Comparative Effectiveness and Patient-Centered Outcomes Research:
Enhancing Uptake and Use by Patients, Clinicians and Payers

January 26-27, 2017

DAY 1
Welcoming Remarks

Opening Comments
Conference Goals and Objectives

Eileen Cannon
Welcome

• On behalf of the PhRMA Foundation and AMCP, welcome.

• This invitational conference is the second held by the PhRMA Foundation on the topic of CER
The Five Things to Know About the PhRMA Foundation:

50th
In 2016, the PhRMA Foundation celebrated its 50th anniversary, commemorating five decades of support for young scientists.

42
Each year, the PhRMA Foundation gives out 42 individual awards, totaling more than 2,300 awards in the last five decades.

$3.5 Million
On average, the PhRMA Foundation provides $3.5 million annually in awards to young scientists – $83 million through the years. In 2016, $3 million was provided to award recipients, including 39 new recipients.

8
The PhRMA Foundation’s awards support scientists in eight different disciplines, including adherence improvement, clinical pharmacology, health outcomes, informatics, pharmaceutics, comparative effectiveness research, pharmacology/toxicology and translational medicine and therapeutics.

300
Over the years, the PhRMA Foundation has supported scientists at more than 300 colleges and universities in 49 states, the District of Columbia and Puerto Rico.
Conference Organization

• Organizing committee:
  – Eileen Cannon (PhRMA Foundation)
  – Jean Gagnon (PhRMA Foundation)
  – Joe Vandigo (PhRMA)
  – Glen Schumock (U. Illinois)
  – Simon Pickard (U. Illinois)
  – Beth Devine (U. Washington)
  – Eleanor Perfetto (U. Maryland)
  – Soumi Saha (AMCP)
Welcoming Remarks

Opening Comments

Conference Goals and Objectives

Glen Schumock
Premise for the Conference

• Significant efforts/funding has been directed toward development of methods for CER/PCOR, in CER/PCOR researcher training, and in CER/PCOR studies.

• Today new CER/PCOR evidence is published frequently in major journals and elsewhere.

• Until recently less effort has been directed at the uptake and use of CER/PCOR, and there is a perceived gap here that some previous research has documented.
Conference Aims

1. Provide an overview of the existing landscape on strategies to enhance uptake and use of CER/PCOR by patients, clinicians, and payers.
2. Identify and discuss the needs and gaps in the uptake and use of CER/PCOR evidence by patients, clinicians, and payers.
3. Identify the best methods or approaches to enhance the uptake and use of CER/PCOR evidence by patients, clinicians, and payers.
4. Provide an opportunity for networking among attendees.
5. Develop a consensus document or other enduring material that provides benefit beyond the conference by providing a framework for recommendations and tools for training current and future users of CER-PCOR evidence.
Conference Agenda

1:15 PM – 2:15 PM  Registration

2:00 PM – 2:05 PM  Welcome Remarks
   Eileen Cannon, President, PhRMA Foundation

2:05 PM – 2:15 PM  Opening Remarks
   Glen Schumock, PharmD, MBA, PhD, University of Illinois at Chicago

2:15 – 2:45 PM  A Look Back: The History of CER Education Programs and The Motivation for PhRMA Foundation Centers of Excellence
   Introduction: Glen Schumock, PharmD, MBA, PhD, University of Illinois at Chicago
   Speaker:
      - Michael Murray, PharmD, MPH, Regenstrief Institute, Inc., Purdue University

2:45 PM – 3:30 PM  How Has the Landscape Changed Since the Creation of the PhRMA Foundation Centers of Excellence in CER Education?
   Introduction: Glen Schumock, PharmD, MBA, PhD, University of Illinois at Chicago
   Presenters:
      - Lou Garrison, PhD, University of Washington
      - Simon Pickard, PhD, University of Illinois at Chicago
      - Eleanor Perfetto, PhD, MS National Health Council and University of Maryland

3:30 PM – 3:45 PM  Break
Conference Agenda

3:45 PM – 4:45 PM  CER/PCOR Related Overview and Update on Funding Programs
Introduction: Simon Pickard, PhD, University of Illinois at Chicago
Presenters:
- Bill Lawrence, MD, MS, Patient-Centered Outcomes Research Institute
- Sharon Arnold, PhD, Agency for Healthcare Research and Quality
- Josephine Briggs, MD, NIH - National Center for Complementary and Integrative Health

4:45 PM – 5:45 PM  Stakeholder Perspectives: Identifying the Needs and Gaps in the Uptake and Use of CER/PCOR
Introduction: Eleanor Perfetto, PhD, MS, National Health Council and University of Maryland
Moderator: Scott Smith, PhD, Health and Human Services
Panelists:
- Eleanor Perfetto, PhD, MS, National Health Council and University of Maryland
- Caleb Alexander, MD, MS, Johns Hopkins University
- Soumi Saha, PharmD, JD, Academy of Managed Care Pharmacy
- Murray Ross, PhD, Kaiser Permanente
- Julie C. Locklear, PharmD, MBA, EMD Serono

5:45 PM – 6:30 PM  Networking Reception in the Rotunda

6:30 PM – 8:15 PM  Dinner and Keynote Address: The Future of CER/PCOR - Navigating Uncertainty
Introduction: Eleanor Perfetto, PhD, MS, National Health Council and University of Maryland
Keynote: Kavita Patel, MD, The Brookings Institution
# Conference Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 AM – 8:00 AM</td>
<td>Continental Breakfast</td>
</tr>
<tr>
<td>8:00 AM – 9:00 AM</td>
<td><strong>In Action: Dissemination and Uptake of CER/PCOR</strong>&lt;br&gt;Introduction: Glen Schumock, PharmD, MBA, PhD, University of Illinois at Chicago&lt;br&gt;Speakers:&lt;br&gt;- Elaine Morrato, DrPH, MPH, CPH, University of Colorado&lt;br&gt;- Nilay Shah, PhD, Mayo Clinic</td>
</tr>
</tbody>
</table>
| 9:00 AM – 10:00 AM | **Addressing barriers and strategies to enhance the use of CER/PCOR**<br>- Moderator: Simon Pickard, PhD, University of Illinois at Chicago<br>  
  - A Look at Pre-Conference Survey Results<br>    - Ernest Law, BScPharm, PharmD, University of Illinois at Chicago<br>  
  - What We’ve Learned: Overview of NPC Work on Stakeholder Views and Addressing Barriers to Use<br>    - Jennifer Graff, PharmD, National Pharmaceutical Council |
| 10:00 AM – 10:15 AM | Break                                                                   |
| 10:15 AM – 11:30 AM | **A Deeper Dive: Small Group Discussions**                             |
| 11:30 AM – 12:15 PM | **Observations: Reports from Small Group Discussions and Overall Consensus**<br>Moderator: Simon Pickard, PhD, University of Illinois at Chicago |
# Conference Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 12:15 PM – 1:15 PM | Lunch and Presentation: A Learning Network - Improving the Dissemination of PCOR-Based Clinical Decision Support (with Lunch)  
  *Introduction: Eleanor Perfetto, PhD, MS, National Health Council and University of Maryland*  
  *Remarks: Barry Blumenfeld, MD, MS, RTI International | Division of eHealth, Quality and Analytics (eQUA)* |
| 1:15 PM – 2:45 PM | What Is the Future of CER and CER Education? How Will CER Be Integrated Into Practice?  
  *Introduction: Glen Schumock, PharmD, MBA, PhD, University of Illinois at Chicago*  
  *Presenters:*  
  - Diana Brixner, RPh, PhD, FAMCP, University of Utah & President-Elect, Academy of Managed Care Pharmacy (AMCP)  
  - Bill Galanter, MD, University of Illinois at Chicago  
  - Lou Garrison, PhD, University of Washington & President, International Society of Pharmacoeconomics and Outcomes Research (ISPOR) |
| 2:45 PM – 3:00 PM | Conference Summary and Next Steps?  
  *Glen Schumock, University of Illinois at Chicago* |
| 3:00 PM       | Conference Adjourns                                                                                   |
Conference Materials

• Available at: http://bit.ly/CERconference
  – Pre-reading materials are available
  – In the future:
    • Speaker slides
    • Photos
    • Additional materials
History and Overview of Current Landscape on Strategies to Enhance Uptake and Use of CER/PCOR by Patients, Clinicians, and Payers

Part 1: History of CER Education Programs and Motivation for PhRMA Foundation Centers of Excellence

Mick Murray
Motivation for CER Education Program

- March 2009 PhRMA Foundation’s Health Outcome Research Committee recommended a Center of Excellence for Comparative Effectiveness Research Education grant program and writing an RFP to develop CER curricula.

