HHS Public Access

Author manuscript

J Invest Dermatol. Author manuscript; available in PMC 2015 May 01.

Published in final edited form as:

J Invest Dermatol. 2014 November ; 134(11): 2671–2674. doi:10.1038/jid.2014.227.

Proceedings of the Inaugural Pediatric Dermatology Research Alliance (PeDRA) Conference

Dawn H. Siegel, MD[#],
Departments of Dermatology and Pediatrics, Medical College of Wisconsin

Keith Choate, MD, PhD[#],
Departments of Dermatology and Pathology, Yale University

Beth A. Drolet, MD,
Departments of Dermatology and Pediatrics, Medical College of Wisconsin

Ilona J. Frieden, MD,
Departments of Dermatology and Pediatrics, University of California San Francisco

Joyce M. Teng, MD, PhD,
Departments of Dermatology and Pediatrics, Stanford University

Wynnis Tom, MD,
Departments of Pediatrics and Medicine (Dermatology), University of California, San Diego

Mary Williams, MD,
Departments of Dermatology and Pediatrics, University of California San Francisco

Lawrence F. Eichenfield, MD[^], and
Departments of Pediatrics and Medicine (Dermatology), University of California, San Diego

Amy S. Paller, MS, MD[^]
Departments of Dermatology and Pediatrics, Northwestern University

Abstract/Statement of the problem

Skin disease research involving children currently faces several major hurdles and as a result, many therapies are only available for off-label use in children and many of the most pressing clinical needs of our pediatric population remain unsolved. A strategic planning committee of the Society for Pediatric Dermatology (SPD) identified the need for an organized, inclusive research alliance to augment the resources of individual practitioners and pre-existing smaller collaborative groups and facilitate robust, multicenter basic, translational, and clinical research and therapeutic

[*]The Inaugural Pediatric Dermatology Research Alliance (PeDRA) conference was held at the Weston O'Hare in Rosemont, Illinois, USA, on October 18–20, 2013.

Corresponding Author: Dawn Siegel, MD, 8701 Watertown Plank Road, TBRC 2010, Milwaukee, WI 53226, (414) 955-2819, (414) 456-6518, dsiegel@mcw.edu.
[#]indicates co-first authors
[^]indicates co-last authors

Conflict of Interest

The authors state no conflict of interest.

trials. A December 2011 National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) Roundtable on Pediatric Dermatology further detailed the therapeutic gaps and barriers to translation of scientific advances to clinical practice. Building on these forums, in July 2012, a group of interested investigators met in Monterey, CA to develop the infrastructure for collaborative pediatric skin research, now called the Pediatric Dermatology Research Alliance (PeDRA). The vision of PeDRA is to create sustainable collaborative research networks to better understand, prevent, treat and cure dermatologic diseases in children. From that starting point, subcommittees and expert members were added, stakeholders identified, and seed funding garnered, with the first PeDRA stand-alone research meeting* realized in Chicago, IL in October 2013.

Abbreviations Used

SPD; NIAMS; PeDRA; CHOP; COG; PCOR; CER; PROMIS; PC; IPCRR; UCSD; IRB; VIVO; NIH; REDCap; BPCA; FDA; UCSF; MCW; EB; ECG; EB; BCCNA; EBCRC; CCOD; iscorEB; EMR; DOC; FIRST; NEA; VPF; IPCC; PHACE; NICHD; NCI; NOVA; DEBRA

The Inaugural PeDRA meeting*

The goals of this inaugural meeting were to generate a new forum for interactions between clinicians and basic scientists and to foster collaborative research projects in pediatric dermatology. This meeting was also intended to inspire and train the next generation of clinical investigators, provide an infrastructure for regular interchange for existing and future PeDRA working groups and create a venue for interaction with advocacy organizations. This 2½ day conference with 75 attendees featured educational seminars including a keynote address, didactic lecture sessions, reports from disease advocacy groups, a poster session, and an interactive evening session in which abstracts of research proposals were discussed. Four moderated disease-specific work groups met to develop strategies for design and implementation of collaborative studies, and later presented reports stating their goals for the next year. Relationships were cultivated through a speed networking exercise in which the participants shared their ongoing research projects and future goals. A PeDRA business meeting was conducted on the final day.

