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Bibliography

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Peer-Reviewed Publications
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Contents

General description of MR/RT technology (32)

MR-guided radiation therapy: transformative technology and its role in the central nervous system.
Neuro Oncol. 2017 Apr 1;19(suppl_2):ii16-ii29.
Cao Y, Tseng CL, Balter JM, Teng F, Parmar HA, Sahgal A
PMID: 28380637 DOI: 10.1093/neuonc/nox006

The transformation of radiation oncology using real-time magnetic resonance guidance: A review.
Eur J Cancer. 2019;122:42-52.
Hall WA, Paulson ES, van der Heide UA, Fuller CD, Raaymakers BW, Lagendijk JJW, Li XA, Jaffray DA, Dawson LA, Erickson B, Verheij M, Harrington KJ, Sahgal A, Lee P, Parikh PJ, Bassetti MF, Robinson CG, Minsky BD, Choudhury A, Tersteeg RJHA, Schultz CJ.
PMID: 31614288 DOI: 10.1016/j.ejca.2019.07.021

Magnetic resonance-guided radiation therapy: a review.
J Med Imaging Radiat Oncol. 2019;64(2).
Chin S, Eccles CL, McWilliam A, Chuter R, Walker E, Whitehurst P, Berresford J, Van Herk M, Hoskin PJ, Choudhury A.
PMID: 31646742 DOI: 10.1111/1754-9485.12968

Image guided radiotherapy moving towards real time adaptive radiotherapy; global positioning system for radiotherapy?
tipsRO. 2019;12:1-2.
McNair H, Buijs M.
PMID: 10000000001 DOI: 10.1016/j.tipsro.2019.10.006

The need for, and implementation of, image guidance in radiation therapy.
Ann ICRP. 2018;47(3-4):160-76.
Ibbott GS.
PMID: 29676166 DOI: 10.1177/0146645318764092

Magnetic resonance imaging–guided radiation therapy: a short strengths, weaknesses, opportunities, and threats analysis.
Int J Radiation Oncol Biol Phys. 2018;101(5):A1-12, 1011-1278.
van Herk M, McWilliam A, Dubec M, Faivre-Finn C, Choudhury A.
DOI: 10.1016/j.ijrobp.2017.11.009

Adaptive radiotherapy enabled by MRI guidance.
Clin Oncol. 2018;30(11):711-719.
Hunt A, Hansen VN, Oelfke U, Nill S, Hafeez S.
DOI: 10.1016/j.clon.2018.08.001

The challenges of using MRI during radiotherapy.
Clin Oncol. 2018;30(11):680-85.
McWilliam A, Rowland B, van Herk M.
PMID: 30197096 DOI: 10.1016/j.clon.2018.08.004

The potential value of mri in external-beam radiotherapy for cervical cancer.
Clin Oncol. 2018;30(11):737-50.
Cree A, Livsey J, Barraclough L, Dubec M, Hambrock T, van Herk M, Choudhury A, McWilliam A.
DOI: 10.1016/j.clon.2018.08.002

Magnetic resonance-guided radiotherapy—can we justify more expensive technology?
Clin Oncol. 2018;30(11):677-750.
Tree AC, Huddart R, Choudhury A.
PMID: 30217480 DOI: 10.1016/j.clon.2018.08.013

Magnetic resonance imaging-guided adaptive radiotherapy: a "game changer" for prostate treatment?
Int J Radiation Oncol Biol Phys. 2018;100(2):361–73.
Pathmanathan AU, van As NJ, Kerkmeijer LGW, Christodouleas J, Lawton CAF, Vesprini D, van der Heide UA, Frank SJ, Nill S, Oelfke U, van Herk M, Li XA, Mittauer K, Ritter M, Choudhury A, Tree AC.
PMID: 29353654 DOI: 10.1016/j.ijrobp.2017.10.020

The future of image-guided radiotherapy will be MR-guided.
Br J Radiol. 2017;90(1073):20160667.
Pollard JM, Wen Z, Sadagopan R, Wang J, Ibbott GS.
PMID: 28256898 DOI: 10.1259/bjr.20160667

MRI-guided lung SBRT: present and future developments.
Phys Med. 2017;44:139–49.
Menten MJ, Wetscherek A, Fast MF.
PMID: 28242140 DOI: 10.1016/j.ejmp.2017.02.003

MR-guided radiation therapy: transformative technology and its role in the central nervous system.
Neuro Oncol. 2017;19(Suppl):ii16–ii29.
Cao Y, Tseng CL, Balter JM, Teng F, Parmar HA, Sahgal A.
PMID: 28380637 DOI: 10.1093/neuonc/nox006

MR-guided online adaptive therapy.
Oncol Times. 2017;39(8):13–14.
Christodouleas J.
DOI: 10.1097/01.COT.0000516143.51689.1e

Magnetic resonance imaging in precision radiation therapy for lung cancer.
Transl Lung Cancer Res. 2017;6(6):689–707.
Bainbridge H, Salem A, Tijssen RHN, Dubec M, Wetscherek A, Van Es C, Belderbos J, Faivre-Finn C, McDonald F.
PMID: 29218271 DOI: 10.21037/tlcr.2017.09.02

The future of image-guided radiotherapy.
Clin Oncol. 2017;29(10):662–66.
Choudhury A, Budgell G, MacKay R, Falk S, Faivre-Finn C, Dubec M, van Herk M, McWilliam A.
PMID: 28511968 DOI: 10.1016/j.clon.2017.04.036

Online adaptive radiation therapy.
Int J Radiat Oncol Biol Phys. 2017;99(4):994–1003.
Lim-Reinders S, Keller BM, Al-Ward S, Sahgal A, Kim A.
PMID: 28916139 DOI: 10.1016/j.ijrobp.2017.04.023

The emerging potential of magnetic resonance imaging in personalizing radiotherapy for head and neck cancer: an oncologist's perspective.
Br J Radiol. 2017;90(1071):20160768.
Wong KH, Panek R, Bhide SA, Nutting CM, Harrington KJ, Newbold KL.
PMID: 28256151 DOI: 10.1259/bjr.20160768

MR-guided radiation therapy.
Phys Med. 2016;32(Suppl):175.
van der Heide UA.
DOI: 10.1016/j.ejmp.2016.07.284

MRI-guided prostate adaptive radiotherapy —a systematic review.
Radiother Oncol. 2016;119(3):371–380.
McPartlin AJ, Li XA, Kershaw LE, Heide U, Kerkmeijer L, Lawton C, Mahmood U, Pos F, van As N, van Herk M, Vesprini D, van der Voort van Zyp J, Tree A, Choudhury A.
PMID: 27162159 DOI: 10.1016/j.radonc.2016.04.014

Magnetic resonance imaging-guided radiation therapy: technological innovation provides a new vision of radiation oncology practice.
Clin Oncol. 2015;27(9):495–497.
Oelfke U.
PMID: 25960321 DOI: 10.1016/j.clon.2015.04.004

MR guidance in radiotherapy.
Phys Med Biol. 2014;59(21):R349–369.
Lagendijk JJ, Raaymakers BW, Van den Berg CA, Moerland MA, Philippens ME, van Vulpen M.
PMID: 25322150 DOI: 10.1088/0031-9155/59/21/R349

The magnetic resonance imaging-linac system.
Semin Radiat Oncol. 2014;24(3):207–209.
Lagendijk JJ, Raaymakers BW, van Vulpen M.
PMID: 24931095 DOI: 10.1016/j.semradonc.2014.02.009

Introduction: Systems for magnetic resonance image guided radiation therapy.
Semin Radiat Oncol. 2014;24(3):192.
Menard C, van der Heide U.
PMID: 24931090 DOI: 10.1016/j.semradonc.2014.02.010

Integrating a 1.5T MRI scanner with a 6 MV accelerator: proof of concept.
Phys Med Biol. 2009;54(12):N229–237.
Raaymakers BW, Lagendijk JJ, Overweg J, Kok JG, Raaijmakers AJ, Kerkhof EM, van der Put RW, Meijsing I, Crijns SP, Benedosso F, van Vulpen M, de Graaff CH, Allen J, Brown KJ.
PMID: 19451689 DOI: 10.1088/0031-9155/54/12/N01

MRI/linac integration.
Radiother Oncol. 2008;86(1):25–29.
Lagendijk JJ, Raaymakers BW, Raaijmakers AJ, Overweg J, Brown KJ, Kerkhof EM, van der Put RW, Hardemark B, van Vulpen M, van der Heide UA.
PMID: 18023488 DOI: 10.1016/j.radonc.2007.10.034

Integrating a MRI scanner with a radiotherapy accelerator: a new concept of precise on line radiotherapy guidance and treatment monitoring.
Phys Med Biol. 2004;49(17):89–92.
Raaymakers BW, Lagendijk JJ, van der Heide UA, Overweg J, Brown K, Topolnjak R, Dehnad H, Jürgenliemk-Schulz IM, Welleweerd J, Bakker CJG.
DOI: 10.1088/0031-9155/49/17/019/meta

MRI guided radiotherapy: MRI as position verification system for IMRT.
Radiother Oncol. 2002;64(Suppl):S75–S76.
Raaymakers BW, Lagendijk JJ, van der Heide UA, Overweg J, Brown K, Topolnjak R, Dehnad H, Jürgenliemk-Schulz IM, Welleweerd J, Bakker CJG.
DOI: 10.1016/S0167-8140(02)82541-5

MRI guided radiotherapy: a MRI based linear accelerator.
Radiother Oncol. 2000;56(Suppl):S60.
Lagendijk JJ, Bakker CJG.
DOI: DOI.org/10.1016/S0167-8140(00)81503-0

Realizing the potential of magnetic resonance image guided radiotherapy in gyneacological and rectal cancer.
Br J Radiol. 2019;92(1098):20180670.
White IM, Scurr E, Wetscherek A, Brown G, Sohaib A, Nill S, Oelfke U, Dearnaley D, Lalondrelle S, Bhide S.
PMID: 30933550 DOI: 10.1259/bjr.20180670

MR-guidance in clinical reality: current treatment challenges and future perspectives.
Radiat Oncol. 2019;14(1):92.
Corradini S, Alongi F, Andratschke N, Belka C, Boldrini L, Cellini F, Debus J, Guckenberger M, Horner-Rieber J, Lagerwaard FJ, Mazzola R, Palacios MA, Philippens MEP, Raaijmakers CPJ, Terhaard CHJ, Valentini V, Niyazi M.
PMID: 31167658 DOI: 10.1186/s13014-019-1308-y

Clinical implementation (25)

