment inventory, a regional human resource staffing plan for laboratory technologists, and a regional quality improvement program for hospital laboratories
- Successful recruitment of two new Pathologists (SEAMO positions) to fill vacancies due to retirements
- Initial phase of Laboratory Information System (LIS) replacement underway

3. CURRENT STAFFING & STAFFING CHANGES

3.1 SEAMO FACULTY

Division of Anatomic Pathology

Faculty	Position	FTE in Department		Main Service Responsibilities	Notes
		Nominal	Effective		
Boag, A.	Service Chief, Anatomic Pathology	1.0	1.0	GU, lung, cytology, autopsy	
Childs, T.	Attending Staff	1.0	1.0	Gyne, cytology, perinatal, autopsy	
Dexter, D.	Medical Dir., Autopsy	1.0	1.0	GI, lymphoma, head/neck, autopsy, forensics	
Hiruki T	Attending Staff	1.0	1.0	GI, breast, cytology, autopsy	Joined Oct/03
Hurlbut, D.	Attending Staff	1.0	1.0	GI, head/neck, autopsy, forensics	
Isotalo, P.	Attending Staff	1.0	1.0	GU, breast, lung, head/neck, autopsy	
Lebrun, D.	Medical Dir., Immunohist.	1.0	1.0	Lymphoma, autopsy	
Ludwin, S.	Assoc. Dean & V.P. Research	1.0	0.25	Neuropathology, autopsy	75% Faculty & KGH Admin.
Manley, P.	Attending Staff	1.0	0.0	GI, head/neck, autopsy	Admin. LOA
Rossiter, J.	Medical Dir., Neuropathology	1.0	1.0	Neuropathology, autopsy	
Rowlands, C.	Medical Dir., Cytology & Dir. Postgrad.	1.0	1.0	Dermatopath, gyne, breast, cytology, autopsy	
SenGupta, S.	Medical Dir., Laboratories	1.0	1.0	Breast, gyne, sarcoma, autopsy	

Young, I.	Dept. Head & Pathologist in Chief	1.0	1.0	Dermatopath, GU, renal, autopsy, forensics	
Vacant position		1.0	0.0		New recruit to start Jan 1/05
Total FTE		14.0	11.25		

Notes:

1. Dr. R. Kisilevsky retired June 30, 2003. New recruit to start Jan 1, 2005.
2. Dr. T. Hiruki joined our group Oct 2003 (filling a position that was vacant since retirement of Dr. S.Ford)

Division of Haematopathology

Dr. D. Rapson	-	Service Chief, Haematopathology
	-	General Hematology, Hemostasis
Dr. L. Shepherd	-	Director, Blood Bank
	-	General Haematology, Transfusion Medicine
Dr. D. Dexter	-	General Haematology, Lymph Node Pathology
Dr. D. Lillicrap	-	Regional Haemophilia clinic, Haemostasis
	-	Molecular Genetics of Haemostatic Disorders
Dr. D. Lee	-	Clinical Haematology
	-	Haemostasis research

Notes:

1. Dr. Lee is a cross-appointee from the Department of Medicine.
2. The time commitment to Laboratory Haematology varies amongst the members: Dr. Rapson 1.0 FTE; Dr. Shepherd 0.5 FTE; Dr. Dexter 0.2 FTE; Dr. Lillicrap 0.25 FTE.

Division of Clinical Chemistry

Dr. M. Raymond	-	Service Chief, Clinical Chemistry
Dr. C. Collier	-	Clinical Chemist

Division of Clinical Microbiology

Dr. D. Zoutman		
	-	Service Chief, Medical Microbiology
	-	Director, Infection Control Service
Dr. L. Tomalty	-	Clinical Microbiologist
Dr. T. Karnauchow	-	Clinical Microbiologist

Division of Genetics and Molecular Medicine

Dr. D. Lillicrap	-	Chief of Division
Dr. K. Harrison	-	Clinical Coordinator, Laboratory Genetics
Dr. S. Taylor	-	Molecular geneticist
Dr. H. Feilotter	-	Molecular geneticist