Topics covered in didactic sessions

Lessons on Collaborative Research—Peter Adamson, Children's Hospital of Philadelphia (CHOP), Chair of the Children's Oncology Group (COG), presented an overview of the formation of this 50+ year collaborative network of investigators devoted to curing pediatric cancer. COG, like PeDRA, arose from the shared recognition of the need for multicenter collaboration to advance the field. A key to COG's success has been the strong culture of research embedded within the specialty, such that greater than 90 percent of U.S. children diagnosed with cancer participate in clinical trials. These efforts have substantially increased survival rates for multiple childhood cancers. Membership in COG is trans-disciplinary, and includes hematologist-oncologists, surgeons, radiation oncologists,

*The Inaugural Pediatric Dermatology Research Alliance (PeDRA) conference was held at the Weston O'Hare in Rosemont, Illinois, USA, on October 18–20, 2013.

pharmacists, laboratory scientists, epidemiologists, and others. He discussed the value of partnerships with industry, via the provision of scientific expertise, access to patient populations, single contract negotiation for many study sites, and a high volume of subjects, and stressed the need for engagement of junior investigators, early involvement by COG investigators in design of industry-sponsored studies, and the facilitation of communication among member sites using web-based centralized data systems.

Keys for Success in Clinical Research—David Cella, director of the Northwestern University Center for Patient-Centered Outcomes, shared his experiences with multiple collaboratives, including those studying cancer, obesity, and outcomes measurements. With the current focus on making informed health decisions based on the quality and relevance of evidence, patient-centered outcomes research (PCOR) and comparative effectiveness research (CER) opportunities have multiplied. Mechanisms for measuring such outcomes include the Patient Reported Outcomes Measurement Information System (PROMIS, www.nihpromis.org), and PROsetta Stone (www.prosettastone.org). Comparative effectiveness research can be administrative, patient-reported, and/or clinical, and is best performed with integration and utilization of Electronic Health Records for data collection.

Building Patient Registries—Mary Schwartz, Director of the PachyonychiaCongenita (PC) Project, spoke about registry development issues, using the International PC Research Registry (IPCRR) as an example. Key questions in building a patient registry include deciding what data to gather, how to gather it, data ownership and sharing, and determining what is gained from data. Patients, researchers, and clinicians should be involved in the registry design, and data-collection methods should reflect the environment of each accessible population. Advances in technology have facilitated exponential growth of IPCRR from 3 patients in one state in 2004 to 1,309 patients in 65 countries in 2013. For IPCRR, patients ultimately own the data and project leaders serve as custodians of the data and as patient advocates. The IPCRR can now provide genetic testing for every patient; gene mutation results led to PC reclassification into 5 subtypes. Registry data has generated improved care and community support, along with collaborative publications, research studies, and clinical trials which ideally will lead to effective treatments and eventually a cure.

Patient Recruitment and Retention—Lawrence Eichenfield, University of California San Diego (UCSD), discussed the types of study designs that might be employed in PeDRA studies, including epidemiological, tissue-based, and interventional studies. He stressed the importance of The Belmont Report in the ethical protection of human subjects of research. When working with children, study design and focus on value are critical. Recruitment strategies include using institutional and IRB-approved postings, as well as conventional and social media. Offering evening or weekend hours for study visits can improve patient retention and satisfaction. Finally, he highlighted that excellent communication with patients, referring providers and advocacy groups is essential.

