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In 2014 the IAEA published a first edition of “Diagnostic Radiology Physics: A Handbook for Teacher and Students”. With the rapid development of technology, many topics of this edition require updating. A collaboration of international organizations including the AAPM, AFOMP, EFOMP, IAEA, ICTP, and IOMP contributed expertise in guiding the revision of contents to encompass modern and internationally inclusive topics in DR physics. Five international technical editors and an IAEA Scientific Secretary coordinated the update and recruited subject matter experts from around the world as contributing authors.

- Two existing handbooks will be expanded to three books
- Fundamental subjects common to medical physics will comprise a new “Foundations” handbook

Approximately eighty authors from around the world have contributed to the initial drafts of the text. In addition to describing the current physics and implementation of DR imaging modalities, the resource expounds upon interdisciplinary topics not previously addressed, including the physics context of imaging anatomy and physiology, information technology, and equipment management. The editorial team's efforts focus on balancing the volume of technical materials produced by contributing authors with practical limitations and page limits for the overall project. The review process is underway with the goal of having a completed draft by the end of summer 2026.

The global distribution of authors

- The global distribution of editors and authors introduces issues related to efficient communications between authors for each group and the editors.
- Initial delineation of chapters and the associated subjects took place at a multi-day working meeting at IAEA Headquarters in Vienna for the editors. Editors met in person with one editor participating remotely.
- Following the initial meeting editors meet periodically via Teams meetings. The global distribution of editors required meeting outside of regular working hours for some editors.
- Editors were able to have in-person meetings with some authors at international scientific meetings.

- A coordinating author was identified for each chapter to serve as the primary coordinator between the author group and chapter editor.
- The global distribution of authors presented communication challenges similar to those of the editors. Electronic communications and common working file locations permitted authors to contribute on independent schedules.
- The dynamic of author groups varied significantly
 - Some groups had near uniform collaboration
 - Some groups had a few authors that drafted materials with others providing review of those materials.
- Some Chapter groups readily met proposed schedules, others needed additional follow-up reminders.
- A few authors withdrew from participation over the course of the project. In some cases an additional author was recruited, in other cases the remainder of the author group was able to provide the required content.

The revised DR Handbook provides a valuable and readily available resource for learners at the graduate and resident level, although many of the updated sections will be relevant to the continued professional development of medical physicists. This free and readily accessible resource, that can be downloaded from the IAEA website, will enhance consistency of education and clinical application of DR physics in countries around the globe.

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Handbook Development Timeline

