

# Canadian Pharmacists' Perspective on the Role of the Cystic Fibrosis Pharmacist in an Outpatient Multidisciplinary Care Team

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## Background

- Cystic fibrosis (CF) is a complex disease with significant medication burden
- Outpatient CF clinics utilize a multidisciplinary approach to provide lifelong care to individuals with CF
- CF Canada, the guiding authority on CF clinical care in Canada, has developed guidelines to establish minimum staffing requirements that should be met by CF clinics to provide adequate care
- Availability of pharmacists and financial support within each CF clinic varies widely across Canada
- It is unclear if Canadian CF clinics are meeting the pharmacist minimum staffing standards suggested by CF Canada
- The CF Canada guidelines offer little guidance surrounding the role of the pharmacist in CF outpatient clinics
- There is currently no published literature evaluating which outpatient CF clinic pharmacist roles Canadian pharmacists and CF patients feel are the most impactful to the care of the CF patient

## Study Objectives

- To develop consensus on CF pharmacist roles that have high patient-care impact in an outpatient clinic setting
- To characterize current pharmacist staffing and clinical practices in Canadian outpatient CF clinics

## Methods

### Design

- 3 surveys of TWO participant groups
  - Canadian outpatient CF clinic pharmacists
    - Pharmacists to choose to participate in either:
      - Modified Delphi panel* 3-round web-based survey
      - Non-Delphi participant group* 1-time web-based survey
  - Victoria Royal Jubilee Hospital (RJH) adult outpatient CF clinic patients
    - 1-time paper-based survey

### Study Population

- Canadian outpatient CF clinic pharmacists
  - Inclusion:** Canadian outpatient CF clinic pharmacists
  - Exclusion:** inability to communicate in written English
- Victoria Royal Jubilee Hospital (RJH) outpatient CF clinic patients
  - Inclusion:** patients attending RJH CF clinic Nov 2016 – April 2017,  $\geq 19$  y/o
  - Exclusion:** inability to communicate in written English, telehealth patients

### Candidate Outpatient CF Clinic Pharmacist Role Generation

- Identified via literature search and drawing from CF clinic experience
- 20 roles identified
  - 20 included on pharmacist survey
  - 15 worded in lay language included on patient survey

### Modified Delphi Survey

- 3-rounds of survey occurred Jan – April 2017 designed to generate consensus
- Panelists required to view voice over presentation of study procedures and expectations prior to Round 1
- Each role rated by panelist on 9-point Likert scale as to if the role positively impacts the care of the CF patient
  - 1 indicating strongly disagree; 9 indicating strongly agree
- Panelists provided individual and group results for each role between rounds
- Panelists could suggest additional candidate outpatient CF clinic pharmacist roles in Round 1; co-investigators determined whether to include on subsequent rounds
- Consensus criteria:  $\geq 75\%$  panelists rate role 7-9 on Likert scale after Round 3

