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Fostering interdisciplinary cancer research education: collaboration networks, publication outcomes, and participant experiences from an inaugural Research Day

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Background: Interdisciplinary collaboration is increasingly recognized as essential for advancing cancer research, yet institutional mechanisms fostering such networks are rarely systematically evaluated.

Objective: We analyzed the inaugural 2023 Ellis Fischel Cancer Center (EFCC) Research Day to characterize collaboration patterns, research themes, publication outcomes, and participant experiences across four thematic program areas.

Methods: We employed a convergent parallel mixed methods design, integrating quantitative analysis of 78 research abstracts with qualitative semi-structured interviews of seven participants. Abstracts were categorized across Cancer Prevention, Control, Outreach and Engagement Program (CPCOEP), Theranostics and Molecular Imaging Program (TMIP), Immunomodulation and Regenerative Medicine Program (IRMP), and Comparative Oncology and Translational Medicine Program (COTMP). Publication outcomes were tracked through systematic database searches over 22 months. Event attendance (n = 203) was documented through registration records. Interviews conducted September–October 2025 explored collaboration experiences and event value.

Results: Abstract distribution showed CPCOEP (13, 17%), TMIP (26, 33%), IRMP (28, 36%), and COTMP (11, 14%). Teams averaged 5.47 co-authors and 2.54 collaborating institutions. Graduate students comprised 32% of first authors. Within 22 months, 11.5% of abstracts yielded peer-reviewed publications, 10.3% conference abstracts, while 75.6% remained unpublished. Attendance analysis revealed 203 participants: faculty (32.0%), graduate students (18.2%), research staff (13.8%), undergraduates (12.8%), and postdoctoral researchers (11.3%). Qualitative interviews demonstrated that four of seven participants formed new research partnerships, with a collaborative grant submission resulting. Participants valued poster sessions for substantive one-on-one discussions but identified structural barriers including poster placement, limited dedicated networking time, and challenges balancing presentation duties with exploring others' research.

Conclusions: Structured institutional research events successfully engage researchers across career stages and foster measurable interdisciplinary collaborations. However, intentional design elements including thematic networking sessions, dedicated collaboration time, and career development programming could enhance translational impact.

KEYWORDS

cancer research landscape, productivity, collaboration, mentorship, Research Day, cancer research training and education, CRTEC, mixed methods

Introduction

Cancer remains a significant public health challenge in Missouri and nationally. In 2023, approximately 2.0 million new cancer cases and 609,820 cancer deaths occurred in the United States (Siegel et al., 2023). Missouri experiences disproportionate burden, with age-adjusted incidence rates of 452.2 per 100,000 compared to national averages of 444.4 per 100,000 (National Cancer Institute, 2025). Mortality rates similarly exceed national benchmarks at 162.5 per 100,000 vs. 146.0 nationally. Rural Missouri counties experience cancer mortality rates of 175.8 per 100,000 compared to 155.2 per 100,000 in urban counties, representing a 13.3% disparity (Missouri Department of Health & Senior Services, 2023). These disparities reflect complex interactions of healthcare access barriers, late-stage diagnosis, socioeconomic factors, and higher prevalence of risk factors including tobacco use and obesity.

Addressing multifaceted cancer challenges requires collaborative research infrastructure spanning prevention, detection, treatment innovation, and survivorship. The University of Missouri's Ellis Fischel Cancer Center (EFCC) serves as a critical hub for Missouri's cancer research, conducting investigations aimed at reducing burden through interdisciplinary collaboration and translational science (MU Health Care, 2025). Historically, cancer research at the institution operated primarily within departmental boundaries, with investigators working in relatively isolated disciplinary silos. This traditional approach, while producing valuable domain-specific contributions, limited the exchange of ideas and methodologies necessary for comprehensive cancer investigations. Departmental structures, while administratively efficient, frequently created barriers to collaboration across basic scientists, clinicians, population health researchers, and community stakeholders essential to holistic cancer research. Such silos hamper communication, limit knowledge sharing, and ultimately impede discovery pace in complex fields like oncology where multidisciplinary approaches prove increasingly vital (Rodriguez-Esteban, 2021).

Recognizing that no single researcher, institution, or discipline can tackle cancer complexities alone, EFCC launched its inaugural Research Day in 2023 to foster collaborative culture and continuous learning (Ellis Fischel Cancer Center, 2025). Prior to this event, institutional focus centered on department-level rather than cross-disciplinary or disease-themed research. This initiative provided structured environment for training, mentorship, and knowledge exchange, bringing together faculty, students, postdoctoral researchers, and healthcare professionals to share findings, explore interdisciplinary partnerships, and engage in meaningful discussions about cancer research futures.

