Anesthesia
UNIVERSITY OF TORONTO

Anesthesia, Critical Care and Pain Medicine in Toronto:

REPORTING ON EXCELLENCE AND INNOVATION

ANNUAL REPORT 2015-2016

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Chair's Introduction

The Department of Anesthesia at the University of Toronto is a hub of excellence, innovation, and very high academic productivity. This year, we have elected to produce a synopsis of our accomplishments in four major categories for 2015/2016: advancement (fund-raising); research; teaching/education; and, people.

We are perhaps the leading department of anesthesia in the country, and amongst the leading departments in the world, when assessed by all of the usual metrics. Certainly, medical schools are facing internal and external pressure to provide unparalleled academic programs (teaching, research, administration, clinical activities) in the face of dwindling operating revenues, increased competition for research grants, rising costs for salaries, healthcare and education, and recruitment and retention challenges. We must successfully attract new resources and people, target near-term priorities, build on our collective excellence, seek new pathways to collaboration and innovation, and provide a strong foundation to succeed in the years ahead. Defining and measuring our key metrics, or performance indicators, and then tracking them over time, will provide a basis to drive change, innovation, and link our strategic goals to activities in our department.

In this report, we have included a new methodology assess academic productivity and impact, the K-MAAP©, which includes descriptive and predictive analytics. The predictive component is based on past performance, and thus may not account for all factors important to future academic effectiveness (e.g., recruitment, retention, mentorship, funding, academic time, etc.) – while all predictions are fraught, we have included this as a reminder that we must always look to the future.

While this report provides an abridged summary of our "metrics" for 2015/2016, we continue to produce an Annual Report which details many activities, and lists all publications, chapters in books, books, invited lectures, and grants. I invite you to review this report which can be found online at www.anesthesia.utoronto.ca.

Sincerely,

Brian Kavanagh
Professor and Chair

Advancement: Endowed Chairs

We are very pleased to announce the completion of three, new, endowed chairs in the Department of Anesthesia, University of Toronto (another has been agreed and in the final stages of completion: total investment $12 million). Endowed chairs recognize the distinction of outstanding faculty – they are among the highest academic honor a university can bestow, while providing invaluable support to push the frontiers of scholarship.

These new chairs are however unique; they represent tangible evidence of the strong partnerships that have been built between the university department, hospital foundations, and our practice plans. Certainly, these chairs are a direct result of the leadership, creativity, generosity and deep commitment to the academic mission that is continuously demonstrated by our hospital partners and practice plan leaders and members.

The endowed chairs will be filled in 2016/2017. They can be summarized as follows:

St. Michael's Chair in Translational Anesthesia Research

Endowed at $3 million dollar through matching funds provided by the university Department of Anesthesia, St. Michael's Hospital Foundation, and the anesthesiologists at St. Michael's Hospital, this chair was established to fund clinical or laboratory research in cardiovascular anesthesia, pain, or critical care, by a senior faculty member from the Department of Anesthesia at St. Michael's Hospital.

Wasser Chair in Pain Management (The Hospital for Sick Children)

Endowed at $3 million dollar through matching funds provided by the university Department of Anesthesia, the Wasser family, and the anesthesiologists at the Hospital for Sick Children, this chair was established to enhance the understanding and practice of pediatric pain medicine.

Women's College Anesthesia Chair in Ambulatory Anesthesia

This chair has been endowed at $3 million dollars through matching funds provided by the university Department of Anesthesia, the Women's College Foundation, Cara Foods Inc., and the anesthesiologists at Women's College Hospital. The aim of the chair is to improve practice in ambulatory anesthesia though clinical trials or health services research.

Additional Chair

An additional chair is valued at $3 million through funds provided by a donor, the Toronto General and Western Hospital Foundation, the University Department of Anesthesia, and the anesthesiologists at the University Health Network (comprising the TGH, TWH, MSH and Women's College hospital). The aim of the chair is to further research on anesthesiology and sleep medicine, the initial agreement has been completed, and the chair will be ready for formal announcement shortly.

Table 1: Chairs Currently held by UT Anesthesia Faculty

Faculty Member	Chair	Hospital/Institution
Andrew Baker	Cara Phelan Chair in Critical Care	St. Michael's Hospital
Scott Beattie	R. Fraser Elliot Chair in Cardiac Anesthesia	UHN-Toronto General
Mark Crawford	Curtis Joseph and Harold Groves Chair in Paediatric Anesthesia and Pain Medicine	The Hospital for Sick Children
Brian Kavanagh	Dr. Geoffrey Barker Chair in Critical Research	The Hospital for Sick Children
Peter Laussen	David and Stacy Cynamon Chair in Critical Care Medicine	The Hospital for Sick Children
Pending 2017	Endowed Chair in Anesthesiology and Sleep Medicine at the University Health Network	A Donor/UofT Anesthesia/UHN-Toronto Western Hospital Foundation/ UHN Anesthesia Services Inc.
Pending 2017	Chair in Translational Anesthesia Research	UT Anesthesia/St. Michael's Hospital/SMH Anaesthesia Services
Pending 2017	Wasser Chair in Pain Management	UofT Anesthesia/The Hospital for Sick Children/HSC Anesthesia Practice Plan
Pending 2017	Evelyn Bateman Cara Operations Chair in Ambulatory Anesthesia and Women's Health	UT Anesthesia/Women's College Hospital/UHN Anesthesia Services Inc.