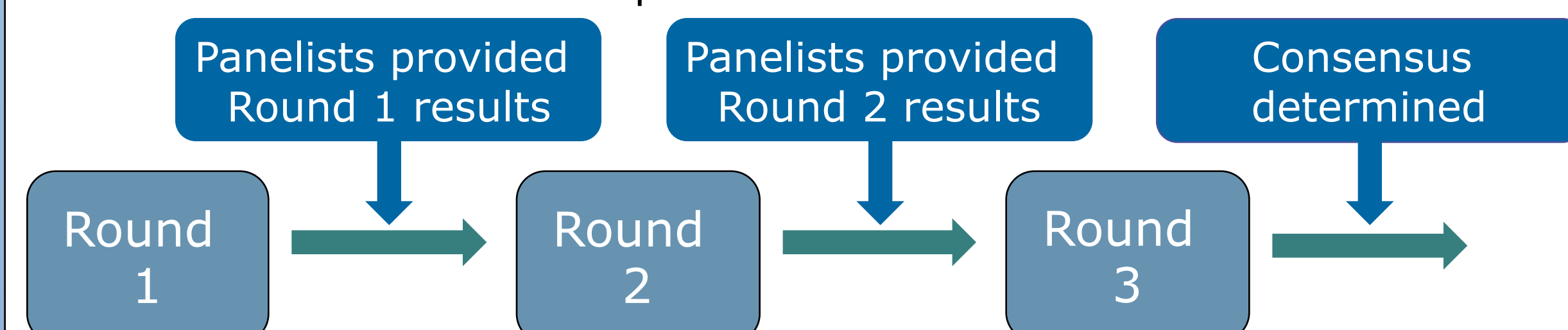


Figure 1. Modified Delphi survey process

## Results

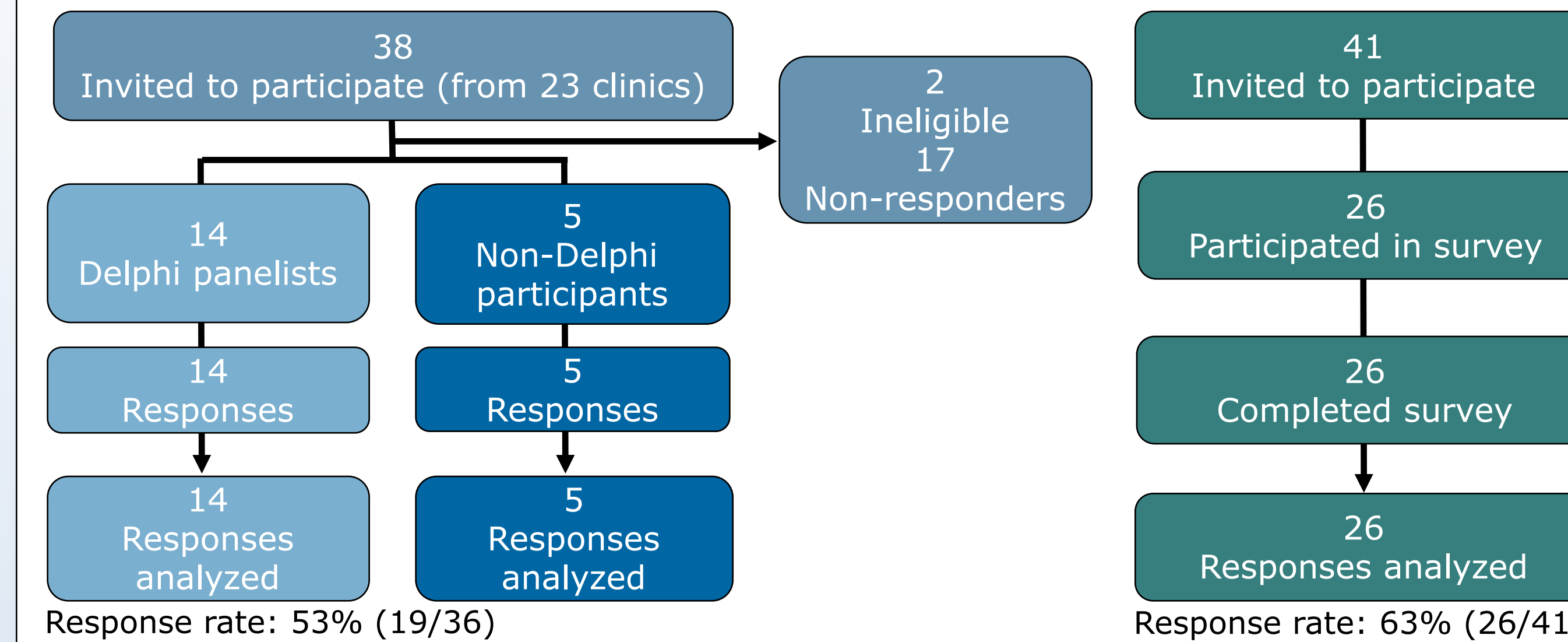


Figure 2. Pharmacist participant flow

Table 1. CF pharmacist characteristics

Characteristic	Delphi Panel N=14 n (%)	Non-Delphi Pharmacists N=5 n (%)
Outpatient CF Clinic Experience		
< 2 years	2 (14%)	1 (20%)
$\geq 2$ years	12 (86%)	4 (80%)
Academic Credentials		
Pharmacy Residency (ACPR)	7 (50%)	1 (20%)
Post-baccalaureate PharmD	2 (14%)	1 (20%)
Masters Degree	2 (14%)	0 (0%)
CF Patient Population		
Adults Only	5 (36%)	1 (20%)
Pediatrics Only	7 (50%)	4 (80%)
Adults & Pediatrics	2 (14%)	0 (0%)

