

ONCOLOGY

A specialty journal of
OncologyLive®

Fellows



Identifying and Addressing
the Overlooked Need of
**Patient Sexual
Health**

Innovation in
the Classroom

Drawing Professional
Inspiration From
Personal Experience

Moving Beyond
Checkpoint Inhibitors:
The Future of
Immunotherapeutic
Approaches
for Melanoma
Management



Providing Accurate Information and Lively Discussions for the Oncology Community

The podcast focuses on trending topics in oncology to better inform members of the oncology community as they work to improve patient outcomes.



**TOPICS FOR EVERY
ONCOLOGY SPECIALTY**



**EXPERT INTERVIEWS,
DISCUSSIONS, AND INSIGHTS**



**A PODCAST MINDFUL
OF YOUR TIME**

Listen to these popular episodes:

**FDA Approval Insights:
Cilta-Cel in R/R Myeloma After
at Least 1 Prior Line of Therapy**

Featuring Saad Usmani, MD, MBA, FACP

**Breast Cancer Experts Share
Obstacles and Successes as
Women in Oncology**

*Featuring Stephanie L. Graff, MD, FACP;
Reshma L. Mahtani, DO; Kelly E. McCann,
MD, PhD; and Hope S. Rugo, MD, FASCO*

**Bou Farhat and Nassar
on the Use of NGS Mutation
Signature vs IHC for
Identifying dMMR Tumors**

*Featuring Amin Nassar, MD;
and Elias Bou Farhat, MD*

**Visit www.onclive.com/podcasts
and subscribe to our podcast today!**

New episodes are posted every Monday and Thursday.



TABLE OF CONTENTS

ONCOLOGY *Fellows*

Volume 16 • Issue 2 • June 2024

8

Identifying and Addressing the Overlooked Need of Patient Sexual Health

Laila S. Agrawal, MD, joins Jennifer Barsky Reese, PhD, FSBM, to discuss the importance of training, despite its current shortcomings, regarding patient sexual health for oncology fellows.

Kyle Doherty



Publisher's Note

2 The Ever-Changing Landscape of Oncology Education

Mike Hennessy Jr

From the Editor

4 Learning to Dance

Jill Gilbert, MD

Advice From the Director

6 Building the Next Generation of Oncology PAs

The director of the Dana-Farber Postgraduate PA Oncology Fellowship highlights the unique program and its impact on recruitment as well as improved access to care for patients.

Kyle Doherty

Voices in the Field

12 Innovation in the Classroom

Faculty at Hackensack Meridian School of Medicine have developed a novel curriculum that they say will lead to better medical training through practical, clinic-focused learning.

Kyle Doherty

Viewpoints

15 Drawing Professional Inspiration From Personal Experience

A clinical research fellow at St Jude Children's Research Hospital discusses how his experience as a patient with cancer eventually led to him working to improve outcomes for the next generation of patients.

Kyle Doherty

18 Moving Beyond Checkpoint Inhibitors: The Future of Immunotherapeutic Approaches for Melanoma Management

A hematology/oncology fellow offers his perspective on cutting-edge therapies in melanoma.

Matthew J. Hadfield, MD

21 Upcoming Oncology Meetings



Watch your inbox for our **Oncology Fellows e-newsletter:**

written for fellows, by fellows. Send an email request to Gina Mauro (gmauro@onclive.com) to receive your copy.

EDITORIAL & PRODUCTION

Vice President, Oncology Content
Kristie L. Kahl

Vice President, Content
Gina Mauro

Associate Editorial Director
Kristi Rosa

Managing Editors
Chris Ryan
Caroline Seymour

Associate Editors
Kyle Doherty
Megan Hollasch
Ashling Wahner

Assistant Editors
Courtney Flaherty
Ryan Scott

Vice President, Copy
Jennifer Potash

Copy Chief
Paul Silverman

Copy Supervisors
Angie DeRosa
Nicole Canfora Lupo

Senior Copy Editors
Cheney Baltz
Marie-Louise Best
Kelly King

Substantive Editor
Georgina Carson

Copy Editors
Justin Mancini
Ron Panarotti
Yasmeen Qahwash

Creative Director, Publishing
Melissa Feinen

Senior Art Director
Gwendolyn Salas

Associate Art Director
Kellie Ehrmann

GLOBAL AMBASSADOR STRATEGIES

Executive Director of Oncology, Professional Relations
Steven Frommeyer

Associate Director, Strategic Alliance Partnerships
Brooke Prince, MBA

Strategic Alliance Partnership Coordinator
Leyla Cakici

ONCLIVE® MEDICAL

Vice President, Onclive® Medical
Lisa Greene, BS, RN

Business Development Associate, Onclive® Medical
Alyssa Tomaseck

SALES & MARKETING

Vice President, Sales
Albert Tierney

Director, Sales
Morgan Burum

Senior National Accounts Manager
Shane Marchesani

National Accounts Associates
Mike DiGrazia
John Marshall
Jack Nirenburg

OPERATIONS & FINANCE

Circulation Director
Jon Severn

Vice President, Finance
Leah Babitz, CPA

Controller
Katherine Wyckoff

CORPORATE

President & CEO
Mike Hennessy Jr

Chief Financial Officer
Neil Glasser, CPA/CFE

Chief Operating Officer
Beth Buehler

Chief Data Officer
Terric Townsend

Executive Vice President, Global Medical Affairs & Corporate Development
Joe Petroziello

Senior Vice President, Corporate Development
Robert Goldsmith

Senior Vice President, Content
Silas Inman

Senior Vice President, Human Resources & Administration
Shari Lundenberg

Senior Vice President, Mergers & Acquisitions, Strategic Innovation
Phil Talamo

Executive Creative Director
Jeff Brown

FOUNDER

Mike Hennessy Sr
1960-2021



MJH Life Sciences, LLC | 2 Commerce Drive, Cranbury, NJ 08512 | (609) 716-7777

Alliance for Audited Media

OncologyLive® (ISSN 2374-5347) is published 4 times/year as a registered trademark of Intelligence, LLC, 2 Commerce Drive, Cranbury, NJ 08512. Phone: (609) 716-7777. Fax: (609) 716-4747. Copyright © 2024. All rights reserved. Periodicals class postage paid at Trenton, NJ, and additional mailing offices. Subscription \$79.00 per year US, \$95.00 foreign, \$35.00 medical students; \$10.00 single issues. Copyright © 2024 by Intelligence, LLC. All rights reserved. POSTMASTER: Send address changes to OncologyLive®, 2 Commerce Drive, Cranbury, NJ 08512. Printed in USA.

The Ever-Changing Landscape of Oncology Education

IN OUR JUNE ISSUE, we shine a light on innovative and impactful advancements being employed by educators from medical school to oncology fellowship, including a novel preclerkship curriculum and improvements to patient sexual health education for fellows, with an emphasis on filling unmet needs not only for students, but ultimately for the patients they will care for as well.

In our cover feature, beginning on page 8, Laila S. Agrawal, MD, of Norton Healthcare in Louisville, Kentucky, and Jennifer Barsky Reese, PhD, FSBM, of Fox Chase Cancer Center in Philadelphia, Pennsylvania, discuss the current lack of effective patient sexual health training provided for oncology fellows during their fellowships and the approaches that are being developed to address these shortcomings. Reese and her coauthors published results of a survey in *JCO Oncology Practice* of 114 oncology fellowship directors across the US that asked questions aimed at describing the state of fellowship training in terms of the sexual health of patients with cancer. Findings from the survey showed that only 49.1% of programs offered some formal instruction on patient sexual health and just 38.6% formally educated students on safe sex practices for patients with cancer.

“We know that these issues are not necessarily coming up as often as we’d like them to, even though they’re included in clinical guidelines for care. We’ve also known for many years [that the reason they are not properly integrated] is because of a lack of training in how to discuss these issues. I’ve tested provider interventions, [but] after discussing this issue with my colleagues, we thought, why don’t we start with the fellowship level?” Reese said.