- Jean Gagnon and Eileen Cannon formed a workgroup to develop a model graduate education CER curriculum
  - 20 invited clinical effectiveness researchers (academics, health outcome researchers, government program officials, and others)
  - Daniel Mullins and Emily Reese from the University of Maryland conducted a literature review and administered a survey to workshop participants.
  - Cliff Goodman from Lewin was workgroup moderator.
CER Education Workgroup

- December 18, 2009, workgroup participants hear the survey results from Daniel Mullins and Emily Reese, and are provided guidance on curricular design by Robert Beardsley
- The group is divided into subgroups and asked to develop examples of CER curriculums
- After workgroup presentations Cliff Goodman motivates the invitees to develop a consensus CER curriculum
- At the end of the meeting the attendees suggest publishing their proposed considerations for a CER curriculum in a referred journal
- An article entitled “Curricular Considerations for Pharmaceutical Comparative Effectiveness Research” is written by workshop participants and published in *Pharmacoepidemiology and Drug Safety* (2011)
Related Manuscripts

Curricular considerations for pharmaceutical comparative effectiveness research

Michael D. Murray*

Purdue University College of Pharmacy and Regenstrief Institute, Indianapolis, USA

ABSTRACT

In the U.S., pharmacoeconomics and related health professions can potentially flourish with the congressional appropriation of $1.1 billion of federal funding for comparative effectiveness research (CER). A direct result of this legislation will be the need for a sufficient number of trained scientists and decision-makers to address the research and implementation associated with CER. An interdisciplinary expert panel comprised mostly of professionals with pharmaceutical interests was convened to examine the knowledge, skills, and abilities to be considered in the development of a CER curriculum for the health professions focusing predominantly on pharmacoeconomics. A limitation of the panel’s composition was that it did not represent the breadth of comparative effectiveness research, which additionally includes devices, services, diagnostics, behavioral treatments, and delivery system changes. This bias affects the generalizability of these findings. Notwithstanding, important components of the curriculum identified by the panel included study design considerations and understanding the strengths and limitations of data sources. Important skills and abilities included methods for adjustment of differences in comparator group characteristics to control confounding and bias, data management skills, and clinical skills and insights into the relevance of comparisons. Most of the knowledge, skills, and abilities identified by the panel were consistent with the training of pharmacoeconomists. While comparative effectiveness is broader than the pharmaceutical sciences, pharmacoeconomists have much to offer academic and professional CER training programs. As such, pharmacoeconomists should have a central role in curricular design and provision of the necessary training for needed comparative effectiveness researchers within the realm of pharmaceutical sciences. Copyright © 2011 John Wiley & Sons, Ltd.

KEYWORDS — comparative effectiveness research; curriculum; training

Received 19 August 2010. Revised 9 December 2010. Accepted 13 December 2010

Preliminary Competencies for Comparative Effectiveness Research

Jodi B. Segal, M.D.1, Vishwa Kapoor, M.D.2, Timothy Carey, M.D.3, Pamela H. Mitchell, Ph.D.1, Michael D. Mermin, Pharm.D., Kenneth G. Saag, M.D.1, Glen Schumock, Pharm.D.3, Daniel Jonas, M.D.1, Michael Steinman, M.D.1, Rosemarie Ritter, M.D., PhD1, Morris Weinberger, Ph.D.1, and Harry Selker, M.D.1

Abstract

The Clinical and Translational Science Award (CTSA) Workgroup for Comparative Effectiveness Research (CER) Education, Training, and Workforce Development identified a need to delineate the competencies that practitioners and users of CER for patient-centered outcomes research should acquire. With input from CTSA representatives and collaborators, we began by describing the workforce. We recognized the workforce that conducts CER and the end users who use CER to improve the health of individuals and communities. We generated a preliminary set of competencies and solicited feedback from the CER representatives at each member site of the CTSA consortium. We distinguished applied competencies (i.e., skills needed by individuals who conduct CER) from foundational competencies that are needed by the entire CER workforce, including end users of CER. Key competency categories of relevance to both practitioners and users of CER were: (1) asking relevant research questions; (2) recognizing or designing ideal CER studies; (3) executing or using CER studies; (4) using appropriate statistical analyses for CER; and (5) communicating and disseminating CER study results to improve health. Although CER is a particularly broad concept, we anticipate that these preliminary, relatively generic competencies will be used in tailoring curricula to individual learners from a variety of programmatic perspectives. Clin Transl Sci 2012; Volume 5: 476–479

Keywords: comparative effectiveness research, competencies, workforce

DOI: 10.1111/cts.1201001054

476 CTS VOLUME 5 • ISSUE 6 www.ctsjournal.com
Centers of Excellence for Comparative Effectiveness Research Education

- The CER Curriculum Initiative and Business Case for a PhRMA Foundation Center of Excellence for Comparative Effectiveness Research Education Program was written and submitted with the CER committee’s draft curriculum to the Executive Director and Foundation’s Board for approval.
- The Board approved the program and a Request for Proposal for CER Education and Training Programs was released on May 23, 2011 with a July 31, 2011 deadline.
- A CER Center Advisory Committee, chaired by Eileen Cannon, was formed to review and select awardees on October 10, 2011, October 22, 2012, October 16, 2013, and November 12, 2014.
- Two applicants out of seven in 2012 received program awards; two out of five in 2013; one submission out of two in 2014; and one out of six in 2015.
Center Program Objectives

- Support the development of educational and training programs that clearly and efficiently teach students and practitioners how to conduct rigorous, useful, and effective CER.
- Act in a supportive role together with private and public partners to achieve the goal of producing high caliber comparative effectiveness researchers and practitioners who interpret and use research results.
- Furnish the necessary resources that can be used to develop corroborating evidence on the usefulness and value of sound CER.
- Convene public fora and seminars for interested members of the public from the wider university / college community to discuss topical CER issues.
Center Program Objectives

• Promote with other groups the development of a CER Curriculum that offers the appropriate discipline-specific educational skills, research methodology training, and case experience needed to produce highly desirable comparative effectiveness (CE) researchers and practitioners.

• Sponsor lectures and presentations on different programs and venues, e.g., AHRQ, NIH, industry, universities, and others that promote conscientious discussions on important CER topics.

• Work with representatives from government, industry and education to determine the number and types of CER trained experts needed to fill the personnel demands of these societal sectors.

• Make available to interested members of the public, by electronic publication or other easily accessible means, CER educational training tools developed with funding provided by the Foundation.
Reviewers

• Jean Paul Gagnon, PhD
  – Former Senior Director, Public Policy, Sanofi-Aventis

• Jesse A. Berlin, ScD
  – Vice President, Epidemiology, Johnson & Johnson

• Beth Devine, PharmD, MBA, Ph.D.
  – Associate Professor, Pharmaceutical Outcomes Research & Policy Program, University of Washington

• Daniel C. Malone, PhD
  – Professor, Pharmacy Practice and Science, University of Arizona
Reviewers

• C. Daniel Mullins, PhD
  – Professor and Chair, Pharmaceutical Health Services Research Department, University of Maryland

• Michael D. Murray, PharmD, MPH
  – Professor, Purdue University and Regenstrief Institute

• Nancy C. Santanello, MD, MS
  – Former Vice President of Epidemiology, Merck Research Laboratories
Review Criteria

- Qualifications of faculty members and mentors (20%)
- Facilities including experiential learning partners (25%)
- Curriculum/Plan of Study (15%)
- Prior faculty and school or college experience (10%)
- Dissemination strategy (10%)
- Process for internal evaluation (10%)
- Institutional support (10%)

Following AHRQ’s review framework, each of the 7 criteria received a score from 1 (best) to 9 (worst).
Centers of Excellence for Comparative Effectiveness Research Education
Center of Excellence for Comparative Effectiveness Research Education Awardees

2012 –
1. Jodi Segal, MD, MPH, Johns Hopkins University
2. Lou Garrison, AB, PhD, Beth Devine, PharmD, MBA, PhD, and Anirban Basu, MS, PhD, University of Washington

2013 –
1. Sonia Hernandez-Diaz, MD, DrPH, FISPE, Harvard University
2. Michael G. Spigarelli, MD, PhD and Diana Brixner, RPh, PhD, University of Utah

2014 –
1. Eleanor M. Perfetto, MS, PhD, University of Maryland

2015 –
1. Glen Schumock, PharmD and A. Simon Pickard, PhD, University of Illinois Chicago
Investing for the Future

PhRMA FOUNDATION

Center of Excellence for Comparative Effectiveness Research Program

Jean Paul Gagnon
Chair, Health Outcomes Research and Comparative Effectiveness Research Centers of Excellence Committees

January 28, 2014
Previous Conference*

- Held January 28 and 29, 2014
- Objectives: to compare existing competencies, define the scope of CER/PCOR and academic approaches to training, and discuss the need for standardized competencies.
- The five centers reported
- Keynotes by Drs. Gail Wilensky and Mark McClellan.
- CER and PCOR involve team science with breadth of methodologic training and depth in one or more areas of expertise.
- Gaps in training included methods for patient engagement, dissemination and implementation, decision sciences, and use of big data.
- A follow up survey was conducted.