Table 2. Canadian CF pharmacist provision of and perspectives on outpatient CF clinic pharmacist roles

Outpatient CF Clinic Pharmacist Role	Role Provided by Pharmacist N=19 (%)	Pharmacists who rated 7-9* N=14 n (%)
<b>Medication reconciliation</b> , medication history taking, and monitoring patient medication adherence	100%	13 (93%)
<b>Attending CF multidisciplinary team rounds</b>	95%	14 (100%)
Participating in CF <b>continuing professional development</b> and/ or attending CF conferences	95%	14 (100%)
<b>Medication monitoring</b> and medication review	95%	14 (100%)
<b>Individualizing medication</b> and dose requirements	95%	13 (93%)
<b>Educating and counseling</b> patients and/or caregivers	95%	14 (100%)
Providing information to patients or other HCPs about <b>medication coverage programs</b> , how medication coverage can be obtained, and assisting in obtaining medication coverage	95%	13 (93%)
Addressing patient medication supply or coverage issues through <b>liaising with community pharmacists</b>	89%	12 (86%)
Applying for and obtaining <b>SAP medications</b> <sup>1</sup>	89%	13 (93%)
<b>Educating other healthcare professionals</b> <sup>1</sup>	89%	13 (93%)
Identifying patient and <b>medication risk factors</b>	79%	14 (100%)
Preventing/detecting/documenting/reporting <b>ADRs</b>	79%	14 (100%)
Updating patient's <b>allergy status</b>	79%	12 (86%)
<b>Liaising with pediatric/adult centres</b> during transition of care	79%	13 (93%)
<b>Mentoring or precepting</b> pharmacy students or residents <sup>1</sup>	63%	11 (79%)
Providing <b>patients</b> with a <b>comprehensive list of medications</b> and/or a medication reminder chart	58%	11 (79%)
Providing the <b>general practitioner or other HCPs</b> with a <b>comprehensive patient list of medications</b>	58%	11 (79%)
Evaluating and optimizing patient <b>medication device technique</b>	53%	11 (79%)
Participating in CF-related <b>research</b> <sup>1</sup>	53%	13 (93%)
Managing <b>CF treatment protocols</b> at a provincial or institutional level	47%	13 (93%)
Assessing <b>immunization status</b> and recommending vaccinations	47%	13 (93%)
Managing <b>CF formularies</b> at a provincial or institutional level	42%	12 (86%)
Managing <b>CF clinical guidelines</b> at a provincial or institutional level	37%	12 (86%)
<b>Pharmacist prescribing</b>	37%	12 (86%)
<b>Advocating for CF</b> through involvement with local, provincial, or national CF organizations <sup>1</sup>	37%	12 (86%)

\* Consensus criteria met for all roles ( $\geq 75\%$  Delphi panelists rate role 7-9 on Likert scale after Round 3)

1: Delphi panelist suggest role      SAP: Special Access Programme  
HCPs: Healthcare professionals      ADRs: Adverse drug reactions

