

# The Pharmacist's Role in Antibiotic De-escalation: A Survey of Canadian Hospitals

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**Background**

- Antibiotic resistance is caused by misuse and overconsumption of antibiotics and is a major public health threat
- Antimicrobial Stewardship (AMS) interventions, such as antibiotic de-escalation, decreases broad-spectrum antibiotic exposure, is safe and cost effective
- Antibiotic de-escalation may also result in lower rates of adverse effects and antibiotic resistance
- The roles and responsibilities of AMS pharmacists in performing de-escalation activities are not well understood

**Objectives**

**Primary**

- To determine AMS pharmacist's roles and responsibilities to de-escalate antibiotic therapy

**Secondary**

- To determine types of activities performed, which patient populations are targeted with intervention(s), and how success is measured
- To determine potential barriers or enablers to antibiotic de-escalation

**Methods**

**Design:**

- Prospective observational internet-based survey

**Setting:**

- Hospitals across Canada over a six week period (January 13 to February 24 2020)

**Inclusion Criteria:**

- AMS pharmacists affiliated with any Canadian hospital

**Data Collection:**

- 31-item online questionnaire (Qualtrics)

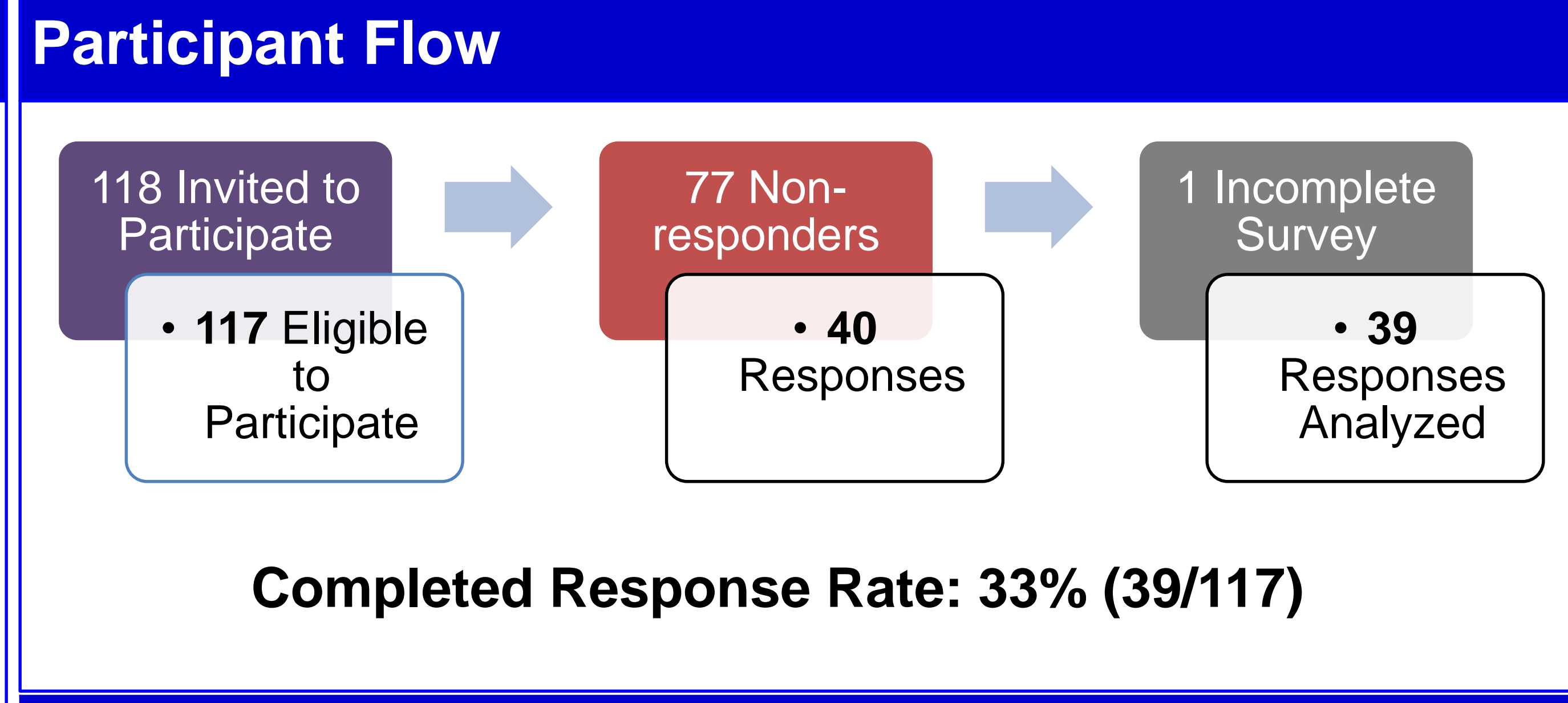
**Data Analysis:**

- Data exported into Excel and analyzed using descriptive statistics

**Definitions**

**Antibiotic de-escalation refers to any of the following:**

- Changing antibiotics from broad to narrow spectrum
- Decreasing the number of antibiotics used (e.g. changing therapy from 2 antibiotics to 1)
- Shortening duration of antibiotics or therapy cessation



