

# Needs Assessment for a Medical Home Curriculum for Pediatric Residents

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## Abstract

Several studies and the Accreditation Council for Graduate Medical Education recommend integration of medical home (MH) concepts into pediatric resident training. There is a paucity of research depicting the current landscape of pediatric resident MH education. We hypothesized formal MH curricula in pediatric residency education are limited and pediatric residency programs desire incorporating MH education into curricula. A national needs assessment of pediatric residency programs was conducted assessing inclusion of MH concepts in training. Outcomes assessed were perceived importance of including MH concepts, satisfaction of current curriculum, content taught, resources available, and barriers encountered. Fifty-six programs (28%) completed the survey, majority academic programs. Nearly 75% indicated interest in incorporating MH concepts. Fifty-one percent of programs reported faculty knowledgeable in MH concepts/implementation and 11% reported access to readily available resources. Barriers included resident schedules, faculty teaching time, funding, and not faculty priority. Pediatric program directors report interest and need for improved MH training but identify implementation barriers.

## Keywords

medical home, pediatrics, resident education, medical education, clinical education/teaching, needs assessment, program directors

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## Introduction

The patient- and family-centered medical home is the standard of care in primary care.<sup>1</sup> Providing this care ensures the needs of patients and families drive care delivery coordinated among providers, partners, systems, and agencies<sup>2,3</sup> and improve health care quality and child/family functioning.<sup>4</sup> With its genesis in pediatrics,<sup>5</sup> medical home evolved in pediatric and adult sectors over the past decade.<sup>3,6-9</sup> Understanding concepts of the medical home<sup>10</sup> is critical for general and subspecialty pediatricians,<sup>11-14</sup> as patient-/family-centered care and care coordination is necessary across all systems. While gaining momentum, many medical home demonstration projects,<sup>15,16</sup> certification/recognition programs,<sup>17-20</sup> and practice transformation efforts<sup>21,22</sup> evolved supporting providers and practices.<sup>23</sup>

Incorporating medical home training into pediatric residency programs has been suggested by several authors and studies.<sup>24-32</sup> A new resident curriculum

training residents to elicit family feedback was found useful, reasonably implemented, and garnered support.<sup>31</sup> The Accreditation Council for Graduate Medical Education (ACGME) requires all pediatric residents receive training on “coordination of care [and] longitudinal management of children/youth with special needs.”<sup>32</sup> However, there is a paucity of research depicting the current landscape of pediatric residency medical home resident education. In response to this gap, a Medical Home Resident Education Initiative Work

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Group (REIWG) was created via the American Academy of Pediatrics (AAP) National Center for Medical Home Implementation in 2011. The REIWG conducted a needs assessment informing development of a medical home curriculum. Study objectives were the following: understand and identify current state of medical home training in US pediatric training programs, understand pediatric program directors' perspectives, and identify gaps and barriers. The REIWG hypothesized that (1) formal medical home curriculum experiences in residency education are limited and (2) pediatric residency programs desire incorporating medical home education into curricula.

## Methods

### *The Medical Home Resident Education Initiative Work Group*

The purpose of the REIWG was to identify pediatric training needs related to the medical home, care coordination, and family-centered care for all children, with special emphasis on children with special health care needs. REIWG members include representatives from AAP, Academic Pediatric Association (APA), Association of Pediatric Program Directors (APPD), Continuity Research NETwork (CORNET),<sup>33</sup> residency program directors, residents, family members, and medical home content experts. Established in 2011, the group met in person 3 times, convened quarterly via teleconference, and collaborated electronically on developing documents, surveys, and curricula components.

The REIWG developed a survey assessing the current state of medical home training, with topics informed by literature, evidence for medical home in practice, medical home recognition (eg, National Committee for Quality Assurance), and experts in the medical home and residency education fields.<sup>17,20</sup> The topics were refined and discussed by REIWG members on multiple calls/webinars. This study was approved by the AAP Institutional Review Board.

