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Early career mentoring through the American Society of Pediatric Hematology/Oncology: Lessons learned from a pilot program

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SUPPORTING INFORMATION

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

Abstract

Background—Effective networking and mentorship are critical determinants of career satisfaction and success in academic medicine. The American Society of Pediatric Hematology/Oncology (ASPHO) mentoring program was developed to support Early Career (EC) members. Herein, the authors report on the initial 2-year outcomes of this novel program.

Procedure—Mentees selected mentors with expertise in different subspecialties within the field from mentor profiles at the ASPHO Web site. Of 23 enrolled pairs, 19 mentors and 16 mentees completed electronic program feedback evaluations. The authors analyzed data collected between February 2013 and December 2014. The authors used descriptive statistics for categorical data and thematic analysis for qualitative data.

Results—The overall response rate was 76% (35/46). At the initiation of the relationship, career development and research planning were the most commonly identified goals for both mentors and mentees. Participants communicated by phone, e-mail, or met in-person at ASPHO annual meetings. Most mentor–mentee pairs were satisfied with the mentoring relationship, considered it a rewarding experience that justified their time and effort, achieved their goals in a timely manner with objective work products, and planned to continue the relationship. However, time constraints and infrequent communications remained a challenge.

Conclusions—Participation in the ASPHO mentoring program suggests a clear benefit to a broad spectrum of ASPHO EC members with diverse personal and professional development needs. Efforts to expand the mentoring program are ongoing and focused on increasing enrollment of mentors to cover a wider diversity of career tracks/subspecialties and evaluating career and academic outcomes more objectively.

Keywords

career development; early career; fellow; junior faculty; mentoring; mentorship; pediatric hematology oncology; pediatric subspecialty; trainee

1 INTRODUCTION

Effective networking and mentorship are critical determinants of academic success.^{1–5} Mentoring is a relationship that is based on mutual interests, in which mentees play a key role in building and maintaining this relationship over time.^{4,6,7} On the other side, a skilled mentor is often an expert in their field, genuinely invested in their mentee's goals, who encourages open communication, provides structured learning opportunities, and facilitates career and personal development.⁴ Mentoring is especially important for personal and professional growth for trainees in pediatric hematology/oncology (PHO) and junior faculty as they navigate between clinical duties, research scholarship, and career development.^{4,8} New investigators with strong and committed mentors are more likely to become successful independent investigators through early access to networking opportunities and observation of a role model, which helps them evolve into mature professionals.^{9–11} Moreover, mentorship is beneficial at each training stage and is associated with greater research productivity, career retention, and promotion.^{2,6,12} However, mentoring is the least

recognized activity on an academic portfolio despite the significant time and effort it entails.^{2,3,5,13}

The significant role of mentoring in achieving research endeavors, career development, and work-life balance for junior faculty, trainees, and medical students has been described in several international publications.^{2,6,14–17} A recent policy statement from the American Academy of Pediatrics included recommendations to promote research education and to support mentorship for all trainees to enhance the creation of new knowledge.¹⁸ The American Society of Pediatric Hematology/Oncology (ASPHO) is a multidisciplinary organization dedicated to promoting the optimal care of children and adolescents with blood disorders and cancer by advancing research, education, treatment, and professional practice.¹⁹ The professional network of the society provides an outstanding platform for young professionals who seek collegial support and career guidance. The Early Career (EC) Subcommittee of the ASPHO Professional Development Committee was initiated to address the needs of EC members, including fellows and junior faculty.²⁰ The EC Subcommittee serves in an advisory capacity to the society, board, and committees on the needs and preferences of EC members as the society leadership makes decisions and plans for the future of the organization.

