2026 JULY 19–22 VANCOUVER, BC
JOINT AAPM | COMP MEETING

AI Assisted Video Generation for Global Medical Physics Education

AAPM Virtual Training Resource Workgroup Experience

Sandeepan Ganguly, MS[1] · Bilal O' Jalal, MS[2] · Chengyu Shi, PhD[3] · Navneeth Hariharan, MEng[4]· Shada Wadi Ramahi, PhD[5]

1Department of Radiation Oncology, Montefiore Einstein Comprehensive Cancer Center, New York, NY 2Department of Radiation Oncology, Johns Hopkins Aramco Healthcare, Saudi Arabia 3Department of Radiation Oncology, City of Hope Orange County, Irvine, CA 4Department of Radiation Oncology, Beth Israel Deaconess Medical Center, Boston, MA 5Deptartment of Radiation Oncology, UPMC Hillman Cancer Center, Pittsburgh, PA

ABSTRACT

Purpose: The Virtual Training Resource Work Group (VTRWG), operating under the International Council's Global Clinical Education and Training Committee, is charged with developing focused, practical clinical training programs. These programs are delivered virtually through interactive videos or in-person sessions, with the goal of establishing a sustainable platform for clinical education. The work group also partners with other AAPM committees for collaborative training opportunities.
Methods: To rank the need, we surveyed the global medical physics community and identified the most requested and pertinent training topics. Responses were scored and weighted by complexity, and three priority topics were selected. We drafted scripts for each and solicited reviews from the authoritative committees overseeing these topics. We then evaluated commercial services that leverage closed-source large language models to segment scripts into scene-specific text chunks, generate corresponding visual prompts, apply a consistent artistic style, and produce short video clips using text-to-video generative AI models.
Results: Between 2024 and 2025, we developed two training videos: Dosimetric Leaf Gap measurements in a water tank, Chair Test for DLG Verification. Each script and video underwent multiple rounds of review involving the VTRWG, GCETC, International Council, and relevant MPPG groups. The DLG measurement video has been posted to YouTube which garnered 2771 views and the Chair Test video is in final review.
Conclusion: AI-assisted video generation substantially reduces the time and specialized skill required to produce professional-quality training content. We plan to formalize a production pipeline along with policies and procedures that will enable any AAPM work group or task group to request hands-on training videos supporting their recommendations for the medical physics community.

Scan Me

INTRODUCTION

Medical physics education has traditionally relied on didactic in-person training, workshops, and static reference documents to disseminate technical procedures across a globally distributed community.

This model faces **persistent barriers**: production of high-quality instructional video requires specialized equipment, editing expertise, and substantial time investment that many volunteer-driven professional committees **cannot sustain**.

The Virtual Training Resource Work Group (VTRWG), operating under the International Council's Global Clinical Education and Training Committee (GCETC), was established to develop focused, practical **clinical training** content for the **global medical physics community**, delivered through **interactive video** or in-person sessions.

Recent advances in generative AI specifically the combination of large language model (LLM)-based script processing and **text-to-video synthesis** model present an opportunity to lower the production barrier for clinical training video content. This work describes the first systematic application of an AI-assisted video production workflow within a professional medical physics organization, evaluating its feasibility, review process, and early adoption outcomes.

METHODS AND MATERIALS

To identify training priorities, the VTRWG **surveyed** the global medical physics community and scored responses by relevance and complexity; three priority topics were selected for development.

Scripts were drafted for each topic and routed for review by the authoritative AAPM committees overseeing the relevant clinical procedures (e.g., the Medical Physics Practice Guideline, MPPG, committees). Once scripts were finalized, the group evaluated a commercial AI video generation platform, InVideo, which uses closed-source LLMs to automate a **four-stage production pipeline**:
(1) script segmentation, in which the LLM parses the finalized script into scene-specific text chunks with associated timing; (2) prompt generation, in which the AI produces a visual prompt corresponding to each scene segment; (3) style application, ensuring a consistent artistic style across all generated visuals for brand coherence; and (4) video synthesis, in which text-to-video generative models render short video clips for each scene.
Each completed video underwent **multiple rounds of review** by the VTRWG, GCETC, the International Council, and relevant MPPG groups before final edits and distribution via **YouTube** and AAPM channels.

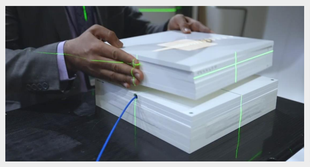

Figure 2. DLG Measurement in Solid Water

Figure 3. Chair Test for DLG Verification

RESULTS

Between 2024 and 2025, the **VTRWG** produced two training videos using this workflow. The first, "**Dosimetric Leaf Gap** Measurements in Solid Water," was published to YouTube and has garnered 2,771 views to date.

