

Office Address:

Rhode Island Hospital
Department of Radiation Oncology
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EDUCATION

Medical School

2008 Doctor of Medicine, Magna Cum Laude Albany Medical College, NY

Graduate School

2003 Master of Science in Experimental Psychology Villanova University, PA

Undergraduate

2000 Bachelor of Arts in Neuroscience Columbia University, NY

POSTDOCTORAL TRAINING

Internship and Residency

July 1, 2012 – June 30, 2013	Chief Resident, Radiation Oncology	Tufts Medical Center, Boston, MA
July 1, 2009 – June 30, 2013	Radiation Oncology	Tufts Medical Center, Boston, MA
July 1, 2008 – June 30, 2009	Preliminary Internal Medicine	Albany Medical Center, Albany, NY

ACADEMIC APPOINTMENTS

2014-Present Assistant Professor, Brown Alpert Medical School
2013-2014 Clinical Assistant Professor, Brown Alpert Medical School
2012-2013 Clinical Instructor, Tufts University School of Medicine

HOSPITAL APPOINTMENTS

2013-Present Physician, Dept. Radiation Oncology, Rhode Island Hospital
2013-Present Physician, Dept. Radiation Oncology, The Miriam Hospital
2013-Present Physician, Women's Oncology, Women and Infants Hospital
2012-2013 Chief Resident, Dept. Radiation Oncology, Tufts Medical Center
2009-2013 House Staff, Dept. Radiation Oncology, Tufts Medical Center

LICENSURE AND CERTIFICATION

May 2013 – present	Rhode Island	MD14200
May 2013 – present	Massachusetts	254301
July 2009 – June 2013	Rhode Island (limited medical license)	LP01724
July 2009 – June 2013	Massachusetts (limited medical license)	241251

COMMITTEE SERVICE

2017 – 2019 Lifespan Cancer Institute Palliative Care Subcommittee
2017 – present Lifespan Cancer Institute Breast Steering Committee, Clinical Trials Subcommittee
2017 – present Lifespan Cancer Institute Young Women's Breast Cancer Committee
2016 – present Cancer Liaison Physician, Comprehensive Cancer Network, Lifespan Cancer Institute
2015 – present Brown University Oncology Group (BrUOG) GI Committee Co-Chair
2015 – present Associate Program Director, Tufts Radiation Oncology Residency Program

Curriculum Vitae: KARA LYNNE LEONARD (nee KERR), M.D., M.Sc.

- 2013 – present Quality Management & Improvement Committee, Co-Chair, RIH Radiation Oncology
2013 Education Network to Advance Cancer Clinical Trials-ENACCT, Rhode Island Hospital
2010 – present Resident Selection Committee, Tufts Radiation Oncology Program

PROFESSIONAL ACTIVITIES AND SERVICE

- 2015 – present LCI institutional PI for ALLIANCE A011202
2015 – present LCI institutional PI for NSABP B-51
2015 ACRO Accreditation chart reviewer, Breast Cancer section
2014 Reviewer, Brachytherapy
2014 Reviewer, Radiotherapy and Oncology
2013 Editorial Board, Frontiers in Radiation Oncology
2012 Reviewer, International Journal of Radiation Oncology Biology Physics

EDUCATIONAL ENDEAVORS

- 2017 Radiation Oncology Careers in Medicine Panel Director, Brown Alpert Medical School
2013 – 2017 Biostatistics for Radiation Oncology Residents, Tufts Medical Center, TUSM
2013 Accelerated Partial Breast Irradiation for OB/GYN, Women & Infants' Hospital, Brown MS
2014 Head & Neck Radiation Oncology for Otolaryngology Residents, Tufts Medical Center, TUSM

