

Lise Nørgaard Bentzen
Ekstern VIP
Institut for Klinisk Medicin - Kræftafdelingen
Institut for Klinisk Medicin - Kræftafdelingen
Adresstype: Postadresse.
Palle Juul-Jensens Boulevard 35
8200
Aarhus N
Danmark
E-mail: lise@oncology.au.dk

Academic degrees

2002: Ph.d
1995: cand med (MD)

Education

Specialisation Clinical Oncology, 2007
Ph.D., Health, Aarhus University 2002.
Medical doctor, Aarhus University, 1995.
Diploma in Medical Research, Aarhus University 1995

Oncology positions held after specialisation

Senior Consultant, Dept. of Oncology, Aarhus Universitetshospital 1/3 2010-
Staff Specialist, Dept. of Oncology, Aarhus Universitetshospital 1/11 2007 – 28/2 2010

Scientific positions

Associate professor, Health, Aarhus University 2011-
Associate professor, Health 2010
Research Assistant, Dept. of Eksperimental Clinical Oncology, Aarhus Universitetshospital, 1/5 1998 – 31/7 2001.
Research Assistant, Danish Cancer Society, Dept. of Eksperimental Clinical Oncology, Aarhus Universitetshospital, 1/7 1995-31/10 1995.

Research

Prostate cancer, clinical radiation oncology, image guided radiotherapy, adaptive radiotherapy, brachytherapy, proton therapy, stereotactic radiotherapy (SBRT and SRS), functional imaging, radiation induced morbidity in prostate cancer patients.

Publications and presentations

Publications: 36 peer reviewed papers published, H-index 18 (scopus). Total citations 908 (scopus). Author/co-author > 65 abstracts at national and international meetings

Supervision

Co-supervisor for 5 Ph.D. students, graduated 2007, 2013, 2014, 2016, 2017.
Co-supervisor Ph.D ongoing for bachelor, stud. scient. Andreas Gravgaard Andersen, Dept. of Medical Physics, Dept. of Oncology, Aarhus University Hospital, Health, Aarhus University.

Censoring/Evaluation

Censoring: PhD theses: Chairman of Evaluation committee, University of Aarhus, Denmark:
Ph.D. Simon Lønbro, Health 2013, Ph.D. Lise Thorsen, Health, 2015, Ph.D. Maria Ervandian, Health, 2017.

International collaborations

Medical Physics, Memorial Sloan Kettering Cancer Center, NY. USA, Head, Professor J.O. Deasy.
Medical physics NKI, Amsterdam, The Netherlands, Head, Professor Uulke van der Heide.
Haukeland University Hospital, Dept. Oncology & Medical Physics, Bergen, Norway, Sara Thörnqvist.

Board memberships

Board member Daproca (Danish multidisciplinary cancer group for prostate cancer)
Board member Daproca Data Base
Member of ESO E-grand round team, elected ESTRO representative (2013-2015)
Dansk Kræftforskningsfond, member scientific board

Memberships

Danish society for clinical oncology; DSKO
European Society for Therapeutic Radiology and Oncology; ESTRO
GEC-ESTRO
Member Danish Prostate Oncology Group
CIRRO, DCCC

Publications

Proton therapy planning and image-guidance strategies within a randomized controlled trial for high-risk prostate cancer

Tilbæk, S., Muren, L. P., Vestergaard, A., Stolarczyk, L., Rønde, H. S., Johansen, T. S., Søndergaard, J., Høyer, M., Alsner, J., Bentzen, L. N. & Petersen, S. E., jul. 2023, I: *Clinical and Translational Radiation Oncology*. 41, 7 s., 100632.

Plan robustness evaluation strategies in whole-pelvic proton therapy for high-risk prostate cancer patients within a randomised clinical trial

Tilbæk, S., Petersen, S. E., Stolarczyk, L., Vestergaard, A., Rønde, H. S., Bentzen, L. N., Søndergaard, J., Høyer, M. & Muren, L. P., 2023, I: *Acta Oncologica*. 62, 11, s. 1455-1460 6 s.