MRI-Based Upper Abdominal Organs-at-Risk Atlas for Radiation Oncology.
Int J Radiat Oncol Biol Phys. 2020;106(4):743–53.
Lukovic J, Henke L, Gani C, Kim TK, Stanescu T, Hosni A, Lindsay P, Erickson B, Khor R, Eccles C, Boon C, Donker M, Jagavkar R, Nowee ME, Hall WA, Parikh P, Dawson LA
PMID: 31953061 DOI: 10.1016/j.ijrobp.2019.12.003

"Apres mois, le deluge": Preparing for the coming data flood in the MRI-guided radiotherapy era.
Front Oncol. 2019;9:983.
Kiser KJ, Smith BD, Wang J, Fuller CD.
PMID: 31632914 DOI: 10.3389/fonc.2019.00983

MRI-based upper abdominal organs-at-risk atlas for radiation oncology.
Int J Radiat Oncol. 2020;106(4):743–753.
Lukovic J, Henke L, Gani C, Kim TK, Stanescu T, Hosni A, Lindsay P, Erickson B, Khor R, Eccles C, Boon C, Donker M, Jagavkar R, Nowee ME, Hall WA, Parikh P, Dawson LA.
PMID: 31953061 DOI: 10.1016/j.ijrobp.2019.12.003

Dose-escalated radiation therapy for pancreatic cancer: a simultaneous integrated boost approach.
Pract Radiat Oncol. 2020 Feb 13.
Koay EJ, Hanania AN, Hall WA, Taniguchi CM, Rebueno N, Myrehaug S, Aitken KL, Dawson LA, Crane CH, Herman JM, Erickson B.
PMID: 32061993 DOI: 10.1016/j.prro.2020.01.012

Feasibility of stereotactic radiotherapy using a 1.5 T MR-linac: Multi-fraction treatment of pelvic lymph node oligometastases.
Radiother Oncol. 2019; 143:50-54.
Werensteijn-Honingh AM, Kroon PS, Winkel D, Aalbers EM, van Asselen B, Bol GH, Brown KJ, Eppinga WSC, van Es CA, Glitzner M, de Groot-van Breugel EN, Hackett SL, Intven M, Kok JGM, Kontaxis C, Kotte AN, Lagendijk JJW, Philippens MEP, Tijssen RHN, Wolthaus JWH, Woodings SJ, Raaymakers BW, Jürgenliemk-Schulz IM.
DOI: 10.1016/j.radonc.2019.01.024

Plan quality for high-risk prostate cancer treated with high field magnetic resonance imaging guided radiotherapy.
phiRO. 2018;7:1-8.
Christiansen RL, Hansen CR, Dahlrot RH.
DOI: 10.1016/j.phro.2018.06.006

Radiation-induced lung toxicity in mice irradiated in a strong magnetic field.
PLoS One. 2018;13(11):e0205803.
Rubinstein AE, Gay S, Peterson CB, Kingsley CV, Tailor RC, Pollard-Larkin JM, Melancon AD, Followill DS, Court LE.
PMID: 30444887 DOI: 10.1371/journal.pone.0205803

Magnetic Resonance-based Response Assessment and Dose Adaptation in Human Papilloma Virus Positive Tumors of the Oropharynx treated with Radiotherapy (MR-ADAPTOR): An R-IDEAL stage 2a-2b/Bayesian phase II trial.
Clin Transl Radiat Oncol. 2018;13:19-23.
Bahig H, Yuan Y, Mohamed ASR, Brock KK, Sweet, Ng P, Wang J, Ding Y, Hutcheson K, McCulloch M, Balter PA, Lai S, Al-Mamgani A, Heukelom J, Sonke J-J, van der Heide UA, Nutting C, Li XA, Robbins J, Mussadiq A, Karam I, Newbold K, Harrington K, Oelfke U, Bhide S, Philippens MEP, Terhaard CHJ, McPartlin AJ, Blanchard P, Garden AS, Rosenthal DI, Gunn GB, Phan J, Cazoulat G, Aristophanous M, McSpadden KK, Garcia J, van den Berg CAT, Raaijmakers CPJ, Kerkmeijer L, Doornaert P, Blinde S, Frank SJ, Fuller CD.
DOI: 10.1016/j.ctro.2018.08.003

Comparison of treatment plans for a high-field MRI-linac and a conventional linac for esophageal cancer.
Strahlenther Onkol. 2018;Oct 25:1-8.
Nachbar M, Monnich D, Kalwa P, Zips D, Thorwarth D, Gani C.
PMID: 30361744 DOI: 10.1007/s00066-018-1386-z

Pancreatic gross tumor volume contouring on computed tomography (CT) compared with magnetic resonance imaging (MRI): results of an international contouring conference.
Pract Radiat Oncol. 2018;8(2):107–115.
Hall WA, Heerkens HD, Paulson ES, Meijer GJ, Kotte AN, Knechtges P, Parikh PJ, Bassetti MF, Lee P, Aitken KL, Palta M, Myrehaug S, Koay EJ, Portelance L, Ben-Josef E, Erickson BA.
PMID: 29426692 DOI: 10.1016/j.prro.2017.11.005

Target volume delineation using diffusion-weighted imaging for MR-guided radiotherapy: a case series of laryngeal cancer validated by pathology.
Cureus. 2018;10(4):e2465.
Ligtenberg H, Schakel T, Dankbaar JW, Ruiter JN, Peltenburg B, Willems SM, Kasperts N, Terhaard CHJ, Raaijmakers CPJ, Philippens MEP.
DOI: 10.7759/cureus.2465

First patients treated with a 1.5 T MRI-linac: clinical proof of concept of a high-precision, high-field MRI guided radiotherapy treatment.
Phys Med Biol. 2017;62(23):L41–L50.
Raaymakers BW, Jurgenliemk-Schulz IM, Bol GH, Glitzner M, Kotte ANTJ, van Asselen B, de Boer JCJ, Bluemink JJ, Hackett SL, Moerland MA, Woodings SJ, Wolthaus JWH, van Zijp HM, Philippens MEP, Tijssen R, Kok JGM, de Groot-van Breugel EN, Kiekebosch I, Meijers LTC, Nomden CN, Sikkes GG, Doornaert PAH, Eppinga WSC, Kasperts N,Kerkmeijer LGW, Tersteeg JHA, Brown KJ, Pais B, Woodhead P, Lagendijk JJ.
PMID: 29135471 DOI: 10.1088/1361-6560/aa9517

Using the Malthus programme to predict the recruitment of patients to MR-linac research trials in prostate and lung cancer.
Radiother Oncol. 2017;122(1):159–162.
Sanderson B, McWilliam A, Faivre-Finn C, Kirkby NF, Jena R, Mee T, Choudhury A.
PMID: 27939554 DOI: 10.1016/j.radonc.2016.11.014

Recommendations for MRI-based contouring of gross tumor volume and organs at risk for radiation therapy of pancreatic cancer.
Pract Radiat Oncol. 2017;7(2):126–136.
Heerkens HD, Hall WA, Li XA, Knechtges P, Dalah E, Paulson ES, van den Berg CA, Meijer GJ, Koay EJ, Crane CH, Aitken K, van Vulpen M, Erickson BA.
PMID: 28089481 DOI: 10.1016/j.prro.2016.10.006

R-IDEAL: a framework for systematic clinical evaluation of technical innovations in radiation oncology.
Front Oncol. 2017;7:59.
Verkooijen HM, Kerkmeijer LGW, Fuller CD, Huddart R, Faivre-Finn C, Verheij M, Mook S, Sahgal A, Hall E, Schultz C.
PMID: 28421162 DOI: 10.3389/fonc.2017.00059

Biological responses of human solid tumor cells to X-ray irradiation within a 1.5-Tesla magnetic field generated by a magnetic resonance imaging-linear accelerator.
Bioelectromagnetics. 2016;37(7):471–480.
Wang L, Hoogcarspel SJ, Wen Z, van Vulpen M, Molkentine DP, Kok J, Lin SH, Broekhuizen R, Ang KK, Bovenschen N, Raaymakers BW, Frank SJ.
PMID: 27434783 DOI: 10.1002/bem.21991

The development of the MRI linac system for online MRI-guided radiotherapy: a clinical update.
J Intern Med. 2016;280(2):203–208.
Lagendijk JJ, van Vulpen M, Raaymakers BW.
PMID: 27197553 DOI: 10.1111/joim.12516

The MRI-linear accelerator consortium: evidencebased clinical introduction of an innovation in radiation oncology connecting researchers, methodology, data collection, quality assurance, and technical development.
Front Oncol. 2016;6:215.
Kerkmeijer LG, Fuller CD, Verkooijen HM, Verheij M, Choudhury A, Harrington KJ, Schultz C, Sahgal A, Frank SJ, Goldwein J, Brown KJ, Minsky BD, van Vulpen M.
PMID: 27790408 DOI: 10.3389/fonc.2016.00215

Repetitive MRI of organs at risk in head and neck cancer patients undergoing radiotherapy.
Clin Transl Radiat Oncol. 2019;18:131-139.
Stieb S, Elgohari B, Fuller CD.
DOI: 10.1016/j.ctro.2019.04.014

First clinical experiences with a high field 1.5 T MR linac.
Acta Oncol. 2019;26:1-6.
Bertelsen AS, Schytte T, Moller PK, Mahmood F, Riis HL, Gottlieb KL, Agergaard SN, Dysager L, Hansen O, Gornitzka J, Veldhuizen E, ODwyer DB, Christiansen RL, Nielsen M, Jensen HR, Brink C, Bernchou U.
PMID: 31241387 DOI: 10.1080/0284186X.2019.1627417

Evaluation of plan quality in radiotherapy planning with an MR-linac.
Phys Imaging Radiat Oncol. 2019;10:19-24.
van de Schoot AJAJ, van den Wollenberg W.
DOI: 10.1016/j.phro.2019.04.004

Prostate cancer – Advantages and disadvantages of MR-guided RT.
Clin Transl Radiat Oncol. 2019;18:68-73.
Murray J, Tree AC.
DOI: 10.1016/j.ctro.2019.03.006

Individual lymph nodes: "See it and Zap it".
Clin Transl Radiat Oncol. 2019;18:46-53.
Winkel D, Werensteijn-Honingh AM, Kroon PS, Eppinga WSC, Bol GH, Intven MPW, de Boer HCJ, Snoeren LMW, Hes J, Raaymakers BW, Jürgenliemk-Schulz, IM.
DOI: 10.1016/j.ctro.2019.03.004

Evaluation of plan adaptation strategies for stereotactic radiotherapy of lymph node oligometastases using online magnetic resonance image guidance.
phiRO. 2019;9:58-64.
Winkel D, Bol GH, Werensteijn-Honingh AM.
DOI: 10.1016/j.phro.2019.02.003