RESIDENT AND STUDENT MENTEES

- 2012-2013 Student – Jennifer Logan, TUSM MS-III/IV
Project - Patterns of care of radiation therapy in patients with stage IV rectal cancer
Outcome – Publication in *Cancer*, 2013
- 2016 Student – Kunal Sindhu, Brown MS-I
Project – Placement of BioZorb marker is associated with smaller irradiated volume in BCT
Outcome – Abstract acceptance and poster presentation at ASBrS 2017
- 2017 Resident – Peter Zavitsanos, PGY3
Project – BRCA1 mutations associated with increased risk of brain metastases in breast cancer
Outcome – Oral presentation at ASTRO 2016 and publication submitted to *Clinical Breast Cancer*, Publication in American Journal of Clinical Oncology
- 2017 Resident – Benjamin Foster, PGY3
Project – Incidence and predictors of complications with 3D bioabsorbable marker placement.
Outcome – Abstract presented at San Antonio Breast Cancer Conference 2017
- 2017 Student - Alejandro Victores, Brown MS-I
Project – Evaluating statistics education in oncology training programs
Ongoing
- 2017 Student – Shunqing Zhang SUNY UPSTATE MS-IV
Project - Examining trends in the incidence of SCC of the anal canal in the US vs. RI LCI
Abstract presented at ASCO GI 2018
- 2018 Resident – Matthew Listo, PGY3
Project - Proposed Preoperative Non-invasive Image-guided Breast Brachytherapy (NIBB)
Accelerated Partial Breast Irradiation (APBI) decreases breast treatment volumes compared with postoperative NIBB APBI
Outcome – Oral Presentation at ABS 2018

AWARDS AND HONORS

- 2017-2018 ARRO Resident Teaching Award
2015 American Brachytherapy Society HDR Fellowship Recipient

Curriculum Vitae: KARA LYNNE LEONARD (nee KERR), M.D., M.Sc.

2014	ASTRO Spring Refresher Course Travel Grant Recipient
2011	Tufts Vision Science Retreat Poster Competition, Bronze medal poster
2008	Janet M. Glasgow Memorial Achievement Citation, AMWA
2008	Mary Pat Dearing Memorial Oncology Award, Albany Medical College
2007	New York State Runner of the Year, <i>New England Runner Magazine</i>
2005	National Science Foundation East Asia and Pacific Summer Institutes Award
1999	Academic All-American, Cross-Country, NCAA
1997-00	Academic All-Ivy, Cross-Country & Track, Ivy League

PROFESSIONAL SOCIETIES

2007	Alpha Omega Alpha, National Medical Honor Society, Theta Chapter of NY
2009	American Brachytherapy Society
2009	American College of Radiation Oncology
2009	American Society of Clinical Oncology
2009	American Society for Radiation Oncology
2015	American College of Radiation Oncology

PUBLICATIONS *Peer-reviewed papers*