3D dose reconstruction based on in vivo dosimetry for determining the dosimetric impact of geometric variations in high-dose-rate prostate brachytherapy

Jørgensen, E. B., Buus, S., Bentzen, L., Hokland, S. B., Rylander, S., Kertzscher, G., Beddar, S., Tanderup, K. & Johansen, J. G., jun. 2022, I: *Radiotherapy and Oncology*. 171, s. 62-68 7 s.

Towards range-guidance in proton therapy to detect organ motion-induced dose degradations

Busch, K., Andersen, A. G., Petersen, J. B., Petersen, S. E., Rønde, H. S., Bentzen, L., Pilskog, S., Skyt, P., Nørrevang, O. & Muren, L. P., feb. 2022, I: *Biomedical Physics & Engineering Express*. 8, 2, 8 s., 025018.

A phase I/II study of acute and late physician assessed and patient-reported morbidity following whole pelvic radiation in high-risk prostate cancer patients

Petersen, S. E., Thorsen, L. B., Hansen, S., Petersen, P. M., Lindberg, H., Moe, M., Petersen, J. B., Muren, L. P., Høyer, M. & Bentzen, L., 2022, I: *Acta Oncologica*. 61, 2, s. 179-184 6 s.

Accuracy of an in vivo dosimetry-based source tracking method for afterloading brachytherapy — A phantom study

Jørgensen, E. B., Kertzscher, G., Buus, S., Bentzen, L., Hokland, S. B., Rylander, S., Tanderup, K. & Johansen, J. G., maj 2021, I: *Medical Physics*. 48, 5, s. 2614-2623 10 s.

Anatomically robust proton therapy using multiple planning computed tomography scans for locally advanced prostate cancer

Busch, K., Dahl, B., Petersen, S. E., Rønde, H. S., Bentzen, L., Pilskog, S. & Muren, L. P., 2021, I: *Acta Oncologica*. 60, 5, s. 598-604 7 s.

Histopathological Features of MRI-Invisible Regions of Prostate Cancer Lesions

van Houdt, P. J., Ghobadi, G., Schoots, I. G., Heijmink, S. W. T. P. J., de Jong, J., van der Poel, H. G., Pos, F. J., Rylander, S., Bentzen, L., Haustermans, K. & van der Heide, U. A., apr. 2020, I: *Journal of Magnetic Resonance Imaging*. 51, 4, s. 1235-1246 12 s.

Dwell time verification in brachytherapy based on time resolved in vivo dosimetry

Johansen, J. G., Kertzscher, G., Jørgensen, E. B., Rylander, S., Bentzen, L., Hokland, S. B., Søndergaard, C. S., With, A. K. M., Buus, S. & Tanderup, K., 2019, I: *Physica Medica*. 60, April, s. 156-161 6 s.

A biological modelling based comparison of radiotherapy plan robustness using photons vs protons for focal prostate boosting

Pedersen, J., Casares Magaz, O., Petersen, J. B. B., Rørvik, J., Bentzen, L. N., Andersen, A. G. & Muren, L., apr. 2018, I: Physics and Imaging in Radiation Oncology. 6, s. 101-105 5 s.

Needle migration and dosimetric impact in high-dose-rate brachytherapy for prostate cancer evaluated by repeated MRI

Buus, S., Lizondo, M., Hokland, S., Rylander, S., Pedersen, E. M., Tanderup, K. & Bentzen, L., jan. 2018, I: Brachytherapy. 17, 1, s. 50-58 9 s.

Time-resolved in vivo dosimetry for source tracking in brachytherapy

Johansen, J. G., Rylander, S., Buus, S., Bentzen, L., Hokland, S. B., Søndergaard, C. S., With, A. K. M., Kertzschner, G. & Tanderup, K., jan. 2018, I: Brachytherapy. 17, 1, s. 122-132 11 s.

