



The Annenberg Academy for Team-Based Care

Interprofessional Care of Patients with ROS1 Non-Small Cell Lung Cancer

MANAGING PATIENTS WITH ROS1 NON-SMALL CELL LUNG CANCER: KEY CONCEPTS

The management of patients with *ROS1* non-small-cell lung cancer (NSCLC) has evolved dramatically in recent years due to greater understanding of the pathobiology and identification of mutations. Therapies targeting these mutations have been developed and are increasingly being integrated into treatment due to their ability to extend overall survival and improve quality of life. Key concepts to keep in mind when managing patients with *ROS1* NSCLC are:

- It is critical to identify the approximately 2% of patients with NSCLC who have a *ROS1* gene rearrangement
- Molecular testing with next generation sequence testing is ideal, including both DNA and RNA to increase the probability of finding the rare gene fusions and rearrangements
- A tyrosine kinase inhibitor, ie, crizotinib, entrectinib, and repotrectinib, is recommended as first-line therapy. Ceritinib is an alternative choice, primarily due to toxicity.
- For patients with metastatic *ROS1* NSCLC who progress on first-line therapy, it is important to determine if the patient is experiencing oligoprogression, which is fairly asymptomatic, or symptomatic multifocal progression
- The tyrosine kinase inhibitors entrectinib and repotrectinib have good CNS penetration and activity
- CNS imaging should be considered in a patient with metastatic NSCLC who experiences cognitive change, dizziness, or ataxia to determine if it is treatment- or disease-related
- Awareness of the safety and tolerability profiles of agents is essential to guide treatment selection and monitoring
- A durable response is often possible in patients with *ROS1* NSCLC, although dose adjustments and interruptions are often necessary

INTERPROFESSIONAL COLLABORATION

Principles

For the evolution in treatment to be of optimal benefit to patients, comprehensive strategies for choosing, delivering, monitoring, and modifying therapy have become especially important. As a consequence, care is typically provided by an interprofessional, multidisciplinary care team that extends beyond physicians to include nurses, nurse practitioners, pharmacists, physician associates, social workers, and others, often involving collaboration between providers in community and academic settings.

To that end, the following reflects a conversation among 3 healthcare professionals about interprofessional care and how collaborative practices and teams can strengthen our health systems.

Christopher Flores, MD: In medical school, I was taught that the patient-doctor relationship was the most critical and important dynamic in healthcare. But after 30-plus years in clinical care, I can attest that healthcare is a team sport and we deliver care in teams of individuals with different training, different skills, different talents. And we teach each other, we learn from each other, we brainstorm and solve problems to meet the needs of the patient.

I want to make a point that interprofessional refers to clinicians in different professions, such as nurses, nurse practitioners, pharmacists, physicians, and physician associates. Multidisciplinary refers to clinicians in different specialties or sub-specialties, such as cardiology, dermatology, and oncology. LaTosha, do you want to talk about interprofessional collaboration?

LaTosha Mollette, DNP: The World Health Organization defines interprofessional collaboration as when multiple healthcare workers from various backgrounds work together with patients, families, and communities to provide the best healthcare possible.¹ This is exactly what teamwork should look like, but it is important to remember that healthcare teams can vary from patient to patient.

I work in a rural setting, working together with various healthcare professionals to improve access to needed healthcare services, which helps to prevent unnecessary delays in care and treatment. Ultimately, working together as a team helps to meet the needs of others to improve health outcomes, patient care, and safety.

Christopher Flores, MD: I think all of us in healthcare are trying to figure out how to do things better, make life easier for ourselves, and make everybody happier, patients, our staff, and ourselves, to make things more sustainable. Interprofessional collaboration can accomplish this. There's a growing body of literature that shows that interprofessional collaboration can improve patient outcomes, acceptance of treatment, and satisfaction.²⁻⁵ It can decrease costs, improve efficiency, reduce disparities, improve health equity, and make things more sustainable for providers.^{2,6-13}



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The Interprofessional Education Collaborative has identified 4 behavioral competencies for effective interprofessional collaboration: 1) roles and responsibilities; 2) values and ethics; 3) communication; and 4) teams and teamwork.¹⁴ Michael, do you want to talk a little bit about the roles and responsibilities?