The second, "**Chair Test** for DLG Verification," is in final review. Both scripts and videos underwent the full multi-committee review cycle (VTRWG, GCETC, International Council, MPPG) prior to publication or final approval, demonstrating that the AI-assisted pipeline can be integrated into an existing, rigorous editorial review structure without bypassing quality control.

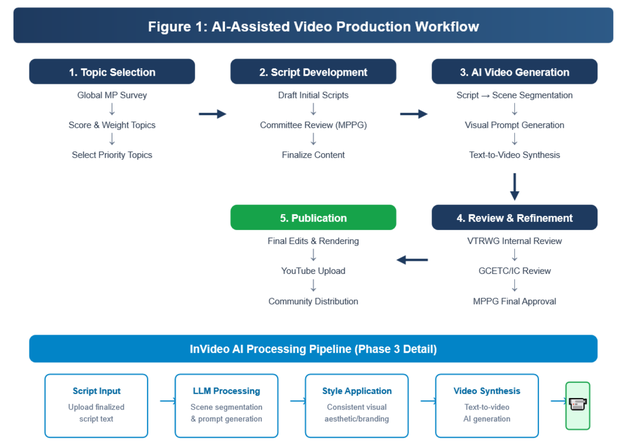

Figure 1. Overview of Standardized Workflow

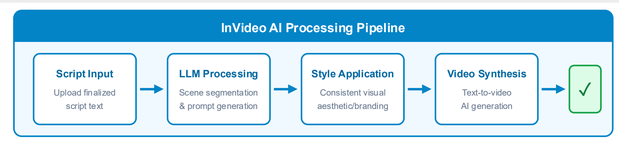

Figure 4. InVideo Video Synthesis Pipeline

Production Workflow

Phase	Description
1. Topic Selection	Survey global community, score responses by relevance and complexity, select priority topics
2. Script Development	Draft scripts and solicit reviews from authoritative AAPM committees (e.g., MPPG)
3. AI Video Generation	Use InVideo to segment scripts, generate visual prompts, and produce video clips
4. Review & Refinement	Multiple rounds of review by VTRWG, GCETC, International Council, and MPPG groups
5. Publication	Final edits and distribution via YouTube and AAPM channels

Figure 5. Gap Analysis & Peer Review Procedures

FUTURE GOALS

Building on the lessons learned from this pilot experience, the VTRWG will restructure under the International Council as a permanent committee: the **Virtual Education and Training Committee.** This new body will formalize production policies and procedures, enabling any AAPM work group or task group to request AI-assisted training videos supporting their clinical recommendations, scaling high-quality educational content to the global medical physics community.

Figure 6. DLG Measurement in Solid Water Video Link

DISCUSSION

These results indicate that AI-assisted video generation can meaningfully reduce the traditional barriers of **equipment cost**, **production expertise**, and **timeline** associated with creating professional-quality clinical training content. By automating **scene segmentation, visual prompt generation, and video synthesis**, the workflow allows subject-matter experts—rather than video production specialists—to remain the primary content drivers, while the **multi-tiered committee review process** (VTRWG → GCETC/International Council → MPPG) preserves clinical accuracy and pedagogical rigor.

The relatively **strong early viewership** of the DLG measurement video suggests genuine demand for this format within the global medical physics community.

Limitations of this pilot include the small number of videos produced to date (n=2), reliance on a single closed-source commercial platform (InVideo), and the **absence of formal metrics** beyond view count (e.g., learner comprehension, knowledge retention, or comparative effectiveness against traditional training formats). **Scaling this approach** across additional AAPM work groups will require standardized production policies and quality thresholds to ensure consistency as more topics and contributors are incorporated.

Figure 7. Current Metrics

CONCLUSIONS

AI-assisted video generation substantially reduces the time and specialized skill required to produce professional-quality medical physics training content, while remaining compatible with existing multi-committee peer review structures.

Based on this pilot experience, the **VTRWG plans to formalize a standardized production pipeline**, along with supporting policies and procedures, to **enable any AAPM work group or task group to request hands-on training videos in support of their clinical recommendations** expanding access to high-quality educational content for the global medical physics community.

REFERENCES

1. AAPM VTRWG. *DLG Measurements in Solid Water*, training video. YouTube, 2024.
2. AAPM Medical Physics Practice Guidelines (MPPG), relevant series.

© Poster Template by Genigraphics® 1.800.790.4001 www.genigraphics.com