On page 6, our Advice From the Director section highlights the Postgraduate Physician Assistant (PA) Oncology Fellowship at Dana-Farber Cancer Institute in Boston, Massachusetts, the first program of its kind in the New England region that is focused on developing the next generation of oncology PAs through a comprehensive 12-month program. The piece features an interview with Noam E. Shabani, MS, PA-C, the director of the Dana-Farber Postgraduate PA Oncology Fellowship, a medical oncology PA, and the ambulatory chief PA at Dana-Farber, who discusses the details of the fellowship and the potential impact of future oncology PAs as the landscape of cancer care continues to evolve.

Finally, on page 12, our Voices in the Field story features an interview with Miriam Hoffman, MD, the vice dean for academic affairs at Hackensack Meridian School of Medicine in Nutley, New Jersey, who was the lead author of research published in *Medical Teacher* that details the Patient Presentation Problem-Based Learning Curriculum (PPPC), a unique approach to the preclerkship curriculum that was designed from a “blank slate” to better prepare medical students to think about everything they are learning in a clinical and community context. The PPPC is framed around a weekly clinical case discussion that allows students to apply what they are learning in a collaborative and student-driven manner.

The developments from leading institutions in this issue all underscore the importance of properly training every component of the next generation of the cancer care team. As you take these stories in, apply their lessons to your training with the ultimate goal of positively impacting care for all. ■

As always, thank you for reading.

Mike Hennessy Jr
President and CEO

The content contained in this publication is for general information purposes only. The reader is encouraged to confirm the information presented with other sources. OncologyLive® makes no representations or warranties of any kind about the completeness, accuracy, timeliness, reliability, or suitability of any of the information, including content or advertisements, contained in this publication and expressly disclaims liability for any errors and omissions that may be presented in this publication. OncologyLive® reserves the right to alter or correct any error or omission in the information it provides in this publication, without any obligations. OncologyLive® further disclaims any and all liability for any direct, indirect, consequential, special, exemplary, or other damages arising from the use or misuse of any material or information presented in this publication. The views expressed in this publication are those of the authors and do not necessarily reflect the opinion or policy of OncologyLive®.

3RD ANNUAL
INTERNATIONAL CONGRESS ON
**PEDIATRIC
ONCOLOGY™**



REGISTER NOW FOR
40% OFF
with code
PEDS

SMALL PATIENTS, GIANT FUTURES.

Save your spot today!

VIRTUAL CONGRESS

October 25, 2024

OVERVIEW

Pediatric cancer care comprises a rapidly evolving field across solid and hematologic malignancies. Advances in treatment strategies including chemotherapeutic, immunotherapeutic, and targeted agents have changed the landscape and expanded the arsenal of available agents for treating pediatric patients. Novel techniques to detect and characterize tumors have further created new opportunities to improve outcomes in pediatric and adolescent/young adult (AYA) patients with cancer.

This virtual educational congress will feature expert updates and interpretation of clinical trial data across a variety of tumor subspecialties pertinent to pediatric cancer. Attendees will have the opportunity to learn about emerging therapeutics, novel approaches with currently available agents, ongoing clinical trials, and other clinically relevant developments in pediatric oncology care.



To learn more, scan here
or visit the link below

gotoper.com/icpo24



PROGRAM CHAIR

Jacqueline M. Kravaka, DO

Professor of Pediatrics
Institutional COG Principal Investigator
Institutional BCC Principal Investigator
MUSC Shawn Jenkins Children's Hospital
Medical University of South Carolina
Hollings Cancer Center - A National Cancer
Institute Designated Cancer Center
Division of Pediatric Hematology-Oncology
Charleston, SC

LEARNING OBJECTIVES

- **EXAMINE** the utilization of biomarkers and emerging actionable targets in various pediatric malignancies to guide treatment decisions.
- **EXPLORE** the most recent findings from clinical trials, encompassing immunotherapy, targeted therapy, and/or chemotherapy in the realm of pediatric oncology.
- **IMPLEMENT** optimal approaches for recognizing and addressing potential adverse events linked to pediatric anticancer therapies.
- **IDENTIFY** effective management approaches for pediatric patients with cancer in a broad range of clinical scenarios.

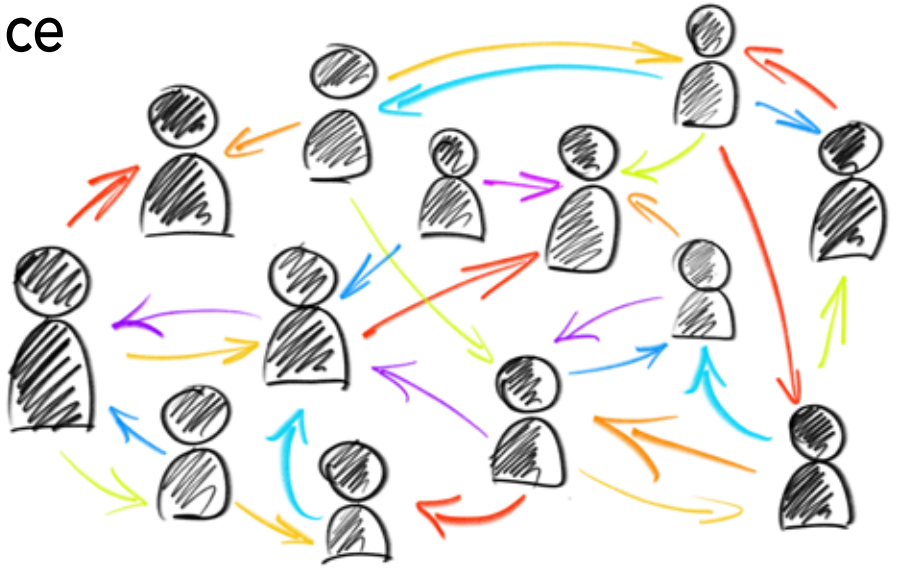
Learning to Dance

I T IS THE SEASON of professional society meetings. Thus, this editorial will focus on the importance of networking. Networking is an underutilized skill that requires practice but can have a high impact on shaping your career path.

During my time as a fellow, my mentor introduced me to individuals at professional meetings pertaining to my areas of interest. I did not realize it at the time, but this was the beginning of the development of my networking skills. Being from the South, I thought my mentor was just being collegial and friendly with his colleagues. In reality, this was a professional dance, and I needed to learn the steps in order to independently take to the dance floor. The ultimate goal of networking is to make connections that can lead to mentorship or sponsorship.

I am generally outgoing and gregarious. I am also an extroverted introvert. That means my bucket of energy is drained by the small talk with strangers that is part of networking. My energy is restored by quiet times, not by leaning into the discomfort of a meet and greet. This self-recognition is important because mindful management of the activation energy needed to network is critical to my successful networking.

Besides being someone who likes to recharge, I am also someone who likes to make my boss happy. Therefore, I have to view networking as part of my job, not only to promote my institution and its research but also to promote myself. National and international relationships can help build careers. Although social media networking is a growing reality, it lacks the element of personal relationship building and interpersonal skills that some potential mentors or sponsors



require prior to endorsing someone for an opportunity.

I approach networking in the following ways:

- 1.** I remember that networking is a part of my job and is not an indication of narcissism.
- 2.** I actively dispel thoughts of self-doubt such as “They don’t really want to meet me” or “I don’t want to be a burden.”
- 3.** I recognize that the individuals with whom I am networking have all been in my position before. They realize that

this is part and parcel of life as a hematologist and oncologist. Thus, they expect to be networked with. I should not feel that my introduction is burdensome.

4. I recognize that although the initial approach is up to me, the outcome is out of my hands. The result of networking might be a new collaboration, a committee assignment, a new practice opportunity, or nothing at all. This is the equivalent of speed dating. Lack of concrete outcome does not mean failure, and it is not a personal insult.

5. I always come prepared. I bring business cards. I also take a quick look at the work of the person with whom I will be networking and ask genuine questions about their area of interest and their journey.

6. If pertinent, I will discuss information about myself or about my own work and professional goals, especially if that information aligns with their potential ability to sponsor or mentor.

