# Enablers, Tips & Strategies for Successful Pharmacy Residency Research Projects: "A Tale of Two Cities"

CPRB National Webinar, March 9, 2018

Sean Gorman, RPh, BScPhm, ACPR, PharmD
Coordinator, Clinical Quality & Research, Interior Health Pharmacy Services
Clinical Associate Professor, UBC Faculty of Pharmaceutical Sciences
sean.gorman@interiorhealth.ca

Olavo Fernandes RPh, BScPhm, ACPR, PharmD, FCSHP
Director of Pharmacy-Clinical and Operations, University Health Network
Assistant Professor (Status), Leslie Dan Faculty of Pharmacy, University of Toronto
olavo.fernandes@uhn.ca
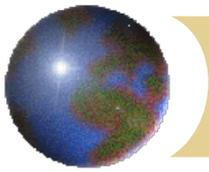
Webinar Objectives

1. To describe the CPRB accreditation standard addressing residency research projects (ACPR)

2. To outline a systematic 15 step approach for the residency project process from idea to publication

3. To list 5 common challenges/barriers that residents and research project preceptors may experience with the residency project process

4. To highlight the top enablers and creative innovations for residency project challenges (for residents, coordinators, preceptors and programs)

5. To share collaborative ideas and solutions from two different health regions in Canada
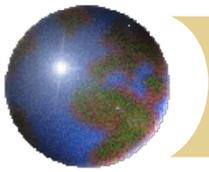
Webinar Outline

1. CPRB accreditation standard - residency research projects

2. 15 step approach for the residency project process

3. 5 common challenges/barriers to residency research success

4. Tips on how to prevent or overcome challenges
    *   Organizational/coordinator context
    *   Preceptor context
    *   Resident context

5. University Health Network & Interior Health processes
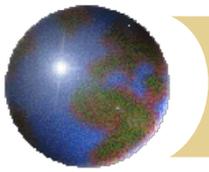
Polling Slide 1

Audience Profile- Who is on the webinar call today?
Please select your most appropriate category:

A. **Pharmacy resident**

B. **Residency coordinator**

C. **Residency Director**

D. **Residency Preceptor**

E. **Other**

Accreditation Standards

January 2010

3.6 Demonstrate Project Management Skills

Standard

The resident shall use effective project management skills to undertake, conduct and successfully complete a project related to pharmacy practice.
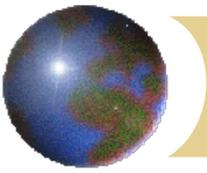
Requirement(s)

1. The resident shall be involved in project development, data collection, analysis and interpretation.
2. The resident shall prepare a written report of the project in a format suitable for publication in a peer-reviewed journal.
3. The resident shall present and defend the outcomes of the project.
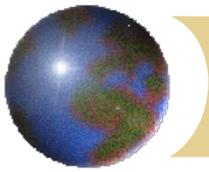
A simplified 15 Step Approach to Research

1. Articulate idea/concept: formulate question
2. Develop prospectus
3. Conduct literature search (study maps)
4. Form research team
5. **Develop research protocol / REB approval*****
6. Collect data
7. Analyze results
8. Discuss results & formulate conclusions

9. Develop abstract
10. **Develop and present poster*****
11. Draft journal/ residency manuscript for target journal

    POST Residency
12. Seek co-author feedback/ final authorship order
13. Submit manuscript
14. Address peer reviewer feedback
15. **Published manuscript*****

O. Fernandes , UHN - Stepwise Approach to Research From Idea to Manuscript in 15 steps

*** MILESTONE STEP*

**SUCCESS = ALL 15 STEPS COMPLETED ON TIME**

Your organization's research project journeys……?

OR
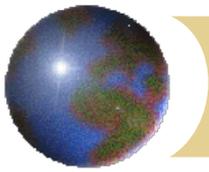
# CPRB site survey experience with residency research programs

⊕ **CPRB: survey visits highlighted that building a strong and sustainable research process can be a challenge for many programs.**

⊕ **Programs may have challenges in various areas such as:**

1. **Initiation of the research projects**
2. **Preparing residents and preceptors to start early and stay on target**
3. **Challenges with selecting appropriate research questions and methodology for the scope of residency year**
4. **Limited research support for residents**
5. **Ensuring project is completed in a timely fashion**
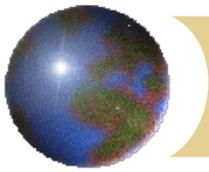
Polling Slide 2

Rank the most challenging barrier that residents/ residency project preceptors experience with the residency project process in your program   (select one):

A. Preparing residents and preceptors to **start early and stay on target**

B. **Initiation** of the research projects

C. Challenges **selecting appropriate research questions and methodology** for the scope of residency year

D. Limited **research support** for residents

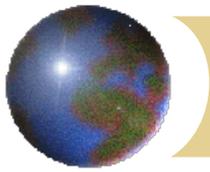E. Ensuring **project completed** in a timely fashion
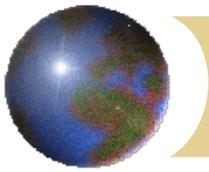
Polling Slide 3

Rank the <u>most challenging step </u> for the residency project process at your local program? (select one):

A. **Articulate idea/concept: formulate question**

B. **Form research team**

C. **Develop research protocol / REB approval**

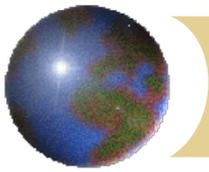D. **Develop the residency manuscript**

E. **Final published manuscript**
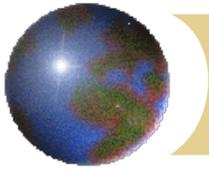
5 Common Challenges

5 Common Challenges Associated with Residency Research Projects

| Challenge	Step in Research Process
1. No/few/late research question(s)	**Steps 1-3** Articulate the research question Create Prospectus Conduct Literature Search
2. Unsuitable research question(s)	**Steps 1-3** Articulate the research question Create Prospectus Conduct Literature Search
3. Inexperienced and/or few preceptor(s)	**Step 4** Form the research team
4. Unsuitable research design & methods	**Step 5** Develop research protocol
5. Incomplete Knowledge Translation	**Steps 9-15** Abstract, poster, manuscript

Polling Slide 4

Rank the <u>most challenging category for your residency research program</u>? (select one):

A. No/few/late research question(s)

B. Unsuitable research question(s)

C. Inexperienced and/or few preceptor(s)

D. Unsuitable research design & methods

E. Incomplete Knowledge Translation
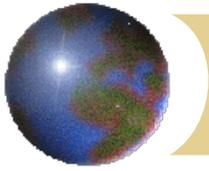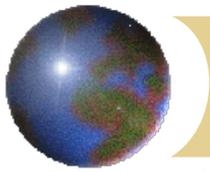
Tips for Overcoming Challenges
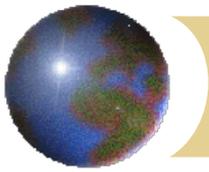
Tips for Overcoming Common Challenges

