# Perceptions Regarding Mentorship Among General Surgery Trainees With Academic Career Intentions

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**OBJECTIVE:** Effective mentorship may be an opportunity to mitigate career de-prioritization, improve stress management, and bolster professional growth. Relatively few studies address specific challenges that occur for general surgery trainees. We conducted a focus group-based investigation to determine facilitators/barriers to effective mentorship among general surgery residents, who are intending to pursue an academic career.

**DESIGN:** A semistructured focus group study was conducted to explore residents' attitudes and experiences regarding (1) needs for mentorship, (2) barriers to identifying mentors, and (3) characteristics of successful mentor-mentee interactions. Subjects self-identified and were characterized as either "Mentored" or "Nonmentored." Transcriptions were independently reviewed by 3 coders. Inter-rater reliability between the coders was evaluated by calculating Cohen's kappa for each coded item.

**SETTING:** General surgery residents from 2 academic tertiary hospitals, University of Pittsburgh Medical Center, and University of Washington, participated.

**PARTICIPANTS:** Thirty-four general surgery trainees were divided into 8 focus groups.

**RESULTS:** There were no gender-based differences in mentoring needs among residents. Barriers to establishing a relationship with a mentor, such as lack of exposure to faculty, and time and determination on the part of both mentor and mentee, were exacerbated by aspects of surgical culture including gender dynamics, criticism, and hierarchy. Successful relationships between mentee and mentor were perceived to require personal/professional compatibility and a feeling that the mentor is invested in the mentee, while conflicts of interest and neglect detracted from a successful relationship.

**CONCLUSIONS:** Our investigations demonstrate the importance of surgical hierarchy and culture in facilitating interpersonal interactions with potential mentors. Further studies will be necessary to determine how best to address these barriers. (J Surg Ed 76:916–923. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

**KEY WORDS:** mentorship, surgical training, professional development, career advancement

**COMPETENCIES:** Professionalism, Interpersonal and Communication Skills, Systems-Based Practice

## INTRODUCTION

Mentoring is instrumental in the professional development of academic surgeons.[1] Poor or inadequate mentoring can threaten scholarly productivity and contribute to failed attempts at securing extramural funding.[2] More generally, lack of mentoring has been associated with low job satisfaction,[3] and attrition from academic medicine.[4,5] As the incidence of burnout among physicians has reached concerning levels,[6] effective mentorship may be an opportunity to mitigate career de-prioritization, improve stress management, and bolster professional growth.[7,8]

Although the impact of mentorship on academic success and personal satisfaction has been established,[9] existing literature focuses primarily on qualities requisite to effective mentorship without addressing the initial hurdle of identifying and obtaining a mentor. Studies that do emphasize barriers to identifying potential

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mentors concentrate on practicing surgeons or medical students interested in pursuing surgery with few addressing specific challenges that occur for general surgery trainees, particularly those who intend to pursue an academic practice. Residents hoping to become academic surgeons encounter difficulties that may not be relevant to medical students or established surgeons insofar as they are attempting to develop their scholarly agenda in parallel with operative and clinical proficiencies. Especially important is the recognition that race, ethnicity,[10] and gender, all of which impact residents' experiences and professional development,[11] may contribute to these challenges. Women in academic medicine, for example, are less likely than their male counterparts to have successful mentor relationships.[12]

In light of the "protective" role of mentorship, it is crucial to further investigate obstacles to identifying and maintaining mentorship at the resident level. To this end, we conducted a focus group study to further understand how residents who plan to pursue careers in academic surgery seek and utilize mentors. We aimed to (1) assess mentorship needs, (2) explore factors that residents perceive to be facilitators or barriers to the process of identifying mentors, and (3) ascertain circumstances that allow for successful mentor-mentee relationships.