* From Segal J, Devine B, Garrison LP, and Gagnon JP
### Survey Results*

Participants were asked what was used from the conference (n=43)

<table>
<thead>
<tr>
<th></th>
<th>Thinking about</th>
<th>In Development</th>
<th>Implemented</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>New lecture</td>
<td>72.4%</td>
<td>17.2%</td>
<td>10.3%</td>
<td>29</td>
</tr>
<tr>
<td>New course</td>
<td>79.2%</td>
<td>16.7%</td>
<td>4.2%</td>
<td>24</td>
</tr>
<tr>
<td>New training program</td>
<td>59.1%</td>
<td>31.8%</td>
<td>9.1%</td>
<td>22</td>
</tr>
<tr>
<td>New format to course</td>
<td>73.7%</td>
<td>21.0%</td>
<td>5.3%</td>
<td>19</td>
</tr>
<tr>
<td>Multidisciplinary teaching of CER/PCOR</td>
<td>53.6%</td>
<td>39.3%</td>
<td>10.7%</td>
<td>28</td>
</tr>
<tr>
<td>Improvement to existing offerings</td>
<td>38.9%</td>
<td>44.4%</td>
<td>16.7%</td>
<td>36</td>
</tr>
<tr>
<td>New mentored experiences</td>
<td>60.0%</td>
<td>30.0%</td>
<td>13.3%</td>
<td>30</td>
</tr>
</tbody>
</table>

* From Jodi Segal, MD, MPH, May 2014
PhRMA Foundation – CER Centers of Excellence Strategic Evaluation

Key Findings

May 13, 2015
avalere.com
Impetus for Establishing Centers of Excellence in CER Education

Based on environmental trends and the CER Curriculum Meeting, the PhRMA Foundation developed a request for proposals (RFP) for establishing Centers of Excellence (COE) in CER education and training, which garnered interest from several leading universities.
Findings Show COEs Have Operationalized Objectives, Are Appreciative of PhRMA Foundation Support

### Key Findings from Progress Reports and COE Interviews

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COEs appreciate the specific targeting by the PhRMA Foundation for CER curriculum development as this initiative still appears unique in the academic landscape</td>
</tr>
<tr>
<td>2</td>
<td>Flexibility in crafting a program around individual centers’ current offerings contributes to the success and efficient use of resources, as opposed to a one size fits all approach</td>
</tr>
<tr>
<td>3</td>
<td>COEs employed a variety of approaches, and, as a result, the culmination of all six centers meets (and often exceeds) original objectives outlined in RFP</td>
</tr>
<tr>
<td>4</td>
<td>COEs with pre-existing and strong foundation in CER were likely to offer the most comprehensive programs</td>
</tr>
<tr>
<td>5</td>
<td>Though appropriate for initial round of funding, broad objectives outlined in RFP could be narrowed to support COEs in focusing in on targeted areas of student support</td>
</tr>
<tr>
<td>6</td>
<td>Current CER curriculum and training focuses principally on “producers” of CER; addressing the needs of “users” remains an important gap</td>
</tr>
</tbody>
</table>
Strong Demand Continues Without Sufficient Alternative Support That Targets These Programs

“I don’t think CER is just a trend...it has a hugely important niche. We need methodologies that address the limitations of data while capitalizing on their strengths...CER is a methodological way to try to churn the data accumulated in healthcare into meaningful evidence. We need programs in the long-term to accomplish that.”

“I think we can’t possibly keep up with the workforce requirements that we’ll need in this area. Government agencies, patient advocacy groups, industry... all as employers of people who will need to have these kinds of skills. We’re going to have high demand.”

PhRMA Foundation plays an important and unique role in satisfying the ongoing demand for CER training; the Foundation should consider activities to move forward with the initiative that finely tune current objectives and are targeted towards existing gaps
### Key Needs and Gaps

- Greater support for students with CER education and training opportunities
- Enhanced collaboration between academic institutions engaged in CER would be beneficial to student academic and professional development, as well as to strengthen the generation and use of CER more widely
- Lack of academic partnerships with government stakeholders and payers
- Address growing availability and use of “big data” and subsequent demand for students to obtain and exercise relevant database management and analysis skills for real-world evidence generation

### Avalere’s Recommendations

- Consider targeted fellowships for research, scholarships, and conferences
- Organize a follow-on conference on CER curriculum education and training
- Propose a bridge grant to support collaboration between academic institutions, with a focus on pairing those with a “researcher” and “user” focus and constituency
- Refine RFP (or other avenues of support) to emphasize innovative partnerships between academic institutions and government stakeholders (e.g., AHRQ, PCORI, CMS) as well as private payers
- Provide targeted funding to academic institutions to support acquisition of databases and develop courses to expose students to such methods
Future Initiatives To Effectively Meet Identified Needs and Gaps in CER Education and Training (1 of 2)

<table>
<thead>
<tr>
<th>Key Needs and Gaps</th>
<th>Avalere’s Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Greater support for students with CER education and training opportunities</td>
<td>• Consider targeted fellowships for research, scholarships, and conferences</td>
</tr>
<tr>
<td>• Enhanced collaboration between academic institutions engaged in CER would be beneficial to student academic and professional development, as well as to strengthen the generation and use of CER more widely</td>
<td>• Organize a follow-on conference on CER curriculum education and training</td>
</tr>
<tr>
<td>• Lack of academic partnerships with government stakeholders and payers</td>
<td>• Propose a bridge grant to support collaboration between academic institutions, with a focus on pairing those with a “researcher” and “user” focus and constituency</td>
</tr>
<tr>
<td>• Address growing availability and use of “big data” and subsequent demand for students to obtain and exercise relevant database management and analysis skills for real-world evidence generation</td>
<td>• Refine RFP (or other avenues of support) to emphasize innovative partnerships between academic institutions and government stakeholders (e.g., AHRQ, PCORI, CMS) as well as private payers</td>
</tr>
<tr>
<td>• Provide targeted funding to academic institutions to support acquisition of databases and develop courses to expose students to such methods</td>
<td></td>
</tr>
</tbody>
</table>
### Key Needs and Gaps

- Current efforts in CER education and training (and general development of the field) are somewhat siloed to certain areas in the U.S.

- Limited focus on and outreach to “users” of CER.

- Demand for CER grows, increasing the need for a robust, diverse, and interconnected CER workforce

### Avalere’s Recommendations

- Support collaboration among regional universities and other partners by way of symposiums/conferences or collaborative CER projects, in order to expand CER capabilities across the country

- More curriculum/outreach directed towards "users" of CER to support and also inform the "researchers" regarding applicability and fit for purpose

- Dedicate future funding on CER education and training opportunities for healthcare professionals (e.g., physicians, pharmacists)

- Engage students outside of program (e.g., pharmacy students) in CER methods and training

- Expose other relevant stakeholders to CER concepts and methods (e.g., students in undergraduate setting; industry; researchers involved in dissemination science, evaluation, health services research; patient organizations, etc.)
Summary

• The needs for scientists trained to conduct and implement CER continue to grow.
• New elements and methodologies will be needed as it relates to experimental and observational study designs.
• The PhRMA Foundation’s Center of Excellence for Comparative Effectiveness Research Education program has been the spearhead of curricular development and training of the future cohort of scientists.
• We will learn more about the next steps for CER training and implementation at this conference.
Next...

• We will hear from several program awardees beginning with Professor Lou Garrison at the University of Washington.
History and Overview of Current Landscape on Strategies to Enhance Uptake and Use of CER/PCOR by Patients, Clinicians, and Payers

Part 2: Experience from Academic Institutions Supported by the PhRMA Foundations Centers of Excellence in CER Education

Beth Devine
Lou Garrison
Simon Pickard
Eleanor Perfetto
Center of Excellence in CER Awardees

2012
1. Beth Devine, PharmD, MBA, PhD, Lou Garrison, AB, PhD, and Anirban Basu, MS, PhD, University of Washington
2. Jodi Segal, MD, MPH, Johns Hopkins University

2013
3. Sonia Hernandez-Diaz, MD, DrPH, FISPE, Harvard University
4. Diana Brixner, RPh, PhD, University of Utah

2014
5. Eleanor M. Perfetto, MS, PhD, University of Maryland

2015
6. Glen Schumock, PharmD and A. Simon Pickard, PhD, University of Illinois Chicago
University of Washington
Center of Excellence in
Comparative Effectiveness Research

Beth Devine, PhD, PharmD, MBA
Lou Garrison, PhD
Anirban Basu, PhD
UW CER Center of Excellence in CER

• Leverages existing CER expertise and research
  – UW Centers for Comparative and Health System Effectiveness (CHASE) Alliance
  – Public Health, Pharmacy, Medicine and Nursing

• Links capacity and resources across groups to promote greater collaboration and efficiencies in conducting high impact CER

• Partnership institutions
  – Fred Hutchinson Cancer Research Center
  – Group Health Research Institute
  – Veterans Affairs Puget Sound Health Care System

• Involves our stakeholders in real-world settings

• Strengthens partnerships with UW CTSA members in T1 space
Center Objectives

• Train UW students how to conduct rigorous, useful, and effective CER
• Support private and public partners in training researchers and users of CER
• Develop evidence supporting the usefulness and value of sound CER
• Convene public forums and seminars to discuss CER issues
Center Programs

- **Graduate Certificate in CER (PI: Devine)**
  - Pharmaceutical Outcomes Research & Policy Program
  - Department of Health Services
- **AHRQ T32 funding for Health Services Research (PI: Grembowski)**
  - Pre-doctoral fellows (PhD students)
- **AHRQ K-12 funding for CER/PCOR (PI: Sullivan)**
  - Post-doctoral fellows and junior faculty
  - 2010-2013, 4 scholars
  - 2012-2014, 3 scholars
  - 2014-2019, 10 scholars
- **Patient Centered Outcomes Research Partnership (PCORP) (PI: Kessler)**
  - 2015-2018
    - Investigators from the Washington, Wyoming, Alaska, Montana, Idaho (WWAMI) region (plus South Dakota)
- **AHRQ Evidence-based Practice Center (EPC)**
  - Pacific Northwest EPC (with OHSU and Spectrum Research)
CER Training across 8 Disciplines

- Epidemiology and Biostatistics
- Outcomes Research
- Health Services Research
- Health Economics
- Pragmatic Clinical Trials
- Health Information Technology
- Real-world Implementation
- Decision Modeling/Sciences
Pharmaceutical Outcomes Research & Policy Program, School of Pharmacy
&
The Department of Health Services, School of Public Health

Graduate Certificate in
Comparative Effectiveness Research

- Launched in 2011
- Support from the PhRMA Foundation
- Builds on solid, multi-disciplinary doctoral training programs in PORPP and Health Services
- Formally approved by the UW Graduate School and University Board of Regents
- 5 year renewal to UW Graduate School submitted in December 2016
Program Features

Comparative effectiveness research is a growing field that aims to generate evidence to improve health care decisions for patients and providers. It examines the benefits and risks of different medical or healthcare interventions, including drugs and medical technology. The results of these comparison studies are used by clinicians, patients and policy makers to make well informed healthcare decisions and thereby improve patient care.