Be fearless. At the next meeting, I challenge you to introduce yourself to 2 people each day, snap a selfie, make a new connection. It is part of your job and an important part of your professional journey. ■

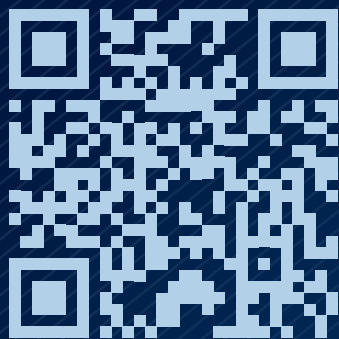


JILL GILBERT, MD

Professor of Medicine
Director of the Hematology/
Oncology Fellowship Program
Vanderbilt University Medical Center
Nashville, TN

OncoLive®

Subscribe to our e-Newsletter



Sign up to receive breaking news, conference coverage, content alerts, event invitations, and more!

one.onclive.com/subscribe



OncoLive.com

Building the Next Generation of Oncology PAs

The director of the Dana-Farber Postgraduate PA Oncology Fellowship highlights the unique program and its impact on recruitment as well as improved access to care for patients.

BY **KYLE DOHERTY**

AS THE SCOPE OF cancer care continues to widen, the need for well-trained professionals in all aspects of the treatment continuum, including oncology physician assistants (PAs), has become greater than ever. At Dana-Farber Cancer Institute in Boston, Massachusetts, administrators are aiming to add more skilled oncology PAs to the workforce with the development and implementation of their innovative PA oncology fellowship.

The Dana-Farber Postgraduate PA Oncology Fellowship is a 12-month program that offers fellows an immersive experience with extensive clinical training. Fellows receive training in all major oncologic areas, working alongside other PAs, physicians, and oncology nurses. Participants in the program also have the opportunity to attend teaching conferences to broaden their understanding of cancer care and research.

“Over the past decade or so, more and more PAs have been hired into the ambulatory space to see patients in clinic and deliver oncologic care,” Noam E. Shabani, MS, PA-C, said. “This includes seeing patients on clinical trials, writing [scripts] for chemotherapy and immunotherapy, as well as collaborating with medical oncology, radiation oncology, surgery, and various other teams. That’s nothing new, but it’s also something that continues to grow. Fellows are



a part of the active medical staff at Dana-Farber; they’re credentialed just like staff PAs and have the ability to be fully immersed into clinic and work as autonomous providers.”

In an interview with *Oncology Fellows*, Shabani, the director of the Dana-Farber Postgraduate PA Oncology Fellowship, as well as a medical oncology PA and the ambulatory chief PA at Dana-Farber, discussed what defines the PA oncology fellowship and what makes an individual a good fit for the program.

Q *Oncology Fellows: What makes the Dana-Farber Postgraduate PA Oncology Fellowship unique?*

A **SHABANI:** As Dana-Farber’s clinical footprint has increased,

we’re caring for more and more patients, patients are living longer, and therapies are improving. The volume of patients is greater, so there’s a greater demand for care. [Thus], there’s a greater demand on the PA [oncology] program to grow. The fellowship is something that’s been in the works for approximately a decade and has gone through various stages of advocacy and buildup. Dana-Farber is unique in its oncology fellowship—we were the first in the Northeast and that’s something that we’re very proud of. It stems from the fact that hiring PAs into the ambulatory setting is challenging.

We have wonderful PA applicants to Dana-Farber; [however,] based on their experience, many of those PAs are not quite ready for this type of clinical role because it involves so many different skills. It involves acute triaging of sick patients; it involves admitting them to the hospital; it requires primary knowledge of and a specialty in their kind of cancer, as well as writing [scripts] for chemotherapy and understanding those toxicities. Then, of course, [they need to] manage patients’ chronic health issues that inevitably come up or come up as factors in the care of [patients with cancer]. We are seeing these patients every 2 or 3 weeks for treatment, and so we sort of become their primary care providers for a period and we manage a lot of their chronic issues.

In addition, there is the rapid pace of clinic workflow and visits every

30 minutes. Putting that all together, there's a need for more experienced oncology PAs. There are many PAs out there who want to be trained in the oncologic field. From their perspective, we're filling a need in the PA workforce because PAs who either are graduating or graduated and took a position doing something for a few years don't feel quite comfortable taking care of this population of patients. Many PA employment opportunities come with on-the-job training, but that's typically 2 to 3 months, which is not enough time to really learn the field of oncology.

Q What unserved needs can this program fill from a community oncology perspective?

A The volume at Dana-Farber and across the country in terms of oncologic care is growing. Part of that is because we're getting better at treating [patients with] cancer, and we're also getting better at early detection. We've expanded the ability to receive care at Dana-Farber. That has implications in Massachusetts and in [the Boston area], but it also has implications nationally and internationally because we have patients coming from all over the world to get care here.

Another piece is that physicians at Dana-Farber are really involved across the board in multiple aspects of cancer, and a lot of that has to do with research, whether it's in the lab, drug development, clinical trials, or various other areas. Much of our physician colleagues' focus is on advancements in cancer care and at the bedside with patients.

At this juncture in time, PAs can be most impactful clinically with patients. I see [PAs contributing to situations] where patients are comforted by a team and are cared for by not just 1 oncologist but a group of people [composed] of an oncologist, a PA, a nurse practitioner, an infusion nurse, and a nurse navigator. That team approach to patient care helps patients feel like they have people in their corner, and it reduces the burden on the physicians to do everything.

It's great because PAs get to practice autonomously and independently within the framework of a system that allows for collaboration, and people feel safe doing so. The integration of fellows allows us to feed that pipeline. But also, we have fellows at the end of their first year of their fellowship being integrated into disease centers that are going through the acute staffing shortages. For example, if a disease group is out a few providers because of maternal or paternal or family leave, unexpected leaves of absence, vacations, or attrition, and those disease groups need people to come take care of patients, our fellows are well-positioned to be able to come in for 4 to 6 weeks and open a clinic for them to be able to see 20 to 30 patients a week.

That's value added right then and there. That's a fellow who is there as a pluripotent provider and is there to learn about oncology care but has enough knowledge and clinical ability by the end of their fellowship to be able to contribute. Both of our fellows [who recently graduated] were integrated into disease groups as fellows, one of them in the gastrointestinal oncology group, the other in early drug development. These are 2 teams that are excellent and well-regarded that had some staffing challenges. Our fellows were able to come in and provide a bridge of 4 to 6 weeks of care in clinic as they started the process of hiring other people and getting people back from leave.

Q What advice would you have for someone interested in this program or being an oncology PA in general?

A There are many ways to enter the world of oncology as a PA. At Dana-Farber, our inpatient PA team is extremely well-run and well-positioned to train new graduate PAs who are coming out of PA school and are inherently interested in oncology and want to learn oncology but also medicine [in general]. Those new graduate PAs can certainly apply to and will likely be considered for an inpatient position. Experience [working] in the inpatient team provides PAs with a lot of experience, a lot of exposure to various scenarios.

However, depending on the clinical situation, it doesn't necessarily teach primary oncology management. Usually, those patients who are getting admitted have those diagnoses but are being admitted for an acute exacerbation of pain or their disease is getting worse, or there's some other acute issue that we're concerned about. But at least it lays the fundamental building blocks down.

If those PAs feel like in time they want to stretch out and try for an ambulatory position, then there are also opportunities for inpatient PAs to move to the ambulatory space. Most of our ambulatory PAs who have come from other institutions [are] working in specialties that are adjacent to what they did.

The hard part is [drawing from] the immensely large and very talented pool of new graduate PAs, many of whom are dedicated to a career in oncology [from the start]. But if they don't want to work in inpatient [care], or don't get a position in inpatient [service] but still want to be in oncology, that's where the fellowship really shines because it provides an opportunity to work in oncology [after just coming] out of PA school. ■

REFERENCE

Postgraduate Physician Assistant Oncology Fellowship. Dana-Farber Cancer Institute
Accessed March 29, 2024. bit.ly/43AXEgX

Identifying and Addressing
the Overlooked Need of
**Patient Sexual
Health**



Laila S. Agrawal, MD, and Jennifer Barsky Reese, PhD, FSBM, discuss the importance of training, despite its current shortcomings, regarding patient sexual health for oncology fellows.

BY **KYLE DOHERTY**

DURING THE WHIRLWIND OF emotions and newfound obligations brought on by a cancer diagnosis, the sexual health needs of patients are often overlooked by clinicians. Thus, this area of cancer care has often not received the proper amount of attention, and this lack of focused attention trickles down to the training of hematology and oncology fellows.