## METHODS

### Study Design and Recruitment

This study was approved by the Institutional Review Boards at the University of Pittsburgh (PRO# 17120217) and the University of Washington (UW; STUDY00004665). We conducted a focus group-based study[13,14] to examine perceptions and experiences of surgical residents seeking to pursue a career in academic surgery. All general surgery residents from the University of Pittsburgh Medical Center (UPMC) Presbyterian and the UW were eligible. While both institutions have established infrastructure designed to support trainees pursuing community or academic practice, UW and UPMC were selected for this study in view of important interinstitutional differences contributing to a wide range of trainees' perspectives regarding mentorship and career trajectory. UPMC residents were recruited exclusively from the Presbyterian program, which requires a 2 to 3 year commitment to research for purposes of academic development. At UW, as of the 2016 to 2017 academic calendar, engaging in protected time for research is no longer optional. Currently, 4 of 7 residents per year match into a research track with 2 years of protected academic time. The remaining 3 residents per cohort complete a 5-year clinical track. In our study, research was optional for residents who entered the UW program prior to 2016. Both UPMC and UW have structured mentorship programs in place and assign each resident to a mentor at the beginning of their training.

There were no exclusion criteria. Residents were recruited initially via an email invitation describing the intent and procedure(s) of the study. A subsequent email reminder was delivered at 1 week from the original invitation. Site-specific lead investigators made a final request for participation at their respective weekly surgical education conference. Interested residents were asked to identify whether he/she had found a mentor without being provided with specific definitions for mentorship, such that the term "mentor" was ambiguous and open for interpretation by the participant. Informed consent was obtained from all subjects prior to their participation.

### Instrument Development

A semistructured focus group script was utilized to (1) assess mentorship needs, (2) explore facilitators and barriers to the process of identifying mentors, and (3) ascertain circumstances that foster successful mentor-mentee relationships.[15] Content validity of focus group questions was determined by 3 experts in surgical education (KAH, GGH, and EBL) and 2 in qualitative research methods (MHH and EBL).[16] Questions and script were subjected to an iterative judgmental review process. Once content experts agreed that there were no further ambiguities with respect to question relevance or definitions, the instrument was considered complete.[17]

### Procedure

Focus groups were conducted at the main hospital campuses of UPMC and UW. Participants were categorized as "Mentored" or "Nonmentored" based upon their perspective and subjective identification as having found or not found a mentor. Focus groups were conducted and audio recorded by 3 individuals (EBL, LMK, and SPM) who are trained in interviewing techniques and have expertise in surgical education.[14,18] Dinner was provided during the focus groups as an incentive for participation.

The semistructured focus groups began with open-ended questions (Table 1) regarding need for mentorship, barriers to identifying a mentor, and characteristics of successful or failed mentorship. Closed-ended questions asking whether or not residents sought a female or male mentor specifically served to anchor residents' subsequent discussions about professional identity, gender, and training. Following residents' responses to the initial

**TABLE 1.** Focus Group Prompts

| |
|---|
| **Questions asked of both mentored and nonmentored participants** |
| When or in what specific situations do you actively seek out advice? |
| How would you define a mentor? |
| How would you define a sponsor? Advisor? How do these definitions differ? |
| What are the roles for a mentor? |
| Is gender relevant to good mentoring? If so, how? |
| Have you ever specifically sought out a female mentor? If so, why? |
| Have you ever specifically sought out a male mentor? If so, why? |
| Do you find that there are differences in advising/ mentoring interactions with female or male faculty? If so, how? |
| How would you describe the ideal mentoring/advising relationship for you? |
| Think of a time during residency when a mentoring or advising relationship/situation either worked well for you personally or you saw that it worked well for someone else. What made it successful? |
| How do you define success for a mentoring relationship? |
| Think of a time when a mentoring/advising relationship was less helpful, either for you, personally, or for someone else. What factors made it less successful? |
| How do you define failure for a mentoring relationship? |
| **Questions asked of Mentored participants** |
| How did you go about finding a mentor? |
| What have been some barriers to developing successful mentoring/advising relationships? |
| What have been your most pressing mentoring needs? |
| **Questions asked of Nonmentored participants** |
| Would you like to have a mentor? Why or why not? |
| How might you go about finding a mentor? |
| Have you tried to obtain a mentor? Why or why not? |
| What barriers do you think exist to developing successful mentoring/advising relationships? |

focus group questions, the interviewer asked open-ended questions intended to clarify each participant's narrative. These questions related to how residents felt about the role of a mentor, whether gender is a vital component in nurturing the mentor-mentee relationship, and barriers to developing successful mentorship relationship. Accuracy was assessed by having a randomly selected individual from each focus group read through and confirm the content of their group's transcription.