Feasibility and accuracy of quantitative imaging on a 1.5 T MR-linear accelerator.
Radiother Oncol. 2019;133:156-162.
Kooreman ES, van Houdt PJ, Nowee ME.
PMID: 30935572 DOI: 10.1016/j.radonc.2019.01.011

MR imaging (42)

Image-driven, model-based 3D abdominal motion estimation for MR-guided radiotherapy.
Phys Med Biol. 2016 Jul 21;61(14):5335-55.
Stemkens B, Tijssen RH, de Senneville BD, Lagendijk JJ, van den Berg CA
PMID: 27362636 DOI: 10.1088/0031-9155/61/14/5335

Design and feasibility of a flexible, on-body, high impedance coil receive array for a 1.5 T MR-linac.
Phys Med Biol. 2019;64(18):185004.
Zijlema SE, Tijssen RHN, Malkov VN, van Dijk L, Hackett SL, Kok JGM, Lagendijk JJW, van den Berg CAT.
PMID: 31370043 DOI: 10.1088/1361-6560/ab37a8

ReconSocket: a low-latency raw data streaming interface for real-time MRI-guided radiotherapy.
Phys Med Biol. 2019 Sep 17;64(18):185008.
Borman PTS, Raaymakers BW, Glitzner M.
PMID: 31461412 DOI: 10.1088/1361-6560/ab3e99

MR-MOTUS: model-based non-rigid motion estimation for MR-guided radiotherapy using a reference image and minimal k-space data.
Phys Med Biol. 2020;65(1):015004.
Huttinga NRF, Van den Berg CAT, Luijten PR, Sbrizzi A.
PMID: 31698354 DOI: 10.1088/1361-6560/ab554a

Soft-tissue prostate intrafraction motion tracking in 3D cine-MR for MR-guided radiotherapy.
Phys Med Biol. 2019;64(23):235008.
de Muinck Keizer DM, Kerkmeijer LGW, Maspero M, Andreychenko A, van der Voort van Zyp JRN, Van den Berg CAT, Raaymakers BW, Lagendijk JJW, de Boer JCJ.
PMID: 31698351 DOI: 10.1088/1361-6560/ab5539

Magnetic resonance imaging sequence evaluation of an MR Linac system; early clinical experience.
tipsRO. 2019;12:56-63.
Eccles CL, Adair Smith G, Bower L, Hafeez S, Herbert T, Hunt A, McNair HA, Ofuya M, Oelfke U, Nill S, Huddart RA.
PMID: 10000000002 DOI: 10.1016/j.tipsro.2019.11.004

The noise navigator: a surrogate for respiratory-correlated 4D-MRI for motion characterization in radiotherapy.
Phys Med Biol. 2020;65(1):01NT02.
Navest RJM, Mandija S, Bruijnen T, Stemkens B, Tijssen RHN, Andreychenko A, Lagendijk JJW, van den Berg CAT.
PMID: 31775130 DOI: 10.1088/1361-6560/ab5c62

Multi-sequence MR image-based synthetic CT generation using a generative adversarial network for head and neck MRI-only radiotherapy.
Med Phys. 2020 Feb 6. [Epub ahead of print]
Qi M, Li Y, Wu A, Jia Q, Li B, Sun W, Dai Z, Lu X, Zhou L, Deng X, Song T.
PMID: 32027027 DOI: 10.1002/mp.14075

Auto-segmentation of pancreatic tumor in multi-parametric MRI using deep convolutional neural networks.
Radiother Oncol. 2020;145:193-200.
Liang Y, Schott D, Zhang Y, Wang Z, Nasief H, Paulson E, Hall W, Knechtges P, Erickson B, Li XA.
PMID: 32045787 DOI: 10.1016/j.radonc.2020.01.021

MRI commissioning of 1.5 T MR-linac systems – a multi-institutional study.
Radiother Oncol. 2019.
Tijssen RHN, Philippens MEP, Paulson ES.
DOI: 10.1016/j.radonc.2018.12.011

Super-resolution T2-weighted 4D MRI for image guided radiotherapy.
Radiother Oncol. 2018;129(3):486-93.
Freedman JN, Collins DJ, Gurney-Champion OJ.
DOI: 10.1016/j.radonc.2018.05.015

A self-sorting coronal 4D-MRI method for daily image guidance of liver lesions on an MR-linac.
Int J Radiation Oncol Biol Phys. 2018;127(3):474-480.
van de Lindt TN, Sonke JJ, Nowee ME, Jansen EPM, van Pelt VWJ, van der Heide UA, Fast MF.
DOI: 10.1016/j.ijrobp.2018.05.029

Retrospective self-sorted 4D-MRI for the liver.
Radiother Oncol. 2018;127(3):474-480.
van de Lindt TN, Fast MF, van der Heide UA, Sonke J-J.
DOI: 10.1016/j.radonc.2018.05.006

MR-only brain radiotherapy: dosimetric evaluation of synthetic CTs generated by a dilated convolutional neural network.
Int J Radiation Oncol Biol Phys. 2018;102(4):801-812.
Dinkla AM, Wolterink JM, Maspero M, Savenije M.H.F, Verhoeff J J.C., Seravalli E, Seevinck P.R, van den Berg C A.T.
DOI: 10.1016/j.ijrobp.2018.05.058

Simultaneous orthogonal plane cine imaging with balanced steady-state free-precession contrast using k-t GRAPPA.
Phys Med Biol. 2018;63(15).
Mickevicius NJ, Paulson ES.
PMID: 29956676 DOI: 10.1088/1361-6560/aad008

Characterization of imaging latency for real-time MRI-guided radiotherapy.
Phys Med Biol. 2018;63(15).
Borman PTS, Tijssen RHN, Bos C, Moonen CTW, Raaymakers BW, Glitzner M.
PMID: 29995645 DOI: 10.1088/1361-6560/aad2b7

Emerging magnetic resonance imaging technologies for radiation therapy planning and response assessment.
Int J Radiat Oncol Biol Phys. 2018;101(5):1046-1056.
Jones KM, Michel KA, Bankson JA, Fuller CD, Klopp AH, Venkatesan AM.
PMID: 30012524 DOI: 10.1016/j.ijrobp.2018.03.028

Dose evaluation of fast synthetic-CT generation using a generative adversarial network for general pelvis MR-only radiotherapy.
Phys Med Biol. 2018;63(18).
Maspero M, Savenije MHF, Dinkla AM, Seevinck PR, Intven MPW, Juergenliemk-Schulz IM, Kerkmeijer LGW, Van den Berg CAT.
PMID: 30109989 DOI: 10.1088/1361-6560/aada6d

Delivering functional imaging on the MRI-linac: current challenges and potential solutions.
Clin Oncol (R Coll Radiol). 2018;30(11):702-10.
Datta A, Aznar MC, Dubec M, Parker GJM, O'Connor JPB.
PMID: 30224203 DOI: 10.1016/j.clon.2018.08.005

Magnetic resonance imaging only workflow for radiotherapy simulation and planning in prostate cancer.
Clin Oncol (R Coll Radiol). 2018;30(11):692-701.
Kerkmeijer LGW, Maspero M, Meijer GJ, van der Voort van Zyp JRN, de Boer HCJ, van den Berg CAT.
PMID: 30244830 DOI: 10.1016/j.clon.2018.08.009

Nuts and bolts of 4D-MRI for radiotherapy.
Phys Med Biol. 2018;63(21).
Stemkens B, Paulson ES, Tijssen RHN.
PMID: 30272573 DOI: 10.1088/1361-6560/aae56d

Emerging MR imaging technologies for radiation therapy planning and response assessment.
Int J Radiat Oncol Biol Phys. 2018 Aug 1;101(5):1046-1056.
Jones KM, Michel KA, Bankson JA,Fuller CD, Klopp AH, Venkatesan AM.
DOI: 10.1016/j.ijrobp.2018.03.028

Characterization of the first RF coil dedicated to 1.5T MR guided radiotherapy.
Phys Med Biol. 2018;63(2):025014.
Hoogcarspel SJ, Zijlema SE, Tijssen RHN, Kerkmeijer LGW, Juergenliemk-Schulz IM, Lagendijk JJ, Raaymakers BW.
PMID: 29260729 DOI: 10.1088/1361-6560/aaa303

Tumour auto-contouring on 2d cine MRI for locally advanced lung cancer: A comparative study.
Radiother Oncol. 2017; 125(3):485-491.
Fast MF, Eiben B, Menten MJ, Wetscherek A, Hawkes DJ, McClelland JR, Oelfke U.
PMID: 29029832 DOI: 10.1016/j.radonc.2017.09.013

Investigation of undersampling and reconstruction algorithm dependence on respiratory correlated 4D-MRI for online MR-guided radiation therapy.
Phys Med Biol. 2017;62(8):2910–2921.
Mickevicius NJ, Paulson ES.
PMID: 27997382 DOI: 10.1088/1361-6560/aa54f2

T2-weighted 4D magnetic resonance imaging for application in magnetic resonance-guided radiotherapy treatment planning.
Invest Radiol. 2017;52(10):563–573.
Freedman JN, Collins DJ, Bainbridge H, Rank CM, Nill S, Kachelriess M, Oelfke U, Leach MO, Wetscherek A.
PMID: 28459800 DOI: 10.1097/RLI.0000000000000381

Simultaneous orthogonal plane imaging.
Magn Reson Med. 2017;78(5):1700–1710.
Mickevicius NJ, Paulson ES.
PMID: 27917527 DOI: 10.1002/mrm.26555

Spatial precision in magnetic resonance imaging-guided radiation therapy: the role of geometric distortion.
Int J Radiat Oncol Biol Phys. 2016;95(4):1304–1316.
Weygand J, Fuller CD, Ibbott GS, Mohamed AS, Ding Y, Yang J, Hwang KP, Wang J.
PMID: 27354136 DOI: 10.1016/j.ijrobp.2016.02.059

Consensus opinion on MRI simulation for external beam radiation treatment planning.
Radiother Oncol. 2016;121(2):187–192.
Paulson ES, Crijns SP, Keller BM, Wang J, Schmidt MA, Coutts G, van der Heide UA.
PMID: 27838146 DOI: 10.1016/j.radonc.2016.09.018

On-line 3D motion estimation using low resolution MRI.
Phys Med Biol. 2015;60(16):N301–310.
Glitzner M, de Senneville BD, Lagendijk JJ, Raaymakers BW, Crijns SP.
PMID: 26247427 DOI: 10.1088/0031-9155/60/16/N301

From static to dynamic 1.5T MRI-linac prototype: impact of gantry position related magnetic field variation on image fidelity.
Phys Med Biol. 2014;59(13):3241–3247.
Crijns S, Raaymakers B.
PMID: 24874027 DOI: 10.1088/0031-9155/59/13/3241