“After facing a cancer diagnosis and going through treatment, many patients are completely blindsided by the devastating impact to their sexual health,” Laila S. Agrawal, MD, a hematologist/oncologist in the Department of Breast Medical Oncology at Norton Healthcare in Louisville, Kentucky, explained in a statement to *Oncology Fellows*. “As oncologists, it is our responsibility to counsel and prepare our patients for the adverse effects [AEs] of cancer treatment and address ways to help treat these AEs. Sadly, when it comes to sexuality, and especially so for women, there is often zero discussion about the impact of cancer treatment on sexual function. For the minority [of] women who do bring it up to their oncologists, many are made to feel as if there isn’t anything to be done about it, it is the price to pay for surviving cancer, or they should just be grateful to be alive. They may conclude that if their oncologist hasn’t brought it up, there is nothing that can be done to help. The truth is that sexual AEs are very common [and] can be very distressing, and there are multiple treatment options that can make things better.”

In a survey of hematology and oncology fellowship program directors,

findings from which were presented during the 2023 American Society of Clinical Oncology Annual Meeting and subsequently published in *JCO Oncology Practice*, Jennifer Barsky Reese, PhD, FSBM, and coauthors sought to better characterize the current state of training of fellows regarding the sexual health of patients with cancer. Survey respondents (n = 114) indicated that less than half (49.1%) of programs offered some formal instruction on patient sexual health and only 36.8% offered formal instruction on safe sex practices, although 75.4% did so concerning patient fertility. Additionally, most program directors reported that a lack of experts was a significant barrier to instructing fellows of the topics of patient sexual health (74.3%), safe sex practices (67.9%), and fertility (53.5%; **FIGURE**).

“It seems like reproductive health and fertility do tend to appear more often in clinical discussions with patients with cancer as opposed to sexual functioning,” Reese, an associate professor in the Cancer Prevention and Control Program at Fox Chase Cancer Center in Philadelphia, Pennsylvania, said in an interview with *Oncology Fellows*. “We know that these issues are not necessarily coming up as often as we’d like them to, even though they’re included in clinical guidelines for care. We’ve also known for many years [that the reason they are not properly integrated] is because of a lack of training in how to discuss these issues. I’ve tested provider interventions, [but] after discussing this issue with my colleagues, we thought, why don’t we start with the fellowship level? This is the moment in time in an oncologist’s training when they’re really steeped in learning about →



Laila S. Agrawal, MD
Hematologist/Oncologist
Norton Healthcare
Louisville, KY



Jennifer Barsky Reese, PhD, FSBM
Associate professor
Fox Chase Cancer Center
Philadelphia, PA

how to treat patients with various kinds of cancers and [should be] getting the whole experience of how to deal with all these issues.”

Reese and coauthors sent a survey to all hematology/oncology fellowship program directors in the US (n = 176); directors were identified via a search of the American Medical Association Residency and Fellowship Database website. The median number of fellows per program was 12 (range, 2-50).

The survey consisted of 14 items concerning fertility, sexual health, and safe sex practices. For each domain, program directors were asked about the coverage of topics via formal training, the use of informal training methods such as case studies or webinars, the barriers to providing instruction, and the amount of time dedicated to formal instruction relative to the overall academic year. The objectives of the study were to examine the provision of training in sexual and reproductive health topics during fellowship in terms of formal and informal instruction and to identify and interrogate the primary barriers to offering this instruction.

Additional findings from the survey revealed that most hematology/oncology fellowship programs did not offer formal training in terms of the impact of cancer treatment on female sexual health (70.8%), male sexual health (71.7%), or body changes/image (73.5%); a vast majority of programs also did not address patient distress related to sexual health/body image changes (75.2%) or dating and sexual relationships after cancer (85.8%). In terms of safe sex practices following cancer treatment, most programs did not cover the use of contraception/birth control (68.1%), sexually transmitted diseases/infections (85.8%), or safe sex practices during a patient's treatment (69.0%).

FIGURE.
Survey Responses of
Fellowship Directors

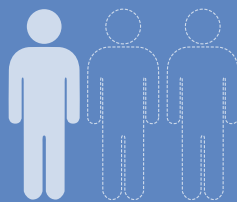
49.1%

of programs offered some
formal instruction on
**patient sexual health or
safe sex practices**

36.8%

75.4%

Patient fertility



Lack of experts was a
significant barrier to instruct
fellows of the topics of

74.3%

Patient sexual health

67.9%

Safe sex practices

53.5%

Fertility

In terms of barriers to providing formal training for oncology fellows around patient sexual health, program directors indicated that difficulty finding space in the curriculum and the lack of requirement or expectation that these issues were part of the program played a role. Specifically for sexual health, safe sex practices, and fertility, program directors cited difficulty in finding space in the curriculum as a significant barrier at rates of 49.6%, 54.0%, and 43.0%, respectively. A lack of requirement or expectation for patient sexual health, safe sex practices, and fertility to be included in a fellowship program was listed as a significant barrier at a rate of 56.6%, 60.2%, and 34.5%, respectively.

Outside of formal training, most program directors listed direct clinical experience as a training method regarding patient sexual health (78.1%), safe sex practices (72.8%), and fertility (77.2%). Case-based learning (38.6% vs 28.9% vs 42.1%, respectively), webinars or other online modules (21.9% vs 18.4% vs 16.7%), grand rounds (18.4% vs 12.3% vs 25.4%), and journal club (11.4% vs 7.0% vs 20.2%) were lesser-utilized additional training methods for fellows in the respective areas.

“If you're training with an attending [clinician] who never brings up sexual issues with the patients, then that's obviously going to limit what you're learning,” Reese explained. “The problem with direct clinical experience being used as a primary method for training fellows in these areas is that practicing clinicians' practice patterns are going to be very divergent from one to the next. Some may bring it up with every patient, some may bring it up with no patients, and some may bring it up at different times. It's idiosyncratic, and we know that because most oncologists themselves

haven't received training in these issues, the idea of learning from clinicians who themselves haven't received training is potentially problematic."

"If we could develop some kind of program or training that could be inserted within fellowship, it could potentially have a great impact on the field. These are future clinicians who are developing their practice patterns and their habits. We want them to go off into their own individual practice with the knowledge and skills to be able to address sexual issues and reproductive concerns," she added.

To address the fellowship training shortcomings described in the survey, Reese and her colleagues are developing a National Cancer Institute–funded program to provide a series of skills-based training workshops aimed at providing oncology fellows with the tools to properly address the issue of patient sexual health. Ideally, she said, the fellowship programs themselves would bring in experts in this area to offer training to fellows, either in person or via virtual training sessions, and appoint a designated expert in this area within a given institution. Reese noted that many of the fellowship directors included in the survey wrote in and indicated that although patient sexual health training was not explicitly in their program, they recognized it as an important issue and would consider methods to emphasize it in the training of fellows in the future.

"Having formal instruction about management of sexual health concerns after cancer treatment, making opportunities for fellows to rotate through sexual health clinics, and providing access to more in-depth educational opportunities can help fellows be better prepared to meet this need," Agrawal stated in conclusion. "Interested fellows can join professional societies like the International Society for the Study of Women's Sexual Health, which hosts an in-person course and an annual meeting, and the Scientific Network on Female Sexual Health and Cancer, which has a scientific meeting as well as webinars. Fellows can become involved in these organizations to learn, find research mentors, and present research." ■

REFERENCE

Reese JB, Bauman JR, Sorice KA, Frederick N, Bober SL. Hematology and oncology fellow education about sexual and reproductive health: a survey of program directors in the United States. *JCO Oncol Pract*. Published online February 6, 2024. doi:10.1200/OP.23.00499

8th Annual School of NURSING ONCOLOGY™

SADDLE UP for a day of NURSING CME IN NASHVILLE!

IN-PERSON & VIRTUAL

August 10, 2024

Join us for the 8th Annual School of Nursing Oncology where our cutting-edge experts will update oncology nurses with the latest clinical information on the treatment and management of patients with cancer. There are several learning formats in this educational event, including didactic lectures, interactive training sessions, and case-based discussions. Topics at the forefront of the agenda include communicating difficult information to patients, considerations for end-of-life care, hematological cancer therapy, adverse event management, and new agents.