### *Study Design*

The resulting cross-sectional survey (22 questions; available online at <http://journals.sagepub.com/home/gph>) assessed needs related to medical home curricula:

1. Sociodemographic characteristics (program type, geographic location, respondent role, program size)

2. Satisfaction with medical home curriculum utilized if any, resources, and perceived importance of medical home principles
3. How programs currently teach concepts, as organized around key functions: Care Partnership and Support; Care Delivery Management; Clinical Care Information and Management; Resources and Linkages; and Practice Performance Management and Payment and Finance<sup>34</sup>
4. Perceived areas for growth
5. Perceived barriers

To rank importance of a concept, respondents selected from "Important," "Somewhat Important," "Not Important," or "Do Not Know" for each item listed. For satisfaction-related questions, respondents selected from "Satisfied," "Somewhat Satisfied," "Not Satisfied," and "Do not know" for each item. When assessing barriers, respondents were asked to select all that apply from the following: Providing faculty time to teach; Finding time in resident schedules; Lack of faculty expertise; Lack of funding; Lack of resident interest; Not a priority to some faculty; No barriers identified; Do not know; and Other.

The survey was approved by the APPD for distribution to the national APPD listserv. Two of the authors met with members of the APPD Curriculum Taskforce for formative feedback and expert opinion. The electronic survey was sent to program directors of the 196 Pediatric Residency Training Programs members of the APPD<sup>35</sup> in March 2011<sup>36</sup> via their specific listserv. Inclusion criteria included any pediatric residency program directors whose programs are members of the APPD in the United States.

Only 2 accredited Pediatric Residency Training Programs not members of APPD were not surveyed.<sup>37</sup> Program directors were asked to complete the survey themselves, or have a representative with more expertise complete it. Three reminder emails were sent over 6 months encouraging participation. Emails were sent via the APPD listserv and results were de-identified before tabulated.

### *Statistical Analysis*

Results were analyzed using descriptive statistics, and frequencies and means were calculated utilizing SPSS statistical software (version 20.0).<sup>38</sup> All qualitative comments were collated by the study coordinator and reviewed by the REIWG team for themes and consistency.

**Table 1.** Demographics of Residency Programs and Respondents<sup>a</sup>.

	Response
Type of program (Question 1)	n = 56
Academic based	70 (39)
Both academic and community based	21 (12)
Community based	9 (5)
Military	0
Other	0
Type of site (check all that apply) (Question 2)	n = 56
Urban—Inner city	46 (26)
Urban—Non—inner city	38 (21)
Hospital clinic	29 (16)
Suburban area	16 (9)
Rural area	7 (4)
Hospital affiliate	7 (4)
Region <sup>b</sup> (Question 3)	n = 56
South Atlantic	20 (11)
East North Central	18 (10)
Mid-Atlantic	18 (10)
East South Central	11 (6)
New England	7 (4)
Pacific	7 (4)
West North Central	7 (4)
Mountain	2 (1)
Participant role (Question 4)	n = 55
Pediatric residency program director	80 (44)
Associate/assistant pediatric residency program director	11 (6)
Continuity clinic director	7 (4)
Other (continuity clinic supervisor)	2 (1)
Chief pediatric resident	0
Total categorical pediatric residents in program (Question 5)	n = 56
0-20	7 (4)
21-40	45 (25)
41-60	21 (12)
61-80	14 (8)
81-100	9 (5)
>100	4 (2)
Total medicine pediatric residents in program (Question 6)	n = 56
0	43 (24)
1-5	2 (1)
6-10	5 (3)
11-15	4 (2)
16-20	30 (17)
21-25	4 (2)
26-30	2 (1)
31-35	9 (5)
46-50	2 (1)

(continued)

**Table 1. (continued)**

	Response
Residency programs other than pediatrics at institution (Question 7)	n = 54
Family medicine	76 (41)
Combined medicine-pediatrics	54 (29)
Other	26 (14)
No other programs	6 (3)
Medical home faculty champion and/or resources at program (Question 8)	n = 52
Faculty champion	52 (27)
Do not know	37 (19)
Resources available	12 (3)

<sup>a</sup>Results are presented as percentages with the number of responses for each answer choice (n) provided in parentheses.

