

## INSTRUCTIONAL DESIGN AND ASSESSMENT

### Drug Use Management and Policy Residency: A Service-Learning Application

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**Objectives.** To establish, implement, and evaluate a drug use management and policy residency program within the context of a service-learning framework.

**Design.** Residents completed a 4-month term in which they were paired with a preceptor (health care manager or policy analyst) to complete a project designed to assist their work and to provide the resident with an understanding of policy formulation related to pharmaceuticals.

**Assessment.** A formative evaluation of the first 2 years of the residency was conducted using semi-structured interviews with key stakeholders and an examination of program documents. Recurring themes were identified and a set of “lessons learned” was generated.

**Conclusion.** The Drug Use Management and Policy Residency Program adhered to service learning tenets and was a practical educational experience for residents.

**Keywords:** pharmaceutical policy, residency, service-learning

## INTRODUCTION

Pharmaceuticals are one of the fastest growing components of Canadian health sector expenditures.<sup>1</sup> Continued growth is anticipated due to the aging population, the advent of new drugs and technologies, community-based management of chronic disease, and more ambulatory (versus inpatient) treatment to be delivered to patients in an effort to contain rising health care costs.<sup>2</sup> A key policy challenge facing governments is how to continue providing access to drug therapies in the face of rising expenditures and limited resources.<sup>3</sup>

Generating evidence that can inform health system decision making has been promoted by the Canadian Health Services Research Foundation (CHSRF). Lomas explained how CHSRF is facilitating an evidence-based culture within the Canadian health care system through instituting strategic initiatives to build this capacity.<sup>4,5</sup> The Chair Awards Program funded by the Canadian Health Services Research Foundation/Canadian Institutes of Health Research and cosponsored by the Nova Scotia Health Research Foundation in Health Services Research is one example. Twelve university research leaders located across Canada received funding over 5 years to develop mentoring, education, and “linkage and

exchange” activities within their respective areas of research expertise.<sup>6</sup> Each chair developed unique knowledge transfer and research programs targeted at increasing research use in decision making. One of the authors (IS) was awarded a chair to create significant cross-disciplinary expertise in drug-use management and policy that would assist policymakers in assessing options and solutions in the area of pharmaceuticals at the national, provincial, regional, and local/institutional decision-making levels. Subsequently, the Drug Use Management and Policy Residency was designed as one way of engaging local decision makers with graduate students and university researchers in the conduct of pharmaceutical policy synthesis and research.

The Drug Use Management and Policy Residency follows an experiential educational approach that builds upon the elements of service-learning. Many US health science degree programs have, for a variety of reasons, incorporated service-learning into their curricula.<sup>7-9</sup> In particular, many pharmacy educators have incorporated service-learning in their programs with considerable success, and the *American Journal of Pharmaceutical Education* has devoted a special issue to the topic.<sup>10</sup> One article discussed the importance of developing strong partnerships.<sup>11</sup> Peters and MacKinnon III<sup>12</sup> delineated the results of a national survey of the use of service-learning in pharmacy programs across the United States. In addition, Kearney detailed the role of student self-evaluation in determining the outcomes of service-learning programs

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in pharmacy.<sup>13</sup> Finally, Drab and colleagues<sup>14</sup> reported how service-learning was incorporated into the 4 years of the pharmacy curriculum at Pittsburgh, while Schumann and colleagues described a particular instance of partnering between social workers and pharmacy faculty members to strengthen interpersonal content of a pharmacy curriculum.<sup>15</sup>

The purpose of this article is twofold. First, the characteristics of the Drug Use Management and Policy Residency program are described including how it is situated in the pedagogy of service-learning. Second, the findings of the formative evaluation conducted with 2 cohorts of residents are presented and some early lessons learned are discussed.

## **DESIGN**

### **Program Goals and Learning Objectives**

The purpose of the Drug Use Management and Policy Residency is to enhance the use of research evidence in policy-making for drug use management. The overarching program goals are to:

1. create policy-relevant research information;
2. facilitate interaction among residents, faculty members, and decision makers on specific projects;
3. learn how research is used in decision making; and
4. assist health-services researchers in understanding decision makers' information needs and preferences.