The feasibility of using a conventional flexible RF coil for an online MR-guided radiotherapy treatment.
Phys Med Biol. 2013;58(6):1925–1932.
Hoogcarspel SJ, Crijns SP, Lagendijk JJ, van Vulpen M, Raaymakers BW.
PMID: 23442765 DOI: 10.1088/0031-9155/58/6/1925

Towards inherently distortion-free MR images for image-guided radiotherapy on an MRI accelerator.
Phys Med Biol. 2012;57(5):1349–1358.
Crijns SP, Bakker CJ, Seevinck PR, de Leeuw H, Lagendijk JJ, Raaymakers BW.
PMID: 22349351 DOI: 10.1088/0031-9155/57/5/1349

Real-time correction of magnetic field inhomogeneity-induced image distortions for MRI-guided conventional and proton radiotherapy.
Phys Med Biol. 2011;56(1):289–297.
Crijns SP, Raaymakers BW, Lagendijk JJ.
PMID: 21149949 DOI: 10.1088/0031-9155/56/1/017

Treatment plan adaptation for MRI-guided radiotherapy using solely MRI data: a CT-based simulation study.
Phys Med Biol. 2010;55(16):N433-40.
Kerkhof EM, Balter JM, Vineberg K, Raaymakers BW.
PMID: 20679696 DOI: 10.1088/0031-9155/55/16/N01

Multiresolution radial MRI to reduce IDLE time in pre-beam imaging on an MR-Linac (MR-RIDDLE).
Phys Med Biol. 2019;64(5):055011.
Bruijnen T, Stemkens B, Lagendijk JJW, van den Berg CAT, Tijssen RHN.
PMID: 30630156 DOI: 10.1088/1361-6560/aafd6b

Synthetic 4D-CT of the thorax for treatment plan adaptation on MR-guided radiotherapy systems.
Phys Med Biol. 2019;64(11):115005.
Freedman JN, Bainbridge H, Nill S, Collins DJ, Kachelriess M, Leach MO, McDonald F, Oelfke U, Wetscherek A.
PMID: 30844775 DOI: 10.1088/1361-6560/ab0dbb

Assessment of 3D motion modeling performance for dose accumulation mapping on the MR-linac by simultaneous multislice MRI.
Phys Med Biol. 2019;64(9):095004.
Borman PTS, Bos C, Stemkens B, Moonen CTW, Raaymakers BW, Tijssen RHN.
PMID: 30917353 DOI: 10.1088/1361-6560/ab13e3

Simultaneous acquisition of orthogonal plane cine imaging and isotropic 4D-MRI using super-resolution.
Radiother Oncol. 2019;136:121-129.
Mickevicius NJ, Paulson ES.
PMID: 31015113 DOI: 10.1016/j.radonc.2019.04.005

MRI B0 homogeneity and geometric distortion with continuous linac gantry rotation on an Elekta Unity MR-linac.
Phys Med Biol. 2019;64(12):12NT01.
Jackson SJ, Glitzner M, Tijssen RHN, Raaymakers BW.
PMID: 31108467 DOI: 10.1088/1361-6560/ab231a

Correcting geometric image distortions in slice-based 4D-MRI on the MR-linac.
Med Phys. 2019;46(7):3044-3054.
Keesman R, van de Lindt TN, Juan-Cruz C, van den Wollenberg W, van der Bijl E, Nowee ME, Sonke JJ, van der Heide UA, Fast MF.
PMID: 31111494 DOI: 10.1002/mp.13602

MRI-guided mid-position liver radiotherapy: Validation of image processing and registration steps.
Radiother Oncol. 2019;138:132-140.
van de Lindt TN, Fast MF, van Kranen SR, Nowee ME, Jansen EPM, van der Heide UA, Sonke JJ.
DOI: 10.1016/j.radonc.2019.06.007

Dosimetry (48)

The dosimetric impact of gadolinium-based contrast media in GBM brain patient plans for a MRI-Linac.
Phys Med Biol. 2017 Aug 01; 62(16):N362-N374.
Ahmad SB, Paudel MR, Sarfehnia A, Kim A, Pang G, Ruschin M, Sahgal A, Keller BM
PMID: 28635617 DOI: 10.1088/1361-6560/aa7acb

Characterization of small PRESAGE® samples for measurements near the dosimeter edges.
2019 J Phys Conf Ser. 1305 012009.
Costa F, Doran S, Adamovics J, Nill S.
PMID: 10000000008 DOI: 10.1088/1742-6596/1305/1/012009

Dose rate and fractionation dependence of methacrylic acid based polymer gels using optical and MRI techniques.
2019 J Phys Conf Ser. 1305 012008.
Lee HJ, Roed Y, Ibbott GS.
PMID: 10000000007 DOI: 10.1088/1742-6596/1305/1/012008

Evaluation of a lung-equivalent gel dosimeter for MR image-guided radiation therapy.
2019 J Phys Conf Ser. 1305 012012.
McDonald BA, Lee HJ, Ibbott GS.
PMID: 10000000006 DOI: 10.1088/1742-6596/1305/1/012012

Polymer gel dosimetry in the presence of a strong magnetic field.
2019 J Phys Conf Ser. 1305 012014.
Roed Y, Pinsky L, Ibbott G.
PMID: 10000000004 DOI: 10.1088/1742-6596/1305/1/012014

Radiotherapy in the presence of magnetic fields: a brief review of detector response characteristics and the contribution of 3-D measurements to the study of dose.
2019 J Phys Conf Ser. 1305 012006.
Doran SJ.
PMID: 10000000005 DOI: 10.1088/1742-6506/1305/1/012006

Two-dimensional EPID dosimetry for an MR-linac: Proof of concept.
Med Phys. 2019;46(9):4193-4203. Epub 2019 Jul 9.
Torres-Xirau I, Olaciregui-Ruiz I, van der Heide UA, Mans A.
PMID: 31199521 DOI: 10.1002/mp.136646

Low-density gel dosimeter for measurement of the electron return effect in an MR-linac.
Phys Med Biol. 2019;64(20):205016.
McDonald BA, Lee HJ, Ibbott GS.
PMID: 31505483 DOI: 10.1088/1361-6560/ab4321

MRIgRT dynamic lung motion thorax anthropomorphic QA phantom: design, development, reproducibility, and feasibility study.
Med Phys. 2019;46(11): Sep 11.
Steinmann A, Alvarez P, Lee H, Court L, Stafford R, Sawakuchi G, Wen Z, Fuller C, Followill D.
PMID: 31506963 DOI: 10.1002/mp.13757

Dosimetric performance of the Elekta Unity MR-linac system: 2D and 3D dosimetry in anthropomorphic inhomogeneous geometry.
Phys Med Biol. 2019;64(22):225009.
Pappas E, Kalaitzakis G, Boursianis T, Zoros E, Zourari K, Pappas EP, Makris DN, Seimenis I, Efstathopoulos EP, Maris TG.
PMID: 31665709 DOI: 10.1088/1361-6560/ab52ce

Commissioning and performance evaluation of RadCalc for the Elekta Unity MRI-linac.
J Appl Clin Med Phys. 2019;20(12).
Graves SA, Snyder JE, Boczkowski A, St-Aubin J, Wang D, Yaddanapudi S, Hyer DE.
PMID: 31722133 DOI: 10.1002/acm2.12760

Commissioning of a water calorimeter as a primary standard for absorbed dose to water in magnetic fields.
Phys Med Biol. 2019;64(3).
de Prez LA, de Pooter JA, Jansen BJ, Woodings SJ, Wolthaus JWH, van Asselen B, van Soest TL, Kok JGM, Raaymakers BW.
PMID: 30561378 DOI: 10.1088/1361-6560/aaf975

Assessment of image quality and scatter and leakage radiation of an integrated MR-LINAC system.
Med Phys. 2018;45(3).
Wang J, Yung J, Kadbi M, Hwang K, Ding Y, Ibbott GS.
PMID: 29363770 DOI: 10.1002/mp.12767

Ionization chamber correction factors for MR-linacs.
Phys Med Biol. 2018;63(11).
Pojtinger S, Dohm OS, Kapsch RP, Thorwarth D.
PMID: 29762130 DOI: 10.1088/1361-6560/aac4f2

A formalism for reference dosimetry in photon beams in the presence of a magnetic field.
Phys Med Biol. 2018;63(12).
van Asselen B, Woodings SJ, Hackett SL, van Soest TL, Kok JGM, Raaymakers BW, Wolthaus JWH.
PMID: 29786612 DOI: 10.1088/1361-6560/aac70e

Effect of magnetic field strength on plastic scintillation detector response.
Radiat Meas. 2018;116:10-13.
Therriault-Proulx F, Wen Z, Ibbott G, Beddar S.
DOI: 10.1016/j.radmeas.2018.06.011

The characterization of a large multi-axis ionization chamber array in a 1.5 T MRI linac.
Phys Med Biol. 2018;63(22).
Perik TJ, Kaas JJ, Greilich S.
PMID: 30412476 DOI: 10.1088/1361-6560/aae90a

Beam characterisation of the 1.5T MRI-linac.
Phys Med Biol. 2018;63(8):085015.
Woodings SJ, Bluemink JJ, de Vries JHW, Niatsetski Y, van Veelen B, Schillings J, Kok JGM, Wolthaus JWH, Hackett SL, van Asselen B, van Zijp HM, Pencea S, Roberts DA, Lagendijk JJ, Raaymakers BW.
PMID: 29521280 DOI: 10.1088/1361-6560/aab566

Characterization of the a-Si EPID in the unity MR-linac for dosimetric applications.
Phys Med Biol. 2018;63(2):025006.
Torres-Xirau I, Olaciregui-Ruiz I, Baldvinsson G, Mijnheer BJ, van der Heide UA, Mans A.
PMID: 29182153 DOI: 10.1088/1361-6560/aa9dbf

Performance of a PTW 60019 microDiamond detector in a 1.5T MRI-linac.
Phys Med Biol. 2018;63(5):05NT04
Woodings SJ, Wolthaus JWH, van Asselen B, de Vries JHW, Kok JGM, Lagendijk JJ, Raaymakers BW.
PMID: 29239857 DOI: 10.1088/1361-6560/aaa1c6

Real-time volumetric relative dosimetry for magnetic resonance-image-guided radiation therapy (MR-IGRT).
Phys Med Biol. 2018;63(4):045021
Lee HJ, Kadbi M, Bosco G, Ibbott GS.
PMID: 29384731 DOI: 10.1088/1361-6560/aaac22