Collaborative research brings together expertise, resources, and perspectives from different specialties, driving innovation through interdisciplinary approaches (Stokols et al., 2008). By integrating knowledge from molecular biology, genetics, epidemiology, and clinical sciences, research teams generate novel solutions to complex problems unsolvable within single disciplines (Fiore, 2008). Additionally, collaboration expands access to vital resources including shared technologies, data repositories, and patient cohorts, thereby strengthening research capabilities across institutions (Börner et al., 2010). Beyond generating knowledge, collaboration accelerates discovery translation into clinical applications, shortening bench-to-bedside timelines and ensuring breakthroughs reach patients more rapidly (Woolf, 2008). Growing focus on big data and precision medicine further emphasizes the need for research partnerships supporting large-scale data analysis, biomarker discovery, and personalized treatment development (Collins and Varmus, 2015).

The 2023 EFCC Research Day featured 78 abstracts across four thematic areas: Cancer Prevention, Control, Outreach and Engagement Program (CPCOEP), Theranostics and Molecular Imaging Program (TMIP), Immunomodulation and Regenerative Medicine Program (IRMP), and Comparative Oncology and Translational Medicine Program (COTMP). These categories reflect EFCC's strategic focus on advancing cancer science through multidisciplinary approaches bridging foundational science with clinical application (Arteaga et al., 2023). This evaluation of EFCC Research Day holds significance for Missouri and the national cancer research landscape. By strengthening collaborative networks within EFCC and beyond, it offers a model for how regional cancer centers can amplify impact through strategic partnerships with universities, healthcare systems, and stakeholders (Zerhouni, 2005). Furthermore, emphasis on research dissemination and team science aligns with National Cancer Institute and National Institutes of Health priorities advocating data-sharing, multi-institutional collaboration, and innovation in cancer research training (National Cancer Institute, 2023).

This study aims to identify the landscape, collaborative institutional networks, publication outcomes, and participant experiences from the 2023 EFCC Research Day. By evaluating abstract submissions within each thematic area alongside event attendance and participant interviews, we sought to understand how research efforts uncover collaboration patterns within and across departments and institutions,

publication outcomes, and participant experiences navigating interdisciplinary spaces (Bozeman and Boardman, 2014). These insights inform strategic planning, enhance Missouri's cancer research infrastructure, and support long-term development of collaborative research initiatives.

Methods

Study design

This study employed a convergent parallel mixed methods design (Creswell and Clark, 2017), integrating quantitative analysis of research abstracts and event attendance with qualitative exploration of participant experiences. Quantitative and qualitative data were collected independently then merged during interpretation through triangulation.

Event description and context

The inaugural EFCC Research Day occurred on May 5, 2023, as a 1-day symposium designed to showcase cancer research across the University of Missouri and foster interdisciplinary collaboration. Event structure included keynote presentations, oral abstract presentations, and poster sessions (detailed event agenda available as Supplementary file S1). Researchers from all career stages including faculty, postdoctoral fellows, graduate students, medical students, undergraduate students, and research staff were invited to submit abstracts describing ongoing or recently completed cancer research. Abstracts underwent administrative review for completeness and were categorized into four thematic program areas representing EFCC's strategic research priorities: CPCOEP focused on prevention, epidemiology, and community engagement; TMIP focused on molecular imaging and radiopharmaceutical development; IRMP focused on immunotherapy and regenerative approaches; COTMP focused on translational research using animal models.

Quantitative data collection

Abstract analysis

All 78 abstracts were obtained from official EFCC Research Day program materials and electronic repositories. For each abstract, we extracted title, all author names and order, institutional affiliations for each author, research methodology, and program area designation. First author professional roles were standardized into eight categories: graduate students, undergraduate students, medical students, postdoctoral researchers, faculty (all ranks), physician scientists, imaging specialists, and research staff. Four research team members independently reviewed each abstract to verify program area classification and identify research themes. Initial independent coding revealed 87% agreement across reviewers for program area assignments. For the 10 abstracts with initial disagreement, discrepancies were discussed in team meetings until 100% consensus was achieved. Common disagreement sources included abstracts with clear overlap between multiple program areas, such as immunotherapy studies using imaging endpoints.

Event attendance

Attendance was documented through the event registration database maintained in a shared electronic repository. Registration data captured participant name, institutional affiliation, role, and abstract submission status. We categorized attendee roles into standardized groups: faculty, graduate students, postdoctoral researchers, medical students, undergraduate students, research staff, industry vendors, and medical science liaisons.

