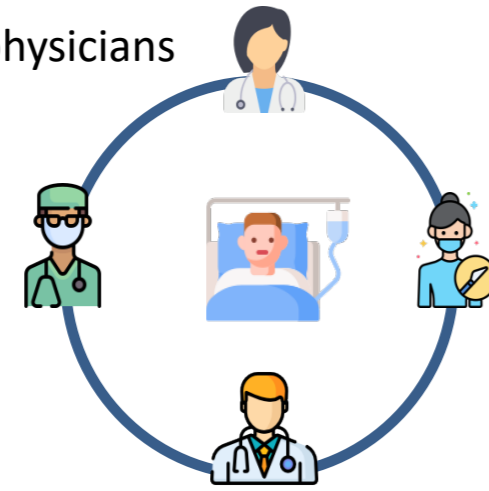


Introduction

- The complexity of cancer care necessitates collaboration among physicians
- Knowledge of each specialty's roles and management options is necessary for optimal patient care
- Currently no standard curriculum exists for delivering interdisciplinary oncology education among medical trainees
- Such educational gaps need to be addressed in order to provide patients with timely, evidence-based multimodal cancer treatment



Objectives

1. Conduct a systematic literature review of interdisciplinary oncology education of post-graduate medical trainees
2. Identify gaps in the literature with regards to interdisciplinary oncology education
3. Provide recommendations about post-graduate oncology training and future research

Methods and Materials

Databases : Medline, Medline In-Process, Embase, Cochrane Central Register of Controlled Trials (CCTR), Cochrane Database of Systematic Reviews (CDSR), PsychINFO, and Education Resources Information Center (ERIC)

Search Date: February 26, 2023

Limited to: Primary articles, English language, post-graduate medical trainees, interdisciplinary training pertaining to oncology

Risk of Bias Assessment: Mixed Methods Appraisal Tool (MMAT), Version 2018

Results

Table 1. Summary of studies evaluating existing interdisciplinary education across post-graduate medical training programs

Author (Year)	Study Design	Outcome	Main Findings
Akthar (2018)	Survey of 557 trainees and 141 program directors in medical/surgical/radiation oncology and palliative medicine	General interdisciplinary education	<ul style="list-style-type: none"> ➤ <70% received formal interdisciplinary education, especially about geriatric oncology (19%) ➤ Lower rates reported among trainees compared to program directors
Brenner (2020)	Survey of 135 general surgery residents	General interdisciplinary education	<ul style="list-style-type: none"> ➤ Limited interdisciplinary training in radiation oncology (23%), chemotherapy (31%), and palliative medicine (53%) ➤ 82% endorsed further interdisciplinary training
David (2022)	Survey of 29 hematology residents and 3 hematology fellows	Geriatric oncology training	<ul style="list-style-type: none"> ➤ 56.3% did not receive geriatric hematology teaching ➤ 96.9% endorsed the inclusion of geriatric training in hematology residency

Table 1. continued

Eid (2015)	Literature review and interview with 9 current fellows and 2 recent hematology-oncology graduates	Geriatric oncology training	Top 3 identified needs for geriatric oncology programs: <ul style="list-style-type: none"> ➤ Geriatric assessment ➤ Pharmacology knowledge ➤ Psychosocial knowledge
Givi (2022)	Semi-structured interviews with program directors and head and neck surgeons/professors	Head and neck surgery training	<ul style="list-style-type: none"> ➤ 100% endorsed the need for more standardization within head and neck surgery training ➤ 85% view exposure to multidisciplinary teams as essential in training curricula
Maggiore (2018)	Survey of 67 geriatrics program directors	Geriatric oncology fellowship training	<ul style="list-style-type: none"> ➤ 81% received formal oncology lectures/seminars ➤ 39% offered mandatory oncology clinical experience ➤ 77% endorsed oncology training as part of the fellowship
Morris (2017)	Survey of 61 radiation oncology residents	Geriatric oncology training	<ul style="list-style-type: none"> ➤ 91.8% did not receive any geriatric training ➤ 39.3% felt comfortable managing complex geriatric issues ➤ 85.3% endorsed additional geriatric training
Morris (2022)	2-stage Delphi consensus with input from experts in geriatric radiation oncology, patients, and caregivers	Learning outcomes for a geriatric radiation oncology curriculum	<ul style="list-style-type: none"> ➤ 33 learning outcomes identified in the areas of fundamental geriatric medicine concepts, epidemiology, geriatric screening, planning and delivery of radiation therapy, geriatric palliative care, surgery, systematic treatment, research, communication skills, and health advocacy
Park (2020)	Survey of 31 general surgery residents	Multidisciplinary breast cancer self-efficacy	<ul style="list-style-type: none"> ➤ Highest self-efficacy score in surgery (3.56/5) vs. lowest in genetics (2.67/5), radiation oncology (2.67/5), and pathology (2.67/5) ➤ Improvement with increased training, particularly for surgery
Walraven (2022)	Semi-structured interviews with residents and specialists in medical/surgical/radiation oncology, radiology, nuclear radiology, and pathology	Multidisciplinary team meetings (MDTMs)	<ul style="list-style-type: none"> ➤ 100% agreed that MDTMs play an important role in both education and patient care ➤ Barriers: time constraints, busy schedules, meeting atmosphere ➤ Solutions: simulation training for ALL team members, courses on communication and meeting skills
Wilson (2012)	Survey of 29 general surgery residents or recent general surgery graduates applying to surgical oncology fellowship	Medical and surgical breast cancer training	<ul style="list-style-type: none"> ➤ 65% had exposure to interdisciplinary breast cancer care (including medical and surgical) ➤ Lowest comfort (7.07/10) with breast cancer medical management

