# Design of a Needs-Based Human Immunodeficiency Virus (HIV) Certificate Program (CP) for Pharmacists

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has increased significantly.

# Study sample:

500 pharmacists were chosen randomly from the OCP database. The pharmacists worked in OCP electoral districts 1, 2, 3-6, 7, 8 and 11, the areas where community pharmacists showed the highest interest in HIV CE in the 2000 OCP survey.

The confidential NA was sent by mail with a cover letter and a self-addressed postage-stamped return envelope on January 21, 2002. A second mailing with a modified cover letter was sent to pharmacists who

#### Statistical analyses:

> For the majority of pharmacists in Ontario, the HIV pharmacotherapeutic principles learned during the pharmacy baccalaureate program are outdated.

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Background

> The complexity related to the pharmacotherapeutic

management of human immunodeficiency virus (HIV)

> Community pharmacists in the Ontario College of Pharmacists' (OCP) electoral districts 1, 2, 3-6, 7, 8 and 11 showed an interest in HIV continuing education (CE) in an OCP survey conducted in 2000.

# **Objectives**

1) Assess the educational needs of Ontario pharmacists who provide or wish to provide pharmaceutical care to ambulatory HIV - infected patients: and

2) Design an HIV pharmaceutical care certificate program (CP) that meets the needs of Ontario pharmacists.

# Methods

#### HIV learning needs assessment (NA):

An 8-page NA containing 100 guestions was designed and pre-tested by 7 community pharmacists. The final version of the NA was reviewed and approved by an advisory committee.

#### The NA contained 6 sections:

Preparedness: Pharmacists' perceived preparedness to undertake various tasks related to HIV pharmaceutical care. Likert-type scale from 1 to 5 (1 = very unprepared, 5 = very prepared) used.

Knowledge: Pharmacists' knowledge on antiretroviral (ARV) therapy and HIV evaluated with 10 true or false questions.

3. Attitudes: Pharmacists commented on 10 statements which pertain to pharmacists' behaviors regarding HIV using a Likert-type scale from 1 to 5 (1= disagree strongly, 5 = agree strongly).

4. Learning needs perceived by the pharmacist: Pharmacists stated for several HIV - related educational topics if they believe they need a general overview, an in-depth review or no review.

5. Interest for a CP: Pharmacists interested in participating in an HIV CP identifed their preferred teaching strategies and evaluation methods.

6. Demographics: Information collected included age, year since graduation, number of years practicing pharmacy, pharmacy degrees other than a bachelor's degree, number of hours worked per week in a community pharmacy and in other settings, number of HIV - infected patients counselled per week, and past participation in HIV CE activities.

did not return their NA by February 22, 2002.

Proportions were calculated for categorical variables and means with standard deviations were calculated for continuous variables In sections 1 (preparedness) and 3 (attitudes), the number and proportion of respondents answering each score in the Likert-type scales were calculated, as were the mean scores and standard deviations for each question. A global preparedness score (GPS) was obtained by averaging the scores of each question in section 1 for each respondent and then calculating the overall mean and standard deviation (maximum score = 5). In the knowledge section (section 2), the data from 10 true or false questions were entered as "correct", "incorrect", or "doesn't know". A global knowledge score (GKS) was calculated for each respondent by giving one point per correct answer (maximum score = 10). An overall mean and standard deviation of the GKS were calculated

Pearson correlation was calculated to measure the strength of the linear relationship between the overall GPS and the GKS. Demographics were compared between early (before February 22, 2002) and late respondents using the Chi-Square test and t-tests. The Chi-Square test and an ANOVA were used to identify if demographics were related to the interest in doing an HIV CP. Multiple regression analyses were done to study the influence of demographic variables on the GPS and the GKS. A p value less than 0.05 was considered statistically significant for all of these analyses.

# Design of the CP:

The design of the CP considers the results from the NA. Efforts were made to distinguish between actual education needs and perceived education needs. The objectives and content selected for the CP also reflect the Canadian HIV / AIDS Pharmacy Network position paper on the role of the pharmacist caring for people living with HIV (CJHP 2000; 53: 92-103).

The teaching methods chosen for the CP included when possible the preferences identified by the pharmacists in the NA. The teaching format selected places greater emphasis on case studies and active participation.