Publication outcome tracking

To evaluate publication outcome, we conducted systematic literature searches for each abstract between May 2023 and February 2025, providing approximately 22-month follow-up from the May 2023 event. For each abstract, we identified first and last authors and searched PubMed, Scopus, and Google Scholar using author names combined with distinctive keywords from abstract titles. We classified dissemination into five mutually exclusive categories: peer-reviewed publications (full-length articles in peer-reviewed journals), case reports (clinical cases in peer-reviewed medical journals), abstract publications (conference abstracts or proceedings without full manuscripts), news or media coverage (institutional newsletters, press releases, media outlets), and unpublished (no identifiable publication as of February 2025, including work in progress, under review, not yet submitted, or not pursued). Publications were matched to abstracts based on correspondence in authorship (particularly first and last author), research questions, methodology, and key findings. Abstract publications were identified through the same search strategy, distinguished by format (typically 250–500 words without full methods sections) and venue (conference proceedings). We applied stringent matching criteria requiring alignment across multiple elements before confirming matches.

Collaboration network analysis

For each abstract, we quantified total authors, number of distinct institutions represented, institutional affiliations categorized as University of Missouri-Columbia, other Missouri institutions, other United States institutions, or international institutions, and departmental diversity among University of Missouri authors when discernible. We operationalized interdisciplinarity through institutional diversity (number of collaborating institutions) and departmental diversity (when discernible from author affiliations), recognizing these as proxy measures of cross-boundary collaboration that capture collaborative breadth rather than depth of intellectual integration. First author roles were standardized into eight categories: graduate students (including master's and doctoral students), undergraduate students, medical students, postdoctoral researchers and fellows, faculty (all ranks), physician scientists (clinicians with active research), imaging specialists (radiologists, pathologists), and research staff (data analysts, technicians, administrative personnel).

Qualitative data collection

We conducted semi-structured interviews with seven Research Day participants between September 5 and October 6, 2025, providing 29–30-month post-event reflection period from the 2023 inaugural event. We identified 14 individuals who had presented at multiple EFCC Research Days across the 3-year period (2023, 2024, and 2025) and invited them to participate in interviews to capture their longitudinal perspectives on Research Day's evolution and sustained engagement. Seven of the 14 invited participants (50% response rate) volunteered and completed interviews. This sample included three postdoctoral researchers, two faculty members, one graduate student, and one medical student, representing diverse career stages and program areas including IRMP, CPCOEP, and TMIP. The interview guide covered research presentations across multiple years, collaboration experiences with researchers from different areas, new connections or partnerships formed, perceived value of different Research Day components, barriers to interdisciplinary engagement, observations of Research Day evolution across years, and suggestions for improvement. Interviews lasted 15–30 min, were audio-recorded with participant consent, transcribed verbatim, and analyzed thematically. Two researchers independently conducted initial coding to identify recurring patterns in collaboration outcomes, engagement experiences, structural barriers, and improvement suggestions. Discrepancies were resolved through discussion. Key themes were identified through iterative analysis, and representative quotes were selected to illustrate major findings. The interview guide and thematic coding framework are provided as Supplementary file S2. To protect participant confidentiality, full interview transcripts are not publicly available, but de-identified excerpts and thematic summaries are presented in results.

Statistical analysis

Descriptive statistics including means, standard deviations, medians, interquartile ranges, and frequencies were calculated using Microsoft Excel and R Studio version 4.4.3. Collaboration metrics and publication outcomes were compared across four program areas and first-author roles using frequency distributions. Qualitative and quantitative findings were integrated during the interpretation phase to provide comprehensive understanding of Research Day impact through methodological triangulation.

Results

Event attendance and participant composition

Registration analysis revealed 203 attendees at the inaugural EFCC Research Day. Participant composition demonstrated strong representation across career stages. Faculty comprised the largest group with 65 attendees (32.0%), followed by graduate students with 37 (18.2%), research staff and technical personnel with 28 (13.8%), undergraduate students with 26 (12.8%), and postdoctoral researchers and fellows with 23 (11.3%). Additionally, nine industry vendors (4.4%) and seven medical science liaisons (3.4%) participated, indicating external stakeholder engagement. Eight attendees (3.9%) did not specify their role. Comparing abstract presenters to overall attendance, 76 unique first authors presented research representing 37.4% of total attendees, while remaining 127 attendees (62.6%) participated as co-authors, audience members, or learners. This distribution indicates the event successfully attracted broader audiences beyond direct presenters, fulfilling dual purposes of showcasing institutional research and providing educational opportunities for the cancer research community.