**Table 1. Participant Characteristics**

Characteristic	n (%)
<b>Hospital Pharmacy Experience</b>	
<5	2 (5)
5-10	13 (33)
>10	24 (62)
<b>Highest Level of Pharmacy Education</b>	
Entry to Practice Degree	17 (44)
Residency	9 (23)
Post-graduate PharmD	13 (33)
<b>Formal ID or AMS Training</b>	
Yes	20 (51)
No	19 (49)
<b>Number of Hospitals Services Provided to</b>	
1	21 (54)
2	6 (15)
3	3 (8)
≥ 4	9 (23)
<b>Number of Beds Services Provided to</b>	
<100	3 (8)
100-499	23 (59)
500-1000	11 (28)
>1000	2 (5)
<b>Teaching Hospital</b>	
Yes	27 (69)
No	12 (31)

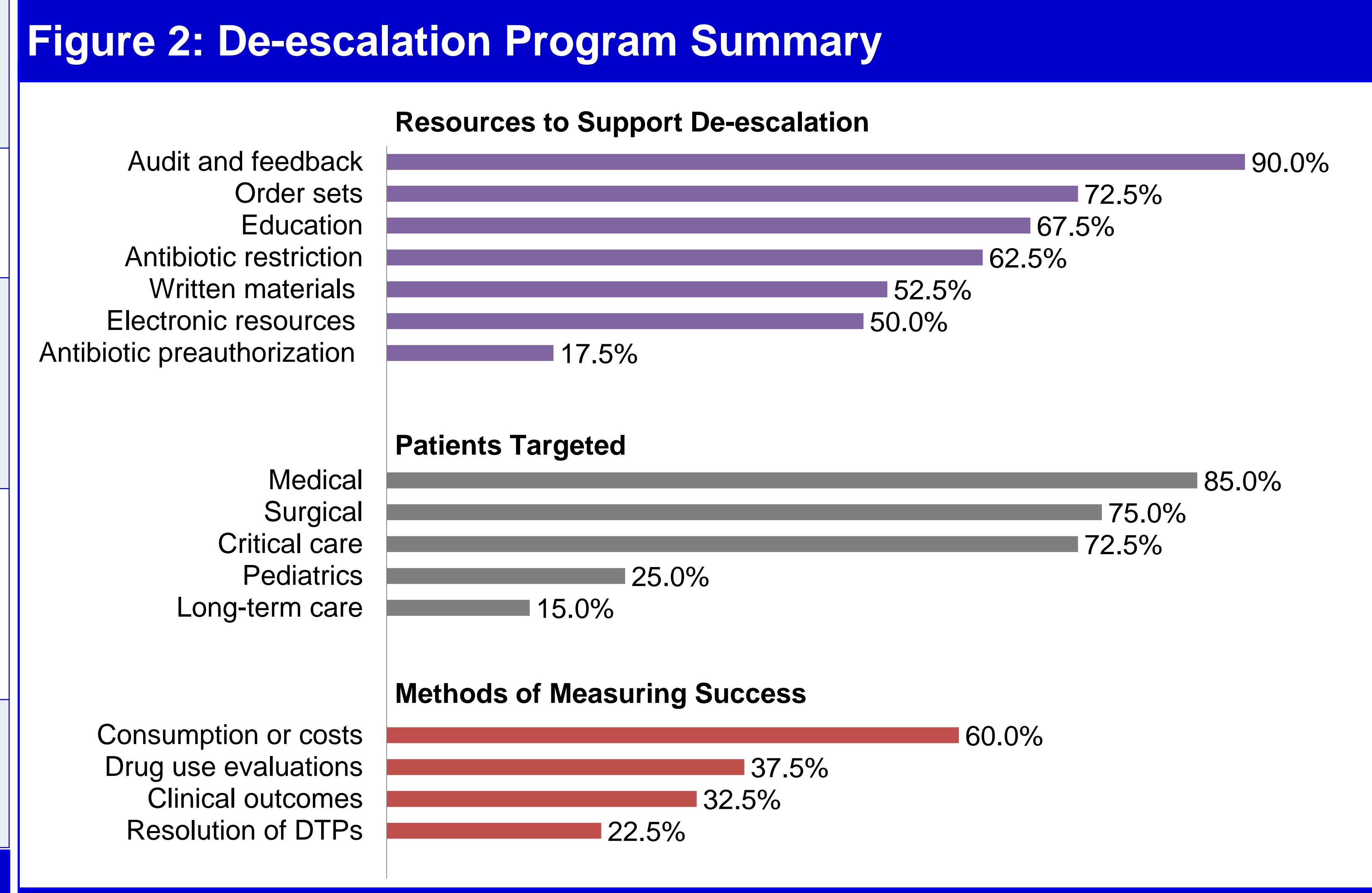
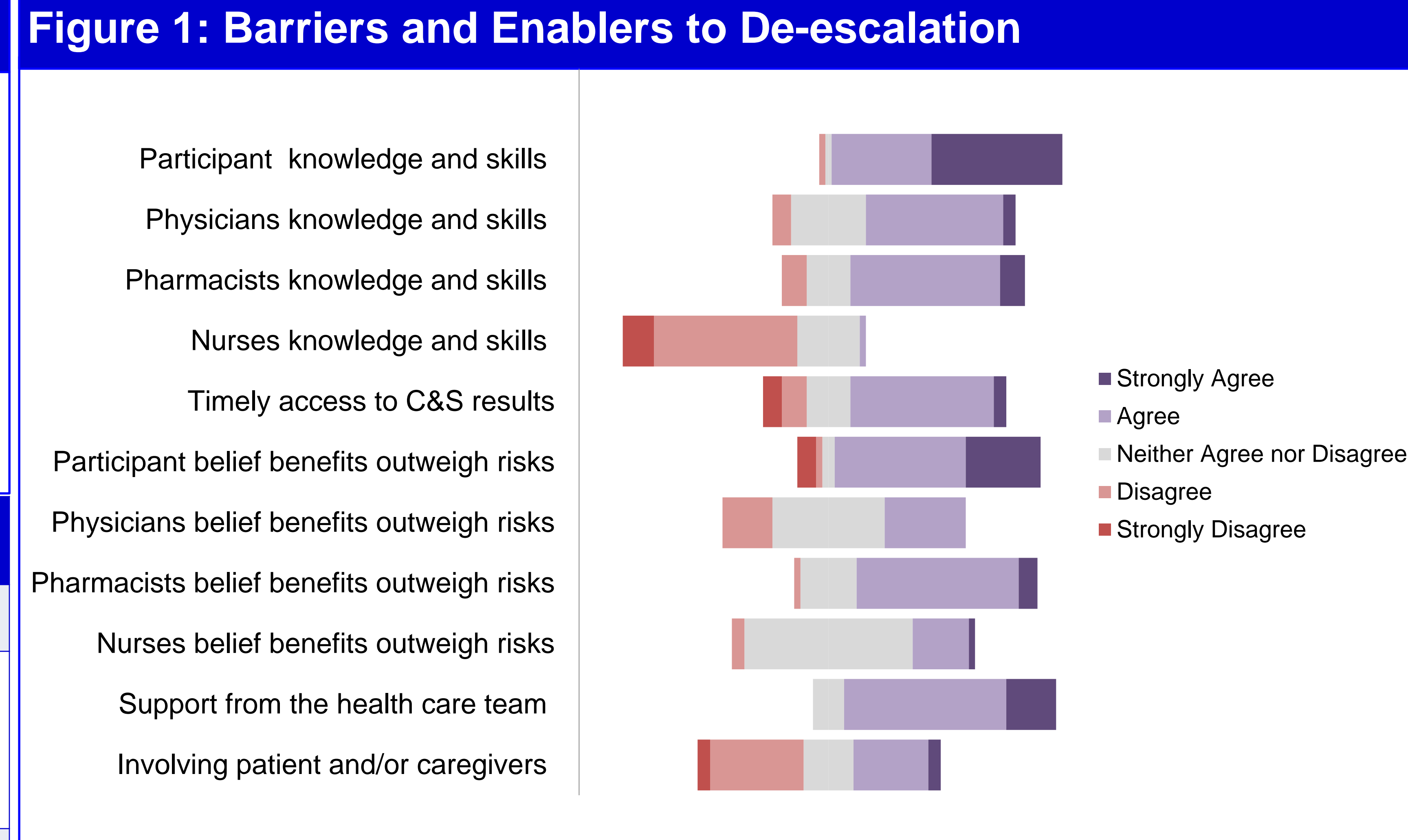
**Potential Barriers and Enablers to De-escalation**

**Barriers:**

- Lack of knowledge and skills related to antibiotic optimization
- Lack of timely access to complete culture and sensitivity (C&S) results

**Enablers:**

- Belief that benefits of antibiotic de-escalation outweigh risks
- Support from health care team to recommend de-escalation
- Involving patient and/or caregivers in decision to de-escalate antibiotic therapy



**Conclusions**

- Resources typically used to support de-escalation include audit and feedback, order sets, education and antibiotic restriction
- The majority targeted for de-escalation are medical, surgical and critical care patients
- The most common method of measuring success is consumption or costs
- Pharmacist and physician lack of knowledge and skills or timely access to C&S results do not appear to be barriers
- Majority of participants believe that benefits of de-escalation outweigh risks, and their perspective of physicians beliefs are less clear