This residency program provides an opportunity for participants to explore and gain experience about using research evidence for policy decisions about drug therapies and drug use management. Residents also gain an understanding of how differing policy environments (eg, provincial health department, regional health authority, or tertiary care facility) can influence the extent to which research evidence is considered in policy-making.

The interactions of the different learning components in the Drug Use Management and Policy Residency Program are shown in Figure 1. This framework illustrates how various program milestones and deliverables fit together over the course of the residency. It is based on similar educational models described in Prideaux and Kendall and Associates.<sup>16,17</sup> The research project proposal is a key milestone that initiates the residency and from which the residents individualize the learning objectives set out in the program manual. These objectives include:

1. designing and implementing a policy or drug-utilization management project in conjunction with decision makers;

2. appraising relevant drug-use management, drug policy, and health services research literature;
3. learning how communication strategies such as briefing notes are used in policy-making;
4. designing a policy presentation tailored to the needs and preferences of a decision-maker audience; and
5. reflecting on how decision-making environments use evidence to develop policy.

### **Program Format**

The Drug Use Management and Policy Residency Program was introduced in May 2001. Throughout this educational experience, the residents' main focus is on the conduct of a scientifically credible research or policy synthesis project that aims to answer current questions about drug policy issues. Graduate students from varied backgrounds are attracted to the program because it enables them to work on "real life" drug policy and practice issues while decision makers benefit from the research skills of the residents and their faculty advisors. The program participants (residents and preceptors) are matched, taking into account the residents' research abilities, interests, goals, and work experience, and the decision makers' particular policy issues, the urgency or immediacy of the issue, and the type of project to be pursued (eg, policy analysis, pharmacoepidemiologic analysis, policy synthesis, issue paper, survey of key informants, or feasibility/pilot study). When projects involve contact with human subjects or the use of administrative data, approval from the University Ethics Review Committee is required.

All participants bring unique skills and perspectives to the program. Decision maker preceptors provide ongoing expertise related to the current political landscape and policy context as well as offering insight about policy options. University-based researchers provide advice and consultation as needed about design and appropriate research methods. Residents bring enthusiasm and a willingness to conduct a research project that may extend beyond their current expertise and knowledge. Where possible, the projects are completed on site at the host organization. The program parameters involve up front (and often ongoing) negotiation about the project boundaries. The optimal situation occurs when a clear research question and brief proposal are developed prior to starting the residency since the research project having a well-defined scope is a critical element for completing it within the 4 month time frame. Table 1 presents the stock of drug policy research that has been created to date.

Preceptors, residents, and faculty advisors attend an orientation session during which the residency program