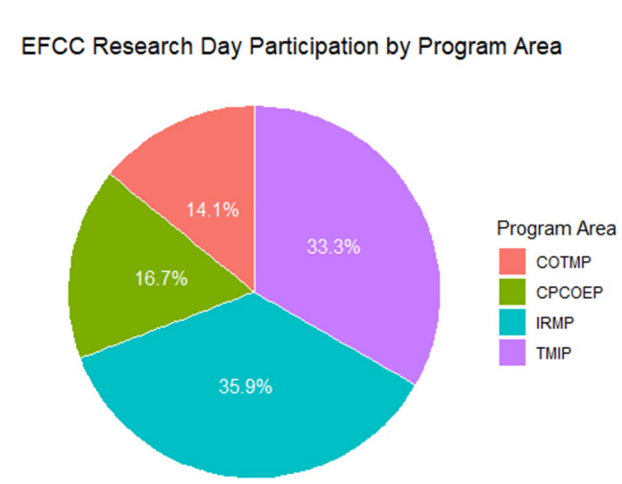

FIGURE 1
EFCC program areas by percentages of abstracts presented.

Thematic distribution across program areas

The 78 abstracts distributed across four program areas as follows: COTMP contributed 11 (14.1%), CPCOEP contributed 13 (16.7%), IRMP contributed 28 (35.9%), and TMIP contributed 26 (33.3%) (Figure 1). IRMP's highest representation reflected strong institutional emphasis on immunotherapy consistent with national priorities, while TMIP highlighted EFCC's distinctive strengths in molecular imaging and theranostics. COTMP research employed multi-species translational models including rodent, canine, and feline models alongside human clinical studies, addressing rare tumor types and bridging basic mechanisms with clinical applications. CPCOEP focused on prevention, data accessibility, and community engagement through projects including subcounty cancer mapping, rural treatment access studies, digital health innovations, and patient experience research. IRMP investigations spanned immune checkpoint stimulation, novel peptide therapeutics, nanoparticle applications, and advanced multi-omics approaches. TMIP studies addressed innovative radiopharmaceutical development, theranostic agents for multiple cancer types, advanced imaging techniques, and clinical applications.

TABLE 1 Research productivity by thematic area.

Study area	Total abstracts	Peer review publications	Case report	Abstract publications	News/Media publications	Unpublished
COTMP	11	1 (9.1%)	1(9.1%)	2 (18.2%)	0	7 (63.6%)
CPCOEP	13	1 (7.7%)	0	1 (7.7%)	1 (7.7%)	10(76.9%)
IRMP	28	3 (10.7%)	0	2 (7.1%)	0	23 (82.1%)
TMIP	26	4 (15.4%)	0	3 (11.5%)	0	19 (73.1%)
Total	78	9 (11.5%)	1(1.3%)	8 (10.3%)	1 (1.3%)	59 (75.6%)

Percentages indicate the proportion of abstracts within each thematic area that achieved the specified publication outcome within 22 months of the May 2023 Research Day.
COTMP, Comparative Oncology and Translational Medicine Program; CPCOEP, Cancer Prevention, Control, Outreach and Engagement Program; IRMP, Immunomodulation and Regenerative Medicine Program; TMIP, Theranostics and Molecular Imaging Program.

TABLE 2 Collaboration across thematic research areas.

Study area	Total abstracts	Average number of authors	Average number of institutions
COTMP	11	6.36	2.18
CPCOE	13	4.15	1.46
IRMP	28	4.96	2.96
TMIP	26	6.31	2.77
Total	78	5.47	2.54

Values represent means across all abstracts within each program area.
COTMP, Comparative Oncology and Translational Medicine Program; CPCOEP, Cancer Prevention, Control, Outreach and Engagement Program; IRMP, Immunomodulation and Regenerative Medicine Program; TMIP, Theranostics and Molecular Imaging Program.

First author roles and publication outcomes

Graduate students represented 32% of first authors with 25 submissions, of which 80% stayed unpublished, 12% resulted in peer-reviewed publications, and 8% yielded abstract publications. Postdoctoral researchers achieved a peer-reviewed publication rate of 29% with two publications from seven submissions. Faculty collectively contributed 12 submissions yielding one peer-reviewed publication (10% rate) and two abstract publications. Medical students (eight submissions) and undergraduate students (five submissions) with no publication outcomes. Administrative and technical staff contributed 12 submissions with one peer-reviewed publication.