Learning Objectives

The **Graduate Certificate in CER** provides UW pre-doctoral graduate students with multidisciplinary support and training that will enable them to:

- Use rigorous, state-of-the-art research methods to conduct CER projects,
- Design and execute well-designed CER studies,
- Disseminate the results of CER studies to local, regional and national stakeholders through presentations and publications in the peer reviewed and gray literature,
- Engage a variety of stakeholders (clinicians, payers, patients, caregivers, employers) in discussions about CER,
- Understand, appreciate, and perhaps be involved in policy discussions around implementing the results of CER studies at the local, regional and national levels,
CER Certificate Curriculum

- Builds on basic coursework in epidemiology/pharmacoepidemiology, biostatistics (2 years), medical and pharmaceutical product development and policy, US healthcare system, social determinants of health
- Electives: electives, grant-writing, information technology, clinical trials design, and more

<table>
<thead>
<tr>
<th>Course Title</th>
<th>PORPP</th>
<th>HSERV</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSERV 523: Advanced Health Services Research Methods, quarter 1</td>
<td>Core</td>
<td>Core</td>
</tr>
<tr>
<td>HSERV 524: Advanced Health Services Research Methods, quarter 2</td>
<td>4</td>
<td>Core</td>
</tr>
<tr>
<td>HSERV 525: Advanced Health Services Research Methods, quarter 3</td>
<td>4</td>
<td>Core</td>
</tr>
<tr>
<td>HSERV 583/PHARM 534: Economic Evaluation in Health and Medicine</td>
<td>Core</td>
<td>3</td>
</tr>
<tr>
<td>HSERV 584/PHARM 535: Assessing Outcomes in Health and Medicine</td>
<td>Core</td>
<td>3</td>
</tr>
<tr>
<td>EPI 541/HSERV 529/AMCP 1: Introduction to Meta Analysis</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CS&amp;SS 564: Bayesian Statistics for the Social Sciences</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>HSERV 585/PHARM 536: Advanced Methods in CER</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CAPSTONE Project</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS FOR CERTIFICATE</strong></td>
<td>19</td>
<td>17</td>
</tr>
</tbody>
</table>
Core Faculty

Leadership Team:
Louis P. Garrison, Jr., PhD, Director, Certificate Program, Professor, Pharmaceutical Outcomes Research & Policy
Beth Devine, PharmD, MBA, PhD, Associate Professor, Pharmaceutical Outcomes Research & Policy
Anirban Basu, PhD, Associate Professor, Health Services

Additional Steering Committee Members:
David Grembowski, PhD, Professor, Health Services
Larry Kessler, ScD, Professor and Chair, Health Services
Sean Sullivan, PhD, Professor, Pharmaceutical Outcomes Research & Policy
David Veenstra, PharmD, PhD, Professor, Pharmaceutical Outcomes Research & Policy

Plus numerous additional faculty and mentors
Students

Admissions Information
Eligibility Limited to Current UW Graduate Students
Application Deadline: May 23, 2014

One pre-doctoral fellowship will be available and will be awarded to a student in their second or third year upon the following merits of their application: scholarship, number of previous CER projects completed, and number of manuscripts published.

One dissertation fellowship will be awarded to a fourth or fifth year student. Those who qualify will have completed their coursework and are completing dissertation work in CER. This fourth or fifth year student will not be formally enrolled in the CER Certificate; instead they will provide mentorship to the students enrolled in the certificate program.

Students may apply to the Certificate Program regardless of whether they receive support from either fellowship.

Additional application information and the application form is available on the Certificate website.

- Enrollment limited to those currently enrolled in a UW graduate program
- Awarded 3 pre-doctoral and 5 dissertation fellowships
- 3 additional trainees have completed the program
- Seminars: CHASE Alliance WIPS – 137 total; Program in Health Economics and Outcomes Methodology (PHEnOM) – 20 per year
Adding CER Training to the UW PharmD Curriculum

UW local competition held on January 21, 2017
Thank you!

Questions?

Thank you!
PhRMA Foundation: CER Center for Excellence in Education

Johns Hopkins University
Jodi Segal, MD, MPH
Academic Home: Health Policy and Management

- Center for Health Services and Outcomes Research (CHSOR)
- Established in 1969
- One of oldest in US devoted to interdisciplinary health services research
- Director – Albert Wu
- Associate Directors– Jodi Segal and Jill Marstellar
- Special attention is devoted to vulnerable populations
  —Children, elderly, uninsured, mentally ill, disabled
Stated Aims

- **Specific Aim 1.** To develop a certificate program in CER. These required and elective courses will also fulfill requirements for a CER track within our existing Masters of Public Health (MPH) degree program.

- **Specific Aim 2.** To convert our most relevant CER courses to online courses to allow them to be accessed remotely by learners (2 courses).

- **Specific Aim 3.** To create a series of seminars and lectures that our faculty will disseminate to key stakeholders with interest in CER development and implementation of findings.
Certificate in CER

- Students must complete 21 units of coursework
- Letter grades and a 3.0 grade point average required
- Completed within a 3-year period
- In-residence program
- Online program
- Complemented by ongoing seminar series
# Certificate Curricula for Comparative Effectiveness Research

**[Certificate Requires 21 Credits]**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 312.693 Introduction to Comparative Effectiveness Research</td>
<td>3</td>
</tr>
<tr>
<td>R 309.712 Assessing Health Status &amp; Patient Outcomes</td>
<td>3</td>
</tr>
<tr>
<td>R 340.601 Principles of Epidemiology</td>
<td>5</td>
</tr>
<tr>
<td>R 309.631 Population Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>R Research Ethics Workshops About Responsibilities and Duties of Scientists</td>
<td>Non-credit</td>
</tr>
<tr>
<td>E 340.606 Systematic Review and Meta-analysis</td>
<td>5</td>
</tr>
<tr>
<td>E 340.728 Advanced Methods for Design and Analysis of Cohort Studies</td>
<td>4</td>
</tr>
<tr>
<td>E 221.644 Econometric methods for evaluation of health programs</td>
<td>4</td>
</tr>
<tr>
<td>E 340.682 Pharmacoepidemiology Methods</td>
<td>3</td>
</tr>
<tr>
<td>E 313.790 Economic Evaluation I</td>
<td>3</td>
</tr>
<tr>
<td>E 313.631 Economic Evaluation II</td>
<td>4</td>
</tr>
<tr>
<td>E 300.713 Research and Evaluation Methods for Health Policy</td>
<td>4</td>
</tr>
<tr>
<td>E 309.600 Evaluating quality improvement and patient safety programs</td>
<td>2</td>
</tr>
</tbody>
</table>
## Certificate Curricula for Comparative Effectiveness Research [21 Credits]

<table>
<thead>
<tr>
<th>R/E</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>312.693 Introduction to Comparative Effectiveness Research</td>
<td>3</td>
</tr>
<tr>
<td>R</td>
<td>309.712 Assessing Health Status &amp; Patient Outcomes</td>
<td>3</td>
</tr>
<tr>
<td>R</td>
<td>340.601 Principles of Epidemiology</td>
<td>5</td>
</tr>
<tr>
<td>R</td>
<td>309.631 Population Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>R</td>
<td>Research Ethics Workshops About Responsibilities and Duties of Scientists</td>
<td>Non-credit</td>
</tr>
<tr>
<td>E</td>
<td>340.606 Systematic Review and Meta-analysis</td>
<td>5</td>
</tr>
<tr>
<td>E</td>
<td>340.728 Advanced Methods for Design and Analysis of Cohort Studies</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>221.644 Econometric methods for evaluation of health programs</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>340.682 Pharmacoepidemiology Methods</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>313.790 Economic Evaluation I</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>313.631 Economic Evaluation II</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>300.713 Research and Evaluation Methods for Health Policy</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>309.600 Evaluating quality improvement and patient safety programs</td>
<td>2</td>
</tr>
</tbody>
</table>

