

DISC
University of Genoa
Genoa, Italy

Gian M. Vigliercio, MD
Medicine School
University of Genoa
Genoa, Italy

Roberto Raiteri, EE, PhD
Department of Biomedical Engineering, Robotics and Systems
DIBRIS
University of Genoa
Genoa, Italy

Simone Ferrero, MD, PhD
Department of Gynecology and Obstetrics
DiNOGMI
University of Genoa
Genoa, Italy

The authors report no conflict of interest.

REFERENCES

1. Oliva E. Practical issues in uterine pathology from banal to bewildering: The remarkable spectrum of smooth muscle neoplasia. *Mod Pathol* 2016;29(suppl1):S104–20.
2. Ferenczy A, Richart RM, Okagaki T. A comparative ultrastructural study of leiomyosarcoma, cellular leiomyoma, and leiomyoma of the uterus. *Cancer* 1971;28:1004–18.
3. Sokolov I. Atomic force microscopy in cancer cell research. In: Nalwa HS, Webster T, eds. *Cancer nanotechnology-nanomaterials for cancer diagnosis and therapy*. NY: American Scientific Publishers; 2006: 43–59.
4. Zemla J, Danilkiewicz J, Orzechowska B, Pabijan J, Seweryn S, Lekka M. Atomic force microscopy as a tool for assessing the cellular elasticity and adhesiveness to identify cancer cells and tissues. *Semin Cell Dev Biol* 2018;73:115–24.
5. Cui Y, Zhang X, You K, et al. Nanomechanical characteristics of cervical cancer and cervical intraepithelial neoplasia revealed by atomic force microscopy. *Med Sci Monit* 2017;23:4205–13.

© 2019 Elsevier Inc. All rights reserved. <https://doi.org/10.1016/j.ajog.2019.05.013>

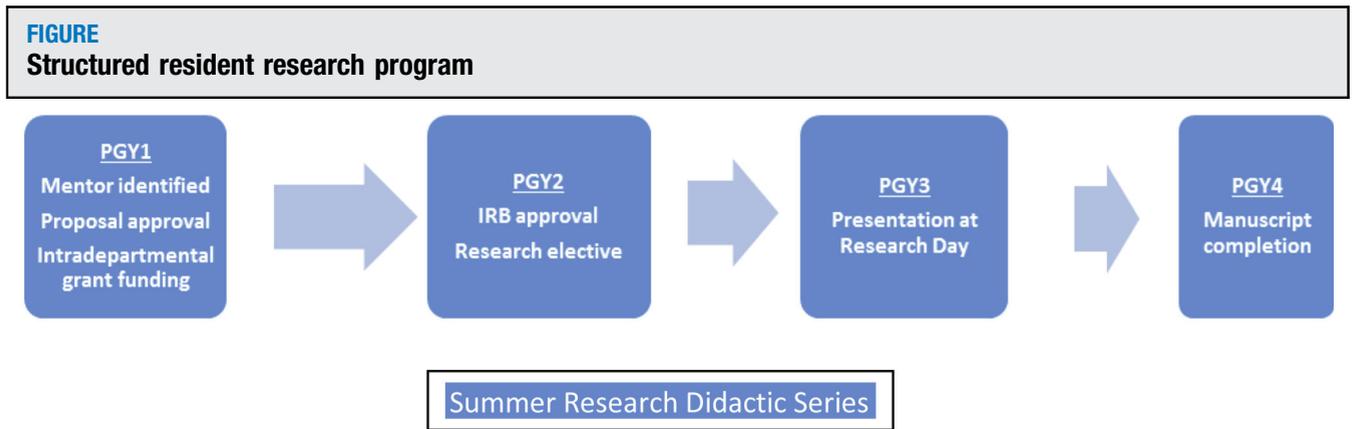
Impact of a structured obstetrics and gynecology residency research program



OBJECTIVE: The Accreditation Council on Graduate Medical Education requires that all obstetrics and gynecology residency programs ensure resident participation in scholarly activities.¹ A previous national obstetrics and gynecology program director survey demonstrated that 95% require research projects and that successful programs often had a research rotation and/or a formal research curriculum.² Other studies specific to obstetrics and gynecology residency programs have highlighted other mechanisms to improve productivity including a biweekly research workgroup³ and research study teams.⁴ At the University of Colorado obstetrics and gynecology residency program, we instituted a formal research

curriculum in 2013 (Figure) after the appointment of 2 Assistant Residency Program Directors (APDs). We also incorporated a summer research didactic curriculum and introduced an internal departmental grant funding mechanism. In this study, we determined the impact of this structured program on scholarly productivity as defined by the number of presented posters or oral abstracts at national conferences and published peer-reviewed manuscripts.