1. **Leonard KL**, DiPetrillo TA, Munro JJ, and Wazer DE. A novel ytterbium-169 brachytherapy source and delivery system for use in conjunction with minimally invasive wedge resection of early-stage lung cancer. *Brachytherapy* 2011;10:163-169.
2. **Leonard KL**, Gagne NL, Mignano JE, Duker JS, Bannon EA, and Rivard MJ. A 17-year retrospective study of institutional results for eye plaque brachytherapy of uveal melanoma using ^{125}I , ^{103}Pd , and ^{131}Cs and historical perspective. *Brachytherapy* 2011;10:331-339.
3. Shoushtari A, Saylor D, **Kerr KL**, Sheng K, Thomas C, Jameson M, Reibel J, Shonka D, Levine P, and Read P. Outcomes of patients with head-and-neck cancer of unknown primary origin treated with intensity-modulated radiotherapy. *Int J Radiat Oncol Biol Phys* 2011;81:e83-e91.
4. Gagne NL*, **Leonard KL***, Mignano JE, Duker JS, Huber KL, and Rivard MJ. BEDVH – A method for evaluating biologically effective dose volume histograms: Application to eye plaque brachytherapy implants. *Med Phys* 2012;39:976-83. *These authors contributed equally to this work.
5. **Leonard KL**, Solomon DM, Hepel JT, Hiatt JR, Wazer DE, and DiPetrillo TA. Axillary lymph node dose with tangential whole breast irradiation in the prone vs. supine position. *Radiat Oncol* 2012;7:72.
6. Gagne NL, **Leonard KL**, and Rivard MJ. Radiobiology for eye plaque brachytherapy and evaluation of implant duration and radionuclide choice using an objective function. *Med Phys* 2012;39:3332-42.
7. Khurshid H, DiPetrillo T, Ng T, Mantripragada K, Birnbaum A, Berz D, Radie-Keane K, Perez K, Constantinou M, Luppe D, Schumacher A, **Leonard K**, and Safran H. A phase I study of dasatinib with concurrent chemoradiation for stage III non-small cell lung cancer (NSCLC). *Front Oncol* 2012;2:56.
8. Rava PS, **Leonard KL**, Sioshansi S, Curran B, Wazer DE, Cosgrove R, Noren G, and Hepel JT. Survival among patients with greater than 10 brain metastases treated with stereotactic radiosurgery. *Journal of Neurosurgery* 2013;119:457-62.
9. **Leonard KL**, Hepel JT, Hiatt JR, Price LL, DiPetrillo TA, and Wazer DE. The effect of dose-volume parameters and inter-fraction interval on cosmetic outcome and toxicity after three-dimensional conformal accelerated partial breast irradiation. *Int J Radiat Oncol Biol Phys* 2013;85:623-9.
10. Crawford AR, Dworkin L, **Leonard K**, Khurshid H, and Hepel JT. Recurrence of paraneoplastic membranous glomerulonephritis following chemoradiation in a man with non-small-cell lung carcinoma. *Rare Tumors* 2013;5:62-4.

