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From Beam to Bedside A Physicist-Led Radiation Therapy Educational Seminar Series for Nurses

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Purpose:

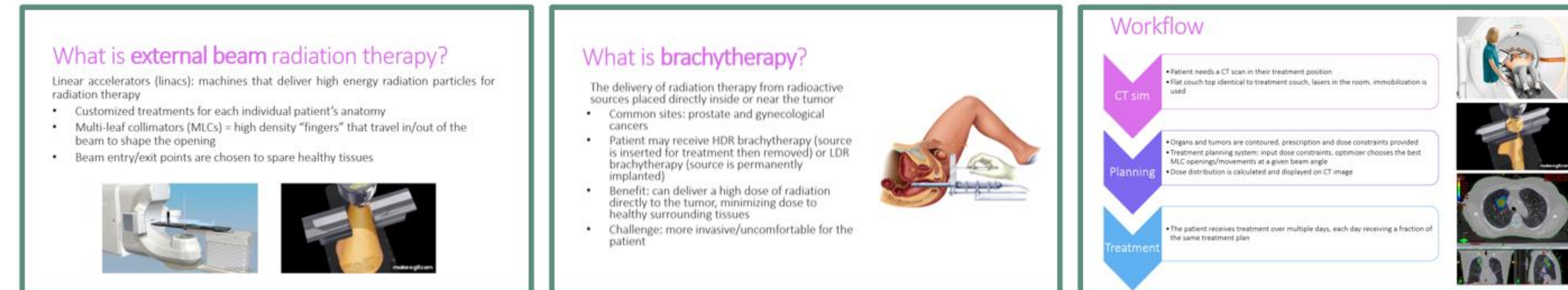
- Uncertainty about radiotherapy treatments can cause patients distress, which has been linked to poorer outcomes [1, 2].
- During interactions with their nursing team, patients often seek information about the safety of their treatments to reduce anxiety [3].
- The underlying physics concepts required to address these concerns are not routinely disseminated to non-physics specialists, and educational materials often lag behind rapidly advancing radiotherapy technologies.
- Providing nurses with relevant, up-to-date information is essential to better support patients navigating their radiation journeys.
- To facilitate this interdisciplinary knowledge sharing, a physicist-led educational seminar series was developed for nurses to enhance their understanding of modern radiotherapy techniques and fundamental concepts.

Methods:

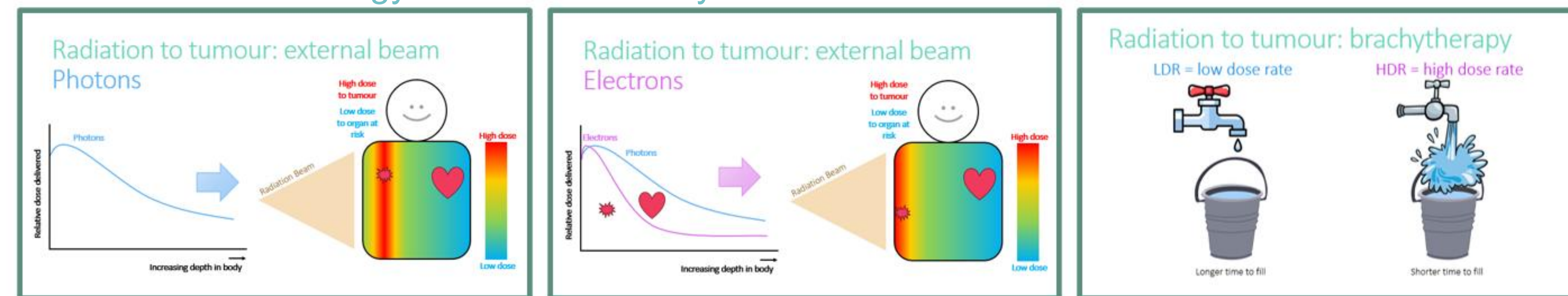
- A three-part seminar series was designed and implemented by medical physicists for radiation and systemic nurses at their institution.
- The curriculum emphasized conceptual understanding for a patient-facing team using analogies, clinical examples, and open discussion.
- Topics of the seminar series:
 - Foundational radiotherapy techniques
 - Radiobiology and dose delivery
 - Emerging technologies.
- Example slides from each topic are shown in Figure 1.
- Educational effectiveness was assessed using anonymized quantitative and qualitative surveys (n=29).

Impact: This work introduces a novel, physicist-led education series designed to disseminate up-to-date technical information about radiotherapy treatments to the nursing team. This low-resource, easy to implement initiative strengthens interdisciplinary relationships and supports nurses helping patients navigate their radiation journey. After the conclusion of this seminar series, the presentation material was requested by clinical educators to update training documents for onboarding nurses. Equipped with improved understanding of this ever-evolving field, nurses can better support patients and alleviate treatment-related anxiety.

Session 1: Foundations of Radiation Therapy



Session 2: Radiobiology and Dose Delivery



Session 3: Novel Technology in Radiation Therapy



Figure 1: Examples of slides from each presentation in the series.