### Qualitative Data Coding

All participants ($n = 34$) were included in data analysis. Focus groups were transcribed verbatim with all identifiable content redacted. The investigators (GGH, EBL, SPM, KAH, KJN, and MD) developed a preliminary coding scheme by analyzing a subset of the focus groups using inductive methods[19] to determine recurrent themes. These themes were categorized and further refined by comparisons across transcripts. The coding criteria were examined and revised with attention to clarity and relevance until a consensus was reached. Four coders (SPM, KAH, KJN, and MD) then coded the dataset independently based on the revised index.

### Reliability of the Coding and Data Analysis

Inter-rater reliability between the coders was evaluated by calculating Cohen's kappa for each coded item (i.e., needs for mentorship, facilitators/barriers to effective mentorship, characteristics of successful/unsuccessful mentorship) using the entire dataset. Values for coded data ranged from 0.65 to 0.9. Values ranging from 0.61 to 0.80 are interpreted as substantial, while values 0.81 to 1.00 indicate near perfect agreement.[20] As qualitative data were meant to explore a range of views, these data were not analyzed with bivariate statistics.

## RESULTS

### Needs Assessment

Thirty-four of the 83 (41%) general surgery residents at UPMC and UW participated (Table 2). Of the 37 female and 46 male residents in these combined programs, 20 (54%) and 14 (30%) chose to participate, respectively. All residents either had, or were planning to, engage in research as preparation for careers in academic surgery. Residents from all 8 focus groups discussed relying on mentors to facilitate clinical decision making, offering advice on noncareer-related endeavors (e.g., family planning), and assisting with professional and academic development. Trainees who commented on professional and academic development discussed needing advice pertaining to securing fellowship in their desired subspecialty, developing or executing their research agenda, and establishing connections with senior members of the surgical community. While there were no

**TABLE 2.** Participant Demographics

| Characteristic | Mentored | | Nonmentored | | Total Participants (*N* = 34) | Total Residents (*N* = 83) |
|---|---|---|---|---|---|---|
| | Female (*N* = 9) | Male (*N* = 8) | Female (*N* = 11) | Male (*N* = 6) | | |
| Partnered, ***n* (%)** | 4 (44) | 8 (100) | 10 (91) | 3 (50) | 25 (76) | 63 (76) |
| Parent, ***n* (%)** | 1 (11) | 4 (50) | 0 (0) | 0 (0) | 5 (15) | 24 (29) |
| Clinical PGY level, ***n* (%)** | | | | | | |
| 1 | 0 (0) | 0 (0) | 8 (72) | 1 (17) | 9 (26) | 14 (17) |
| 2 | 0 (0) | 1 (12) | 2 (18) | 3 (50) | 6 (18) | 14 (17) |
| 3 | 1 (11) | 2 (25) | 0 (0) | 1 (17) | 4 (12) | 13 (16) |
| 4 | 4 (44) | 1 (12) | 0 (0) | 0 (0) | 5 (15) | 13 (16) |
| 5 | 0 (0) | 1 (12) | 1 (9) | 0 (0) | 2 (6) | 14 (17) |
| Lab | 4 (44) | 3 (38) | 0 (0) | 1 (17) | 8 (23) | 15 (18) |
| Specialty choice, ***n* (%)** | | | | | | |
| Undecided | 0 (0) | 2 (25) | 3 (27) | 3 (50) | 8 (23) | 3 (4) |
| Trauma/ACS | 3 (33) | 2 (25) | 2 (18) | 2 (33) | 9 (26) | 20 (24) |
| Colorectal | 1 (11) | 1 (12) | 2 (18) | 0 (0) | 4 (12) | 7 (8) |
| Vascular | 1 (11) | 0 (0) | 2 (18) | 1 (17) | 4 (12) | 5 (6) |
| Pediatric | 1 (11) | 0 (0) | 0 (0) | 0 (0) | 1 (3) | 5 (6) |
| Surgical oncology | 2 (22) | 3 (38) | 2 (18) | 0 (0) | 7 (21) | 14 (17) |
| Thoracic | 1 (11) | 0 (0) | 0 (0) | 0 (0) | 1 (3) | 5 (6) |
| Other | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 24 (29) |

gender-based differences in mentorship needs, only 2 of the male participants identified as having at least 1 female mentor as compared to 7 of the female residents. On the other hand, all residents identified as having at least 1 male mentor.