Dr. M. Khalifa	-	Clinical genetics
Dr. J. Mackenzie	-	Clinical genetics (part time appointment)
Dr. C. Forster-Gibson	-	Clinical genetics (part time appointment)

3.2 STAFFING ISSUES

The Division of Anatomic Pathology began Spring 2004 with a nominal staffing level of 14.0 FTE pathologists but an effective strength of only 11.25 FTE's due to one vacant position (for which there has been a successful recruitment to start Jan 1, 2005), an administrative leave of absence, and administrative appointments. This short staffing has led to continuing challenges for provision of adequate service coverage, let alone academic activities. This situation will be exacerbated as our residency-training program grows placing an increasing teaching burden on faculty. At least one and preferably two additional positions are required in the next SEAMO negotiation to provide maintain a high quality of diagnostic service in the face of continued increases in workload in the coming years. There is also a shortfall of general pathologists within the Department and this has significantly reduced our flexibility in providing regional outreach medical direction to the community hospitals that we serve.

In the Division of Microbiology, we have functioned with only two staff microbiologists for much of the past year. We are pleased to announce that Dr. Robert Liao will be joining our department in Summer 2004 as a Clinical Microbiologist. Dr. Liao brings a special interest in molecular microbiology methods.

In the Division of Hematopathology, despite rising workload and workload complexity, there has been no change in staffing in the last year. With the disseminated responsibilities in haematopathology and limited manpower availability, maintenance of turnaround times and high quality clinical service, as well as the ability to teach and do research concurrently, have been increasingly more difficult to achieve.

There were no major staffing issues in Fiscal 2004 in the Division of Clinical Chemistry and Division of Genetics.

4. PROFILE OF ACTIVITIES

4.1 DIVISION OF ANATOMIC PATHOLOGY

4.1.1 Surgical Pathology

Activity Indicator	Calendar 2003 Activity	Change in Activity	
		One Year	5 Year
Total Cases	22,890	-6.7%	+0.2%
Indicator cases, complex			
Breast, requiring IHC	569	-5.5%	+71%

Consults	1563	-17%	+26%
Liver	334	-3.5%	+66%
Prostate	718	-22%	+15%
Indicator cases, simple			
Bone	624	0.0%	-7.5%
Gallbladder	636	0.0%	+1.9%
Skin	6047	-9.0%	-4.0%
Products of Conception	928	+5.3%	+2.4%

Note:
Calendar 2003 showed a slowing of the rapid growth in workload experienced over the last five years. This appears to reflect a drop in overall medical activity in the region likely in part due to SARS. Initial workload data for calendar 2004 projects a return to 2002 levels.

4.1.2 Cytopathology

Activity Indicator	**Calendar 2003 Activity**	**Change in Activity**	
		One Year	5 Year
Total Cases	17,320	-7.0%	-42%
Non-gynecological cases			
Total	7249	-2.3%	+5.6%
Fine needle aspiration	1102	+3.0%	+11.2%
Cervical ("pap") smears			
Total	10,071	-10.0%	-35%
Colposcopy	1292	+2.7	-7.5%
Reviewed by pathologist	4477	-12.1%	-5.0%

Note: The drop in community pap smears coming into the hospital lab continued in 2003. However, this was largely made up by increases in more technically and professionally demanding non-gynecologic specimens, particularly in the area of fine needle aspiration biopsy material.

4.1.3 Autopsy Service

Activity Indicator	Calendar 2003 Activity	Change in Activity	
		One Year	5 Year
Hospital Cases	102	+11%	-28%
Coroner's Cases	180	-4.8%	+30.1
Total Cases	282	+0.3%	-3.5%

Notes:
The major trend historically in the autopsy service has been the shift from hospital consent cases to coroner's medical legal cases. While the increased numbers of the latter are consistent with the developing forensic unit now sited at KGH, the drop in hospital cases is a concern from a teaching and hospital quality assurance standpoint. Over the last calendar year, however, the hospital case count stabilized and increased slightly.

