# APPD LEARN

## LONGITUDINAL EDUCATIONAL ASSESSMENT RESEARCH NETWORK

2013 Annual Report

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## MISSION

The mission of APPD LEARN is to conduct meaningful educational research that advances the training of future Pediatricians by developing and promoting participation and collaboration in research by program directors for the purpose of improving the health and well-being of children. Our vision is to advance exemplary pediatric education through collaborative educational research by Pediatric program directors.

APPD LEARN pursues its mission through the following interconnected activities:

- Managing a collaborative research network of Pediatric Programs working together to conduct multi-site studies of educational methods and instruments
- Maintaining an online repository of educational research study materials, raw data, and findings for dissemination to APPD members and collaborators
- Promoting learning opportunities to enhance educational research participation and scholarship by Program Directors
- Providing expert consultation for research conducted within APPD LEARN
- Communicating regularly with the APPD membership and the larger medical education community about activities, opportunities, and outcomes
- Exploring, conducting, and coordinating research with other organizations and initiatives across a continuum of medical and non-medical education

## BACKGROUND SUMMARY

The concept and need for a collaborative research network for Pediatric Program Directors was was identified and presented by Patricia Hicks and Ann Burke, during a 2006 strategic planning meeting of the APPD. The need to pursue evidence for best assessment practices became evident shortly after the newly built ShareWarehouse became quickly populated with a variety of assessment instruments – none of which had been studied to determine validity evidence for the data those instruments were producing. At the same time, the ACGME's Outcome Project had charged program directors with developing competency-based assessment instruments, yet there was no coordinated effort to produce meaningful assessment instruments. And, the R3P initiative, concluding at this time also called for study of new educational curriculum and innovation. Drs. Hicks and Burke named the newly proposed network, the APPD Longitudinal Educational Assessment Research Network (LEARN).

In 2008, the cornerstones of APPD LEARN were further developed and presented to the APPD Board of Directors by Ann Burke, Patricia Hicks, Susan Guralnick, and Rob McGregor. The following year, and in collaboration with the Initiative for Innovation in Pediatric Education (IIPE), APPD LEARN was officially launched, with Hilary Haftel as its first Director. Today, the network is comprised of 120 participating programs across the nation, making it one of the largest medical education research networks in any specialty. Along with the Milestones project and IIPE, APPD LEARN continues to bring together programs to undertake collaborative research projects to inform curriculum design, learner assessment and outcomes, and program evaluation.

This report highlights APPD LEARN's infrastructure, current projects, and future developments as of December 2013.

As of November 15, 2013, APPD LEARN had 120 member programs. It is currently the largest medical education research network in existence.
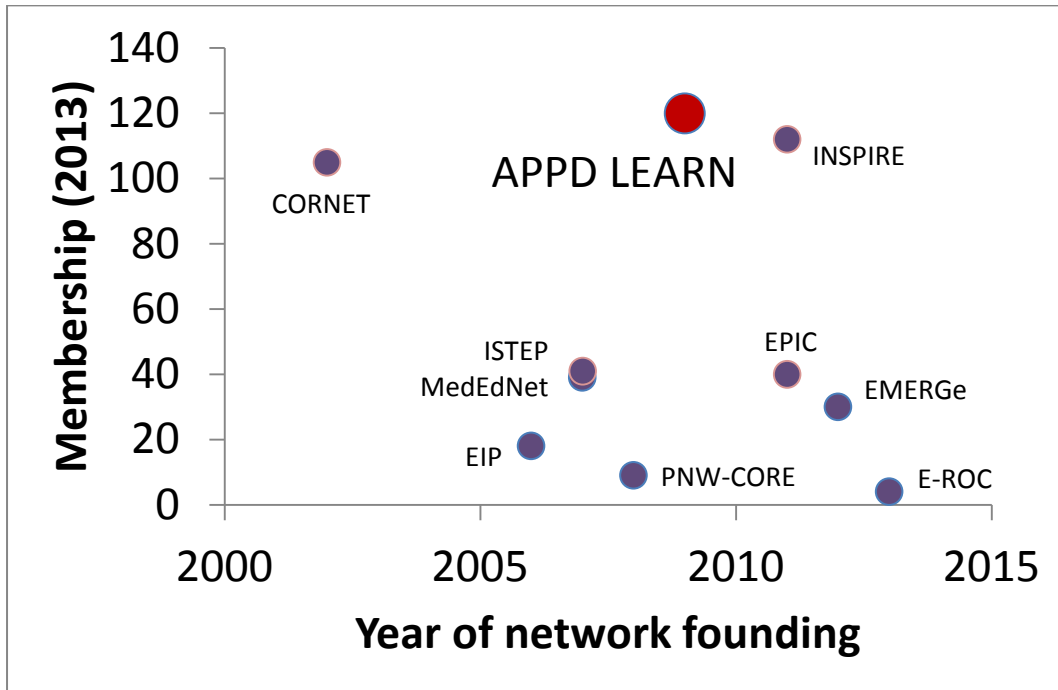


The map below displays the location of member programs by their APPD geographic region.
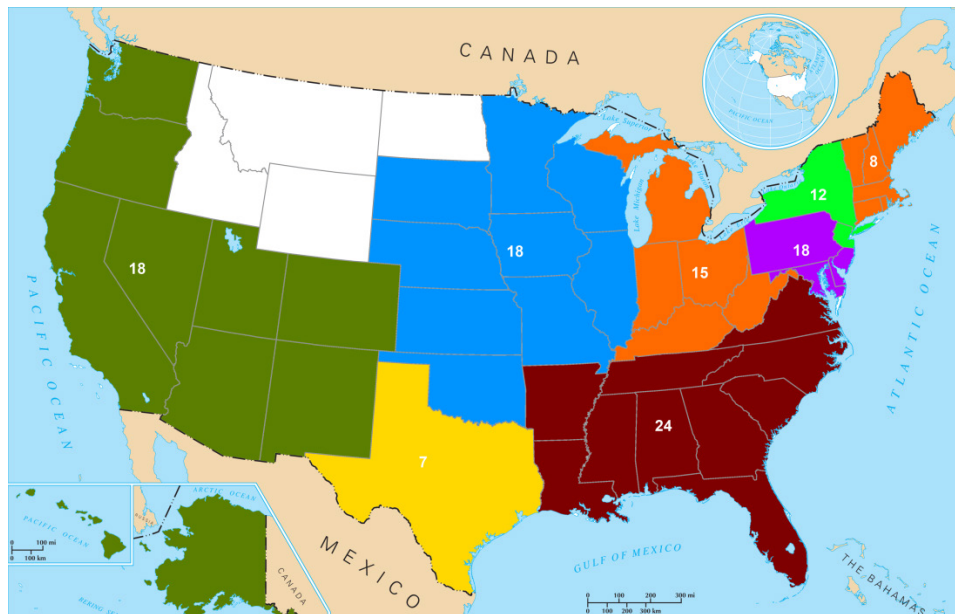


Of these 120 programs, 56 are participating or have participated in at least one APPD LEARN study (including seven programs that have participated in two studies each).

APPD LEARN's infrastructure includes several committees as well as individual leadership that facilitate the advancement of APPD LEARN and its related activities.