Investigating the effect of a magnetic field on dose distributions at phantom-air interfaces using PRESAGE® 3D dosimeter and Monte Carlo simulations.
Phys Med Biol. 2018;63(5):05NT01.
Costa F, Doran SJ, Hanson IM, Nill S, Billas I, Shipley DR, Duane S, Adamovics J, Oelfke U.
PMID: 29393066 DOI: 10.1088/1361-6560/aaaca2

Relative dosimetry with an MR-linac: response of ion chambers, diamond, and diode detectors for offaxis, depth dose, and output factor measurements.
Med Phys. 2018;45(2):884–897.
O'Brien DJ, Dolan J, Pencea S, Schupp N, Sawakuchi GO.
PMID: 29178457 DOI: 10.1002/mp.12699

Experimental analysis of correction factors for reference dosimetry in a magnetic field.
CDBME 2017;3(2):803–805.
Brand N, Pojtinger S, Tsitsekidis S, Thorwarth D.
DOI: 10.1515/cdbme-2017-0170

Optimal orientation for ionization chambers in MRgRT reference dosimetry.
CDBME 2017;3(2):273–275.
Pojtinger S, Dohm OS, Thorwarth D.
DOI: 10.1515/cdbme-2017-0056

Development of a methodology to study the effect of magnetic field on dose distributions in an MRIlinac, using PRESAGE® and Monte Carlo calculations.
J Phys Conf Ser. 2017;847(1):012058.
Costa F, Doran S, Nill S, Duane S, Shipley D, Billas I.
DOI: 10.1088/1742-6596/755/1/011001

Dosimetry in the presence of strong magnetic fields.
J Phys Conf Ser. 2017;847(1):012055.
O'Brien DJ, Schupp N, Pencea S, Dolan J, Sawakuchi GO.
DOI: 10.1088/1742-6596/847/1/012055

Using 3D dosimetry to quantify the electron return effect (ERE) for MR-image-guided radiation therapy (MR-IGRT) applications.
J Phys Conf Ser. 2017;847(1):012057.
Lee HJ, Choi GW, Alqathami M, Kadbi M, Ibbott G.
DOI: 10.1088/1742-6596/847/1/012057

Monte Carlo study of the chamber-phantom air gap effect in a magnetic field.
Med Phys. 2017;44(7):3830–3838.
O'Brien DJ, Sawakuchi GO.
PMID: 28432792 DOI: 10.1002/mp.12290

The dosimetric impact of gadolinium-based contrast media in GBM brain patient plans for a MRI-linac.
Phys Med Biol. 2017;62(16):N362–N374.
Ahmad SB, Paudel MR, Sarfehnia A, Kim A, Pang G, Ruschin M, Sahgal A, Keller BM.
PMID: 28635617 DOI: 10.1088/1361-6560/aa7acb

Investigation of magnetic field effects on the dose-response of 3D dosimeters for magnetic resonance—image guided radiation therapy applications.
Radiother Oncol. 2017;125(3):426–432.
Lee HJ, Roed Y, Venkataraman S, Carroll M, Ibbott GS.
PMID: 28964533 DOI: 10.1016/j.radonc.2017.08.027

The impact of a 1.5T MRI linac fringe field on neighbouring linear accelerators.
phiRO. 2017;4:12–16.
Perik T, Kaas J, Wittkämper F.
DOI: 10.1016/j.phro.2017.10.002

Quantification of static magnetic field effects on radiotherapy ionization chambers.
Phys Med Biol. 2017;62(5):1731–1743.
Agnew J, O'Grady F, Young R, Duane S, Budgell GJ.
PMID: 28072396 DOI: 10.1088/1361-6560/aa5876

Performance of a cylindrical diode array for use in a 1.5T MR-linac.
Phys Med Biol. 2016;61(3):N80–89.
Houweling AC, de Vries JH, Wolthaus J, Woodings S, Kok JG, van Asselen B, Smit K, Bel A, Lagendijk JJ, Raaymakers BW.
PMID: 26767389 DOI: 10.1088/0031-9155/61/3/N80

Consequences of air around an ionization chamber: Are existing solid phantoms suitable for reference dosimetry on an MR-linac?
Med Phys. 2016;43(7):3961.
Hackett SL, van Asselen B, Wolthaus JW, Kok JG, Woodings SJ, Lagendijk JJ, Raaymakers BW.
PMID: 27370114 DOI: 10.1118/1.4952727

Gel dosimetry enables volumetric evaluation of dose distributions from an MR-guided linac.
AIP Conference Proceedings 1747. 2016;040002.
Ibbott GS, Roed Y, Lee H, Alqathami M, Wang J, Pinsky L, Blencowe A.
DOI: 10.1063/1.4954102

Reference dosimetry in magnetic fields: formalism and ionization chamber correction factors.
Med Phys. 2016;43(8):4915.
O'Brien DJ, Roberts DA, Ibbott GS, Sawakuchi GO.
PMID: 27487908 DOI: 10.1118/1.4959785

Performance of a multi-axis ionization chamber array in a 1.5T magnetic field.
Phys Med Biol. 2014;59(7):1845–1855.
Smit K, Kok JG, Lagendijk JJ, Raaymakers BW.
PMID: 24625540 DOI: 10.1088/0031-9155/59/7/1845

Relative dosimetry in a 1.5T magnetic field: an MR-linac compatible prototype scanning water phantom.
Phys Med Biol. 2014;59(15):4099–4109.
Smit K, Sjoholm J, Kok JG, Lagendijk JJ, Raaymakers BW.
PMID: 24989159 DOI: 10.1088/0031-9155/59/15/4099

Absolute dosimetry for the MRI-linac: the magnetic field correction factor.
Med Phys. 2012;39(6P)art31.
Smit K, van Asselen B, Kok JGM, Lagendijk JJW, Raaymakers BW.
DOI: 10.1118/1.4736359

TH-E-BRB-OP: Reference dosimetry for the MRI-linac: the magnetic field correction factor.
Med.Phys. 2012;39(6):4010–4011.
Smit K, van Asselen B, Kok JGM, Lagendijk JJ, Raaymakers BW.
DOI: org/10.1118/1.4736359

Dosimetry for the MRI accelerator: the impact of a magnetic field on the response of a Farmer NE2571 ionization chamber.
Phys Med Biol. 2009;54(10):2993–3002.
PMID: 19387100 DOI: 10.1088/0031-9155/54/10/002
Meijsing I, Raaymakers BW, Raaijmakers AJ, Kok JG, Hogeweg L, Liu B, Lagendijk JJ.

Installation of the 1.5 T MRI accelerator next to clinical accelerators: impact of the fringe field.
Phys Med Biol. 2009;54(18):N409–415.
Kok JG, Raaymakers BW, Lagendijk JJ, Overweg J, de Graaff CH, Brown KJ.
PMID: 19687566 DOI: 10.1088/0031-9155/54/18/N02

Simultaneous motion monitoring and truth-in-delivery analysis imaging framework for MR-guided radiotherapy.
Phys Med Biol. 2018;63(23):235014.
Mickevicius NJ, Chen X, Boyd Z, Lee HJ, Ibbott GS, Paulson ES.
PMID: 30474614 DOI: 10.1088/1361-6560/aaec91

Investigation of TLD and EBT3 performance under the presence of 1.5T, 0.35T and 0T magnetic field strengths in MR/CT visible materials.
Med Phys. 201946(7):3217-3226.
Steinmann A, O'Brien D, Stafford R, Sawakuchi G, Wen Z, Court L, Fuller C, Followill D.
PMID: 30950071 DOI: 10.1002/mp.13527

Direct measurement of ion chamber correction factors, k Q and k B, in a 7 MV MRI-linac.
Phys Med Biol. 2019;64(10):105025.
de Prez L, Woodings S, de Pooter J, van Asselen B, Wolthaus J, Jansen B, Raaymakers B.
PMID: 30933939 DOI: 10.1088/1361-6560/ab1511

A finite element method for the determination of the relative response of ionization chambers in MR-linacs: simulation and experimental validation up to 1.5 T.
Phys Med Biol. 2019;64(13):135011.
Pojtinger S, Kapsch RP, Dohm OS, Thorwarth D.
PMID: 31181560 DOI: 10.1088/1361-6560/ab2837

Measurement validation of treatment planning for a MR-Linac.
J Appl Clin Med Phys. 2019;20(7):28-38.
Chen X, Paulson ES, Ahunbay E, Sanli A, Klawikowski S, Li XA.
PMID: 31254376 DOI: 10.1002/acm2.12651

Dose calculation and electron return effect (35)

MR-guided breast radiotherapy: feasibility and magnetic-field impact on skin dose.
Physics in medicine and biology. 2013;58(17):5917-30
van Heijst TC, den Hartogh MD, Lagendijk JJ, van den Bongard HJ, van Asselen B
PMID: 23920343 DOI: 10.1088/0031-9155/58/17/5917

Assessing localised dosimetric effects due to unplanned gas cavities during pelvic MR-guided radiotherapy using Monte Carlo simulations.
Med Phys. 2019;46(12):5807-15.
Shortall J, Vasquez Osorio E, Chuter R, McWilliam A, Choudhury A, Kirkby K, Mackay R, van Herk M.
PMID: 31600837 DOI: 10.1002/mp.13857

Partial breast irradiation with the 1.5 T MR-Linac: First patient treatment and analysis of electron return and stream effects.
Radiother Oncol. 2019;145:30-35.
Nachbar M, Monnich D, Boeke S, Gani C, Weidner N, Heinrich V, Lo Russo M, Livi L, Winter J, Tsitsekidis S, Dohm O, Thorwarth D, Zips D, De-Colle C.
PMID: 31874347 DOI: 10.1016/j.radonc.2019.11.025

Monte Carlo simulations of out-of-field skin dose due to spiralling contaminant electrons in a perpendicular magnetic field.
Med Phys. 2019;Jan 21.
Malkov VN, Hackett SL, van Asselen B, Raaymakers BW, Wolthaus JWH.
PMID: 30666678 DOI: 10.1002/mp.13392

Assessing MR-Linac radiotherapy robustness for anatomical changes in head and neck cancer.
Phys Med Biol. 2018;63(12):125020.
Chuter RW, Pollitt A, Whitehurst P, Mackay RI, van Herk M, McWilliam A.
PMID: 29790861 DOI: 10.1088/1361-6560/aac749

Measurement of Electron Return Effect and Skin Dose Reduction by a Bolus in an Anthropomorphic Physical Phantom under a Magnetic Resonance Guided Linear Accelerator (MR-LINAC) System.
IJMPCERO. 2018;07(03):339-346.
Han EY, Wen Z, Lee HJ, Lee C.
DOI: 10.4236/ijmpcero.2018.73028