## Results (continued)

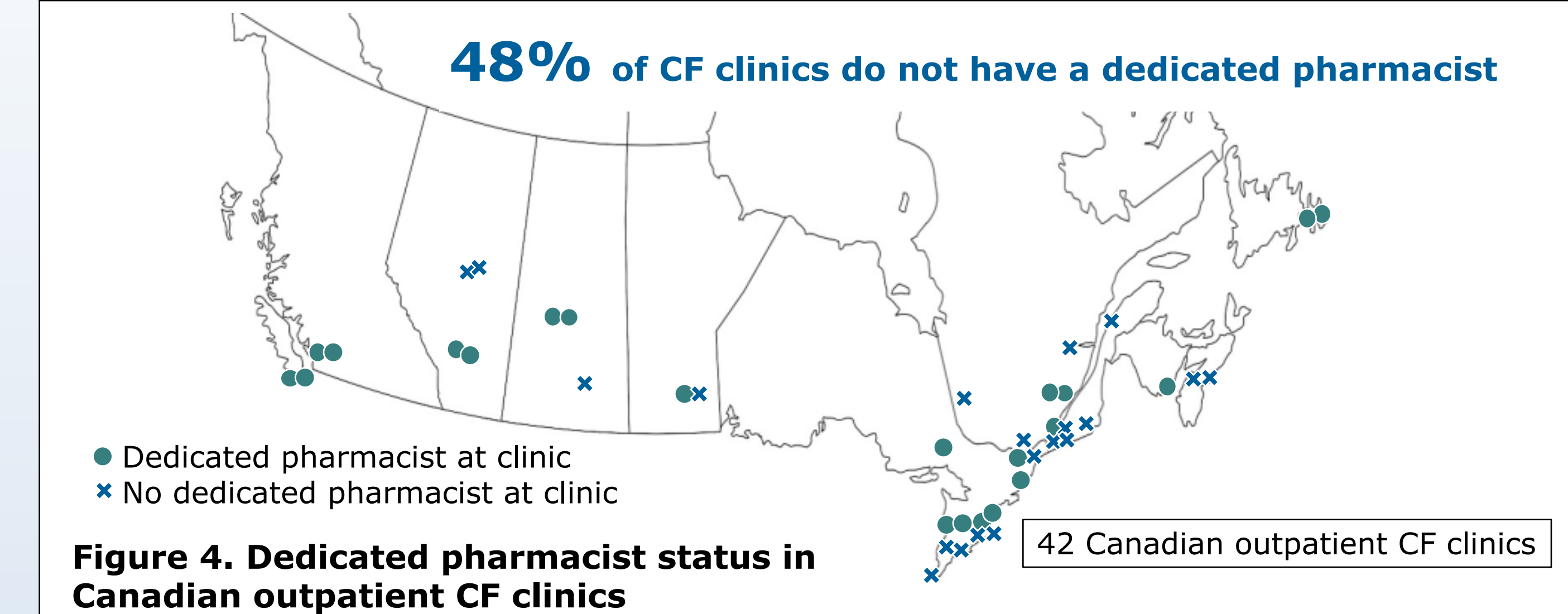


Figure 4. Dedicated pharmacist status in Canadian outpatient CF clinics

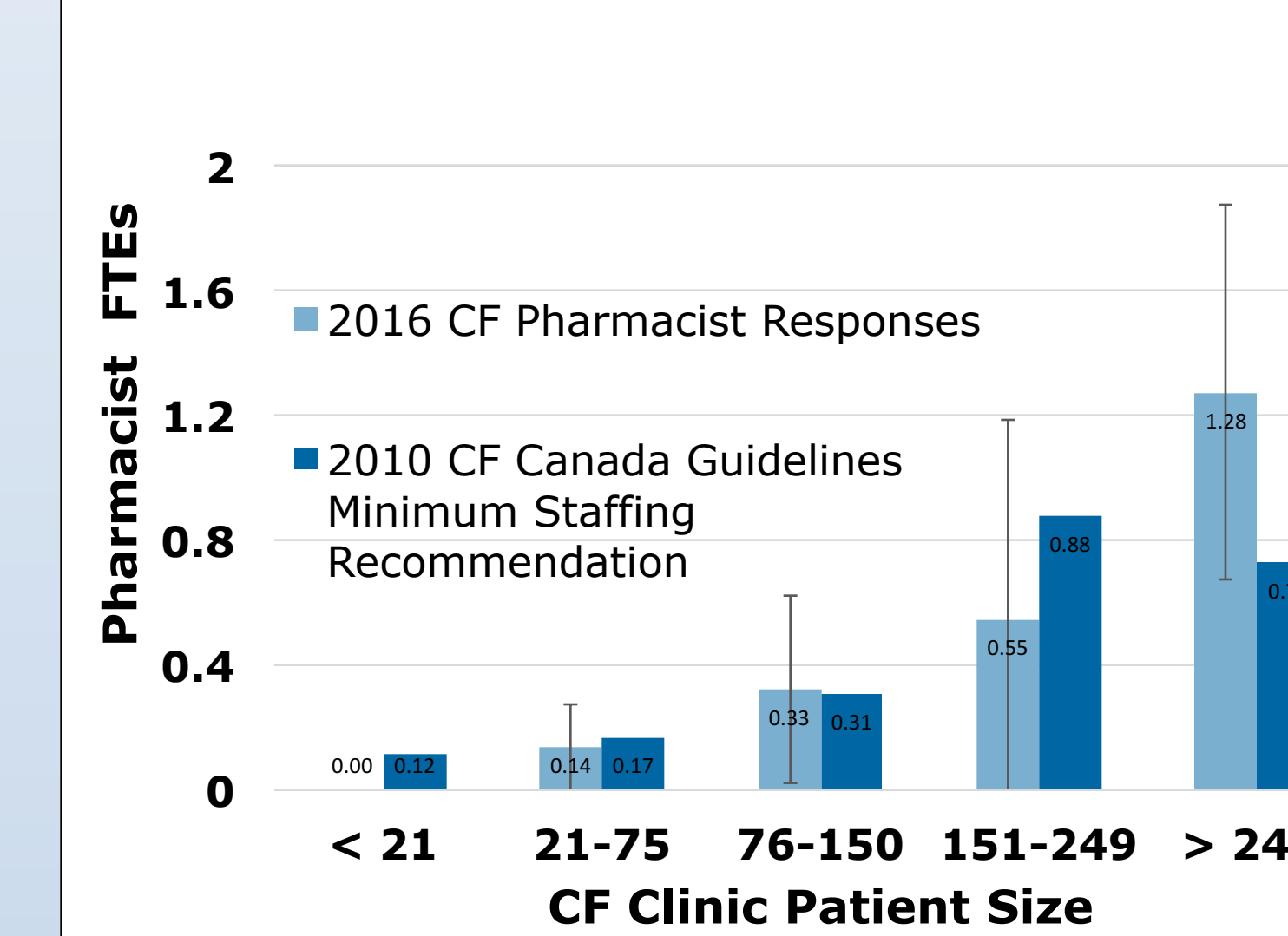


Figure 5. Pharmacist full-time equivalents (FTEs) protected for inpatient and/or outpatient CF care based on clinic size

Table 3. RJH CF patient perspectives on outpatient CF clinic pharmacist roles

Outpatient CF Clinic Pharmacist Role	Patients who rated 7-9 N=26 n (%)
<b>Attending CF multidisciplinary team rounds</b>	23 (88%)
<b>Individualizing medication</b> and dose requirements	22 (85%)
<b>Educating and counseling patients</b> and/or caregivers	22 (85%)
<b>Medication reconciliation</b> , medication history taking, and monitoring patient medication adherence	21 (81%)
<b>Medication monitoring</b> and medication review	20 (77%)

## Discussion

- 2010 CF Canada pharmacist staffing recommendation is a *minimum* recommendation and clinics may benefit from additional pharmacist support given the wide array of highly-impactful pharmacist roles

### Strengths

- Delphi panel contained diverse group of experienced Canadian CF pharmacists
- CF pharmacist and patient opinions on pharmacist roles captured

### Limitations

- Low response rates, small pharmacist and patient sample size
- Patients limited to adults at RJH in Victoria, BC
- Limited formal statistical analysis performed
- 2010 CF Canada minimum pharmacist FTE based on *non-pharmacist healthcare professional's opinion* of what is realistically required in their CF clinic
- Pharmacist FTE comparison based on FTEs protected for *inpatient* and/or outpatient CF care in order to directly compare with the CF Canada Guidelines
- Small pharmacist sample size and variation in FTE response per clinic size makes staffing results difficult to interpret

## Conclusion

- 48% (20/42) of outpatient CF clinics do not have a dedicated CF pharmacist
- Clinics with a pharmacist appear to be meeting the 2010 CF Canada minimum staffing recommendation
- All 25 outpatient CF clinic pharmacist roles met Delphi consensus criteria for being highly impactful to the care of the CF patient
  - However, only 7/25 roles were provided by  $\geq 95\%$  of pharmacists
- RJH CF patients felt 5/15 pharmacist roles were highly impactful to their care
  - $\geq 95\%$  of pharmacists provided these roles in their clinic

### Implications for Practice

- Many CF patients across Canada may be underserved by not having a dedicated pharmacist performing highly impactful roles at their respective clinic
- With limited resources, outpatient CF pharmacists can focus their patient-care activities on roles that pharmacists and patients find highly impactful to the care of the CF patient