(1) INTRODUCTION

Medical Microbiology is one of the subspecialties under Pathology.

A pathologist deals with the causes and nature of disease and contributes to diagnosis, prognosis, and treatment through knowledge gained by the laboratory application of the biologic, chemical, and physical sciences. A pathologist uses information gathered from the microscopic examination of tissue specimens, cells, and body fluids, and from clinical laboratory tests on body fluids and secretions for the diagnosis, exclusion, and monitoring of disease.*

Primary certification in anatomic pathology or clinical pathology may be combined with some of the subspecialty certifications.*

Training Required: Three to four years*

A medical microbiologist is expert in the isolation and identification of microbial agents that cause infectious disease. Viruses, bacteria, and fungi, as well as parasites, are identified and, where possible, tested for susceptibility to appropriate antimicrobial agents.*

Medical microbiologists are physicians who are primarily concerned with the prevention and diagnosis of infectious diseases. A medical microbiologist may also diagnose and make recommendations of therapy for patients with infectious diseases.**

The core disciplines used by the department scientists and trainees in research programs include molecular pathogenesis of microbial disease, immunobiology of infection, molecular mechanisms of antimicrobial action, microbial resistance and epidemiology.

Subspecialties of Pathology include:

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<th>Blood Banking/Transfusion Medicine</th>
<th>Hematology</th>
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<tr>
<td>Chemical Pathology</td>
<td>Medical Microbiology</td>
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<td>Cytopathology</td>
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<td>Dermatopathology</td>
<td>Neuropathology</td>
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<td>Forensic Pathology</td>
<td>Pediatric Pathology</td>
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(2) MEDICAL MICROBIOLOGY PROGRAMS ACROSS CANADA

Dalhousie University
Université Laval
Université de Sherbrooke
Université de Montréal
University of Manitoba
University of Alberta
University of British Columbia
The Department of Medical Microbiology is comprised of an integrated team of investigators, educators and practitioners providing leading edge education, innovative research and expertise in medical microbiology and infectious diseases. The Department is a trusted authority providing timely and accessible information on current and emerging issues in infectious diseases. The Department is seen nationally and internationally as a dynamic group of leaders and collaborators. It is acknowledged for excellence in numerous areas, and is constantly developing new research initiatives in infectious diseases.

Our department includes individuals with diverse interests and expertise. We recognize each others' strengths and abilities. We work together, inclusive of all, in achieving our common goals, building this work on open, amicable communication and collaboration.

The leadership, at all levels, within the department guides the pursuit of our strategic goals and facilitates individual creativity, mentorship, coordination of work, and sharing of resources and opportunities. We ensure a friendly working environment of trust, respect and collegiality.

Program Contact

Dr. G. Harding
Department of Microbiology
St. Boniface General Hospital
409 Tache Avenue
Winnipeg MB R2H 2A6
Telephone (204) 233-8563, fax (204) 231-0640

PROGRAM INFORMATION

Approximate Quota: 0 for 2007 match

Number of applicants 2004/2005: n/a
Number of interviews 2004/2005: n/a
Average out-of-town applicants matched 2002-2005: n/a%

Resources

The medical microbiology and infectious diseases training programs are closely integrated, with joint teaching round, journal reviews, plate rounds, case presentations, and research seminars.

Health Sciences Centre, an 850 bed adult and pediatric teaching hospital with comprehensive microbiology including specialty training in mycology and mycobacteriology.

St. Boniface General Hospital, a 650 bed teaching hospital offers comprehensive microbiology training.

Cadham Provincial Laboratory, a public health laboratory offers specialty training in virology, serology, environmental microbiology and public health microbiology. The University of Manitoba offers joint training the medical microbiology program and the infectious disease training program over three years for qualified individuals.
**Curriculum**

The medical microbiology and infectious diseases training programs are closely integrated, with joint teaching rounds, journal reviews, plate rounds, case presentations, and research seminars. Opportunities exist for close interaction with the infectious diseases training program and basic sciences teaching and research at the University of Manitoba. Training with the infection control services at both teaching hospitals is available. Public health and epidemiological training is available through the rotation at the Cadham Provincial Laboratory. A variety of structured training is offered through a variety of microbiology courses. Trainees are funded to attend an off-site training program in biostatistics and epidemiology.

**PGY-1**

This year consists of one year that would vary depending upon the goals of the resident. This can vary from a rotating type of internship program to one which is predominantly geared to internal medicine or pediatrics.

**PGY-2**

This year will consist of one year of internal medicine or pediatrics of which six months must be in infectious diseases.

