



# Neurosurgery Profile

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# Table of Contents

	Slide
▪ <a href="#"><u>General Information</u></a>	3-6
▪ <a href="#"><u>Total number &amp; number/100,000 population by province, 2019</u></a>	7
▪ <a href="#"><u>Number/100,000 population, 1995-2019</u></a>	8
▪ <a href="#"><u>Number by gender &amp; year, 1995-2019</u></a>	9
▪ <a href="#"><u>Percentage by gender &amp; age, 2019</u></a>	10
▪ <a href="#"><u>Number by gender &amp; age, 2019</u></a>	11
▪ <a href="#"><u>Percentage by main work setting, 2014</u></a>	12
▪ <a href="#"><u>Percentage by practice organization, 2014</u></a>	13
▪ <a href="#"><u>Hours worked per week (excluding on-call), 2014</u></a>	14
▪ <a href="#"><u>On-call duty hours per month, 2014</u></a>	15
▪ <a href="#"><u>Percentage by remuneration method</u></a>	16
▪ <a href="#"><u>Professional &amp; work-life balance satisfaction, 2013</u></a>	17
▪ <a href="#"><u>Number of retirees during the three year period of 2016-2018</u></a>	18
▪ <a href="#"><u>Links to additional resources</u></a>	19

# General information

Neurosurgery focuses on the central, peripheral and autonomic nervous systems. Practitioners diagnose problems through physical examination with the aid of such tools as MRI, CT scans and laboratory tests and frequently provide surgical treatment. Neurosurgery includes management of diseases of the skull, the brain, the pituitary and the spinal cord. Management of head and spinal injuries is a major challenge. As many head injuries and acute intracranial emergencies occur in off-hours, this is not a specialty for those who value lifestyle. It is, however, a very challenging and rewarding career.

Neurosurgery as a discipline arose as a result of an increasing need for special expertise in the surgical and non-surgical treatment of various diseases affecting the nervous system and supporting structures. Therefore, it involves the ability to diagnose, and the technical expertise for the effective surgical treatment of congenital and acquired abnormalities. It also requires expertise in trauma and diseases affecting the nervous system that can be potentially prevented, alleviated or cured.

# General information

This specialty requires the physician to be well-grounded in the principles of both neurosurgery and surgery in general. Thus, the fully-trained resident must demonstrate proficiency and expertise in the:

- care of neurosurgical emergencies;
- principles of pre- and post-operative general surgical care;
- treatment of deep vein thrombosis;
- management of fluid and electrolyte disturbances;
- treatment of sepsis, the use of antibiotic therapy and an understanding of the implications of antibiotic prophylaxis;
- understanding of vascular shock and its treatment;
- an understanding of the diagnostic importance of disordered blood gas analyses and their treatment ;
- acute, subacute and chronic management of parenteral nutritional support.

# General information

A neurosurgical resident must have knowledge, clinical ability and surgical skill as these apply to surgical diseases of the nervous system. They must have familiarity with, and knowledge of, the related disciplines of basic neuroscience, neurology, neuropathology, neuroimaging and neuropsychology.

Neurosurgical residents must also demonstrate a detailed knowledge of the normal structure and function of the nervous system and of the pathological processes that unbalance it. They must develop learning strategies to enhance their knowledge and expertise so as to maintain excellent and current standards of care. Interprofessional skills are imperative as they must become effective neurosurgical consultants with respect to patient care, education of colleagues and the provision of medical legal opinions. Finally, and most importantly, the neurosurgical resident is expected to demonstrate unequivocal high moral and ethical behaviour.

# General information

Upon completion of medical school, it takes an additional six years of Royal College-approved training to become certified in neurosurgery. This period must include:

- 2 years of core training in surgery and 3 years of Royal College-approved resident training in neurosurgery. Up to six months of this period may be spent in pediatric neurosurgery;
- 1 year of training that must include 3 months of residency in neurology, 3 months of residency in neuropathology, and 3 months of residency in neuroimaging.