<u>**Personnel**</u>

**APPD LEARN Director: Alan Schwartz, PhD**

The APPD LEARN Director is responsible for daily scientific and management oversight of all APPD LEARN activities, and serves as liaison to outside organizations. The Director reports to the APPD LEARN Advisory Committee and APPD Board. In addition to acting in the role of liaison, the current APPD LEARN Director provides unique experience in the areas of experimental and survey designs with quantitative data. Dr. Schwartz's expertise is often utilized in APPD LEARN studies, particularly by member-programs that need hands-on guidance with study design and data analysis.


**APPD LEARN Program Manger: Robin Young, MS**

The APPD LEARN Project Manager handles all administrative operations of APPD LEARN. Responsibilities of this position include facilitating all communications among the participating institutions and funding agency, development of and adherence to project timelines, and observance of regulatory requirements. The APPD LEARN Project Manager is responsible for daily implementation of the project plan, and assisting PIs with study management. Study management duties may include responding to requests from various Institutional Review Boards (IRBs), data management and extraction, and study recruitment. The Project Manager also serves as a liaison with research administration at all participating institutions. In addition, the APPD LEARN Project Manager helps with additional network tasks and data collection efforts that arise both with APPD LEARN-initiated studies as well as APPD LEARN-member initiated studies.

**Committees**

**APPD LEARN Advisory Committee**

The APPD LEARN Advisory Committee is responsible for providing guidance to the APPD LEARN Director, setting policies for APPD LEARN activities and resources, and developing calls for proposals in specific research areas. The APPD LEARN Advisory Committee also conducts annual formative and summative evaluation of the performance of the APPD LEARN Director. The Committee consists of five voting members, including four APPD-designated members (one of whom, Dr. Patricia Hicks, serves as the Chair), and one IIPE-designated member.

*Current Committee Members*

- Patricia (Patty) Hicks, MD,MHPE, Pediatric Milestones Project Director
- Ann Burke, MD, APPD Past President
- Carol Carraccio, MD, IIPE Director
- Hilary Haftel, MD
- Robert McGregor, MD
- Alan Schwartz, PhD, APPD LEARN Director (ex officio)
- Laura Degnon, CAE, APPD Executive Director (ex officio)


**APPD LEARN Educational Development Committee (EDC)**

The APPD LEARN Educational Development Committee offers advisement in (1) determining the faculty development needs of APPD LEARN members in the area of educational research, (2) designing and interpreting the annual APPD LEARN needs assessment survey, and (3) identifying training opportunities. The chair of the EDC is Dr. Beatrice Boateng.

*Current Committee Members*

- Beatrice Boateng, PhD, EDC Chair
- Marsha Anderson, MD
- Priya Garg, MD
- Susan Izak, MD


**APPD LEARN Proposal Review Committee (PRC)**

One of the most exciting elements of the APPD LEARN network is its effort to engage member programs and encourage them to propose and conduct research that will advance the field. The APPD LEARN Proposal Review Committee assists in the review of such proposals that seek to conduct research using the APPD LEARN network and its member programs. Often, various institutions have the desire or need to conduct research, but lack expertise in a specific area, access to a significant sample size, or simply the procedural and statistical guidance that is often needed throughout various stages in the research process. APPD LEARN provides member programs with all of these services.  Dr. Leah Harris currently serves as the chair for this committee.

***Current Committee Members***

- Z. Leah Harris, MD, PRC Chair
- Erika Abramson, MD
- Jerry Larrabee, MD
- Adam Rosenberg, MD
- Heather McPhillips, MD, Vice Chair, APPD Research and Scholar Task Force
- Daniel West, MD


**APPD LEARN Project Committees**

Each study using the APPD LEARN network for data collection, has an ad hoc project oversight committee, composed of the project principal investigator, APPD LEARN Director, APPD LEARN Project Manager, and other members selected by the principal investigator and APPD LEARN Director. These committees hold regular conference calls during the period of the study. The conference calls are used to; identify level of support required by the APPD LEARN Director and Project Manager, refine the study design and related materials, troubleshoot challenges that may arise throughout the study and maintain workflow.

**RESEARCH TOOL INFRASTRUCTURE**

APPD LEARN uses several technology tools to manage and support research projects. These tools are primarily used for the collection and management of data, de-identification of data, and data storage.

*Dataverse:* The APPD LEARN Dataverse is an online repository for all APPD LEARN study materials, including protocols and proposals, de-identified study data, and links to manuscripts reporting study results. This secure tool also houses the IRB approval letters that are received from all institutions that participate in APPD LEARN studies. Additionally, APPD LEARN places information pertaining to study and data management procedures in Dataverse in order to ensure that this information can be accessed and replicated if necessary. The Dataverse is based on the Dataverse Network software platform developed at Harvard University's Institute for Quantitative Social Science, and runs on dedicated server hardware under the physical control of APPD. The software employs a relational database specifically designed for archiving, analyzing, and sharing research data, and includes facilities for creating unique formal citations for data sets to enable proper credit when data is reused, study versioning, automatic data subsetting, integrated quantitative analyses, and configurable terms for data download or linking. Data in APPD's Dataverse is maintained under the oversight of the Institutional Review Board of UIC, the APPD LEARN Director's academic institution.

*Limeservice:* APPD LEARN currently uses LimeService as its primary survey platform. Limeservice allows APPD LEARN to prepare, conduct, and evaluate on-line surveys in a variety of different formats. Currently two of the three ongoing APPD LEARN studies have utilized this feature. In addition to allowing APPD LEARN to directly monitor incoming data, each survey can also be formatted to contain a learner's or participant's unique APPD LEARN ID (described below) such that APPD LEARN is never in contact with any identifying information and that each piece of data is already matched with the appropriate APPD LEARN ID. Although it has a full complement of high-end survey features, such as branching, random sequencing, conditional logic, SSL encryption, and dozens of response item formats, Limeservice is built on an open

source software platform and uses an innovative per-respondent pricing model that makes it particularly cost-effective for educational research.

*5pmweb-Project Management:* 5pmweb is a web-based tool that helps in the management and tracking of projects and teams. It is useful in facilitating communication and document-sharing across project sites and managing tasks and timelines. When a project committee is created for an APPD LEARN study, each member receives access to 5pmweb where they can track study progress using the timeline and task assignment tools, and share pertinent documents such as IRB information or assessment tools that need group review.

*APPD LEARN IDs:*

Of critical importance to APPD LEARN is the maintenance of confidentiality for learners whose programs participate in APPD LEARN studies. APPD LEARN has developed a de-identification system that generates unique and permanent learner codes for use in reporting de-identified data to APPD LEARN.  This system allows program directors to input the birthdates and last four-digits of social security numbers (or other government issued identification numbers, for international students) into a secure online system. Through a non-reversible cryptographic process, the system then generates a data collection ID unique to each learner and remains with them for a lifetime. These longitudinal identifiers make it possible to link data on the same learner over time and across multiple studies that use the APPD LEARN de-identification system.

All learner data sent from programs to APPD LEARN is identified only by this data collection ID, ensuring that APPD LEARN can never associate data with learners. The generating of APPD LEARN IDs has been made a mandatory first step for all APPD LEARN studies. Before APPD LEARN archives or shares data, the APPD LEARN data collection ids are recoded by APPD LEARN using a second layer of encryption that prevents anyone receiving the data—even the program that originally collected it—from reidentifying learners, and makes the data suitable for public sharing. At no point in time, is APPD LEARN in possession of identifiable information of study participants. Instructions for generating APPD LEARN IDs are available in the Tools section of the APPD LEARN website, http://learn.appd.org.