Research: Responsible Use of University Funds

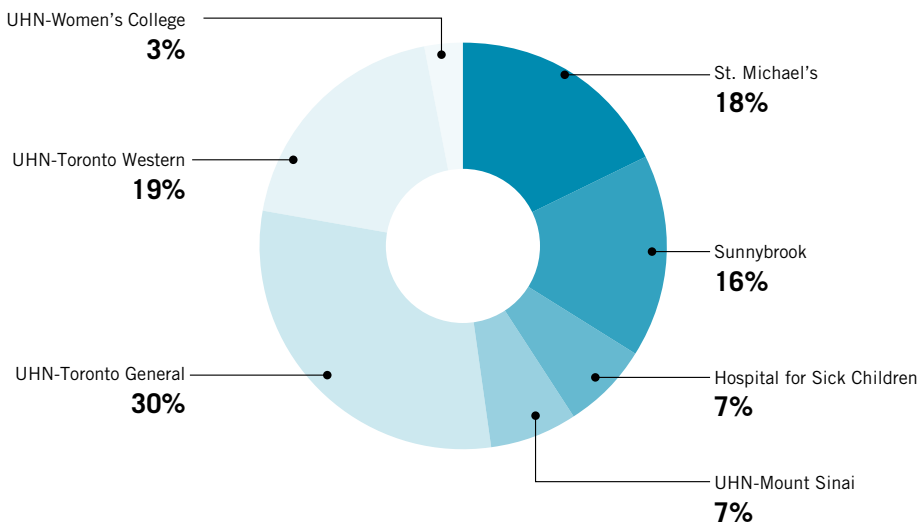## UofT Anesthesia Merit Awards

In 2009, a biennial, peer-reviewed (external and internal), competitive, renewable, productivity and merit-based research awards program was implemented. All 270 *full-time* faculty members in the department are encouraged to apply to this merit awards program which replaced the previous payroll-based program.

Prior to the merit awards program, roughly 11% of faculty (29) in the department received university–based payroll. Following extensive consultations in 2008, only 1% (3 faculty members) retained their payroll–based support from the university department.

The merit awards program is focused around an external/internal peer–review process. Funds awarded through peer–review are not transferred directly to the individual, but rather, are matched by the respective practice plans in order to provide academic time. Unlike the programs offered by other universities, the awards offered are substantive in relation to gross income; but, they do not comprise a "bonus" or a monetary incentive of sorts.

For the period 2007 to 2016, the Department of Anesthesia has provided our researchers with over $10.8 million in direct support. Of note, the merit awards program invites applications under three major categories: research, research–in–education, and creative professional activity. In parallel with the regular biennial competitions, special competitions focused on emerging investigators (new faculty) and clinical trials have also been held. Figure 1 demonstrates the distribution of research funding for faculty members who are supported through the merit awards process, or payroll, across our academic health science centres:

Figure 1: Distribution of Research Funding for Faculty Members with UofT Anesthesia Research Support:

- UHN-Women's College **3%**
- UHN-Toronto Western **19%**
- UHN-Toronto General **30%**
- St. Michael's **18%**
- Sunnybrook **16%**
- Hospital for Sick Children **7%**
- UHN-Mount Sinai **7%**

Research Metrics & Institutional Rankings

Research metrics are an important component of measuring the academic productivity, impact and effort (defined as a percentage of time spent) of our faculty members. In our strategic plan for 2009 to 2014, we proposed to assess academic activities, and develop "metrics and models to measure and report on productivity". Several systems are in place across North America, but no bibliometric or quantitative system is perfect. For the purposes of this report, we are reporting on institutional rankings, Department of Anesthesia rankings (global comparisons), the h–index (for those with an h–index above 18), and our in–house method of assessing our productivity and effort over time.

Faculty of Medicine: Institutional Rankings

Table 2 demonstrates the Faculty of Medicine's rankings on the four most commonly used tools: Times Higher Education, National Taiwan University, Quacquarelli Symonds (QS) World University Rankings, and the Academic Ranking of World Universities. Again, no ranking system is perfect, but some rankings may provide us with critical insights or benchmarks to assess our performance relative to our peers.

Table 2: UofT Faculty of Medicine Rankings: 2015

Ranking System	UofT Faculty of Medicine Ranking
National Taiwan University	3 (clinical medicine)
Times Higher Education	11 (clinical, pre-clinical and health)
Quacquarelli Symonds (QS) World University Rankings	12 (medicine)
Academic Ranking of World Universities	31 (clinical medicine and pharmacy)

Department of Anesthesia: Rankings

Table 3 demonstrates our 2015 rankings in comparison with the top 20 Anesthesia departments in North America. UofT Anesthesia consistently ranks 2nd, just behind Harvard University in terms of the number of web of science documents and the times cited. This is particularly noteworthy given that Canadian medical schools operate within a publicly funded health care and education system.