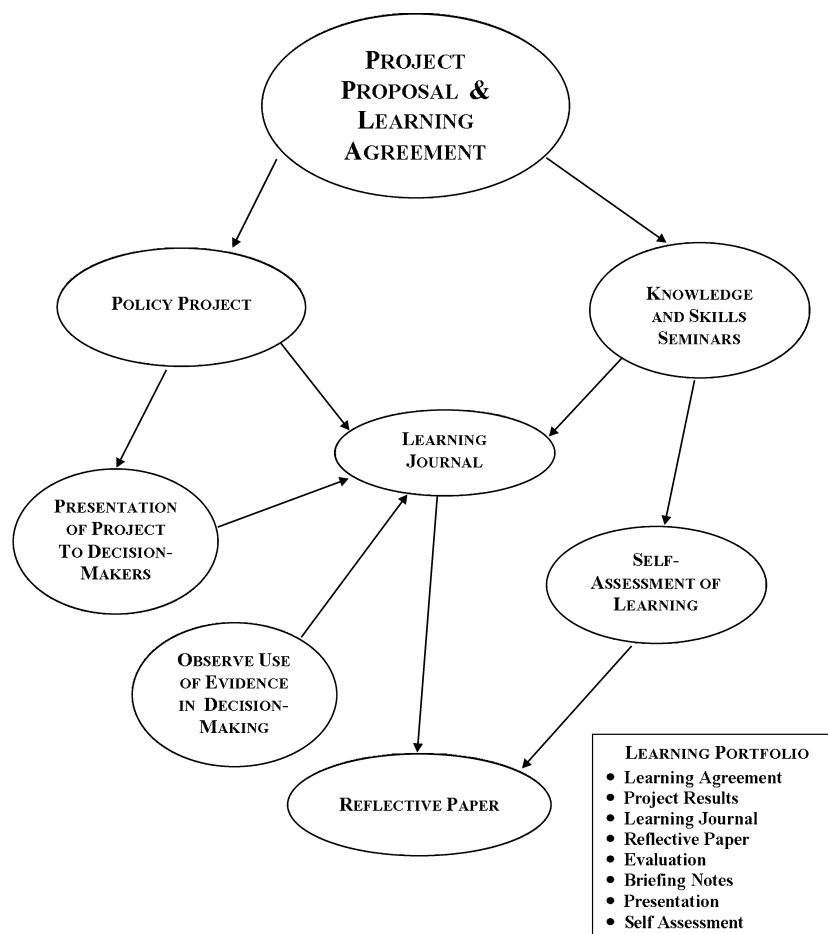


Figure 1. Learning Components for the Drug Use Management and Policy Residency.

manual and workshop schedule are discussed and a brief overview of the projects is presented. (Program manual available on request from authors). Residents continue to meet as a group on a bi-weekly basis to attend skill-building workshops as well as thematic seminars to enhance the residents' skills. Background readings focusing on policy-making and policy analysis are also provided to assist residents in understanding how bureaucracies work and to introduce them to various perspectives and approaches about how policy is developed in different environments. Lastly, from a quality improvement standpoint, program assessment forms are completed by all program participants.

### Residents

From 4 to 6 graduate students are selected and placed with "preceptor" decision makers for a 4-month, paid experience. The characteristics of graduate student participants and preceptors are described in Tables 2 and 3. The preceptors are chosen by the program administrator on the basis of having the authority to implement the findings from the residency projects. Preceptors must also

be interested in using research to inform decision making, be committed to precepting a resident, and have the time and job latitude to commit organizational resources (eg, access to the Internet, computer, desk, phone) to support the residents. Throughout the residency, update meetings with preceptors are held to specifically track the status of the projects and more generally to assess how the program is proceeding.

University-based researchers act as faculty advisors and are chosen for their methodological and content expertise. They either have a particular interest in the topic of the resident's project or they could be the resident's thesis supervisor. Most residency sites and preceptors have limited capacity to conduct research, so access to this research expertise is critical to the credibility of recommending policy options.

### ASSESSMENT

#### Formative Evaluation Goals

This formative evaluation of the Drug Use Management and Policy Residency employed a stakeholder

Table 1. Drug Use Management and Policy Research Residency Program Policy Projects

<b>Title of Project</b>	<b>Policy Question</b>
2001 - Impact of Influenza on Hospitalizations and Mortality Rates in Nova Scotia	Should the eligibility criteria for public funding of vaccinations be expanded by the Nova Scotia government?
2001 - Cost Effectiveness of Rebetrone® for the Treatment of Hepatitis C	Should Rebetrone® be funded by the Nova Scotia government? If so, how should the funding be designated?
2001 - Profiling Physicians to Promote Evidence-Based Cost Effective Decision-making: A Case	What is the evidence that providing Nova Scotia physicians with prescribing profiles improves prescribing behaviour? Did providing profiles related to topical corticosteroids change physician prescribing behaviour?
2001 - Evaluation of the NS Hospital Pharmacy Information System and Drug Utilization Capabilities	How can the Nova Scotia provincial drug purchasing system be linked to other hospital databases to provide performance indicators?
2002 - Drug Utilization Indicators for the Provincial Hospital Information System: Application to Utilization of Fluoroquinolones	Can the Nova Scotia hospital information system provide meaningful drug performance indicators for drug therapies?
2002 - Policy Relevant Issues Surrounding Regulation and Distribution of Post coital Contraception in NS	Should Nova Scotia pharmacists prescribe post coital contraception?
2002 - Academic Detailing: Literature on Best Practices	How does the Nova Scotia government's academic detailing program compare with best practices?
2002 - Evaluation of an Alternative Approach to Prescription Drug Sampling	Should the Nova Scotia government support alternative approaches to prescription drug sampling for physicians?

approach that was conducted on 2 program cohorts (2001 and 2002). The purpose was to explore issues concerning program design and delivery/implementation processes. Two overarching evaluation questions were developed:

1. Are the program goals appropriate from the perspectives of residents, preceptors, university faculty members, and program administrators?
2. What modifications are recommended prior to admitting the next cohort?