<sup>b</sup>Regions are based on the following US Census Bureau regional divisions:

East North Central = IL, IN, MI, OH, WI.

East South Central = AL, KY, MS, TN.

Mid-Atlantic = NJ, NY, PA.

Mountain = AZ, CO, ID, MT, NV, NM, UT, WY.

New England = CT, ME, MA, NH, RI, VT.

Pacific = AK, CA, HI, OR, WA.

South Atlantic = DE, FL, GA, MD, NC, SC, VA, WV.

West North Central = IA, KS, MN, MO, NE, ND, SD.

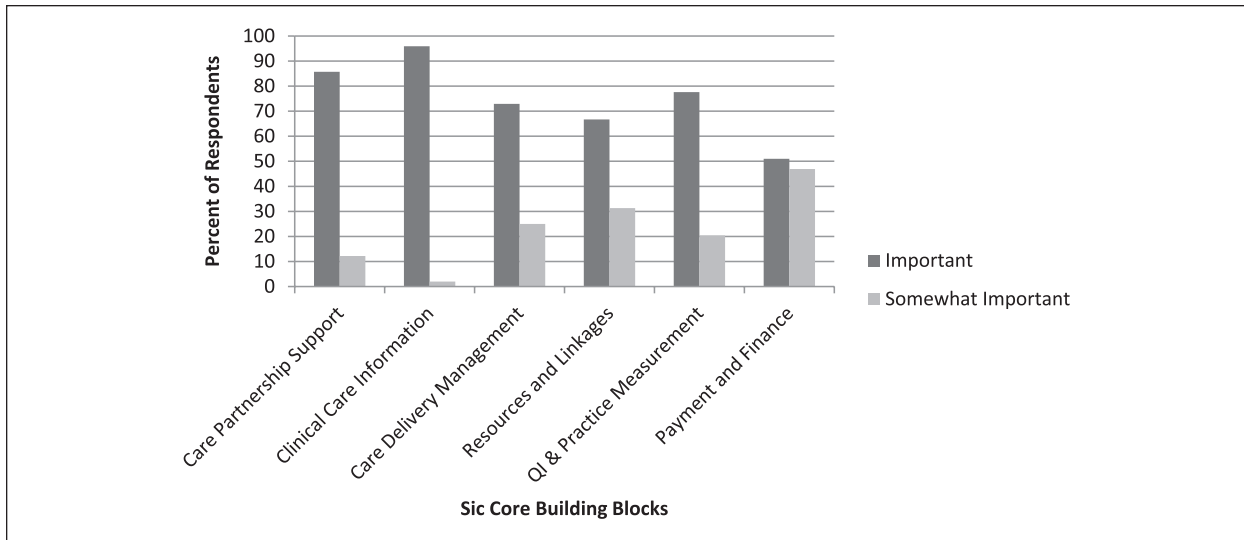
West South Central = AR, LA, OK, TX.

## Results

Fifty-six program directors (of 198 surveyed) or their designee completed the survey (response rate 28%). Table 1 depicts demographic characteristics of respondents. The majority of respondents were program directors (80%) and from academic programs. Respondents represented pediatric training programs from 30 states with at least one program from each US Census Bureau–defined region.<sup>39</sup> Most programs provided training for 21 to 40 categorical pediatric residents with a range of 0 to 128 (one program was new and participated in meetings before residents were accepted; ignoring this program, the range was 17-128; see Table 1).