Research productivity by program area

Overall, 11.5% of abstracts (9) achieved peer-reviewed publication, 10.3% (8) abstract-only publication, 1.3% (1) case report publication, and 1.3% (1) media coverage, while 75.6% (59) remained unpublished (Table 1). TMIP demonstrated highest peer-reviewed publication rate at 15.4%, followed by IRMP at 10.7%. COTMP showed highest abstract publication rate at 18.2%. CPCOEP had highest unpublished proportion at 76.9%.

Collaboration patterns

Abstracts featured 76 unique first authors, 273 co-authors, and 47 unique last authors, with only one single-authored abstract. Teams averaged 5.47 ± 3.43 authors (median 5, IQR 3–7) ranging from 1 to 20 authors. Collaboration intensity varied by program (Table 2): TMIP and COTMP averaged 6.31 and 6.36 authors, respectively, while CPCOEP averaged 4.15 authors. IRMP showed highest institutional diversity at 2.96 institutions per abstract despite moderate team size (4.96 authors), while CPCOEP averaged only 1.46 institutions. Collaborators represented over 80 organizations including extensive Missouri partnerships (University of Missouri, Washington University, Cox Health) and national institutions (Mayo Clinic, UCLA, Northwestern) alongside international collaborations in Germany (University of Hamburg), Mexico (Autonomous University of Nuevo León), and Spain (Institut de Biologia Molecular de Barcelona).

Qualitative findings: collaboration experiences and event value

Semi-structured interviews with seven participants who had presented at multiple EFCC Research Days (2023–2025) provided insights into collaborative outcomes and experiential dimensions beyond quantitative metrics. Four of seven participants (57%) reported forming new research partnerships they attributed to Research Day interactions. Collaborative outcomes varied in maturity: one participant reported submitting a foundation grant with additional grant applications in preparation, while others described partnerships in early stages with sample collection underway but not yet ready for presentation. Participants emphasized the bidirectional nature of collaboration formation, with some being recruited for specific expertise in areas such as mouse models and transplantation techniques while simultaneously identifying collaborators with complementary skills. One postdoctoral researcher described initiating collaboration with radiology faculty on brain imaging applications following Research Day discussions, noting that presentations facilitated identification of potential partners across different research areas.

Participants consistently emphasized poster sessions as the most valuable Research Day component for enabling substantive one-on-one conversations. One postdoctoral researcher explained, "I get one-to-one talk with the actual person who did the work. They give me more insights and clear my questions on the spot." Multiple participants contrasted this depth of interaction with oral presentations' limited time for questions and discussion. However, several structural barriers emerged that constrained engagement. Participants described difficulty leaving their own posters to explore others' work, particularly during periods when multiple visitors arrived simultaneously. One participant noted being positioned at the back of the presentation space near a building entrance, resulting in reduced foot traffic and fewer interactions. Another described challenges when "four people come at the same time" to their poster, preventing sustained conversations with any individual visitor.

Regarding Research Day's distinctive value compared to external conferences, one faculty participant emphasized that in-house investigators "are very happy to collaborate" compared to external conference attendees who "might not be willing to help." This accessibility for follow-up conversations and sustained partnerships distinguished institutional research showcases from larger national meetings. A postdoctoral researcher noted that Research Day provided rare opportunity to "see what others are doing" given limited time for such interactions during regular work schedules. Multiple participants described receiving feedback that refined their research approaches, with audience questions prompting consideration of aspects they had not previously examined. One participant noted that while new ideas did not emerge, feedback helped refine existing work by addressing questions they could not answer independently.

Participants who attended multiple Research Days noted improvements over time. One observed that the 2024 event felt "more organized" with participants having clearer understanding of expectations compared to the inaugural 2023 event, though this impression might reflect personal familiarity rather than structural changes. Practical concerns also surfaced, including requests for improved vegetarian food options.

Participants offered concrete suggestions for enhancement. Most frequently mentioned was dedicated networking time separate from poster presentation duties, enabling deeper conversations without time pressure or competing demands. One researcher suggested "a specific time slot during the research day for just making connections" rather than limiting interaction to poster viewing periods. Another proposed organizing thematic small-group meetings by research interest rather than program affiliation, allowing more focused discussions among investigators with complementary expertise. One postdoctoral researcher suggested establishing a "collaboration pitch board" where researchers could post techniques or expertise they needed or could offer, modeled after job posting boards at national conferences like AACR. This visible marketplace for skills and resources could facilitate connections between researchers who might not otherwise interact. Career development programming specifically for postdoctoral researchers was mentioned, including workshops on fellowship opportunities, grant funding mechanisms, and career transitions. One participant emphasized importance of transparency in award selection processes and advance notification of award categories to encourage competitive preparation and higher-quality submissions.