Table 3: UofT Anesthesia Bibliometric Rankings, North America 2015

University Name	Rank 2015	Rank 2014	Rank 2013	Web of Science Docs	Times Cited	% Docs Cited	Citation Impact
Harvard University	1	1	1	188	497	75.53	2.64
University of Toronto	**2**	**2**	**2**	**127**	**336**	**74.02**	**2.65**
Cleveland Clinic Foundation	3			82	209	64.63	2.55
University of Washington Seattle	4	4	3	66	166	57.58	2.52
Stanford University	5	7	13	54	74	66.67	1.37
University of Pennsylvania	6	3	4	52	101	57.69	1.94
Duke University	7	6	6	51	100	47.06	1.96
Johns Hopkins University	8	5	6	48	112	77.08	2.33
Northwestern University	9	11	12	44	133	75	3.02
University of Michigan	9			44	122	75	2.77
University of Pittsburgh	11	8	10	41	104	53.66	2.54
McGill University	12	9	7	39	99	76.92	2.54
Vanderbilt University	13	12	14	38	154	71.05	4.05
University of California San Francisco	14	15	8	37	86	72.97	2.32
University of Iowa	15	23	16	33	93	75.76	2.82
University of Florida	16	13	18	32	50	59.38	1.56
Columbia University	17	10	11	31	94	74.19	3.03
University of Ottawa	17			31	69	74.19	2.23
Louisiana State University	19			30	36	40	1.2
University of Chicago	20	29		28	58	71.43	2.07
University of British Columbia	20	35		28	87	67.86	3.11

Table 4 illustrates our 2015 rankings in comparison with the top 15 Anesthesia departments globally. Again, UofT Anesthesia consistently ranks 2nd, just behind Harvard University.

Table 4: Anesthesiology Global Comparisons, 2015[1]

| ANESTHESIOLOGY	Rank 2015	Web of Science Documents	Times Cited	Citation Impact
Harvard University	1	188	497	2.64
University of Toronto	**2**	**127**	**336**	**2.65**
University of Copenhagen	3	97	269	2.77
Cleveland Clinic Foundation	4	82	209	2.55
Institut National de la Sante et de la Recherche Medicale (Inserm)	5	77	169	2.19
University of Washington Seattle	6	66	166	2.52
University College London	7	64	216	3.38
Ruprecht Karl University Heidelberg	8	58	155	2.67
Stanford University	9	54	74	1.37
Aarhus University	10	53	160	3.02
University of Pennsylvania	11	52	101	1.94
Duke University	12	51	100	1.96
Johns Hopkins University	13	48	112	2.33
Seoul National University	14	47	47	1
Karolinska Institutet	15	45	105	2.33

Academic Productivity, Impact and Effort

One of the strategic priorities outlined in our Strategic Plan of 2009 was "Academic Productivity – Measurement & Accountability". Our goal was to develop, together with the Faculty of Medicine, an online reporting tool to collect, measure, and report on data.

Several bibliometric tools are in fact available. While the h-index is also reported on here, we believe that academic *effectiveness* includes a broader spectrum of activities than publication counts, citation counts or measures of productivity. The typology which we have utilized, the K–MAAP©, provides a broader picture of academic productivity and impact including peer-reviewed publications, peer-reviewed grants and invited lectures (the latter has been weighted at 30% effort).

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1   Note: The global comparisons at the Institution to Institution level use data gathered on all publications in the subject area from the Institutions compared and as such include researchers in Faculties and Departments outside the FoM.

Figure 2 demonstrates the aggregated results for all faculty members who received direct financial support from the university department (merit awards, payroll) between 2006 and 2015. The K–MAAP© assigns points on the basis of the role – and the effort – which has been expended on each activity. In the case of peer-review publications, points are awarded on the basis of the impact factor of the journal plus the author's role.

Figure 2: Anesthesia Research Productivity & Impact, 2006-2015
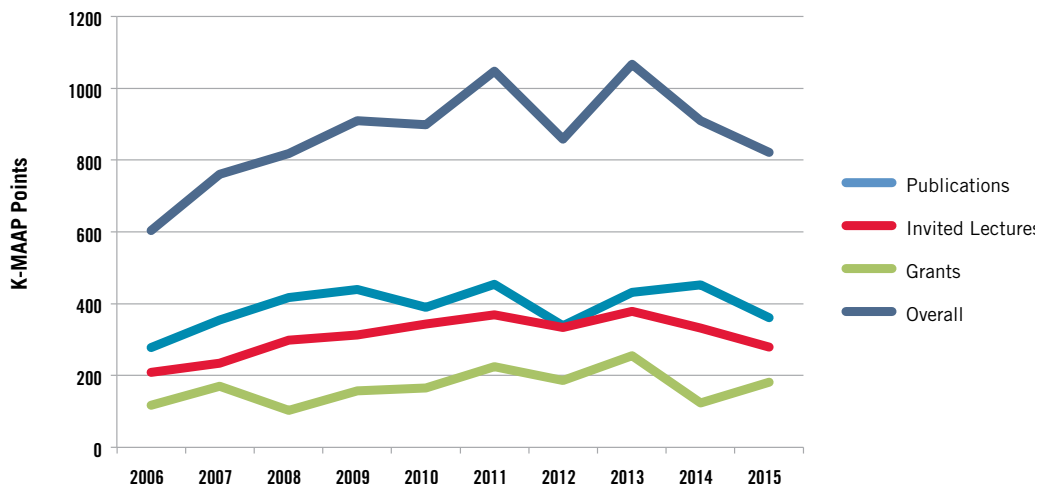
Significant growth in productivity and impact has been demonstrated between 2006 and 2013 (an average of 3% per year). Although an overall decrease has been demonstrated between 2014 and 2015, we believe that this represents the normal ebb and flow of academic "cycles". Further, our impact and productivity in peer-reviewed publications has increased between 2006 and 2012, remaining stable after 2012.