STUDY DESIGN: Because the program was initiated in 2013, we defined the preintervention group as those who graduated between 2012 and 2014 (n=27); the postintervention group was



Description of timeline for resident research program at the University of Colorado.

IRB, Institutional Review Board; PGY, Postgraduate year.

Guiahi. Structured residency research program. *Am J Obstet Gynecol* 2019.

defined as those who graduated between 2016 and 2018 (n=27). In May 2018, 2 investigators (M.G. and S.M.) independently searched for abstracts and publications via PubMed and Google search engines using resident names, mentor names, and project titles. We sought confirmations from residents and/or mentors and performed an updated review in April 2019. Projects were counted as acceptances if the resident name was included as an author, irrespective of authorship order or whether the resident actually presented. We compared the proportions of accepted abstracts and manuscripts using Fisher's exact tests. Institutional review board approval was waived because this did not qualify as research on human subjects.

RESULTS: The proportion of poster presentations increased from 44% (n=12) to 89% (n=24) after program implementation ($P=.001$). Oral abstract presentations were unchanged (n=3 [11%] in both groups). Manuscript publications increased from 26% (n=7) to 63% (n=17) after program implementation ($P=.01$).

CONCLUSION: Scholarly productivity is often viewed as a marker of a program's academic rigor and a reflection of the quality of research training.² Scholarly productivity during residency also has implications for the individual resident on future employment opportunities, including fellowship matching, the pursuit of academic careers, and participation in subsequent research activities.^{2,5} Our study demonstrates that the incorporation of dedicated faculty as APDs to create and lead a highly structured research program significantly improved scholarly productivity among residents and the faculty members that mentor them. We recognize several enablers that contributed to programmatic success that included the residents within the program, many of whom are interested in academic careers and have a baseline interest in research. The incorporation of APDs across 2 of the 3 sites at which residents rotate provided ongoing support, particular when troubleshooting was needed. Further, we recognize that programmatic success also relied on the high levels of scholarly productivity by the APDs themselves and that we had administrative support available within the department for institutional review board submission and statistical analyses. We also recognize barriers to program sustainability that

include mentor burnout and a lack of expertise by some faculty to provide mentorship, despite interest. Our experience highlights the need for a program-specific approach that includes oversight by dedicated faculty members to achieve a robust resident research program. ■

Maryam Guiahi, MD, MSc
Department of Obstetrics and Gynecology
University of Colorado School of Medicine
Aurora, CO
Maryam.guiahi@ucdenver.edu

Sara Mazzoni, MD, MPH
Department of Obstetrics and Gynecology
University of Alabama at Birmingham
Birmingham, AL

Torri Metz, MD, MS
Department of Obstetrics and Gynecology
University of Utah Health
Salt Lake City, UT

Meredith Alston, MD
Department of Obstetrics and Gynecology
Denver Health Medical Center
Denver, CO

The authors report no conflict of interest.

REFERENCES

1. Accreditation Council for Graduate Medical Education: Obstetrics and Gynecology Common Program Requirements. Available at: https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/220_obstetrics_and_gynecology_2017-07-01.pdf. Accessed April 5, 2019.
2. Kenton K, Brubaker L. Research education in obstetrics and gynecology: how are we doing? *Am J Obstet Gynecol* 2007;197:532.e1-4.
3. Brackmann M, Reynolds RK, Uppal S, McLean K. Association of a biweekly research workgroup with enhanced resident research productivity. *Obstet Gynecol* 2016;128:617-20.
4. Brubaker L, Kenton K. Clinical research education study teams: a research curriculum for obstetric and gynecology residents. *Obstet Gynecol* 2011;117:1403-7.
5. Yang G, Zaid UB, Erickson BA, Blaschko SD, Carroll PR, Breyer BN. Urology resident publication output and its relationship to future academic achievement. *J Urol* 2011;185:642-6.

© 2019 Elsevier Inc. All rights reserved. <https://doi.org/10.1016/j.ajog.2019.05.047>

Transvaginal ultrasound is superior to transabdominal ultrasound in the identification of a short cervix



OBJECTIVE: Many centers have implemented universal transabdominal cervical length (TACL) screening, despite evidence of poor reproducibility.¹ Our objective was to evaluate the technical limitations that may reduce the effectiveness of 1 such program.

STUDY DESIGN: We performed a cross-sectional study of singleton pregnancies between 16^{0/7} and 23^{6/7} weeks gestation. We defined eligible patients as those with singleton gestations without traditional risk factors for spontaneous preterm birth. In the preexposure period (June–December