PROGRAM CO-CHAIRS



Beth Sandy, MSN, CRNP, FAPO



Laura Wood, RN, MSN, OCN



Grace Cherry, RN, MSN, AOCNP



To learn more,
scan here or visit
the link below.

gotoper.com/sono

REGISTER NOW FOR

50% OFF
with code
SONOPA

PER
ONCOLOGY



Innovation in the CLASSROOM

Faculty at Hackensack Meridian School of Medicine have developed a novel curriculum that they say will lead to better medical training through practical, clinic-focused learning.

BY KYLE DOHERTY

WITH THE DECEMBER 2023 publication of what they have dubbed the Patient Presentation Problem-Based Learning Curriculum (PPPC), faculty at the Hackensack Meridian School of Medicine, in Nutley, New Jersey, are aiming to revolutionize medical training and provide students with an innovative curriculum that takes the focus away from the textbook and integrates basic and clinical sciences to hone the decision-making skills they will need in their careers.¹

“We’re a new medical school—our first class

matriculated in 2018—so we had the incredible opportunity to build a medical school from a blank slate in a mission-driven fashion,” said Miriam Hoffman, MD. “PPPC is a great example of how the vision and the mission informed the what as well as the how. One of our guiding principles was that everything our students learn should be grounded in the community and clinical context.”

Research by Hoffman and coauthors published in *Medical Teacher* explained that the PPPC is based on the Master Adaptive Learner model, which aims to develop students



Miriam Hoffman, MD
Vice Dean for
academic affairs
Hackensack Meridian
School of Medicine
Nutley, NJ

PESHKOVA - STOCK.ADOBE.COM

into self-regulated and lifelong learners who are equipped to practice medicine in a fast-paced environment. The paper laid out the 9 guiding principles of PPPC: A weekly clinical case serves as the scaffolding of the curriculum; the case should allow students to apply basic science to clinical medicine; structured and unstructured discussion time concerning the case should take place; the case should be presented with a discussion to practice clinical reasoning; at the end of the week the group gathers to review the knowledge gained during the week; formal and informal feedback on specific skills is provided; students will utilize outside resources to answer clinical questions; PPPC is primarily student driven, allowing students to hone in on their individual needs; and the case should allow students to connect all determinants of health to patient care and outcomes.²

In an interview with *Oncology Fellows*, Hoffman, vice dean for academic affairs at Hackensack Meridian School of Medicine, outlined additional details of the novel curriculum, describing what separates PPPC from traditional medical teaching methods as well as the impact she hopes it will have on students during both their training and time as practicing physicians.

Q *Oncology Fellows: How was PPPC developed, and what makes it unique among medical school curricula?*

A **HOFFMAN:** We have a guiding principle of everything you learn in the preclerkship curriculum is grounded in its clinical context. That's very different from 2 years of lecture on basic sciences before you ever see your first patient. Our students are in the clinical setting; they're [using] clinical skills from week 1 of this 16-month preclerkship curriculum.

We have an entirely integrated curriculum; it's not like [the students] have pharmacology on Monday, anatomy on Tuesday, public health on Wednesday, [etc]. Rather, they're in 1 course that integrates all the content from the biomedical, behavioral, social, and health system sciences. That's all integrated and framed in a clinical setting. With everything they're learning, they're tying it all together and doing cognitive integration.

Many schools are struggling because they record their lectures, and they don't require students to be in class. Students are not coming to class and they're watching [the recordings] at home. I can teach that medical student [that they] need to learn about this receptor, because when sodium does this and chlorine does this, the gradient goes up, etc, [but] it's abstract, it's random, and it's hard to learn. But if I'm teaching [them] about that very same

receptor, and you're mapping [it out in] a concept map, [then you realize] that's why this 58-year-old has chest pain. Now I've grounded what you've learned in something relevant. You understand why you're learning it, you understand how it connects to all the other stuff you're learning, and you understand how to take what you're learning and apply it to a patient case.

[The PPPC] provides deeper, more meaningful, and long-lasting learning of that content than if I just put you in a lecture hall and lecture at you about this. You're really using this information, applying it, and synthesizing it—that's what we call higher-order cognitive goals, as opposed to just dumping it in your brain and dumping it out on a test. It's more effortful and it takes more work. Students don't always love it right away, but it gives them meaningful learning of the content, and they're building those domain-general critical skills that they need to be lifelong learners and to be effective physicians.

Q *What unmet needs for both students and faculty could PPPC fill, and what could its impact be on the landscape of medical education?*

A There has been a debate in the problem-based-learning literature of whether the focus [should] be more on the content or should it be more about the domain-general skills. What [PPPC] shows is a way to do that in an uber-integrated way. We're completely integrating and achieving those 2 goals [through the PPPC]. That is a gap that this [curriculum] is demonstrating.

In terms of the [overall] landscape, our students have done amazingly well. Our goal is [to ensure] that you are a lifelong learner, that you can find information and apply it critically, but learning for that higher goal helps you do well on a standardized test [as well]. That's why our students have knocked it out of the park on all 3 steps of the boards. Short-term recall doesn't get you far. The goal is to get them to work smarter, which is effortful.

There's evidence in the educational literature that with active learning students will [initially] say that they're "not learning anything." But when you look at medium- and long-term learning, they learn more from it, so there's an inverse relationship there. You have to be OK with that because it takes a bit for students to learn how to engage in the process, and you have to support them in that. You have to really be explicit when you're having students engage in this because it's very different from how most of them spent their undergraduate college learning experiences.

Q What does the future hold for PPPC as far as improvements and potential expansion to other medical schools?

A To execute this kind of curriculum, you really need to train your faculty. One of the things that's critically important is that there's collaboration between clinical faculty and basic science faculty in the building of the cases, in facilitating that Monday session, and so forth. We've invested a lot of time in developing all those faculty, and some of our greatest skeptics from the early years have become our greatest champions, and I appreciate them sticking with it.

Something we're focusing on now and we'll continue to focus on more is some of the overlap between what our students are doing in PPPC, what they're doing with their small-group faculty, what they're talking about with their advisers, and what they're talking about with their clinical skills faculty, so that we're really reinforcing it. It's not like information mastery is only applicable in PPPC; it's applicable everywhere else. The more that there's an explicit integration, the more synergy [there will be].

We're also continuing to build how we assess these skills because you can't simply assess this with a multiple-choice test. We're doing more assessment in our simulation center; we do a lot of simulation center training and assessment. [Also], at the end of every course, our students have what's called an observed structured clinical exam, where they have standardized patients [played by actors] or simulators, which are very fancy manikins that have heart sounds, can speak, and have clinical findings. Additionally, 4 times throughout our curriculum we have a high stakes multi-station observed structured clinical exam. We simulate the clinical setting in a variety of ways. Continuing to build that and assessing more basic science content in the simulation center is an area of growth.

Another area that we will be studying more is [further defining] what the outcomes are that we're hoping to achieve. How are [the students] demonstrating them? How do we assess that? That's a research question.

We also just finished the first phase of a research project looking at what are called metacognitive moments, meaning moments when a student encounters [a] moment in a scenario where they don't know what to do, where they've reached their limit. What do they do at that point? Do they think systematically, do they try to think about what additional information they need and how they should find it? How does emotion play into those cognitive processes? That's an area that a group of us are actively looking at now as well. ■

For a full list of references, visit bit.ly/3sTrY84.



The Go-to Resource for CME/CE

A leader in the industry, PER[®] has put all its efforts into ensuring you have access to the information that is most important to you via digital platforms that allow you to gain knowledge and insight when convenient for you.



Up-to-date, evidence-based information you can put into clinical practice immediately



Unrivaled interaction with renowned experts in their fields



On-demand programming for access whenever and wherever you need it

Visit gotoper.com to create an account and browse upcoming programs.

Drawing Professional Inspiration From Personal Experience

A clinical research fellow at St Jude Children's Research Hospital discusses how his experience as a patient with cancer eventually led to him working to improve outcomes for the next generation of patients.

BY KYLE DOHERTY

WHEN BRADLEY MULLER, MD, received a diagnosis of pediatric T-cell acute lymphoblastic leukemia (ALL), he started a journey that would undoubtedly alter his life forever. However, despite the hardship he had to overcome, it would eventually help put him in a position to help children with cancer and hopefully contribute to a future where no child would have to experience this again.