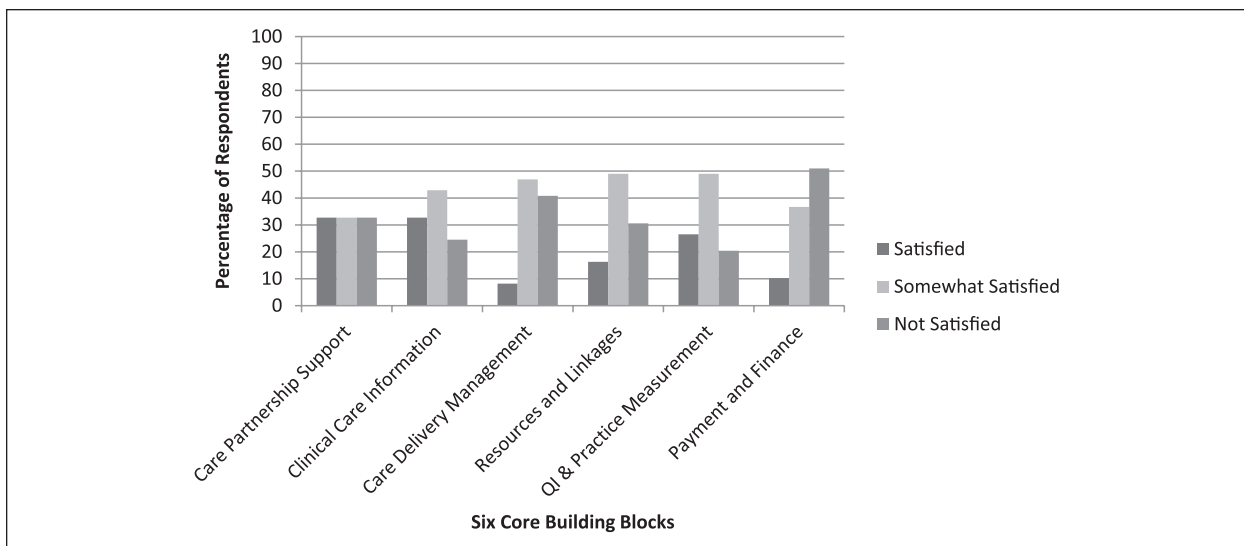
Nearly three quarters of respondents indicated interest in incorporating a medical home curriculum. Respondents rated each key function as important with a range of 51% (payment and finance) to 95% (clinical care information). See Figure 1. However, respondents were more often “somewhat satisfied”/“not satisfied” than “satisfied” with their current curricula (Figure 2). The key function of payment and finance was the area with the highest rating of dissatisfaction.

Programs reported information on current medical home curricula/content included in resident education (Table 2) and current teaching methodologies (Table 3).



**Figure 1.** Perceived importance of the building blocks in resident education.

\*No respondents chose "Not Important" for any of the blocks (not shown).



**Figure 2.** Reported satisfaction of current curricula and/or related learning opportunities for residents related to the building blocks.

Half of programs reported having faculty knowledgeable in medical home concepts and implementation (51%). Only 11% reported access to readily available resources (identified as faculty with access to AAP information, local community-based resources, case managers, electronic medical records, special medical home clinics, and faculty with limited knowledge and commitment). Over one third of programs reported no knowledge of such resources (36%). Furthermore, 60% of programs did not have a care coordinator.

Barriers to implementing a medical home curriculum included the following: finding time in resident schedules (79%), providing faculty time to teach (69%), lack of faculty expertise (53%), lack of funding (46%), not a priority to some faculty (42%), and lack of resident interest (16%). Respondents were asked to select all barriers they felt were relevant. Two respondents did not identify any barriers and 2 selected "don't know." Other barriers written in by respondents related to the increased learning demands placed on residents.