Predictive analytics attempts to forecast future trends based on past performance. By applying data mining algorithms to data from K-MAAP© (a proprietary program), we forecast general trends and patterns - of course this assumes that the 'drivers' remain stable. SQL© predictive analysis software was employed to build a time series model for the department's aggregated academic effectiveness for the period 2006 to 2020. As shown in Figure 3, we predict an increase in overall academic effectiveness –especially in peer-reviewed grants– but only if conditions are maintained or enhanced.

Figure 3: Anesthesia Productivity & Impact Forecast: 2006-2020
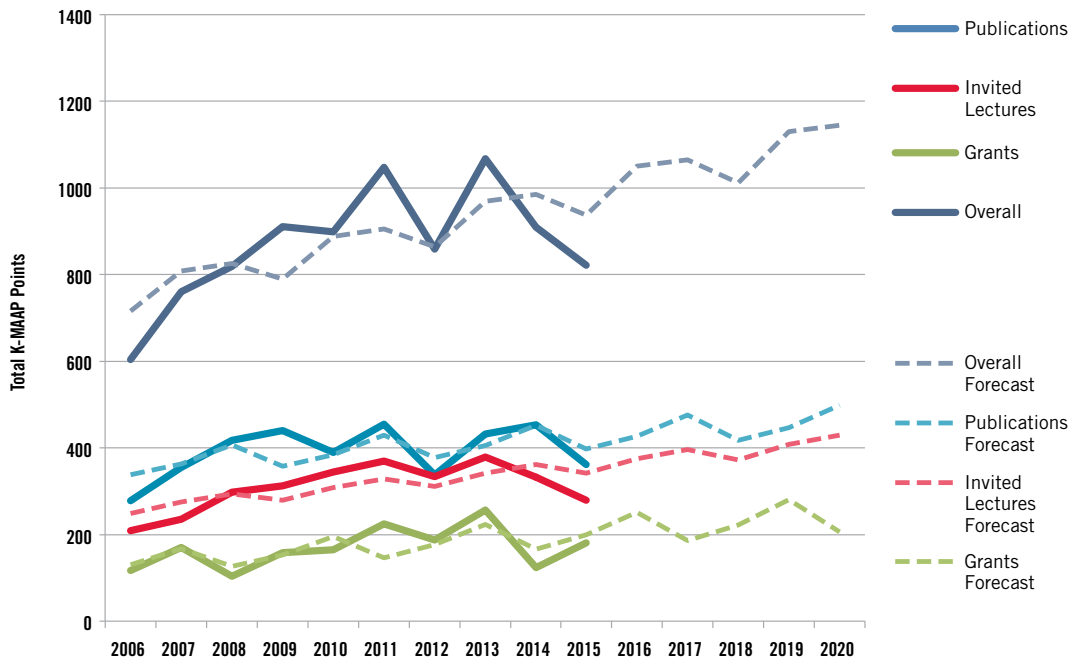
Our international rankings were shown in Tables 3 and 4. While we rank very highly amongst other departments of Anesthesia, our goal is to continue to increase our research profile and impact. We are confident that the Department of Anesthesia's Merit Awards Program has facilitated provided a stimulus and a ratification of academic performance within the current framework; to foster additional growth however, increased alignment of university, hospital and clinical resources is required.

The h-index

The Hirsch Index (h–index) is a popular bibliometric system which measures productivity and citation impact of researchers. The h–index assigns a score based on the highest number of single or co-authored articles by a researcher that has been cited *h* or more times. Thus, an h–index of 20 means a researcher has at least 20 articles that have been cited at least 20 times (Hunt, 2011: 80). Table 5 shows our faculty members who have been provided with direct funding from the university and have a career spanning h–index of at least 18:

Table 5: h-index Ratings for Faculty with UofT Anesthesia Research Support[2]

Faculty Member	Hospital	Research Focus	Career h-Index
Baker, Andrew J	St. Michael's Hospital	Clinical/Basic Sciences	22
Beattie, Scott W.	UHN-TGH	Clinical Trials	41
Brull, Richard	UHN-TWH	Clinical Research	32
Byrick, Robert J	St. Michael's Hospital		25
Chan, Vincent WS	UHN-TWH	Clinical Research	28
Chung, Frances	UHN-TWH	Clinical Research	36
Crawford, Mark W	Hospital for Sick Children	Clinical/Basic Science	19
Cuthbertson, Brian H	Sunnybrook	Clinical Research	30
Djaiani, George	UHN-TGH	Clinical Research	20
Fisher, Joseph A	UHN-TGH	Clinical Research	18
Hare, Greg MT	St. Michael's Hospital	Basic Science	23
Karkouti, Keyvan	UHN-TGH	Clinical Trials	34
Kavanagh, Brian P	Hospital for Sick Children	Clinical/Basic Science	34
Laffey, John G	St. Michael's Hospital	Clinical/Basic Science	39
Laussen, Peter C	Hospital for Sick Children	Clinical Research	42
Mazer, C. David	St. Michael's Hospital	Clinical/Basic Sciences	34
Peng, Philip W	UHN-TWH	Clinical Research	18
Perlas, Anahi	UHN-TWH	Clinical Research	18
Orser, Beverly A.	Sunnybrook	Basic Science	34
Wijeysundera, Duminda N	UHN-TGH	Clinical Trials/ Health Services	37
Wunsch, Hannah	Sunnybrook	Health Services	27