### **Data Collection**

Two sources of data were used to answer these evaluation questions. Primary data were obtained from face-to-face interviews with key stakeholders: residents, preceptors, faculty advisors, and program administrators. Secondary data were mined from numerous documents including evaluation forms, residents' reflective papers, and the program manual. Triangulation of data sources was achieved through comparisons among the semistructured, face-to-face interviews; program documents; and evaluators' observations.

The purpose of the interviews was to learn about how the program was working from the perspectives of the key stakeholders. The open-ended interview questions were developed from various sources.<sup>8,18</sup> The interviews were conducted by both internal and external evaluators. Field notes were compiled following the interviews. These notes were supplemented with secondary data gleaned from program documentation and observations and

impressions of the external and internal program evaluators during various sessions throughout the residency (eg, orientation, workshops, and final presentations).

The Dalhousie University Health Sciences Ethics Committee approved this study.

### **Data Analysis**

During the course of this formative evaluation with 2 program cohorts, the focus was on the implications of the program design and its implementation strengths and weaknesses in addition to general observations by the stakeholders about how the program could be improved. For example, some sample questions included:

1. What was the process whereby you became a preceptor for a resident in this program?
2. What role did you have in defining the nature and scope of the resident's work?
3. What changes, if any, would you recommend concerning this aspect of your work as preceptor?

General categories for the analysis of responses were developed from the interview questions as recommended in the program evaluation literature.<sup>19-21</sup> This framework was utilized to cluster our analysis of the interview responses. These clusters were grouped in complementary and contrasting themes and patterns, and these results were clarified and verified through cross referencing the findings with the various ideas found in the residents' reflective papers, the participants' program evaluation forms, and the evaluators' observations (Appendix 1).

Table 2. Characteristics of Drug Policy Residents

	Cohort 1 (2001)	Cohort 2 (2002)
Number of residents	4	4
Gender		
Female	3	2
Male	1	2
Academic background prior to residency		
BSc	2	2
BSc Pharmacy	1	1
MSc		1
PharmD	1	
Academic background during residency		
Masters in community health and epidemiology	4	2
PhD in pharmacy administration		1
PhD in interdisciplinary studies		1
Residency placements* & no. of residents		
Pharmacare program manager	1	2
Health Information	1	1
Provincial medical officer	2	1

\*Cohorts 1 and 2 residencies were located at the Nova Scotia Department of Health

According to Marshall and Rossman the rationale for using the interview questions to drive our analysis is that they provided an analytic foundation whose categories can then lead to the organization of various themes and patterns arising from the interview responses.<sup>19</sup> This formative evaluation has several imposed boundaries. First, the size of the 2-participant cohorts was small. A total of 15 individuals participated in the interviews: 8 residents, 3 preceptors, 3 academic advisors, and 1 program administrator. This small number of study participants forced a trade-off during the presentation concerning the findings in that the participants concluded it was more feasible to compile a general interpretation of what was found and limit some more revealing and sensitive details in order to protect the confidentiality and anonymity of the interviewees. While there was also a time lag between the end of the residency and the conduct of the participant interviews, the extensive program documentation completed by program participants at the end of the residency was used to supplement any possible lapses in recalling details.

### Residents' Learning Outcomes

Upon completion of an on-site experience, residents submitted a learning portfolio consisting of various products or deliverables, which were appraised by the program

Table 3. Characteristics of Community-based Preceptors (N = 3)

Variable	No.
Gender	
Female	2
Male	1
Academic Background	
Pharmacy	1
Health Information Management	1
Physician with speciality in Public Health and Pediatrics	1
Position Title	
Pharmacare Program Manager	1
Chief Information Officer	1
Provincial Medical Officer	1
Length of Time in Current Position	
Pharmacare Program Manager	5 years
Chief Information Officer	2 years
Provincial Medical Officer	10 years

administrator. Items in the portfolio included samples of work completed, such as briefing notes for senior political decision makers and internal and external presentations. Since a learning journal was kept throughout the residency, these entries provided the basis for a "reflective" paper written at the end of the experience. This paper included an assessment of the various components throughout the residency in terms of the resident's individual learning experiences. The program administrator provided individualized written feedback on the contents of the learning portfolio.