4.2 DIVISION OF HEMATOPATHOLOGY

Workload Units

	Fiscal 2000	Fiscal 2001	Fiscal 2002	Fiscal 2003	Fiscal 2004
Routine Haematology	1,536,050	1,593,045	1,495,010	1,492,539	1,502,177
Special Haematology	111,003	108,555	108,617	115,789	170,524
Coagulation	873,360	921,666	957,214	979,571	923,583
Transfusion Medicine	997,836	1,048,555	1,015,438	1,023,095	1,074,919
Immunology	391,826	405,528	442,861	462,644	470,774

Note:
Rising workload units are reflected in diverse areas as illustrated in most examples shown below:

	Fiscal 2002	Fiscal 2003	Fiscal 2004
Bone Marrow Requests*	442	456	424
Von Willebrand Antigen	218	239	239
Immunophenotyping Interpretation	661	727	747
Haemoglobin Electrophoresis	173	249	304

*Limited time period of decreased requests due to SARS

4.3 DIVISION OF CLINICAL CHEMISTRY

Workload Units

	Fiscal 2001	Fiscal 2002	Fiscal 2003
Routine Chemistry	2,440,937	3,168,462	3,117,846
Urinalysis	151,965	145,209	144,493
Therapeutic drug monitoring/Toxi-cology	92,618	144,372	158,780
Immunoassays	471,216	495,548	521,611
Special Chemistry	523,926	445,402	402,790

Notes:

Our new instrumentation – the Roche Modular system – has continued to operate nearly flawlessly for the year. Roche has brought several visitors from other hospitals to look at our process, and most of those clients have been sufficiently impressed to go on and acquire similar instrumentation for their own institutions. We underwent a major software upgrade to the Modular which has made some operational issues much more user friendly, in addition to preparing the system for the upgrade involved in adding the immunoassay module to the system.

The Remedi drug analyzer was installed in January 2003 and is now in live operation. Our correlation studies with the Triage system previously in use revealed a startling number of false positive results on Triage, further justifying the decision to purchase the Remedi. All reports are scrutinized by a biochemist before finalization.

4.4 DIVISION OF CLINICAL MICROBIOLOGY

Number of Tests Performed for Major Specimen Categories

L Code	Test	F2004	F2003	F2002
L621	Antibiotic Sensitivity	6358	6825	6080
L624	Blood Culture	18663	19197	17172
L625	Cervical, Vaginal Culture	3534	4108	4485
L628	Wound Culture	13238	13857	11807
L629	Sputum Culture	4207	2726	2846
L630	Stool Culture	2023	1982	2182
L634	Urine Culture	18398	18999	18572
L640	Throat Culture	3963	2746	3097
L626	Fungal Culture	1212	1259	996
L650	Parasitology concentration	2189	2236	2107
L654	Parasitology- smear	2189	2236	2107

Notes:
The service mix provided by Medical Microbiology was stable over the last year. We successfully implemented assimilation of Lennox and Addington County General Hospital Microbiology Testing into KGH Microbiology laboratory. This transition, though complex, went extraordinarily smoothly. The addition last year of rapid viral testing during the winter months was important during the respiratory infection & influenza season of October 2003-April 2004 in differentiating between SARS and non-SARS diagnoses (eg influenza).

4.5 DIVISION OF GENETICS

4.5.1 Molecular Diagnostics

- Samples received Fiscal 2004 **5510**
- Samples received Fiscal 2003 **5204**

Notes:
The new DHPLC technology has been implemented and is being validated. The laboratory is participating in a provincial initiative to implement BRCA1 and BRCA2 testing using this new technology. A prospective study involving seven provincial molecular laboratories is underway.

All gene sequencing and the analysis of tri-nucleotide repeat sizes in Huntington's disease and fragile X syndrome have been successfully adapted to the automated DNA sequencer. This has increased the efficiency and quality of the results produced.

Significant increases in workload (16%) have been experienced in testing for the genetic disorder hemochromatosis.

- Hemochromatosis Mutation Testing samples 2004 2178
- Hemochromatosis Mutation Testing samples 2003 1873

The algorithm for detection of BCR/ABL translocations by PCR has been substantially improved with inclusion of appropriate internal and positive controls to meet OLA requirements. The newer version of the test has been validated and implemented.