Course development supported by PhRMA Foundation
Harvard University

PhRMA Foundation funded CER Educational Centers of Excellence

Sonia Hernandez-Diaz, MD, DrPH, FISPE
History

• **1913** - founding of Harvard School of Public Health
• **1986** - Program in Pharmacoepidemiology
• **1998** - Division of Pharmacoepidemiology and Pharmacoeconomics (DoPE)
• **2010** - Dean’s Flagship Initiative in CER
• **2013** - PhRMA Foundation CER Educational Center of Excellence
  – Career Development Program in Core Methods for Patient Centered Outcomes Research
  – Multiple departments and programs; large, interdisciplinary faculty
Objectives

- Advance research in the comparative effectiveness and safety of drugs, vaccines, medical devices and procedures
- Equip scholars with the knowledge and expertise they need to evaluate critical safety and effectiveness issues to improve the health care for patients
- Train a new generation of trainers and leader investigators that will advance the field
- Enhance research and academic capacity on CER
- Specifically, refine education and mentoring program on CER for PhD students and post-docs
Program

• Offers two advanced degrees:
  – 80-credit ScD/DPH (about 3 students admitted per year)
  – 42.5-credit SM (about 2 students admitted per year)

• and post-doctoral Fellowships

• Most students have prior doctorates in medicine (MD, DMD) or related sciences, including pharmacy (PharmD) and Ph.D. degrees in biostatistics or econometrics; and/or substantial professional experience in a related field
Curriculum

Formal training, methods on evidence
I. generation, both from clinical trials and observational studies
II. synthesis of through systematic reviews and decision analyses
III. interpretation, translation to practice, and communication
IV. New course: PCOR- Principles and Stakeholder Engagement

• Supervised research experience
• Other experiences
  – Internships in regulatory agencies or pharmaceutical companies, conferences, seminars, teaching
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Competencies</th>
<th>Courses Options and Selected Seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESEARCH METHODS</strong></td>
<td>Scholars will be able to quantify evidence and associated uncertainty toward any CER question regardless of the complexity of the data and/or research question, and understand the principles and application of:</td>
<td></td>
</tr>
</tbody>
</table>
| Biostatistics | - Bayesian methods  
- Survival research methods  
- Regression analysis methods  
- Longitudinal analysis methods  
- Clinical trials design and analysis (pragmatic trials)  
- Research synthesis & meta-analysis  
- Effect heterogeneity | - Patient Centered Outcomes Research Course (in development)  
- BIO212 Survival Research Methods  
- BIO213 Applied Regression for Clinical Research  
- BIO223 Applied Survival Analysis and Discrete Data Analysis  
- BIO226 Applied Longitudinal Analysis Methods  
- BIO249 Bayesian Methods in Biostats  
- BIO214 Principles of Clinical Trials  
- BIO238 Advanced Topics in Clinical Trials  
- BIO234 Biostats Methods Research Synthesis & Meta Analysis  
- BIO256 CER methods |
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Competencies</th>
<th>Courses Options and Selected Seminars</th>
</tr>
</thead>
</table>
| Epidemiology  | • Models for causal inference  
• Formulation of testable hypothesis  
• Design of observational studies (case control, cohorts and registries, case only designs)  
• Advanced analytic methods (propensity score analysis, high dimensional propensity scores, instrumental variables)  
• Biases: identification in published studies and minimization in research.  
• Comparative effectiveness methods  
• Use of large healthcare databases | • EPI289 Models for Causal Inference  
• EPI207 Advanced Epidemiologic Methods  
• EPI271 Propensity Score Analysis: Theory & Practice (1.25cr)  
• EPI208 Introduction to Clinical Epidemiology  
• EPI242 Seminar in Applied Research in Clinical Epidemiology  
• EPI221 Pharmacoepidemiology  
• EPI286 Database Analytics in Pharmacoepidemiology  
• EPI298 Case-based Seminars on CER and Drug Safety  
• EPI235 Methods in Health Services Research  
• EPI233 Research Synthesis & Meta-Analysis  
• EPI288 Data Mining and Prediction  
• EPI 253 Effectiveness Research with Longitudinal Healthcare Databases |
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Competencies</th>
<th>Courses Options and Selected Seminars (Courses are 2.5 credits, unless noted.)</th>
</tr>
</thead>
</table>
| Health Policy & Management Decision Sciences | - Decision analysis methods  
  - Cost-effectiveness and cost-benefit analysis  
  - Health services research methods  
  - Healthcare (quality improvement) methods  
  - Program evaluation methods  
  - Measure (patient-centered) health outcomes  
  - Use of health information technology | - RDS280 Decision Analysis for Health and Medical Practices  
  - RDS285 Decision Analysis Methods  
  - RDS286 Decision Analysis in Clinical Research  
  - RDS288 Methods for Decision Making  
  - RDS282 Cost-Effectiveness and Cost-Benefit Analysis  
  - HPM276 Methods and Application in Health Services Research  
  - HPM516 Health Care: Quality Improvement  
  - HPM543 Quantitative Methods in Program Evaluation  
  - HPM276 Methods and Application in Health Services Research  
  - HPM299 Research with Large Databases  
  - HPM520-01 Community Organizing for Health  
  - HPM530 Measuring Health Outcomes (patient-centered)  
  - HPM519 Health Information Technology & Health Care |
<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Competencies</th>
<th>Courses Options and Selected Seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Behavioral Sciences</td>
<td>▪ Qualitative research methods (e.g., focus groups)&lt;br&gt;▪ Community intervention design, evaluation, and research methods&lt;br&gt;▪ Social and behavioral research methods&lt;br&gt;▪ Recognition and mitigation of health disparities&lt;br&gt;▪ Appraisal of potential of community engagement to identifying health issues and translate findings to reduce health disparities</td>
<td>▪ SBS288 Qualitative Research Methods in Public Health&lt;br&gt;▪ SHDH 207 Race, Ethnicity and Health&lt;br&gt;▪ SHDH231 Community Intervention Research Methods&lt;br&gt;▪ SHDH245 Social &amp; Behavioral Research Methods&lt;br&gt;▪ SHDH509 Health Communication in the 21st Century&lt;br&gt;▪ Harvard Catalyst Seminars</td>
</tr>
<tr>
<td>Responsible Conduct Of Research</td>
<td>{ Scholars will demonstrate competence in: &lt;br&gt;▪ Protection of human subjects principles&lt;br&gt;▪ Preparation of an IRB application, development of informed consent procedures&lt;br&gt;▪ Identification of misconduct in research&lt;br&gt;▪ Conflict of interest management&lt;br&gt;▪ Determination of authorship }</td>
<td>▪ ID250 Ethical Basis of the Practice of Public Health&lt;br&gt;▪ HPM292 Research Ethics (1.25cr)&lt;br&gt;▪ HPM548 Responsible Conduct of Research (1.25 cr)</td>
</tr>
<tr>
<td>Focus Area</td>
<td>Competencies</td>
<td>Courses Options and Selected Seminars (Courses are 2.5 credits, unless noted.)</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| PCOR Principles & Stakeholder Engagement | Scholars will demonstrate competence in:  
- PCORI principles for engaging the public in healthcare research  
- How to define relevant stakeholders  
- Strategies and methods for involving patients in topic generation for patient-centered CER  
- Responsible and ethical use of social media  
- Research dissemination and communication strategies to ensure impact on healthcare delivery | - Patient Centered Outcomes Research Cornerstone Course  
- ID284 Media and Health Communication: Practical Skills  
- ID206 Scientific Writing  
- Stakeholder Advisory Group Seminars:  
  - Returning Clinical Trial Results to Patients (Frank)  
  - Involving Patients in the Dissemination of Evidence (Solomon)  
  - Multi-Stakeholder Collaboration (Tunis)  
  - Personalized Medicine: The Big Pharma Perspective (Horwitz)  
- Harvard Catalyst Seminars                                                                                                                                                                                                 |
Faculty

• **Program Core Faculty**
  – Sonia Hernandez-Diaz, M.D., Dr.P.H.
  – Sebastian Schneeweiss, MD, ScD,
  – Alexander Walker, MD, DrPH
  – John D. Seeger, PharmD, DrPH
  – Joshua J. Gagne, PharmD, ScD
  – Sengwee (Darren) Toh, PharmD, ScD

• **Program Advising Faculty Includes**
  – Miguel Hernan, MD, ScM, DrPH
  – Jerry Avorn, M.D.,
  – Brian Bateman, M.D., M.P.H.
  – Robert Glynn, Ph.D., Sc.D.
  – Krista Huybrechts, M.A., Ph.D.
  – Sharon-Lise Normand, PhD
  – Daniel Solomon, M.D., M.P.H.
  – Tyler van der Weele, PhD
  – Milton Weinstein, PhD
New Developments

• **Courses**
  – More patient-centered research aspects and more training on Big Data Science
  – New 2014: *Effectiveness Research With Longitudinal Healthcare Databases*
  – New 2016: *Database Analytics in Pharmacoepidemiology*
  – New 2016: *Methods in Health Services Research* (focus on CER and PCOR)

• **NEW Core Faculty**
  – Dr. Darren Toh, works on comparative effectiveness and patient-centered outcomes research
New Developments