Michael Smith, PharmD: Certainly, it's one of these things that we don't often think about, but it's important for 2 reasons. One, understanding our own responsibility and roles that we have within our team and what our teammates can expect from us in terms of what we can deliver to them and deliver to patients.¹⁴ The other is understanding what your team can do for you as well, so that you understand their educational background and you can help them practice at the top of their license by utilizing their skillset to the fullest extent.

It is increasingly common for clinicians, even those within a profession, to take different educational and practice paths leading to clinical practice. As an example, there are various differences in training a pharmacist. Nowadays, all pharmacists graduate with a Doctor of Pharmacy degree (PharmD), but some of us have done 1 or 2 years of residency training or postdoc fellowships. So, getting to know your teammates and what you can expect from them and what they can expect from you can really help your team function at a high level.

Christopher Flores, MD: We talk about values and ethics as well.¹⁴ In medicine, we're constantly required to make very difficult and complicated treatment decisions for our patients. We really are missing a great opportunity if we don't involve the opinions of all the members of our team. What does the nurse think about this plan or what does the social worker who has talked to the family members think about this plan? Or what does the physical therapist think, who has been working with the patient for the last 3 days? LaTosha, what do you think about communication?

LaTosha Mollette, DNP: Communication is essential in everything we do, and it's how we're able to effectively achieve goals, as well as improve relationships and interactions with others.¹⁴ The healthcare system is often described as being fragmented with little communication and collaboration, but when healthcare professionals communicate responsibly and respectfully, this allows them to overcome differences and work together to accomplish a

shared goal, including learning from each other, to better improve patient outcomes and safety.^{7,15-17}

Christopher Flores, MD: We're talking a lot about teams and teamwork. Michael, do you have any other points you want to make about teamwork?

Michael Smith, PharmD: Most of us are members of various teams during the course of a typical day. Think about the team members that you work with to take care of patients, but also think about a team from a networking standpoint. Do you have a network of like colleagues? As an example, other pharmacists in our healthcare system may reach out to me for advice about a patient with pain, whether or not I'm actually seeing the patient. We can make our team small, we can make them big, but we should be making our teams in ways that everybody's functioning at a high level and putting the patient at the center of the team.

Christopher Flores, MD: Michael, LaTosha talked about the fragmented healthcare system and how interprofessional collaboration can help with that. Do you have any examples from your experience?

Michael Smith, PharmD: Think about the patient's experience through our healthcare system. Even if a patient receives all of their healthcare within 1 system, they often have to travel to many different places just to access care. From a primary care clinic to a hospital, to a specialty clinic, to a pharmacy. We can fill these gaps by using our interprofessional framework, our education, and allowing our collaborative practice teammates to step in and fill that.

Christopher Flores, MD: In conclusion, I just want to summarize that medicine is a team sport and that there is a growing body of evidence that supports the various benefits of interprofessional collaboration. LaTosha, Michael, do you have any final thoughts?

LaTosha Mollette, DNP: I think just being willing to change is crucial. I think sometimes we have become complacent in clinical practice, but our healthcare system is ever evolving. So, learning how to be a team player always benefits everyone involved.

Michael Smith, PharmD: I've learned a great deal from my interprofessional colleagues, and I hope that I've helped them learn as well, with the ultimate goal of really improving patient care.



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INTERPROFESSIONAL CARE FOR PATIENTS WITH CANCER

As the care provided to patients with NSCLC has grown more complex, care provided by an interprofessional team that also includes non-physicians such as dietitian, nurse, nurse practitioner, pharmacist, physician associate, social worker, and many others, has become essential to address not only the biological and physical aspects of the disease but also the psychosocial and emotional impacts. The interprofessional care team also can increase access to care by addressing logistical and affordability barriers.