Comparison of intensity modulated radiotherapy plan optimisation methods for a 1.5 T MR-Linac.
J Appl Clin Med Phys. 2018;20(1):43-49.
Chuter R, van Herk M, Akhiat H, Voet P, MacKay R, Choudhury A, McWilliam A.
PMID: 30371972 DOI: 10.1002/acm2.12475

The radiobiological impact of motion tracking of liver, pancreas and kidney SBRT tumors in a MR-linac.
Phys Med Biol. 2018;63(21):215022.
Al-Ward S, Wronski M, Ahmad SB, Myrehaug S, Chu W, Sahgal A, Keller BM.
PMID: 30375365 DOI: 10.1088/1361-6560/aae7fd

A methodology to investigate the impact of image distortions on the radiation dose when using magnetic resonance images for planning.
Phys Med Biol. 2018;63(8):085005.
Yan Y, Yang J, Beddar S, Ibbott GS, Wen Z, Court LE, Hwang KP, Kadbi M, Krishnan S, Fuller C, Frank SJ, Yang JN, Balter PA, Kudchadker RJ, Wang J.
PMID: 29528037 DOI: 10.1088/1361-6560/aab5c3

Spiraling contaminant electrons increase doses to surfaces outside the photon beam of an MRI-linac with a perpendicular magnetic field.
Phys Med Biol. 2018;63(9):095001.
Hackett SL, van Asselen B, Wolthaus JWH, Bluemink JJ, Ishakoglu K, Kok JGM, Lagendijk JJ, Raaymakers BW.
PMID: 29595150 DOI: 10.1088/1361-6560/aaba8f

Influence of a transverse magnetic field on the dose deposited by a 6 MV linear accelerator.
CDBME 2017;3(2):281–285.
Richter S, Pojtinger S, Mönnich D, Dohm OS.
DOI: 10.1515/cdbme-2017-0058

Treating locally advanced lung cancer with a 1.5T MR-linac—effects of the magnetic field and irradiation geometry on conventionally fractionated and isotoxic dose-escalated radiotherapy.
Radiother Oncol. 2017;125(2):280–285.
Bainbridge HE, Menten MJ, Fast MF, Nill S, Oelfke U, McDonald F.
PMID: 28987747 DOI: 10.1016/j.radonc.2017.09.009

Magnetic field dose effects on different radiation beam geometries for hypofractionated partial breast irradiation.
J Appl Clin Med Phys. 2017;18(6):62–70.
Kim A, Lim-Reinders S, McCann C, Ahmad SB, Sahgal A, Lee J, Keller BM.
PMID: 28901729 DOI: 10.1002/acm2.12182

Dosimetric feasibility of the hybrid magnetic resonance imaging (MRI)-linac system (MRL) for brain metastases: the impact of the magnetic field.
Radiother Oncol. 2017;125(2):273–279.
Tseng CL, Eppinga W, Seravalli E, Hackett S, Brand E, Ruschin M, Lee YK, Atenafu EG, Sahgal A.
PMID: 29079310 DOI: 10.1016/j.radonc.2017.09.036

Evaluation of a commercial MRI linac based Monte Carlo dose calculation algorithm with GEANT4.
Med Phys. 2016;43(2):894–907.
Ahmad SB, Sarfehnia A, Paudel MR, Kim A, Hissoiny S, Sahgal A, Keller B.
PMID: 26843250 DOI: 10.1118/1.4939808

Minimizing the magnetic field effect in MR-linac specific QA-tests: the use of electron dense materials.
Phys Med Biol. 2016;61(3):N50–59.
van Zijp HM, van Asselen B, Wolthaus JW, Kok JM, de Vries JH, Ishakoglu K, Beld E, Lagendijk JJ, Raaymakers BW.
PMID: 26758570 DOI: 10.1088/0031-9155/61/3/N50

Lung stereotactic body radiotherapy with an MR-linac—quantifying the impact of the magneticfield and real-time tumor tracking.
Radiother Oncol. 2016;119(3):461–466.
Menten MJ, Fast MF, Nill S, Kamerling CP, McDonald F, Oelfke U.
PMID: 27165615 DOI: 10.1016/j.radonc.2016.04.019

Backscatter dose effects for high atomic number materials being irradiated in the presence of a magnetic field: a Monte Carlo study for the MRI linac.
Med Phys. 2016;43(8):4665.
Ahmad SB, Sarfehnia A, Kim A, Wronski M, Sahgal A, Keller BM.
PMID: 27487883 DOI: 10.1118/1.4955175

Technical note: dose effects of 1.5T transverse magnetic field on tissue interfaces in MRI-guided radiotherapy.
Med Phys. 2016;43(8):4797.
Chen X, Prior P, Chen GP, Schultz CJ, Li XA.
PMID: 27487897 DOI: 10.1118/1.4959534

Experimental evaluation of a GPU-based Monte Carlo dose calculation algorithm in the Monaco treatment planning system.
J Appl Clin Med Phys. 2016;17(6):230–241.
Paudel MR, Kim A, Sarfehnia A, Ahmad SB, Beachey DJ, Sahgal A, Keller BM.
PMID: 27929496 DOI: 10.1120/jacmp.v17i6.6455

Compensating for the impact of non-stationary spherical air cavities on IMRT dose delivery in transverse magnetic fields.
Phys Med Biol. 2015;60(2):755–768.
Bol GH, Lagendijk JJ, Raaymakers BW.
PMID: 25559321 DOI: 10.1088/0031-9155/60/2/755

Technical note: a Monte Carlo study of magnetic-field-induced radiation dose effects in mice.
Med Phys. 2015;42(9):5510–5516.
Rubinstein AE, Liao Z, Melancon AD, Guindani M, Followill DS, Tailor RC, Hazle JD, Court LE.
PMID: 26328998 DOI: 10.1118/1.4928600

A 1.5T transverse magnetic field in radiotherapy of rectal cancer: impact on the dose distribution.
Med Phys. 2015;42(12):7182–7189.
Uilkema S, van der Heide U, Sonke JJ, Moreau M, van Triest B, Nijkamp J.
PMID: 26632072 DOI: 10.1118/1.4936097

Investigating magnetic field dose effects in small animals: a Monte Carlo study.
Int J Cancer Ther Oncol. 2014;2(2):020233.
Rubinstein AE, Guindani M, Hazle JD, Court LE.
DOI: 10.14319/ijcto.0202.33

The feasibility of utilizing pseudo CT-data for online MRI based treatment plan adaptation for a stereotactic radiotherapy treatment of spinal bone metastases.
Phys Med Biol. 2014;59(23):7383–7391.
Hoogcarspel SJ, Van der Velden JM, Lagendijk JJ, van Vulpen M, Raaymakers BW.
PMID: 25386792 DOI: 10.1088/0031-9155/59/23/7383

MR-guided breast radiotherapy: feasibility and magnetic-field impact on skin dose.
Phys Med Biol. 2013;58(17):5917–5930.
van Heijst TC, den Hartogh MD, Lagendijk JJ, van den Bongard HJ, van Asselen B.
PMID: 23920343 DOI: 10.1088/0031-9155/58/17/5917

Fast online Monte Carlo-based IMRT planning for the MRI linear accelerator.
Phys Med Biol. 2012;57(5):1375–1385.
Bol GH, Hissoiny S, Lagendijk JJ, Raaymakers BW.
PMID: 22349450 DOI: 10.1088/0031-9155/57/5/1375

Fast dose calculation in magnetic fields with GPUMCD.
Phys Med Biol. 2011;56(16):5119–5129.
Hissoiny S, Raaijmakers AJ, Ozell B, Despres P, Raaymakers BW.
PMID: 21775790 DOI: 10.1088/0031-9155/56/16/003

Magnetic-field-induced dose effects in MR-guided radiotherapy systems: dependence on the magnetic field strength.
Phys Med Biol. 2008;53(4):909–923.
Raaijmakers AJ, Raaymakers BW, Lagendijk JJ.
PMID: 18263948 DOI: 10.1088/0031-9155/53/4/006

Integrating a MRI scanner with a 6 MV radiotherapy accelerator: impact of the surface orientation on the entrance and exit dose due to the transverse magnetic field.
Phys Med Biol. 2007;52(4):929–939.
Raaijmakers AJ, Raaymakers BW, van der Meer S, Lagendijk JJ.
PMID: 17264362 DOI: 10.1088/0031-9155/52/4/005

Experimental verification of magnetic field dose effects for the MRI-accelerator.
Phys Med Biol. 2007;52(14):4283–4291.
Raaijmakers AJ, Raaymakers BW, Lagendijk JJ.
PMID: 17664608 DOI: 10.1088/0031-9155/52/14/017

Dose optimization for the MRI-accelerator: IMRT in the presence of a magnetic field.
Phys Med Biol. 2007;52(23):7045–7054.
Raaijmakers AJ, Hardemark B, Raaymakers BW, Raaijmakers CP, Lagendijk JJ.
PMID: 18029992 DOI: 10.1088/0031-9155/52/23/018

Integrating a MRI scanner with a 6 MV radiotherapy accelerator: dose increase at tissue-air interfaces in a lateral magnetic field due to returning electrons.
Phys Med Biol. 2005;50(7):1363–1376.
Raaijmakers AJ, Raaymakers BW, Lagendijk JJ.
PMID: 15798329 DOI: 10.1088/0031-9155/50/7/002

Integrating a MRI scanner with a 6 MV radiotherapy accelerator: dose deposition in a transverse magnetic field.
Phys Med Biol. 2004;49(17):4109–4118.
Raaymakers BW, Raaijmakers AJ, Kotte AN, Jette D, Lagendijk JJ.
PMID: 15470926 DOI: 10.1088/0031-9155/52/4/005

Monte Carlo simulations of out-of-field surface doses due to the electron streaming effect in orthogonal magnetic fields.
Phys Med Biol. 2019;64(11):115029.
Malkov VN, Hackett SL, Wolthaus JWH, Raaymakers BW, van Asselen B.
PMID: 30808017 DOI: 10.1088/1361-6560/ab0aa0

Planning, adaptation, and virtual couch shift (35)

A preferred patient decubitus positioning for magnetic resonance image guided online adaptive radiation therapy of pancreatic cancer
Physics and Imaging in RO , 2019
Y Chen, X Chen, W Hall, P Prior, Y Zhang

PMID: 10000000013 DOI: 10.1016/j.phro.2019.11.001

Indications of online adaptive replanning based on organ deformation.
Pract Radiat Oncol. 2019 Aug 22. [Epub ahead of print]
Lim SN, Ahunbay EE, Nasief H, Zheng C, Lawton C, Li XA.
PMID: 31446149 DOI: 10.1016/j.prro.2019.08.007