⊕ **Challenge 1: No/few/late research questions**

Organizational Enablers

- Formally engage research preceptors regularly
- Set expectations for preceptors regularly (ie. yearly performance goals)
- Enable interprofessional networking for preceptors
- Enable formal mentorship system for new preceptors
- Implement a Research Framework that outlines research priorities
- Socialize the Research Framework regularly
- Facilitate mid-year research concept incubator meetings
- Communicate schedule/deadline for research questions
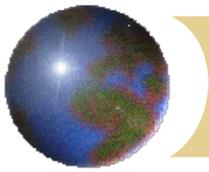- Implement deadlines consistently (before Resident start date)

Tips for Overcoming Common Challenges

Challenge 1: No/few/late research questions

Preceptor Enablers

- Research question formation is an active process (keep a running list)
- Find research questions by:
    - Reflecting on personal experiences
    - Exploring patterns of practice supported by limited/no evidence
    - Reviewing policies and procedures supported by limited/no evidence
    - Exploring programs supported by limited/no evidence
    - Actively participating in case studies in practice
    - Looking for paradoxical incidents in practice
    - Partnering with existing quality improvement programs
    - Use creative thinking strategies for new insights into old problems
    - Networking with others within and outside of pharmacy
    - Networking with others within and outside of practice
    - Explore Scientific literature – especially clinical practice guidelines
    - Keep updated on Choosing Wisely Canada; James Lind Alliance

Tips for Overcoming Common Challenges

Challenge 1: No/few/late research questions

Preceptor Enablers (cont'd)

- Quiet times
- Internet surfing
- Nurture new insights by having wide variety of interests
- Introspection to recognize and overcome personal mental barriers
- Keep an open mind and be prepared for the unexpected
- DO NOT
  - Over-prepare (analysis paralysis)
  - Think your question is not innovative
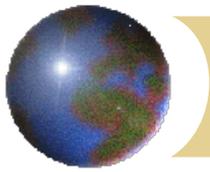 - Lack curiosity
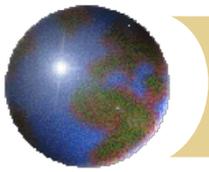
Tips for Overcoming Common Challenges

Challenge 1: No/few/late research questions

Resident Enablers

- Ask to review research proposals before starting Program if possible
- Expect that research proposals are created before starting residency
- Keep an open mind
- Be curious
- Remain optimistic!

Tips for Overcoming Common Challenges

Challenge 2: Unsuitable Research Questions

Organizational Enablers

- Research question must be:
  - Structured
  - High likelihood that question will lead to successful research project
- Formally engage preceptors regularly; crowdsource using colleagues
- Enable formal mentorship relationships for new preceptors
- Create Research Framework outlining research priorities
- Enable development of structured research questions using template
  - **P**opulation – what specific population are you interested in?
  - **I**ntervention – What is your investigational intervention?
  - **C**omparison – What is main alternative to compare with the intervention?
  - **O**utcome(s) – What do you intend to accomplish, measure, improve?
  - **T**ime – What is the appropriate follow-up time to assess outcome(s)?
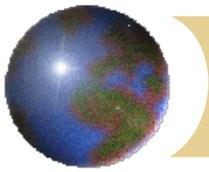
Structured Research Question Example

One year ago, your hospital P&T made a decision to streamline all LMWHs intended for prevention of VTE events. All patients who were to receive a LMWH for VTE prophylaxis received dalteparin, rather than enoxaparin. You and your colleagues have "noticed" many VTE events in high risk orthopedic trauma patients over the past year.   Your <u>structured research question </u>is as follows:

<u>P</u>: adult patients with fractured femur, tib/fib, pelvis, spine

<u>I/E</u>: Dalteparin 5000 units sc daily

<u>C</u>: Enoxaparin 30 mg sc BID

<u>O</u>: Radiologically confirmed proximal DVT or PE
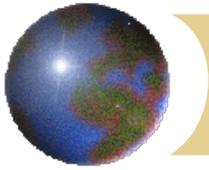
Tips for Overcoming Common Challenges

⊕ **Challenge 2: Unsuitable Research Questions**

Preceptor Enablers

- Interesting questions **are not always suitable** research questions
- Create a program of research that includes several research questions
- Network within and outside of pharmacy
- Network within and outside of your practice area
- Present your question to colleagues
- Ask yourself if answering your question is 'FINER' (will discuss later)
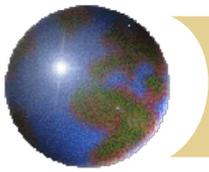
Tips for Overcoming Common Challenges

◈ **Challenge 3: Inexperienced/Few Preceptors**

Organizational Enablers

- Formally engage your organization's qualified preceptors
  - Clinical Pharmacy Specialists
  - Pharmacists with formal research training (MSc, PhD)
  - Residency trained pharmacists
- Set expectations for qualified preceptors
- Team inexperienced preceptors with seasoned preceptors
- Facilitate mentorship relationships for inexperienced preceptors
- Facilitate access for preceptors to specific research expertise
- Enable development of appropriate skills and confidence through training and application
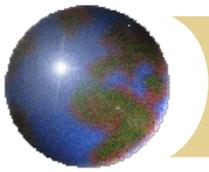
Tips for Overcoming Common Challenges

Challenge 3: Inexperienced/Few Preceptors

<u>Preceptor Enablers</u>

- Perform research 'close to practice'
- Partner and collaborate
- Engage with other research teams and collaborate by doing
- Find several mentors and 'manage up'
- Network with other project preceptors
- Be courageous, but not overly ambitious
- Manage your workload
- Journal & reflect on your residency research experience
- Yearly goal-setting should include a research-related skill
- Enable your resident to perform
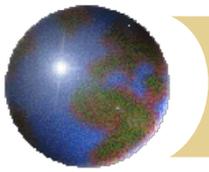
Tips for Overcoming Common Challenges

Challenge 3: Inexperienced/Few Preceptors

Resident Enablers

- Be patient, but be proactive
- 'Manage up' with your preceptor
- Be accountable for managing study timeline/workplan
- Manage your expectations
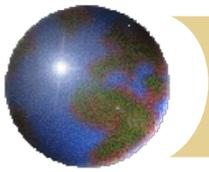
Tips for Overcoming Common Challenges

Challenge 4: Unsuitable Design/Methods

Organizational Enablers

- Formally engage/(re)-orientate preceptors regularly
- Establish suitability criteria for residency research projects
  - **F**easible
  - **I**nteresting
  - **N**ovel
  - **E**thical
  - **R**elevant
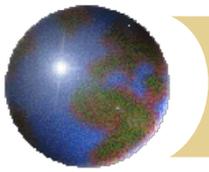
Is the Residency Project 'FINER'?