Table 2. Summary of studies evaluating the impact of interdisciplinary educational interventions

Author (Year)	Study Design	Outcome	Main Findings
Cook (2016)	32 general surgery residents completed multidisciplinary breast rotation (MDB)	Trainee satisfaction and operative volume	<ul style="list-style-type: none"> ➤ MDB had more opportunities to perform breast operations vs surgical oncology and community rotations ➤ MDB rated higher for quality of teaching vs community rotations
Martin (2019)	5 palliative medicine fellows completed a palliative radiotherapy course	Knowledge of palliative radiotherapy	<ul style="list-style-type: none"> ➤ Intervention improved long-term knowledge, confidence, and collaboration with radiation oncologists
Mattes (2022)	121 pulmonology, thoracic surgery, and medical oncology faculty, residents, and fellows attended a didactic lecture on radiation therapy in lung cancer care	Knowledge of radiation therapy in lung cancer treatment	<ul style="list-style-type: none"> ➤ Improvements in mean test scores and knowledge post-intervention for trainees ➤ 96% felt more comfortable making radiation oncology referrals
Meani (2022)	42 specialists (14 residents, fellows, PhD students, and PDFs) in medical oncology, gynecology, radiation oncology, and general surgery completed a multidisciplinary breast cancer course	Opinions on the course	<ul style="list-style-type: none"> ➤ 64% implemented significant change in their clinical management of breast cancer following course completion ➤ 95% reported increased knowledge of multidisciplinary breast cancer care
Sloan (1997)	25 general surgery and radiation oncology residents completed a case-based multi-station breast cancer course	Diagnosis and management of breast cancer	<ul style="list-style-type: none"> ➤ Improvements in all measured skills, particularly fine-needle aspiration, mammography interpretation, and treatment discussion with patients
Sloan (1999)	21 general surgery residents completed a multidisciplinary case-based head and neck oncology workshop	Diagnosis and management of head and neck cancers	<ul style="list-style-type: none"> ➤ Improvements in perceived diagnosis and treatment decision skills ➤ Residents endorsed having intervention at least twice during residency
Sloan (2004)	48 general surgery residents received lectures and OSCE-like assessments on interdisciplinary breast cancer care.	Diagnosis and management of breast cancer	<ul style="list-style-type: none"> ➤ Improvement in interdisciplinary management of breast cancer post-educational intervention ➤ Skills diminished after 8 months

Discussion and Conclusions

Summary:

- Limited interdisciplinary oncology training for post-graduate trainees (esp. geriatric oncology)
- Promising improvements in interdisciplinary knowledge, skills, and confidence of trainees following didactic, clinical, and case-based educational interventions
- Trainees endorsed further interdisciplinary education and rated educational interventions highly

Gaps in the Literature:

- Limited study of existing interdisciplinary education and educational interventions
- Insufficient evaluation of educational needs of medical and radiation oncology trainees

Future Directions:

- Updated studies evaluating interdisciplinary educational needs of trainees (particularly in medical and radiation oncology) and the impact of additional interventions are needed
- Develop interdisciplinary educational curricula based on further studies
- Establish and evaluate methods of incorporating interdisciplinary oncology training in post-graduate medical education across all applicable training programs