4.5.2 Cytogenetics

- Samples reported Fiscal 2004 **894***
- Samples reported Fiscal 2003 **1004**

*decrease for fiscal 2004 reflects backlog of unreported cases

Notes:
There have been significant case mix changes; there has been a shift to molecular cytogenetic test requests requiring fluorescence in situ hybridization (FISH).

	F2004	F2003	% Increase
Total FISH samples (all tissue types)	**151**	**111**	**24**
• Prenatal FISH aneuploidy screening	**24**	**4**	**84**
• Subtelomere FISH screening	**41**	**13**	**68**
• Microdeletion, marker ID, somatic cancer FISH	**86**	**94**	

Utilization of this test modality is managed by consultation between the referring physician and the laboratory director. The increase in molecular cytogenetic test requests is not reflected by an increase in the total number of specimens reported. FISH is almost always performed as an adjunct procedure to conventional chromosome analysis. This represents an increase in workload and testing complexity that is not easily documented by the total number of cases reported.

4.5.3 Clinical Genetics

In Fiscal 2004 there were 776 patient encounters locally, comparable to 780 encounters in 2003. The prenatal counselling service, in conjunction with the perinatal service, continues to enroll patients in the SAFER study (Second and first trimester evaluation of risk of fetal trisomies) that will develop, test, and validate an improved approach to screening for fetal Down syndrome. This is research headed by Andrew MacRae (Lakeridge Health Corporation Research Institute in Oshawa, Ontario) and funded by the CIHR.

YEARLY BREAKDOWN

CLINICS	KGH	HDH	20 BARRIE	ONGWANADA	NORTH BAY	PETER-BOROUGH	PRISON	TIMMINS	OTHER	TOTAL
Genetic Counseling	113	70	27	38					1	249
Prenatal Counseling	29	1	182	1					1	214
Ward Consults	69	4	1							74
Telephone/Postal			202	1					5	208
Special Clinics										0
Outreach			1	2	27	19	1	12	77	139
Biochemical Clinic		37		2						39
TOTAL	211	112	413	44	27	19	1	12	84	923

5. QUALITY & UTILIZATION IMPROVEMENT ACTIVITIES

Some of the medical quality improvement activities of the Department are highlighted below. The full range of activities is documented in the 2003 – 2004 annual report of the Department's Quality & Utilization Improvement Committee.

5.1 ANATOMIC PATHOLOGY

Surgical Pathology

- Diagnostic biopsy TAT auditing, ongoing (81% reported within 2 working days, within standard of 80% reported in 2 working days)
- All case TAT auditing, ongoing (80% of all cases completed in 3 working days)
- Frozen section-final diagnosis agreement within expected standards (1.3% disagreement rate and 3.9% deferral rate)

Cytology

- Pap smear diagnostic rate (LSIL, HSIL, ASCUS) monitoring - within standards
- Pap smear rescreen discrepancy monitoring - within standards
- Cytologic-histologic correlation - within standards

Autopsy and Forensic Unit

- Hospital TAT: increase in case completion in 30 days from 30% in 2002 to 42% in 2003.
- Forensic Unit: implementation of centralized case tracking database
- Lab manual revision to OLA standards completed.

5.2 HEMATOPATHOLOGY

- Number of CMV negative red cells available for specific clinical transfusion situations
- Autologous blood collection volume in proportion to anticoagulant in the blood bag
- Expanded provision of bone marrow collection kits for bone marrow collection at FAPC – technologist not required at bedside.
- Implementation of the platelet neutralization procedure (PNP) in lupus anticoagulant (LA) testing – automated test replaces cumbersome manual Kaolin Clotting Time. More easy to interpret.
- Developmental work on free functional Protein S measurement – to replace less clinically relevant antigenic assay (in progress).