The h-indices in this table are derived from the Thomson Reuters Web of Science. The use of the h-index has several problems. It is dependent upon career length (older papers have had more opportunity for citation), is field dependent (clinical papers are more highly cited), and it does not differentiate between leadership vs. collaborative contributions (a collaborator receives the same credit as the principle author). The h-index is also increased through self-citations. Therefore although a useful 'snap shot' of departmental research output, these factors should be considered when comparing individuals' ratings.

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2   Data for this report was extracted from the Web of Science in May 2016.

Education & Teaching

The University of Toronto produces teaching effectiveness scores (TES) and rotation effectiveness scores (RES) based on evaluations completed by our residents for faculty members and rotations in the Faculty of Medicine. The performance of our teaching sites and faculty members is important in terms of educational quality, recognition of excellent performance or identification of areas for improvement (formative evaluation), faculty development initiatives and academic promotions (summative evaluation). All evaluation questions utilize a 5-point rating scale (5 being the highest possible rating available, 3 being the average).

Rotation Evaluation Scores

The 2015/16 report includes a comparative analysis of aggregate rotation evaluation scores and teacher evaluation scores from six academic sessions for postgraduate teaching: 2009/10 up to and including 2015/16. Our RES are consistently high. Table 6 demonstrates the mean rotation evaluation scores (RES) for our affiliated sites:

Table 6: Postgraduate Teaching: Anesthesia Mean Rotation Evaluation Scores 2009/10 to 2015/16

Anesthesia	2009/10 Mean	2010/11 Mean	2011/12 Mean	2012/13 Mean	2013/14 Mean	2014/15 Mean	2015/16 Mean
Hospital for Sick Children (HSC)	3.68	4.42	4.42	4.42	4.26	4.08	4.32
Sinai Health System (MSH)	3.93	4.30	4.00	4.24	3.95	4.12	3.92
North York (NYGH)	--	--	--	4.36	--	4.38	4.53
Sunnybrook (SHSC)	3.97	4.36	3.91	4.36	4.36	4.37	4.30
St. Joseph's (SJHC)	--	4.41	4.23	4.20	4.18	4.31	4.43
St. Michael's (SMH)	3.88	4.44	4.23	4.34	4.39	4.33	4.34
Toronto East General (TEGH)	4.42	4.59	4.50	4.69	4.56	4.30	4.44
Trillium Health Partners (THP)	--	--	--	--	4.83	4.00	3.89
UHN-Toronto General (TGH)	--	--	--	3.67	3.55	4.17	3.86
UHN-Toronto Western (TWH)	--	--	--	3.84	3.96	4.06	4.17
Women's College (WCH)	--	4.30	3.90	4.18	--	3.60	4.33
All Hospitals (Anesthesia):	**3.98**	**4.26**	**4.07**	**4.25**	**4.20**	**4.20**	**4.23**

Figure 4 depicts the changes in the mean rotation evaluation scores, 2012/13 versus 2014/15, also for postgraduate teaching:

Figure 4: Postgraduate Anesthesia Mean Rotation Evaluation Scores, 2012/13 vs. 2014/15
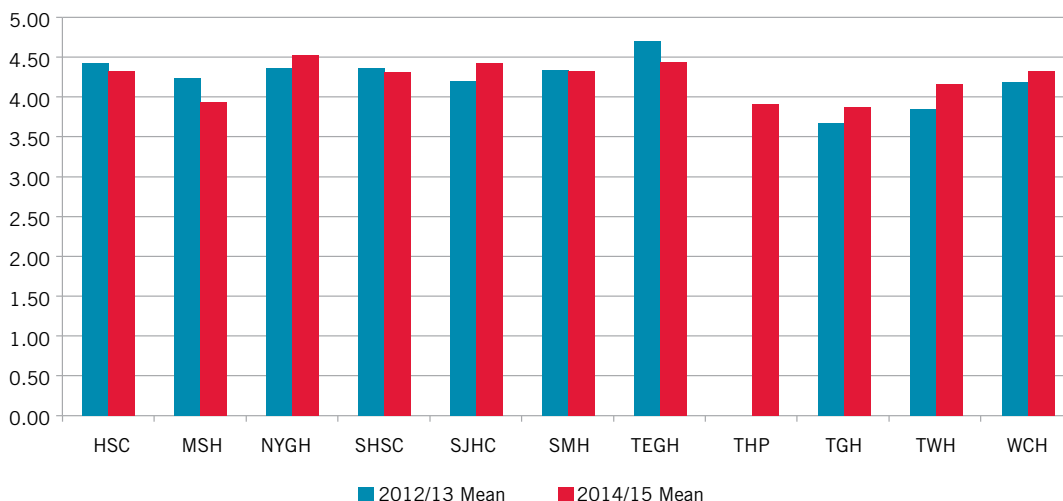
Table 7 demonstrates the mean rotation evaluation scores (RES) for our undergraduate, clerkship Anesthesia rotation:

Table 7: Undergraduate Teaching: Anesthesia Mean Rotation Evaluation Scores 2009/10 to 2015/16

Site	2009/10 Mean	2010/11 Mean	2011/12 Mean	2012/13 Mean	2013/14 Mean	2014/15 Mean	2015/16 Mean
Sinai Health System (MSH)	4.00	4.56	4.39	4.33	4.04	4.05	4.24
North York General (NYGH)	--	--	n/a	5.00	4.60	3.83	4.33
Scarborough Hospital	--	4.16	4.50	4.50	4.25	4.50	3.00
Sunnybrook (SHSC)	4.30	4.37	4.47	4.52	4.29	3.97	4.23
St. Joseph's (SJHC)	--	4.40	4.43	4.75	4.33	4.63	4.56
St. Michael's Hospital (SMH)	4.14	4.22	4.15	4.38	4.53	4.13	3.68
Toronto East General (TEGH)	4.25	4.29	4.20	4.43	4.10	4.44	3.91
Trillium Heath Partners (THP)	--	4.50	4.84	4.60	4.37	4.25	4.16
UHN-Toronto General (TGH)	4.00	4.00	4.13	4.00	4.12	3.45	3.79
UHN-Toronto Western (TWH)	4.05	4.17	4.41	4.47	4.32	4.05	4.28
Women's College (WCH)	4.50	4.61	4.57	4.71	4.13	4.09	4.50

Teacher Evaluation Scores (TES)

As indicated, teacher evaluation scores (TES) are also produced on an annual basis, and are based on evaluations completed by residents. Note that a minimum of three evaluations are needed to generate a score in any given year. Table 8 provides a comparative analysis of aggregate, teacher evaluation scores for postgraduate teaching from six academic sessions: 2009/10 up to and including 2014/15:

Table 8: Postgraduate: Anesthesia Mean Teacher Evaluation Scores 2009/10 to 2015/16

Anesthesia	2009/10 Mean	2010/11 Mean	2011/12 Mean	2012/13 Mean	2013/14 Mean	2014/15 Mean	2015/16 Mean
Hospital for Sick Children (HSC)	4.34	4.06	4.58	4.38	4.49	4.14	4.42
Sinai Health System (MSH)	4.59	4.44	4.45	4.35	4.50	4.35	4.29
North York (NYGH)	--	--	4.00	4.55	--	4.65	4.50
Sunnybrook (SHSC)	4.50	4.37	4.22	4.27	4.34	4.31	4.50
St. Joseph's (SJHC)	4.60	4.48	4.26	4.15	4.10	3.90	4.19
St. Michael's (SMH)	4.34	4.35	4.42	4.38	4.63	4.66	4.52
Toronto East General (TEGH)	4.45	4.47	4.75	4.60	4.68	4.13	4.73
Trillium Health Partners (THP)	--	--	--	--	--	4.13	4.25
UHN-Toronto General (TGH)	--	--	--	4.27	4.18	4.50	4.39
UHN-Toronto Western (TWH)	--	--	--	4.01	4.54	4.55	4.48
Women's College (WCH)	4.50	4.68	4.46	4.60	--	4.38	4.44
All Hospitals	**4.38**	**4.34**	**4.45**	**4.32**	**4.44**	**4.35**	**4.43**

Figure 5 depicts the changes in the mean teacher evaluation scores, postgraduate, for 2011/12 versus 2014/15:

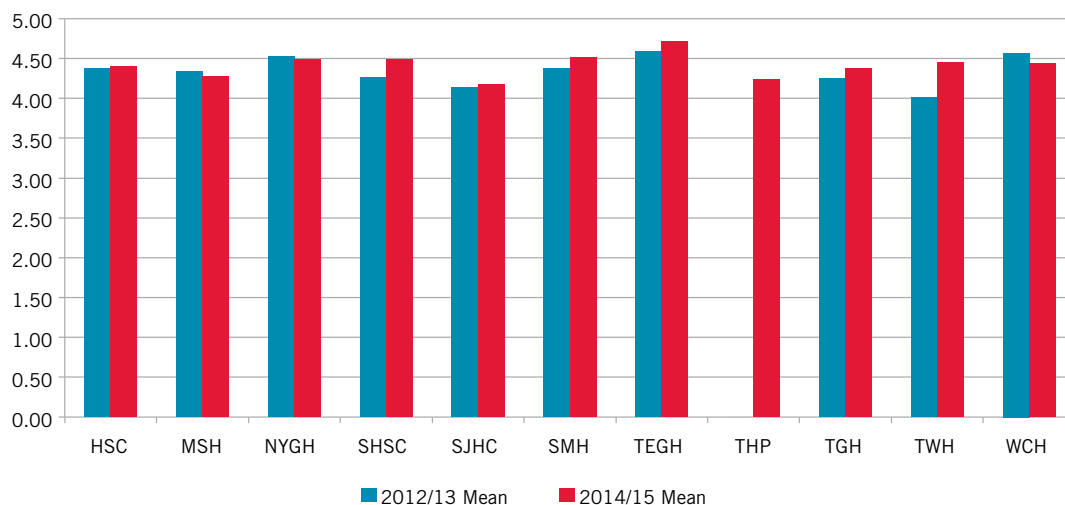**Figure 5:** Postgraduate: Anesthesia Mean Teacher Evaluation Scores 2012/13 vs. 2015/16