**Types of Studies**

The common factor in APPD LEARN research studies is that the unit of measurement is the learner. Most APPD LEARN studies fall into one of three major types:
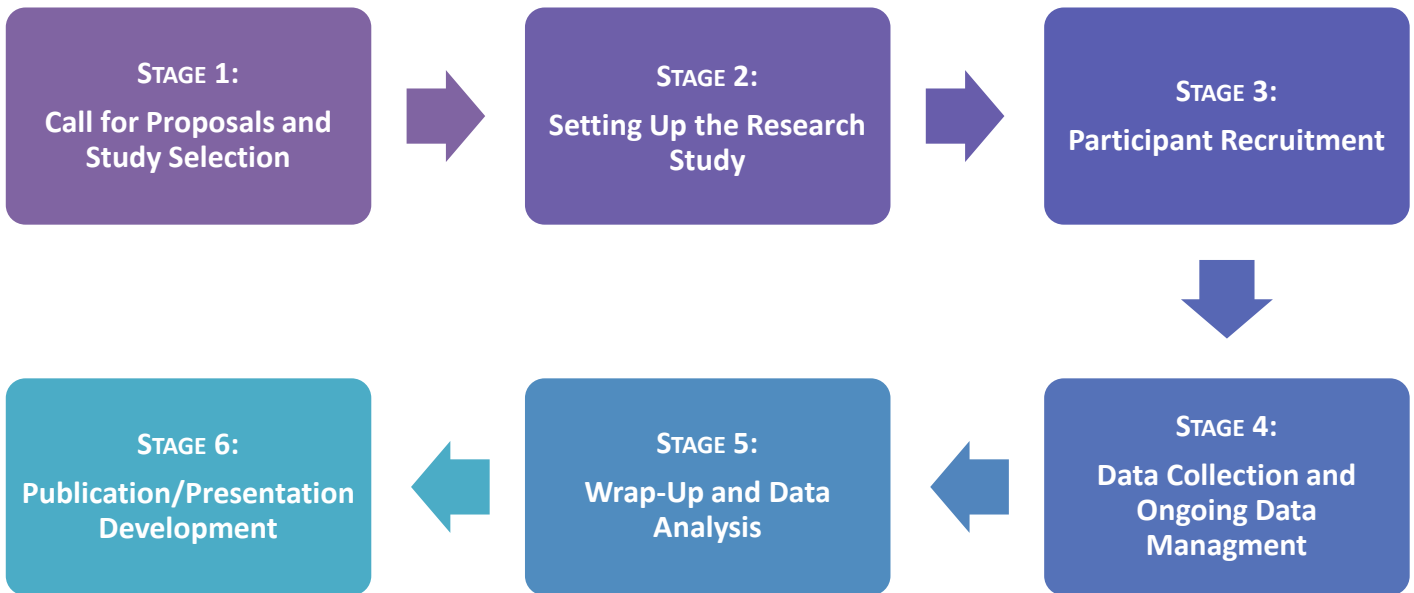
- **Learner survey** studies collect data by asking learners to respond to questionnaires.
- **Observer-based** studies collect data by asking observers (e.g. program faculty, nurses, patients, or other learners) to provide information about learners. APPD LEARN assists in the determination of a suitably composed and appropriately-sized sample of programs and learners, based on the scientific needs of the study, and provides use of its survey platform, as well as IRB, data management, data analysis, and dissemination support.
- **Existing data** studies seek to answer new research questions using data collected in past APPD LEARN studies. APPD LEARN accepts requests to obtain data from APPD LEARN studies by other researchers who wish to conduct secondary analyses or meta-analyses. The APPD LEARN Director evaluates these requests for scientific merit, human subject protection, and budgetary impact. APPD LEARN also considers requests from affiliated programs and organizations to archive and share data developed in studies conducted outside of the network but using the APPD LEARN de-identification and data collection id system.

Regardless of the study type, APPD LEARN assists in the refinement of research questions and analysis plans, determination of a suitably composed and appropriately-sized sample of programs and learners, based on the scientific needs of the study, and, where relevant, provides use of its survey platform, as well as IRB, data management, data analysis, and dissemination support. APPD LEARN encourages investigators to obtain external funding for projects that will require large investments of time and effort from APPD LEARN personnel or member sites, and provides letters of support for funding requests.

APPD LEARN does not typically support studies that only obtain data through surveys of program directors or faculty. However, program- (or higher-)level effects assessed through aggregation of learner-level data are appropriate subjects of study. APPD LEARN does not engage in clinical research that collects data on patients.

**Study Process**

The APPD LEARN research process comprises six stages that are guided by the APPD LEARN staff, with input from study PIs and participating sites. The section below briefly discusses each stage, and APPD LEARN's role in facilitating study progression.

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| **STAGE 1:** Call for Proposals and Study Selection → | **STAGE 2:** Setting Up the Research Study → | **STAGE 3:** Participant Recruitment ↓ |
| **STAGE 6:** Publication/Presentation Development ← | **STAGE 5:** Wrap-Up and Data Analysis ← | **STAGE 4:** Data Collection and Ongoing Data Managment |

*Stage 1: Call for Proposals and Study Selection*

During the first stage of APPD LEARN's research process, a call for proposals (CFP) is developed and released. Proposals are reviewed throughout the year by the APPD LEARN Proposal Review Committee and APPD LEARN Director. For proposals that do not initially meet the research design standards of APPD LEARN but contain valuable research questions, the Committee and the Director provide additional design and analysis guidance. The Director may work directly with an institution to refine the study design and analysis techniques and request that a proposal be resubmitted. The ultimate goal of this stage is not only the initiation of suitable studies but the development of members as investigators.

In some cases, APPD LEARN leadership initiates studies in response to larger trends in medical education or in partnership with other medical education organizations. These studies are reviewed and approved through the APPD LEARN Advisory Committee.

## *Stage 2: Setting Up the Research Study*

Once a study is approved, a project committee is established. Within the project committee, the APPD LEARN Director and Project Manager have responsibility for providing insight into material development and the overall study progression in accordance with the agreed upon timeline. Specifically, the APPD Director may be called upon to conduct sample size analyses, suggest persons for inclusion on the project committee based on expertise, and offer advice on IRB approval at the lead institution; the Director also often advises on data analysis plans for studies that do not have their own statistician or analyst. During this stage, the project manager is responsible for providing access to group members for the 5pmweb project management site; creating online version of any surveys and assessments being utilized by the study; creating the IRB Site Kit that will be

> *In Action: **The Validity of Resident Self-Assessment Using the Milestones** study (PI: Su-Ting Li) utilizes several platforms to collect the resident self-assessment information. In addition to housing the resident self-assessment questionnaire on APPD LEARN's LimeService platform, data is collected via PediaLink, MedHub, New Innovations, and Evalue. This study has also further broken down participants into three groups, based on desired reporting timelines. In order to minimize any potential confusion and reduce the amount of work of participating institutions, APPDL EARN developed step-by-step instructions for each group and platform. These documents were accompanied by appropriate excel templates to assist in the creation of APPD LEARN IDs, reporting and dissemination of resident self-assessment data to APPD LEARN and other platforms, and completion of external assessments (i.e. Clinical Competency Committee). Throughout the study, APPD LEARN is primarily responsible for creating any new templates or surveys, disseminating information to study participants, and troubleshooting any challenges that may arise for study participants.*

used by participating institutions to assist in gaining IRB approval; developing detailed instructions for study completion; and coordinating with any external platforms or vendors that are being used for the study.

