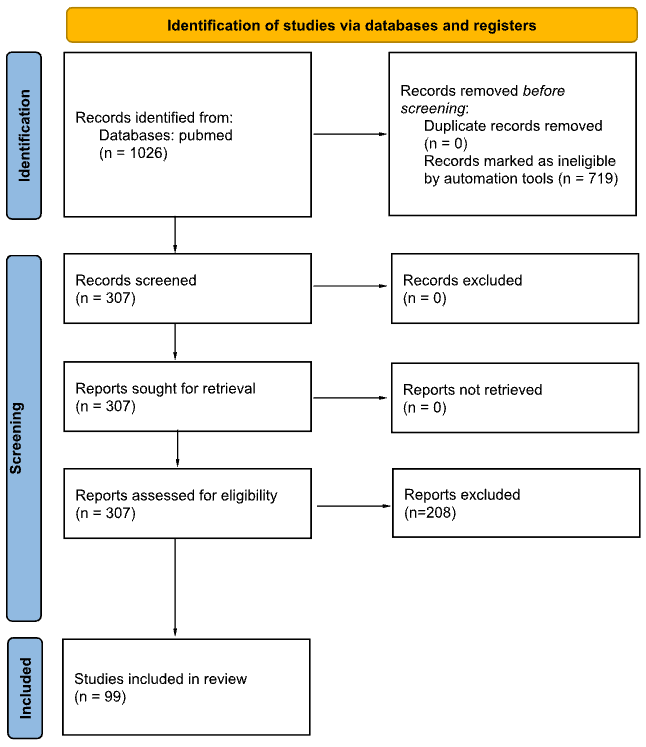
## Supplementary Materials

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## Figure E1

PRISMA diagram, adapted from: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71



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## Table E1

Ongoing prospective studies on reirradiation included in the systematic review.

|  |  |  |
| --- | --- | --- |
| **NCT Number** | **Study Title** | **Study URL** |
| NCT06397573 | Ablative Stereotactic MR-Guided Adaptive Reirradiation | https://clinicaltrials.gov/study/NCT06397573 |
| NCT02745847 | Re-irradiation With Stereotactic Body Radiotherapy for Relapsed Pancreatic Cancer | https://clinicaltrials.gov/study/NCT02745847 |
| NCT06344130 | Hypofractionation Trial of Re-irradiation in Good Prognosis Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT06344130 |
| NCT05393258 | Temporally-modulated Pulsed Radiation Therapy (TMPRT) After Prior EBRT for Recurrent IDH-mutant Gliomas | https://clinicaltrials.gov/study/NCT05393258 |
| NCT05284643 | Spectroscopic MRI, Proton Therapy, and Avastin for Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT05284643 |
| NCT04181684 | LITT Followed by Hypofractionated RT for Recurrent Gliomas | https://clinicaltrials.gov/study/NCT04181684 |
| NCT04477200 | Mycophenolate Mofetil Combined With Radiation Therapy in Glioblastoma | https://clinicaltrials.gov/study/NCT04477200 |
| NCT05917145 | Clinical Trial of the ATM-Inhibitor WSD0628 in Combination With Radiation Therapy for Recurrent Brain Tumors | https://clinicaltrials.gov/study/NCT05917145 |
| NCT03423628 | A Study to Assess the Safety and Tolerability of AZD1390 Given With Radiation Therapy in Patients With Brain Cancer | https://clinicaltrials.gov/study/NCT03423628 |
| NCT04729959 | Testing the Addition of the Immune Therapy Drugs, Tocilizumab and Atezolizumab, to Radiation Therapy for Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT04729959 |
| NCT05124912 | REMASTer: REcurrent Brain Metastases After SRS Trial | https://clinicaltrials.gov/study/NCT05124912 |
| NCT05737368 | Treatment of Recurrent Glioblastoma With Fractionated Radiotherapy Combined With Cadonilimab | https://clinicaltrials.gov/study/NCT05737368 |
| NCT05201326 | Irinotecan And Bevacizumab Combined With Re-radiotherapy in Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT05201326 |
| NCT05614700 | Prostate Reirradiation Toxicity Outcomes Feasibility Study | https://clinicaltrials.gov/study/NCT05614700 |
| NCT02866747 | A Study Evaluating the Association of Hypofractionated Stereotactic Radiation Therapy and Durvalumab for Patients With Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT02866747 |
| NCT06220552 | The Efficacy and Safety of Low-dose Radiotherapy Combined With Sintilimab and Temozolomide in Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT06220552 |
| NCT06397560 | PrOton Pulsed reduCed dOse Rate Radiotherapy for Recurrent CNS maligNancies Trial | https://clinicaltrials.gov/study/NCT06397560 |
| NCT05737212 | Studying the Safety, Efficacy, and Pharmacokinetic Characteristics of BNCT in Patients With Recurrent High-grade Gliomas | https://clinicaltrials.gov/study/NCT05737212 |
| NCT04977375 | Trial of Anti-PD-1 Immunotherapy and Stereotactic Radiation in Patients With Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT04977375 |