Table 9 provides the same data set as in Table 7 for undergraduate teaching from six academic sessions:

Table 9: Undergraduate: Anesthesia Mean Teacher Evaluation Scores 2009/10 to 2015/16

Anesthesia	2009/10 Mean	2010/11 Mean	2011/12 Mean	2012/13 Mean	2013/14 Mean	2014/15 Mean	2015/16 Mean
Sinai Health System (MSH)	4.33	4.54	4.61	4.54	4.01	3.99	4.12
North York General (NYGH)	--	--	4.76	4.66	4.46	3.83	4.13
Scarborough Hospital	--	4.51	4.75	3.70	3.90	3.25	3.42
Sunnybrook (SHSC)	4.55	4.62	4.48	4.50	3.99	4.34	4.37
St. Joseph's (SJHC)	--	4.79	4.45	4.90	4.38	4.73	4.48
St. Michael's Hospital (SMH)	4.40	4.31	4.34	4.36	4.29	4.14	4.13
Toronto East General (TEGH)	4.52	4.59	4.34	4.38	4.31	4.28	4.09
Trillium Heath Partners (THP)	--	4.66	4.64	4.53	4.13	4.19	4.12
UHN-Toronto General (TGH)	4.41	4.41	4.28	4.59	4.00	4.20	4.04
UHN-Toronto Western (TWH)	4.10	4.29	4.29	4.29	4.17	4.09	4.33
Women's College (WCH)	4.54	4.58	4.80	4.81	4.08	4.44	4.60

People

The Department of Anesthesia is comprised of over 260 full-time faculty members located in eight fully-affiliated, Academic Health Science Centre (AHSC) hospitals, 145 part-time or adjunct clinical faculty members distributed across twelve community-based teaching hospitals and two independent practice locations. Figure 6, on the next page, depicts the distribution of faculty members across the AHSC sites as of January 2016:

Figure 6: Distribution of Full-time Clinical Faculty Members by Site (Academic Health Science Centres)
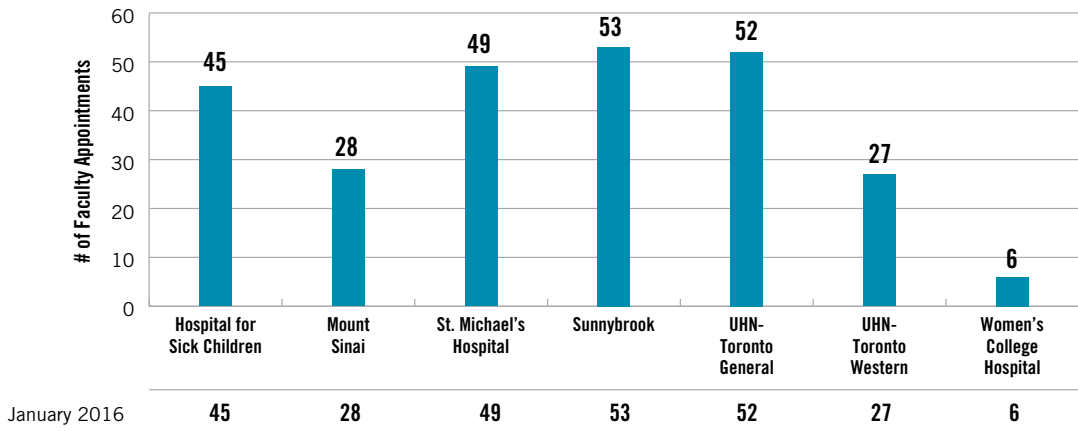
	Hospital for Sick Children	Mount Sinai	St. Michael's Hospital	Sunnybrook	UHN-Toronto General	UHN-Toronto Western	Women's College Hospital
January 2016	45	28	49	53	52	27	6