Validation of genetic predictors of late radiation-induced morbidity in prostate cancer patients

Schack, L. M. H., Petersen, S. E., Nielsen, S., Lundby, L., Høyer, M., Bentzen, L., Overgaard, J., Andreassen, C. N. & Alsner, J., nov. 2017, I: Acta Oncologica. 56, 11, s. 1514-1521 8 s.

Beam angle evaluation to improve inter-fraction motion robustness in pelvic lymph node irradiation with proton therapy

Gravgaard Andersen, A., Casares-Magaz, O., Petersen, J., Toftegaard, J., Bentzen, L., Thörnqvist, S. & Muren, L. P., jun. 2017, I: Acta Oncologica. 56, 6, s. 846-852 7 s.

Evaluating the influence of organ motion during photon vs. proton therapy for locally advanced prostate cancer using biological models

Busch, K., G Andersen, A., Casares-Magaz, O., Petersen, J. B. B., Bentzen, L., Thörnqvist, S. & Muren, L. P., jun. 2017, I: Acta Oncologica. 56, 6, s. 839-845 7 s.

Dosimetric impact of contouring and needle reconstruction uncertainties in US-, CT- and MRI-based high-dose-rate prostate brachytherapy treatment planning

Rylander, S., Buus, S., Pedersen, E. M., Bentzen, L. & Tanderup, K., apr. 2017, I: Radiotherapy & Oncology. 123, 1, s. 125-132 8 s.

Learning curve of MRI-based planning for high-dose-rate brachytherapy for prostate cancer

Buus, S., Rylander, S., Hokland, S., Søndergaard, C. S., Pedersen, E. M., Tanderup, K. & Bentzen, L., aug. 2016, I: Brachytherapy. 15, 4, s. 426-34 9 s.

Urinary bladder dose-response relationships for patient-reported genitourinary morbidity domains following prostate cancer radiotherapy

Thor, M., Olsson, C., Oh, J. H., Petersen, S. E., Alsadius, D., Bentzen, L., Pettersson, N., Muren, L. P., Høyer, M., Steineck, G. & Deasy, J. O., apr. 2016, I: Radiotherapy & Oncology. 119, 1, s. 117-22 6 s.

Hyperpolarized magnetic resonance spectroscopy for assessing tumor hypoxia

Iversen, A. B., Ringgaard, S., Laustsen, C., Stødkilde-Jørgensen, H., Bentzen, L., Busk, M. & Horsman, M. R., 4 sep. 2015, I: Acta Oncologica. s. 1393-1398 6 s.

The influence of a rectal ultrasound probe on the separation between prostate and rectum in high-dose-rate brachytherapy

Rylander, S., Buus, S., Bentzen, L., Pedersen, E. M. & Tanderup, K., sep. 2015, I: Brachytherapy. 14, 5, s. 711-717 7 s.

A method for evaluation of proton plan robustness towards inter-fractional motion applied to pelvic lymph node irradiation

Andersen, A. G., Casares-Magaz, O., Muren, L. P., Toftegaard, J., Bentzen, L., Thörnqvist, S. & Petersen, J. B. B., 2015, I: Acta Oncologica. 54, 9, s. 1643-50 8 s.

Relationships between dose to the gastro-intestinal tract and patient-reported symptom domains after radiotherapy for localized prostate cancer

Thor, M., Olsson, C. E., Oh, J. H., Petersen, S. E., Alsadius, D., Bentzen, L., Pettersson, N., Muren, L. P., Waldenström, A.-C., Høyer, M., Steineck, G. & Deasy, J. O., 2015, I: Acta Oncologica. 54, 9, s. 1326-34 9 s.

Development and validation of a scoring system for late anorectal side-effects in patients treated with radiotherapy for prostate cancer

Petersen, S. E., Bentzen, L., Emmertsen, K. J., Laurberg, S., Lundby, L. & Høyer, M., 11 mar. 2014, I: Radiotherapy and oncology : journal of the European Society for Therapeutic Radiology and Oncology.

Evaluation of an application for intensity-based deformable image registration and dose accumulation in radiotherapy

Thor, M., Andersen, E. S., Petersen, J. B. B., Sørensen, T. S., Noe, K. Ø., Tanderup, K., Bentzen, L., Elstrøm, U. V., Høyer, M. & Muren, L. P., 2014, I: Acta Oncologica. 53, 10, s. 1329-36 8 s.