*Stage 3: Participant Recruitment*

Participant recruitment is another primary responsibility of APPD LEARN. Recruitment may involve invitations to all APPD LEARN member programs, but more typically begins with a sampling stage in which the APPD LEARN Director and Project Manager identify the required number and characteristics of programs (and their residents), such as geographical location, program size, etc., and randomly select sites to invite until the study complement is full. Sample optimizes the efficient use of site resources by enabling multiple studies to be conducted by the network at once, each using a different sample of sites. APPD LEARN leadership is also responsible for answering questions that sites may have about enrolling in the study, and the APPD LEARN Project Manager begins building and distributing a "frequently asked questions" list to sites as she responds to these questions.

*Stage 4: Data Collection and Ongoing Data Management*

Throughout the data collection stage, APPD LEARN provides benchmark reminders to participating sites, reviews incoming data for completeness and protection of human subjects (when data include free text responses), and extracts data as needed to help sites monitor their progress. The intensity of data collection and management process can vary substantially across APPD LEARN studies. However, even moderately time-intensive studies may require unexpected amounts of administrative assistance.. APPD LEARN has received requests from specific institutions to provide weekly spreadsheet updates of those learners that have completed their self-assessment surveys. Each institution may have different deadlines for which they would like their learners to complete this step, and may request updates at varying frequencies.

> *In Action: In the **Pediatric Milestones Assessment Pilot**, the APPD LEARN team was responsible for providing bi-weekly updates on data collection progress for each participating site, tracking down missing learner information from sites, troubleshooting challenges with the assessment platform, reviewing observations submitted in order to remove any identifying information mistakenly entered, and ensuring the accuracy of data by matching appropriate observations with their respective APPD LEARN IDs, particularly when pre-set rotation dates were not followed or when information was entered late. The **Validity of Resident Self-Assessment Using the Milestones** study involves over 50 sites and multiple assessment platforms; this study requires substantial time and effort in the areas of coordination, IRB troubleshooting, and administrative needs. In contrast, the **New Professionalism Challenges in Medical Training** study, as a simple online survey,*

***Stage 5: Wrap Up and Data Analysis***

As an APPD LEARN study nears the completion of the data collection stage, APPD LEARN identifies the end date of data collection and the ultimate data set from each site. The APPD LEARN Project Manager performs a final data quality check, and contacts site investigators to resolve any discrepancies in data collected. Data from each site is merged into a common format, and the APPD LEARN data collection ids are replaced with re-encrypted APPD LEARN data sharing ids by the APPD LEARN Director, who holds the passphrase necessary for this process (a backup is kept by APPD's Executive Director in the event that the APPD LEARN Director becomes incapacitated). The merged data set is uploaded to the APPD LEARN Dataverse for archiving and potential future sharing. The APPD LEARN Project Manager provides summative information about resident participation to sites that request it for their IRB final reports. For studies that do not have their own statistician, the APPD LEARN Director is available to conduct planned data analyses to answer the primary research questions of the study.

At the end of each calendar year, the APPD LEARN Director sends letters of thanks, recognizing the scholarly efforts of site leaders whose sites have participated in a study though Stage 5. These letters are addressed to the Deans (or similar officials in non-academic programs) of the sites, with copies sent to the site investigators.

***Stage 6: Dissemination***

When a complete data set has been archived, APPD LEARN assists the project committees in planning publications and presentations. APPD LEARN studies share a common set of guidelines for publication development and authorship credit for investigators, including the use of group authorship where appropriate. Studies are encouraged to identify planned publications early in the proposal process, and to decide how writing groups or lead authors will be designated; for many studies, a secondary publication process (for novel manuscripts proposed by participating sites) is also necessary, and APPD LEARN provides guidance for soliciting interest in developing secondary publications that use multisite data. The APPD LEARN Director provide access to data sets or subsets required for each manuscript, and is available to conduct data analyses for writing groups that do not have their own statisticians. The APPD

LEARN Project Manager monitors the progress of publications, coordinates the sequence of publications when there are important dependencies, and convenes regular calls among writing group members. The APPD LEARN Director and Project Manager remain available to assist with responses to editors and reviewers throughout the publication process until the manuscript is accepted for publication.

## ONGOING STUDIES

### APPD LEARN – NBME Pediatrics Milestones Assessment Pilot (PMAP)

PI: Patricia Hicks, MD (CHOP); Stephen Clyman, PhD (NBME); Alan Schwartz, PhD (UIC)

In partnership with the NBME, this study sought to test the feasibility of a set of assessment instruments constructed from nine Pediatrics Milestones. Instruments are designed to inform decisions about readiness to serve in the inpatient pediatric wards, based on ratings of direct observations recorded on handheld devices. Study instruments include: structured clinical observations for rounds and history taking; a multisource feedback instrument; and, Pediatrics Milestones Classification assessment form. Study learners include interns and sub-interns, with faculty, residents, and nurses serving as raters. Features include collection of de-identified learner data in APPD LEARN, individualized learner feedback, faculty development materials for rater and feedback provider training. Outcomes from this study will be used to inform further development of the Pediatrics Milestones and APPD LEARN.

18 sites participated in this study. Six were managed by NBME, and 12 by APPD LEARN. APPD LEARN disseminated faculty training material and developed an IRB kit and preparation checklist to assist sites in participating in the study. During the data collection phase, APPD LEARN reviewed all incoming data observations to remove identifying information, and provided regular updates and troubleshooting to sites experiencing challenges with data collection and/or input. Data collection completed in June 2013, at which time APPD LEARN compiled the data, developed codebooks for the data sets, facilitated the assigning of de-identifiers, and created and encrypted the final data file for archiving, and produced data subsets for analysis in the manuscripts. Seven manuscripts have currently been identified and are

discussed later in this report; for most of these manuscripts, APPD LEARN personnel will be providing data management and data analysis support to the authors.

**Validity of Resident Self-Assessment Using the Pediatric Milestones**
PI: Su-Ting Li (UC Davis); Kimberly Gifford (Dartmouth-Hitchcock)
In June 2013, APPD LEARN began the member-initiated study: Validity of Resident Self-Assessment Using the Pediatric Milestones. This study seeks to describe pediatric resident self-assessment of competence using the Pediatrics Milestones for 21 ACGME-selected sub-competencies, and characterize and explain variation in agreement between pediatric resident self-assessment, external assessments based on Pediatrics Milestones, and overall summative assessments of resident performance. The study was proposed in response to APPD LEARN's first call for proposals, and underwent reviewing and refinement by the APPD LEARN Proposal Review Committee before approval to begin recruiting member sites.

It is unknown how well residents' self-assessment of their competencies agrees with external measures.  In addition, it is unknown which factors are associated with improved agreement between self- and external assessment.  The self-directed lifelong learning conceptual model (developed by the PIs) theorized that lifelong learning begins with reflection by individual learners and development of goals and plans to accomplish those goals initially utilizing external evaluations and faculty mentorship, but later needing less external evaluations and mentorship as self-evaluation and self-regulated learning improves.  A finding of increased agreement between self- and external assessment as level of training increases would help support this conceptual model and help support the importance of Individualized Learning Plans (ILPs) to improve resident self-assessment through deliberate practice and feedback.  If there is no increased agreement, it would suggest that current training does not improve learner ability to self-assess and training programs would need to utilize different methods to improve learner self-assessment.  Alternatively, it could also suggest that there is a need to develop more valid and reliable external assessments of residents.