## Facilitators/Barriers to the Process of Identifying Mentors

Many of the residents perceived that serendipity played a role in acquiring a mentor, especially with respect to initial introductions between residents and faculty. Personal and professional compatibility were viewed as necessary but not sufficient to identifying a mentor; 1 resident explained that *"besides personal positive attributes, two people coming together as a team seems to be by chance."* Comments such as "*it is up to the resident to be somewhat aggressive,"* demonstrated recognition that failure on the part of the resident to take initiative might thwart their ability to obtain mentorship.

Not having adequate interactions with or "*full exposure to attendings"* was felt to be a major barrier to connecting with a mentor. UW and UPMC residents did not acknowledge their assigned faculty as mentors, but rather, as advisors, and reflected that the resulting relationships were of variable utility and benefit. Participants communicated that the assigned faculty took on more of an "*advisor role"* ensuring that "*the boxes for administrative milestones were checked"* but with little emphasis on developing long-term relationships where the faculty was truly invested in the residents' personal and professional development. Residents commented that the hierarchical surgical culture might exacerbate busy clinical schedules and frequent resident turnover that limited exchange between residents and attendings. Surgical culture was also reported to discourage vulnerability and advice-seeking. One resident commented that he feared exposing his deficiencies because he *"would think what is going to happen? Is this person going to think less of me?"* Another resident echoed this sentiment, stating "*there is so much red tape and if you make one mistake, you are done. You are flagged. You almost can't come back from that. . .It burns bridges."*

Participants also noted that surgical culture accentuated consequences of gender dynamics. Aside from acknowledging that there were fewer female attendings available to serve as mentors, residents noted that cultivating a mentoring relationship is a "*process of socializing,"* and that "*[m]en are taught to socialize with other men differently than they are taught to socialize with females."*

Several residents in both mentored and nonmentored groups suggested that peer-mentorship may be of value in facilitating relationships with faculty. One participant stated she had *"found it helpful to speak to peers about who they thought might be good mentors."* Seeking advice from more senior residents was also felt to be valuable in circumstances where residents experienced anxiety related to the surgical hierarchy. A senior resident noted that as a junior resident it was *"sometimes difficult to go straight to the top. . . Eliciting the advice of someone you are closer with [in terms of post-graduate level] is easier."*

## Circumstances that Foster Success

Successful mentoring relationships were felt to promote mutual respect between mentor and mentee and to result from personal/professional compatibility and support (Table 3). Residents felt that a successful relationship was marked by the "*feeling of [the mentor] being invested in [the resident's] day to day progress.*" Despite wide agreement that a good mentor would be invested in their mentee's development, there was disagreement on how this might manifest in the relationship. Some residents communicated that the investment, support, and availability that make mentoring relationships successful are analogous to characteristics of strong friendships. In recounting her experiences with her mentor, 1 resident stated that the interactions "*morphed into a personal relationship where [my mentor] went through a difficult time. . . and we were able to talk about that. . .because I consider her almost like a friend now, but I know that I can ask her about professional things as well.*" Other residents disagreed with this sentiment and noted that friendship should not be conflated with mentorship, and that successful mentorship "*becomes very difficult if you are friends with someone. . .dealing with issues that come up [can] be challenging if you are too close with a person.*"

Gender was also cited as a vital component of nurturing the mentor-mentee relationship. Specifically, there was concern that as a result of gender dynamics, men would benefit from "*more direct feedback.*" Residents also commented that if women attempted to socialize with their male mentors in the same way that male residents did, their interactions would be generally construed as "*flirty or trying to sleep [their] way to the top.*" Despite these fears, residents did not perceive a difference in the quality of the advice provided by female and male mentors once a relationship had been developed.

Concrete metrics to gauge successful mentorship included mentors bequeathing their responsibilities to their mentees. One resident explained, "*when your mentor starts directing other people toward you to work with [it's an] indication that they trust you and what you are doing. . .they want to see you expand your skills and become a mentor yourself. If a mentor does that for you, it is an indication of how that relationship is going.*" Other residents noted that "*one of the things that really makes [mentorship] successful is when there is an end product*" such as a manuscript or conference presentation that results.