- **Seminars, Symposia and Workshops**
  - 2013: Symposium on statistical, analytical and design methods for CER for therapeutic interventions
  - 2014: Symposium on Comparative Effectiveness Research in Prevention
  - 2014: Development and Safety Management of Cancer Drugs
  - 2014: Symposium on Pharmacoepidemiology and Drug Safety
  - 2015: Patient Oriented Benefit Risk Evaluation in Oncology Symposium
  - 2016: New Data and New Methods in Advancing Patient Care Symposium
  - Monthly seminars on “Patient-Centered Outcomes Seminar Series” (BWH Patient-centered Comparative Effectiveness Research Center), Epidemiology department seminars, Research methods seminars at DoPE, and many other daily seminars at our Institutions
New Developments

• Leadership
  – Faculty have been reviewers at PCORI, NIH, AHRQ and FDA; Co-authors of methods guidelines for AHRQ, PCORI and Scientific Societies; Co-authors of IOM report on CER; Directors of Patient-centered Comparative Effectiveness Research Center (PCERC); and lecturers on research methods in programs sponsored by government agencies, universities, and other institutions.
  – In 2014 Sonia Hernandez-Diaz became President of the Society for Perinatal and Pediatric Epidemiology and in 2015 she became President for the International Society of Pharmacoepidemiology, where she promoted CER and, in particular, the incorporation of patient-oriented approaches into research planning, translation and implementation. The Society now has a PCOR Special interest group and the number of Plenaries and Workshops on CER and PCOR have substantially increased
# Graduates supported by PhRMA (2013-2016)

<table>
<thead>
<tr>
<th>Student</th>
<th>Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Wahl, MLA, MS, DcD</td>
<td>2014</td>
</tr>
<tr>
<td>Kim Seo Young, MD, DrPH</td>
<td>2014</td>
</tr>
<tr>
<td>Hiraku Kumamaru, MD, MPH, DrPH</td>
<td>2015</td>
</tr>
<tr>
<td>Yoon Young Park, MS, ScD</td>
<td>2016</td>
</tr>
<tr>
<td>Kazuki Toshida, MD, MS, MPH</td>
<td>2017</td>
</tr>
</tbody>
</table>

Many other students and fellows benefited from the Program.
Publications from work as students at HSPH


23. Kumamaru H, Gagne JJ, Glynn RJ, Setoguchi S, Schneeweiss S. Comparison of high dimensional confounder summary scores in database studies of newly marketed medications. Under review


26. Yoshida K, Solomon DH, Kim SC. Importance of active comparator design and new user design in observational studies of drug effects. Nat Rev Rheumatol 2015 [in editorial processing]
Mentored Scholars and Professional Education Program for Comparative Effectiveness Research

University of Utah
Diana Brixner, RPh, PhD
Overall Program Objectives

• Develop new Technology-Oriented Comparative Effectiveness Research (TOCER) training program

• Train a diverse cadre of investigators to conduct and evaluate TOCER studies and publicize research

• Track the effect of scholars’ and professionals research activities locally and nationally

• Offering ongoing continuing education modules in physician, nursing and pharmacy professional associations
Specific Objectives

- **Objective 1: Training programs in CER**
  - New courses:
    - Healthcare Data Analytics (New Course)
    - Decision Analysis and Cost-Effectiveness Analysis
    - Methods in Comparative Effectiveness Research

- **Objective 2: Enhance Public/Private Partnerships**

- **Objective 3: Provide resources for data analysis**
  - Developed course on availability and use of secondary data sources for TOCER

- **Objective 4: Convene public forums and seminars to discuss CER issues**

- **Objective 5: Sponsor lectures/presentations on CER topics**

- **Objective 7: Work with representatives from government, industry to train CER workforce**

- **Objective 8: Create public CER educational training tools developed with funding provided by the Foundation**
Scholar Mentorship Program Status

• First cohort of three students are all PhD students in the Pharmacotherapy Department in the College of Pharmacy
Thank You!

lgarrison@uw.edu
Overview of the PhRMA Foundation Centres of Excellence in CER Education

The UIC experience

Presenter: Simon Pickard, PhD
Picture 1: From the 1999 film “The Matrix” where the main character is offered the choice between a red pill and a blue pill. This is symbolic of the choice patients, clinicians, and decision-makers make, and which CER can help inform.
Background

- The sixth (final) center to be funded
- January 2015 – December 2017
- Funding renewed for a second year
- Co-PIs: Glen Schumock, Simon Pickard
- Based in PSOP department
  - Relatively large (12 FTEs) department of its type in a college of pharmacy
  - Many involved in AHRQ’s DEcIDE, CERT
Aims

1. Support the development of educational and training that teach students and practitioners how to conduct rigorous, useful and effective CER
2. Work with private/public partners to produce high caliber CE researchers and practitioners who interpret and use CER
3. Furnish resources to develop corroborating evidence on the value of CER
4. Convene public forums/seminars to discuss topical CER issues
5. With other groups, promote the development of a CER curriculum that produces CE researchers and practitioners
6. Sponsor lectures and presentations on different programs and venues that promote discussions on CER topics
7. Work with government, industry and educators to determine personnel demands related to CER
8. Provide accessible CER training tools and resources to the public
Major Accomplishments

• The development of a new, online MS degree in CER.
  – This program was designed for working professionals anywhere in the country
    • Especially clinical researchers and employees in the pharmaceutical industry and health care organizations.
  – In year 1, the curriculum was developed
  – In year 2, the MS degree was approved by the University of Illinois Board of Trustees and the Illinois Board of higher education.
  – Applications now being accepted for Fall 2017
<table>
<thead>
<tr>
<th>Title</th>
<th>Rubric</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required Courses (20 Cr)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative Effectiveness Research</td>
<td>PSOP 516</td>
<td>3</td>
</tr>
<tr>
<td>Biostatistics I or Clinical Research Methods I&lt;sup&gt;a&lt;/sup&gt;</td>
<td>BSTT 400 or HPA 472</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Epidemiology: Principles and Methods&lt;sup&gt;a&lt;/sup&gt;</td>
<td>EPI D 403</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacoepidemiology</td>
<td>PSOP 426&lt;sup&gt;d&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>Ethics and Privacy Issues in Comparative</td>
<td>PSOP 400</td>
<td>1</td>
</tr>
<tr>
<td>Effectiveness Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative Effectiveness Research Project</td>
<td>PSOP 592</td>
<td>6</td>
</tr>
<tr>
<td><strong>Elective Courses (Need 12 Cr, choose among following courses, or as approved by Department. Must take at least 6 credits of 500-level electives not including Independent Study and Department Seminar)</strong></td>
<td>SUBTOTAL</td>
<td>20</td>
</tr>
<tr>
<td>Principles of Economic Evaluations of Health Care Interventions</td>
<td>PSOP 573</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Policy</td>
<td>PSOP 535</td>
<td>3</td>
</tr>
<tr>
<td>Concepts in Drug Development: From Bench to Bedside&lt;sup&gt;b&lt;/sup&gt;</td>
<td>BPS 508</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Decision Analysis Techniques I</td>
<td>PSOP 580</td>
<td>2</td>
</tr>
<tr>
<td>Biostatistics II or Clinical Research Methods II&lt;sup&gt;a&lt;/sup&gt;</td>
<td>BSTT 401 or HPA 473</td>
<td>4</td>
</tr>
<tr>
<td>Systematic Reviews and Meta-Analysis</td>
<td>PSOP 484</td>
<td>3</td>
</tr>
<tr>
<td>Independent Study</td>
<td>PSOP 596</td>
<td>1-4</td>
</tr>
<tr>
<td>Department Seminar&lt;sup&gt;c&lt;/sup&gt;</td>
<td>PSOP 595</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Credit Hours (Required + Elective)</strong></td>
<td>SUBTOTAL</td>
<td>12</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>
Other Activities

- Convened advisory board
- Initiated workshops to train clinical pharmacists and residents on best practices in CER
- Organized national conference on strategies to enhance uptake of CER/PCOR
- Grant proposals to support conference
- Collaborated with Midwest ISPOR chapter to survey member interest in CER training
- Created web-based CER-related resources for public
- Held weekly public forums and seminars on topical CER issues
- Presented webinars and symposia on CER topics at national and international forums
- Worked with industry to understand the workforce needs related to CER training and education
Patient-Centered Research for Outcomes, Effectiveness and Measurement (PROEM)

A Center of Excellence in Comparative Effectiveness and Patient-Centered Outcomes Research (CER-PCOR) Training

Eleanor M. Perfetto, PhD, MS, Professor
Department of Pharmaceutical Health Services Research
School of Pharmacy
University of Maryland
PROEM Center of Excellence

• Housed in the UMB School of Pharmacy
• Established in 2014; in its final year
• Objective: Expand CER/PCOR graduate education and training programs
• Focuses on patient centeredness with patient engagement as the first step in any CER activity
• Educate on what is CER/PCOR, how to conduct or become more involved, how to interpret/use
PROEM Center of Excellence

• Educational programing on CER/PCOR
  – Degree-related programming
  – CER/PCOR Online Courses
  – Summer Institutes 2015, 2016, planning 2017
  – PCOR Training: A Program for Rare Disease Patient Advocates - Funded by PCORI
  – Collaboration with the PATIENTS Program
Degree-Related Programming