**PGY-3 and 4**

These are two years of core laboratory training, with one year at the Health Sciences Centre, nine months at St. Boniface General Hospital and three months at Cadham Provincial Laboratory.

**PGY-5**

This year provides additional specialty training or research opportunities.

**Research**

Trainees are encouraged to participate in research programs, especially those of a collaborative nature with the infectious disease program. Research opportunities exist in all three institutions, for research within the microbiology laboratories or at an affiliated research institution or laboratory. Trainees are encouraged to present and publish research projects, and to travel to a national/international meeting for this.

(Revised on January 25, 2007)

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**(4) Medical Microbiology Physician’s Survey**

A Medical Microbiology Physician’s Survey is not available at this time. However, the following Pathology Physician’s Survey may be informative.

There are 24 Pathologists in Manitoba. All 24 were sent surveys, of which 6 replied.

**BACKGROUND**

**What is your special focus?**

Neuropathology
Anatomic pathology 5
Hematopathology 2
Experimental pathology
**How many years practicing?**

![Bar chart showing years of practice](chart.png)

**Population Setting**
- Winnipeg: 5
- Brandon: 1
- Rural South: 0
- North of 53: 0

**Where are they predominantly practicing?**
- Private practice with hospital: 1
- Private practice without hospital: 1
- Community clinic: 0
- Hospital:
  - Academic hospital: 3
  - Community hospital: 3
- Teaching: 4
- Other: 1, research

**Gender**
- Male: 4
- Female: 2

**Marital Status**
- Single: 0
- Married: 5
- Divorced: 1
- Separated: 0
- Common Law: 0

**Do you have children/ how many?**
- Yes: 5
- No: 1

  - 1: 1
  - 2: 1
  - 3: 2
  - 4: 1
  - 5: 0
How much do you interact professionally with other physicians?
(1-on my own most of the time   10- as a part of a team most of the time)

![Bar chart showing interaction levels]

Are you in a solo practice or group practice?
Solo   1       Group  5

If you work in a group, how many doctors do you share a practice with?
1-3    0
4-6    3
7-10   1
Above 10  1

AVERAGE DAY

How many patients do you see on an average per day?
0 to 5     2
6 to 10    1
11 to 20   0
21 to 30   0
Above 30   0
Other:      Laboratory Medicine Practice- No Patients

How many hours per week - not including call time?
(I.e. including CME, clinical work, administration, teaching)

![Bar chart showing hours per week]

What sort of schedule do you have in your work?
(1- irregular/unpredictable 10-regular/predictable)

![Bar chart showing schedule types]
Are you ever on remunerated call?
Yes  1  No  4

How many days are you on call? (#days/month)
- 1 to 5: 1
- 6 to 10: 1
- 11 to 20: 1
- 21 to 30: 1
- Everyday: 1
- Not remunerated: 2

How many hours per shift? (#hours/shift)
- 1 to 5: 0
- 6 to 10: 1
- 11 to 23: 0
- 24 hours: 2

How much routine (similar work) or diversity (different tasks, activities) do you have in your work? (1-great deal of routine 10- great deal of diversity)

What type of intellectual approach to problem solving do you need to have to perform your work duties? (1-specific problem approach 10-theoretical)

Do you have a sharply defined area of expertise or general expertise in your area of work? (1-General expertise 10 - Sharply defined expertise)
How much do you need to use manual/mechanical activities for highly skilled tasks?
i.e. doing procedures, performing operations (1-never   10- most of the time)

![Bar chart showing frequency of manual/mechanical activities for highly skilled tasks.

JOB SATISFACTION

Overall, how satisfied are you with your career? (1- Dissatisfied 10- very satisfied)

![Bar chart showing satisfaction levels.

What is the most appealing aspect of your job?

- Intellectual Simulation
- Easy to control schedule
- Contributory work; physicians and patients depend on my opinions
- Anatomical Pathology is a specialty w/c problem solving is a predominant activity, at both
  a visual and clinical-pathologic level
- A good mix of routine and difficult problems, usually occurs on a daily basis
- Teaching
- Pathology provides wide knowledge of and interaction with many other clinical
  specialties. Problems are complex and have clinical impact. There is a large theoretical
  knowledge base and time for research

What is the least appealing aspect of your job?

- I get no respect
- Performing autopsies
- Difficulty in retaining colleagues
- NONE
- Political resource issues
- Lack of immediate patient contact, but this is compensated by contact with other medical
  personnel and students
PATIENT CHARACTERISTICS

Presenting complaints most often seen?