Following the end of the placement, residents presented the results of projects to a combined decision maker and academic audience. The focus was on accommodating decision makers' needs so that more emphasis was placed on framing the policy issues and discussing the options or outcomes and less emphasis on justifying the methodological approach used to complete the research.

Residents could apply to their Graduate Department to obtain credit for the academic work completed during the residency program. However, none selected to do so. Upon completion of the 4-month program, residents also had an option to continue working with the program administrator, faculty advisor, and/or preceptor to prepare the material for "academic" dissemination through the submission of an abstract or poster to a scientific conference, or perhaps even pursue the preparation of a manuscript for publication. Four of our residents have exercised these options, especially when they wanted to

strengthen an application for admission to a doctoral program or to obtain funding for a research fellowship.

## **DISCUSSION**

### **The Residency in the Context of Service-Learning**

Within the Canadian context, the Drug Use Management and Policy Residency was designed to train future health services researchers about how to conduct research and increase the use of research in health services decision making. The residency is predicated on the belief that exposing novice health services researchers to the nuances of decision making in relation to research use in distinct policy environments enables them to become more effective at translating research beyond traditional academic channels. Moreover, it is perceived that including decision makers in the initial design of research to evaluate policy options is evolving as a practice that seems likely to result in the increased use of research in decision making.<sup>4,5,22-25</sup>

Through a closer examination of the Drug Use Management and Policy Residency design elements, there are characteristics that both align it with and set it apart from the generally accepted practices for service-learning programs. Furthermore, our program has some unique features and, for a variety of reasons, departs from most pharmaceutical education programs described in the literature that incorporate service-learning principles.<sup>7-15</sup> How then, does our program compare with many of the “smart” service-learning practices, which are the conceptual foundation on which the design of our program is built?<sup>26-28</sup>

### **Alignment With Service-Learning Principles And Practices**

In our program, some of the residents’ time and experiential learning takes place “on site” in a decision-making organization such as a regional health organization or the provincial Ministry of Health. A critical element of service-learning is its emphasis on reciprocity where the needs of both the community and academic stakeholders are balanced. Each drug policy project is developed with a view to using the results as research evidence for decision making about a critical drug use management issue. Our program is built on reciprocity since the scope and parameters of each residency research project are “mutually” decided through discussions involving the resident, preceptor, and program administrator with input from the faculty advisor as needed. Furthermore this “give and take” approach fosters accommodation between academic approaches and community/decision-maker needs.

Our program has a strong reflective component and provides numerous opportunities for residents to reflect

upon their experience. We employ a two-pronged approach. The first is completed through the Residency where the residents document their thoughts in regular journal entries, participation in seminar discussions and workshops, and one-on-one meetings. The second integrates reflective activities retrospectively through the reflective paper completed at the end of the residency.

A key aspect of service-learning is the mutuality of benefits derived by all program participants. In the Residency the “community” is represented by preceptor decision makers and the “academy” is represented by graduate students who are the drug policy residents, the university-based researchers who are academic advisors, and the program administrator. Table 4 illustrates how the Residency creates a balanced experience where preceptors and residents each contribute both learning and service from their particular perspectives. The Residency enables different organizations to build research capacity as they engage in projects conducted by residents. In turn the residents benefit from developing research evidence in the context of broader organizational and political change to address community needs.

There are various ways in which the Residency program fits with service-learning practices. In addition to the above key examples, the Residency is a platform which can foster long term relationships between our health services and policy communities in Nova Scotia and the academic stakeholders at Dalhousie University. Moreover, the program is learner-centered, and while it is built around a core set of skills and knowledge, changes and adjustments are made in response to the particular needs and context of program participants (eg, both residents and preceptors). Finally, the Residency provides a broad exposure to population health and social justice based on the types of projects the program participants are involved in (eg, the projects listed in Table 1 have both broad and narrow population health applicability).