Feasible
- Adequate number of subjects
- Adequate technical expertise
- Affordable in time and money
- Manageable in scope

Interesting
- To the investigator or others

Novel
- Confirms or refutes previous findings
- Extends previous findings
- Provides new findings

Ethical

Relevant *CSHP 2006*
- To scientific knowledge
- To clinical and health policy
- To future research directions
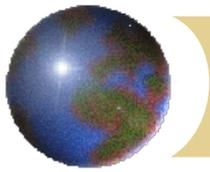
Tips for Overcoming Common Challenges

- ## Challenge 4: Unsuitable Design/Methods
  ### <u>Organizational Enablers</u>

Likely Suitable Design	Likely Unsuitable Design
Meta-Analysis Quasi-Experimental Surveys Health Records Review Medication Utilization Review Qualitative Descriptive	RCT** Multi-year study of any design Large Population Cohort**

Note: **not ideal but can be completed as successful residency projects
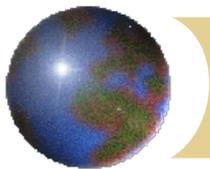
Table 4. Characteristics of Studies Undertaken by Hospital Pharmacy Practice Residents, 1999/2000 to 2008/2009

Characteristic	No. (%) of Projects (n = 202)*	
Study design		
Non-controlled interventional study	10	(5.0)
Randomized controlled trial	19	(9.4)
Non-randomized trial	23	(11.4)
Cohort study	83	(41.0)
Case–control study	4	(2.0)
Time series or before-and-after study	11	(5.4)
Bench study	0	(0.0)
Economic or drug-use evaluation	17	(8.4)
Survey	10	(5.0)
Systematic review	2	(1.0)
Mixed	23	(11.4)
Study type		
Interventional	55	(27.2)
Observational	134	(66.3)
Mixed	13	(6.4)

Table 1.

Project Design Classifications of Pharmacy Resident Projects Presented at the Southern Residency Conferences in 1981, 1991, and 2001

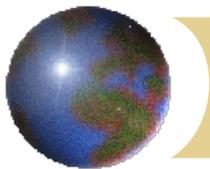| Project Design	No. (%) Projects Presented at Conferences					
	1981 ($n = 90$)	1991 ($n = 70$)	2001 ($n = 112$)	Total ($n = 272$)	Published ($n = 43$)	Unpublished ($n = 229$)
Topic review	7 (7.8)	0	2 (1.8)	9 (3.3)	1 (2.3)	8 (3.5)
Policy or service development	7 (7.8)	12 (17.1)	17 (15.2)	36 (13.2)	0	36 (15.7)
Observational study	30 (33.3)	23 (32.9)	42 (37.5)	95 (34.9)	18 (41.9)	77 (33.6)
Case report	6 (6.7)	1 (1.4)	0	7 (2.6)	2 (4.7)	5 (2.2)
Case series	8 (8.9)	4 (5.7)	11 (9.8)	23 (8.5)	4 (9.3)	19 (8.3)
Cross-sectional study	8 (8.9)	5 (7.1)	6 (5.4)	19 (7.0)	8 (18.6)	11 (4.8)
Case–control study	0	1 (1.4)	1 (0.9)	2 (0.7)	1 (2.3)	1 (0.4)
Cohort study	5 (5.5)	5 (7.1)	14 (12.5)	24 (8.8)	2 (4.7)	22 (9.6)
Medication-use evaluation	3 (3.3)	7 (10.0)	10 (8.9)	20 (7.4)	1 (2.3)	19 (8.3)
Descriptive interventional study	5 (5.5)	6 (8.6)	2 (1.8)	13 (4.8)	3 (7.0)	10 (4.4)
Quasi-experimental study	21 (23.3)	13 (18.6)	37 (33.0)	71 (26.1)	9 (20.9)	62 (27.1)
Pretest–posttest or interrupted time series	18 (20.0)	10 (14.3)	33 (29.5)	61 (22.4)	5 (11.6)	56 (25.8)
Nonrandomized control or nonequivalent comparator	3 (3.3)	3 (4.3)	4 (3.6)	10 (3.6)	4 (9.3)	6 (2.6)
Experimental study	20 (22.2)	16 (22.8)	12 (10.7)	48 (17.6)	12 (27.9)	36 (15.7)
Parallel design	11 (12.2)	7 (10.0)	7 (6.3)	25 (9.2)	4 (9.3)	21 (9.2)
Crossover design	9 (10.0)	9 (12.9)	5 (4.5)	23 (8.5)	8 (18.6)	15 (6.6)
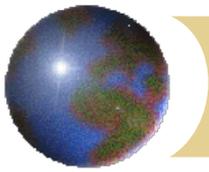
Tips for Overcoming Common Challenges

⊕ **Challenge 4: Unsuitable Design/Methods**

Preceptor Enablers

⊞ Understand residency project aims in context of residency training

⊞ Understand key milestone dates - are design/methods feasible?

⊞ Determine costs – do you have funding secured for your budget?

⊞ Engage with mentors – ask everyone if your proposal if 'FINER'?

⊞ Don't underestimate workload – have you managed your schedule?
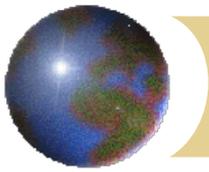
Tips for Overcoming Common Challenges

Challenge 4: Unsuitable Design/Methods

Resident Enablers

- Be authentic with preceptor related to timeline/work plan before start
- Provide ongoing feedback to preceptor related to workload
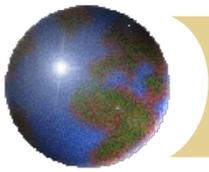
Knowledge to Action Gap

- ~ 17 years to turn 14% of research to benefit patient care
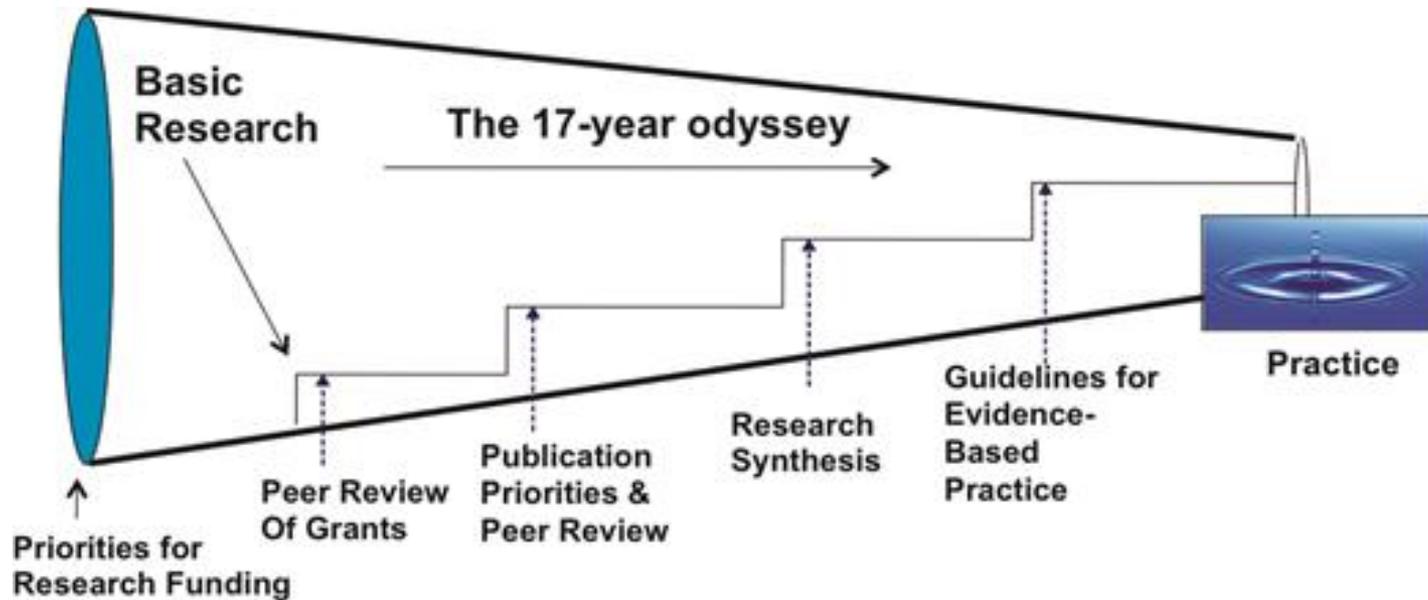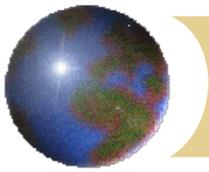
Knowledge Translation Defined