Mentoring programs are based on principles of mutual trust, respect, networking, and inclusion.^{1–4} While mentoring programs already exist at individual institutions, these are often limited programs that may not meet the full spectrum of mentoring needs for EC members.⁹ The complexity and diversity of the pediatric hematology oncology profession has led to a shift away from the traditional concept of mentoring. A new model has emerged that includes “team mentoring” or participating in a “mentoring network” and incorporates both personal and professional growth.⁹ To support this new program, ASPHO developed a unique mentoring infrastructure. The Professional Development Committee and the EC Subcommittee created the ASPHO mentoring program in 2013 to facilitate interactions between EC members and senior experts (potential mentors) within ASPHO. The mentoring program is currently in its third year. The overarching goal of the EC mentoring program is to help EC members of ASPHO develop professionally, as well as personally. The objectives of this study were to describe the development of the ASPHO mentoring program and to evaluate the feasibility and the outcomes from the initial 2 years of this pilot program. Our data are derived from feedback surveys from 22 mentor–mentee pairs. These findings will guide the future development of this mentoring program by highlighting benefits and lessons learned from unique mentor–mentee relationships.

2 METHODS

2.1 Mentoring program structure and workflow

Mentors were recruited to join the program from a network of active ASPHO members who were involved in different working groups and committees and had expertise in different subspecialties within the field. Additionally, announcements were made at the ASPHO annual meetings, on the ASPHO Web site, and through e-mail invitations. Mentors' profiles were posted on the ASPHO Web site highlighting three domains of clinical and/or scientific expertise for mentees to review. Mentors' profiles also included institution and type of

practice, academic rank, expected length of mentoring relationship, preferred method of contact, possible mentoring topics, and maximum number of simultaneous mentees. Mentors' areas of expertise included many subspecialties within the field of PHO including oncology (e.g., leukemia, solid tumors, and brain tumors), nonmalignant hematology (e.g., bleeding and clotting disorders and hemoglobinopathies), and stem cell transplantation. Prospective mentees submitted an application to the ASPHO mentoring program with their choice of three candidate mentors in their field of interest. The ASPHO designated administrative staff reviewed each mentee's application and sent an invitation to a chosen mentor. Mentors were able to review a mentee's profile before accepting the mentoring relationship. Once a mentor–mentee pair was agreed upon, a mutual agreement of mentorship commitment was signed and dated by both parties, at which point a formal mentor relationship was initiated (Supplementary File S1). Mentors and mentees were allowed to continue, change, or terminate the mentoring relationship at any point based on their experience. If a change or early termination was needed, mentors or mentees could contact ASPHO staff with their request and a brief explanation—ASPHO staff would act as a “safe-zone” to avoid interpersonal conflict.

Each mentor–mentee pair worked together to develop a plan in writing that defined goals and plans for achieving their objectives, identified a timeline for goal completion, and set their preferred method of communication and frequency of interactions. To keep the momentum and engage more mentors and mentees, the mentoring program was marketed regularly at the ASPHO annual meetings and through regular electronic newsletters that reached all ASPHO members.

2.2 Program evaluation surveys

To monitor the effectiveness of the mentoring program, members of the EC subcommittee—through several discussions and iterations—developed a 15-question quality improvement survey utilizing available evidence in the mentoring literature. Evaluation questionnaires were sent to all mentor–mentee pairs 6 and 12 months after formal initiation of the mentoring relationship. Evaluations included assessments in the following domains: achievement of planned goals, frequency of communications, help with career development, overall satisfaction, mentorship obstacles, completed work products, and future plans. The surveys were designed and administered electronically using a commercial web-based survey tool (SurveyGizmo.com, Boulder, CO). Outcomes and productivity data of each mentor–mentee pair were collected. The surveys were designed as a quality improvement tool internal to the ASPHO mentor program, and they were proctored and managed by designated ASPHO administrative staff.

2.3 Statistical analysis

Descriptive statistics for categorical data were reported in frequencies and percentages and were compared across mentors and mentees. Wilcoxon rank-sum tests were used to determine significance. All tests were two-sided and a p -value < 0.05 was considered statistically significant. We conducted a complete case analysis. Missing data were examined and found to be at random with no identified pattern among participants. Responses from each individual mentor or mentee were considered discrete data points, including those who

had more than one assessment completed. Because of the relatively small sample size in our cohort, we were not able to compare response changes over time. For the same reason, we collapsed response options in item 6—an item evaluating the mentoring program overall—to three categories; (i) “agree” for both “strongly agree” and “agree”; (ii) “disagree” for “strongly disagree” and “disagree”; (iii) and “neutral.” Statistical analysis was conducted using Microsoft Excel for Mac 2011 and StataCorp. 2013 (Stata Statistical Software: Release 13; StataCorp LP, College Station, TX). For qualitative data collected from open-ended questions, we conducted thematic analysis and explored common patterns and themes in participant responses using constant comparative approach.²¹