To date, 54 programs have enrolled in this study and 47 have received IRB approval from their institutions. APPD LEARN developed an IRB kit for sites to use in their application processes, created an online survey to use an option for collecting this data, and instructional materials for

the various platforms (PediaLink, New Innovations, MedHub, EValue) that will be used for data collection throughout this study. Additionally, APPD LEARN created external assessment templates and provides updates to those sites using the online survey surrounding learner completion, as requested. APPD LEARN also acts as the primary contact and/or liaison for responses related to IRB questions, learner consent, and external platform challenges. The projected completion date for data collection under this study is July 2014.

**New Professionalism Challenges in Medical Training: An Exploration of Social Networking**
PI: Jennifer Kesselheim (Harvard)
The New Professionalism Challenges in Medical Training study aims to to survey a national cohort of pediatric residents to measure their use of social media, their perceptions of the curricula available to teach them about social medial and professionalism, and to explore their attitudes and beliefs about professionalism in this setting. The study was proposed in response to APPD LEARN's first call for proposals, and underwent reviewing and refinement by the APPD LEARN Proposal Review Committee before approval to begin recruiting member sites.

Previous work at the lead institution has revealed that directors of pediatric residency programs have encountered lapses of residents' professionalism online and this group of medical educators express concern that professionalism problems of this kind may increase in prevalence. For example, an overwhelming majority believe it is inappropriate for residents to "friend" patients or their family members, do discuss the hospital/workplace online, and to reflect about patients or hospital staff while online. Previous work has not yet explored to what extent pediatric residents agree with their program directors' definitions of what constitutes professional behavior online.

Currently, this study has enrolled 14 programs, and eight have received IRB approval. APPD LEARN has also adapted the survey created by the lead institution for an online format which is also managed by APPD LEARN. Data collection has a projected completion date of December 2014.

## Presentations

To date, APPD LEARN's work has been highlighted in several posters and presentations:

**Tenney-Soeiro R, Ronan JC, Weiss AK, Young D, Clyman SG, Schwartz A, Rose KM, Hicks PJ.** (2013, April). Does the Quantity and Quality of Comments Provided on Intern and Sub-Intern Pediatrics Milestones Assessment Instrument Vary Based on Role of the Rater? Platform Presentation at the Association of Pediatric Program Directors/Council on Medical Student Education in Pediatrics 2013 Annual Spring Meeting, Nashville, TN.

**Turner T, Hicks PJ, Rose K, Clyman SG, Schwartz A, Poynter S, Haftel H, Ronan JC, Waggoner-Fountain L, Caputo G.** (2013, April). Sub-Intern and Intern Performance Level on Pediatric Milestones. Platform Presentation at the Association of Pediatric Program Directors/Council on Medical Student Education in Pediatrics 2013 Annual Spring Meeting, Nashville, TN.

**Chaffinch CN, Poynter SE, Turner T, Schwartz A.** (2013, April).  Learner Feedback on the Pediatrics Milestones Assessment Project. Poster presentation at the Association of Pediatric Program Directors/Council on Medical Student Education in Pediatrics 2013 Annual Spring Meeting, Nashville, TN.

**Poynter S, Turner T, Chaffinch C, Hicks PJ, for the APPD LEARN-NBME Milestones Assessment Group.** (2013, February). Learner Feedback on the Pediatrics Milestones Assessment Project. 2013 ACGME Annual Educational Conference, Orlando, FL.

**Schwartz A.** (2012, November). Assessment of Pediatrics Milestones and Development of a Collaborative Research Network for GME. Invited presentation, DeWitt Baldwin Seminar Series, ACGME, Chicago, IL.

**McGregor R, Burke A, Carraccio C, Haftel H, Hicks PJ, Schwartz A.** (2012, November). APPD LEARN: An Educational Research Network in Pediatric GME Digitized Poster Presentation at Group on Educational Affairs, AAMC Annual Meeting, San Francisco, CA.

**<u>Manuscripts</u>**

Membership involvement in the development of manuscripts that arise from APPD LEARN data collection is a top priority for APPD LEARN. The network recognizes that this can be a difficult process to undertake for many institutions due to a number of variables including limited expertise or experience in manuscript development, as well as time constraints. APPD LEARN offers statistical analysis guidance as well as administrative support throughout this process.

Currently, the network is developing eight (8) manuscripts for publication. One of these manuscripts was initiated by the APPD LEARN Advisory Committee and the seven remaining are as a result of the PMAP study described above. Future presentations and manuscripts are anticipated from other APPD LEARN studies currently in enrollment and data collection phases.

**Medical Education Research Networks: Survey of the Landscape and Development of APPD LEARN**

This manuscript was initiated by the Advisory Committee and highlights the recent emergence of medical education networks across the nation and internationally. Internet and database searches were used to identify medical education research networks in existence as of June 2013 in order to describe current and emerging networks. As a case study, the manuscript also describes the development of the APPD LEARN network. This manuscript is currently under review.

**PMAP Pilot Manuscripts**

As a result of the PMAP study, four planned manuscripts, using the full (18 site) data set, designated "primary" as per the APPD LEARN authorship principles, have been identified. Additionally, three secondary manuscripts (any manuscript or presentation proposing to use multisite data that is not a primary manuscript), have also been proposed.

APPD LEARN and NBME have developed authorship guidelines and have created seven writing groups that will begin manuscript development with the aid of the APPD LEARN Director, Project Manager, Pediatric Milestones Project Director, and NBME representative (for a complete list of Authorship guidelines and submission specifics see Appendix B).

*Overview of the PMAP*

Description: A high-level overview of the Pilot, describing the overall design, item development, data collection and management procedures, information about the number and types of respondents, resources required, and challenges and lessons learned. Also discuss recommendations of best practices for developing an assessment program based on our experiences. This paper may include Learner Feedback Survey responses as evidence of how the process was received. (A separate paper focused specifically on qualitative analysis learner feedback survey comments (e.g. learner perceptions of milestones) may be proposed as a secondary paper.) This paper may include the NBME site lead survey as an evaluation of feasibility.


*A multi-source feedback tool for measuring a subset of Pediatrics Milestones*

Description: Psychometric properties and validity evidence for the MSF as an assessment of milestones for competencies PC1, PC2, ICS4, PPD1, PPD5, Humanism, Professionalization, Professional conduct. May examine or test factor structure or associations among MSF items. May examine interrater reliability. May compare MSF item or competency scores by rater type, by learner level, or by program; may look at associations between competencies as measured by MSF items and by SCO aggregate scores for milestones. May divide into a second primary paper if there are substantive conclusions about the learners that should be reported as distinct from conclusions about the instrument. May include qualitative analysis of MSF comments as triangulation of quantitative findings; a full qualitative analysis of comments that relate to the content of learner observation may be proposed as a secondary paper.


*Assessment of Pediatrics Interns and Subinterns on a subset of Pediatrics Milestones*

Description: Validity evidence for MCF ratings, including inter-milestone associations, associations between MCF ratings and MSF/SCO item scores for the same competency. May compare MCF ratings by learner level or by program. Include Alan's follow-up study of additional MCF ratings by raters.