Figure 7 illustrates the distribution of part–time and adjunct clinical faculty members across our community–based hospitals, as of January 2016:
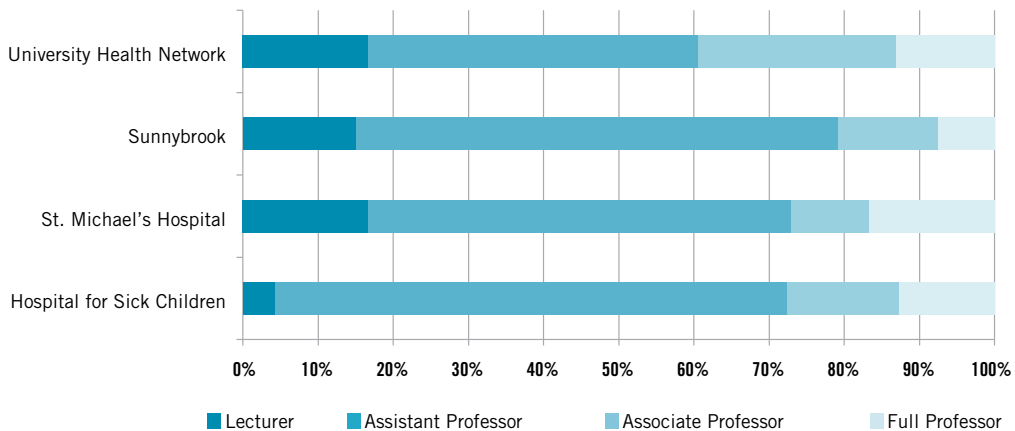
Figure 7: Part-Time and Adjunct Clinical Faculty Members by Site (Community-based Hospitals)
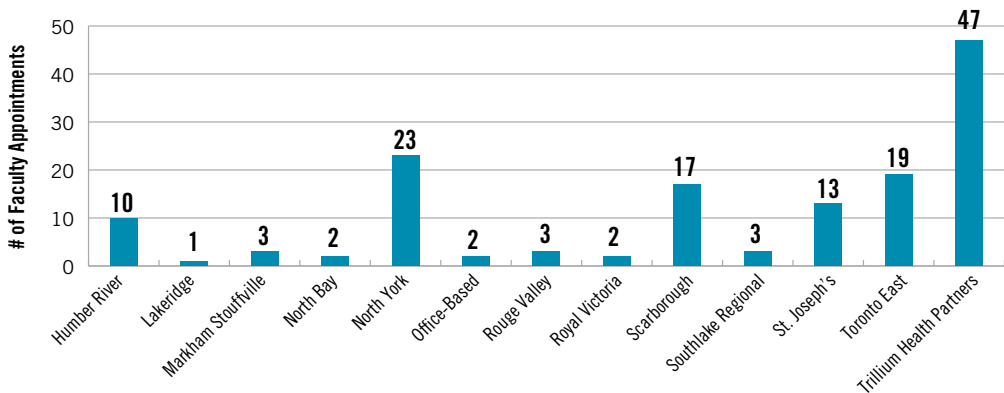
Faculty by Academic Rank

Figure 8 shows the distribution of all faculty members, by academic rank, in the University of Toronto's fully affiliated hospitals:

Figure 8: Faculty by Academic Rank (Academic Health Science Centres)

Academic Promotions

Academic promotion within the University is one of the most important ways in which a university can recognize the excellence of its faculty in terms of teaching, research, creative professional activity (CPA) and other professional activities, both within and outside the university. Since 2007, the department has encouraged academic promotion, providing tailored feedback, templates, and promotions–related workshops. Table 10 details the total number of faculty at each site and the number who achieved academic promotion for the period 2009/10 to 2014/15:

Table 10: Academic Promotions by Hospital Site: 2009/10 to 2014/15

Hospital Site	Total Faculty	% Total Faculty	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	TOTAL PROMOTED
Sick Children	45	17%		1	1				1	3
St. Michael's	49	19%		1	1	1	2	1		6
Sunnybrook	53	20%	1	2	2	1	1		2	9
UHN-Toronto General	52	20%	1	2	4	1		4	3	15
UHN-Toronto Western	27	10%	2	1	1	3	1	1	2	11
Sinai Health System	28	11%	4				1		3	8
Women's College	6	2%	1							1
TOTALS:	**260**	**100.0%**	**9**	**7**	**9**	**6**	**5**	**6**	**11**	**53**

Summary

The UofT Department of Anesthesia has an evolving history of research, discovery and collaboration. This report demonstrates that we are the leading Department of Anesthesia in Canada, and rank 2nd only to Harvard University globally. The department emphasizes research training, fostering research amongst our trainees as well as through our outstanding CIP program. Our Annual Shields Research Day attracts almost 350 participants each year, and our Faculty Development Day event hosts 200. We enjoy strong relationships with the leading scientists in our hospital Research Institutes, and this is demonstrated by their participation in our biennial Merit Awards competition, as well as in the establishment of four new endowed, hospital-university Research Chairs in the past year (with commitments to establish four more).

To ensure our competitiveness and reputation as a leader in Anesthesia however, we need to continue to foster innovation in research, but we also need to expand across multiple platforms that are core to the academic mission of any faculty of medicine. In 2016, the Department of Anesthesia commenced the ambitious project of reconsidering how research and education are constructed, viewed, and implemented. The proposed Anesthesia Academic Innovations Collective is a dedicated group intended to explore, develop and implement academic innovations across the four clinical academic domains (research, education/teaching, clinical practice and administration) and among the university, the hospital departments and the associated research and education institutes. Innovation here means the process of translating discovery research into testable products that may ultimately benefit patients or improve practices. Dr. Keyvan Karkouti, the inaugural Vice Chair, Innovation and Research, as well as Dr. Clyde Matava, Director, eLearning and Technology Innovations, have commenced several new projects that are important to the facilitating future

innovation in the department. Beyond this, we need outstanding candidates (and training) in our clinician-investigator program, a readiness to recruit the best academics, clinicians and innovators, and above all, a culture wherein we compare ourselves to the best academics in any department (beyond anesthesia) and a collective pride in their accomplishments.

In conclusion, UofT Anesthesia must lead in developing the next generation of academic innovation covering research, education, clinical practice and administration. To accomplish this, we must think about possible vehicles including programs, pedagogy, and collective initiatives, and we must compare our outcomes and outputs with researchers and educators among all medical professionals. We invite you to learn more about our work via our website at www.anesthesia.utoronto.ca.