3 RESULTS

3.1 Participant characteristics and planned goals

Between February 2013 and December 2014, 23 mentees were paired with 17 mentors (four mentors had more than one mentee). All paired mentors and mentees were from academic medical institutions. Participants' characteristics are summarized in Table 1. Program evaluations were sent to all program participants—mentors and mentees—with an overall response rate of 76% (35/46). Career development and research planning were the most commonly planned goals at the initiation of the program for both mentors and mentees, while board exam preparation, work-life balance, and gaining extramural perspectives were less commonly included (Fig. 1). However, mentees, in particular, considered both active networking and manuscript preparation as areas where mentorship would be valuable.

3.2 Participant communication

Mentor–mentee pairs communicated every 11 weeks on average (range 2–24 weeks). About 80% (28/35) of pairs communicated by phone or e-mail, and 65% (23/35) met in-person at the ASPHO annual meeting. Three pairs (17%, 6/35) met at the annual meeting of the Children's Oncology Group (COG), the American Society of Hematology, and/or the American Association for Cancer Research. None of the pairs indicated the use of videoconferences in their communications.

3.3 Program evaluations and work products

The majority of mentors and mentees reported participation in the mentoring program to be a positive experience, as evidenced by positive responses in most of the assessment domains of the evaluation survey (Table 2). Most mentors and mentees were satisfied with the program and the benefits gained from participation, considered it to be a rewarding experience that justified their time and effort, achieved their goals in a timely manner, and planned to continue their mentoring relationships. Forty-eight percent (17/35) of both mentors and mentees reported that they had regular meetings. There were no statistically significant differences between mentors' and mentees' responses in any of the evaluation domains (Table 2). At the time of the interim analysis, none of the mentors or the mentees requested a change or an early termination of their relationship. The mentoring relationships of participating pairs have led to different work products including planning of clinical trials and other research projects (n = 4), platform presentation preparation for national meetings (n = 2), production of educational materials (n = 2), and successful job searches (n = 1).

Furthermore, mentors and mentees shared their personal experiences regarding good quality mentorship and helpful mentoring strategies (Table 3).

3.4 Mentorship barriers

Barriers of the mentoring relationship varied, but time constraints and lack of frequent communication were the most commonly listed obstacles (Fig. 2). About 25% (9/35) of mentees and 10% (4/35) of mentors identified no barriers. However, mentors reported the inability to meet their mentees in-person, different career paths, and a difficult job market as potential barriers. In contrast, mentees reported the stress of adapting to a new position and personal leave (maternity or illness) as barriers.

4 DISCUSSION

The ASPHO Mentoring Program was established to provide a platform of support for professional development for EC members of the society, recognizing the rapid increase in knowledge and application in this field and increasing pressures in employment and career opportunities. The main advantages of this mentorship program were the availability of mentors with a variety of subspecialties within the field (hematology, general oncology, neuro-oncology, stem cell transplant, etc.), the ability of the mentees to self-select and/or change their mentors at any point, the opportunity to network with others who have similar interest within the organization, and supporting the concept of “network” with extramural mentors or multiple mentors based on individual mentee’s needs. This program was initially developed with the goal of targeting junior faculty and fellows with the option to expand to mid-career mentorship. It is also recognized that this program fills a need for mid- and late-career physicians and scientists to directly teach and instruct younger members of their profession. This mentoring program utilized ASPHO as a networking platform as its members are leaders in the field and readily accessible through the society’s programs. In addition, most PHO fellows are ASPHO members and have access to online information for career development and employment through the ASPHO Web site.

In this pilot mentorship program, we were able to demonstrate clear benefits for mentors and mentees and identified areas of improvement for future refinement of the program. Career development and research planning were the most frequently identified goals at the initiation of the program for both mentors and mentees, indicating an unmet need for many of these mentees. Participants communicated by phone, e-mail, or met in person at the ASPHO annual meetings. Most pairs were satisfied with the relationship, considered it to be a rewarding experience that justified their time and effort, achieved some of their goals in a timely manner with objective work products, and planned to continue in the relationship within the ASPHO mentoring program. However, time constrains and infrequent communications remain a challenge. The evaluation of the ASPHO mentorship program suggests the potential for an ongoing benefit to ASPHO EC members in career development.