“My treatment course spanned over 2 and a half years, and over that time I had to figure

out how I was going to cope with this horribly traumatic experience in a positive way,” said Muller, a pediatric hematology-oncology fellow at St Jude Children's Research Hospital in Memphis, Tennessee. “My oncologists were the ones [who] helped me with that. I knew pretty early into my treatment that from the way that I was being treated by them and all the staff around them that I wanted to be part of this. So, I would say when I was 8 years old, I knew that I wanted to pursue this type of career.”

In an interview with *Oncology Fellows*, Muller detailed the journey that



Bradley Muller, MD

Clinical Research
Fellow
St Jude Children's
Research Hospital
Memphis, TN

led him to pursue an academic career in pediatric oncology and discussed the focus of his research that he hopes will someday improve outcomes for pediatric patients with T-cell ALL.

Q Oncology Fellows:
Could you provide some background on your story as a pediatric patient with T-cell ALL?

A MULLER: When I was 7, I went to the pediatrician with worsening symptoms of fevers, headaches, and muscle aches. We just thought it was a virus for the first few weeks. But eventually, I started developing shortness of breath, especially when I was lying down, and had trouble waking up.

My parents rushed me back to the pediatrician; they did a complete blood count, and from there they noticed that my white [blood] cell count was beyond the quantification limit of the assay. Afterwards, a chest X-ray revealed a large mass in my chest. I was rushed to the emergency department and was diagnosed with T-cell ALL soon thereafter. I spent the next 2 to 3 weeks in the pediatric [intensive care unit], getting stabilized with multi-agent chemotherapy and many other interventions.

I then embarked on a treatment journey of about 2 and a half years, which is the treatment duration for this disease. This was back in 1998 to 2001, so the outcomes of this disease were not nearly as good as they are now. The approach to treating [patients with] this disease was more of a kitchen sink-type approach, where you throw everything at it that is known to be effective and worry less about the long-term effects, as survival is the primary goal. I had an intense chemotherapy regimen that included lumbar

punctures with intrathecal chemotherapy, along with craniospinal radiation [because of] leukemia in my cerebral spinal fluid and brain.

Q How did that experience translate to your journey as a medical student?

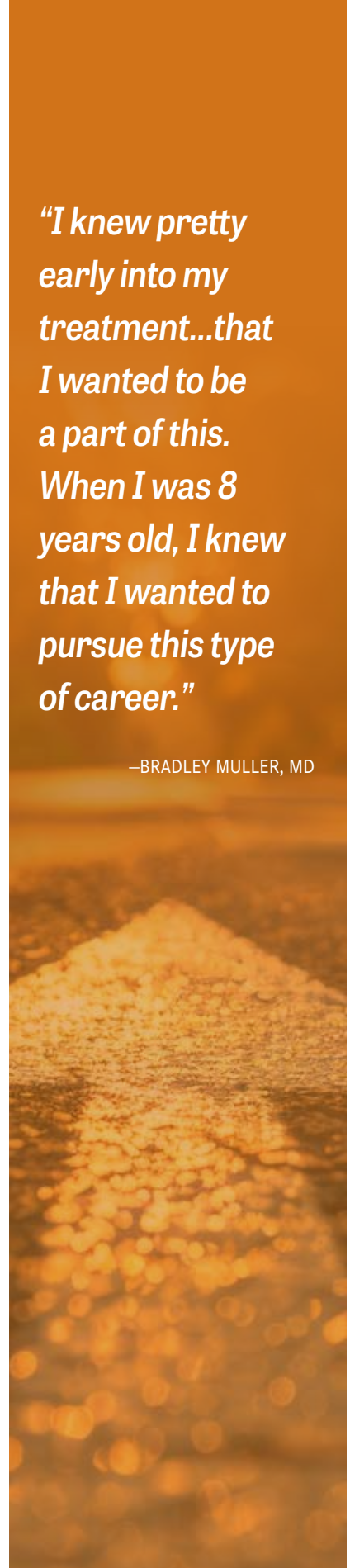
A I [had] known since I was 8 years old that I wanted to take care of [pediatric patients], but not only that, I wanted to specialize in treating [pediatric patients] with T-cell ALL. I went to undergrad, majored in biochemistry, and went to medical school at East Tennessee State University in Johnson City.

While I was in medical school, I had a neat opportunity here at St Jude where I took part in this National Institutes of Health-funded program called the Pediatric Oncology Education Program. St Jude has had this for decades, where they'll take an undergrad student or medical student and over the course of the summer you do research here. It's a highly competitive program and I applied every year I was an undergrad and was never accepted into it.

But then when I was in medical school, I finally got in. [Starting in] 2015, I worked with Brandon Triplett, MD, who is now deputy clinical director of the hospital, but at that point he was a clinical bone marrow transplant specialist. He showed me everything that St Jude is and helped push me [toward] this career path because he taught me immunology through bone marrow transplantation. He also gave me a lot of autonomy; I'm someone who likes to get up early, go exercise, get my work done early, and then be done. I would do that every morning; I'd get to work early, get all the research that we needed done by the midafternoon, and then the after-

"I knew pretty early into my treatment...that I wanted to be a part of this. When I was 8 years old, I knew that I wanted to pursue this type of career."

—BRADLEY MULLER, MD




noons were all mine to shadow at all the different clinics and services here at St Jude.

Through that exposure, I met a lot of my current mentors [who] have been my mentors for now nearly a decade, which is crazy to think about. During that time is when I met Hiroto Inaba, MD, PhD, who's now the program director for our fellowship, but also my main clinical mentor. He and Brandon have mentored me throughout medical school and all of [my] residency training.

I ended up doing my residency at Johns Hopkins [University] in Baltimore, [Maryland], and that was a cool experience to get training there. But I would always get these random messages from Brandon saying, "Don't fall in love with that fancy place, because you're coming back here for training." So, at the end of my residency, I ended up coming back to St Jude, not only for training but with the goal of becoming faculty within our leukemia division, taking care of patients with and researching T-cell ALL.

The first year of fellowship is hard and that is the norm everywhere. It is clinically focused where you are immersed in practicing clinical medicine, taking care of patients with both hematological and oncological disorders. I rotated through all of our services at St Jude including leukemia/lymphoma, solid tumor, neuro-oncology, bone marrow transplant, and hematology. Moreover, I was on-call overnight frequently, answering pages from our hospital and its catchment area, providing recommendations on how to appropriately take care of our patients. During this year, I learned the most, and became very comfortable with the clinical side of being a pediatric hematologist-oncologist. It was during this time that I started taking care of my own patients, which, to this day, brings me the most joy. But then after those 12 months, my role became more research focused, and in our fellowship you can do any type of research that you can think of. You can do basic science in the laboratory like I'm doing and study cancer or whatever else, or you can do clinical projects or global projects—whatever your interest is. Altogether, my research years are to teach me how to think like a scientist, so that later on in my career, I am able to understand the basic science and research that are foundational in running clinical trials, and, particular to my interests, my goal is to run clinical trials for patients with T-cell ALL.

Could you describe your research focus within T-cell ALL and what makes it unique?

 My principal investigator is Paul Thomas, PhD, and our lab focuses on T-cell receptors, which [are] the main protein that defines a T cell. These receptors typically bind to cells that are cancerous to kill them, or

they bind to cells that express proteins that have come from a viral or bacterial infection. We've recognized that there are different types of malignancies, including T-cell ALL, with certain subtypes that will express the T-cell receptor.

My role in the lab here is understanding the biology of these T-cell receptors when they're expressed on these malignant cells, with the idea of targeting them and developing a therapeutic [agent] that interacts with them in a way that can be beneficial for our patients. My project is somewhat different than everyone else's in the lab. Everyone wants to know what the T-cell receptor is binding to and what those interactions mean, usually in the context of a normal and productive immune response. I want to find out what these T-cell receptors on cancer cells are binding to and understand the biology of these interactions, with the hypothesis that they provide an advantage to the cancer.