Pitfalls for the Multi-Center IRB—Dennis West, Northwestern University, presented the top pitfalls related to multi-center IRBs. He advised that each site must maintain good

relationships with local and central IRBs and each may be subject to audits. A site using a central IRB may not be exempt from the need for local IRB approval. Similarly, at the end of a study, sites using a central IRB must individually close their study with their local IRBs. Requirements for consent forms, data usage agreements and data coordinating centers were reviewed. Posting clinical trials and studies on Clinicaltrials.gov is important for transparency and later publication.

Getting the Most out of your Institutional Resources—Donald Lloyd-Jones, Director of the Northwestern University Clinical and Translational Sciences Institute, highlighted web- and technology-based tools available to facilitate collaborative research. He demonstrated VIVO, a system to link researchers with synergistic research goals or skills. Involving biostatisticians and bioinformatics experts, and using database software programs like REDCap, are keys to success in clinical and translational research. Institutional resources, such as technology transfer and clinical trials offices, can provide training programs, career development awards and NIH grant-writing seminars for clinician-scientists. A variety of funding sources should be considered, including NIH and institutional grants, philanthropy and seed funds. He also stressed the importance of community engagement and input from stakeholders.

Update: BPCA Dermatology Therapeutics Area Working Group—Elaine Siegfried, Saint Louis University, noted that the Best Pharmaceuticals for Children Act (BPCA) provides incentives for pediatric studies, with the ultimate goal of establishing pediatric labeling for safe/effective drug use. In 2012, dermatology was recognized as an important area of unmet need. With the input of more than 30 pediatric dermatologists and presentation to the FDA and BPCA, four areas of therapeutic need were identified: A topic Dermatitis, Hemangioma of Infancy, Epidermolysis Bullosa and other Genodermatoses, and Pediatric Dermatology Drug Development.

Scientific Program: Chaired by Keith Choate, Yale—Shrikant Mane, Director of the Yale Center for Genome Analysis, introduced the Centers for Mendelian Genetics, for which Yale is one site. He described Yale's advances in sequencing technology and the application of exome sequencing to identification of genes causing cardiovascular, kidney, and neurologic disorders. Keith Choate detailed use of next generation sequencing approaches to study rare inherited and mosaic disorders skin disorders, highlighting efforts of PeDRA collaborations in determining the genetic basis of the Cutaneous-Skeletal Hypophosphatemia Syndrome and Ichthyosis enConfetti and encouraging additional collaborative referrals.

Peter Elias, University of California, San Francisco (UCSF), presented pathogenesis-based approaches for disorders of cornification and encouraged consideration of pathogenesis-based therapies for atopic dermatitis and psoriasis. These therapies should be cost-effective, and disease-specific, with favorable safety profiles.

Breakout sessions

The Inflammatory Skin Disease Collaborative, moderated by Wynnis Tom, UCSD, and Kelly Cordoro, UCSF

Benefits of PeDRA collaborations can include adequate powering of investigator-initiated and industry-sponsored studies through large numbers of sites and their rapid mobilization, as well as access to an expanded network of contacts, including outside of pediatric dermatology. This collaborative encompasses numerous disorders, some with a history of multicenter collaboration and others needing development. Six focus areas include: psoriasis; atopic dermatitis; acne and hidradenitis; connective tissue and autoinflammatory disorders; hair, nail, and special sites; and therapeutics. Therapeutics, quality of life measures, and patient-centered outcomes research overlay multiple areas. Initial pilot project ideas and research needs were identified for each focus. Surveys and multicenter studies that compare the efficacy and adverse effects of systemic therapies for atopic dermatitis and psoriasis are among planned projects. In addition, patient registries for multiple conditions, including morphea, alopecia areata, and pre-adolescent acne, are important to facilitate research and determine outcomes.