While mentorship is typically available and recognized as important at most academic institutions, our unique program provided additional opportunities for networking and support with previously unmet needs, including the opportunity to offer breadth of mentorship with diversity in subspecialties and a variety of career tracks covered.⁹ In

particular, many small- and medium-sized institutions do not have the diversity of PHO subspecialty expertise that mentees may seek or want to explore while planning their career and developing their professional niche. Additionally, at times, perceived institutional or personal conflict may exist, a problem that has been identified as one of the main reasons for dysfunctional mentoring, especially with minorities among mentees.^{2-4,6,11,12}

External noninstitutional guidance may be helpful in these situations and EC physicians may benefit from confidential and sought-after advice. However, in our cohort, only 5% of mentees considered receiving mentorship from outside of their institution. This finding could be related to the lack of understanding of the benefits of team mentorship and how to achieve mentorship outside the current institution and potentially avoid perceived unnecessary conflict. Although a recent systematic review showed that women felt it was harder for them to identify and connect with mentors in their field compared to their male peers, in our cohort female mentors and mentees made up nearly 60% of each group. The strong representation of women and institutions from different regions in North America—United States and Canada—highlights the diversity of the enrolled pairs in our ASPHO mentoring program.

Although other mentoring models exist,^{3,13,22} including within pediatric oncology (sponsored by the COG),²³ the ASPHO mentoring program offers unique features and was not meant to compete with existing mentorship programs. One novel aspect of our mentoring program is the mentees' ability to self-select their mentors from an Internet-based profile list of registered mentors on the ASPHO Web site, representing many subspecialties within the field of PHO, which is not limited to oncology but also includes nonmalignant hematology and stem cell transplant.²³ A recent systematic review reported that most mentees preferred to identify their own mentors, supporting our novel approach.¹³ In order to initiate customized individual development plans with their mentors, mentees were also able to define their goals and their needs for personal and professional development. In addition, ASPHO, as an organization, acted as a neutral buffer for the mentoring relationship, leaving room for a change on either side, if needed. Difficult mentoring relationships have been identified as one of the challenging situations junior faculty face.^{3,4,6,11,12}

EC members face the challenge of networking, balancing clinical responsibilities, identifying and utilizing institutional resources, generating academic productivity, and maintaining work-life balance.^{10,11,16} In addition, early in their career, they may feel compelled to make sub-specializing career choices within the larger field to nurture their skills and develop their professional niche, a process recognized to be multifactorial and complex.^{8,10} Consistent with previous studies,^{14,15,17} we found that career development and research planning were the most commonly planned goals for both mentors and mentees at the initiation of the mentoring relationship. Although participants reported using different methods of communication, none of the pairs indicated that they used videoconferences in their communications. This finding was interesting and somewhat surprising to the authors in the era of millennial learners and the fast-paced evolution of digital communication.

Although most mentors and mentees were satisfied with the mentoring program and had an overall positive experience, about half of them reported infrequent meetings. Similar to previous studies, this problem, together with time constraints, were recognized as the main mentoring barriers among program participants.³ Barriers reported in the literature include time-restricted funding, required commitment of time and attention, personality differences, alignment and compatibility, structural/institutional challenges, limited support available for sustainability, and other competing clinical, research, and teaching responsibilities.^{3,4,6,11,13,22} Therefore, one-page guides were developed as an online resource to already existing and newly enrolled mentors and mentees to address potential barriers identified in this pilot program and the mentoring literature (Supplementary File S2). Furthermore, institutional and organizational strategies are needed to support and maintain existing mentoring programs, and to initiate novel additional programs to address the need for mentorship in trainees, junior faculty, and underrepresented minorities.³