For further details on training requirements please go to:

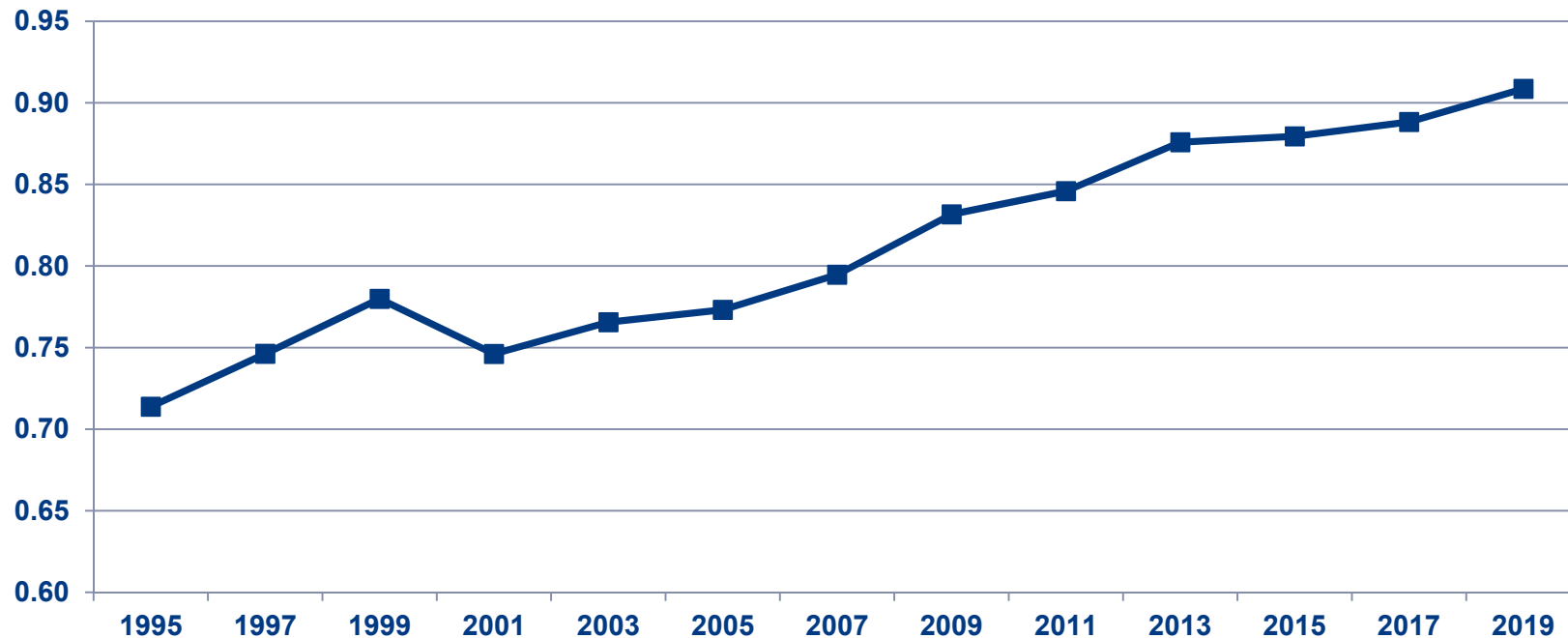
[Royal College of Physicians and Surgeons of Canada](#)

[Canadian Neurological Sciences Federation](#)

## Total number & number/100,000 population by province, 2019

Province/Territory	Physicians	Phys/100k pop'n
Newfoundland/Labrador	3	0.6
Prince Edward Island	0	0.0
Nova Scotia	11	1.1
New Brunswick	10	1.3
Quebec	80	0.9
Ontario	120	0.8
Manitoba	14	1.0
Saskatchewan	14	1.2
Alberta	42	1.0
British Columbia	45	0.9
Territories	0	0.0
<b>CANADA</b>	<b>339</b>	<b>0.9</b>

