DIAGNOSTIC RADIOLOGY PROFILE

GENERAL INFORMATION
(Sources: Perspectives on Health Occupations, the Canadian Medical Residency Guide and Pathway Evaluation Program, Royal College)

Diagnostic radiology is concerned with the use of imaging techniques in the study, diagnosis and treatment of disease. The radiologist’s major role is as a consultant to other physicians. By interpreting medical images produced by X-rays (radiography and computed tomography), radioisotopes (nuclear medicine), ultrasound (sonography), and magnetic fields (magnetic resonance imaging), the radiologist along with the referring physician and patient plan, organize, integrate and interpret the imaging studies to form a diagnosis and determine the course of treatment.

Diagnostic radiology is an intellectually challenging and rapidly changing specialty. Therefore, radiologists must continue to study and attend educational courses to keep abreast of new information and techniques. To be effective, the radiologist must have considerable and detailed knowledge of anatomy and pathology, as well as sound knowledge of medicine and surgery. In order to use the sophisticated tools of radiology, they must also have a sound knowledge of physics and how images are formed.

Radiology encompasses many subspecialties, including neuroradiology, ultrasound, MRI and CT, mammography and GI radiology.
Interventional radiology is becoming a rapidly growing area within this specialty. Specially trained radiologists can now perform minimally invasive procedures, such as biopsies, drain abscesses, dilate stenotic arteries (angioplasty), clot bleeding arteries, remove biliary or urinary tract stones and insert central lines.

Upon completion of medical school, it takes an additional 5 years of Royal College-approved residency training to become certified in diagnostic radiology. The 5 years of training require a closely supervised practice in the beginning, with the opportunity for increasing responsibility in the final years. This is to ensure that the resident can function near the end of training as a general radiology consultant, requesting help from staff radiologists when necessary. The residency may be followed by 1 or more years of fellowship training in a subspecialty discipline.

The 5 years of training must include:

• 1 year of basic clinical training to give the resident a degree of independent responsibility for clinical decisions; an opportunity for further development of the skills required in making effective relationships with patients; the consolidation of competence in primary clinical and technical skills across a broad range of medical practice; and an understanding of the nature of the relationship between a referring physician and a clinical radiological consultant
DIAGNOSTIC RADIOLOGY PROFILE

• 3 years of Royal College-approved resident training in "general diagnostic imaging"; this must include: respiratory, cardiovascular, gastro-intestinal and biliary, genito-urinary, musculoskeletal, mammography, neurological and pediatric radiology, as well as the following modalities: fluoroscopy, ultrasound, nuclear medicine, and CT, MR imaging

• 1 year of Royal College-approved residency that may consist of 1-12 month periods in any of the following: further training in diagnostic radiology; diagnostic ultrasound; CT; MR; nuclear medicine; cardiac and/or vascular radiology; interventional radiology; neuroradiology; pediatric radiology; pathology or other clinical specialty relevant to the practice of radiology (for up to 3 months) or a full-time research project, relevant to diagnostic imaging

For more detailed training requirements go to:
http://www.royalcollege.ca/portal/page/portal/rc/credentials/start/routes/traditional_route

Canadian Association of Radiologists:
www.car.ca
### Number of physicians and physicians/100,000 population in Diagnostic Radiology in Canada, 2015

<table>
<thead>
<tr>
<th>Province/Territory</th>
<th>Physicians</th>
<th>Phys/100k pop'n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newfoundland/Labrador</td>
<td>47</td>
<td>8.9</td>
</tr>
<tr>
<td>Prince Edward Island</td>
<td>9</td>
<td>6.1</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>95</td>
<td>10.1</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>57</td>
<td>7.6</td>
</tr>
<tr>
<td>Quebec</td>
<td>613</td>
<td>7.4</td>
</tr>
<tr>
<td>Ontario</td>
<td>887</td>
<td>6.5</td>
</tr>
<tr>
<td>Manitoba</td>
<td>85</td>
<td>6.6</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>69</td>
<td>6.1</td>
</tr>
<tr>
<td>Alberta</td>
<td>271</td>
<td>6.5</td>
</tr>
<tr>
<td>British Columbia</td>
<td>333</td>
<td>7.1</td>
</tr>
<tr>
<td>Territories</td>
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<td>0.0</td>
</tr>
<tr>
<td><strong>CANADA</strong></td>
<td><strong>2466</strong></td>
<td><strong>6.9</strong></td>
</tr>
</tbody>
</table>

