

EXECUTIVE SUMMARY
A SURVEY OF PAIN CURRICULA IN PRE-LICENSURE HEALTH SCIENCE
FACULTIES IN CANADIAN UNIVERSITIES

Investigator Team:

Principal Investigators: J. Watt-Watson RN PhD, M. McGillion RN PhD, J. Hunter BSc (PT) PhD

Co-Investigators: M. Choiniere PhD, J. Clark MD FRCPC, A. Dewar RN PhD, C. Johnston RN PhD, M. Lynch MD FRCPC, P. Morley-Forster MD FRCPC, D. Moulin MD FRCPC, N. Thie DDS MSc, CL von Baeyer PhD RPsych, K. Webber RN MN

Funding: Canadian Pain Society

PURPOSE: This exploratory, descriptive study aimed to survey the designated time for formal pain teaching in curricula of major Canadian universities for students in Health Science and Veterinary Programs prior to being licensed.

METHOD: Major Canadian university sites (N=10) were chosen where the Health Science Faculties included at least Medicine (N=10) and Nursing (N=10), and many also included Dentistry (N=8), Pharmacy (N=7), Physical Therapy (8) and/or Occupational Therapy (6). These disciplines provide the largest number of students entering the workforce but are not the only ones contributing to the health professional team. Veterinary Programs (N=4) were also surveyed as a comparison. The Pain Education Survey, developed from previous work and piloted, provided data about the total number of hours dedicated to formal pain teaching and the proportion of time allotted for each of 8 pain content categories. Ethical approval was obtained from the University of Toronto site.

RESULTS: The majority of Health Science Programs (67.5 %) were unable to specify designated hours for pain as they have “integrated content” in several courses and/or clinical conferences. Only 32.5 % respondents could identify designated pain content taught as a separate course or content, with or without additional clinical conferences and integrated content. The average total hours per discipline across all years of the program varied from 13 to 41, with ranges from 0 to 109 hours. All Veterinary respondents identified mandatory designated formal pain content hours with the average total of 87 hours and the range from 27 to 200 hours. The proportion allotted to the 8 content categories was variable but monitoring content was minimal across all disciplines. Although the need for interprofessional pain education was identified, this was not in place as yet for most respondents. Resources needed to help with pain curricula were identified by many.

CONCLUSIONS: Only one-third of this sample could identify time designated for teaching formal pain content in their pre-licensure Health Science curricula. Two-thirds of respondents reported “integrated” content that was not quantifiable or able to be determined, which may suggest it is not a priority at that site. Many expressed a need for pain-related curriculum resources. Research to examine the successful models and their generalizability to other university sites is needed.

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1. RATIONALE

Unrelieved pain is a widespread global problem for divergent patient groups across the lifespan. Pain education for health professionals at all levels has been repeatedly identified as an important step towards more ineffective pain management practices (Sessle, 2000). However, evidence indicates that health professionals lack sufficient knowledge and skill to adequately assess and manage pain (Watt-Watson et al., 2004). Pre-licensure education is a critical step in ensuring that health practitioners entering the workforce are competent in patient-centered collaborative pain management.

The purpose of this exploratory, descriptive study was to survey the designated time for formal pain content being taught in curricula of major Canadian universities for students in Health Science and Veterinary Programs prior to being licensed. These data will be used in the Canadian Pain Society (CPS) National Pain Awareness Week Initiative, which aims to encourage the Canadian federal government to support greater funding for pain education and research.

2. METHODS

For the purposes of this exploratory study, we included university-based sites that included pre-licensure programs for Medicine and Nursing. Many sites also included Dentistry, Pharmacy, Physical Therapy and/or Occupational Therapy. These Faculties or Departments were included because they currently have the largest number of students entering the workforce. Therefore, this survey was not meant to be comprehensive; other health professional groups also make vital contributions to the pain management effort. For comparison with the human Health Science Faculties, Veterinary Colleges were also included.

Co-Investigators at each university site hired a research assistant (RA) to collect data from their Health Science Faculty/Department/School(s) using the Pain Education Survey (PES) (see Appendix 1). The PES was adapted from previous research (Graffam, 1990; Watt-Watson & Watson, 1889) and includes eight items from the tools and content used to evaluate the University of Toronto Centre for the Study of Pain

Interfaculty Pain Curriculum. Face validity and generalizability were established by a focus group of pain education experts; it was also pilot tested with Faculty at one site prior to administration.