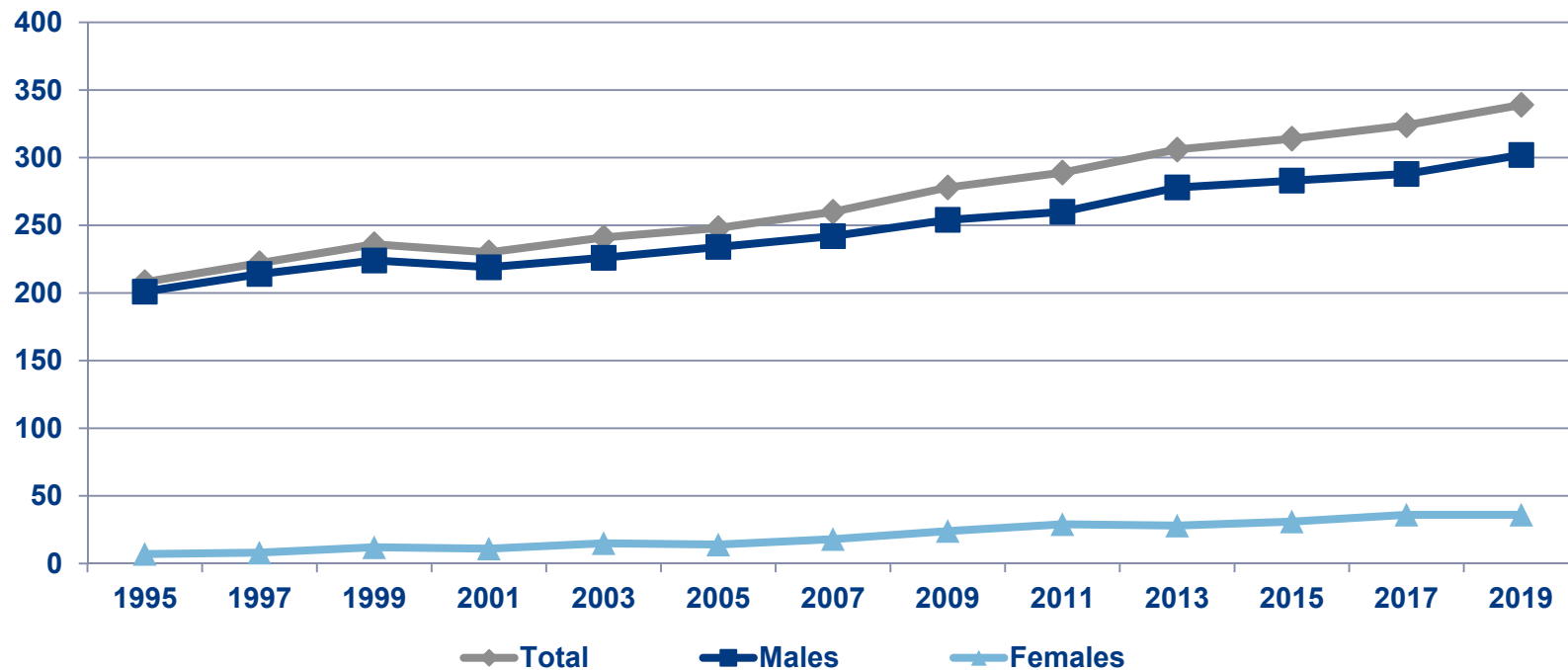
## Number/100,000 population, 1995 to 2019



Source: 1995-2019 CMA Masterfiles

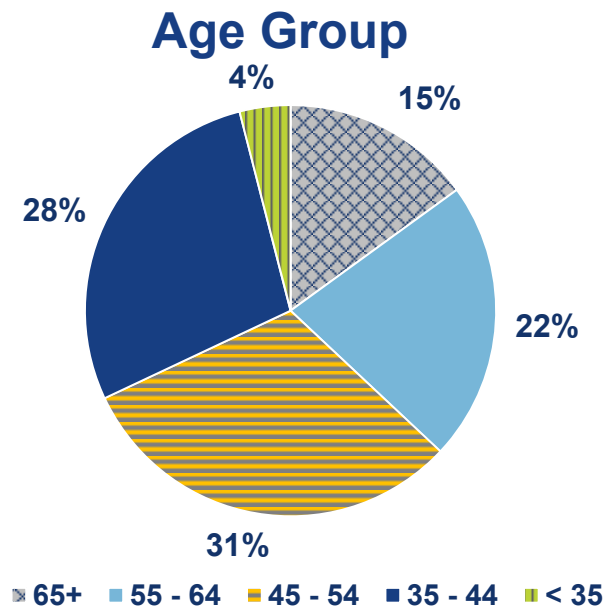
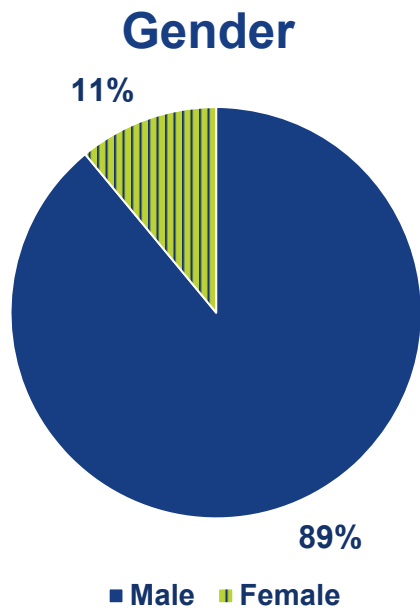