Discussion

The inaugural EFCC Research Day demonstrated considerable success in catalyzing collaborative cancer research ecosystem while revealing opportunities for strategic enhancement. Our convergent mixed methods analysis provides an understanding of current cancer research state at EFCC, highlighting both quantitative collaboration metrics and qualitative experiential dimensions of interdisciplinary engagement.

Attendance composition and engagement patterns

The attendance composition of 203 participants with strong representation across career stages demonstrates Research Day's success in broad institutional engagement. Faculty attendance at 32.0% exceeded their first-author representation of approximately 15%, suggesting faculty attended primarily as mentors, collaborators, and learners rather than exclusively as presenters. This pattern aligns with Research Day's mentorship objectives and demonstrates senior researcher investment in supporting early-career investigators. Conversely, graduate students representing 18.2% of attendees but 32.1% of first authors demonstrated high engagement as active presenters relative to attendance numbers. The substantial presence of undergraduate students (12.8% of attendees) and postdoctoral researchers (11.3%) further reflects event success in engaging early-career investigators across training stages. The participation of industry vendors and medical science liaisons, while representing small proportion (7.8% combined), indicates initial steps toward broader stakeholder engagement that could be expanded in future iterations to strengthen translational pathways and industry partnerships.

Author roles and publication outcomes

Analysis of author roles and publication outcomes offers valuable insights into research engagement stages through maturation. Graduate students represented largest share of first authors, reflecting strong trainee-level engagement; however, their publication rates were at 12%. This likely reflects early-stage nature of many graduate-led projects, which often require additional time and guidance to reach publication readiness. Postdoctoral researchers, while submitting fewer abstracts overall, achieved highest proportion of peer-reviewed publications at 29%, suggesting their projects may be more mature and positioned at career stage where both productivity and mentorship are optimized. The outcomes among medical and undergraduate students may point to shorter research tenures or transitions into other training phases before manuscript completion, highlighting potential opportunity for targeted publication support. While this analysis focused on first authorship, most submissions were collaborative efforts involving both senior and junior contributors,

demonstrating layered nature of academic mentorship and shared scientific development.

Program area productivity and dissemination timelines

Thematic analysis revealed distinct publication patterns tied to nature and scope of each research focus. TMIP and IRMP had highest peer-reviewed publication rates (15.4 and 10.7%), while COTMP led in abstract-only publications (18.2%), suggesting strong conference engagement. CPCOEP had an unpublished proportion (76.9%), which may reflect longer dissemination timelines associated with community-engaged and public health research. These differences illustrate varying trajectories from abstract presentation to publication, shaped by methodological demands and field-specific norms. Understanding these timelines is essential for designing support systems ensuring all researchers, especially early-career scholars, have opportunity to advance work beyond abstract stage.

Benchmarking publication outcomes

The observed peer-reviewed publication rate of 11.5% within approximately 22 months requires appropriate contextualization. Direct comparisons are challenging due to variability in follow-up periods, event formats, and publication tracking methodologies across studies. Conference abstract-to-publication conversion rates vary widely, with national specialty society meetings reporting 27%—66% publication within 2–5 years depending on presentation format, career stage, and study maturity (Grover and Dalton, 2020; Issa et al., 2023; Peake et al., 2021). Institutional research days serve distinct purposes from national conferences, prioritizing educational opportunities, mentorship, and showcasing early-stage investigations rather than exclusively featuring publication-ready completed studies, and consequently demonstrate different publication trajectories. Several factors explain our observed rate. First, our 22-month follow-up may be insufficient given typical publication timelines. Studies examining time from conference presentation to publication report median times of 2–5 years. Second, 32% of presenting first authors were graduate students whose projects may require additional time for completion, revision, and mentor review. Third, some abstracts likely represented pilot data, negative findings, or exploratory work less likely to result in traditional publications but nonetheless valuable for stimulating institutional research directions. Extended follow-up at 3–5 years post-event would likely reveal higher publication rates as ongoing projects mature and graduate students' complete degree requirements.