Curriculum Vitae: KARA LYNNE LEONARD (nee KERR), M.D., M.Sc.

11. Leonard KL, Hepel JT, Styczynski JR, Hiatt JT, DiPetrillo TA, and Wazer DE. Breast boost using non-invasive image-guided breast brachytherapy vs. external beam: A 2:1 matched pair analysis. *Clinical Breast Cancer* 2013;13:455-9
12. Logan JK, Huber KE, DiPetrillo TA, Wazer DE, and Leonard KL. Patterns of care of radiation therapy in patients with stage IV rectal cancer: A SEER analysis. *Cancer* 2013;120:731-7.
13. Hepel JT, Hiatt JR, Sha S, Leonard KL, Graves TA, Wiggins DL, Masatras D, Pittier A, BrUOG, Wazer DE. The rationale, technique, and feasibility of partial breast irradiation using noninvasive image-guided breast brachytherapy. *Brachytherapy* 2014;13:493-501.
14. Hepel JT, Leonard KL, Hiatt JS, DiPetrillo TA, and Wazer DE. Factors influencing eligibility for breast boost using non-invasive image-guided breast brachytherapy. *Brachytherapy* 2014;13:479-583.
15. Leonard KL, Rivard MJ, Wazer DE, Hiatt JS, Sioshansi S, DiPetrillo TA, and Wazer DE. Prescription dose evaluation for APBI with noninvasive image-guided breast brachytherapy using equivalent uniform dose. *Brachytherapy* 2015;14:496-501
16. Yu E, DiPetrillo TA, Ramey S, and Leonard, KL. Comparison of endorectal ultrasound versus pelvic magnetic resonance imaging for radiation treatment planning in locally advanced rectal cancer. *PRO* 2015; 5:e451-e455
17. Abrams MJ, Koffer PP, and Leonard KL. The emerging non-operative management of non-metastatic rectal cancer: A population analysis. *Anticancer Res* 2016;36:1699-1702
18. Hepel JT, Leonard KL, Safran H, Ng T, Taber A, Khurshid H, Birnbaum A; Brown University Oncology Research Group., Wazer DE, DiPetrillo T. Stereotatic body radiation therapy boost after concurrent chemoradiation for locally advanced non-small cell lung cancer: A phase 1 dose escalation study. *Int J Radiat Oncol Biol Phys* 2016;96:1021-1027
19. Zavitsanos, PJ and Leonard KL. Patterns of care in women with high-intermediate risk endometrioid adenocarcinoma in the PORTEC-2 era: A SEER database analysis. *Brachytherapy* 2016, published online October 22 2016.
20. Yu E, Huang D, Leonard KL, DiPetrillo TA, Wazer DE, Hepel JT. Analysis of acute and late outcomes using hypofractionated tumor bed boost following hypofractionated whole-breast irradiation for early-stage breast cancer. *Clinical Breast Cancer* 2017, submitted.
21. Zavitsanos P, Wazer DE, Hepel JT and Leonard KL. BRCA1 mutations associated with increased risk of brain metastases in breast cancer: A 1:2 matched-pair analysis. *Am J Clin Oncol* 2018; epub ahead of print.
22. Safran H, Leonard KL, Perez K, Vrees M, Klipfel A, Schechter S, Oldenburg N, Roth L, Shah N, Rosati K, Rajdev L, Mantripragada K, Sheng IY, Barth P, DiPetrillo TA. Tolerability of ADXS11-001 Lm-LLO Listeria-Based Immunotherapy With Mitomycin, Fluorouracil, and Radiation for Anal Cancer. *Int J Radiat Oncol Biol Phys*. 2018;100:1175-1178.
23. Hepel JT, Yashar C, Leonard KL, Einck JP, Sha S, DiPetrillo T, Wiggins D, Graves TA, Edmonson D; Brown University Oncology Research Group, Wazer DE. Five fraction accelerated partial breast irradiation using noninvasive image-guided breast brachytherapy: Feasibility and acute toxicity. *Brachytherapy* 2018;17: epub ahead of print
24. Foster B, Sindhu K, Hepel J, Wazer D, Graves T, Taneja C, Wiggins D, and Leonard KL. Three-dimensional bioabsorbable tissue marker placement is associated with decreased tumor bed volume among patients receiving radiotherapy for breast cancer. *Practical Radiation Oncology* 2018: epub ahead of print.