At each site, the co-investigators helped the RA determine appropriate faculty members with pain-related knowledge to complete the survey. Faculty members were given an explanatory letter about the study insuring confidentiality of site-specific data, and their informed consent was implied by completion of the survey. Although the survey does not involve the collection of data pertaining to patients or students, ethical approval was sought and received from the University of Toronto, and by individual sites as required.

Data entry and analysis were completed by an experienced Research Associate and PhD candidate at the University of Toronto, supervised by the Principal Investigators. Descriptive and summary statistics were used for data analysis to determine the average number of hours dedicated to formal teaching on pain at each site, as well as the proportion of total hours dedicated to teaching various pain-related content areas including a) pain neurophysiology and mechanisms, b) etiology and prevalence, c) pain-related misbeliefs and barriers to effective pain management, d) pain assessment and measurement, e) analgesics and management of adverse effects, f) non-pharmacological pain management strategies, g) the multi-dimensional nature of the pain experience and related implications for effective pain management, and h) monitoring, quality and pain policy and guidelines. In 67.5% responses, where hours dedicated to teaching of formal pain content were not specified (and these data could not be obtained), a score of zero was assigned. It was deemed inappropriate to impute the mean number of formal hours (as opposed to zero) where these data were missing as: a) there are no prior reliable data indicating the average number of hours dedicated to formal pain teaching in Canadian Universities, b) reliability of the PES is yet to be established, and c) if the 67.5% of responses were excluded, calculated means would have been based on only 32.5% of responses.

All survey data were housed in locked storage at the Lawrence S. Bloomberg Faculty of Nursing, University of Toronto. The list of respondent names and contact information were stored separately from these data.

3.0 Results

Ten sites of major universities from seven of the eight provinces across Canada with a Medical School were included and response rates were excellent from most disciplines (see Table 1). Data collection from one university included below as a potential site is still in progress; therefore their response rates have not been included in Table 1. The length of health science programs varied from 2 to 5 years, including Dentistry (4 years). Medicine (3-5), Nursing (2-4), Pharmacy (4-5), Physical Therapy (2), and Occupational Therapy (2-3). Veterinary Programs were all 4 years. The response rate for most faculties was excellent (see Table 1).

Table 1. Number of Responses by Faculty/Department

Department	Site Responses	Potential Sites	Response Rate
Dentistry	5	8	63%
Medicine	9	10	90%
Nursing	9	10	90%
Occupational Therapy	3	6	50%
Pharmacy	5	7	71%
Physical Therapy	7	8	88%
Veterinary	4	4	100%

3.1 General Information about the Pain Curriculum

Over 90 percent of the Health Science programs and all Veterinary Programs stated they included formal pain content in the curriculum. However, the understanding of “formal” by respondents varied as reflected in the presentation method. The majority (67.5 %) of Health Science Programs were unable to specify designated hours for pain as they have “integrated content” across several courses and/or clinical conferences (See Figure 1). Designated formal pain content was reported for only 32.5% as: a) a separate course or content (5%), b) a separate course and integrated into several courses (13.5%), or c) a separate course and integrated into clinical conferences and other courses (13.5%) (see Figure 1). All Veterinary respondents were able to identify mandatory designated formal pain content hours.