"a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system"
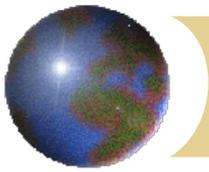
Knowledge Translation Elements

- Synthesis – contextualizing & integrating research within larger body of knowledge on topic

- Dissemination – sharing results by identifying audience and tailoring message

- Exchange – interactions between users and researchers resulting in mutual learning

- Ethically-sound application of knowledge
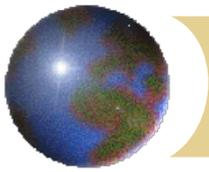
Knowledge Translation Categories

- Integrated KT
  - ➢ Potential knowledge users are engaged throughout research process
  - ➢ Should produce research findings more likely to be used
  - ➢ Should incorporate dissemination plan to share results with other interested knowledge users
  - ➢ These projects also require end-of-grant KT strategy

- End-of-Grant KT
  - ➢ Researcher develops & implements plan for making potential knowledge-user audiences aware of the knowledge gained
  - ➢ Can involve more intensive dissemination activities that tailor message and medium to specific audience
  - ➢ Can involve moving research into practice in cases where evidence strength is sufficient

http://www.cihr-irsc.gc.ca/e/29418.html#4
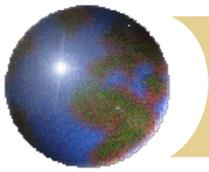
End-of-Grant KT – 5 Key Attributes

1. Goals
   - Raising awareness
   - Promoting action
2. Knowledge-User Audience
3. KT Strategies
   - Diffusion
   - Dissemination
   - Application (implementation)
4. Expertise
5. Resources
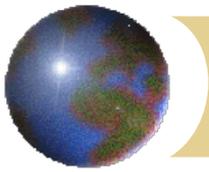
Tips for Overcoming Common Challenges

⊕ Challenge 5: Incomplete Knowledge Translation

Organizational Enablers

- Implement hard deadlines for manuscript completion
- Support preceptors & residents to incorporate KT plan into protocol
- Support preceptors with writing workshops and/or peer writing groups
- Support creation of research posters (even if not required)
- Establish culture of research dissemination & implementation by creating opportunities for dissemination locally and beyond
- Make available templates for posters & presentations
- Celebrate diffusion, dissemination & implementation!
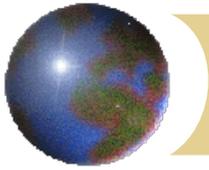
Tips for Overcoming Common Challenges

◈ **Challenge 5: Incomplete Knowledge Translation**

Preceptor Enablers

- Make KT an expectation of yourself and resident
- Incorporate KT plan into protocol with milestone dates related to KT
- Establish authorship criteria and order of authorship early
- Aim to submit for peer review within 4 months of resident completion
- Participate in writing groups
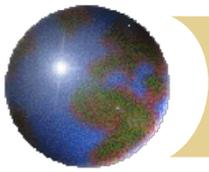
Tips for Overcoming Common Challenges

Challenge 5: Incomplete Knowledge Translation

Resident Enablers

- Develop mastery of the content being researched (ie. read/understand)
- Implement a realistic research timeline and workplan
- Seek assistance early and often from preceptor
- 'Manage up'
- Expect to publish manuscript in peer review journal
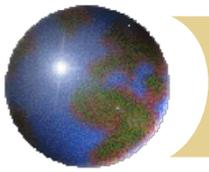
Pharmacy Resident Publication Rates

- **US Data – 7.3% - 16%**
- **Canadian Data – 24% - 38%**

Curr Phar Teach & Learn 2015;7:787-93., Can J Hosp Phar 2013;66:86-95.
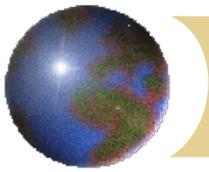
Tips for Overcoming Common Challenges

Top 10 Reasons for Manuscript Rejection

1. Content of paper not suitable
2. Design of study not appropriate for question asked
3. Lack of **novelty** or timeliness
4. Lack of **REB** approval/informed consent
5. Lack of appropriate search strategy
6. Conclusions not justified by results
7. Lack of feedback step in descriptions of audit
8. **Insufficient sample size**
9. **Lack of a clear message**
10. Secondary analyses that are difficult to generalize
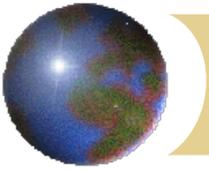
The UHN Experience
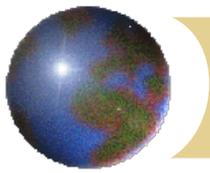
Framework _ 5 Common Challenges Associated with Residency Research Projects

Challenge	Step in Research Process
1. No/few/late research question(s)	**Steps 1-3** Articulate the research question Create Prospectus Conduct Literature Search
2. Unsuitable research question(s)	**Steps 1-3** Articulate the research question Create Prospectus Conduct Literature Search
3. Inexperienced and/or few preceptor(s)	**Step 4** Form the research team
4. Unsuitable research design & methods	**Step 5** Develop research protocol
5. Incomplete Knowledge Translation	**Steps 9-15** Abstract, poster, manuscript

UHN Experience- Top 10 Enablers, Tips & Strategies for Successful Pharmacy Residency Research Projects

Challenges: No/ Few/ Research Questions and Unsuitable Research Questions

1. **Formal call** for ideas with a deadline, **prospectus template** and provide successful sample prospectus examples

2. Residency coordinators **screen/ filter** submitted prospectus against criteria

   - identify successful final list of successful topics/ provide specific feedback to unsuccessful candidates so they can improve for next round

Challenges: Inexperienced or Few Preceptors

3. **Research immersion program** (motivated staff pharmacist immersed into core project leadership team)

4. **15 step approach-** used to guide both resident and preceptor/ navigate tight residency timelines

Challenges: Unsuitable research design and methods

5. Ensure preceptor/ residency surrounded by an engaged/ **talented interprofessional RAC** team including clinical leadership to provide meaningful feedback

6. Consider **scoping manageable phases** of a larger project for residency deliverables

• Ensure **experienced research** member in project team for new primary preceptors

Challenges: Incomplete Knowledge Translation/ Mobilization

7. Quarterly **research forums/ research dashboards** (traffic signal status) incentive, obstacle support, problem solving, encourages progress