I'm the only pediatric oncologist in the Thomas lab, and we have multiple projects working on T cells targeting different types of cancers. Paul has put me in [a] position to be a [sort of] consultant to these different projects, as I can provide a clinical perspective, while our graduate students, post-doctoral researchers, and staff scientists dive deep into the basic science. At the end of the day, I'm interested in, "Why does all that matter?" because I want to know how this fascinating science can be translated into helping our patients. Thus, I bring a unique perspective to many of the projects within the Thomas Lab.

My project focuses on a certain subtype of T-cell ALL called $\gamma\delta$ T-cell ALL, where the malignant T cells express a $\gamma\delta$ T-cell receptor on the cell surface. Previous studies at St Jude have shown that patients with this subtype of T-cell ALL have poorer outcomes compared with other types of T-cell ALL, and the defining characteristic of this subtype is expression of this receptor.

This difference is what brought me to this project so that I can understand why expression of this type of T-cell receptor correlates with poorer outcomes. It likely plays some biological role in the cancer, and my job is to discover and describe its mechanism.

The project has taken multiple paths, because frequently that is required to make novel discoveries. That makes the science a little more challenging, especially when I've only had a few years of lab experience. But it also makes me very thankful for all the graduate students, senior [postdoctoral researchers], and staff scientists who know how to do everything. I'm much more comfortable with the clinical side at this point in my career, but I'm getting much better at the bench side now. ■



Moving Beyond Checkpoint Inhibitors: The Future of Immunotherapeutic Approaches for Melanoma Management

A medical oncology fellow offers his perspective on cutting-edge therapies in melanoma.

BY MATTHEW J. HADFIELD, MD

MELANOMA IS THE FIFTH most common cancer in the US, with an incidence rate that has been increasing since the 1970s.¹ The past decade and a half have ushered in enormous advancements in the field with the development of both immune checkpoint inhibitors and BRAF-targeted therapies.

The median overall survival prior to these advancements was less than 12 months; however, many patients can now potentially achieve years of benefit from these newer drugs. Despite this, many patients will

develop either primary or acquired immunotherapeutic resistance, and there remains a significant unmet need to identify and develop novel therapies.

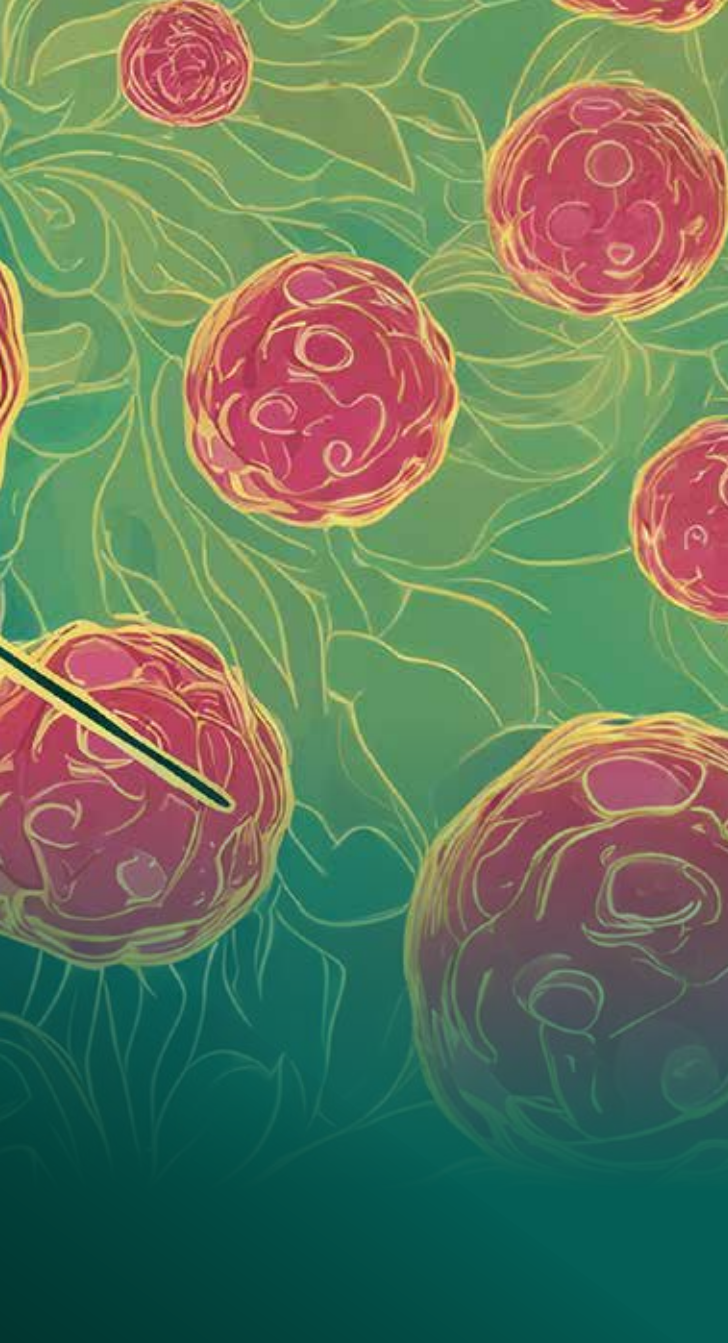
Personalized mRNA Vaccines

The clinical development of cancer vaccines in melanoma and other solid tumors has historically been unsuccessful. Despite this, rapid developments in the field of mRNA vaccines, in part due to the COVID-19 pandemic, have led to a resurgence in the potential of cancer vaccines to be used for the treatment of patients with cancer.



Matthew J. Hadfield, MD

Third Year
Hematology/
Oncology Fellow
Brown University
Alpert Medical
School Department
of Medicine
Providence, RI



therapy designation to mRNA-4157/V940 in combination with pembrolizumab for the adjuvant treatment of patients with high-risk melanoma following complete resection. The decision was supported by findings from KEYNOTE-942.²

Tumor-Infiltrating Lymphocytes

The concept of utilizing harvested T lymphocytes from a patient's tumor and using them as a form of treatment for melanoma is not new. Steven Rosenberg, MD, PhD, of the National Cancer Institute began pioneering this therapeutic approach in the late 1980s.

The phase 2 C-144-01 study (NCT02360579) is a multicenter clinical trial in which patients with previously treated metastatic melanoma received 1 infusion of the autologous tumor-infiltrating lymphocyte therapy lifileucel (Amtagvi). Findings from the trial demonstrated a median progression-free survival (PFS) of 13.9 months (95% CI, 10.6-17.8) among patients who received lifileucel (n = 153), with an overall response rate of 31.4% (95% CI, 24.1%-39.4%; **FIGURE**).^{3,4}

Lifileucel received accelerated approval from the FDA in February 2024 for adult patients with unresectable or metastatic melanoma who received a prior PD-1–blocking antibody and, if *BRAF* V600 positive, a *BRAF* inhibitor with or without a MEK inhibitor, becoming the first-ever adoptive cellular therapy to receive approval for patients with solid tumors. The confirmatory phase 3 Tilvance-301 trial (NCT05727904) is ongoing.⁵

Bispecific T-Cell Engagers

Bispecific T-cell engager (BiTE) therapies engage the immune system differently from checkpoint inhibitors by binding antibodies on both tumor cells and cytotoxic T lymphocytes. Tebentafusp (Kimmtrak) is a BiTE therapy targeting both CD3 expressed on T cells and cancer cell–associated gp100. In January 2022, tebentafusp became both the first FDA-approved agent in its class and the first approved therapy for the treatment of unresectable or metastatic uveal melanoma.⁶

The approval was based on findings from the phase 2 IMCgp100-202 study (NCT03070392), in which patients with metastatic uveal melanoma were randomly assigned 2:1 to receive either tebentafusp (n = 252) or investigator's choice of therapy (n = 126). The study demonstrated a significant improvement in PFS in the tebentafusp arm vs the control arm; the 6-month PFS rates were 31% vs 19%, respectively (HR, 0.73; 95% CI, 0.58-0.94; *P* = .01).⁷

Additionally, findings from a phase 1b/2 study (NCT02535078) of tebentafusp with or without

The phase 2b KEYNOTE-942 trial (NCT03897881) examined the personalized neoantigen vaccine candidate mRNA-4157-P201 in the adjuvant setting in combination with pembrolizumab (Keytruda) in patients with stage IIIB, IIIC, IIID, or IV resectable melanoma. Patients were randomly assigned 2:1 to receive mRNA-4157-P201 plus pembrolizumab (n = 107) or pembrolizumab monotherapy (n = 50); the primary end point was recurrence-free survival (RFS).¹

Findings from KEYNOTE-942 demonstrated that the 18-month RFS rate was 79% (95% CI, 69.0%-85.6%) in the investigational arm vs 62% (95% CI, 46.9%-74.3%) in the control arm (HR, 0.561; 95% CI, 0.309-1.017; 2-sided *P* = .053).¹ In May 2023, the FDA granted breakthrough

FIGURE.
Phase 2 C-144-01 Study Design³

KEY INCLUSION CRITERIA

- Stage IIIc or stage IV unresectable or metastatic melanoma
- Disease progression following at least 1 prior systemic therapy
- Measurable lesion per RECIST v1.1 aged ≥ 18 years
- ECOG performance status of 1 or 0
- Estimated life expectancy ≥ 3 months
- Adequate organ function and hematologic parameters

N = 178

Lifileucel is manufactured using a tumor sample from each patient that is resected and cultured ex vivo to expand the population of TILs.