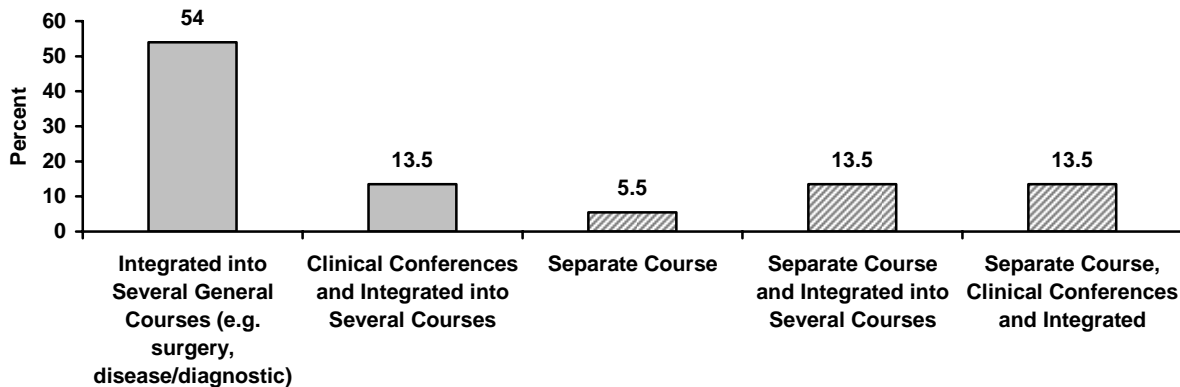


Figure 1. Presentation Methods of Pain Content

Those stating they have no formal pain content continued to complete the survey, indicating that addressing pain may occur through informal methods. All respondents indicated that pain content is mandatory; 16% reported that content is both mandatory and elective suggesting that there is additional content available for those who are interested in learning more about pain. Most respondents indicated they have faculty members with expertise to teach pain content.

Pain content taught in an interdisciplinary context was variable. Thirty-four percent of respondents reported that some pain content or classes is shared between disciplines; although only about half of these (55%) identified a specific number of hours. Excluding one site with a 20-hour interfaculty curriculum, the mean number of shared hours is 10 (range 0.5-20). Dentistry frequently reported shared courses, mostly with Medicine. Veterinary Programs do not share their pain curricula with other disciplines.

3.2 Specific Pain content

Respondents were asked: a) to categorize the pain content covered in their curriculum into eight specific areas, b) to estimate the time was spent teaching each category, c) the number of students per class being taught, and d) the year when taught. Although Health Science Program responses indicated that some pain content is taught yearly, for many it is taught in the second year. Pain content in the Veterinary Programs was reported as being taught yearly with a concentration in the second, third and final years.

3.2.1 Total Hours Allotted By Discipline

The average total time designated for formal pain teaching within each discipline is outlined in Table 2. Twenty reported hours for 6 Health Science Programs at one site (a standardized 20-hour interfaculty curriculum) were excluded in order to give a more accurate picture of the pain content being taught across Canada. Sites unable to identify mandatory pain content included one from each of Dentistry, Medicine, and Occupational Therapy and two from Nursing.

Table 2. Average Number of Designated Total Hours for Formal Pain Content by Discipline*

	Site N	Total Hours Mean (SD)	Range Minimum	Maximum	Student Mean N*
Dentistry	5	15 (10)	0	24	47
Medicine	9	16 (11)	0	38	133
Nursing	9	31 (42)	0	109	133
Occupational Therapy	3	28 (25)	0	48	47
Pharmacy	5	13 (13)	2	33	123
Physical Therapy	7	41 (16)	18	69	55
Veterinary Medicine	3	87 (98)	27	200	66

* outlier of 20-hour interfaculty pain curriculum excluded; additional hours for this site were included

3.2.2 Percentage of Designated Formal Hours For Content Category By Discipline

As outlined in Table 3, the Health Science Programs addressed all eight pain content areas in varying degrees of frequency. The percentages represent the proportion of the total teaching time (outlined in Table 2) allotted to each content category. Although 16 respondents indicated that pain is also addressed in clinical placements, most were unable to estimate this time and indicated that it was variable depending on the particular clinical placement. Three respondents reported offering an elective for small groups of students to have focused clinical experience in a pain clinic or other setting

where pain is a major focus. Six additional programs reported offering electives for small groups of students with specialized pain content and clinical practice (e.g. palliative care).

Table 3. Percentage of designated formal hours for content categories by discipline*

	Dentistry	Medicine	Nursing	Occupational Therapy	Pharmacy	Physical Therapy
	%	%	%	%	%	%
Neurophysiology/ Mechanisms	13	30	19	10	26	14
Etiology/ Prevalence	12	13	7	0	9	8
Misbeliefs/ Barriers, Challenges	6	2	9	8	5	11
Assessment/ Measurement	6	7	13	14	13	11
Management: Analgesics/ Adverse Effects	14	25	12	0	21	10
Management: Non- pharmacological	17	5	8	26	5	34
Multidimensional Nature of Pain & Management Implications	9	8	6	8	16	11
Monitoring, QI, Policy/ Guidelines	2	0.5	4	2	5	1

* outlier of 20-hours excluded

* numbers are rounded to nearest percentage and totals may not sum to 100%

For the Veterinary Programs, pain content areas focused on physiology, assessment and pharmacology (analgesia) across all years.