*A structured clinical observation tool for measuring a subset of Pediatrics Milestones*

Description: Psychometric properties and validity evidence for the SCOs (history and rounds) as assessments of milestones for competencies PC1, PC2, Humanism. May examine or test factor structure or associations among SCO items. May examine interrater reliability. May compare SCO item or competency scores by learner level, or by program; may look at associations between competencies as measured by SCO items and by MSF aggregate scores for milestones. May divide into a second primary paper if there are substantive conclusions about the learners that should be reported as distinct from conclusions about the instrument. May include qualitative analysis of SCO comments as triangulation of quantitative findings (a full qualitative analysis of comments that relate to the content of learner observation may be proposed as a secondary paper.)

*Factors associated with a negative response to the proposed question "I would like to have this person on my team"*

Description: What factors are associated with a negative response to the proposed question "I would like to have this person on my team"? Is there a correlation between a rater's desire to work with the learner again and the MSF rater role, duration of exposure between the rater and learner or overall scores of a learner within milestone subsets? Are there identifiable themes within qualitative comments written about a learner?

*Does the content theme and nature of written trainee feedback vary based on rater roles?*

Description: 1. To identify the content theme and nature of written narrative comments from the MSF form used in the PMAP. 2. To determine whether there is variation in feedback comments based on rater roles

*Is Faculty Development in Milestones Assessment Meaningful?*

Description: 1. What did individual sites do to train their faculty? 2. Were needs identified during the pilot (will need to conduct assessment) 3. Would sites conduct their training differently if they could redo it? 4. What data will sites use for assessment evidence in their CCC's- Is faculty development useful in increasing the value of assessment evidence brought to the CCC?

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*APPD LEARN's non-peer-reviewed dissemination mediums*

In addition to data-driven materials and publications, APPD LEARN generates various reports, maintains a website, and delivers collaborative workshops and presentations that facilitate communication with the broader membership.  A brief description of each communication avenue is provided below.

*Reports:* APPD LEARN develops annual reports for use at APPD annual meetings. These reports highlight the work of APPD LEARN and provide information on how existing members can become involved in proposing or participating in APPD LEARN research. These reports also frame the goals and objectives of the network, and its research priorities in the context of the broad needs of medical education research.

*Website: http://learn.appd.org*

APPD LEARN maintains a website as a primary communication tool for APPD LEARN members and interested programs. The website offers general information about APPD LEARN's development, as well as practical tools that aid ongoing study participants in data collection and management, including encryption of unique identifiers for study subjects.

*Participation and collaboration in educational session at annual meetings:* As the network continues to grow and develop, APPD LEARN is often called upon to provide perspectives and expertise on a number of topics surrounding medical education research. In this capacity, APPD LEARN staff provides presentations, participation in panel discussions, and contribute as a thought-leader in conversations surrounding medical education research and the research needs of institutions nationwide. These educational offerings span a continuum of topic areas that range from daily data management practices to more complex subjects such as developing valid assessment tools.

**Call for Proposals #2012-1**

**Background**

The mission of APPD LEARN is to conduct meaningful educational research that advances the training of future Pediatricians by developing and promoting participation and collaboration in research by Program Directors (PD) for the purpose of improving the health and well-being of children.

APPD LEARN advances its mission through activities which include managing a collaborative research network of Pediatric Programs working together to conduct multi-site studies of educational methods and instruments, and maintaining an online repository of educational research study materials, raw data and findings for dissemination to APPD members and collaborators.

This Call for Proposals invites APPD programs to submit educational research projects involving primary data collection from APPD LEARN member sites. A separate "APPD LEARN Data Request" process is also available for investigators seeking to obtain existing APPD LEARN data sets for new analyses.

**Eligibility**

Any APPD LEARN member program is eligible to submit a research proposal. APPD member programs that are not already APPD LEARN member programs must join APPD LEARN before or at the time of submission of a research proposal. Proposals may include collaborators who are not members of APPD LEARN, but an APPD LEARN member program must be the lead site for the proposal.

Proposals from APPD LEARN member programs may designate any affiliated faculty member(s) of any rank as project investigators, including principal investigator. However, all proposals must be approved by the PD and Department Head of the member program, and should be submitted by the program's APPD LEARN liaison. It is expected that the PD or Associate Program Director (APD) will be a co-investigator on proposals.
All studies that collect data through APPD LEARN are required to deposit their approved protocols and data into the APPD LEARN data repository in order to make them available to future investigators. Publications arising from APPD LEARN studies must acknowledge APPD LEARN, and their manuscripts must be submitted to APPD LEARN for archiving alongside the study data.

**Proposal format**

Proposals should include the following components, combined into a single PDF file in the order listed. All components should be formatted in 11 point Helvetica or Arial font, single-spaced, and with margins of at least 0.5 inches on all sides. Proposals should be 5-10 pages in length, not including face page or appendices, and should consist of:

- **APPD LEARN Proposal Face Page**. This should be downloaded from http://learn.appd.org (Propose a Study / Proposal Format area), filled out, signed, and scanned.
- **Specific Aims (1 page limit)**. Include the research question to be answered and/or hypotheses to be tested.
- **Background and Significance (2 page limit).** Explain why the research question is important, and how this study will add to existing literature in the area of the research question. In reviewing the literature, be selective, rather than exhaustive, favoring the most important previous work.
- **Data Collection (2 page limit).** Describe the data collection requirements. What will each participating program have to do to collect data? (Include specific instruments in the Appendix described below). When and how often will data collection occur at each program?
- **Programs and Sample (2 page limit).** Describe the number and nature of programs and/or residents to be involved, and justify these choices. Explain any inclusion, exclusion, or selection criteria to be used for sampling programs or residents.
- **Data Analysis (2 page limit).** Describe the plan for analysis of the data obtained. Organize the plan by each research question to be answered or hypothesis to be tested.
- **Investigators (1 page limit).** List the proposing principal investigator and other investigators. For each, briefly list their qualifications and explain their role in the project.
- **Support Obtained or Needed (optional, 1 page limit).** If the project has obtained internal or external support, describe it here. If the project requires resources other than data collection sites, not available at the proposing program, please explain them here. Examples might include technological support, human resources, etc. Proposals that require substantial resources may not be feasible for APPD LEARN without outside support.
- **Appendices (no page limit):**
    - Copies of all study instruments
    - Biosketch of principal investigator (National Institutes of Health format encouraged, see: http://grants.nih.gov/grants/funding/phs398/biosketch.doc)
    - If Institutional Review Board (IRB) approval has already been obtained at the member program (as the project's lead site), include a copy of the approval or exemption letter. IRB approval or exemption will be required before the project can begin, but need not be obtained before submitting the proposal; APPD LEARN staff will assist in the IRB application for successful proposals.

**Submission instructions**

- Compile the components of the proposal into a single PDF file, named for the submitting investigator and the month and year submitted (e.g. Schwartz-10-2012.pdf) and email the complete proposal to: LEARNProposals@appd.org.
- You may email proposals at any time, and they will be held for the next review cycle.