PUBLICATIONS Book

1. Leonard KL and Sullivan A. *Biostatistics for Oncologists*. New York, NY: (Demos Medical; 2018)

PUBLICATIONS Book chapters authored

2. Leonard KL and Van Limbergen E. Brachytherapy in the treatment of breast cancer. in: *Comprehensive Brachytherapy: Physical and Clinical Aspects*. Edited by JLM Venselaar, AS Meigooni, D Baltas, P Hoskin. (Taylor & Francis Books, Inc., New York, 2012) Chap. 23.

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3. Kinsella T and **Leonard KL**. MLH-1. in: *Encyclopedia of cancer therapeutic targets. 1st Edition*. Edited by JL Marshall. (Springer, Inc, 2013).
4. **Leonard KL** and Wazer DE. Cardiotoxicity Associated with Radiation for Breast Cancer. In: Wright J. *Toxicities of radiation treatment for breast cancer: Risks and management strategies*. (Springer; 2018)

PUBLICATIONS *Published abstracts*

1. Shoushtari A, **Kerr KL**, Sheng L, and Reed P. Is chemotherapy necessary for N1 and N2 head and neck cancer of unknown primary? *Int J Radiat Oncol Biol Phys* 2008;72S:S391-S392.
2. **Leonard KL**, Bannon EA, Mignano JE, Duker, J, Gagne N, and Rivard MJ. Eye plaque brachytherapy for the treatment of uveal melanoma: The 2010 Tufts Medical Center experience. *Int J Radiat Oncol Biol Phys* 2010;78S:S268.
3. **Leonard KL** and Rivard MJ. Radiobiologic investigation of implant duration using ¹²⁵I, ¹⁰³Pd, or ¹³¹Cs for uveal melanoma. *Brachytherapy* 2011;10S1:S76.
4. **Leonard KL**, Gagne NL, Mignano JE, Duker JS, Bannon EA, and Rivard MJ. A 17-year retrospective study of institutional results for eye plaque brachytherapy of uveal melanoma using ¹²⁵I, ¹⁰³Pd, and ¹³¹Cs and historical perspective. *Radiotherapy Oncol* 2011;99S1:S354.
5. Gagne NL, **Leonard KL**, and Rivard MJ. A biologically effective dose volume histogram for optimizing eye plaque brachytherapy. *Med Phys* 2011;38:3576.
6. **Leonard KL**, Hepel JT, Hiatt JR, Price LL, DiPetrillo TA, and Wazer DE. Updated toxicity results of three dimensional conformal accelerated partial breast irradiation. *Int J Radiat Oncol Biol Phys* 2011;81S:S7-S8.
7. **Leonard KL**, Solomon DM, Wazer DE, and DiPetrillo TA. Reduced coverage of axillary level I lymph nodes with whole breast irradiation in the prone vs. supine position. *Int J Radiat Oncol Biol Phys* 2011;81S:S223-S224.
8. **Leonard KL**, Gagne NL, and Rivard MJ. BEDVH: A novel method for evaluating biologic effective dose for eye plaque brachytherapy implants. *Int J Radiat Oncol Biol Phys* 2011;81S:S295.
9. Rava P, **Leonard K**, Sioshansi S, DiPetrillo T, Noren G, Wazer D, and Hepel JT. Survival and CNS control in patients with small cell lung cancer who undergo salvage radiosurgery. *Am J Clin Oncol* 2012;35:203.
10. Rava P, **Leonard K**, Sioshansi S, DiPetrillo T, Noren G, Wazer D, and Hepel JT. Survival among patients with greater than 10 brain metastases treated with stereotactic radiosurgery. *J Neurosurgery* 2012.
11. **Leonard KL**, Wazer DE, Rivard MJ, Sioshansi S, Hiatt JR, Melhus CS, and Hepel JT. Prescription dose evaluation for APBI with noninvasive breast brachytherapy using equivalent uniform dose. *Radiother Oncol* 2012;103(S2):S125.
12. **Leonard KL**, Rava PS, and DiPetrillo TA. The role of local radiotherapy in the treatment of metastatic rectal cancer. *Int J Radiat Oncol Biol Phys* 2012;84S226.
13. **Leonard KL**, Wazer DE, Styczynski JR, DiPetrillo TA, and Hepel JT. Breast boost using noninvasive image-guided breast brachytherapy vs. en face electrons: A matched pair analysis. *Int J Radiat Oncol Biol Phys* 2012;84S:S347.
14. Logan J, DiPetrillo TA, and **Leonard KL**. Patterns of care of locoregional radiotherapy in the treatment of stage IV rectal cancer: A SEER analysis. *JCO* 2013;31S:477.
15. **Leonard KL**, Hepel JT, Styczynski JR, Hiatt JR, DiPetrillo TA, and Wazer DE. Breast Boost Using Non-Invasive Image-Guided Breast Brachytherapy Vs. En Face Electrons: A 2:1 Matched-Pair Analysis. *Brachytherapy* 2013;12:S45.
16. Hiatt JR, Rava PS, **Leonard KL**, Wazer DE, and Hepel JT. Chest Wall Dose Assessment in Patients Treated Using Non-Invasive Image-Guided Breast Brachytherapy APBI. *Brachytherapy* 2013;12:S47.
17. Hepel JT, Hiatt JR, Sha S, **Leonard KL**, Graves TA, and Wazer DE. Accelerated Partial Breast Irradiation Using Non-Invasive Image-Guided Breast Brachytherapy: Feasibility and Early Experience. *Brachytherapy* 2013;12:S16.

Curriculum Vitae: KARA LYNNE LEONARD (nee KERR), M.D., M.Sc.