Birthmarks, moderated by Ilona Frieden, UCSF; Beth Drolet, Medical College of Wisconsin (MCW); and Albert Yan, CHOP

The Birthmarks group focused on vascular and pigmentary disorders. A study of topical timolol usage for infantile hemangiomas, with focus on pharmacokinetics and systemic absorption, was discussed. High-risk groups for topical timolol are of particular interest, including premature infants, and juxtamucosal, ulcerated, and genital sites. Group challenges discussed included getting multi-institutional IRB approval for studies involving tissue biopsies, and banking and exchanging patient materials among institutions. Topics for potential study are: genetics and phenotypic characterization of vascular overgrowth syndromes; a retrospective study of pre-propranolol ECGs for infants with hemangiomas; a retrospective study of patients receiving sirolimus for vascular anomalies; and retrospective and prospective studies of propranolol usage in preterm infants.

Epidermolysis Bullosa (EB) and other Genetic Disorders, moderated by Anna Bruckner, University of Colorado Health Science Center; and Joyce Teng, Stanford University

The existing Epidermolysis Bullosa Clinical Research Consortium (EBCRC) includes 16 centers in the U.S. and Canada,14 of which have IRB approval for the EB Clinical Characterization and Outcomes Database (CCOD), the main project of EBCRC. The CCOD database is used to evaluate the prevalence, severity and health risks of anemia in EB patients and is a source for identifying patients for participation in future clinical trials. Other ongoing EBCRC projects are investigating the impact of bacterial colonization in wound healing and the significance of antimicrobial resistance in EB care. The iscorEB outcome measure is now available as a mobile app. Obtaining genetic tests for definitive diagnosis has been challenging, with ~50% of pediatric dermatologists reporting difficulty in getting approval, a major focus for future advocacy.

A longitudinal study of the natural history of Basal Cell Carcinoma Nevus Syndrome (BCCNS) from childhood to the adult years, with creation of a disease registry, was also discussed. Other BCCNS projects include development of a treatment algorithm for the skin lesions and systemic manifestations during childhood; assessing pediatric indications for new treatments (e.g., hedgehog inhibitors) that are not currently FDA-approved for pediatric use (e.g., inodontogenic jaw cysts); and safety monitoring for medication use. Developing EMR content specific to pediatric dermatology using existing datasets will help with evaluating cost-effectiveness for these rare genetic disorders.

Disorders of Cornification, moderated by Mary Williams, UCSF; and Keith Choate

The Disorders of Cornification (DOC) Working Group has individuals with over four decades of experience in the care and research of these disorders. The Foundation for Ichthyosis and Related Skin Types (FIRST), the primary patient advocacy group for DOC, has facilitated clinical and basic research and engaged many PeDRA members. The PachyonychiaCongenita Project (PC Project) was also represented, and discussion centered on the need for longitudinal data on outcomes and complications for the ichthyoses. All participants in longitudinal studies should be genotyped, either commercially or through a research study, as clinical diagnosis can be difficult, especially in the newborn period. Evidence-based guidelines for care of the neonate with ichthyosis need to be developed, based upon improved understanding of potential complications and the risks and benefits of interventions. A cooperative longitudinal observational study of childhood through adult years should be undertaken to define the natural history of disease, prognosis and complications in relation to genotype, and to better understand the growth and development and auditory or ocular issues. The need to ascertain biomarkers for evaluating potential therapeutic agents was discussed. Development of a centralized system for data entry will require funding. Another focus area was skin care of the neonate, with particular emphasis on the problems of prematurity. An international effort to survey skin care practices in the neonatal nurseries and develop guidelines is ongoing. The group identified the need to connect with neonatologists and neonatal nursing groups.

Advocacy Group Presentations

Patient advocacy organizations were invited to participate and six attended: The BCCNS Life Support Network, FIRST, the National Eczema Association (NEA), the National Psoriasis Foundation (NPF), International PachyonychiaCongenita Consortium (IPCC), and PHACE Syndrome Community. Leaders from each group gave presentations on the background of the disease and history of their respective organizations. They shared their accomplishments and the challenges still faced by patients in diagnosis and clinical care. Education and translational research are among the top priorities of all the organizations. Over the years, these organizations have not only connected with patients by providing emotional support, information and advocacy, but they have also worked closely with academic centers worldwide to prioritize research goals to reduce morbidity, mortality, and improve patient quality of life. For over a decade, these groups have contributed a significant amount of grant support to research and the training of future clinician scientists.