OTHER considerations, tips, enablers & strategies

8. Staying on Schedule and On Time for Milestones

- **Official timeline schedules/ calendars** (annual & project time)
- **Preschedule: weekly or biweekly primary preceptor- resident 10-15 min huddles**
- **Can APPE students on project rotations provided targeted support?**

9. "It's not only about the research, its about the process"

- **Other important skills-** running effective meetings, managing conflict change management, building consensus, decision making, problem solving, crisis management
- **Prioritize** non-research process **debriefs**
- **Managing Uncertainty! –** it's normal for all projects/ address the human side to this -anticipate the stress / anxiety it may cause for preceptors and resident
- **Process: ASHP Research Toolkit/ CSHP tools**
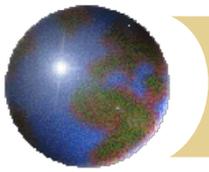
OTHER considerations, tips, enablers & strategies

10. Samples! Samples! Samples!

- Provide **tailored/ ideal samples/ templates** to guide residents and preceptors: prospectus, protocol, manuscript, abstract, poster, manuscript, trial maps

- **Study/ Trial Map Approach** to organize and guide literature search/ critical appraisal/ integration into protocol development (see samples)
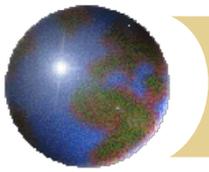
MAPPING OUT A TRIAL/ STUDY

- Easily **isolate and extract** important practical points
- **Active** vs. Passive Reading

☑ allows you to **digest** information

☑ allows you to **"*understand*"** trial rather than just reviewing a trial

☑ **structured**, systematic approach

☑ actually **"saves"** time

☑ easily allows you to **compare** similar trials
  chart like comparison

☑ **visualize** entire trial on one page

☑ **trigger** to critical appraisal questions
  brainstorm question/ comments

A. Study	C. Study objective	E. Intervention	G. Main results
Gillespie U, Alassaad A, Henrohn D, Garmo H, Hammarlund-Udenaes M, Toss H et al. A comprehensive pharmacist intervention to reduce morbidity in patients 80 years or older. Arch Intern Med. 2009; 169(9):894-990.	**Extrapolated practice question:** • Does pharmacist-led comprehensive pharmaceutical care reduce morbidity (and other meaningful patient outcomes) for elderly hospitalized patients? **Study objective:** • "To investigate the effectiveness of interventions performed by ward-based pharmacists in reducing morbidity and use of hospital care among older patients"	**Intervention:** • Pharmacists were decentralized and part of ward-based health care team • 3 pharmacists received a 10-week training course on pharmaceutical care, and provided pharmaceutical care and enhanced services: • Compiling a comprehensive list of current medications on admission • Performing drug review, and giving advice to the patient's physician on drug selection, dosages, and monitoring needs • Educating and monitoring patients throughout the admissions process • Providing discharge counselling to patients • Conducting a follow-up phone call to patients at 2 months post-discharge **Control:** • Standard of care provided, without pharmacist involvement in health care team at ward level	• 482 patients eligible, 400 consented to participate • 17 patients from intervention group and 15 from control group dropped out or died during index admission • Intervention n = 182 patients, control n = 186 patients • 16% ↓ in post-discharge hospital visits in intervention group vs. control (intervention = 266 visits, control = 316 visits, quotient = 1.88 vs. 2.24, CI = 0.72-0.99) • 47% ↓ in ED visits in intervention group vs. control (intervention = 49 visits, control = 93 visits, quotient = 0.35 vs. 0.66, CI = 0.37-0.75) • 80% ↓ in drug-related readmission in intervention group vs. control (intervention = 9 visits, control = 45 visits, quotient = 0.06 vs. 0.32, CI = 0.10-0.41) • No significant difference in readmissions between groups • No significant difference in the number of patients readmitted to hospital • No significant difference in the number of patients who died • NNT = 12 index visits must have intervention applied in order to prevent 1 post-discharge hospital visit **Secondary:** • Total cost per patient in intervention group was $US 230 lower than in the control group (after inclusion of intervention costs)
B. Design	**D. Patient population**	**F. Targeted outcomes and endpoints**	**H. Authors' conclusions**
• Prospective • RCT • Evaluators blinded during data analysis, but not patients, or clinicians • Single centre • N = 368 patients • Location: 1 hospital, Sweden • Duration: Oct 2005 – June 2006 • Follow-up: 12 months	**Inclusion:** • Patients 80 years or older from 2 acute internal medicine wards at University Hospital of Uppsala in Sweden **Exclusion:** • Patients who had previously been admitted to the study wards during the study period or had scheduled admissions **Baseline characteristics:** • Table 1 includes all important criteria • Control and intervention groups are similar, with 2 exceptions: intervention group had higher mean number of medications (8.7 vs. 7.3), and a more patients had a history of cerebral vascular lesions (20.9% vs. 10.2%)	**Primary outcome:** • The frequency of hospital visits (includes both emergency department and readmissions [total and drug-related]) during the 12-month follow-up period. **Secondary exploratory outcome:** • The cost of hospital care **Statistical analysis:** • Used per-protocol-analysis – patients who dropped out or died after randomization were excluded from analysis • Did not perform intention-to-treat or sensitivity analysis to see if the type of analysis made a difference	• "If implemented on a population basis, the addition of pharmacists to health care teams would lead to major reductions in morbidity (hospitalizations) and health care costs"

1

Study	Strengths	APPLICATION/SYNTHESIS: How does this study inform the cpKPI selection process (methods, cpKPI selection criteria, and candidate cpKPI)?
Gillespie U, Alassaad A, Henrohn D, Garmo H, Hammarlund-Udenaes M, Toss H et al. A comprehensive pharmacist intervention to reduce morbidity in patients 80 years or older. Arch Intern Med. 2009; 169(9):894-990.	• RCT linked to meaningful AHRQ level 1 patient outcome – primary outcome was hospital visits • Large number of patients (n = 368) • Unit of randomization was patient, and not ward or team • Long follow-up of 12 months • Intervention was comprehensive • Pharmacists received standardized training on pharmaceutical care from Minnesota • Intervention was described in enough detail to replicate, and time commitment was logged • Intervention was practical and authentic to the services pharmacists desire to provide	• One of only a few true RCTs looking at impact of true pharmaceutical care on hospitalized inpatients • Intervention was a bundle of critical elements, and represented comprehensive pharmacists services provided to patients from admission to discharge • Highlights the impact of pharmacists as part of the health care team, and their influence on patient outcomes • Within a health care team, potential cpKPIs have different gradients of how pharmacist-centric they are, and to what extent a pharmacist can impact that metric • Pharmacist-led pharmaceutical care may reduce post-discharge hospital visits even 12 months after discharge, but we must be cautious of the true influence of the intervention on outcomes over such a long period of time • Patients received the critical elements as a bundle, which included pharmaceutical care and services such as medication reconciliation, drug review to identify and resolve DTPs, patient education and monitoring, discharge counselling, and a 2-month post-discharge follow-up phone call to patient • The independent critical elements used in this study may serve as surrogate markers for reduced hospital visits (ie. patient discharge counselling) • We must be cautious about extrapolating the results of this study to other age groups <80 years old • This study showed that inpatient pharmaceutical care resulted in overall cost-savings to health care system, however only a limited, crude pharmacoeconomic analysis was performed, so we must interpret these results with caution
	Limitations	**What are the patterns (similarities and differences) compared to other key papers?**