| NCT03596086 | HSV-tk + Valacyclovir + SBRT + Chemotherapy for Recurrent GBM | https://clinicaltrials.gov/study/NCT03596086 |
| NCT04197492 | Hypofractionated Stereotactic Radiotherapy With Anlotinib in Patients With Recurrent High-Grade Gliomas | https://clinicaltrials.gov/study/NCT04197492 |
| NCT03411408 | Accelerated Hypofractionated Intensity - Modulated Radiotherapy After Hyperbaric Oxygenation for Recurrent High Grade Glioma. | https://clinicaltrials.gov/study/NCT03411408 |
| NCT04482933 | HSV G207 With a Single Radiation Dose in Children With Recurrent High-Grade Glioma | https://clinicaltrials.gov/study/NCT04482933 |
| NCT03532295 | Retifanlimab and Epacadostat in Combination With Radiation and Bevacizumab in Patients With Recurrent Gliomas | https://clinicaltrials.gov/study/NCT03532295 |
| NCT03604978 | Nivolumab and Multi-fraction Stereotactic Radiosurgery With or Without Ipilimumab in Treating Patients With Recurrent Grade II-III Meningioma | https://clinicaltrials.gov/study/NCT03604978 |
| NCT02698254 | Radiation Therapy in Treating Patients With Recurrent Brain Tumors Who Have Undergone Previous Radiation Therapy | https://clinicaltrials.gov/study/NCT02698254 |
| NCT02800486 | Super Selective Intra-arterial Repeated Infusion of Cetuximab (Erbitux) With Reirradiation for Treatment of Relapsed/Refractory GBM, AA, and AOA | https://clinicaltrials.gov/study/NCT02800486 |
| NCT03126266 | Re-Irradiation of Progressive or Recurrent DIPG | https://clinicaltrials.gov/study/NCT03126266 |
| NCT01464177 | Hypofractionated Stereotactic Radiotherapy in Recurrent Glioblastoma Multiforme | https://clinicaltrials.gov/study/NCT01464177 |
| NCT03661723 | Pembrolizumab and Reirradiation in Bevacizumab Naïve and Bevacizumab Resistant Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT03661723 |
| NCT03743662 | Nivolumab With Radiation Therapy and Bevacizumab for Recurrent MGMT Methylated Glioblastoma | https://clinicaltrials.gov/study/NCT03743662 |
| NCT04670016 | HRQL and Symptom Assessment for Patients With DIPG or Recurrent and Re-irradiated Brain Tumours and Their Caregivers | https://clinicaltrials.gov/study/NCT04670016 |
| NCT04988750 | Evaluate the Safety and Preliminary Efficacy of the Combination of NaviFUS System With Re-irradiation for rGBM Patients | https://clinicaltrials.gov/study/NCT04988750 |
| NCT06160206 | Retifanlimab With Bevacizumab and Hypofractionated Radiotherapy for the Treatment of Recurrent Glioblastoma | https://clinicaltrials.gov/study/NCT06160206 |
| NCT03620032 | Study of Re-irradiation at Relapse Versus RT and Multiple Elective rt Courses | https://clinicaltrials.gov/study/NCT03620032 |
| NCT06055517 | Use of Pulsed Low-dose Rate Re-irradiation for Recurrent Glioma (PULSAR) | https://clinicaltrials.gov/study/NCT06055517 |
| NCT06093165 | RE-irradiation of Diffuse MIdline Glioma paTients | https://clinicaltrials.gov/study/NCT06093165 |
| NCT06305910 | CD200AR-L and Allogeneic Tumor Lysate Vaccine Immunotherapy for Recurrent HGG and Newly Diagnosed DMG/DIPG in Children and Young Adults | https://clinicaltrials.gov/study/NCT06305910 |
| NCT05653635 | Contribution From PET-DOPA in Glioblastoma Re-irradiation - A Randomized Phase II Study | https://clinicaltrials.gov/study/NCT05653635 |