Collaboration as foundation for research excellence

The collaborative patterns observed, with average of 5.47 authors and 2.54 institutions per abstract, demonstrate that EFCC Research Day successfully fostered team science approaches to cancer research. Variation in collaboration intensity across thematic areas provides important strategic planning insights. High institutional involvement in IRMP abstracts (2.96 institutions) coupled with moderate team sizes suggests efficient collaboration models that could be further studied and promoted. Conversely, limited institutional involvement in CPCOEP research (1.46 institutions) may indicate barriers to forming partnerships in community-engaged research that could be addressed through targeted networking initiatives. The geographic reach of collaborations, spanning national and international boundaries, positions EFCC as potential hub for broader research networks beyond Missouri.

Experiential dimensions of interdisciplinary engagement

Qualitative interviews showed patterns in how researchers experience and navigate interdisciplinary spaces at Research Day. Participants consistently valued poster sessions for enabling substantive one-on-one conversations that presentations could not accommodate, echoing the importance of informal interaction spaces for knowledge exchange. However, several structural barriers emerged. Participants noted difficulty leaving their own posters to explore others' work, particularly during high-traffic periods. Some suggested dedicated networking sessions separate from poster viewing to facilitate deeper conversations without time pressure. Interviews also revealed that perceived value varied by career stage and research focus. Postdoctoral researchers emphasized career development opportunities and learning new techniques, while faculty highlighted mentorship roles and identifying potential collaborators. One informatics researcher noted limited connections with basic science colleagues, illustrating how disciplinary boundaries persist even in nominally interdisciplinary settings.

The qualitative evidence of collaboration formation bridges quantitative interdisciplinarity metrics with lived experiences of boundary-crossing. Four of seven interviewed participants reported forming new partnerships spanning departments or institutions, with tangible outcomes including grant submissions and ongoing collaborative projects. This 57% collaboration rate complements quantitative findings of 2.54 institutions per abstract and high cross-program representation, demonstrating that structural interdisciplinarity (measured through co-authorship) translates into functional interdisciplinarity (experienced through sustained partnerships). One faculty participant's observation that in-house investigators "are very happy to collaborate" compared to external conference attendees highlights how institutional research showcases leverage proximity to transform disciplinary diversity into active cross-boundary collaboration. Research Day's thematic organization around cancer challenges rather than departmental structures appears to facilitate these interdisciplinary connections by emphasizing shared problems over disciplinary identities.

Strategic recommendations for enhancement

Based on integrated quantitative and qualitative findings, we propose targeted strategies to enhance future EFCC Research Days. First, establish structured publication support for early-career researchers through Research Day to Publication series offered 2–4 months post-event, faculty writing mentorships pairing trainees with experienced investigators, and small grants for open-access publication fees. Second, strengthen community-engaged research infrastructure through dedicated pilot funding for CPCOEP projects with community partnerships, community advisory boards guiding priorities, and support for diverse publication venues including community health journals and policy briefs. Third, institutionalize cross-program collaboration through thematic small-group networking sessions organized by research interest rather than program affiliation, seed funding specifically for multi-program projects, and dedicated networking time separate from poster sessions to enable deeper conversations. Fourth, implement longitudinal tracking through Research Day registry with 12-, 24-, and 36-month follow-up, post-event surveys, and annual impact surveys documenting publications, grants, and collaborations. Fifth, expand career development programming for postdoctoral researchers including workshops on fellowship opportunities, funding mechanisms, and career transitions.

Comparison to national research trends

The research landscape at EFCC Research Day broadly reflects National Cancer Institute priorities emphasizing precision medicine, immunotherapy, and translational research (National Cancer Institute, 2023). However, several distinctive strengths emerged positioning EFCC uniquely within national research ecosystem. The representation of comparative oncology approaches leveraging naturally occurring cancers in companion animals represents distinctive advantage aligning with growing recognition of multi-species approaches' value to accelerate translational research. Strong focus on theranostics, particularly radiopharmaceutical development, capitalizes on unique institutional resources including University of Missouri Research Reactor. Integration of creative arts within cancer survivorship research and emphasis on rural health access demonstrate responsiveness to local needs and priorities. These approaches exemplify how regional cancer centers can complement larger NCI-designated centers' work by addressing contextual factors specific to service populations.