5.3 MICROBIOLOGY

#	Indicator	Indicator Definition	Dimension of Quality Measured	Calc. Formula
1	Blood culture Percent pos.	Percent positive cultures	Efficiency	Percent positive culture
	Action Threshold	**Effective Goal**	**Action Plan**	**Resolved/ Ongoing**
	10% positive cultures with 7.6% significant positives	10% positive cultures with >7% significant	Annual Monitoring	Ongoing
#	**Indicator**	**Indicator Definition**	**Dimension of Quality Measured**	**Calc. Formula**

2	Blood culture contamination rate:	Percent contaminated cultures:	Efficiency	Percent contaminated cultures
	Action Threshold	**Effective Goal**	**Action Plan**	**Resolved/ Ongoing**
	1.2% contamination rate	3% contamination rate	Annual monitoring	Ongoing

#	**Indicator**	**Indicator Definition**	**Dimension of Quality Measured**	**Calc. Formula**
3	CSF cell count reporting	TAT of CSF cell count results	Efficiency	Percent within activity standard TAT
	Action Threshold	**Effective Goal**	**Action Plan**	**Resolved/ Ongoing**
	92% within 1 hour	≤ 1 hour TAT	1 month retrospective 2004	Ongoing

#	**Indicator**	**Indicator Definition**	**Dimension of Quality Measured**	**Calc. Formula**
4	TAT; notification of positive Blood Cultures	TAT of positive BC results	Efficiency, acceptability, competence	Max TAT Min TAT Mean TAT
	Action Threshold	**Effective Goal**	**Action Plan**	**Resolved/ Ongoing**
	74.6% within 1 hour	TAT 1 hour	Staff education and Reaudit in 6 months	Reaudit

#	**Indicator**	**Indicator Definition**	**Dimension of Quality Measured**	**Calc. Formula**
1	Blood culture Percent pos.	Percent positive cultures	Efficiency	Percent positive culture
	Action Threshold	**Effective Goal**	**Action Plan**	**Resolved/ Ongoing**
	10% positive cultures with 7.6% significant positives	10% positive cultures with >7% significant	Annual Monitoring	Ongoing

#	**Indicator**	**Indicator Definition**	**Dimension of Quality Measured**	**Calc. Formula**

2	Blood culture contamination rate:	Percent contaminated cultures:	Efficiency	Percent contaminated cultures
	Action Threshold	**Effective Goal**	**Action Plan**	**Resolved/ Ongoing**
	1.2% contamination rate	3% contamination rate	Annual monitoring	Ongoing

5.4. LABORATORY GENETICS

The bone marrow triage coordinated by hematopathogy, molecular diagnostic and cytogenetic labs has been implemented. With this triage, all hematological specimens first receive hematopathological evaluation before any genetic testing is initiated. The hematopathologist then indicates whether subsequent molecular and cytogenetic testing is to be pursued. This new algorithm ensures that only clinically appropriate specimens receive laboratory genetic testing. The new algorithm has resulted in a 30% decrease in the number of molecular genetic specimens requiring analysis for hematological cancers.

5.5 CORE LABORATORY

Turnaround times for electrolytes, troponin, CBC, PT were documented and compared with previous results. In general, results were acceptable but highlighted the difficulties associated with maintaining excellent service in the face of growing workload volumes without commensurate increase in technical staffing within the core laboratory.

6. REGIONAL AND/OR MULTIDISCIPLINARY ACTIVITIES

6.1 ONGOING ACTIVITIES

We continue to provide a wide range of regional and trans-regional laboratory and diagnostic services, largely through our regional outreach program. We also participate in numerous multidisciplinary rounds and programs. Some of these are listed below:

- Diagnostic and medical directorship services to Perth/Smiths Falls and Napanee hospitals
- A Regional immunohistochemistry service (e.g. advanced diagnostic workup for solid tumours)
- KRCC new patient secondary regional pathology review service
- KGH and KRCC multidisciplinary rounds (Tumour Boards and Site Groups, Medical Mortality Rounds, numerous specialty rounds)
- A Regional Forensic Unit
- Regional pap smear screening program via private lab partnership
- Development of a surgical pathology tumour banking program.

- The Transfusion Nurse Coordinator, Mrs. Doris Flynn, has continued to work with clinical services to improve blood conservation and risk containment.
- Continued work on the introduction of a specific Consent for Transfusion of Blood Components Notification process for recipients of blood products.

