Review of the diversity in patient cases in the pharmacy curriculum in comparison to the population of Newfoundland and Labrador

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BACKGROUND

It is currently unknown whether the pharmacy curriculum at MUN's School of Pharmacy is reflective of the diversity seen in Newfoundland and Labrador's (NL) society. With accreditation standards increasing focus on equity, diversity and inclusion in pharmacy education, it emphasizes the need to pursue efforts in providing education that is reflective of society. Work needs to be done to evaluate the diversity of the current pharmacy curriculum and see whether it reflects the diversity of the province.

METHODS

Background Research:

- Key terms (e.g., Diversity) were searched on PubMed and EMBASE to conduct a literature search for similar research assessing the diversity of the educational curriculum for guidance.

Data:

- Cases (N=115) were collected from faculty members, and patient demographics were identified from each non-evaluated case (learning or practice case):
  - 4 main categories of demographics: Physical, Clinical, Social, and Academic (e.g., Main disease state, main academic problem).
- NL population demographics were collected through Statistics Canada and the NL Chronic Disease Action Plan.

Data Representation

- Data was presented as proportions of all cases and/or defined cases.
  - Defined cases excludes unreported data (i.e., "N/A").
- Select demographics (Physical, medical and social) that had available NL data to compare with were presented as a table.
- Select demographics (Medical, academic) that didn't have available NL data to compare with were presented as figures.
- Some categories had N > 115 due to having multiple demographics per case.

Assumptions:

- Male sex, female sex ≥60 years-old, or "N/A" was assumed to be "not pregnant"
- New births in Q1-Q4 of 2022 divided by the total NL population was assumed as the proportion of pregnancies in NL.
- Non-specific demographics (e.g., "Older" for age) was assumed as N/A

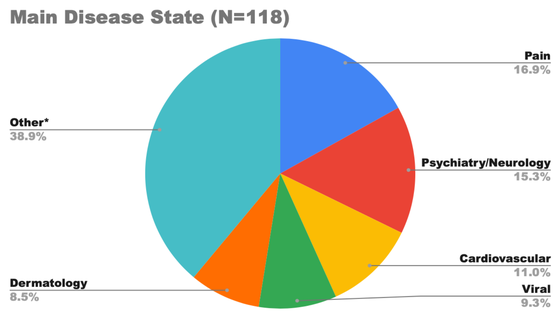
RESULTS

Table 1. Summary of patient demographics in MUN School of Pharmacy's non-evaluated case material, compared to NL demographic data[1,2]

Demographics	All Cases, N (%)	Defined Cases[a], %	NL Demographics[b], %	Difference, %
Physical Demographics				
Age	N=115	N=110		
0-14	6 (5.2)	5.5	13.4	-7.9
15-24	10 (8.7)	9.1	10.1	-1.0
25-54	44 (38.3)	40.0	36.3	3.7
55-64	16 (13.9)	14.5	16.6	-2.1
65+	29 (25.2)	26.4	23.6	2.8
Age Range	5 (4.3)	4.5	0	4.5
N/A	5 (4.3)			
Sex	N=115	N=75		
Female	34 (29.6)	45.3	51.0	-5.7
Male	37 (32.2)	49.3	49.0	0.3
Either	4 (3.5)	5.3	0.0	5.3
N/A	40 (34.8)			
Gender	N=115	N=64		
Female	34 (29.6)	53.1	51.2	1.9
Male	24 (20.9)	37.5	48.5	-11.0
Either	4 (3.5)	6.3	0.0	6.3
Non-binary	1 (0.9)	1.6	0.1	1.5
Transgender	1 (0.9)	1.6	0.1	1.5
N/A	51 (44.3)			
Race/Ethnicity	N=115	N=11		
Caucasian	7 (6.1)	63.6	87.3	-23.7
Visual Minority	4 (3.5)	36.4	3.4	33.0
Indigenous	0 (0.0)	0.0	9.3	-9.3
N/A	104 (90.4)			
Medical Demographics				
Pregnancy	N=115	N=115		
Yes	4 (3.5)	3.5	2.4	1.1
No	2 (1.7)			
Cannot	59 (51.3)	96.5	97.6	-1.1
N/A	50 (43.5)			
Number of Medical Conditions	N=115	N=98		
0	11 (9.6)	11.2	37.0	-25.8
1	31 (27.0)	31.6		
2	26 (22.6)	26.5		
3	18 (15.7)	18.4	63.0	25.8
4	5 (4.3)	5.1		
≥5	7 (6.1)	7.1		
N/A	17 (14.8)			
Social Demographics				
Insurance	N=115	N=29		
Private	17 (14.8)	58.6		
NLPDP	9 (7.8)	31.0		
NIHB	1 (0.9)	3.4	83.0	13.6
Unspecified	1 (0.9)	3.4		
No	1 (0.9)	3.4	17.0	-13.6
N/A	86 (74.8)			

[a]All cases that have reported demographics.
[b]Certain NL demographics are compared with multiple case demographic categories due to NL demographics being less specific - e.g., Any patient with ≥1 medical condition is collapsed together as NL dataset only defined how many individuals have ≥1 medical condition.