Study limitations

This study has several limitations requiring consideration. First, we documented overall attendance ($n = 203$) and conducted qualitative interviews with seven from among 14 researchers who had presented at multiple Research Days (2023–2025), resulting in 50% response rate. This selection criterion intentionally captured perspectives of sustained Research Day participants, which may overrepresent views of those finding value in the event while underrepresenting experiences of one-time presenters or those who chose not to return due to transition (graduation) or dissatisfaction. The longitudinal perspective of repeat presenters, provided valuable insights into Research Day evolution and sustained engagement patterns that single-event participants could not offer. We did not systematically survey all attendees regarding satisfaction, networking outcomes, or perceived value. Interview participants represented only 3.4% of total attendees and may not fully capture diverse perspectives across all career stages and program areas. Future evaluations should include post-event surveys distributed within 2 weeks, tracking of new partnerships initiated, and longitudinal follow-up on collaborative projects emerging from Research Day interactions. Second, publication tracking covering approximately 22 months may be insufficient given typical 24–60-month timelines, likely underestimating ultimate dissemination impact. Extended follow-up at 3–5 years would provide more comprehensive productivity assessment. Third, we identified interdisciplinarity primarily through authorship patterns and institutional affiliations, proxy measures capturing collaboration breadth rather than depth of intellectual integration across disciplines. More nuanced assessment would require qualitative analysis of how different disciplinary perspectives were integrated within projects. Fourth, conservative publication matching criteria may have resulted in false negatives if research evolved substantially or affiliations changed. Finally, we did not assess other important outcomes such as grant funding success, formation of new collaborative teams, or career advancement of investigators, all representing significant research symposia impacts.

Future research directions

This evaluation focused on structural and productivity outcomes, but important dimensions remain unexplored. Future research should examine subjective experiences of early-career researchers navigating interdisciplinary collaboration, particularly emotional and psychosocial dimensions of crossing disciplinary boundaries. Recent work demonstrates importance of positive and negative emotional experiences in shaping development across diverse contexts (Jovanović et al., 2025). Extending this framework to early-career researchers in academic settings could illuminate how mentorship structures, institutional support systems, and collaborative experiences shape researchers' sense of belonging, self-efficacy, and persistence in cancer research careers. Qualitative studies examining how graduate students and postdoctoral fellows experience interdisciplinary research environments, including challenges navigating different disciplinary languages, managing multiple mentor expectations, or experiencing imposter syndrome in unfamiliar domains, would complement quantitative publication outcome metrics and inform more supportive institutional practices. Additionally, investigating whether positive collaborative experiences at events like Research Day predict long-term career satisfaction, retention in cancer research, and sustained interdisciplinary engagement would provide valuable research training program insights.

Conclusion

The inaugural EFCC Research Day successfully engaged 203 participants across career stages and program areas, with 78 abstracts demonstrating interdisciplinary collaboration averaging 5.47 authors and 2.54 institutions per project. Within 22 months, 11.5% of abstracts resulted in peer-reviewed publications. Qualitative interviews with repeat participants showed that four of seven formed new research partnerships attributable to Research Day interactions, including grant submissions and ongoing collaborative projects.

Analysis of both quantitative metrics and participant experiences identified successful factors and improvement opportunities. Organizing presentations around thematic research programs rather than departmental structures facilitated cross-disciplinary connections. Strong trainee participation, with graduate students comprising 32% of first authors, provided valuable professional development opportunities. However, participants identified structural barriers including limited dedicated networking time, poster placement challenges, and difficulty balancing presentation responsibilities with exploring others' research.

This evaluation demonstrates that systematic assessment of institutional research events can identify both strengths to leverage and concrete modifications to enhance impact. The mixed methods approach, combining abstract analysis, attendance tracking, and participant interviews, provides replicable framework for other institutions seeking to evaluate and improve their research showcase events. For regional cancer centers balancing diverse research portfolios from basic science to community engagement, Research Day offers viable model for fostering collaboration while maintaining focus on local cancer burden and population needs.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

OO: Software, Methodology, Writing – review & editing, Supervision, Conceptualization, Investigation, Writing – original draft, Formal analysis, Project administration, Data curation. RD: Writing – review & editing, Conceptualization, Investigation, Writing – original draft, Data curation, Validation, Resources. ZA: Investigation, Resources, Data curation, Writing – review & editing. JRK: Writing – review & editing, Investigation, Data curation, Resources. DA: Resources, Validation, Writing – review & editing, Investigation. SP: Resources, Writing – review & editing, Investigation, Validation. GH: Supervision, Writing – review & editing, Conceptualization, Resources.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that Gen AI was used in the creation of this manuscript. The author(s) verify and take full responsibility for the use of generative AI in the preparation of this manuscript. Generative AI tools (specifically ChatGPT by OpenAI) were used to assist with language refinement, formatting, and clarity of expression. All substantive content, analysis, interpretations, and conclusions were conceived, executed, and reviewed by the author(s). The use of AI did not replace any critical thinking, data interpretation, or decision-making processes, and the author(s) affirm the accuracy and integrity of the final manuscript.

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