18. Leonard KL, Logan JK, Dermarker P, Abrams M, Patel S, and DiPetrillo TA. The effect of modern radiotherapy techniques on hematocrit in patients with prostate cancer. *Int J Radiat Oncol Biol Phys* 2013;87:S344.
19. Sherman A, DiPetrillo TA, and Leonard KL. Changes in performance status in patients undergoing palliative radiotherapy. *Int J Radiat Oncol Biol Phys* 2013;87:S566-7.
20. Leonard KL. Patterns of care and outcomes for women with stage II endometrial cancer treated with vaginal brachytherapy: A SEER database analysis. *Brachytherapy* 2014;13:S33-34.
21. Hepel JT, Leonard KL, Hiatt JS, DiPetrillo TA, and Wazer DE. Factors influencing eligibility for breast boost using non-invasive image-guided breast brachytherapy. *Brachytherapy* 2014;13:S81-82.
22. Leonard KL. The impact of presentation/publication of PORTEC II on patterns of care in women with high-intermediate risk endometrioid adenocarcinoma: A SEER Database Analysis. *Brachytherapy* 2015;14:S28-29
23. Leonard KL, Nack E, Wazer DE, DiPetrillo TA, Hiatt JR, and Hepel JT. Early and late toxicities of conventionally fractionated and hypofractionated noninvasive image-guided breast brachytherapy as tumor bed boost. *Brachytherapy* 2016;15S:S60
24. Hepel JT, Leonard KL, Sha S, DiPetrillo TA, Wiggins D, Graves TA, Edmonson D, Brown University Oncology Research Group BrUOG. Initial experience of five fraction accelerated partial breast irradiation (APBI) using non-invasive image-guided breast brachytherapy (NIBB). *Brachytherapy* 2016;15S:S45-S46
25. Zavitsanos P, Wazer DE, Hepel JT and Leonard KL. BRCA1 mutations associated with increased risk of brain metastases in breast cancer: A 2:1 matched-pair analysis. *Int J Radiat Oncol Biol Phys* 2016; 96S:S59-S60
26. Yu E, Huang D, Leonard KL, DiPetrillo TA, Wazer DE, Hepel JT. Analysis of acute and late outcomes using hypofractionated tumor bed boost following hypofractionated whole-breast irradiation for early-stage breast cancer. *Int J Radiat Oncol Biol Phys* 2016;96S: E33-34
27. Sindhu K, Hepel JT, Wazer DE, Taneja C, Graves T, Wiggins D, and Leonard KL. Placement of the BioZorb marker is associated with smaller irradiated tumor bed in patients receiving breast conserving therapy. *American Society of Breast Surgeons*, Las Vegas, Nevada, April 2017
28. Foster BC, Graves TA, Taneja C, Wiggins DL, Hepel JT, Wazer DE, and Leonard KL. Identifying optimal candidates for three-dimensional bioabsorbable marker placement during breast cancer treatment: Incidence and predictors of postoperative complications. Submitted to San Antonio Breast Cancer Conference, San Antonio, Texas, December 2017
29. Listo M, Hepel JT, Wazer DE, Leonard KL. Proposed Preoperative Non-invasive Image-guided Breast Brachytherapy (NIBB) Accelerated Partial Breast Irradiation (APBI) Decreases Breast Treatment Volumes Compared with Postoperative NIBB APBI. *Brachytherapy* 2018;17:S49-S50

ABSTRACT ORAL PRESENTATIONS National & International Meetings

1. Olfactory dysfunction occurs in transgenic mice overexpressing human tau protein. Oral presentation at the Annual Meeting of the Association for Chemoreception Sciences, Sarasota, FL, April 25, 2004.
2. Updated toxicity results of three dimensional conformal accelerated partial breast irradiation. Oral presentation at the 53rd Annual Meeting of the American Society for Radiation Oncology, Miami, FL, October 3, 2011.
3. Patterns of care and outcomes for women with stage II endometrial cancer treated with vaginal brachytherapy: A SEER database analysis. Oral presentation at the American Brachytherapy Society 2014 Annual Meeting, San Diego, CA, April 4, 2014.
4. The impact of presentation/publication of PORTEC II on patterns of care in women with high-intermediate risk endometrioid adenocarcinoma: A SEER database analysis. Oral presentation at the American Brachytherapy Society 2015 Annual Meeting, Orlando, FL, April 2015.

Curriculum Vitae: KARA LYNNE LEONARD (nee KERR), M.D., M.Sc.

INVITED PRESENTATIONS *Local Meetings and Events*

1. Radiation Oncology in the Treatment of Breast Cancer. Warren Alpert School of Medicine of Brown University, Women with Breast and Gynecologic Cancers Seminar, November 2014
2. Radiation Oncology in the Treatment of Gynecologic Malignancies. Warren Alpert School of Medicine of Brown University, Women with Breast and Gynecologic Cancers Seminar, November 2014
3. Over-diagnosis and overtreatment in oncology: Finding a balance. Avenues of Healing Seminar, Warwick, RI, October 2015.
4. Making radiotherapy relevant – Not just flashy! Rose B. David Memorial Lecture, Newport Hospital, Newport RI, May 2016.
5. Axillary lymph nodes: Maximizing treatment and minimizing lymphedema. Avenues of Healing Seminar, Warwick, RI, October 2016
6. Care of the radiation oncology patient. Lifespan Oncology Nurse Education Seminar, Newport RI, October 2016
7. Radiation Oncology in the treatment of breast cancer. Rhode Island Hospital School of Diagnostic Imaging, April 2017

INVITED PRESENTATIONS *National & International Meetings*

1. Non-invasive Image-guided breast brachytherapy (NIBB). American Brachytherapy Society, Boston MA, April 20 2017