• How to do:
  – PhD/MS concentration in CER-PCOR
    — Six PhD students; 1 MS students (August 2016)

• How to evaluate/use:
  • CER-PCOR for Health Professionals Course – online MS in Health Sciences
    — Fall 2015: 36 students completed
    — Fall 2016: 57 students completed
  • CER-PCOR Mini Course – online MS in Regulatory Science
    — Fall 2015: 23 students completed
    — Fall 2016: 29 students completed
    — Fall 2017: 34 students (starts May 2017)
CER/PCOR Online CE Courses

1. **CER Collaborative Certificate Program (CCP)**
   - 19-hour course on CER methodology
   - Initially supported by a contract from the CER Collaborative
   - 329 learners registered for the program (2014-2016)
   - 221 learners completed the program to date (industry, payer, academia, and consultants)
   - [http://pharmacists4knowledge.org/cips/CER](http://pharmacists4knowledge.org/cips/CER)
2. Engaging in Comparative Effectiveness & Patient-Centered Outcomes Research - Online Module Series
   - Launched in 2016; 5 CEUs
   - 10 learners completed to date
   - Suggested pre-requisite for CER Collaborative Certificate Program
   - Module topics:
     • Module 1: Fundamentals of CER and PCOR
     • Module 2: Patient & Stakeholder Engagement in Research
     • Module 3: CER-PCOR Research Methodology
     • Module 4: Outcome Measurement
CER-PCOR Summer Institute

- Open to researchers, faculty, graduate students, healthcare professionals, industry researchers, policy makers, and patient advocates

- Conducted in 2015, 2016, planning 2017
  - 2015: 83 registered – Introduction to CER/PCOR Topics
  - 2016: 38 registered – CER/PCOR Advanced Methods
  - 2017: “The Patient Professor”

- Supported by industry grants and registrations
PCOR Training: A Program for Rare Disease Patient Advocates

- PCORI Eugene Washington Engagement Award ($250,000)
- National Organization for Rare Disorders (NORD)
- Provided rare-disease patient advocates with fundamentals of PCOR, how to participate in PCOR projects
- Delivered at the NORD 2015 Annual Summit
  - Day 1 (half-day session): Over 100 participants
  - Day 2 (full-day session): 42 participants, only patients/patient advocates
- Participants have reported success in research funding and other collaborations
- Training materials and resources developed available on PCORI website
Thank you!
Break

• Polaris Foyer
• Please return in 15 minutes
History and Overview of Current Landscape on Strategies to Enhance Uptake and Use of CER/PCOR by Patients, Clinicians, and Payers

Part 3: Overview and Update of Funding Programs with Emphasis on CER/PCOR Uptake and Use by Patients, Clinicians, and Payers

Bill Lawrence
David Meyers
Sharon Arnold
Josephine Briggs
PCORI Research Funding and Uptake

William Lawrence, MD, MS
Associate Director
Clinical Effectiveness and Decision Science

January 26, 2017
PCORI’s Mission and Strategic Goals

PCORI helps people make informed healthcare decisions, and improves healthcare delivery and outcomes, by producing and promoting high-integrity, evidence-based information that comes from research guided by patients, caregivers, and the broader healthcare community.

Our Strategic Goals:

- Increase quantity, quality, and timeliness of useful, trustworthy research information available to support health decisions
- Speed the implementation and use of patient-centered outcomes research evidence
- Influence research funded by others to be more patient-centered
We Fund Comparative Clinical Effectiveness Research

- Generates and synthesizes evidence comparing benefits and harms of at least two different methods to prevent, diagnose, treat, and monitor a clinical condition or improve care delivery
- Measures benefits in real-world populations
- Describes results in subgroups of people
- Helps consumers, clinicians, purchasers, and policy makers make informed decisions that will improve care for individuals and populations
- Informs a specific clinical or policy decision

Note: We do not fund cost-effectiveness research
“The purpose of the Institute is to **assist patients, clinicians, purchasers, and policy-makers in making informed health decisions** by advancing the quality and relevance of evidence concerning the manner in which diseases, disorders, and other health conditions can effectively and appropriately be prevented, diagnosed, treated, monitored, and managed **through research and evidence synthesis**...

... and the dissemination of research findings with respect to the relative health outcomes, clinical effectiveness, and appropriateness of the medical treatments, services...”

-- from PCORI’s authorizing legislation
Our National Priorities for Research

Assessment of Prevention, Diagnosis, and Treatment Options

Improving Healthcare Systems

Communication and Dissemination Research

Addressing Disparities

Accelerating Patient-Centered Outcomes Research and Methodological Research
Funding Mechanisms - Science

• Stakeholder engagement key – in all stages, including dissemination
• Mechanisms – PCORI Funding Announcements (PFAs):
  o Broad awards in each of the five national priorities
    • Help develop the effectiveness data to support uptake
    • Communication and Dissemination Research priority – research on best ways to improve decision making through communication/dissemination of evidence
  o Pragmatic Clinical Studies awards (up to $10 M direct costs)
  o Targeted PCORI Funding Announcements
    • Cycle 1 2017, 2 PFAs on Management of Back Pain
• **Deadline for Letters of Intent, Cycle 1 2017 – Feb. 14 2017**
Funding Mechanisms - Engagement

• Limited Competition – Dissemination and Implementation of PCORI Funded Patient-Centered Outcomes Research Results and Products in Real World Settings
  o Limited to PCORI-funded research projects
• Engagement Award: Knowledge, Training and Development, and Dissemination Awards
  o Focused on infrastructure and relationships to improve channels of dissemination of research findings
http://www.pcori.org/funding-opportunities
Thank You!
Advancing CER and PCOR Uptake: The Role of Training

Sharon Arnold, Ph.D.
Acting Director

David Meyers, Ph.D
Chief Medical Officer

PhRMA Foundation 2017 Meeting
January 26, 2017
Washington, DC
Mission

Produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and work within HHS and with other partners to make sure the evidence is understood and used.
What AHRQ Does

• AHRQ invests in research and evidence to understand how to make health care safer and improve quality

• AHRQ works with frontline clinicians and health care providers, creating materials to teach and train them to apply that evidence to improve care

• AHRQ generates measures and data used to track and improve performance and evaluate progress of the U.S. health system
Learning Health System Evidence Implementation and Generation

Evidence generation conducted during normal course of clinical care

Biomedical Research

Knowledge Networks

Application of best available evidence for each patient

Patients

Point of Care

Clinicians

Adapted from PEDSNet
AHRQ Strategy for a Learning Health System

- Encourage a health system “pull” to transfer knowledge
- Build capacity to generate, adopt, and apply evidence
- Promote data analytics to support population management
- Make evidence available through clinical decision support
Dissemination, Building Capacity for Research

- AHRQ, in consultation with NIH, shall **broadly disseminate** the research findings that are published by PCORI... and other government research relevant to comparative clinical effectiveness research

- AHRQ shall build capacity for comparative clinical effectiveness research through the **training of researchers**
PCOR and Learning Health Systems

Learning from the data of others—
Research evidence
Translation
Guidelines
Continuing professional education

Learning from system data—
Learning Health System activities
Quality improvement

ADOPT EXOGENOUS KNOWLEDGE

CONTEXTUAL KNOWLEDGE

GENERATE ENDOGENOUS KNOWLEDGE

HEALTH SYSTEM LEARNING

INTERVENTIONS TO APPLY KNOWLEDGE

OUTCOMES
Investments in PCOR Dissemination, Training

• Evidence synthesis
  ➢ 27+ systematic evidence reviews since 2010

• Translation and communication
  ➢ Library of PCOR Resources, Eisenberg Center

• Training
  ➢ Funds from PCOR Trust Fund for grants to train researchers
EvidenceNOW Grants

• Grant initiative to support primary care practices’ ability to improve heart health for 1 million Americans
• “Personal training” to increase practices’ capacity to understand and use evidence

>1,500 primary care practices
Focus on ABCS: Aspirin, Blood pressure, Cholesterol, and Smoking cessation

Healthy Hearts in the Heartland
(Midwest Cooperative)
HealthyHearts NYC
(New York City Cooperative)
Heart Health Now!
(North Carolina Cooperative)
Healthy Hearts Northwest
(Northwest Cooperative)
Healthy Hearts for Oklahoma
(Oklahoma Cooperative)
Evidence Now Southwest
(Southwest Cooperative)
Heart of Virginia Healthcare
(Virginia Cooperative)
Clinical Decision Support (CDS) Learning Network

- Accelerate collaborative learning opportunities
- Identify barriers and facilitators to incorporating evidence related to patient-centered outcomes research in CDS
- Monitor use of patient-centered outcomes research evidence in vendor-based and open source CDS tools

www.pcorcds-ln.org
High-Performing Health Systems and Use of PCOR

• Identifying characteristics of health systems that successfully disseminate and apply PCOR evidence

• Five-year study, three sites
  ▶ **Dartmouth College:** How market and organizational factors influence innovations in biomedical, delivery system, patient engagement
  ▶ **National Bureau of Economic Research:** How consolidation and integration affects care outcomes
  ▶ **RAND/Penn State:** Role of incentives, health IT and organizational integration in performance, and evidence dissemination
New Project: PCOR Dissemination and Implementation

- Currently seeking nominations of promising PCOR findings for future D&I activities
- Purpose: to identify promising findings that have the potential for direct impact on patient health outcomes
- Nominated findings must focus on health outcomes of preventive, diagnostic, treatment, or health care delivery approaches; and be published in a peer-reviewed journal
• New focus: Learning Health Systems
  ➢ New, evolving approach in which evidence, informatics, incentives, and culture are aligned for continuous improvement and innovation
• K12 Program: Evidence to help LHSs
  ➢ Program seeks PCOR that generates new evidence that LHSs can rapidly implement to improve quality of care and patient outcomes
  ➢ One component of a national multi-pronged approach to training LHS researchers
• Purpose: to prepare newly trained clinician and research scientists
Thank you!