Business Meeting of PeDRA

PeDRA co-chairs, Amy Paller of Northwestern University and Lawrence Eichenfield, reviewed the history and goals of PeDRA, highlighting achievements of PeDRA's first year. Anna Bruckner, Chair of the Membership Committee, reminded attendees that membership for this first year is free, and encouraged participation in an upcoming survey to provide information for the PeDRA member database. Fund raising Committee Chair, Moise Levy, Dell Children's Medical Center, emphasized the need for unrestricted grants and other funds from members, industry partners, the Dermatology Foundation and other organizations, and philanthropists for infrastructure costs. Without administrative support and, in the future, funding to support database establishment, statistical analysis, and ideally tissue banking, the role of PeDRA in driving pediatric dermatology research will be more limited. Kimberly Morel, Columbia University, Chair of the Communications Committee, noted Wynnis Tom'ssuccess in initiating a PeDRA website, which will be further developed. Regular communication to advocacy groups, generation of a PeDRA newsletter, and outreach through social media such as Facebook are planned for the future. Finally, Dawn Siegel, MCW, co-Chair of the Scientific Committee, lauded the committee's conference preparation, a task that required garnering an NIH grant, program construction, and abstract review. A key role of the Scientific Committee moving forward will be to track the progress of the disease-specific groups to ensure focus on projects that best utilize collaboration and engagement of a broad ensemble of interested pediatric dermatologists and other skin researchers.

Conclusions and Next Steps

This First Annual PeDRA meeting fulfilled its mission of bringing pediatric dermatologists, scientists, and advocacy group partners together to network and begin to forge a pathway towards alliance goals. Participants confirmed their strong commitment towards collaboration to increase the power and capacity for basic, clinical, and translational research aimed at increasing therapeutic options for pediatric skin disorders. Patient advocacy partners reinforced an urgent call for research directed towards better understanding and treatment of pediatric dermatoses. Representatives of successful coalitions of other pediatric specialists and university-based research consortiums emphasized keys to success in research organization development, navigating institutional IRBs, and optimal use of institutional resources. Meetings among the four disease-focused subgroups planned collaborative investigations of inflammatory skin diseases, vascular lesions, the ichthyoses and neonatal skin care, and epidermolysis bullosa and other genetic disorders, such as basal cell carcinoma nevus syndrome.

PeDRA has made great progress in its first year in establishing an administrative structure and working committees, as well as in conducting this NIH-funded research meeting.

These accomplishments will be expanded through conference calls and at upcoming meetings of the Society for Investigative Dermatology and Society for Pediatric Dermatology. Planning is underway for the Second Annual PeDRA Conference to be held in Chicago November 7–9, 2014.

Acknowledgments

Funding for this conference was made possible (in part) by R13AR65364 from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) and all cofounding support provided by the National Cancer Institute (NCI), the Eunice Kennedy Shriver National Institute on Child Health and Human Development (NICHD), and the National Center for Translational Science (NCATS). The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention by trade names, commercial practices, or organizations imply endorsement by the U.S. Government. The following advocacy organizations provided sponsorship funding to support conference meals and coffee breaks: the Epidermolysis Bullosa Medical Research Foundation, the National Psoriasis Foundation (NPF), the National Eczema Association (NEA), the Foundation for Ichthyosis and Related Skin Types (FIRST), the Basal Cell Carcinoma Nevus Syndrome (BCCNS) Life Support Network, the Dystrophic Epidermolysis Bullosa Association of America (DEBRA), and the National Organization of Vascular Anomalies (NOVA).