Neglect was the most frequently cited etiology for failed mentoring relationships (Table 3). Examples of neglect included mentors "*who literally disappear,*" but also mentors who "*are not receptive*" when asked for advice. Several participants echoed the general experience of being "*invested in a project. . .working on it. . .then all of a sudden [a mentor's] replies get fewer*

**TABLE 3.** Domains Addressed by Focus Group Participants

| Domains Addressed, *n* (%) | Focus Group | |
|---|---|---|
| | **Mentored** ***N* = 4** | **Nonmentored** ***N* = 4** |
| Needs assessment | | |
| General uncertainty | 3 (75) | 3 (75) |
| Remediation | 1 (25) | 3 (75) |
| Clinical guidance | 4 (100) | 4 (100) |
| Personal advice | 4 (100) | 4 (100) |
| Professional advice | 4 (100) | 4 (100) |
| Facilitators/barriers to mentor identification | | |
| Gender dynamics | 4 (100) | 4 (100) |
| Race/culture dynamics | 0 (0) | 2 (50) |
| Age of mentor | 2 (50) | 1 (25) |
| Serendipity | 4 (100) | 4 (100) |
| Exposure to attending | 4 (100) | 4 (100) |
| Surgical culture/hierarchy | 4 (100) | 4 (100) |
| Time constraints | 1 (25) | 4 (100) |
| Factors pertinent to the success of established relationships | | |
| Gender dynamics | 1 (25) | 3 (75) |
| Compatibility | 4 (100) | 4 (100) |
| Support/investment | 4 (100) | 4 (100) |
| Identifiable end-product | 1 (25) | 1 (25) |
| Conflicts of interest | 4 (100) | 3 (75) |
| Abuse of power | 3 (75) | 2 (50) |
| Confidentiality | 1 (25) | 1 (25) |
| Neglect | 4 (100) | 4 (100) |

*and far between for no good reason when the project isn't working. . .then [deciding] to search elsewhere for mentorship."* Conflicts of interest were also felt to be detrimental, with 1 resident noting that there were *"instances in which, perhaps, things you accomplish or are involved with are not necessarily related to their work or what they are interested in and the mentor belittles those achievements."* Less frequently, residents reported abuse of power such as when a mentor "*published papers without any acknowledgement of [residents who] worked for him."* Violations of confidentiality were also a common theme with residents identifying that if they "*confide in [a mentor]. . .it should be just for [him/her]."* Another participant shared that she needed "*someone that can be super candid,"* explain that "*if [she was struggling, [she wouldn't] want [her] mentor to talk about it behind [her] back and then have [her] co-residents [talking] about it, which does happen."*

## DISCUSSION

Our study identified several modifiable factors that influence general surgery trainees' pursuit of mentorship. Although our study did not find any gender-based differences in mentoring *needs* among residents, female residents more frequently identified having female mentors. Barriers to germinating a relationship, such as lack of exposure to faculty, and time and determination on the part of both mentor and mentee, were exacerbated by aspects of surgical culture including gender dynamics, criticism, and hierarchy. Successful mentor-mentee relationships required personal/professional compatibility and a feeling that the mentor is invested in the mentee, while conflicts of interest and neglect detracted from successful relationships.

Previous literature has identified stages of effective mentoring. In a model described by Mendler,[21] there are 10 stages of mentoring. Early phases of mentoring include attraction, cliché exchange, recounting, personal disclosure, and bonding, and describe relationship-building behaviors. Fear of infringement, in which the mentor relinquishes some of his/her responsibilities,[22] revisiting the relationship framework, and allowing a friendlier and more collegial dynamic to develop are later stages that result in peak mentoring, reciprocity, and, finally, closure. Resident responses address challenges centered around early stages of mentoring. Participants described surgical hierarchy and culture, which emphasize independence and may discourage help-seeking, as impediments to these early relationship-building phases. Several residents suggested that peer-mentoring (i.e., a relationship in which a senior resident mentors a more junior resident)[23,24] as a strategy that could be utilized to identify faculty mentors and reduce anxiety about criticism. Accordingly, future interventions should be aimed at facilitating connections with faculty mentors and reducing anxiety about criticism.