**Table 2.** Content Currently Taught in the Building Blocks<sup>a</sup>.

	Response
<i>Care Partnership Support Block:</i> Content included as part of teaching communication and partnership with families <sup>b</sup> (Question 10)	n = 53
Residents receive teaching on learning communication techniques to enhance interaction with all families of all backgrounds and cultures and acknowledging a family's cultural beliefs and practices in a patient's plan of care	81.1 (43)
Residents are trained on identifying families' concerns and addressing them effectively	77.4 (41)
Residents are taught to involve families as formal partners in decision making and ongoing feedback as active practice team members (ie, satisfaction surveys, family advisory groups/councils, family as faculty, etc)	77.4 (41)
Residents are taught about seeking ongoing informal input from families and parent partners regarding practice feedback and family satisfaction	58.5 (31)
No content used	1.9 (1)
<i>Clinical Care Information Block:</i> Content included as part of teaching how to organize clinical care information in practice <sup>b</sup> (Question 11)	n = 52
An up-to-date problem list with ICD-9 codes current	61.5 (32)
Narrative current progress notes based on a structured or standard template (paper or electronic)	65.4 (34)
A listing of a patient's over-the-counter medications, supplements, and alternative therapies	57.7 (30)
A listing of all prescribed medications (chronic and short term)	92.3 (48)
Growth charts plotting height, weight, head circumference, and body mass index (BMI)	100.0 (52)
Use and documentation of age-appropriate standardized screening tools and developmental testing (ie, newborn screening, parent's evaluation of developmental status, ages and stages, child development inventory)	90.4 (47)
Use and documentation of age appropriate standardized screening tools and developmental testing (ie, newborn screening, parent's evaluation of developmental status, ages and stages, child development inventory)	71.2 (37)
Use of a structured template for tracking age appropriate risk factors (at least three factors) (ie, seat belt, secondary smoke, bike helmet, mental health needs)	67.3 (35)
Prevention milestones which are periodically addressed and documented	71.2 (37)
Process for tracking tests, referrals, and their resolution	36.5 (19)
<i>Resources and Linkages Block:</i> Content included as part of teaching about community resources and linkages for patients and families <sup>1</sup> (Question 14)	n = 47
Family to family supports (ie, Family-to-Family Health Information Centers, Parent to Parent USA)	38.3 (18)
Health insurance/other assistance (ie, InsureKidsNow.gov, Pre-Existing Condition Insurance Plan [PCIP])	40.4 (19)
State-funded family relief (ie, subsidies for food, housing, electricity, transportation, and equipment)	66.0 (31)
Condition-specific patient education material/classes	76.6 (36)
Patient self-management tools/guidance	31.9 (15)
Language appropriate services and resources	74.5 (35)
External care management assistance	27.7 (13)
Home care/respite care	57.4 (27)
Other (please specify) <sup>c</sup>	2.1 (1)

<sup>a</sup>Results are presented as percentages with the number of responses for each answer choice (n) provided in parentheses.

<sup>b</sup>Respondents were asked to select all that applied for *most* of their residents.

<sup>c</sup>Other: Do not know.

## Discussion

This study is among the first presenting national data on the state of medical home education in US pediatric residency training programs. The results suggest programs are supportive of teaching medical home concepts but are not satisfied with current curricula. Specific needs include training in key functions of the medical home, specifically Health Care Delivery

and Management and Payment and Finance, as supported by the lowest satisfaction scores reported in this study. Programs use mixed methods to teach medical home, such as participating in direct patient care, home visits, formal didactics, training in use of validated tools and QI processes, and family as teacher initiatives (Table 3). Barriers include limited faculty expertise, limited training time, and lack of resources.