Investigating the impact of patient arm position in an MR-linac on liver SBRT treatment plans.
Med Phys. 2019;46(11):5144–51.
Van den Wollenberg W, de Ruiter P, Nowee ME, Jansen EPM, Jan-Jakob S, Fast MF.
PMID: 31529694 DOI: 10.1002/mp.13826

A preferred patient decubitus positioning for MRI-guided online adaptive radiation therapy of pancreatic cancer.
Int J Radiat Oncol. 2019;105(1, Suppl):S240.
Chen Y, Chen X, Hall W, Prior P, Zhang Y.
PMID: 10000000003 DOI: 10.1016/j.ijrobp.2019.06.350

Fast contour propagation for MR-guided prostate radiotherapy using convolutional neural networks.
Med Phys. 2019 Dec 26. [Epub ahead of print]
Eppenhof KAJ, Maspero M, Savenije MHF, de Boer JCJ, van der Voort van Zyp JRN, Raaymakers BW, Raaijmakers AJE, Veta M, van den Berg CAT, Pluim JPW.
PMID: 31876300 DOI: 10.1002/mp.13994

Accuracy of automatic deformable structure propagation for high-field MRI guided prostate radiotherapy.
Radiat Oncol. 2020;15(1):32.
Christiansen RL, Dysager L, Bertelsen AS, Hansen O, Brink C, Bernchou U.
PMID: 32033574 DOI: 10.1186/s13014-020-1482-y

DeepDose: towards a fast dose calculation engine for radiation therapy using deep learning.
Phys Med Biol. 2020 Feb 13. [Epub ahead of print]
Kontaxis C, Bol GH, Lagendijk JJW, Raaymakers BW.
PMID: 32053803 DOI: 10.1088/1361-6560/ab7630

Laser-free pelvic alignment in an online adaptive radiotherapy environment.
tipsRO. 2020;13:21–23.
Barnes H, Mohajer J, Dunlop A, Smith GA.
PMID: 10000000000 DOI: 10.1016/j.tipsro.2020.01.0012

Intrafraction motion management of renal cell carcinoma with MRI-guided SBRT.
Pract Radiat Oncol. 2019;9(1):e55-61.
Prins FM, Stemkens B, Kerkmeijer LGW, Barendrecht MM, de Boer JCJ, Vonken EPA, Lagendijk JJW, Tijssen RHN.
PMID: 30261329 DOI: 10.1016/j.prro.2018.09.002

A technique to rapidly generate synthetic CT for MRI-guided online adaptive re-planning: an exploratory study.
Int J Radiat Oncol Biol Phys. 2019;103(5):1261-1270.
Ahunbay EE, Thapa R, Chen X, Paulson E, Li XA.
PMID: 30550817 DOI: 10.1016/j.ijrobp.2018.12.008

Prospective in silico study of the feasibility and dosimetric advantages of MRI-guided dose adaptation for human papillomavirus positive oropharyngeal cancer patients compared with standard IMRT.
ctRO. 2018; 11:11-18.
Mohamed ASR, Bahig H, Aristophanous M, Blanchard P, Kamal M, Ding Y, Cardenas CE, Brock KK, Lai, SY, Hutcheson KA, Phan J, Wang J, Ibbott G, Gabr RE, Narayana PA, Garden AS, Rosenthal DI, Gunn GB, Fuller, CD.
DOI: 10.1016/j.ctro.2018.04.005

Geometric and dosimetric evaluations of atlas-based segmentation methods of MR images in the head and neck region.
Phys Med Biol. 2018;63(14).
Kieselmann JP, Kamerling CP, Burgos N, Menten MJ, Fuller CD, Nill S, Cardoso MJ, Oelfke U.
PMID: 29882749 DOI: 10.1088/1361-6560/aacb65

Technical Note: Acceleration of Online Adaptive Replanning with Automation and Parallel Operations.
Med Phys. 2018;45(10).
Zhang J, Ahunbay E, Li XA.
PMID: 30053325 DOI: 10.1002/mp.13106

Evaluation of online plan adaptation strategies for the 1.5T MR-linac based on "first-in-man" treatments.
Cureus. 2018;10(4):e2431.
Winkel D, Bol GH, Kiekebosch IH, van Asselen B, Kroon PS, Jürgenliemk-Schulz IM, Raaymakers BW.
DOI: 10.7759/cureus.2431

Dosimetric impact of using a virtual couch shift for online correction of setup errors for brain patients on an integrated high-field magnetic resonance imaging linear accelerator.
Int J Radiat Oncol Biol Phys. 2017;98(3):699–708.
Ruschin M, Sahgal A, Tseng CL, Sonier M, Keller B, Lee Y.
PMID: 28581412 DOI: 10.1016/j.ijrobp.2017.03.004

Towards fast online intrafraction replanning for free-breathing stereotactic body radiation therapy with the MR-linac.
Phys Med Biol. 2017;62(18):7233–7248.
Kontaxis C, Bol GH, Stemkens B, Glitzner M, Prins FM, Kerkmeijer LGW, Lagendijk JJ, Raaymakers BW.
PMID: 28749375 DOI: 10.1088/1361-6560/aa82ae

Technical note: investigating the impact of field size on patient selection for the 1.5T MR-Linac.
Med Phys. 2017;44(11):5667–5671.
Chuter RW, Whitehurst P, Choudhury A, van Herk M, McWilliam A.
PMID: 28869651 DOI: 10.1002/mp.12557

Fast online replanning for interfraction rotation correction in prostate radiotherapy.
Med Phys. 2017;44(10):5034–5042.
Kontaxis C, Bol GH, Kerkmeijer LGW, Lagendijk JJ, Raaymakers BW.
PMID: 28703497 DOI: 10.1002/mp.12467

The potential of MRI-guided online adaptive re-optimisation in radiotherapy of urinary bladder cancer.
Radiother Oncol. 2016;118(1):154–159.
Vestergaard A, Hafeez S, Muren LP, Nill S, Hoyer M, Hansen VN, Gronborg C, Pedersen EM, Petersen JB, Huddart R, Oelfke U.
PMID: 26631646 DOI: 10.1016/j.radonc.2015.11.003

Evolution of motion uncertainty in rectal cancer: implications for adaptive radiotherapy.
Phys Med Biol. 2016;61(1):1–11.
Kleijnen JP, van Asselen B, Burbach JP, Intven M, Philippens ME, Reerink O, Lagendijk JJ, Raaymakers BW.
PMID: 26605518 DOI: 10.1088/0031-9155/61/1/1

MRI-based IMRT planning for MR-linac: comparison between CT- and MRI-based plans for pancreatic and prostate cancers.
Phys Med Biol. 2016;61(10):3819–3842.
Prior P, Chen X, Botros M, Paulson ES, Lawton C, Erickson B, Li XA.
PMID: 27089554 DOI: 10.1088/0031-9155/61/10/3819

Physically constrained voxel-based penalty adaptation for ultra-fast IMRT planning.
J Appl Clin Med Phys. 2016;17(4):172–189.
Wahl N, Bangert M, Kamerling CP, Ziegenhein P, Bol GH, Raaymakers BW, Oelfke U.
PMID: 27455484 DOI: 10.1120/jacmp.v17i4.6117

An online replanning method using warm start optimization and aperture morphing for flattening-filter-free beams.
Med Phys. 2016;43(8):4575.
Ahunbay EE, Ates O, Li XA.
PMID: 27487874 DOI: 10.1118/1.4955439

An MRI-based mid-ventilation approach for radiotherapy of the liver.
Radiother Oncol. 2016;121(2):276–280.
van de Lindt TN, Schubert G, van der Heide UA, Sonke JJ.
PMID: 27825795 DOI: 10.1016/j.radonc.2016.10.020

Development and clinical introduction of automated radiotherapy treatment planning for prostate cancer.
Phys Med Biol. 2016;61(24):8587–8595.
Winkel D, Bol GH, van Asselen B, Hes J, Scholten V, Kerkmeijer LG, Raaymakers BW.
PMID: 27880737 DOI: 10.1088/1361-6560/61/24/8587

Towards adaptive IMRT sequencing for the MR-linac.
Phys Med Biol. 2015;60(6):2493–2509.
Kontaxis C, Bol GH, Lagendijk JJ, Raaymakers BW.
PMID: 25749856 DOI: 10.1088/0031-9155/60/6/2493

A new methodology for inter- and intrafraction plan adaptation for the MR-linac.
Phys Med Biol. 2015;60(19):7485–7497.
Kontaxis C, Bol GH, Lagendijk JJ, Raaymakers BW.
PMID: 26371425 DOI: 10.1088/0031-9155/60/19/7485

On-line MR imaging for dose validation of abdominal radiotherapy.
Phys Med Biol. 2015;60(22):8869–8883.
Glitzner M, Crijns SP, de Senneville BD, Kontaxis C, Prins FM, Lagendijk JJ, Raaymakers BW.
PMID: 26531846 DOI: 10.1088/0031-9155/60/22/8869

Virtual couch shift (VCS): accounting for patient translation and rotation by online IMRT re-optimization.
Phys Med Biol. 2013;58(9):2989–3000.
Bol GH, Lagendijk JJ, Raaymakers BW.
PMID: 23588253 DOI: 10.1088/0031-9155/58/9/2989

Dosimetric feasibility of MRI-guided external beam radiotherapy of the kidney.
Phys Med Biol. 2013;58(14):4933–4941.
Stam MK, van Vulpen M, Barendrecht MM, Zonnenberg BA, Crijns SP, Lagendijk JJ, Raaymakers BW.
PMID: 23798643 DOI: 10.1088/0031-9155/58/14/4933

Online MRI guidance for healthy tissue sparing in patients with cervical cancer: an IMRT planning study.
Radiother Oncol. 2008;88(2):241–249.
Kerkhof EM, Raaymakers BW, van der Heide UA, van de Bunt L, Jurgenliemk-Schulz IM, Lagendijk JJ.
PMID: 18490068 DOI: 10.1016/j.radonc.2008.04.009

Comparison of prostate delineation on multimodality imaging for MR-guided radiotherapy.
Br J Radiol. 2019;92(1096):20180948.
Pathmanathan AU, McNair HA, Schmidt MA, Brand DH, Delacroix L, Eccles CL, Gordon A, Herbert T, van As NJ, Huddart RA, Tree AC.
PMID: 30676772 DOI: 10.1259/bjr.20180948

Adaptive radiotherapy: The Elekta Unity MR-linac concept.
Clin Transl Radiat Oncol. 2019;18:54-59.
Winkel D, Bol GH, Kroon PS, van Asselen B, Hackett SS, Werensteijn-Honingh AM, Intven MPW, Eppinga WSC, Tijssen RHN, Kerkmeijer LGW, de Boer HCJ, Mook S, Meijer GJ, Hes J, Willemsen-Bosman M, de Groot-van Breugel EN, Jurgenliemk-Schulz IM, Raaymakers BW.
DOI: 10.1016/j.ctro.2019.04.001