| NCT03164460 | Stereotactic Body Radiation Therapy or Intensity Modulated Radiation/Proton Therapy in Treating Patients With Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT03164460 |
| NCT02125786 | A Trial of Surgery and Fractionated Re-Irradiation for Recurrent Ependymoma | https://clinicaltrials.gov/study/NCT02125786 |
| NCT02278744 | Trial for Salvage Re-Irradiation of Metastatic Spine Lesions Using Single-Fraction Stereotactic Radiosurgery | https://clinicaltrials.gov/study/NCT02278744 |
| NCT05850663 | Quality of Life Assessment of Radiotherapy in Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT05850663 |
| NCT03892720 | Stereotactic Body Radiation Therapy Using HyperArc in Treating Patients With Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT03892720 |
| NCT03238378 | Salvage Brachytherapy and Hyperthermia for Recurrent H&N-tumours | https://clinicaltrials.gov/study/NCT03238378 |
| NCT04576091 | Testing the Addition of an Anti-cancer Drug, BAY 1895344, With Radiation Therapy to the Usual Pembrolizumab Treatment for Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT04576091 |
| NCT06103617 | Safety and Superiority of Penicillamine in Radiosensitization of Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT06103617 |
| NCT04185974 | Carbon Ion Re-Radiotherapy in Patients With Recurrent or Progressive Locally Advanced Head-and-Neck Cancer | https://clinicaltrials.gov/study/NCT04185974 |
| NCT01973179 | Re-irradiation of Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT01973179 |
| NCT02289209 | Reirradiation With Pembrolizumab in Locoregional Inoperable Recurrence or Second Primary Squamous Cell CA of the Head and Neck | https://clinicaltrials.gov/study/NCT02289209 |
| NCT02921581 | ReIrradiation With FDG-PET Guided Dose Painting | https://clinicaltrials.gov/study/NCT02921581 |
| NCT03546582 | SBRT +/- Pembrolizumab in Patients With Local-Regionally Recurrent or Second Primary Head and Neck Carcinoma | https://clinicaltrials.gov/study/NCT03546582 |
| NCT03217188 | Proton Re-Irradiation for Recurrent Head and Neck Cancer | https://clinicaltrials.gov/study/NCT03217188 |
| NCT03317327 | REirradiation and Programmed Cell Death Protein 1 (PD-1) Blockade On Recurrent Squamous Cell Head and Neck Tumors | https://clinicaltrials.gov/study/NCT03317327 |
| NCT03521570 | Intensity-Modulated Radiation Therapy & Nivolumab for Recurrent or Second Primary Head & Neck Squamous Cell Cancer | https://clinicaltrials.gov/study/NCT03521570 |
| NCT04533620 | Individualized Carbon-Ion Radiotherapy for Patients With Locally Recurrent Nasopharyngeal Carcinoma | https://clinicaltrials.gov/study/NCT04533620 |
| NCT03981068 | DAHANCA 37. Re-irradiation With Proton Radiotherapy | https://clinicaltrials.gov/study/NCT03981068 |
| NCT05526924 | Dosing Study of Radiation Combined With Tislelizumab and Pamiparib in Patients With Previously Treated Head and Neck Cancer | https://clinicaltrials.gov/study/NCT05526924 |
| NCT04143984 | Carbon-Ion Radiotherapy Plus Camrelizumab for Locally Recurrent Nasopharyngeal Carcinoma | https://clinicaltrials.gov/study/NCT04143984 |
| NCT05904119 | Lomustine With and Without Reirradiation for First Progression of Glioblastoma: a Randomized Phase III Study | https://clinicaltrials.gov/study/NCT05904119 |