**Table 3.** Methods Used for Resident Education Around Medical Home<sup>a</sup>.

	Response
<i>Care Partnership Support Block: Methods used to learn patient- and family-centered care and medical home<sup>b</sup> (Question 9)</i>	n = 53
Formal lectures/didactics on family-centered care components	83.0 (44)
Patient care experience without formal training	66.0 (35)
Attend home visits with families	62.3 (33)
Residents interface with community advocates or parent advocacy groups (ie, Family Voices, Family-to-Family Health Information Centers [F2F HICs])	39.6 (21)
A Family Advisory Council works and/or interacts with residents and/or the residency program in a formal manner (ie, lectures, taking residents into community on site visits, interact during hospital rounds)	32.1 (17)
Families/parents of children give or participate in lectures/conferences for pediatric residents	28.3 (15)
Residents participate in family-centered rounds on outpatient rotations	15.1 (8)
No methods used	5.7 (3)
Other (please specify) <sup>c</sup>	1.9 (1)
<i>Care Delivery Management Block: Methods used to learn about care coordination in the medical home or in the primary care setting<sup>b</sup> (Question 12)</i>	n = 50
Residents formally learn components on writing letters of medical necessity and/or receive feedback	22.0 (11)
Residents are formally trained on development of care plans/medical summaries	34.0 (17)
Residents are trained in co-management with specialists via tools and resources	24.0 (12)
Residents are involved in activities related to preparing the office to support efficient care delivery (ie, team huddles)	22.0 (11)
No methods used	42.0 (21)
Other (please specify) <sup>d</sup>	8.0 (4)
<i>Care Delivery Management Block: Methods used to learn about transition to adult health care/oriented systems<sup>b</sup> (Question 13)</i>	n = 50
Residents have formal lectures/didactics on transition of care	42.0 (21)
Residents have patient care experience without formal training	66.0 (33)
Residents communicate directly with adult health care providers to accept pediatric patients	22.0 (11)
Residents work with community advocates, youth leaders, and/or transition navigators	22.0 (11)
Residents are involved in the development of transition care plans	46.0 (23)
Residents discuss youth wellness and preparedness for adulthood, self-advocacy, and adult-oriented systems with their patients (ie, working with youth to learn their medications, discuss adult primary care provider transition, discuss vocational issues)	36.0 (18)
Residents complete a survey checklist/tool with adolescent patients regarding transition to adulthood and community resources regarding transitions	8.0 (4)
No methods used	12.0 (6)
Other (please specify) <sup>e</sup>	10.0 (5)
<i>Practice Improvement Measurement and Quality Improvement Block: Methods used to learn about practice performance/quality improvement related to medical home<sup>b</sup> (Question 15)</i>	n = 50
Residents have formal lectures/didactics on quality improvement	74.0 (37)
Residents have patient care experience without formal training	32.0 (16)
Residents are trained about the development, use, and/or maintenance of patient registries for specific diagnoses or conditions	22.0 (11)
Residents work with validated tools such as the Medical Home Index, National Committee on Quality Assurance (NCQA), and the AAP Quality Improvement Innovation Network (QUIIN)	14.0 (7)
Residents receive training on the development of care plans/medical summaries	36.0 (18)
Residents are taught Plan-Do-Study-Act (PDSA) quality improvement and other methodologies and practice what they learn in small-scale PDSA quality improvement projects related to medical home or its components	74.0 (37)
Residents are involved in planning or implementing strategies for enhanced patient access to services	48.0 (24)
No methods used	6.0 (3)
<i>Payment and Finance Block: Methods used to learn about payment strategies for medical home/care coordination<sup>b</sup> (Question 16)</i>	n = 49
Residents receive training on appropriate coding for medical home-related services (ie, preventive care, developmental screening, non-face-to-face care)	46.9 (23)
Residents receive training on contract negotiation with payers	8.2 (4)
No methods used	53.1 (26)

<sup>a</sup>Results are presented as percentages with the number of responses for each answer choice (n) provided in parentheses.

<sup>b</sup>Respondents were asked to select all that applied for most of their residents.

<sup>c</sup>Residents participate in a specialized clinic for CSHCN as a required element of an advocacy rotation; emphasis in this setting is on FMC/MH.

<sup>d</sup>Responses were the following:

We "discuss" patient by patient, but we do not currently have formal lectures or training.

Residents learn each of these components on an individual case basis, depending on the patient.

Liaison involvement and teaching.

Various ad hoc clinical methods, but not MOST residents routinely.

<sup>e</sup>Responses were the following:

Med-peds residents more formal interest in transition; I checked above b/c we have some scarce lectures for peds residents.

Not sure.

We are working to develop a checklist/tool.

As part of orientation new residents meet about 6 families in an interactive session that is moderated by our neuro-disabilities specialist who is med-peds trained. The families bring their home care providers.

Do not understand this question.



Our findings suggest the need for further development and implementation for residency programs teaching patient and family centeredness to residents. Only 59% of respondents reported existing training for residents on eliciting feedback from families and parent partners. Furthermore, approximately a third of programs (38%) incorporate resources teaching about family to family supports and linkages, and few programs have residents work with family advisory councils, community partners, or have family faculty. This focus on family-centered care and community partners in education for residents represents an opportunity for pediatric residency programs to educate on an essential aspect of the medical home.