	• Generalizability
	  o Patients 80 years and older only
	  o Not multi-centre, study done in 1 hospital
	  o Swedish health care system
	• Risk of contamination of control
	  o Randomized by patients, not team or ward
	  o Physicians may have learned intervention over time, and provided it to controls
	• Not powered to detect a difference in readmissions alone
	• Performed per-protocol analysis, but did not perform intention-to-treat as a sensitivity analysis, to see if type of analysis affected the results
	• Bundled intervention
	  o Difficult to discern independent effect of each critical element within the bundle
		• 1 of 2 RCTs (the other is Makowsky) out of the 6 key papers
		Makowsky
		• Makowsky trial used a similar intervention – BPMH, medication reconciliation at admission and discharge, patient care round participation, resolving DTPs, and discharge counselling
		  o Also found a decrease 3-month readmissions
		  o Appears to support the impact of these pharmacist services in Canadian setting
		  o Unlike Makowsky, Gillespie included a follow-up phone call – may have prolonged effect of intervention (no significant difference in 6-month readmissions in Makowsky trial)
		• Both studies followed the pharmaceutical care process, however Gillespie sent pharmacists to Minnesota for standardized pharmaceutical care training, which increased the likelihood of a consistent approach
		Kaboli
		• Intervention incorporated the Kaboli 5 – BPMH, drug review, patient care round participation, discharge counselling, and follow up
		  o Kaboli systematic review suggested improved patient outcomes with these pharmacist services
		  o Appears to support the impact of the Kaboli 5 findings on patient outcomes
		Bond
		• 2 of the 7 clinical pharmacy services identified by Bond were incorporated into the Gillespie intervention (admission drug histories and medical rounds participation)
		• Emphasized patient-centred pharmaceutical care, while there was no mention of this approach in the Bond paper
		Chisholm-Burns
		• Chisholm-Burns systematic review and meta-analyses considered all levels of outcomes, while Gillespie only looked at AHRQ level 1 outcomes (hospital visits)

Overview **Residency Project**
SAMPLE timeline considerations

Aug-Sep

- **investigate potential topics**
- **choose a project from topics and outlines**
- **Draft prospectus**
- **background info**
- **planning and brainstorming**
- **meet with stakeholders**
- **draft of proposal**
- **proposal review**

Oct-Dec

- **submit for approvals: RAC, REB, MAC, P+T**
- **test data collection tools**

Dec- Mar

- **start data collection**

Mar- June

- **data collection, data analysis, final write up, poster presentation, RAC submission**

Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun

Above timeline:

- solidify project design
- develop study protocol

- estimate sample size (N)
- create data collection sheets

- prepare focus group for medical staff

- devise proposed management protocol

- project write-up

Below timeline:

- submit proposal
  ~ RAC
  ~ Ethics
  ~ Critical Care Quality Committee

- begin preimplementation data collection

- design data base

- present proposed protocol at focus group

- planning for implementation and post-implementation data collection

----- Planning -------------------- Phase I - Preimplementation ----------- Phase II ------ Phase III & IV ----▶

Phase II: Development of Management Protocol

Phase III & IV: Implementation and Post-Implementation Evaluation
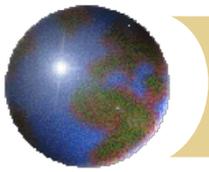
Other Useful Tips for Residents....

1. Look at appropriate **examples** along the way (prospectus, protocol, posters, final write-ups)
2. **Be organized** (filing paper and messages)
3. **Seek advice** of experts (statistics)
4. **Notebook** to jot down ideas and compile in one central place
5. **Keep focused**, be realistic, keep perspective with rotations
6. **Debrief and reflect** with your preceptors regularly
7. **Communicate** concerns / uncertainty transparently with your preceptors…
8. Learning to **"manage uncertainty"** effectively
9. Expect the unexpected…..
10. Buy-In vs. **Ownership**
11. Address **Privacy and Confidentiality –** appropriate storage of research and patient-related information

Remember the big picture: Research can be an exciting, rewarding fun journey….
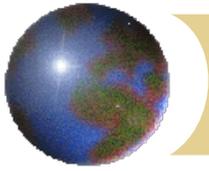
The IH Experience
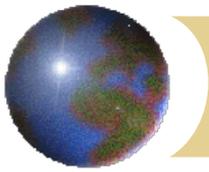
IH Residency Project Selection Process

⊕ **Challenges 1, 2 &4 : Research questions/Designs**

1. Residency project proposals posted before first day of the Program.

2. Proposals reviewed by residents during Program Orientation Rotation.

3. Residents meet with potential project preceptors to learn more.

4. At the end of Orientation, residents submit to the Program Coordinator a ranked in-order of preference list of all project proposals.

5. Program Coordinator matches residents to projects as per the criteria below with input from Pharmacy Research Coordinator.

6. After receiving notification of match, it is expected that residents and preceptors will immediately begin work on their projects. (51 weeks left)

7. The following criteria is used when matching the residents and projects: (a) the project preferences of the residents, (b) project distribution amongst preceptors.
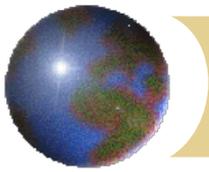
IH Process to Overcome Common Challenges

⊕ **Challenges 1, 2 &4 : Research questions/Designs**

- Formally engage research preceptors regularly
- Expectations set for preceptors (i.e.. yearly performance goals)
- Implemented Research Framework that outlines research priorities
- Facilitate **mid-year** research concept incubator meetings
- Disseminate standard proposal template that all preceptors must use
- Facilitate **yearly** research proposal meeting (Usually April/May before June Resident intake) & crowdsource peer feedback
- Implement deadline consistently (earlier than Resident start date)
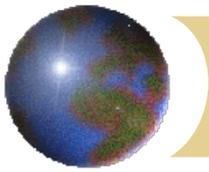
IH Process to Overcome Common Challenges

⊕ **Challenges 1, 2 &4 : Research questions/Designs**

IH Pharmacy Research Planning Meeting

Sean Gorman, PharmD
Pharmacy Coordinator, Clinical Quality & Research
December 11, 2015

Meeting Objectives

- To update IH pharmacy research priority areas (themes) for the next 3 years
- To update the IH Pharmacy Services Research Framework

Pre-Readings

- IH Pharmacy Services Research Framework
- IH Pharmacy Resident Research Projects 2011-15
- 2015/16 Provincial Priority Areas
- BC Clinical Care Management Areas
- CSHP Vision 2018

Meeting Outline

- Presentation – Research at IH Pharmacy Services
- Roundtable – identify 2-3 topic areas from your context
- Consensus building - Research priorities for 2016-2018
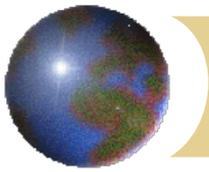
IH Process to Overcome Common Challenges