| NCT04215510 | Early Recurrent Nasopharyngeal Cancer: the Effect of Surgery vs IMRT | https://clinicaltrials.gov/study/NCT04215510 |
| NCT05626829 | Tranilast as a Radiosensitizer in Reradiation of Nasopharyngeal Carcinoma | https://clinicaltrials.gov/study/NCT05626829 |
| NCT04453813 | Toripalimab Plus Concurrent Chemo-radiotherapy for Unresectable Locally Recurrent Nasopharyngeal Carcinoma | https://clinicaltrials.gov/study/NCT04453813 |
| NCT03689556 | Examine the Prognostic Role of FLT PET/CT for Patients With LR-NPC Treated by Carbon Ion Therapy | https://clinicaltrials.gov/study/NCT03689556 |
| NCT04534855 | A Phase II Clinical Study of Treprilimab in the Treatment of Recurrent Nasopharyngeal Carcinoma After Re-irradiation | https://clinicaltrials.gov/study/NCT04534855 |
| NCT02170181 | Clinical Registry for Oligometastic Disease, Consolidation Therapy, Debulking Prior to Chemotherapy, or Re-Irradiation | https://clinicaltrials.gov/study/NCT02170181 |
| NCT04784221 | Nanoparticles and Hypofractionated Protontherapy for Reirradiation of Pantumor Relapse | https://clinicaltrials.gov/study/NCT04784221 |
| NCT04889742 | Hyperthermia Enhanced Re-irradiation of Loco-regional Recurrent Tumors | https://clinicaltrials.gov/study/NCT04889742 |
| NCT05301101 | High Dose Re-Irradiation Utilizing Advanced Deformable Image Registration (DIR) and Individualized Organ At Risk (OAR) Dose Calculations With Organ Specific Toxicity Analysis | https://clinicaltrials.gov/study/NCT05301101 |
| NCT05313191 | Prospective Evaluation of Pencil Beam Scanning Proton Therapy for Previously Irradiated Tumors | https://clinicaltrials.gov/study/NCT05313191 |
| NCT05055635 | Pencil Beam Proton Therapy for Recurrences in Anal Cancer Patients Previously Treated With Radiotherapy (DACG 5) | https://clinicaltrials.gov/study/NCT05055635 |
| NCT03438552 | Efficacy of Repeat Stereotactic Radiation in Patients With Intraprostatic Tumor Recurrence | https://clinicaltrials.gov/study/NCT03438552 |
| NCT06202248 | A Study to Assess Alpha DaRT224 for the Treatment of Men With Non-metastatic Locally Recurrent Prostate Cancer | https://clinicaltrials.gov/study/NCT06202248 |
| NCT02899221 | Hyperthermia and High Dose Rate Radiation Therapy in Treating Patients With Recurrent Prostate Cancer After Radiation | https://clinicaltrials.gov/study/NCT02899221 |
| NCT03246802 | Partial Prostate Salvage High Dose Rate Brachytherapy | https://clinicaltrials.gov/study/NCT03246802 |
| NCT05715502 | Focal Salvage Brachytherapy Study (FocaSaBra) | https://clinicaltrials.gov/study/NCT05715502 |
| NCT03073278 | Focal Radiotherapy for Previously Treated Prostate Cancer Patients | https://clinicaltrials.gov/study/NCT03073278 |
| NCT03253744 | Prostate SBRT for Locally Recurrent Prostate Cancer After Prior Radiotherapy | https://clinicaltrials.gov/study/NCT03253744 |
| NCT04536805 | Relapse in Previously Irradiated Prostate Bed : Stereotactic Ablative Reirradiation Potentiated by Metformin | https://clinicaltrials.gov/study/NCT04536805 |
| NCT03879109 | Chemotherapy Followed by Pelvic Reirradiation Versus Chemotherapy Alone as Pre-operative Treatment for Locally Recurrent Rectal Cancer | https://clinicaltrials.gov/study/NCT03879109 |