Effective care coordination/integration and transition to adult oriented systems are also critical aspects of high-quality medical homes for patients and families.<sup>10</sup> This study suggests that few programs are teaching self-care, writing letters of medical necessity, co-management, or care plan development. Less than half of residency programs in this study have formal didactics on transition of care to adulthood or develop transition care plans and less than a quarter of respondents reported residents communicate with adult health care providers, work with transition advocates, or use transition care plan checklists that are accepted as core elements in the transition process for youth.<sup>40-43</sup> There are resources available<sup>40,44,45</sup> for training pediatric residency programs in these areas as they are relevant to primary care, specialty care and inpatient medicine.

Curricula have been suggested throughout the past decade for incorporating medical home training into residency.<sup>25-27,46</sup> Several pilot studies in adult primary care suggest favorable outcomes for integrating team-based care and components of the patient-centered medical home into residency education.<sup>47-50</sup> Several medical home pediatric resident training initiatives have been developed and implemented at the local and regional levels.<sup>8,51</sup> Outcomes include decreased emergency department utilization,<sup>8</sup> increased resident satisfaction,<sup>8,51</sup> improved resident self-efficacy in setting patient-centered treatment goals,<sup>51</sup> a feasible and acceptable curriculum,<sup>46,51</sup> and increased family satisfaction.<sup>8</sup> A web-based curriculum was reported to increase resident knowledge, confidence, and utilization of medical home principles.<sup>52,53</sup> Training in patient-centered activities such as Family-Centered Rounding and home visiting programs are supported by residents.<sup>54,55</sup> A study of the Health Begins at Home initiative demonstrated urban pediatric residents gain an increased understanding of their patients' community and home environments through participating in home visits and stress home visiting is important and should be incorporated into permanent training curricula.<sup>55</sup> Additional successful

strategies include online reflective writing with structured feedback<sup>56</sup> and parent-led curricula<sup>57</sup> to improve resident learning and understanding of family-centered care delivery within the medical home. Some initiatives did not demonstrate significant improvement in outcomes with the new initiatives, possibly due to barriers in implementation.<sup>58</sup> This study shows the importance of implementing medical home curriculum and our curriculum and web-sites can serve as additional resources for training programs (see Next Steps).

### Limitations

One limitation of this study is it is a cross-sectional assessment of pediatric residency programs in 2011. The responses reflect the opinion and experiences of the survey respondent and could represent an underestimation of actual medical home activities in the residency program. Due to parsimonious survey length, we were unable to assess activities related to hand offs and transition of care from inpatient to outpatient settings and into other facilities, which is a growing body of resident education experience. Our response rate was 29% and only represents the opinions of respondents. Strengths included surveying through a national organization and representation from all US regions.

### Next Steps

The next steps of REIWG were to develop a curriculum addressing limited faculty expertise, time in training, and lack of resources reported by programs. The group used the needs assessment to develop a national-level medical home curriculum based on the key functions of the medical home. This competency-based curriculum is available as 5 self-contained case-based modules focusing on key medical home principles. The modules are available online via the AAP website.<sup>44</sup> The content of the modules addresses ACGME core competencies of Patient Care and Procedural Skills; Medical Knowledge; Practice-Based Learning and Improvement; Interpersonal and Communication Skills; Professionalism; and Systems Based Practice.<sup>59</sup> Further assessment of this curriculum is indicated.

### Conclusion

Pediatric residency training programs report the need for improved medical home education and training but are limited by faculty time, expertise, resources, and time in training. Additional efforts and evaluation focused on medical home with faculty development, educational competencies, and curricula warrant consideration.

## Authors' Note

The results of needs assessment have been presented at APPD and Pediatric Academic Societies (PAS) meetings in 2012.

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## Author Contributions

RMT: Contributed to conception and design; contributed to acquisition, analysis, and interpretation; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

AN: Contributed to conception and design; contributed to acquisition, analysis, and interpretation; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

ME: Contributed to conception; contributed to acquisition and interpretation; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

JRS: Contributed to conception and design; contributed to acquisition, analysis, and interpretation; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

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## Supplemental Material

A copy of the survey used is provided as supplemental material and is available at <http://journals.sagepub.com/home/gph>.

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