6.2 NEW ACTIVITIES

- New Laboratory Information System (LIS) acquisition process. Request for information issued May 2004.
- Laboratory accreditation: all aspects of laboratory services were reviewed and revised, in coordination with staff and management from Nursing, Medical Staff, Information Management, and other disciplines, in order to meet new provincial standards for accreditation.
- Addition of laboratory direction and consultation services to Weeneebayko Hospital in Moose Factory.
- The Stem Cell Transplant Programme received Ministry approval. The Division of Hematopathology has been developing a protocol with the Ottawa CBS to count, transport, store, thaw, and transfuse stem cells for bone marrow transplant patients. This will require increased human resources and new technical expertise, particularly in Blood Bank and Immunophenotyping.
- Point of Care INR instrumentation multidisciplinary working group for establishment of a centralized Anticoagulation Management Service for patients on oral anticoagulants in the region and for selection of new instrumentation for blood glucose monitoring.

7. GOALS & OBJECTIVES FOR COMING YEAR

Our new strategic planning document, entitled "Excellence in Service and Discovery – A Strategic Management System", provides us with consolidated strategic priorities, goals, objectives and actions for the next three to five years. Our four strategic priorities include: People, Quality, Integration & Partnerships, and Business Process Management. We have set departmental goals and strategic objectives for each of these priorities. The goals are listed below:

- 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.
- To provide clinical and diagnostic services and programs in education and research, which are recognized nationally for their excellence.
- To lead in the development and optimization of regional laboratory services in Southeastern Ontario.
- To employ sound business practices, to practice responsible stewardship of our resources, to embrace accountability for high standards of care and resource utilization and to manage resources in a fashion, which allows us to achieve our objectives.

We have developed strategic objectives for each of these goals under the categories of Laboratory & Clinical Services, Research, Graduate Education, Postgraduate Education, and Finance and Administration.

8. CHALLENGES & OPPORTUNITIES

Our strategic planning document has extensively delineated the challenges and opportunities that our Department faces over the next few years. These may be summarized as follows:

8.1 KEY STRATEGIC THREATS

- *Financial strain*: Our clinical laboratories desperately require significant investments now in capital equipment to replace aging, chronically malfunctioning instruments to ensure a high quality service, yet we must work within the financial limitations of the fixed global budget of the hospital.
- *Human resource issues*: Not unlike other health care professions, there is a national shortage of laboratory physicians, scientists and technologists. More than 25% of the laboratory workforce will be within retirement age in Ontario over the next 5-10 years. This situation is exacerbated by the insufficient numbers of graduates from training programs.
- *Increasing demand*: Over the past decade, laboratories across Ontario have faced annual volume increases of ~ 4-6%. In addition to increased volumes, as technologies change and become more complex, laboratories are also experiencing an escalation in demand for higher quality.
- *IT and LIS Infrastructure*: Current infrastructure is fragmented, non-standardized, and of limited functionality, in comparison with contemporary practices.
- *Space and Capacity*: The Department suffers from a chronic lack of physical space which is exacerbated by an increasing demand for laboratory services, including new molecular technologies.

8.2 KEY STRATEGIC OPPORTUNITIES

- *Rapidly advancing environment*: Laboratories are no exception in the fast paced, highly technical health care environment of the new millennium. Advancing diagnostic methodologies, emerging infectious diseases, and increasing demand for point of care testing are just a few examples of the challenges that laboratories will face over the next few years in terms of ensuring that services are best practice, and provide the most value to clinicians, patients and families.
- *Regional leadership*: The MoHLTC laboratory reform process is driving change in the hospital laboratories of Southeastern Ontario. Through collaboration, and the development of an integrated, regional laboratory system, all hospital stakeholders will benefit through the value of economies of scale and scope.

- *Changing accreditation requirements*: While the implementation of the new Ontario Laboratory Accreditation standards has been an enormous task and has required significant resources, it has provided an excellent opportunity to appreciably improve quality of service.
- *Information technology*: KGH has committed itself to the purchase of a new Laboratory Information System, an investment which will enable the Clinical Laboratories to re-engineer internal business process to optimize service delivery.

Submitted to JQUIC and MAC: September 2, 2004