### **Variation of the Residency from Service-Learning Practices**

The residents conduct in-depth research projects at the same time they learn how knowledge informs decision making to improve health outcomes in different policy environments. The focus therefore, is more concentrated on enriching participants’ policy research skills which differs from most classic service-learning programs where participants’ skills are developed in clinical or caring settings.<sup>7,16</sup> For example, many service-learning programs are predominantly attached to health and social service providers in contrast to this program which is removed from clinical practice and takes place in management or policy-making organizations despite the

Table 4. Reciprocity and Service Learning features of the Residency

	<b>Community Partners</b>	<b>Drug Policy Residents</b>
Service Provided	<ol style="list-style-type: none"> <li>1. Training of future health services researchers about knowledge preferences of decision makers.</li> <li>2. Knowledge and insight into policy-making processes.</li> <li>3. Participating as partners in the design of research projects based on information needs for policies on drug use management.</li> <li>4. A 'real life experience' that demonstrates how theory is translated into practice.</li> <li>5. One on one mentoring by preceptor/ decision maker.</li> <li>6. Exposure to decision-making environments.</li> <li>7. Assistance with communication for policy-makers (briefing notes, fact sheets with Questions and Answers, verbal briefings)</li> </ol>	<ol style="list-style-type: none"> <li>1. A research/policy synthesis project about a timely drug use/management policy issue.</li> <li>2. Ad hoc responses to drug policy issues that arise.</li> <li>3. Presentations to various stakeholders within and outside the Ministry</li> </ol>
Learning Generated	<ol style="list-style-type: none"> <li>1. Incorporating research and information into policy-making processes.</li> <li>2. Learning about research at University.</li> <li>3. Learning how to apply/determine benefits from research methodologies.</li> <li>4. Learning how to work with researchers</li> </ol>	<ol style="list-style-type: none"> <li>1. An opportunity to refine research skills.</li> <li>2. Policy options analysis and policy implementation issues.</li> <li>3. Communicating research results to a decision-maker audience.</li> <li>4. Learning about trade-offs with respect to research use in different environments and for different purposes.</li> <li>5. Learning about many factors that affect decision making (role of interest groups and stakeholders)</li> <li>6. New knowledge about drug use management and policy issues.</li> <li>7. Application of concepts/theories/ methods learned in academic courses.</li> <li>8. Workplace skills e.g. conflict resolution, teamwork</li> <li>9. Ability to learn from new perspectives i.e., other disciplines, new settings</li> </ol>

discomfort expressed in the service-learning literature about operating programs in political environments that are more controversial.<sup>26</sup>

The Drug Use Management and Policy Residency can also be distinguished from more traditional service-learning approaches because it is a “stand alone, non-disciplinary based program” that is open to any graduate student who meets the program eligibility criteria. Our residents are paid a stipend which again sets our program apart. Finally, our service-learning experience is more “time intensive” than most, since a 4-month placement

is completed during the summer semester. Although most service-learning programs do focus on processes, it is appropriate, as in our case, that graduate-level participants can be expected to produce products (which in our case are in response to the particular knowledge needs of participating preceptors and their organizations).

#### **Lessons Learned From the Formative Evaluation**

Several modifications to the Drug Use Management and Policy Residency were made between cohorts 1 (2001) and 2 (2002) based on the feedback received from

program participants. Some of the more decisive lessons learned about our program challenges are presented here and discussed in the context of various strategies that were developed from a quality improvement perspective to balance out the ongoing program challenges. Residents raised issues concerning the selection process, the learning agreement and its lack of utility, the policy/academic divide, and relationships among residents, preceptors, faculty advisors, and administrators. Preceptors were concerned with their role in influencing the project to be completed, expectations concerning preceptorship roles, long-term benefits of the residency program, and impediments to a cultural shift within government in terms of incorporating research in policy-making. Faculty advisors saw their role as that of supporters of students' access to an experience within government or other health systems organizations, but they were also concerned about project ownership and the relationship between the residents' projects and their Master's or PhD theses. The faculty advisors also acknowledged that policy-making and how to conduct policy analyses were not currently an emphasis in many graduate curricula and they felt ill-equipped to help in this area. Program administrators have found implementation to be a labor-intensive and time-consuming activity. Brokering new partnerships between and among persons from 2 diverse cultures (academic and government/political) takes a great deal of time and patience. Dissemination of residents' work also remains a concern for the administrators. The following are specific themes which guided the program modifications:

**(1) Managing the cultural divide.** Ongoing communication is central to the success of the residency program. A critical component is continual attention to relationships and ongoing building of trust through consultation and engagement. More specifically, our preceptors and their staff members are included in the skill-building seminars designed to establish and/or maintain connections. It is anticipated that these opportunities for interchange will lead to a more in-depth mutual understanding of how both partners can work within the constraints these cultural differences impose.