| NCT06201078 | Stereotactic Re-irradiation of Local Recurrences of Prostate Cancer After Radiotherapy | https://clinicaltrials.gov/study/NCT06201078 |
| NCT04695782 | Pencil Beam Proton Therapy for Pelvic Recurrences in Rectal Cancer Patients Previously Treated With Radiotherapy | https://clinicaltrials.gov/study/NCT04695782 |
| NCT06283927 | The RECSUR-study: Resection Versus Best Oncological Treatment for Recurrent Glioblastoma (ENCRAM 2302) | https://clinicaltrials.gov/study/NCT06283927 |
| NCT04827732 | Hypofractionated Pencil-Beam Scanning Intensity-modulated Proton Therapy (IMPT) in Recurrent Rectal Cancer | https://clinicaltrials.gov/study/NCT04827732 |
| NCT05807984 | Re-irradiation Therapy of Locally Recurrent Rectal Cancer With Carbon Ion | https://clinicaltrials.gov/study/NCT05807984 |
| NCT05984576 | Radiotherapy & Total Neoadjuvant Therapy for Recurrent Rectal Cancer in Previously Irradiated Patients, an Italian Association for Radiotherapy and Clinical Oncology (AIRO)-GI Platform: a Multi-centre Prospective Observational Study | https://clinicaltrials.gov/study/NCT05984576 |
| NCT05457595 | Clinical Study on the Re-irradiation of Lateral Pelvic Recurrences of Gynecological Malignancies | https://clinicaltrials.gov/study/NCT05457595 |
| NCT05323253 | A Clinical Study to Assess the Efficacy and Safety of Alpha DaRT224 for the Treatment of Patients With Recurrent Cutaneous Squamous Cell Carcinoma | https://clinicaltrials.gov/study/NCT05323253 |
| NCT06452485 | Postoperative Re-irradiaTion With and Without HYPERthermia: Toxicity, Quality of Life and Survival in Patients With Locoregional Recurrent Breast Cancer | https://clinicaltrials.gov/study/NCT06452485 |
| NCT06362616 | Preoperative Accelerated Partial Breast Irradiation in Patients With Locally Recurrent or Second Primary Breast Cancer | https://clinicaltrials.gov/study/NCT06362616 |
| NCT05592938 | Partial Breast Re-irradiation Using Ultra Hypofractionation (PRESERVE) | https://clinicaltrials.gov/study/NCT05592938 |
| NCT05772390 | Partial Breast Re-irradiation in Women in Women With Locally Recurrent Breast Cancer Previously Treated With Conservative Surgery and Whole Breast Irradiation | https://clinicaltrials.gov/study/NCT05772390 |
| NCT06129747 | Repeat Breast Conserving Surgery Followed by Daily Partial Breast Irradiation in Ipsilateral Breast | https://clinicaltrials.gov/study/NCT06129747 |
| NCT04071418 | I-125 Seeds Implantation in the Treatment of Recurrent Lung Cancer After Radiotherapy | https://clinicaltrials.gov/study/NCT04071418 |
| NCT04275687 | Thoracic Re-irradiation For Locoregionally Recurrent Non-small Cell Lung Cancer | https://clinicaltrials.gov/study/NCT04275687 |
| NCT04455438 | SBRT Dose Escalation for Reirradiation of Inoperable Lung Lesions | https://clinicaltrials.gov/study/NCT04455438 |
| NCT04505267 | NBTXR3 and Radiation Therapy for the Treatment of Inoperable Recurrent Non-small Cell Lung Cancer | https://clinicaltrials.gov/study/NCT04505267 |
| NCT05189054 | Safety and Efficacy of SBRT in the Reirradiation for Ultra-central Thoracic Malignant Tumors | https://clinicaltrials.gov/study/NCT05189054 |
| NCT04077710 | RISI in the Treatment of Recurrent Chest Wall Malignancies After EBRT | https://clinicaltrials.gov/study/NCT04077710 |