**Review process**

- Proposals are reviewed three times per year by the APPD LEARN Proposal Review Committee (PRC) and APPD LEARN Director. Specific review cycle dates will appear on the APPD LEARN web site (http://learn.appd.org).
- Criteria applied by the APPD LEARN PRC will include:
  - Significance of the research question (including importance for Pediatric GME or medical education)
  - Quality of the research plan (including study design, instrumentation, data analysis)
  - Feasibility for APPD LEARN
- Each proposal will be assigned a primary reviewer and at least two secondary reviewers. Reviewers will write narratives about each criterion and will assign each proposal an overall rating of excellent, very good, good, fair, and poor.
- The Committee may make comments or suggest modifications to proposed studies to enhance any of these components. Committee recommendations are advisory. Final decisions about proposal approval or rejection will be made by the APPD LEARN Director.

**Post-review processes**

Each study using the APPD LEARN network will have an ad hoc project oversight committee, composed of the project principal investigator, APPD LEARN Director, APPD LEARN Project Manager, and other members selected by the principal investigator and APPD LEARN Director. These committees will hold regular (biweekly or monthly) conference calls during the period of the study.

After formation of the oversight committee, the APPD LEARN Director and APPD LEARN Project Manager will assist in sampling and enrollment of APPD LEARN member sites into the study protocol and will work with participating sites to obtain IRB approval prior to data collection.

**Contact Information**

For further information, contact:
Alan Schwartz, PhD
Director, APPD LEARN
alansz@appd.org
**APPD LEARN Website**: http://learn.appd.org/

APPD LEARN
Authorship Principles
Adopted 5/21/2012

**Categories of communications**

Papers, presentations, posters, and other communications resulting from APPD LEARN studies fall into three categories:

- Category 1 (primary) papers report on analyses of primary research questions and key outcomes planned in the study protocol and using data from multiple APPD LEARN sites.
- Category 2 (secondary) papers report on secondary research questions or subgroup analyses of study data from multiple APPD LEARN sites.
- Category 3 (local) papers report on data from a single participating site in an APPD LEARN study

"Primary" and "secondary", as used above, are defined by the approved study protocol. Where the protocol does not define whether a question is primary or secondary, the decision will be made by study's oversight committee. If the study oversight committee cannot agree, the decision will be made by majority vote of the APPD LEARN Proposal Review Committee at a meeting with a quorum present.

**Planning of communications**

The study oversight group for a study is responsible for developing a written process for reviewing proposed papers, presentations, and other communications about the study. The process should include provisions for avoiding overlapping publications, prioritizing publications, and designation of a lead author for each communication. A copy of the oversight group's process should be submitted for record to the APPD LEARN Director. A template for this process appears at the end of this document.

**Authorship eligibility**

APPD LEARN uses the uniform criteria of authorship of the International Council of Medical Journal Editors:

"The author should have participated sufficiently in the work to take public responsibility for the content. Authorship credit should be based only on substantial contributions to: (a) conception and design, or analysis and interpretation of data; and to (b) drafting the article or revising it critically for important intellectual content; and on (c) final approval of the version to be published. Conditions (a), (b) and (c) must all be met. Any part of an article critical to its main conclusions must be the responsibility of at least one author."

Any individual who is to be listed as an author of any scientific communication arising from an APPD LEARN study must fit these criteria. Conversely, any individual who meets these criteria should be an author of the communication.

## Group authorship

The Council of Science Editors (CSE) defines three categories of authors for use in research collaboratives:

- The overall group name ("APPD LEARN" or "APPD LEARN *STUDYNAME* Group")
- Named individual authors (group members who take responsibility for authorship of the article)
- Nonauthor group members (group members who contributed to the work that led to the article but do not take responsibility for authorship).

CSE recommends the following by-lines if group authors will be used:

1. Group-Author Name

   All members of the group are authors, and their names appear in the manuscript as authors. MEDLINE will index the article under all authors as well as the group name.

2. Author 1, Author 2, Author 3; and the Group-Author Name

   This indicates there are additional authors in the group, whose names appear in the manuscript as authors. MEDLINE will index the article under all authors, whether in the byline or in the manuscript, as well as the group name.

3. Author 1, Author 2, Author 3; for the Group-Author Name

   This indicates that all authors are listed by name but there are additional non-authors in the group, whose names appear in the acknowledgments of the manuscript. MEDLINE will index the article's authors as the listed authors and the group name, and the non-authors as collaborators.

4. Group-Author Name*

   Not all members of the group are authors. Names of authors appear as such in the manuscript; names of non-authors are in the acknowledgments. MEDLINE will index the article's authors as all authors named in the manuscript, as well as the group name, and will list the non-authors as collaborators

Authorship for Category 1 (primary) and Category 2 (secondary) papers should always include a Group Author Name, and the manuscript should include a list of all individual authors by name (as well as acknowledging any non-author group members). Forms 1 and 4 above are always appropriate for these papers. As determined by the study oversight committee, group members who take major responsibility for both (a) the conduct or analysis of the study, and (b) the drafting of the manuscript may be separately listed, using forms 2 or 3 above.

Authorship for Category 3 (local) papers should use Form 3 above. It is expected that all study group members who are authors will be listed individually and most study group members who are not at the local site (along with non-authors at the study site) will be acknowledged as non-author collaborators in the manuscript.

**Order of authorship**

Order of authorship should be established prior to writing each communication by consensus of eligible authors (see above). Order of authorship may reflect descending order of overall contribution to the conceptualization and design of the study, analysis and interpretation of data, and drafting of the paper or presentation. The PI of a study is normally an author, but need not be the first author. Alternatively, authors may agree to use an alternative order of authorship (e.g., alphabetical), which can be noted in the communication.

