PCORI Methodology Standards: Academic Curriculum
Module 5: Ensuring Representativeness

Category 2: Patient-Centeredness

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Objectives

- Describe why the inclusion of representative participants, including those from populations of special interest, is an important component of patient-centered outcomes research (PCOR)

- Describe strategies and processes that will ensure the representativeness of study populations, limitation of bias, and generalizability of findings

- Prepare a plan to identify, select, recruit and retain study participants that will improve the generalizability of study results
PC-2: Identify, Select, Recruit, and Retain Representative Study Participants

- **PC-2: Identify, select, recruit, and retain study participants representative of the spectrum of the population of interest, and ensure that data are collected thoroughly and systematically from all study participants**

- Research proposals and subsequent study reports should describe:
  - The plan to ensure representativeness of participants
  - How participants are identified, selected, recruited, enrolled, and retained in the study to reduce or address the potential impact of selection bias
  - Efforts used to maximize adherence to agreed-on enrollment practices
  - Methods used to ensure unbiased and systematic data collection from all participants
If the population of interest includes people who are more difficult to identify, recruit, and/or retain than other study populations (for example, individuals historically underrepresented in healthcare research, such as those with multiple disease conditions, low literacy, low socioeconomic status, or poor healthcare access, as well as racial and ethnic minority groups and people living in rural areas), then specify plans to address population-unique issues for participant identification, recruitment, and retention.
For the results of comparative-effectiveness research to have the broadest impact and applicability, it is important that the population studied is as inclusive as possible of “real-world” patients.

Will the results only be applicable to a small group of individuals with certain characteristics, or will the conclusions be generalizable to a larger population?

Minimizing selection bias.
Which Groups Need to Be Included?

- Are there considerations within a disease that need to be considered (e.g., level of disease activity, prior treatment)?

- Are there other considerations within a population that may be important (e.g., an internet-based sample versus a clinic sample)

- Are there groups that are being missed that may be important?
  - Multiple chronic conditions, low literacy, low socioeconomic status, poor healthcare access, racial and ethnic minorities, rural populations, etc.

- Have the outcomes of interest been validated in the population under study?

- Stakeholder input can be very helpful in identifying different groups of interest
Think About Sampling Strategies to Ensure Generalizability of Findings
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Target population

Rheumatoid arthritis

Accessible population

Study samples
Think About Sampling Strategies to Ensure Generalizability of Findings

Target population: Rheumatoid arthritis

Accessible population: Patients with PROs collected in electronic health record

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Study samples
Disease activity: low, moderate, high
Think About Sampling Strategies to Ensure Generalizability of Findings

Target population: Rheumatoid arthritis

Accessible population: Patients with PROs collected in electronic health record

Study samples:
- Disease activity: low, moderate, high
- Disease duration: very early, 1-2 years, 2-5 years, 5-10 years, >10 years
Recruitment and Retention constitute a key aspect of all studies. Recruitment strategies and retention strategies need to be carefully thought out. A realistic plan is needed that will allow enough patients to conduct the final analysis. Who needs to be included in the study? How can you facilitate their recruitment? How can you maximize their retention? What are potential barriers? Are there additional considerations for particular populations? Patients and stakeholders can help to “think through” these questions.
## Methods of Research Participant Recruitment

- One size definitely does not fit all!

- A diversity of approaches may provide the highest yield

- The most effective and most appropriate approaches will depend on specific study type and population

<table>
<thead>
<tr>
<th>Word of mouth</th>
<th>Databases and EMR queries</th>
<th>Mailings</th>
<th>Letters and referrals from other providers</th>
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<tbody>
<tr>
<td>Flyers, posters, brochures, pamphlets</td>
<td>Newspaper, radio, TV ads</td>
<td>Health fairs, information sessions</td>
<td>Email</td>
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<td>Advocacy groups</td>
<td>Patient communities, patients like me</td>
<td>Clinicaltrials.gov, Clinical Connection</td>
<td>Magazine and e-zine articles</td>
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<td>Websites, Craigslist, Google searches</td>
<td>Social media, Facebook, Twitter</td>
<td>PCORI, CDRNs, PPRNs</td>
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Think about a “brand” for the study (logos, name)

Do you also need to target patients or caregivers (e.g., parents of children, caregivers for patients with Alzheimer’s disease)

Determine what has worked before
  ▶ For your group or for others doing similar research
  ▶ Challenges and facilitators

Take advantage of existing cohorts and patient populations
  ▶ Is there “low-hanging fruit”? 

Evaluate recruitment throughout the study—does the population have the appropriate types of individuals, or are adjustments/”targeting” needed?

Ask patients and stakeholders where they would seek information about studies
Potential Barriers to Recruitment

- **Subject-related barriers**
  - Scheduling, time, other commitments
  - Uncertainties, risks
  - Language/culture

- **Investigator-related barriers**
  - Personnel and staffing
  - Institutional review board (IRB)
  - Multicenter

- **Protocol-related barriers**
  - Unreasonable inclusion/exclusion
  - Numbers of procedures/visits

- **Other barriers**
  - Outside influences
Developing a Recruitment and Retention Plan: Consider the Funnel, the Leaks, and the Necessary Final Yield

Identification; prescreening/screening; randomization

Dropouts: lack of efficacy; adverse events; moving away; time commitment; changes in life circumstances; intercurrent illness/death

Completers: Are data available for analysis? Sample size and power calculations
Evaluating the leaks:

- How many patients are needed for final analysis based on sample size calculations?
  - e.g., 175

- How many patients might drop out along the way?
  - e.g., 30%, so that 70% of the patients who start remain at the end

- How many patients need to enroll in the study?
  - e.g., 175/0.7 = 250
Evaluating the funnel

- How many patients need to be recruited to achieve the enrollment goal?
  - What is the final sample size needed for enrollment?
    - e.g., 250 from above
  - What is the anticipated yield from the initial prescreening/screening?
    - e.g., 50% will qualify
  - How many screening visits will be required?
    - e.g., 250/0.5 = 500
Recruitment schedule
- Over how many months will patients be recruited?
  - e.g., 12 months
- Total screening visits required per month?
  - e.g., 500/12 = 42
- Total enrollments required per month?
  - e.g., 250/12 = 21
Methods Used to Improve Research Subject Retention

- Follow progress in real time
- Planned interim analysis:
  - Why are patients dropping out?
  - Can I make modifications?
- Maintain communication:
  - Be available
  - Reminders of visits, check-in calls
  - Newsletters, study progress, educational materials
- “Thank you”s and acknowledgments
  - Birthday cards, appreciation tokens (memory stick, pen, etc.)
- Transportation/parking coverage
- Ask patients and stakeholders to provide suggestions
Other Considerations in Recruitment and Retention

- Human subjects and IRB approvals are needed for recruitment materials and strategies
  - What you propose may need to be modified on the basis of their recommendations
  - Account for the time needed to move through this process, especially with multiple sites and individual IRBs

- Are costs accounted for and budgeted for the recruitment and retention strategies (person time and financial)?

- Ongoing and real-time assessment of recruitment goals and retention estimates are critical to follow and permit restructuring and adjustment of strategies
Are there characteristics of the enrolled patients that are different from the “general” population?

- Sociodemographic factors
  (age, sex, race/ethnicity, socioeconomic, rural/urban, etc.)
- Disease-related factors
- Other factors (managed care, internet-based, etc.)

Specific strategies to minimize potential bias

If there is potential bias, how might this be accounted for in the analysis?