Challenges 1, 2 &4 : Research questions/Designs

January 8, 2016;

Pharmacy Services Research Framework

PART 2: RESEARCH THEMES*

A. Innovation in pharmaceutical care delivery across IH

B. Prioritizing clinical pharmacy services to optimize value across IH

C. Supporting clinical pharmacists' professional practice across IH

D. Creating, sustaining, and increasing quantity/quality of pharmacy experiential rotations and other teaching across IH

E. Determining/promoting/optimizing evidence-based best practices in pharmacotherapy across IH

F. Interprofessional research related to medication management and pharmacotherapy (**new 2016**)

G. Patient and family-centred research related to medication management and pharmacotherapy (**new 2016**)

*These themes are **not intended to restrict** research on other topic areas

Interior Health Pharmacy Services Research Framework
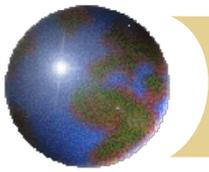
IH Process to Overcome Common Challenges

⊕ **Challenges 1, 2 &4 : Research questions/Designs**

Subject: Mid-Year Research Concept Meeting

Hi everyone,

Just a reminder that we'll be having our mid-year Residency Research Project **Concept** Discussion meeting this Friday afternoon. The objectives are to:

1. Enable each of us to generate/refine 1 research question that you are seriously considering moving forward to a Residency Project Proposal for the 2018/19 residents.
2. Enable each of us to briefly present your research question (PICOs or modified PICOs) to our colleagues and provide some context for why you are thinking about this particular research question.
3. Enable each of us to ask our colleagues 3-5 questions that you have about your research question that may help guide refinement of the question and inform development of your future proposal. The intention of preparing some specific questions to ask colleagues is to understand how best to insure the project will be feasible, interesting, novel, ethical, and relevant.

Format will be as follows:

1. You will have 5 minutes to pitch your concept, ideally in PICO format. You can provide some background supporting the concept and provide some preliminary rationale.
2. Prepare 3-5 questions to ask the group for guidance on moving forward (or on factors that will guide your decision whether to move forward) with the concept into full proposal in a couple of months.

If you can't attend, feel free to email me your concept and provide me with a brief background/rationale and your questions you want to ask the group.

Looking forward to it!

Cheers,
Sean

Sean Gorman, BScPharm, ACPR, PharmD
Coordinator, Clinical Quality & Research - Pharmacy Services
Interior Health
3rd Floor, 505 Doyle Avenue, Kelowna, BC V1Y 0C5
Mobile: 250.808-0973 • Office: 250-469-7070 ext: 12252 • Fax: 250-980-5060
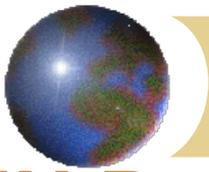
Challenges 1, 2 &4 : Research questions/Designs

Interior Health

Pharmacy Residency Research Project Proposal

WORKING TITLE OF THE PROJECT

PRINCIPLE INVESTIGATOR
[The principle investigator is also the residency project preceptor]

CO-INVESTIGATORS
[Think about novice pharmacist researchers who you can mentor & delegate specific project responsibilities to; think about interprofessional collaboration if applicable; think about patient engagement for input, not necessarily as an investigator]

RESEARCH SITE(S)
[eg. KGH, IH Regional Pharmacy Office]

STATE YOUR PROPOSED RESEARCH QUESTION AND DESIGN

POPULATION:
INTERVENTION (IF APPLICABLE):
COMPARATORS (IF APPLICABLE):
OUTCOMES:
STUDY DESIGN:

OBJECTIVES
[achievable, outcome-based aims of your research]

RATIONALE (LIMIT TO 150 WORDS)
[include the reason(s) for focusing on your stated objectives AND reasons for choosing the study design proposed]

SIGNIFICANCE (LIMIT TO 100 words)
[Include an explanation of potential value of project to patient care, pharmacy department, hospital, health authority, and/or pharmacy profession as appropriate; if applicable, what will you do if the results are positive and what will you do if the results are negative?]

PROPOSED RESEARCH METHODS
[Indicate proposed methods of screening/sampling, data collection (eg. chart review, patient interviews), and analysis]

FUNDING SOURCES
[Indicate if there are any costs associated with the project and if any funding will be sought for the project and list the funding agency]

ANTICIPATED START DATE OF THE RESIDENCY PROJECT
[For residency projects, it is preferable if the project can start at the beginning of the residency]

ANTICIPATED END DATE OF THE RESIDENCY PROJECT (CONSIDER FOR FEASIBILITY OF RESIDENCY PROJECT)

PROJECT SUITABILITY (FOCUS ON RESIDENCY PROJECT SUITABILITY)

After consideration of the "FINER" criteria (Feasible, Interesting, Novel, Ethical, Relevant) I believe that the project meets all the Project Suitability Criteria_____ (indicate YES/NO)
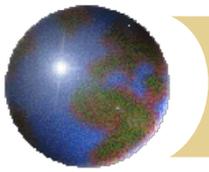
IH Process to Overcome Common Challenges

⊕ Challenges 1, 2 &4 : Research questions/Designs

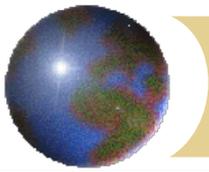**Research Meeting April 28 2017**

Welcome and Instructions

Welcome to the 2017 IH Pharmacy Residency Research Planning Survey. The anonymous feedback provided will be used to help facilitate the in-person Research Meeting that will take place April 28, 2017. The purpose of the 2 hour research meeting is to help our researchers pitch their residency research ideas and questions to peers with the primary goal to help strengthen the project proposals for the upcoming residency cycle. Please review all of the project proposals that have been sent to you via email and then complete this survey by no later than Friday morning, Apr 28 at 8am. Please complete the entire survey, including the questions concerning your proposed project.

Next

Powered by
SurveyMonkey
See how easy it is to create a survey.

Barriers/Facilitators to AF pts using MHEALTH technology to promote self-management behaviors (Sean)

* 91. This proposed project is FEASIBLE for a Resident to successfully complete.

When rating the FEASIBILITY of this project proposal, consider all of the following:
Is there access to a representative sample and adequate sample size?
Is there access to the knowledge, technical expertise and equipment necessary to carry out the research?
What are the costs in time and money that would be required?
Is the scope too wide and needs to be more focused?
Is the research question answerable?

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

92. Please provide one factor that may render this project proposal not feasible.

[ ]

* 93. This research question and proposed project is interesting to me.

When rating this project proposal from an "interest" perspective, consider the following:
Getting at the truth of the matter (answering the research question) seems interesting.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

* 94. This proposed project is novel.

When rating whether you believe this proposed research is novel, consider the following:
Will this proposed research contribute new information?
Will this proposed research confirm/refute prior findings and avoid the weaknesses of previous studies?
Will this proposed research extend previous findings?

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

* 95. This proposed project is ethical to conduct.

When rating the ethics of this proposed project, consider the following:
Does the study pose unacceptable physical risks?
Does the study pose unacceptable privacy risks?
Is there a more ethical design/method to address the research question?
Will the REB be likely to approve this study?