Your questions?
Clinical Effectiveness Research
Precise or Pragmatic? Can We Have it Both?

January 26, 2017
PhRMA Foundation
Comparative Effectiveness Conference
The price of imprecision
Use of Screening Mammography and Incidence of Stage-specific Breast Cancer in the United States, 1976-2008

“Unfortunately, the number of women in the United States who present with distant disease, only 25% of whom survive for 5 years, appears not to have been affected by screening.”

“We estimate that breast cancer was overdiagnosed (i.e. tumors were detected that would never have led to clinical symptoms) in 1.3 million U.S. women in the past 30 years.”

Bleyer A and Welsh HG. NEJM 2012
NNT | NNH
---|---
Screening mammography to **prevent** breast cancer death | None | 1 in 2 over ten years
Statins for **prevention** of heart attacks | 1 in 104 | 1 in 100

Source:
The NNT group, Nov. 2015
What is a Pragmatic or Practical Trial?

- Defined Practical (pragmatic) trials as those in which “the hypothesis and study design are developed specifically to answer the questions faced by decision makers”

- Decision makers include patients, clinicians, payers, policy makers

Tunis S, Stryer D, Clancy C. JAMA 2003;290:1624-32
Decision makers include the individual

The effectiveness question that matters: 

Will it help me?
Practical Clinical Trials
Increasing the Value of Clinical Research for Decision Making in Clinical and Health Policy

Sean R. Tunis, MD, MSc; Daniel B. Stryer, MD; Carolyn M. Clancy, MD

Author Affiliations


outcomes. The supply of PCTs is limited primarily because the major funders of clinical research, the National Institutes of Health and the medical products industry, do not focus on supporting such trials. Increasing the supply of PCTs will depend on the development of a mechanism to establish...
# Department of Health and Human Services

## Part 1. Overview Information

<table>
<thead>
<tr>
<th>Participating Organization(s)</th>
<th>National Institutes of Health (NIH)</th>
</tr>
</thead>
</table>

### Components of Participating Organizations

- This Funding Opportunity Announcement (FOA) is developed as a Common Fund initiative ([http://commonfund.nih.gov/](http://commonfund.nih.gov/)) through the NIH Office of the NIH Director, Office of Strategic Coordination ([https://dpcpsi.nih.gov/](https://dpcpsi.nih.gov/)). The FOA will be administered on behalf of the NIH by one of the following Institutes, Centers, or Offices:

  - National Heart, Lung, and Blood Institute (NHLBI)
  - National Institute on Aging (NIA)
  - National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
  - Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
  - National Institute of Dental and Craniofacial Research (NIDCR)
  - National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
  - National Institute on Drug Abuse (NIDA)
  - National Institute of Neurological Disorders and Stroke (NINDS)
  - National Institute of Nursing Research (NINR)
  - National Center for Complementary and Integrative Health (NCCIH)
  - Division of Program Coordination, Planning and Strategic Initiatives, Office of Disease Prevention (ODP)
  - Division of Program Coordination, Planning and Strategic Initiatives, Office of Strategic Coordination (Common Fund)

### Funding Opportunity Title

NIH Health Care Systems Research Collaboratory - Demonstration Projects for Pragmatic Clinical Trials (UG3/UH3)
<table>
<thead>
<tr>
<th>Pragmatic</th>
<th>Explanatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad eligibility</td>
<td>Narrow eligibility</td>
</tr>
<tr>
<td>Flexible interventions</td>
<td>Strict</td>
</tr>
<tr>
<td>Typical practitioners</td>
<td>Expert</td>
</tr>
<tr>
<td>No follow-up visits</td>
<td>Frequent</td>
</tr>
<tr>
<td>Objective clinical outcome</td>
<td>Surrogate</td>
</tr>
<tr>
<td>Usual compliance</td>
<td>Close</td>
</tr>
<tr>
<td>Intent-to-treat protocol</td>
<td>ITT plus per</td>
</tr>
</tbody>
</table>

Thorpe KE et al.  CMAJ 2009;180:E47
Tools for EHR-Based Phenotyping

Created by the Collaboratory Phenotypes, Data Standards, and Data Quality Core

On this page, you will find a series of recommendations for collecting and querying data from electronic health records for patient characteristics and clinical features. These phenotype definition recommendations are intended to support the conduct of pragmatic clinical trials, as well as encourage standardized reporting of baseline characteristics of research populations in interventional and observational studies. Also included are resources for identifying additional phenotype definitions through literature search or other groups engaged in electronic phenotyping. Background information on the identification, evaluation, and implementation of phenotype definitions is available in the Living Textbook chapter.

Recommended Phenotype Definitions

Demographics

- Race/ethnicity
- Sex

Common Conditions

- Type 2 diabetes mellitus

Resources for Additional Phenotype Definitions

- Suggestions for Identifying Phenotype Definitions Used in Published Research
- Phenotypes Environmental Scan (survey of phenotype-related efforts)

Table 1 Project

Standardizing Phenotypes for the Table 1 Project

What is the Table 1 Project?

In a research publication, the baseline characteristics for a study population are conventionally reported in Table 1. The goal of the Table 1 Project is to identify important person characteristics and clinical features, along with explicit definitions and representations, for the reporting of baseline characteristics of research populations in interventional and observational studies. Interpreting a research result without an understanding of the population enrolled in the study is treacherous at best. Validated, reproducible, reliable, and generalizable fundamental patient characteristics could support:

- The submission of datasets from NIH-funded studies for archival and secondary use
- The submission of results from NIH-funded studies for archival, retrieval, and comparison purposes
- The standardized reporting of results from NIH-funded studies to ClinicalTrials.gov
- Better practices for describing research populations in publications submitted to medical journals
- The conduct of both multisite pragmatic clinical trials and observational studies

Table 1 elements mapped to phenotype definitions. Adapted from Richesson RL, et al. J Am Med Inform Assoc. 2013;20:e319-e326.
A New Initiative on Precision Medicine
Francis S. Collins, M.D., Ph.D., and Harold Varmus, M.D.

“Tonight, I’m launching a new Precision Medicine Initiative to bring us closer to curing diseases like cancer and diabetes — and to give all of us access to the personalized information we need to keep ourselves and our families healthier.”

— President Barack Obama, State of the Union Address, January 20, 2015
Building a Cohort of 1,000,000 Volunteers
CORE VALUES- All of Us℠ Research Program

• Participation is open to interested individuals.
• Reflecting the rich diversity of America is essential.
• Participants are partners in all phases of the program.
• Participants have access to information and data about themselves.
• The program will adhere to the PMI Privacy and Trust Principles and the PMI Data Security Policy Principles and Framework.
• All of Us℠ is a catalyst for progressive research programs and policies.
Requirements for the Next Generation CER

Built to capture real world information

Built with the participant at the center

Recruitment approach and scale allows conclusions about the diversity of America
Yes- PRECISE

Yes- PRAGMATIC
Perspectives: Needs and Gaps in the Uptake and Use of CER/PCOR
Panel Discussion

Scott Smith
Panelists

• Eleanor Perfetto, PhD, MS
  National Health Council and University of Maryland
• Caleb Alexander, MD, MS
  Johns Hopkins University
• Soumi Saha, PharmD, JD
  Academy of Managed Care Pharmacy
• Murray Ross, PhD
  Kaiser Permanente
• Julie C. Locklear, PharmD, MBA
  EMD Serono
Patient Perspective

Eleanor Perfetto, PhD, MS
National Health Council
University of Maryland School of Pharmacy
Clinician Perspective

Caleb Alexander, MD
Associate Professor of Epidemiology and Medicine
Johns Hopkins Bloomberg School of Public Health
Payer Perspective

- Timeliness of data availability
- Robustness of data availability
- Education and resources
- Identification of research gaps
Payer Perspective

Murray N. Ross, PhD
Vice President, Kaiser Foundation Health Plan, Inc.
Director Kaiser Permanente Institute for Health Policy
Clinician Perspective

Julie C. Locklear, PharmD, MBA
Vice President & Head, Health Economics & Outcomes Research
EMD Serono
Instructions for Evening

• Rotunda Ballroom
  – Please take elevators to 8th floor
  – Networking Reception
  – Dinner and Keynote Presentation
The Future of PCOR/CER – Navigating Uncertainty

Keynote Presentation

Kavita Patel