If order of authorship is to be changed during the writing process, the change should be discussed among all authors. Conflicts that cannot be resolved among the authors will be referred to the study oversight committee for resolution. If the study oversight committee cannot agree, the decision will be made by the APPD LEARN Proposal Review Committee.
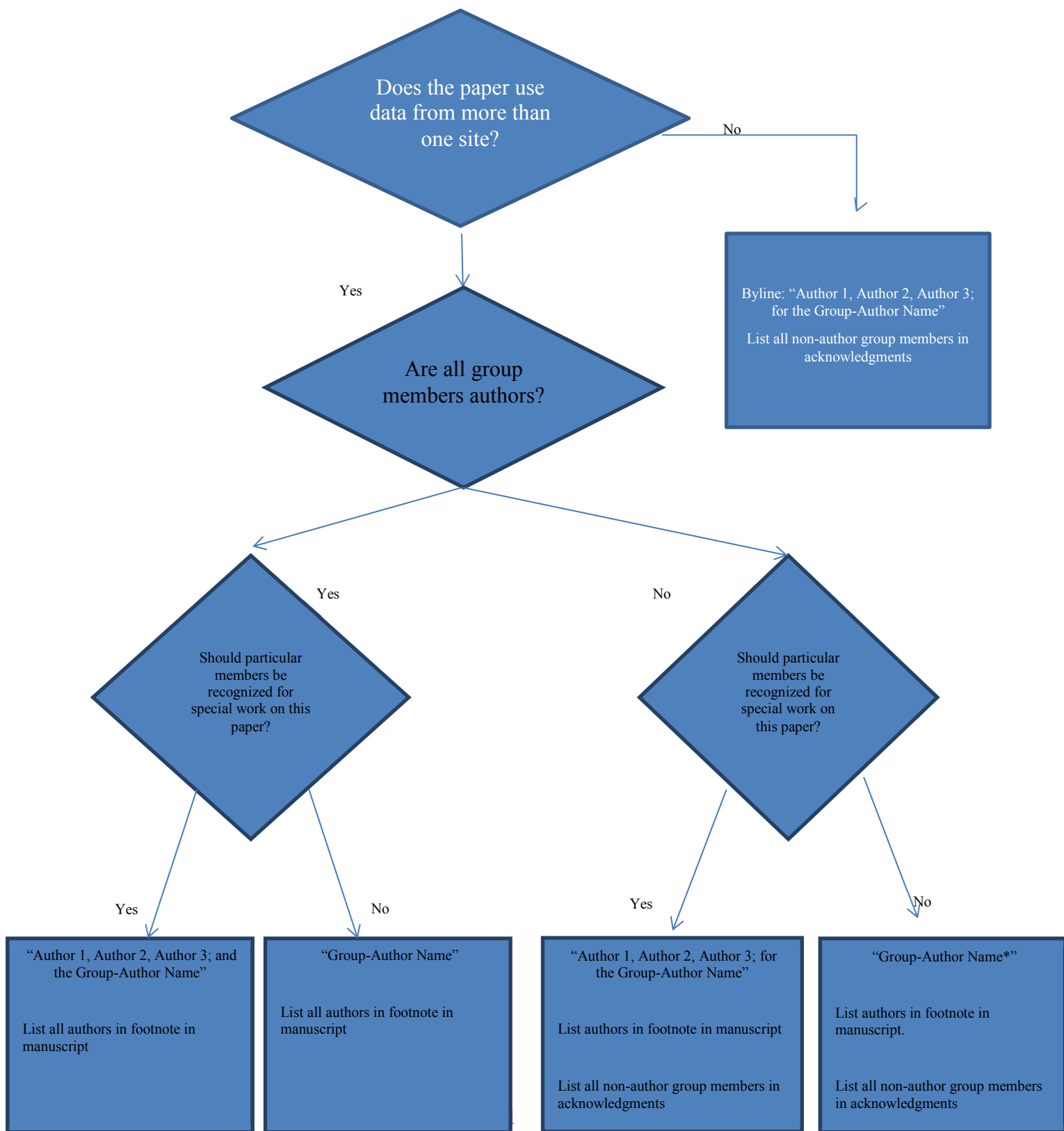
**Designation of a lead author**

Regardless of order of authorship, one author should be designated the lead author for the communication. The lead author is responsible for managing the writing process, arranging for review of drafts by co-authors, making final decisions on language, and submitting the communication to publication outlets.

Study Oversight Group Communication Management Process (Template)

For the ABC Study

In accordance with the APPD LEARN authorship principles, the ABC Study Oversight Group will manage scientific communications involving study data and proposed during the first 12 months following data collection as follows:

- Manuscripts, presentations, and other communication proposals should be sent to the Study Oversight Group by email. These proposals should clearly state the research questions to be addressed in the communication and the variables from the study data set that will be employed in the communication, and should include a proposed lead author, working title, and proposed journal or meeting for submission. The proposal may include a proposed list of additional authors.

- The Study Oversight Group will discuss proposals as they are received, and will generally approve proposals on a first-come, first-served basis, but preference will be given to APPD LEARN members who participated in the ABC Study. The Study Oversight Group may recommend additional authors to be included, and may suggest modifications to the proposal to avoid overlap with other planned communications.

- When a proposal is approved, the Study Oversight Group will designate a lead author and inform APPD LEARN leadership about the approved proposal. APPD LEARN leadership will facilitate data access. The lead author will be asked to communicate progress to the Study Oversight Group on a regular basis, at least quarterly. In the event of no progress on a communication for 3 months, the Study Oversight Group may re-assign the proposal to a new lead author.

- Prior to submission of a manuscript, a copy of the manuscript will be submitted to the Study Oversight Group by the lead author for review and comment. The lead author will incorporate or otherwise address recommendations made by the Study Oversight Group.

# Authorship byline flowchart

**Does the paper use data from more than one site?**

No → Byline: "Author 1, Author 2, Author 3; for the Group-Author Name"

List all non-author group members in acknowledgments

Yes ↓

**Are all group members authors?**

Yes ↓

**Should particular members be recognized for special work on this paper?**

No ↓

**Should particular members be recognized for special work on this paper?**

Yes → "Author 1, Author 2, Author 3; and the Group-Author Name"

List all authors in footnote in manuscript

No → "Group-Author Name"

List all authors in footnote in manuscript

Yes → "Author 1, Author 2, Author 3; for the Group-Author Name"

List authors in footnote in manuscript

List all non-author group members in acknowledgments

No → "Group-Author Name*"

List authors in footnote in manuscript.

List all non-author group members in acknowledgments

**APPD LEARN Director**

- Alan Schwartz, PhD

**APPD LEARN Project Manager**

- Robin Young, MS

**APPD Executive Director**

- Laura Degnon, CAE

**APPD LEARN Advisory Committee 2011-2013**

- Patricia (Patty) Hicks, MD, MPHE, APPD President
- Ann Burke, MD, APPD APPD, APPD Past President
- Carol Carraccio, MD, IIPE Director
- Hilary Haftel, MD
- Robert McGregor, MD
- Alan Schwartz, PhD, APPD LEARN Director (ex officio)
- Laura Degnon, CAE, APPD Executive Director (ex officio)

**APPD LEARN Proposal Review Committee (PRC), 2012-2014**

- Z. Leah Harris, MD, PRC Chair
- Erika Abramson, MD
- Jerry Larrabee, MD
- Adam Rosenberg, MD
- Heather McPhillips, MD, Vice Chair, APPD Research and Scholar Task Force
- Daniel West, MD

**APPD LEARN Educational Development Committee (EDC), 2012-2014**

- Beatrice Boateng, PhD, EDC Chair
- Marsha Anderson, MD
- Priya Garg, MD
- Susan Izak, MD

**APPD LEARN Study Principal Investigators and Committee Members**


APPD LEARN – NBME Pediatrics Milestones Assessment Pilot

- Patricia Hicks, MD, MHPE, Milestones Project Director (PI)
- Stephen Clyman, MD, National Board of Medical Examiners (PI)
- Alan Schwartz, PhD, APPD LEARN Director (PI)

APPD LEARN – NBME Pediatrics Milestones Assessment Pilot Oversight Committee

- Patricia Hicks, MD, MHPE, Milestones Project Director (PI)
- Alan Schwartz, PhD, APPD LEARN Director (PI)
- Melissa Margolis, PhD, National Board of Medical Examiners


Validity of resident self-assessment using Pediatrics Milestones

- Su-Ting Li, MD, MPH (PI)
- Kimberly Gifford, MD (PI)
- Daniel J. Tancredi, PhD
- Ann Burke, MD
- Ann Guillot, MD
- Susan Guralnick, MD
- John D. Mahan, MD
- R. Franklin Trimm, MD
- Alan Schwartz, PhD
- Robin Young, MS

New Professionalism Challenges in Medical Training: An Exploration of Social Networking

- Jennifer Kesselheim, MD, M.Ed. (PI)
- Maneesh Batra, MD, MPH
- Frank Belmonte, D.O., MPH
- Kimberly Boland, MD
- Robert McGregor, MD
- Sue Poynter, MD
- Alan Schwartz, PhD
- Robin Young, MS