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

* 96. What type of REB review will this study MOST LIKELY require?

○ Delegated (expedited) Review   ○ Full Board Review   ○ No Review Required

97. Suggest one factor related to this project proposal that may delay REB approval. If you can't think of one, leave the text box below blank.

[ ]

* 98. This proposed research question and proposed project is relevant.

Consider the following when determining relevance:
Imagine the various outcomes that are likely to occur and consider how each possibility might advance scientific knowledge, influence clinical management and health policy, or guide future research.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

* 99. This proposed project is aligned with the IH Pharmacy Research Themes outlined in the 2013 Research Framework document:

- Innovation in pharmaceutical care delivery across IH
- Prioritizing clinical pharmacy services to optimize value across IH
- Supporting clinical pharmacists' professional practice across IH
- Creating, sustaining, & increasing quantity/quality of pharmacy experiential rotations and other teaching across IH
- Determining/promoting/optimizing evidence-based best practices in pharmacotherapy across IH

○ Yes

○ No

100. Please list the stakeholders who should be engaged before this proposed project is circulated to the Pharmacy Residents for ranking. (Leave the text box blank if you can't think of any)

[ ]

Prev   Next
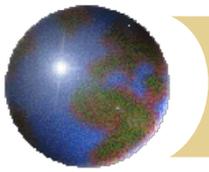
IH Process to Overcome Common Challenges

⊕ Challenge 3: Inexperienced/Few Preceptors

- ⊞ IH formally engages our qualified preceptors
  - • Clinical Pharmacy Specialists (n=13)
- ⊞ Set expectations for qualified preceptors in performance planning
- ⊞ Facilitate opportunities for inexperienced preceptors to actively team with seasoned preceptors on projects first
- ⊞ Mentorship provided by Coordinator and other seasoned preceptors
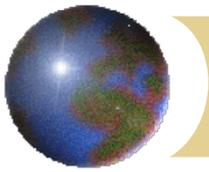
[13]

Interior Health's
Performance & Development
for the Role of Clinical Pharmacist

The primary purpose of the profession of pharmacy is to help people achieve their des
Pharmacists do this by providing current, rational, safe and cost effective pharmaceut
and products in collaboration with clients and others in the health care community.

Framework

Employee Name	
Department	
Location	
Review Type	Probationary		Annual		Other

Human Resource Total Rewards • HR Systems
Performance & Developm
[Septe

Interior Health

Clinical Pharmacy Specialist Goals & Development Plan

Name:

Date when Goals Finalized with Supervisor:

Domain 1: Direct Patient Care

Goal title

Goal description

Actions to perform to achieve goal

Success indicators

Deadline for achievement of goal

Domain 2: Clinical Quality

Goal title

Goal description

Actions to perform to achieve goal

Success indicators

Deadline for achievement of goal

Domain 3: Teaching

Goal title

Goal description

Interior Health

Actions to perform to achieve goal

Success indicators

Deadline for achievement of goal

Domain 4: Research

Goal title

Goal description

Actions to perform to achieve goal/ Success indicators

Deadline for achievement of goal
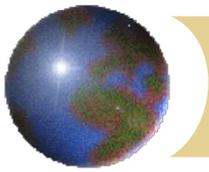
Domain 5: Leadership

Goal title

Goal description

Actions to perform to achieve goal

Success indicators

Deadline for achievement of goal

Improving ICU clinical pharmacist handover process using a pharmacotherapy-specific tool: The HAndover Process in PharmacY (HAPPY) Study.

Emma Attfield, B.Sc.(Pharm), Matthew Swankhuizen, B.Sc.(Pharm), PharmD; Sean Gorman, B.Sc.(Pharm), PharmD; Richard Slavik, B.Sc.(Pharm), PharmD; Nicole Bruchet, B.Sc., B.Sc.(Pharm), PharmD.

Development of Intervention-Related Quality Indicators for Renal Clinical Pharmacists Using a Modified Delphi Approach

Kate Boutin, B.Sc., B.Sc.(Pharm); William Nevers BSc.(Pharm), ACPR, PharmD; Sean K. Gorman, B.Sc.(Pharm), ACPR, PharmD; Richard S. Slavik, B.Sc.(Pharm), ACPR, PharmD, FCSHP; Dan Martinusen, B.Sc.(Pharm), ACPR, PharmD, FCSHP; Clifford Lo B.Sc.(Pharm), ACPR, PharmD, MHA, BCPS

Pharmacist Education and Telephone Follow-up after Hospitalization for an Acute Coronary Event: The Assessment of Cardiology peri-Discharge Counseling (ACDC) Pilot Study

Michael De Guzman, B.Sc.(Pharm), PharmD; Melanie Carter, B.Sc.(Pharm), ACPR, PharmD; Sean K. Gorman, B.Sc.(Pharm), ACPR, PharmD; Richard S. Slavik, B.Sc.(Pharm), ACPR, PharmD, FCSHP; Damian Rawnsley, RN, BScN, CCN(C)
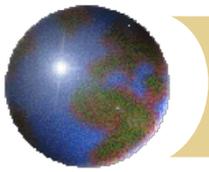
IH Process to Overcome Common Challenges

⊕ Challenge 5: Incomplete KT

- Hard deadline for IH Resident draft manuscript completion
- Posters for projects presented at BC Residency Presentation Night
- Posters presented at national conferences PRN
- Expectations set with preceptors to submit for CSHP awards
- Expectations set with preceptors to submit to peer review journal
- Mentorship provided by Coordinator and other seasoned preceptors
- Writing workshops (in planning phase)
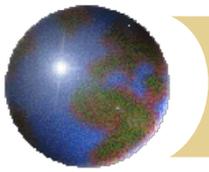
Polling Slide 5

⊕ **Which <u>solution/ strategy may be the most useful</u> to implement in your residency program ?   Select One :**

- A. **Formal research outline/prospectus screening and development**
- B. **Survey monkey peer feedback process for research prospectus**
- C. **Research immersion program for frontline pharmacists**
- D. **Formal timeline schedule**
- E. **Support preceptors & residents to incorporate KT plan into protocol**
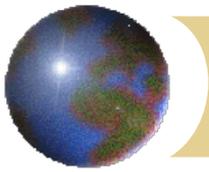
Recap

- Residency research projects are essential to meeting CPRB standards
- Systematic approach should be used to enable successful projects
- Five key challenges involve research question availability, suitability, preceptor availability, design suitability, and incomplete KT
- Your organization, preceptors, and residents have roles in overcoming key challenges
- Develop a process that works for your organization, your preceptors, and most importantly, your residents
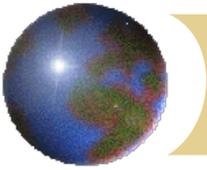
Acknowledgement

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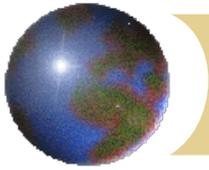
Sean Gorman, RPh, BScPhm, ACPR, PharmD
sean.gorman@interiorhealth.ca

Olavo Fernandes RPh, BScPhm, ACPR, PharmD, FCSHP
olavo.fernandes@uhn.ca