## Number by gender & year, 1995 to 2019



Source: 1995-2019 CMA Masterfiles

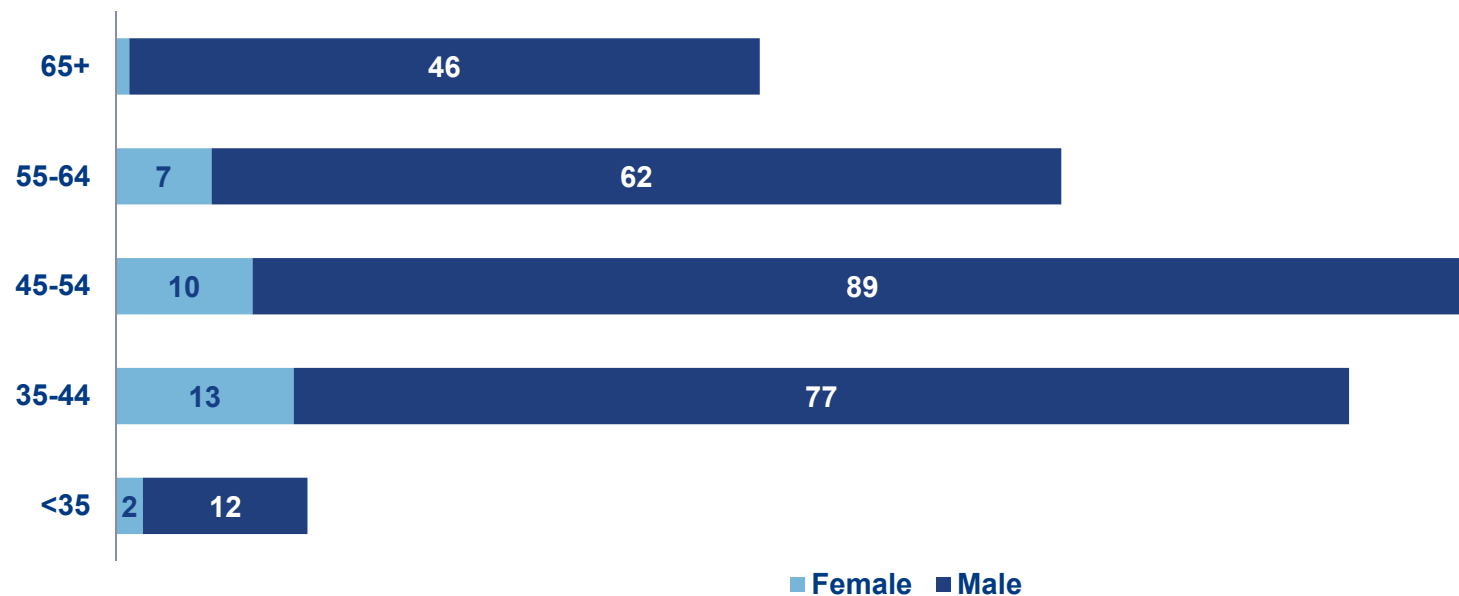
## Percentage by gender & age, 2019



Excludes those where gender or age is unknown.

