

VRIJE UNIVERSITEIT

**Volumetric modulated arc therapy for stereotactic body radiotherapy:
Planning considerations, delivery accuracy and efficiency**

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof.dr. L.M. Bouter,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de Faculteit der Geneeskunde
op woensdag 19 september 2012 om 11.45 uur
in de aula van de universiteit,
De Boelelaan 1105

door

Chin Loon Ong

geboren te Maleisië

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Nederlandse title: Volumetrisch gemoduleerde arc therapie voor stereotactische radiotherapie: planning, bestralingsnauwkeurigheid en efficiëntie Thesis, Vrije Universiteit Amsterdam Chin Loon Ong, Amsterdam 2012 All rights reserved. 3 VRIJE UNIVERSITEIT
Volumetric modulated arc therapy for stereotactic body radiotherapy: Planning considerations, delivery accuracy and efficiency
ACADEMISCH PROEFSCHRIFT ter verkrijging van de graad Doctor aan de Keywords: total body irradiation, TBI, volumetric modulated arc therapy, dosimetric treatment planning. Total body irradiation (TBI) is used in the management process of hematologic malignancies prior to the transplantation of hematopoietic or bone marrow stem cells. Currently, there are no protocols for contouring and dosimetric planning of whole-body irradiation using volumetric modulated arc therapy (VMAT) in the Republic of Belarus. Our goal was to try to conduct end-to-end preparation for TBI of real patients based on world experience and using the instruments available in our clinic. Based on the literature information [2, 3, 9], the radiation dose is mainly in the range of 12 to 15 Gy. For test plans creation, the authors selected a dose of 12 Gy as the most often mentioned. > About Volumetric Modulated Arc Therapy. This information is intended for general information only and should not be considered as medical advice on the part of Health-Tourism.com. Any decision on medical treatments, after-care or recovery should be done solely upon proper consultation and advice of a qualified physician. What is Volumetric Modulated Arc Therapy? Volumetric modulated arc therapy is new technology introduced in 2007 that delivers treatment with accuracy and speed. It is a novel radiation technique, which can achieve highly dose distributions with accurate target volume henc