We recognize our pilot program has some limitations. First, we did not collect extensive data on diversity such as age, race/ethnicity, marital status, career path, institutional size, or other demographics that would have helped to better define our cohort and perhaps be able to identify gaps in career paths that would require additional mentoring coverage. However, in the following phase of the mentoring program, we updated both mentor and mentee enrollment applications in order to collect data on these variables, including diversity and career path as well as prior mentoring experience (Supplementary File S3). Second, given the short-term interim analysis, we did not report data on career satisfaction, job procurement, or retention in academic medicine. However, continued data accrual will allow us to more specifically measure the program's impact on all domains. Third, our sample did not include international EC members who may have had a different experience with the program considering the possible cross-cultural, institutional, and communication challenges. Fourth, we were not able to include a comparison group to know whether a mentorship program where the mentees chose their mentors is more effective than the one where mentees matched by other methods. This comparison group could have also clarified whether mentees who selected to enroll or not to enroll in the mentoring program have similar or different characteristics. Finally, our sample size of mentors and mentees is relatively small. Nevertheless, the data in this report reflect the initial 2 years of our mentoring program and will be used to guide its continuation and expansion.

In conclusion, we have demonstrated early promise of our ASPHO mentoring program in meeting its goals helping EC members of ASPHO develop professionally as well as personally, despite some barriers. We believe that the ASPHO mentoring program will continue to benefit a broad spectrum of ASPHO EC members with diverse professional development needs and could benefit mid-career members as well. To that end, in the extension phase of the mentoring program, we expanded the mentor pool with an easier online navigation interface, updated our program evaluation based on participant feedback (Supplementary File S4), used an existing validated tool (Mentoring Competency Assessment) to help standardize assessments,²⁴ and provided mentors and mentees with customized guides that might enhance their experience within the program. Data collection in the extension phase of the ASPHO mentoring program is ongoing.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviations

ASPHO	American Society of Pediatric Hematology/Oncology
COG	Children's Oncology Group
EC	Early Career
PHO	Pediatric hematology/oncology

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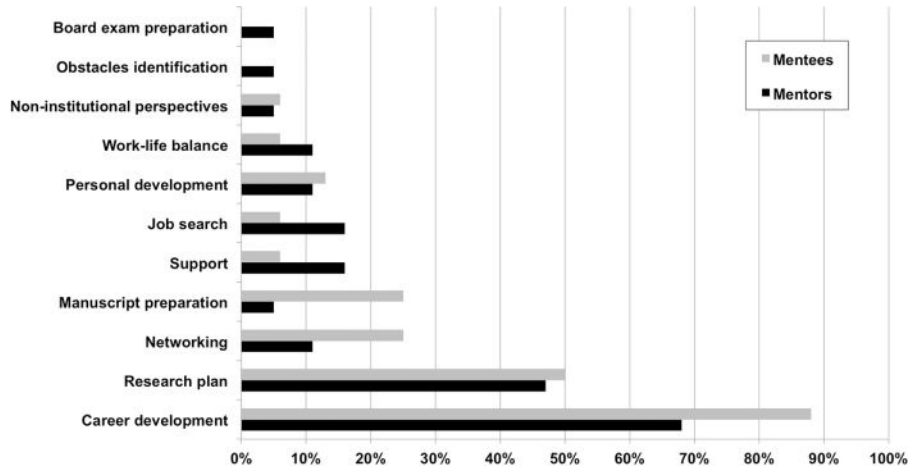