3.3 Suggestions for Educational Resources

The majority of respondents reported that they would use pain curriculum resources if available and gave several potential suggestions. Case studies or modules were identified by a variety of disciplines (N=25) as a helpful strategy to integrate students' theoretical knowledge into clinical situations, particularly if they reflected a range of clinical complexity. Other needs identified included resources to reflect an interdisciplinary or interprofessional approach to pain assessment and management, internet-based resources or other multi-media resources, such as power point presentations, videos and pictures. Resources addressing particular content areas were also mentioned, specifically resources addressing dental pain, chronic pain and neuroanatomy or neurophysiology. Resources to assist educators to keep up to date with research and evidence-based practice were also mentioned.

3.4 Qualitative data

The final section of the PES allowed for comments and the following themes emerged from descriptive analysis.

3.4.1 Quantifying Hours in Class and Clinical Placements.

Most Health Science respondents stated that students' exposure to care of patients in pain depends on what happens during the students' tenure in the clinical placement. Thus, pain education varies between students depending on their particular clinical experiences. Most were also unable to estimate the amount of time spent on pain during clinical placements and some expressed concern that the survey would underestimate the amount of pain education students receive because the clinical component of pain education is not captured. Veterinary respondents described specific allotted time and content for discussion of the pain management for each patient in clinical rotations.

Many respondents struggled with quantifying the amount of time spent on formal content in each of the eight categories, that the content areas were too integrated to try break them down as the survey suggested. Several stated that pain is mentioned in many different courses, particularly when illnesses present with pain as a diagnostic indicator of etiology and the need for Investigation.

3.4.2 Interdisciplinary/ Interprofessional Education

Some respondents reported initiatives underway that offer interprofessional opportunities related to pain including a 2-hour module, a course elective for student groups, and a 20-hour interfaculty curriculum for six health science faculties. Most however do not currently share their pain content with other professions, and several stated it would be beneficial to have shared pain content, as well as a clearer delineation of role-related responsibilities for pain management.

4.0 Discussion

The majority of Health Science Faculties/Departments (67.5%) found it difficult and were unable to delineate the actual hours allotted to teaching pain content in their curriculum, including clinical placements which depend on the site supervision. Although they state that pain is integrated across courses it is problematic that it can't be quantified. It is noteworthy that only one-third (32.5%) were able to specifically identify designated pain content hours, some with a considerable number of hours. Within the allotted hours, the proportion focused on each content category varied by discipline, For example, percentages for neurophysiology and pharmacological pain management are highest for Medicine and Pharmacy, and non-pharmacological management is the highest for Occupational Therapy and Physical Therapy. However, actual teaching hours allotted for some categories are small. Pain assessment, so critical to successful management, is in some instances less than other categories except monitoring which is minimal across all disciplines. Two models that stand out as advancing pain curricula are the clinical practice model for Medicine involving a pain clinic or pain-focused

practice area and a 20-hour interprofessional pain curriculum for six Health Science Faculties/Departments.

Pain content categories for the Veterinary respondents are mainly physiology, assessment and management. On average they have considerably more hours designated for formal pain teaching including in clinical placements than the Health Science curricula.

Although the need for interprofessional pain education was expressed, this is not in place as yet for most respondents. The need for clarification of roles was identified by several.

Many respondents described the need for resources to implement further pain curricula development. Many suggestions were included that point to the need for national data banks of cases, modules, presentation materials as well as for a roster of those with pain education experience.

There are several limitations to this survey. While disciplines were chosen with the largest number of students entering the workforce, the survey did not include others who also contribute to the healthcare team. The questions were developed from previous research (Graffam, 1990; Watt-Watson & Watson, 1889) but the categories were expanded to eight content areas based the 20-hour curriculum evaluation model. However, some respondents stated they had difficulty attributing hours to some categories or that there was overlap. The respondent completing the survey may not have been the most knowledgeable person to complete the survey at all sites. In future research, a more standardized approach is required to insure a more systematic review.

5.0 Summary

Pre-licensure pain education is a critical step in ensuring that healthcare practitioners entering the workforce are competent in pain management. However, only one-third of this sample could identify designated pain content hours in their pre-licensure Health Science curricula. While pain teaching was assumed to be “integrated” in other courses, it is not quantifiable and therefore not able to be determined for two-thirds of respondents. Veterinary Programs reported considerably more focus on pain assessment and management in their curricula. Many respondents commented on the need for pain-related curriculum resources and interprofessional opportunities in this area. Future research to examine the successful models and their generalizability to other university sites is needed.