Source: 2019 CMA Masterfile

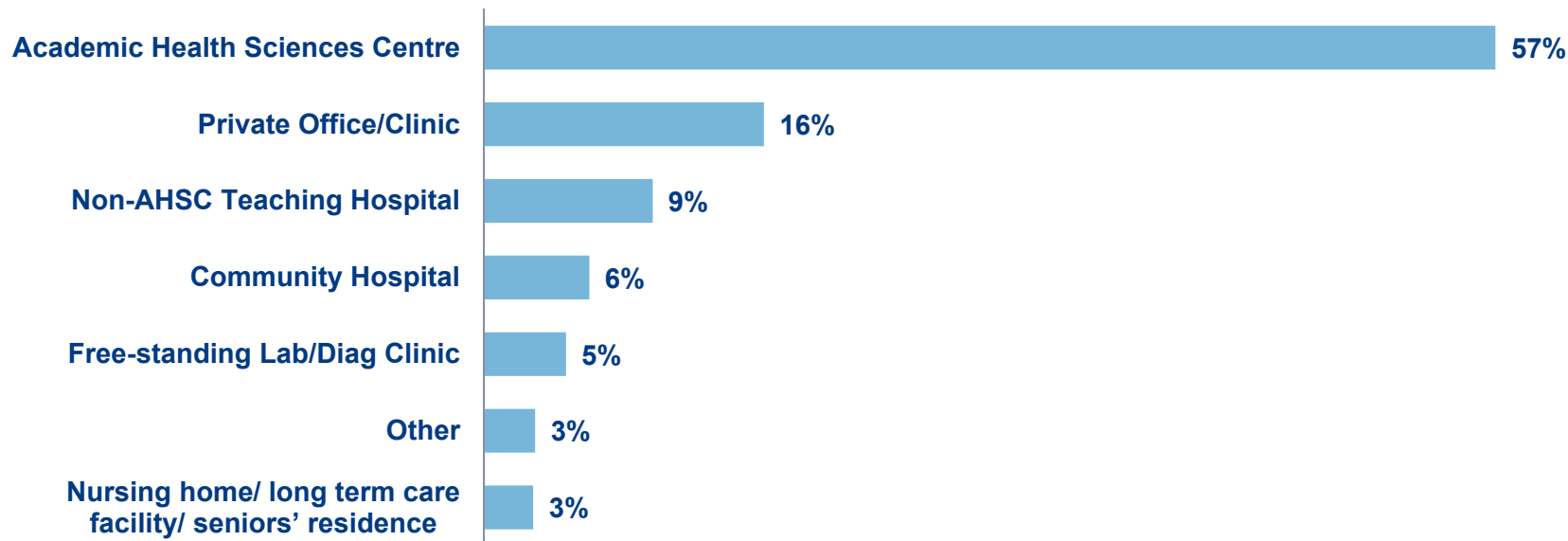
## Number by gender & age, 2019



Excludes those where gender or age is unknown.

Source: 2019 CMA Masterfile

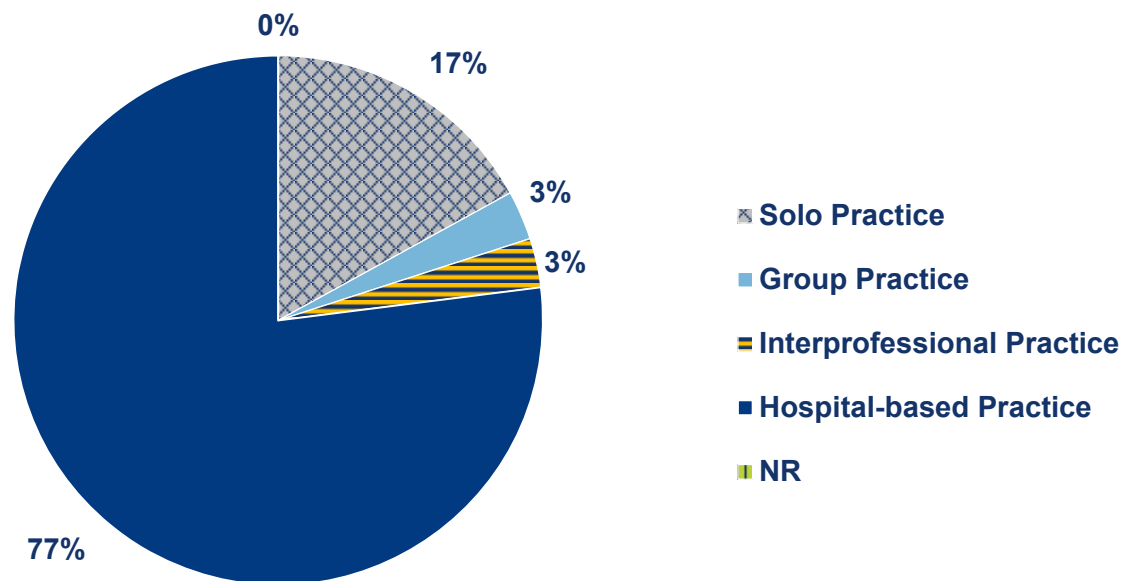
## Percentage by main work setting, 2014\*