FIGURE 1.
Planned goals of mentors and mentees for the mentoring relationship

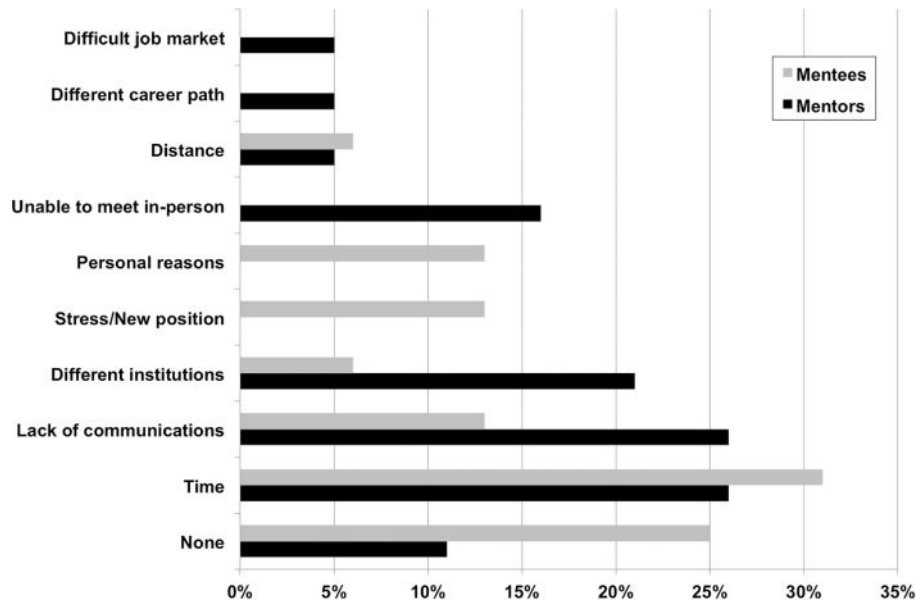


FIGURE 2.
Obstacles in the mentoring relationship identified by mentors and mentees

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TABLE 1

Characteristics of the mentoring program participants

	Mentors (N = 17)	Mentees (N = 23)
Female, n (%)	10 (59%)	15 (57%)
Location, ^a n (%)		
Northeast	6 (35%)	3 (13%)
Midwest	1 (6%)	8 (35%)
South	5 (29%)	7 (30%)
West	5 (29%)	3 (13%)
Other ^b	0	2 (9%)

^aBased on the regions defined by the United States Census Bureau: http://www.census.gov/geo/www/us_regdiv.pdf.

^bOther: Two study participants from Canada.

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TABLE 2

Cumulative evaluation of the ASPHO mentoring program

Evaluation domain	Mentors (N = 19) ^a				Mentees (N = 16)				P-value ^b
	Agree	Neutral	Disagree		Agree	Neutral	Disagree		
1. Achieved all goals	11 (58)	4 (21)	4 (21)		12 (75)	3 (19)	1 (6)		0.24
2. Achieved some goals ^c	15 (83)	0	3 (17)		14 (88)	2 (12)	0		0.61
3. Goals achieved in expected time frame ^c	15 (83)	1 (6)	2 (11)		12 (75)	4 (25)	0		0.69
4. Experience enhanced career development	15 (79)	2 (11)	2 (11)		12 (75)	4 (25)	0		0.93
5. Benefits justified time and effort	16 (84)	1 (5)	2 (11)		16 (100)	0	0		0.1
6. Satisfied with the relationship structure	14 (74)	3 (16)	2 (11)		14 (88)	2 (12)	0		0.27
7. Satisfied with the relationship expectations ^d	N/A	N/A	N/A		15 (94)	1 (6)	0		-
8. Regular meetings	10 (53)	4 (21)	5 (26)		7 (44)	5 (31)	4 (25)		0.75
9. Rewarding experience	14 (74)	3 (16)	2 (11)		14 (88)	2 (12)	0		0.27
10. Plan to continue	17 (89)	0	2 (11)		16 (100)	0	0		0.19

N/A, not available.

^aThe total 'N' in Table 2 is (19), while in Table 1 is (17), because two mentors had more than one mentee.

^bP-value reflects comparison between mentee and mentor responses; statistically significant if < 0.05.

^cItems 2 and 3 had only 18 respondents.

^dItem 7 was included only in the mentee evaluation form.

TABLE 3

Examples of mentees' experience and descriptions of good quality mentorship and mentors' thoughts on helpful mentoring strategies

Examples of participants' experience with the program	Theme
(A) Mentees	
Ability to choose mentors of one's choice	Trust
Connection with expert in my area of interest	Sharing wisdom-guidance
Opportunity to become involved in a project outside my institution	Coaching
Understanding my mentor's career path as it relates to her life as a working mother	Role model-inclusion
Complete transparency and honest unbiased discussion	Trust-respect
(B) Mentors	
Commitment of the mentee	Dedication
Helping junior faculty become established	Networking
(Mentee) is a self-starter enthusiastic	Proactive
Knowing expectations	Clarity
Planning for monthly phone calls and scheduling the next call at the end of each phone call	Setting future agendas

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