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**WHEN TO GIVE UP A METHOD?  
EXCELLENCE AND HAZARDS IN TUMOR IRRADIATION**

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**Background:** In the last decade more than in the last century before, important progress in the development of radiotherapy machines, imaging procedures, dose calculations and dose delivery techniques was performed. One of the most old radiotherapy facility “the Co-60 machine” is now more than 60 years in clinical routine and more than millions of patients around the world with cancer were treated successfully with it. In the last years new facilities as the linear accelerators applied new irradiation techniques and made possible new achievements in cancer radiation treatment.

**Methods:** Reevaluation of physical principles as the source geometry, irradiation techniques, imaging procedures, dose calculations and dose delivery made possible important progress. Intensity modulated radiotherapy techniques (IMRT) by using different dose delivery techniques as volume modulated arc therapy (VMAT), Rapid Arc and Helical Tomotherapy made possible the application of a homogenous dose on well defined complex target volumes. Thus reducing the unnecessary side effects in normal tissues around the tumor and improving the local tumor control was possible.

**Results:** The presentation of the development of more than five generations of progress in using the Co-60 source in different irradiation facilities will be made. Reevaluation of the Co-60 source geometry and the progress achieved in the dose calculations and dose delivery techniques brought the “old Co-60 machine” again in the area of interest of the clinicians in cancer treatment by irradiation. New valuable job possibilities are now available. Millions of dollars of investment and profit is now possible.

**Discussions:** In the era of economical crises, shortage of resources for medical assistance, growing expences in medical treatment, the reevaluation of “old treatment facilities” as Co-60 machines made possible the lowering of treatment prices with no shortage of treatment quality, especially in developing countries.

**Conclusions:** Reevaluation of old physical principles and applying all other developments aquired in the last decades, made possible important technological progress in medicine with additional effect on the job opportunities for the young generations of physicists and engineers.



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