\*Most recent available data for this specialty

Source: 2014 National Physician Survey. CFPC, CMA, Royal College

## Percentage by practice organization, 2014\*



\*Most recent available data for this specialty

Source: 2014 National Physician Survey. CFPC, CMA, Royal College

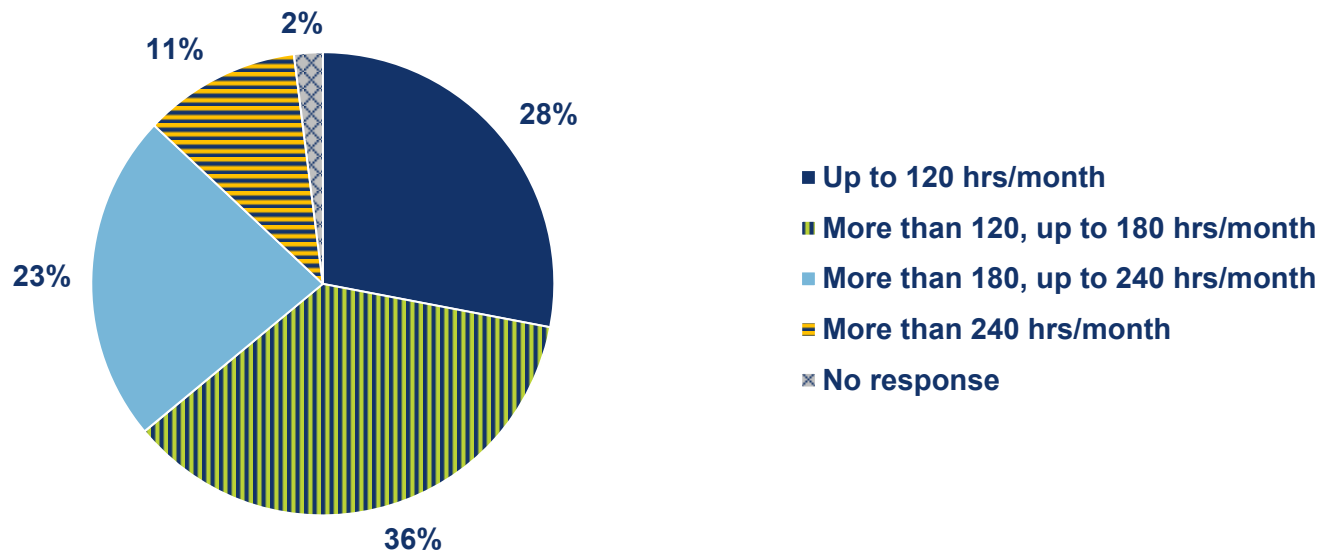
## Hours worked per week (excluding on-call), 2014\*

Activity	Hours worked per week
Direct patient care without teaching component	15.7
Direct patient care with teaching component	13.4
Teaching without patient care	3.8
Indirect patient care	5.5
Health facility committees	1.2
Administration	2.6
Research	4.8
Managing practice	1.8
Continued professional development	2.3
Other	0.4
<b>TOTAL HOURS PER WEEK</b>	<b>51.5</b>