Treatment simulations with a statistical deformable motion model to evaluate margins for multiple targets in radiotherapy for high-risk prostate cancer

Thörnqvist, S., Hysing, L. B., Zolnay, A. G., Söhn, M., Hoogeman, M. S., Muren, L. P., Bentzen, L. & Heijmen, B. J. M., dec. 2013, I: Radiotherapy & Oncology. 109, 3, s. 344-9 6 s.

Dose/volume-based evaluation of the accuracy of deformable image registration for the rectum and bladder

Thor, M., Bentzen, L., Elstrøm, U. V., Petersen, J. B. B. & Muren, L. P., okt. 2013, I: Acta Oncologica. 52, 7, s. 1411-6 6 s.

Prediction of rectum and bladder morbidity following radiotherapy of prostate cancer based on motion-inclusive dose distributions

Thor, M., Bentzen, L., Hysing, L. B., Ekanger, C., Helle, S.-I., Karlsdóttir, Á. & Muren, L. P., maj 2013, I: Radiotherapy & Oncology. 107, 2, s. 147-52 6 s.

Degradation of target coverage due to inter-fraction motion during intensity-modulated proton therapy of prostate and elective targets

Thörnqvist, S., Muren, L. P., Bentzen, L., Hysing, L. B., Høyer, M., Grau, C. & Petersen, J. B. B., apr. 2013, I: Acta Oncologica. 52, 3, s. 521-527 7 s.

Bladder dose accumulation based on a biomechanical deformable image registration algorithm in volumetric modulated arc therapy for prostate cancer

Andersen, E., Muren, L., Sørensen, T. S., Noe, K. Ø., Thor, M., Petersen, J. B. B., Høyer, M., Bentzen, L. N. & Tanderup, K., 2012, I: Physics in Medicine and Biology. 57, 21, s. 7089-7100 12 s.

Combretastatin A-4 phosphate affects tumor vessel volume and size distribution as assessed using MRI-based vessel size imaging

Nielsen, T., Bentzen, L., Pedersen, M. N., Tramm, T., Rijken, P. F. J. W., Bussink, J., Horsman, M. R. & Østergaard, L., 2012, I: Clinical Cancer Research. 18, 23, s. 6469-77 9 s.

Deformable image registration for contour propagation from CT to cone-beam CT scans in radiotherapy of prostate cancer

Thor, M., Petersen, J. B. B., Bentzen, L., Høyer, M. & Muren, L. P., 1 aug. 2011, I: Acta Oncologica. 50, 6, s. 918-925 8 s.

Plan robustness of simultaneous integrated boost radiotherapy of prostate and lymph nodes for different image-guidance and delivery techniques

Thörnqvist, S., Bentzen, L. N., Petersen, J. B. B., Hysing, L. B. & Muren, L. P., 1 aug. 2011, I: Acta Oncologica. 50, 6, s. 926-34 9 s.

Identifying hypoxia in human tumors: A correlation study between 18F-FMISO PET and the Eppendorf oxygen-sensitive electrode

Mortensen, L. S., Buus, S., Nordmark, M., Bentzen, L. N., Munk, O. L., Keiding, S. & Overgaard, J., 1 okt. 2010, I: Acta Oncologica. 49, 7, s. 934-40 7 s.

Propagation of target and organ at risk contours in radiotherapy of prostate cancer using deformable image registration

Thörnqvist, S., Petersen, J. B. B., Høyer, M., Bentzen, L. N. & Muren, L., 1 okt. 2010, I: Acta Oncologica. 49, 7, s. 1023-1032 10 s.

Phase I/II study on docetaxel, gemcitabine and prednisone in castrate refractory metastatic prostate cancer

Buch-Hansen, T. Z., Bentzen, L. N., Hansen, S., Høyer, M., Jensen, N. V., Saxe, C. & Sengeloev, L., 1 jul. 2010, I: *Cancer Chemotherapy and Pharmacology*. 66, 2, s. 295-301 7 s.