Source: CMA Masterfile
Physicians/100,000 population in Diagnostic Radiology in Canada, 1995 to 2015

Source: CMA Masterfile
Diagnosis Radiologists by gender and year in Canada, 1995 to 2015

Source: CMA Masterfile
Diagnostic Radiologists by age and gender in Canada, 2015

Gender

- Male: 70%
- Female: 30%

Age Group

- 34 and under: 6%
- 35 - 44: 27%
- 45 - 54: 26%
- 55 - 64: 24%
- 65 and over: 17%

Source: 2015 CMA Masterfile
Diagnostic Radiologists by age and gender in Canada, 2015

Source: 2015 CMA Masterfile
Main work setting of Diagnostic Radiologists in Canada, 2014

- Community Hospital: 34%
- Academic Health Sciences Centre: 28%
- Private Office/Clinic: 13%
- Research Unit: 11%
- Non-AHSC Teaching Hospital: 8%
- Community Clinic/Health-centre: 2%
- Nursing home/long term care facility/seniors’ residence: 1%

Source: 2014 National Physician Survey. CFPC, CMA, Royal College
Practice organization for Diagnostic Radiologists in Canada, 2014

- 71% Hospital-based Practice
- 22% Group Practice
- 3% Solo Practice
- 3% Interprofessional Practice
- 1% NR

Source: 2014 National Physician Survey. CFPC, CMA, Royal College
## Hours worked per week (excluding on-call) by Diagnostic Radiologists in Canada, 2014

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours worked per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct patient care without teaching component</td>
<td>25.8</td>
</tr>
<tr>
<td>Direct patient care with teaching component</td>
<td>5.1</td>
</tr>
<tr>
<td>Teaching without patient care</td>
<td>1.4</td>
</tr>
<tr>
<td>Indirect patient care</td>
<td>4.9</td>
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<tr>
<td>Health facility committees</td>
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<tr>
<td>Administration</td>
<td>1.6</td>
</tr>
<tr>
<td>Research</td>
<td>0.8</td>
</tr>
<tr>
<td>Managing practice</td>
<td>1.7</td>
</tr>
<tr>
<td>Continued professional development</td>
<td>3.2</td>
</tr>
<tr>
<td>Other</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>TOTAL HOURS PER WEEK</strong></td>
<td><strong>45.6</strong></td>
</tr>
</tbody>
</table>

Source: 2014 National Physician Survey. CFPC, CMA, Royal College
Time spent on call in direct patient care = 25 hrs./month

Source: 2014 National Physician Survey. CFPC, CMA, Royal College
Remuneration for **Diagnostic Radiologists** in Canada

**Primary payment method**\(^1\) in 2013

- 90% + fee-for-service: 82%
- 90% + salary: 5%
- 90% + other*: 9%
- Blended: 3%
- NR: 2%

* Other includes capitation, sessional, contract and other methods

**Average gross clinical earnings** for all medical specialists in 2013/14 (those earning at least $60,000) = $339,566\(^2\)

**Average percent overhead reported by all medical specialists in 2010 = 20\%\(^3\)**

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\(^1\) National Physician Survey, 2013, CFPC, CMA, Royal College

\(^2\) National Physician Database, 2013/14, CIHI

\(^3\) National Physician Survey, 2010, CFPC, CMA, Royal College
Satisfaction among **Diagnostic Radiologists** in Canada, 2013

**Balance of personal & professional commitments**

- NR: 5%
- Very dissatisfied: 5%
- Dissatisfied: 20%
- Neutral: 23%
- Satisfied: 34%
- Very satisfied: 13%

**Current professional life**

- NR: 5%
- Very dissatisfied: 4%
- Dissatisfied: 8%
- Neutral: 13%
- Satisfied: 47%
- Very satisfied: 24%

Source: 2013 National Physician Survey. CFPC, CMA, Royal College
Diagnostic Radiologists who are Royal College, CFPC or CMQ certified in Canada, 2014

- Royal College: 99%
- CFPC: 3%
- CMQ: 18%
- Outside Canada: 11%

Note: Subset of those who reported a certification. Physicians could indicate more than one certification body.