\*Most recent available data for this specialty

Source: 2014 National Physician Survey. CFPC, CMA, Royal College

## On-call duty hours per month, 2014\*



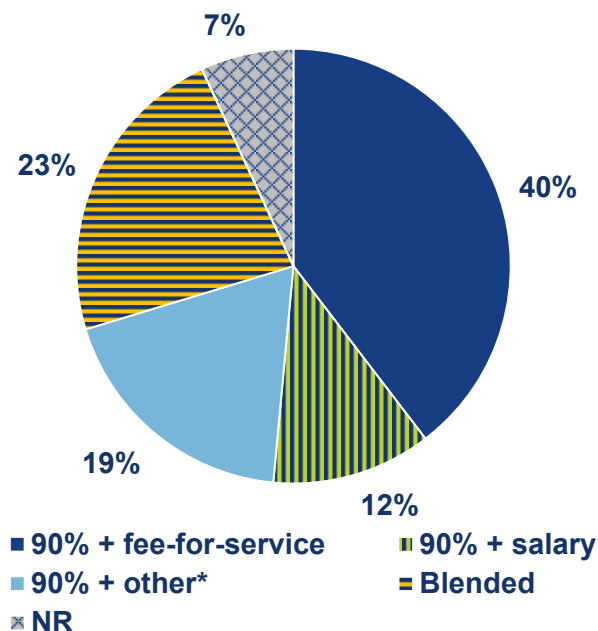
Time spent on call in direct patient care = 56 hrs./month

\*Most recent available data for this specialty

Source: 2014 National Physician Survey. CFPC, CMA, Royal College

## Percentage by remuneration method

Primary payment method<sup>1</sup> in 2013\*\*



Average gross payment per physician for Neurosurgery in 2017/18 (those earning at least \$60,000) = \$570,495<sup>2</sup>

\*Other includes capitation, sessional, contract and other methods

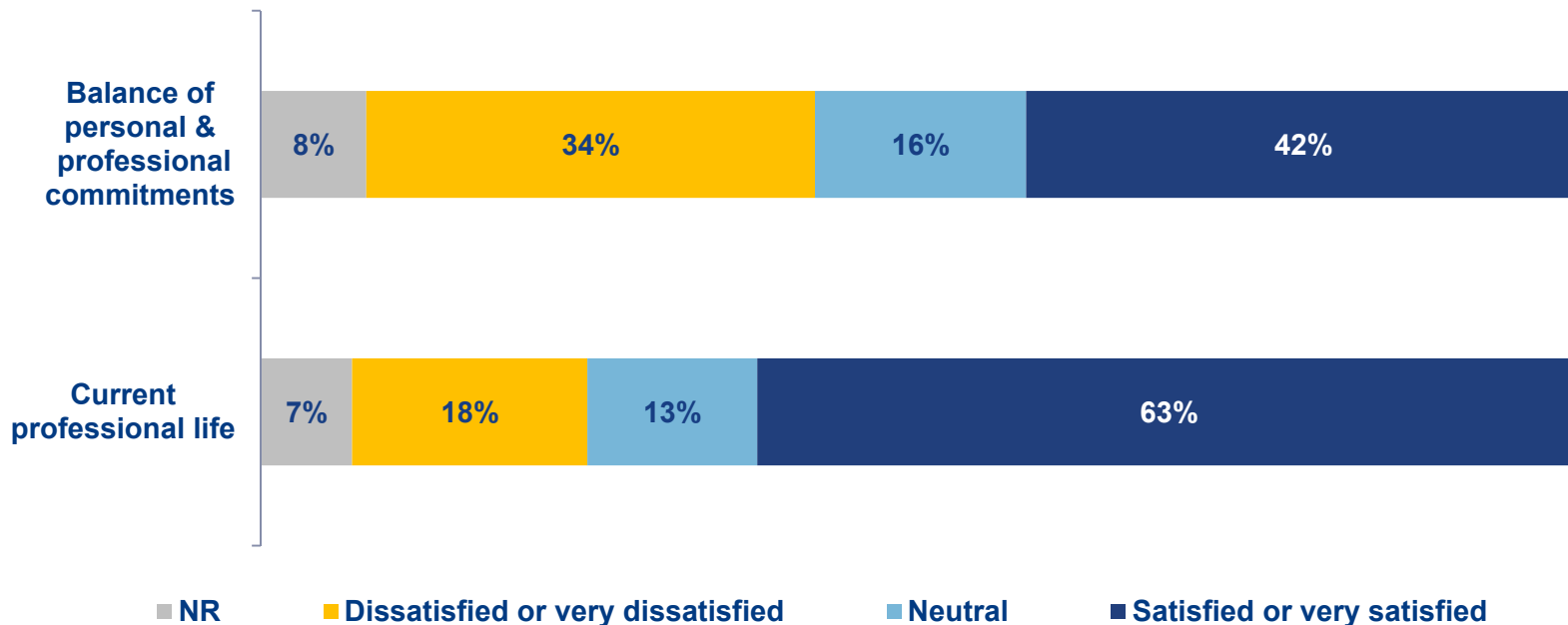
\*\*Most recent available data for this specialty