Prospective quantitative quality assurance and deformation estimation of MRI-CT image registration in simulation of head and neck radiotherapy patients.
Clin Transl Radiat Oncol. 2019;18:120-127.
Kiser K, Meheissen MAM, Mohamed ASR, Kamal M, Ng SP, Elhalawani H, Jethanandani A, He R, Ding Y, Rostom Y, Hegazy N, Bahig H, Garden A, Lai S, Phan J, Gunn GB, Rosenthal D, Frank S, Brock KK, Wang J, Fuller CD.
DOI: 10.1016/j.ctro.2019.04.018

Dosimetric evaluation of synthetic CT for head and neck radiotherapy generated by a patch-based 3D convolutional neural network.
Med Phys. 2019;0(0):1-10.
Dinkla AM, Florkow MC, Maspero M, Savenije MHF, Zijlstra F, Doornaert PAH, van Stralen M, Philippens MEP, van den Berg CAT, Seevinck PR.
PMID: 31206701 DOI: 10.1002/mp.13663

Quality assurance (12)

Automatic reconstruction of the delivered dose of the day using MR-linac treatment log files and online MR imaging.
Radiother Oncol. 2020 Jan 10;145:88-94.
Menten MJ, Mohajer JK, Nilawar R, Bertholet J, Dunlop A, Pathmanathan AU, Moreau M, Marshall S, Wetscherek A, Nill S, Tree AC, Oelfke U
PMID: 31931291 DOI: 10.1016/j.radonc.2019.12.010

Development and validation of a 1.5 T MR-Linac full accelerator head and cryostat model for Monte Carlo dose simulations.
Med Phys. 2020;46(11):5304-13.
Friedel M, Nachbar M, Monnich D, Dohm O, Thorwarth D.
PMID: 31532829 DOI: 10.1002/mp.13829

A daily end-to-end quality assurance workflow for MR-guided online adaptive radiation therapy on MR-Linac.
J Appl Clin Med Phys. 2020;21(1):205–12.
Chen X, Ahunbay E, Paulson ES, Chen G, Li XA.
PMID: 31799753 DOI: 10.1002/acm2.12786

MRIgRT head and neck anthropomorphic QA phantom: design, development, reproducibility and feasibility study.
Med Phys. 2020;47(2):604-13.
Steinmann A, Alvarez P, Lee H, Court L, Stafford R, Sawakuchi G, Wen Z, Fuller C, Followill D.
PMID: 31808949 DOI: 10.1002/mp.13951

Automatic reconstruction of the delivered dose of the day using MR-linac treatment log files and online MR imaging.
Radiother Oncol. 2020;145:88–94.
Menten MJ, Mohajer JK, Nilawar R, Bertholet J, Dunlop A, Pathmanathan AU, Moreau M, Marshall S, Wetscherek A, Nill S, Tree AC, Oelfke U.
PMID: 31931291 DOI: 10.1016/j.radonc.2019.12.010

Developing and characterizing MR/CT-visible materials used in QA phantoms for MRgRT systems.
Med Phys. 2018;45(2):773–782.
Steinmann A, Stafford RJ, Sawakuchi G, Wen Z, Court L, Fuller CD, Followill D.
PMID: 29178486 DOI: 10.1002/mp.12700

Characterization of a prototype MR-compatible Delta4 QA-system in a 1.5 tesla MR-linac.
Phys Med Biol. 2018;63(2):02NT02.
de Vries JHW, Seravalli E, Houweling AC, Woodings SJ, van Rooij R, Wolthaus JWH, Lagendijk JJ, Raaymakers BW.
PMID: 29176067 DOI: 10.1088/1361-6560/aa9d26

A back-projection algorithm in the presence of an extra attenuating medium: towards EPID dosimetry for the MR-Linac.
Phys Med Biol. 2017;62(15):6322–6340.
Torres-Xirau I, Olaciregui-Ruiz I, Rozendaal RA, Gonzalez P, Mijnheer BJ, Sonke JJ, van der Heide UA, Mans A.
PMID: 28714454 DOI: 10.1088/1361-6560/aa779e

The potential of polymer gel dosimeters for 3D MRIGRT quality assurance.
J Phys Conf Ser. 2017;847(1):012059.
Roed Y, Ding Y, Wen Z, Wang J, Pinsky L, Ibbott G.
DOI: 10.1088/1742-6596/847/1/012059

Technical note: development and performance of a software tool for quality assurance of online replanning with a conventional linac or MR-linac.
Med Phys. 2016;43(4):1713.
Chen GP, Ahunbay E, Li XA.
PMID: 27036569 DOI: 10.1118/1.4943795

An automated workflow for patient-specific quality control of contour propagation.
Phys Med Biol. 2016;61(24):8577–8586.
Beasley WJ, McWilliam A, Slevin NJ, Mackay RI, van Herk M.
PMID: 27880733 DOI: 10.1088/1361-6560/61/24/8577

Integrated megavoltage portal imaging with a 1.5T MRI linac.
Phys Med Biol. 2011;56(19):N207–214.
Raaymakers BW, de Boer JC, Knox C, Crijns SP, Smit K, Stam MK, van den Bosch MR, Kok JG, Lagendijk JJ.
PMID: 21934191 DOI: 10.1088/0031-9155/56/19/N01

Tracking and gating (15)

Tumor Trailing for Liver SBRT on the MR-Linac.
Int J Radiat Oncol Biol Phys. 2019 Feb 1;103(2):468-478.
Fast M, van de Schoot A, van de Lindt T, Carbaat C, van der Heide U, Sonke JJ
PMID: 30243573 DOI: 10.1016/j.ijrobp.2018.09.011

Technical note: MLC-tracking performance on the Elekta Unity MRI-linac.
Phys Med Biol. 2019;64(15):15NT02.
Glitzner M, Woodhead PL, Borman PTS, Lagendijk JJW, Raaymakers BW.
PMID: 31158831 DOI: 10.1088/1361-6560/ab2667

Tumor trailing for liver SBRT on the MR-Linac.
Int J Radiation Oncol Biol Phys. 2019;103(2):468-478.
Fast M, van de Schoot A, van de Lindt T, Carbaat C, van der Heide U, Sonke J-J.
DOI: 10.1016/j.ijrobp.2018.09.011

The impact of 2D cine MR imaging parameters on automated tumor and organ localization for MR-guided real-time adaptive radiotherapy.
Phys Med Biol. 2018;63(23).
Menten MJ, Fast MF, Wetscherek A.
DOI: 10.1088/1361-6560/aae74d

The development of a 4D treatment planning methodology to simulate the tracking of central lung tumors in an MRI-linac.
J Appl Clin Med Phys. 2018;19(1):145–155.
Al-Ward SM, Kim A, McCann C, Ruschin M, Cheung P, Sahgal A, Keller BM.
PMID: 29194940 DOI: 10.1002/acm2.12233

Real-time auto-adaptive margin generation for MLC-tracked radiotherapy.
Phys Med Biol. 2017;62(1):186–201.
Glitzner M, Fast MF, de Senneville BD, Nill S, Oelfke U, Lagendijk JJ, Raaymakers BW, Crijns SP.
PMID: 27991457 DOI: 10.1088/1361-6560/62/1/186

Effect of intra-fraction motion on the accumulated dose for free-breathing MR-guided stereotactic body radiation therapy of renal-cell carcinoma.
Phys Med Biol. 2017;62(18):7407–7424.
Stemkens B, Glitzner M, Kontaxis C, de Senneville BD, Prins FM, Crijns SPM, Kerkmeijer LGW, Lagendijk JJ, van den Berg CAT, Tijssen RHN.
PMID: 28771144 DOI: 10.1088/1361-6560/aa83f7

Real-time 4D dose reconstruction for tracked dynamic MLC deliveries for lung SBRT.
Med Phys. 2016;43(11):6072.
Kamerling CP, Fast MF, Ziegenhein P, Menten MJ, Nill S, Oelfke U.
PMID: 27806589 DOI: 10.1118/1.4965045

On the suitability of Elekta's Agility 160 MLC for tracked radiation delivery: closed-loop machine performance.
Phys Med Biol. 2015;60(5):2005–2017.
Glitzner M, Crijns SP, de Senneville BD, Lagendijk JJ, Raaymakers BW.
PMID: 25675279 DOI: 10.1088/0031-9155/60/5/2005

Kidney motion during free breathing and breath hold for MR-guided radiotherapy.
Phys Med Biol. 2013;58(7):2235–2245.
Stam MK, van Vulpen M, Barendrecht MM, Zonnenberg BA, Intven M, Crijns SP, Lagendijk JJ, Raaymakers BW.
PMID: 23475278 DOI: 10.1088/0031-9155/58/7/2235

Navigators for motion detection during real-time MRI-guided radiotherapy.
Phys Med Biol. 2012;57(21):6797–6805.
Stam MK, Crijns SP, Zonnenberg BA, Barendrecht MM, van Vulpen M, Lagendijk JJ, Raaymakers BW.
PMID: 23032581 DOI: 10.1088/0031-9155/57/21/6797

Proof of concept of MRI-guided tracked radiation delivery: tracking one-dimensional motion.
Phys Med Biol. 2012;57(23):7863–7872.
Crijns SP, Raaymakers BW, Lagendijk JJ.
PMID: 23151821 DOI: 10.1088/0031-9155/57/23/7863

A new concept for non-invasive renal tumour ablation using real-time MRI-guided radiation therapy.
BJU Int. 2011;107(1):63–68.
Kerkhof EM, Raaymakers BW, van Vulpen M, Zonnenberg BA, Bosch JL, van Moorselaar RJ, Lagendijk JJ.
PMID: 20560949 DOI: 10.1111/j.1464-410X.2010.09458.x

Towards MRI-guided linear accelerator control: gating on an MRI accelerator.
Phys Med Biol. 2011;56(15):4815–4825.
Crijns SP, Kok JG, Lagendijk JJ, Raaymakers BW.
PMID: 21753236 DOI: 10.1088/0031-9155/56/15/012

Fiducial marker based intra-fraction motion assessment on cine-MR for MR-linac treatment of prostate cancer.
Phys Med Biol. 2019;64(7):07NT02.
de Muinck Keizer DM, Pathmanathan AU, Andreychenko A, Kerkmeijer LGW, van der Voort van Zyp JRN, Tree AC, van den Berg CAT, de Boer JCJ.
PMID: 30794995 DOI: 10.1088/1361-6560/ab09a6

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