Source: 2014 National Physician Survey. CFPC, CMA, Royal College
Number of Diagnostic Radiologists who retired during the THREE year period of 2012 to 2014

Source: CMA Masterfile – year over year comparisons

Note: “Retired” is based on giving up licence and is therefore excludes those who have retired from clinical practice but are still licensed; those younger than 45 may include physicians who have temporarily given up their licence but return to practice at a later date.
Total and Ministry funded postgraduate MD trainees in 2014/15 – Diagnostic radiology

<table>
<thead>
<tr>
<th>Faculty of Medicine</th>
<th>Ministry funded</th>
<th>Total</th>
<th>Faculty of Medicine</th>
<th>Ministry funded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial U N&amp;L</td>
<td>15</td>
<td>15</td>
<td>McMaster U</td>
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<td>44</td>
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<tr>
<td>Dalhousie U</td>
<td>20</td>
<td>25</td>
<td>UWO</td>
<td>23</td>
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<tr>
<td>U Laval</td>
<td>42</td>
<td>42</td>
<td>NOSM</td>
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<tr>
<td>U Sherbrooke</td>
<td>22</td>
<td>22</td>
<td>U Manitoba</td>
<td>22</td>
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<tr>
<td>U Montréal</td>
<td>48</td>
<td>54</td>
<td>U Sask</td>
<td>15</td>
<td>15</td>
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<tr>
<td>McGill U</td>
<td>40</td>
<td>71</td>
<td>U Alberta</td>
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<td>32</td>
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<tr>
<td>U Ottawa</td>
<td>31</td>
<td>55</td>
<td>U Calgary</td>
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<tr>
<td>Queens U</td>
<td>15</td>
<td>15</td>
<td>UBC</td>
<td>33</td>
<td>77</td>
</tr>
<tr>
<td>U Toronto</td>
<td>62</td>
<td>150</td>
<td>Canada</td>
<td>475</td>
<td>712</td>
</tr>
</tbody>
</table>

*Includes Pediatric Radiology and Neuroradiology

Source: 2014/15 Annual Census of Post-MD Trainees, CAPER
First year and exiting postgraduate-MD trainees in 2014/15 – Diagnostic Radiology

Source: 2014/15 Annual Census of Post-MD Trainees, CAPER
Postgraduate-MD trainees in 2014/15 – Diagnostic Radiology

• Total of 85 first year Diagnostic Radiology trainees representing 18% of all Diagnostic Radiology trainees.

• Total of 475 Diagnostic Radiology trainees representing 4% of all Ministry funded trainees.

• Total of 155 visa trainees in Diagnostic Radiology.

• Total of 97 Diagnostic Radiology trainees completed postgraduate training in 2014.

Source: 2014/15 Annual Census of Post-MD Trainees, CAPER
Of the 107 exits in 2013, 80 (75%) were known to be practising in Canada

Source: 2014/15 Annual Census of Post-MD Trainees, CAPER
Stress associated with finding employment at end of residency

Source: 2012 National Physician Survey of residents. CFPC, CMA, Royal College
Links to the organizations supplying information for this document

National Physician Survey
http://www.nationalphysiciansurvey.ca

Canadian Medical Association
http://www.cma.ca/pdc

Association of Faculties of Medicine of Canada
http://www.caper.ca/

Royal College of Physicians and Surgeons of Canada
http://www.royalcollege.ca/portal/page/portal/rc/credentials/start/routes/traditional_route

College of Family Physicians of Canada
http://www.cfpc.ca

Canadian Institute for Health Information
http://www.cihi.ca