References:

1. Graffam, S. (1990). Pain content in the curriculum-A survey. *Nurse Educator* 15, 20-23.
2. Sessle, B. (2000). Incoming President's address: Looking back, looking forward. Proceedings of the 9th World Congress on Pain. Progress in Pain Research and Management (pp9-18).Vol 16, ed M Devor, MC Rowbotham & Z Wisenfield-Hallin. IASP Press; Seattle
3. Watt-Watson J & Watson CPN (1989). Inadequate teaching about pain. *CMAJ* 141
4. Watt-Watson J et al. (2004). An integrated undergraduate curriculum, based on IASP curricula, for six health Science Faculties. *Pain* 110, 140-148



PAIN EDUCATION SURVEY 2007

OVERVIEW:

The purpose of this study is to survey pain content in curricula in major Canadian universities for students in health science programs prior to being licensed (undergraduate). These data will be used in the CPS National Pain Awareness Week Initiative which aims to encourage the government in Ottawa to support greater funding for pain education as well as research.

A Co-Investigator at each university site will hire a research assistant (RA) to collect data from the Health Science Faculty/Department/School(s) at that site. The RA will collect data from *each* Faculty/Department/School using the attached questionnaire. Data collection will be completed by September 1, 2007. A report will be submitted to CPS by October 15, 2007.

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For questions please contact:

J. Watt-Watson (416-978-2850/ j.watt.watson@utoronto.ca)

PARTICIPANT INFORMATION

Please complete the following information.

1. NAME: _____

2. UNIVERSITY _____

3. Indicate the data source from which FACULTY/ DEPARTMENT/ SCHOOL:

Dentistry Medicine Nursing Occupational Therapy Pharmacy

Physical Therapy Veterinary Medicine Other

PART A: Please check all of the responses below which apply.

1. Is there formal class content on pain in your curriculum? Yes_____ No_____

2. Is the pain content presented:

- ___ a. as a separate course on pain
- ___ b. in clinical conferences
- ___ c. integrated into several general courses (e.g. surgery, disease/diagnostic)

3. Is the pain content/course a. elective_____ or b. mandatory_____

4. Do your students share pain content classes/courses with other health science Faculties/Departments/Schools?

Yes_____ No_____

If Yes, which Faculties/Departments/Schools are involved:

- Dentistry Medicine Nursing Occupational Therapy Pharmacy
- Physical Therapy Veterinary Medicine Other

If Yes, how many hours are shared_____?

5. Do you have faculty who have some expertise in pain management

Yes_____ No_____

6. Would you use pain curriculum resources if they were available (e.g. modules, cases)

Yes_____ No_____

If Yes, what would be most helpful?

PART B: Please document below the pain content in your Faculty/Department/ School. Asterisk (*) any content shared with another profession; elaborate in the following section. Circle the year taught. Write additional comments on the next page. Length of your program is ___ years.

Content	Year(s)	Courses (Name, No.)	Number of Hours	Number of Students	Teacher Responsible eg lecturer, clinician, professor, PhD student
1. Neurophysiology/ Mechanisms	1				
	2				
	3				
	4				
	5				
2. Etiology/ Prevalence	1				
	2				
	3				
	4				
	5				
3. Misbeliefs/ Barriers Challenges	1				
	2				
	3				
	4				
	5				
4. Assessment/ Measures	1				
	2				
	3				
	4				
	5				
5. Management: Analgesics / Adverse Effects	1				
	2				
	3				
	4				
	5				
6. Management: Non- pharmacological	1				
	2				
	3				
	4				
7. Multidimensional Nature of Pain & Management Implications	1				
	2				
	3				
	4				
	5				
8. Monitoring, QI, Policy/guidelines	1				
	2				
	3				
	4				
	5				

Please indicate If students from any other Faculty/ Department/School(s) are involved in your course/classes:

- NONE** Dentistry Medicine Nursing Occupational Therapy Pharmacy
 Physical Therapy Veterinary Medicine Other

COMMENTS: [Indicate the number of the content section you are referring to]

WOULD LIKE A SUMMARY OF THE SURVEY RESULTS?

YES NO

THANK YOU