- Cause of Death
- Brain Tumor
- Dementia
- Brain Trauma

How much time do you spend in direct contact with patients? (no time at all - 0 most of my time - 10)

How much opportunity to see end results do you have in your work? (1- little opportunity 10- great deal of opportunity)

FINANCIAL

What is your income bracket after taxes and overhead, etc?
What income level do you feel you have in comparison to other specialties?
(1-lower 10- higher)

Are you satisfied with your income?

Comments:
- In absolute term, I live well, but I am underpaid in comparison to specialties with similar training, hours, responsibility
- The income needs to be comparable with other provinces in order to retain staff
- Although I am personally satisfied with this income level, the fact is that it is lower than in neighboring provinces causes manpower problems in this specialty
- Salaries in lab medicine are competitive and increasing. There is a real demand for pathologists locally and nationally

Do you feel your current income compensates your workload?
Yes 2 No 3

What is the basis of your current income?
Fee-for-service 0
Salary 5
Indep cont 1
Sessional
Other

FAMILY LIFE/FREE TIME

How much time does work allow for family/leisure activities?
(1- little free time 10- ample free time)
Are you satisfied with the amount of free time you have?

![Satisfaction Bar Chart]

Do you have the ability to limit your workload should you need more free time?

Yes 1  No 5

Do you take vacations?

Yes 6  No 0

How much time for vacations annually?

![Vacation Time Bar Chart]

How much time away from work for CME related conferences?

![Conference Time Bar Chart]

What is the maximum number of consecutive days away from work annually?

![Consecutive Days Bar Chart]
What were your main reasons for choosing your specialty?

- Intellectual challenge, research issues
- The work is a nice balance between basic science and clinical application. There is little or no night work
- I chose anatomical pathology because of a lack of a specific direction after medical school. My reasons are now different: the specialty is challenging and rewarding
- Opportunity; Scientific Interest
- Lifestyle 2
- Interesting 2
- Regular Hours 1

What were the major factors that guided your decision to choose this specialty?

- Friend/family 3
- Clerk exp. 1
- Med.sch.exp. 4
- Dr. example 5
- Type of pt. 1
- Lifestyle 4
- Residency 0
- Others Opportunities for research

MOST IMPORTANT:

- Research goals
- Family
- Lifestyle
- Positive physician example
- Excellent training program at an internationally recognized center

Would you choose the same specialty again?

Yes 6 No 0

What professional status (in comparison to others) do you feel you have?

(1- lower  10- higher)

![Bar chart]

Do you feel your specialty is respected by colleagues in other specialties?

Yes 3 No 3
Do you feel your specialty is respected by the community at large?

Yes 0 No 6

Comments:
- Non medical people have little idea what a pathologist does
- Colleagues who are intimately associated with our work (i.e. surgeons, oncologists, radiologists) understand the defining contribution made by anatomic pathologists
- Lab medicine is not as visible as other specialties. Communities at large as well as physicians are not knowledgeable in importance of laboratory patient care.

PRESSURE

How much pressure do you have in your work?

![Pressure Chart]

What aspect of your job do you find the most stressful?

- Time pressures; difficult judgments
- Writing grant applications
- Decisions that are out of my hands, such as choosing or downsizing of pathology research training programs
- I am involved in programs standards activities. I find these stressful on a time commitment basis
- Limited resources
- Bureaucrats in the WRHA.

Have you ever considered taking a leave of absence due to stress?

Yes 0 No 6

Have you ever taken a leave of absence due to stress?

Yes 0 No 6

GENDER ISSUES

Do you feel discrimination in your job based on your gender?

Yes 0 No 6

What qualities do you think a student needs for this specialty or area of practice?

- Enquiring mind
- Intellectual focus
- Interest in theoretical aspects of medicine
- Sense of intellectual curiosity and a good work ethic. Every case must be worked up adequately and all possibilities explored prior to defendant of diagnosis
• Interest in neurological disease and biological basis of disease
• Ability to work independently
• A methodical approach
• Commitment
• Intellect to pursue continuing medical education

**What advice would you have for a student considering this specialty or area of practice?**

• This is a specialty area that is underappreciated by medical students. It is a satisfying profession with a reasonable lifestyle and adequate compensation
• Talk to someone practicing
• Get some clinical experience prior to starting residency program
• Do an elective (shadow pathologist.) Academic and community settings should be considered.
• Excellent opportunities exist and there are many different subspecialties in lab medicine

Planning your future as a doctor in Manitoba

**Web sources:**


**Taken from [http://www.royalcollege.ca/index_e.php](http://www.royalcollege.ca/index_e.php) Jan. 25, 2007*