All patients underwent lymphodepleting therapy and received a single lifileucel infusion followed by IL-2.

END POINTS

Primary

- ORR by independent review committee

Secondary

- DOR
- OS
- DCR
- PFS
- Safety

DCR, disease control rate; DOR, duration of response; ORR, objective response rate; OS, overall survival; PFS, progression-free survival; TIL, tumor-infiltrating lymphocytes.

durvalumab (Imfinzi) for patients with cutaneous melanoma showed promising results. Among efficacy-evaluable patients (n = 72), the 1-year overall survival rate was 76% (95% CI, 70%-81%). Further studies evaluating tebentafusp in cutaneous melanoma are ongoing.⁸

Thanks to remarkable discoveries in both cancer genomics and the field of immunology, we have changed the landscape of treatment options for patients with melanoma and other malignancies. Despite this, a significant number of patients do not achieve the full efficacy benefits due to treatment resistance. Advancements in other immunotherapeutic strategies will undoubtedly usher in a new era of treatment options for this patient population. ■

REFERENCES

1. Weber JS, Carlino MS, Khattak A, et al. Individualised neoantigen therapy mRNA-4157 (V940) plus pembrolizumab versus pembrolizumab monotherapy in resected melanoma (KEYNOTE-942): a randomised, phase 2b study. *Lancet*. 2024;403(10427):632-644. doi:10.1016/S0140-6736(23)02268-7
2. Moderna and Merck announce mRNA-4157/V940, an investigational personalized mRNA cancer vaccine, in combination with Keytruda (pembrolizumab), was granted breakthrough therapy designation by the FDA for adjuvant treatment of patients with high-risk melanoma following complete resection. News release. Merck. February 22, 2023. Accessed May 20, 2024. [https://www.merck.com/news/moderna-and-merck-announce-](https://www.merck.com/news/moderna-and-merck-announce-mrna-4157-v940-an-investigational-personalized-mrna-cancer-vaccine-in-combination-with-keytruda-pembrolizumab-was-granted-breakthrough-therapy-designation-by-the/)
3. Study of Lifileucel (LN-144), Autologous Tumor Infiltrating Lymphocytes, in the Treatment of Patients With Metastatic Melanoma (LN-144). ClinicalTrials.gov. Updated July 12, 2023. Accessed May 21, 2024.
4. Chesney J, Lewis KD, Kluger H, et al. Efficacy and safety of lifileucel, a one-time autologous tumor-infiltrating lymphocyte (TIL) cell therapy, in patients with advanced melanoma after progression on immune checkpoint inhibitors and targeted therapies: pooled analysis of consecutive cohorts of the C-144-01 study. *J Immunother Cancer*. 2022;10(12):e005755. doi:10.1136/jitc-2022-005755
5. FDA grants accelerated approval to lifileucel for unresectable or metastatic melanoma. FDA. February 16, 2024. Accessed May 20, 2024. <https://www.fda.gov/drugs/resources-information-approved-drugs/fda-grants-accelerated-approval-lifileucel-unresectable-or-metastatic-melanoma>
6. FDA approves tebentafusp-tebn for unresectable or metastatic uveal melanoma. FDA. January 25, 2022. Accessed May 20, 2024. <https://www.fda.gov/drugs/resources-information-approved-drugs/fda-approves-tebentafusp-tebn-unresectable-or-metastatic-uveal-melanoma>
7. Nathan P, Hassel JC, Rutkowski P, et al. Overall survival benefit with tebentafusp in metastatic uveal melanoma. *N Engl J Med*. 2021;385(13):1196-1206. doi:10.1056/NEJMoa2103485
8. Hamid O, Hassel JC, Shoushtari AN, et al. Tebentafusp in combination with durvalumab and/or tremelimumab in patients with metastatic cutaneous melanoma: a phase 1 study. *J Immunother Cancer*. 2023;11(6):e006747. doi:10.1136/jitc-2023-006747



2024 Oncology Conferences



June 25-26

4th EACR Early-Career Researchers' Conference

VIRTUAL CONFERENCE
bit.ly/3QTKohK

July 11-12

6th Annual Kidney Cancer Research Summit

HYBRID CONFERENCE
 InterContinental Boston
 Boston, MA
bit.ly/4bthrl3

July 12-13

23rd Annual International Congress on the Future of Breast Cancer® West

LIVE MEETING
 Marriott Marquis San Diego Marina
 San Diego, CA
bit.ly/3UMJSDz

July 19-20

23rd Annual International Congress on the Future of Breast Cancer® East

LIVE MEETING
 InterContinental New York Barclay
 New York, NY
bit.ly/3wGhUkR

August 7-9

Cambridge Healthtech Institute's 12th Annual Immuno-Oncology Summit 2024

HYBRID CONFERENCE
 Hilton Philadelphia at Penn's Landing
 Philadelphia, PA
bit.ly/3wjtcVr

August 8-10

2024 SNO/ASCO CNS Metastases Conference

LIVE MEETING
 Sheraton Denver Downtown Hotel
 Denver, CO
bit.ly/3K7krHU

August 10

8th Annual School of Nursing Oncology™

HYBRID MEETING
 Sheraton Grand Nashville Downtown
 Nashville, TN
bit.ly/3UMK9X7

September 7-10

IASLC 2024 World Conference on Lung Cancer

HYBRID CONFERENCE
 San Diego Convention Center
 San Diego, CA
bit.ly/44Qsh8A

September 13-17

ESMO Annual Congress

HYBRID MEETING
 Fira Barcelona Gran Via
 Barcelona, Spain
bit.ly/4brkvxh

October 11-12

2024 International Symposium of Gastrointestinal Oncology (ISGIO)

HYBRID MEETING
 Margaritaville Hollywood Beach Resort
 Hollywood, FL
bit.ly/44QmIWM

October 17-19

ILCA 2024 17th Annual Conference

HYBRID CONFERENCE
 Hilton Toronto
 Toronto, Canada
bit.ly/3wJoCXc

October 17-20

56th Congress of the International Society of Paediatric Oncology

LIVE MEETING
 Hawaii Convention Center
 Honolulu, HI
bit.ly/4bulBbs



KNOWING WHERE TO GO FOR CANCER TREATMENT *MAKES ALL THE DIFFERENCE.*

When you're treated at Hackensack Meridian John Theurer Cancer Center at Hackensack University Medical Center, you're being cared for at NJ's #1 cancer center and the nation's only multi-state NCI-designated Cancer Consortium.

While most cancer centers have general oncologists, our leading subspecialists are globally recognized cancer experts. We offer our patients tomorrow's treatments today, with one of the nation's strongest drug discovery programs and most rapidly growing Phase I clinical trial programs. And only at JTCC will you find the cancer center performing the most stem cell transplants in the state.

KNOW THE *DIFFERENCE.*

SCAN THE QR CODE
OR CALL 833-CANCER-MD.



Hackensack Meridian
John Theurer Cancer Center

Part of
GEORGETOWN
UNIVERSITY

Lombardi Comprehensive
Cancer Center