<sup>1</sup> National Physician Survey, 2013, CFPC, CMA, Royal College

<sup>2</sup> National Physician Database, 2017/18, CIHI



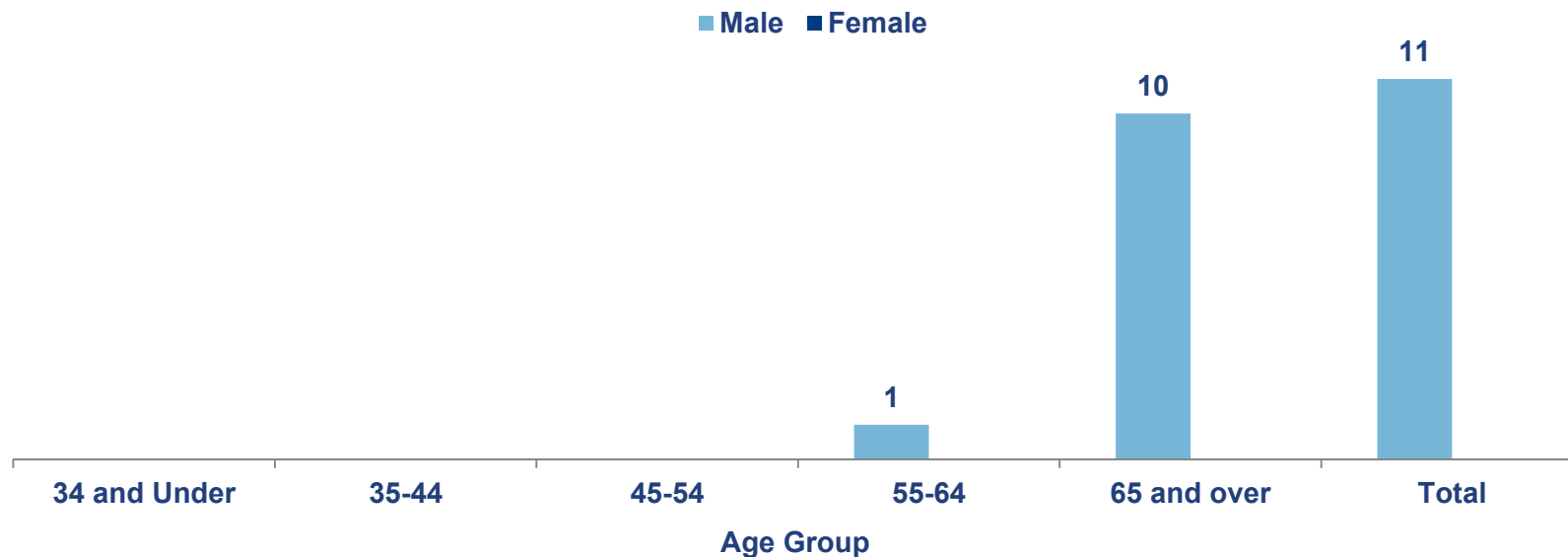
## Professional & work-life balance satisfaction, 2013\*



\*Most recent available data for this specialty

Source: 2013 National Physician Survey. CFPC, CMA, Royal College

## Number of retirees during the three year period of 2016-2018



**Source: CMA Masterfile – year over year comparisons**

Note: “Retired” is based on giving up licence and 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.

## Links to additional resources

- [Association of Faculties of Medicine of Canada](#)
- [Canadian Institute for Health Information](#)
- [Canadian Medical Association's Physician Data Centre](#)
- [Canadian Post-MD Education Registry \(CAPER\)](#)
- [College of Family Physicians of Canada](#)
- [National Physician Survey \(2004-2014\)](#)
- [Royal College of Physicians and Surgeons of Canada](#)



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