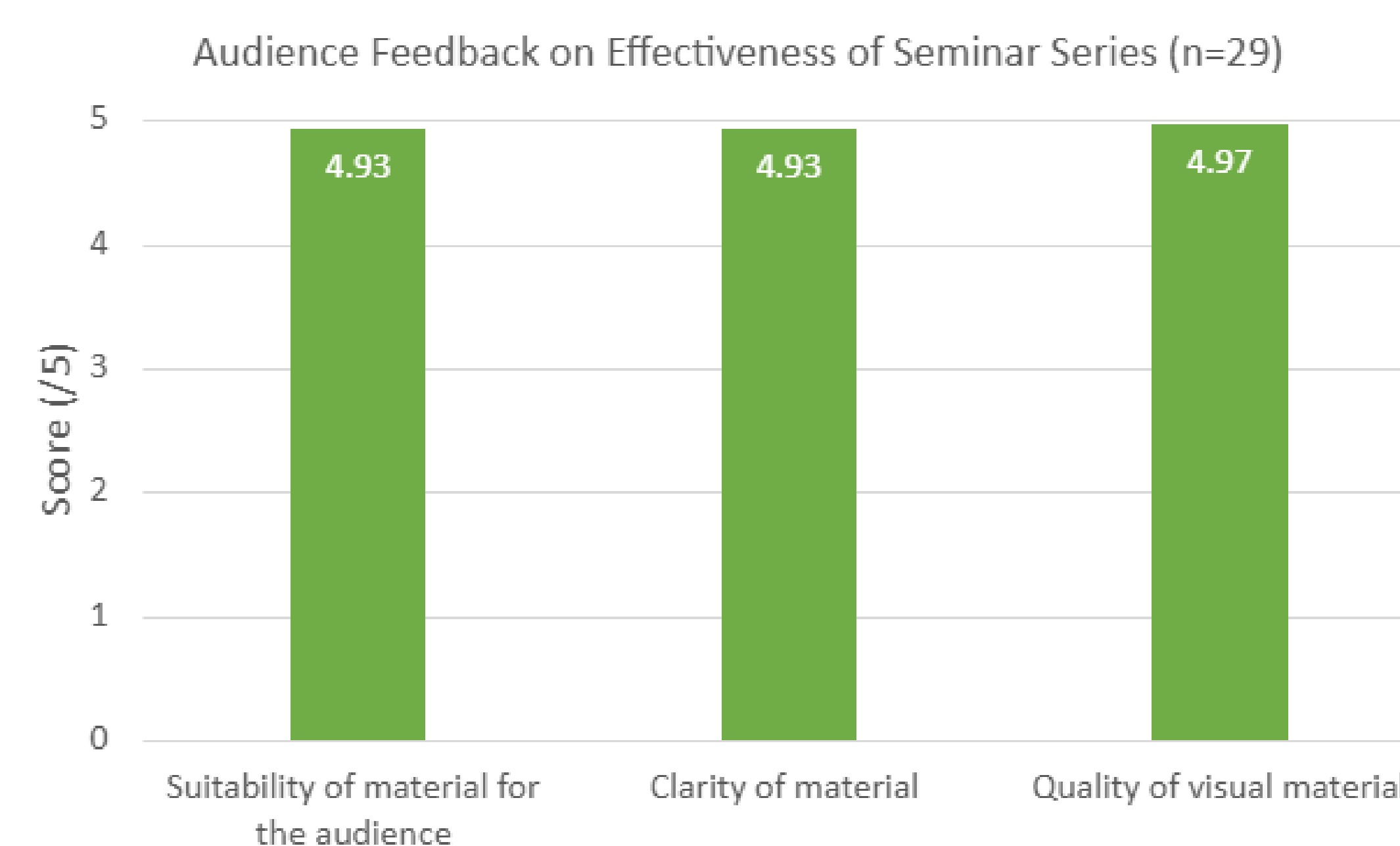


Figure 2: Average audience scoring (n=29) for different metrics assessing the effectiveness of the seminar series.



Figure 3: Qualitative survey feedback from the nursing team.

Results:

- The seminar series achieved high attendance and engagement.
- Survey responses, summarized in Figure 2, indicated that the presentations were appropriate for a non-physicist audience, with average scores of >4.9/5 for suitability, clarity, and quality of material.
- Participants expressed increased confidence in answering patients' questions about treatment delivery and safety, and expressed interest in continued interdisciplinary educational offerings.
- Qualitative survey highlights are shown in Figure 3.
- Additionally, the content in the seminar series was requested by clinical educators to update the training documents for onboarding nurses at the authors' institution.

Conclusion:

- This work demonstrates that a targeted, physicist-led seminar series can meaningfully improve patient care by translating technical knowledge through a patient-facing team.
- This seminar series is easily adaptable to other institutions, requires minimal resources, and promotes interdisciplinary collaboration.
- Adoption of this model has the potential to alleviate patient anxiety and improve quality of care.

References:

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- Oakley C, et al. (2024) <https://doi.org/10.1016/j.soncn.2023.151556>.