Several residents acknowledged that it is easier to admit needing help to someone with whom they have shared interests and experiences. This sentiment was especially common among residents that were part of an under-represented demographic (e.g., women and ethnic minorities), who communicated the desire to have mentors from similar backgrounds. In this respect, our data support previous evidence that interpersonal aspects are critical to successful mentorship.[25] Many female residents discussed that, in addition to having fewer senior female faculty available as mentors, the opportunity to interact in a social setting that would promote interpersonal dynamics is limited. Women felt that socializing with male mentors was difficult not only because of gender-discrepant experiences and interests, but also because this process might be misinterpreted as being unprofessional. Further, senior female faculty were perceived to be less accessible outside of the hospital and in settings that would facilitate bonding. Interventions aimed at eliminating gender-based stigmas and supporting such interactions are crucial to increasing diversity within surgery and its subspecialties. Moreover, as we recognize the broad spectrum of sexual and gender identities, our training programs will need to adapt[26] to ensure that individuals who are members of these under-represented communities have a presence within the surgical leadership, and that all residents, regardless of their identity, are nurtured.

To address needs related to academic and career development and work-life balance,[27] several professional organizations and institutions have emphasized mentoring programs.[28–30] While UW and UPMC both have structured mentor-mentee programs where each resident is assigned to a faculty member, residents felt these relationships could be lacking in personal/professional compatibility. For this reason, faculty took on more of an advisor role. Mentorship curricula, which are evolving with respect to formal and routine evaluation,[23] remain distinct from actions at the institutional level that would allow faculty to recapture time to mentor. Previous literature has acknowledged that institutional disincentives to mentoring remain detrimental to surgical education.[31] As residents in our study acknowledged, the great deal of time and effort requisite to effective mentoring presents a challenge to faculty members,[32,33] especially in the absence of explicit institutional support.[19] In addition to institutional incentivization of mentoring, residents must make every effort to optimize their interactions with their (potential) faculty mentors.

Several of our residents discussed not being assertive enough in seeking out faculty. Female residents, in particular, reflected that being overly insistent and self-promoting might be viewed negatively in the context of current gender norms.[16] Residents should be advised early in their training with regard to how best to prepare themselves for interactions with potential mentors.

We acknowledge that our study has several limitations. In particular, participants of this study are completing general surgery training at large academic institutions and their responses may not be representative of trainees of surgical subspecialties or those at smaller institutions. This study was not intended to assess perspectives of residents who desire to pursue community practice. Additionally, we cannot address how differences in geography or institutional commitment to training surgeons that would support the regional workforce may have contributed to variation in trainees' perspectives. We recognize that a career in academic surgery has many facets and that the type of career a trainee wishes to pursue may affect distinct perspectives regarding mentorship. An aspiring surgeon-scientist may require, desire, or seek mentor(s) that are fundamentally different those pursued by a resident with interests in surgical education. All the residents in this study were committed to pursuing research in preparation for their careers in academic surgery. Residents who are involved in research may have different, and potentially closer, relationships with faculty mentors than those who do not. Correspondingly, these or other unique experiences may have motivated residents' participation in this study. As we were not able to determine the number of females who were available as potential mentors for each residency cohort, the availability or saturation of female faculty who serve in this role limits our inferences regarding the role of gender in mentorship. Our sample size was not adequate for addressing differences in viewpoints between junior and senior residents (i.e., PGY 3 and above). We concede that the relationship of the investigators with participants may have influenced participants' responses. Specifically, in circumstances in which the focus group was led by a female investigator only, female residents may have felt more comfortable reporting certain gender-based experiences. Focus group moderators were trained in interviewing and qualitative research techniques as an effort to reduce bias.

## CONCLUSIONS

The importance of mentoring for professional development, career satisfaction, and emotional well-being is now recognized. Despite this, relatively few studies have investigated surgical residents' perceptions of the barriers to effective mentorship. Our investigations demonstrate the importance of surgical hierarchy and culture in facilitating interpersonal interactions with potential mentors. Further studies will be necessary to determine how best to address these barriers.

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## SUPPLEMENTARY INFORMATION

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.jsurg.2018.12.006.