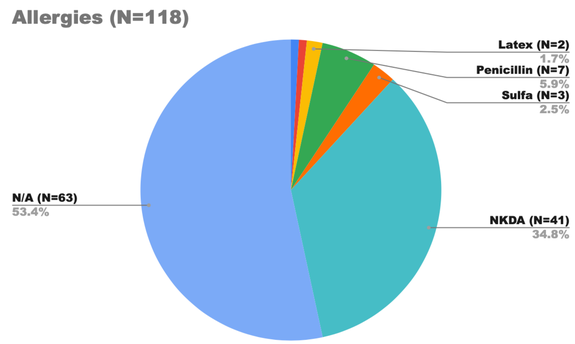
Figure 1. Distribution of main disease state (by therapeutic area) seen in MUN School of Pharmacy's non-evaluated cases.



*Other disease state areas: Respiratory (5.9%), Genitourinary (5.1%), Oncology (3.4%), Hormonal (2.5%), N/A (3.4%), and miscellaneous cases (18.6%).

RESULTS (CONT.)

Figure 2. Distribution of allergies seen in MUN School of Pharmacy's non-evaluated cases.



Allergies not labeled in this figure are ASA and Lanolin (N=1; 0.85%)

DISCUSSION

MUN School of Pharmacy's non-evaluated curriculum had six demographic categories with at least one-third of the cases listed as "N/A", with Race/Ethnicity reaching as high as 90.4%. This follows the trend of a previous study at the College of Pharmacy, Dalhousie University, where they evaluated the demographics of the written cases in their problem-based learning curriculum and found most of their data were "undefined"[3].

The breakdown of MUN's patient case categories are as follows:

Physical Demographics:

- The **age** of our case demographics is **representative** of the NL population; however, there was **less representation of the pediatric population** as there was an 7.9% difference between the defined cases and NL demographics.
- The **sex** of patients seen in our case demographics is **representative** of the NL population. More female cases may be needed (5.7% difference), but if you consider the "Either" demographic, it reduces the difference to 0.4%, making it more representative of the female population. Another consideration is to increase reporting of the patient's sex as **only 65% in all the cases had the patient's sex is defined**.
- The **gender** of patients seen in our case demographics is **representative** of the NL population; however, only one each of transgender and non-binary cases were reported.
- The **race or ethnicity** of patients in our cases is **unrepresentative** of the NL population. In addition, there are **many unreported cases (N=104, 90.4%)** seen in this category. Lastly, there was **no patients who were identified as indigenous**, which is a point of concern as around 9.3% of NL's population is identified as indigenous.

Medical Demographics:

- The **pregnancy** status of the patients in our cases is **representative** of the NL population. However, there is still a **substantial number of unreported cases (N=50)**.
- **More than half** of our patient case demographics have unreported **allergies (N=63)** and they are an important aspect of collecting patient history, both in practice and in examinations.
- There is a **higher proportion** of patients in our cases with ≥1 **medical condition** compared to the NL population. However, it should be expected for a healthcare teaching facility to have more patients with medical conditions for teaching purposes.

DISCUSSION (CONT.)

Social Demographics:

- Only **one patient was uninsured** in the patient cases, which is **unrepresentative compared to the 17% uninsured patients in NL.** Additionally, managing drug coverage of patients is an important aspect of pharmacy practice in a community setting.

Academic Demographics:

- The most common **disease state** seen in the pharmacy curriculum was pain, followed by psychiatry/neurology and cardiovascular. The distribution of the main disease state is expected to be **heavily influenced by the lecture style** of the lecturer and may not be the actual distribution of disease states within the pharmacy curriculum.

Limitations:

- Provincial data may be inaccurate as most of it was collected from the 2021 census (Age, Sex, Gender, and Race/Ethnicity). As censuses are usually conducted by one individual on behalf of all the members in the household, certain demographics may be under/over reported (e.g., gender identity may not be accurately reported)
- As the pregnancy demographic was derived from the number of births seen in a year, it only accounts for successful pregnancies. Abortions, miscarriages, stillbirths and other pregnancies that didn't go to term are excluded from this value, thus the actual pregnant proportion of the population may be slightly greater than the estimated value.
- Not all cases may have been submitted for analysis

CONCLUSIONS

- Many non-evaluated cases **failed to report the patient's demographics** and works needs to done to define the patient's demographics – where it is appropriate**.** Areas such as allergies and insurance status need greater reporting as they're an essential part of taking a patient history and drug coverage management in pharmacy practice, respectively.
- Further studies may be needed to evaluate the effects of the undefined nature of cases and if it aligns with previous works that discusses how the "hidden curriculum" may reinforce biases and stereotypes[3,4].
- A comparison of the demographics seen in non-evaluated cases and evaluated cases may be beneficial to determine if the patient population seen in the examinations reflect the patient population seen in non-evaluated settings (e.g., lectures).

REFERENCES

1. Statistics Canada. Statistics Canada: Canada's National Statistical Agency [Internet]. www.statcan.gc.ca. 2022. Available from: https://www.statcan.gc.ca/en/start
2. Chronic Disease Action Plan [Internet]. Available from: https://www.gov.nl.ca/hcs/files/chronicdisease-pdf-chronic-illness.pdf
3. Wilby KJ, Cox D, Whelan AM, Arya V, Framp H, Mansour S. Representation of diversity within written patient cases: Exploring the presence of a "hidden curriculum." JACCP: journal of the American College of Clinical Pharmacy. 2022 May 10;5(8):837–43.
4. Robertson WJ. The Irrelevance Narrative: Queer (In)Visibility in Medical Education and Practice. Med Anthropol Q. 2017 Jun;31(2):159-176.