# Results

#### Needs assessment:

110 pharmacists completed the NA, providing a response rate of 22.4 % (491 usable NAs). No statistically significant differences in the demographics were present between early (68.2 %) and late respondents. Therefore, their results were analyzed together.

#### **Table 1: Baseline Characteristics** (n = 110)



# Attitudes:

- > 60 % disagreed that HIV pharmacotherapy is too complex to learn
- > 41.6 % agreed that HIV CE would be a good use of their time

> 42.3 % agreed that keeping ARVs in stock is too expensive >22.8 % disagreed that education on safe sex can

change sexual habits

> 60 % agreed that pharmacists play an important role in HIV prevention

### Preparedness and Knowledge:

The GPS and the GKS were 2.54  $\pm$  0.62 and 5.12  $\pm$ 2.09, respectively. The Pearson correlation score between the GPS and the GKS was 0.57854, showing a partial linear relationship. Predictors of a high GPS were an interest in doing the CP and working in a setting other than a community pharmacy (p < 0.05). An interest in doing the CP was also a predictor of a high GKS (p < 0.05).

33.6 % of respondents answered adherence is crucial to prevent the development of ARV resistance.

#### Figure 1: Preparedness of Ontario Pharmacists to Provide HIV Pharmaceutical Care



(1 = very unprepared, 5 = very prepared) (Rx = prescription, Ix = interactions, ARV = antiretrovirals, px = prophylaxis, tx = treatment, OI = opportunistic infections)

Figure 2: Knowledge of **Ontario Pharmacists** on HIV and HIV Pharmacotherapy



# Pharmacists' perceived learning needs:

Pharmacists expressed interest in an in-depth review of ARV topics (treatment guidelines, dosages, food / liquid requirements, adverse drug reactions, interactions, adherence) and on the treatment and prophylaxis of opportunistic infections (OI), and a general review of the HIV disease process ( natural history, pathogenesis, epidemiology, resistance).

# Interest in doing an HIV CP:

30.0 % of respondents were interested in doing an HIV CP and 36.4 % were uncertain. Interested respondents preferred a program which costs less than \$300.00 CAN, demands less than 40 hours of work and is offered from September to November or March to May. The 3 preferred teaching strategies were: 1) live lectures, 2) at home readings, and 3) case studies in groups. Teaching strategies such as telephone conferences, teleconference, audiotapes, internet discussion groups or chatrooms, and case studies with standardized patients were the least preferred. For the evaluation of the certificate program, pharmacists preferred a take home exam that is both didactic and case-based.

Variables associated with a greater interest in doing an HIV CP were counselling at least one HIV - infected patient per week and a longer time since graduation (p < 0.05).

# **Design of an HIV Patient Care:** Level 1 CP:

#### **Primary Objective:**

Enhance pharmacists' knowledge and skills in order to improve their ability to care for ambulatory HIV- infected patients.

#### Target audience:

All Canadian pharmacists interested in HIV pharmaceutical care. Since an introductory course (level 1) will be offered, no preliminary knowledge or experience is mandatory.



Evaluation

### Evaluation:

Participants will be evaluated with a take-home didactic and case-based exam. Upon satisfactory completion (> 70 %), participants will receive a certificate. Self-evaluation through reflection will be asked of the participants after each workshop. Participants will be asked to evaluate the speakers, workshops and overall organization of the CP using predetermined evaluation tools.

#### Program development:

The Ontario Pharmacists' Association in collaboration with members of the Ontario HIV Pharmacy Professional Specialty Group, will develop the HIV CP.

The HIV Patient Care: Level 1 CP is planned to be launched in September 2003 in Toronto.

The research group plans on offering refresher courses on an annual basis as well as a Level 2 CP which will focus on more complex educational topics (ie: resistance patterns, therapeutic drug monitoring).

# Conclusion

> The NA conducted demonstrated that many pharmacists have insufficient HIV - related knowledge and feel unprepared to provide pharmaceutical care to HIV - infected patients.

#### > Pharmacists desire a CP on HIV.

> Based on the results of the NA an HIV Patient Care: Level 1 CP was designed and will be developed and offered in September 2003 by the OPA.

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