Intravascular contrast agent-enhanced MRI measuring contrast clearance and tumor blood volume and the effects of vascular modifiers in an experimental tumor

Bentzen, L., Vestergaard-Poulsen, P., Nielsen, T., Overgaard, J., Bjørnerud, A., Briley-Saebø, K., Horsman, M. R. & Østergaard, L., 15 mar. 2005, I: *International Journal of Radiation Oncology, Biology, Physics*. 61, 4, s. 1208-15 8 s.

Comparison of the biodistribution of two hypoxia markers [18F]FETNIM and [18F]FMISO in an experimental mammary carcinoma

Grönroos, T., Bentzen, L. N., Marjamäki, P., Murata, R., Horsman, M. R., Keiding, S., Eskola, O., Haaparanta, M., Minn, H. & Solin, O., 2004, I: *European Journal of Nuclear Medicine and Molecular Imaging*. 31, s. 513-520 8 s.

Tumour oxygenation assessed by 18F-fluoromisonidazole PET and polarographic needle electrodes in human soft tissue tumours

Bentzen, L. N., Keiding, S., Nordmark, M., Falborg, L., Hansen, S. B., Keller, J. Ø., Nielsen, O. S. & Overgaard, J., jun. 2003, I: *Radiotherapy & Oncology*. 67, 3, s. 339-44 6 s.

Tumour oxygenation assessed by F-18-fluoromisonidazole PET and polarographic needle electrodes in human soft tissue tumours

Bentzen, L., Keiding, S., Nordmark, M., Falborg, L., Hansen, S., Keller, J., Nielsen, O. & Overgaard, J., jun. 2003, I: *Radiotherapy & Oncology*. 67, 3, s. 339-344 6 s.

Metabolic fate of 2-[18F]fluoro-2-deoxy-D-glucose in mice bearing either SCCVII squamous cell carcinoma or C3H mammary carcinoma

Kaarstad, K., Bender, D., Bentzen, L. N., Munk, O. L. & Keiding, S., jul. 2002, I: *Journal of Nuclear Medicine*. 43, 7, s. 940-947 8 s.

Assessment of hypoxia in experimental mice tumours by [18F]fluoromisonidazole PET and pO₂ electrode measurements. Influence of tumour volumes and carbogen breathing

Bentzen, L. N., Keiding, S., Horsman, M. R., Grönroos, T., Hansen, S. B. & Overgaard, J., 2002, I: *Acta Oncologica*. 41, 3, s. 304-312 9 s.

Metabolic fate of 18F-FDG in mice bearing either SCCVII squamous cell carcinoma or C3H mammary carcinoma.

Kaarstad, K., Bender, D., Bentzen, L., Munk, O. L. & Keiding, S., 2002, I: *Journal of Nuclear Medicine*. 43, 7, s. 940-7 7 s.

Effect of changing tumor oxygenation on glycolytic metabolism in a murine C3H mammary carcinoma assessed by in vivo nuclear magnetic resonance spectroscopy

Nielsen, F. U., Daugård, P., Bentzen, L. N., Overgaard, J., Stødkilde-Jørgensen, H., Horsman, M. R. & Maxwell, R. J., 1 jul. 2001, I: *Cancer Research*. 61, 13, s. 5318-25 8 s.

Feasibility of detecting hypoxia in experimental mouse tumours with 18F-fluorinated tracers and positron emission tomography—a study evaluating [18F]Fluoro-2-deoxy-D-glucose

Bentzen, L. N., Keiding, S., Horsman, M. R., Falborg, L., Hansen, S. B. & Overgaard, J., 2000, I: *Acta Oncologica*. 39, 5, s. 629-37 9 s.

Non-invasive tumour blood perfusion measurement by 2H magnetic resonance

Bentzen, L. N., Horsman, M. R., Daugaard, P. & Maxwell, R. J., 2000, I: *NMR in Biomedicine*. 13, 8, s. 429-37 9 s.