“Advanced practice providers (APPs) have been and continue to be an integral part of oncology care and a vital component of a successful oncology care team for all types of practice settings,” according to the American Society of Clinical Oncology.¹⁸

Successful interprofessional patient care requires effective interprofessional (continuing) education (IPCE). A systematic review of studies from 2007 to 2017 assessed the impact of IPCE on learner outcomes across a variety of diseases and health settings.¹⁹ IPCE occurred when members of 2 or more health professions learned together for the purpose of improving interprofessional collaboration or patient health outcomes. The review found mixed results regarding changes in the understanding and knowledge of roles and responsibilities of other healthcare professionals, but found that IPCE was effective:

- Improving attitudes towards other healthcare professionals
- Increasing the value placed on a team-based approach for improving patient care
- Changing collaborative behavior

A scoping review of studies from 2015 to 2020 across diseases and health settings assessed the impact of IPCE on the delivery of effective patient care.²⁰ A positive relationship was observed between IPCE and 5 of the ten Centers for Medicare & Medicaid Services quality metrics:

- Length of stay
- Medical errors
- Patient satisfaction
- Patient or caregiver education
- Mortality

Two more recent reviews focused on the impact of IPCE on interprofessional collaboration within cancer care.^{21,22} In the first, a systematic review of 7 studies that utilized various

educational interventions showed that IPCE significantly improved:

- Collaborative practice
- Patient-centered communication
- Team dynamics
- Mutual respect
- Understanding of each profession's role

Many of the improvements among the interprofessional care team led to improvements in patient-centered care. However, the benefits for patients in terms of increased satisfaction, improved quality of life, and better treatment adherence could not be assessed.

A recent scoping review of 28 studies sought to identify the current status of IPCE in cancer care as a guide to future education.²² The review showed great heterogeneity among the studies, thereby limiting the ability to draw firm conclusions. Overall, the review suggested IPCE leads to improved teamwork skills and interprofessional collaboration.

The benefits of interprofessional collaboration on the health outcomes of patients with lung cancer is unclear, partly because the composition of the team in many studies is ill-defined, often appearing to be limited to physicians and, thus, multidisciplinary rather than interprofessional in nature. A key component of optimal care for patients with lung cancer is the multidisciplinary team meeting; in some studies, this includes non-physicians.²³⁻²⁵

CASE EXAMPLE #1

Leaders in an outpatient oncology infusion center identified that patient and nursing staff satisfaction was problematic due to long wait times for medications to be available for administration.²⁶ An interprofessional team of pharmacists, pharmacy technicians, nurses, nurse managers, and advanced practice nurses met. They identified that there was a communication problem beginning with intake patient information, resulting in uncertainty in the anticipated time the medication would be prepared and subsequent notification that medication preparation had been completed. The interprofessional team developed a computer application to compile a patient's height, weight, and chair number in the infusion center, as well as any important comment from nursing. The revised process required a nurse to input the intake information into the computer system, which was sent to the pharmacy for review and preparation of the medication. When needed,



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pharmacists and pharmacy technicians conferred with nurses regarding the status of specific medications, thereby allowing nurses to set realistic expectations with patients and schedule patient visit times appropriately. A video monitor was also installed in the nursing station that allowed nurses to monitor the status of medication preparation. The new system improved communication, efficiency, and patient and nursing staff satisfaction.

CASE EXAMPLE #2

An interprofessional team of oncology nurses, pharmacists, and quality team members at an midwestern US academic cancer center identified high variation in oral chemotherapy workflows, lack of standardized safety checks, inefficient use of pharmacy time, and inadequate data collection, which raised concerns about patient safety.²⁷ Historically, patients were educated about the medications by the physician or advanced practice provider, with little involvement of the pharmacy staff. In addition, nurses would receive and refill requests for oral oncolytic medications. Through a comprehensive data collection process, one of the issues identified by the interprofessional team was that the process for providing medication refills was suboptimal. Using lean

methodology, the team developed a standard work process, wherein it became mandatory for the nurse to complete a safety note prior to the order for oral chemotherapy being filled. Following implementation of the standard work process, completion of the safety note significantly increased and the rate at which medication refills went unutilized dropped to <1%.

CASE EXAMPLE #3

Team huddles are an important part of providing patient-centric care, but doing so in person can be challenging for institutions with a wide geographic footprint. Recognizing this, one institution that provided care to patients with cancer at several clinic sites developed a multi-channel platform to facilitate communication among the care team.²⁸ Each clinic had its own channel which team members could access anywhere. Providers could share concerns, special patient considerations, room use, and pending tasks. As a result, the interprofessional care teams were able to provide more efficient and patient-centered care without lost time due to travel. In addition to supporting better communications, staff felt more engaged with their teams.

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