**(2) Actively matching the "fit" between residents and preceptors.** Time is spent upfront in matching preceptors and residents. A comprehensive selection process is utilized that includes a written application and face-to-face meetings to ultimately match residents' skills and interests with the preceptors' knowledge requirements.

**(3) Clarifying program goals and expectations.** An orientation for residents, preceptors, and faculty advisors is organized annually and the purpose is to discuss the program manual, including the program goals and con-

ducting a brief program overview of our conceptual framework. This orientation is offered at the beginning of the residency and also plays a critical role in drawing attention to program mechanism, expectations, time frames, and deliverables.

**(4) Setting boundaries for projects.** The scope of the policy projects must be carefully managed since the timeframe that residents have to complete their research is 4 months. The program administrator carefully monitors the progress and scope of the projects to ensure timely completion.

### **Applications to Other Pharmacy Experiential Learning Experiences**

Components of our residency program may be useful for other pharmacy experiential-learning experiences. PharmD programs offer a range of practice experiences.<sup>29</sup> Rotations are often 4-6 weeks in length with some having objectives related to the health system. We have had one PharmD student on rotation linked to an ongoing policy project<sup>30</sup> and a post PharmD fellow participating in the most recent cohort of drug use management and policy residents.

Hospital pharmacy residency programs are primarily designed to produce pharmacy practitioners. These residencies often have a research component, however, clinical residents often have fewer research skills than masters or doctoral degree students who have completed their coursework prior to being admitted to the Residency.<sup>31-34</sup> Nevertheless, specialty residencies may be more able to build skills related to pharmaceutical policy or health services research.<sup>35</sup>

### **SUMMARY**

A 4-month drug use management and policy residency program was developed for graduate students. Goals for students included creating policy-relevant research and knowledge synthesis and learning how research is used in decision making. One prominent issue is the cultural and value differences exhibited by universities and government and health system management organizations with respect to how each uses research evidence in decision making. These incongruities, coupled with different views about research endpoints (ie, what constitutes a credible study versus what is acceptable for decision making bounded by time constraints) are sources of ongoing tension between the academic and decision-making worlds. As has been pointed out, the program administrator spends a lot of time mediating "one on one" between making the case for methodological rigor and precision and clarifying what can be compromised



to accommodate the “immediacy of knowledge needs” as decision-making environments do not always have time to conduct a detailed study of policy options. Nevertheless, the results of this formative evaluation suggest that ongoing efforts and program modifications are necessary to increase the probability that the program’s stated goals will be fully realized. Having students participate in the “real world” policy environment will require ongoing attention to each perspective for the needs of both students and decision makers to be fulfilled.

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Appendix 1. Stakeholders' Insights

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**Stakeholders' Insights**

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**Theme 1: Using Research in Decision Making**

“There is a need to focus on the interests of policy-makers in order to have the research applied in decision-making.”

“Finding the balance between research and government world is challenging.”

“Our topics seem to be too research-oriented and not sufficiently policy-oriented.”

“The technicality of the projects did not have applicability to policy-making.”

“I strongly recommend that the Department of Health have a major role in selecting the topics for the policy projects.”

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**Theme 2: Tension Between the Academy and the Community**

“You need a solid relationship between the person with the question and individual providing the answer....academics have technical skills but decision-makers have knowledge about interests. . .”

“Policy-making is painful and confounded by differing degrees of uncertainty. . .decisions are made based on 50% of the data and not knowing the whole picture where academics require more precision. . .”

“Answering to multiple stakeholders can be confusing!”

“Preceptors want residents to do things that are policy oriented, not to do a research study.”

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**Theme 3: How Government Works**

The glimpse into government was valuable. . .if sometimes uncomfortable. . .”

“I didn't get a handle on how to communicate information to decision-makers. I was surprised by the clinical focus of the Department.”

“The best parts of the residency were getting a better appreciation of the government policy process, learning new skills, and making contacts.”

“I had no policy skills going in but I did going out....”

“My preceptor seemed to know what I needed to know and could help me target my learning.”

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**Theme 4: Program Logistics**

“I spent a lot of time at Dalhousie University; this didn't convey the message that I'm 'with them' instead of just visiting”

“Access to my preceptor was limited”

“The logistics of establishing a presence [at the Department of Health] may not affect the outcome but, it would increase the profile of the residency.”

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