1, Head and neck cancers of tumors located at the base of the skull where nerves come out.

Label: Proton therapy.

2, Lung cancers in the middle of chest or near the esophagus.

Label: Proton therapy

3, Lower-cost option for prostate cancers.

Label: Photon therapy

4, Cancers in children.

Label: Proton therapy

5, Less sensitive to uncertainties.

Label: Photon therapy

6, Less sensitive to motions.

Label: Photon therapy

7, Lower integral dose.

Label: Proton therapy

8, Better protection of skin.

Label: Photon therapy

9, Tumors in brain and spine.

Label: Proton therapy

10, Cancer located in or around complicated anatomy.

Label: Proton therapy

11, Lower mean dose to uninvolved brain and contralateral hippocampus in lower-grade gliomas.

Label: Proton therapy

12, Reduced estimated secondary cancer risk in lower-grade gliomas.

Label: Proton therapy

13, Locally advanced lung cancer patients with pre-existing heart disease.

Label: Proton therapy

14, Locally advanced cancer, in combination with chemotherapy.

Label: Proton therapy

15, Pediatric and adolescent patients with craniopharyngioma.

Label: Proton therapy

16, Tumor dose escalation.

Label: Proton therapy

17, Treating cancers with MR image guidance.

Label: Photon therapy

18, Radiations that directly cause DNA damage.

Label: Proton therapy

19, Variable relative biological effectiveness.

Label: Proton therapy

20, Solid tumors with defined borders.

Label: Proton therapy

21, More supported by insurance providers.

Label: Photon therapy

22, More cost-effective for cancer treatment.

Label: Photon therapy

23, Early-stage lung cancer using SBRT.

Label: Photon therapy

24, Reduced total toxicity burden and postoperative complications scores for stage I-III esophageal cancer.

Label: Proton therapy

25, Lower requirement for gastrostomy tube placement for stage T1-4N0-3 nasopharynx cancer.

Label: Proton therapy

26, Lower risk of acute grade 3 mucositis and acute grade 2 xerostomia for stage T3-4N0-2 nasopharyngeal carcinoma patients.

Label: Proton therapy

27, High LET can hit outside the tumor and be harmful to critical organ.

Label: Proton therapy

28, Multi-leaf-collimator is used to deliver intensity modulated therapy.

Label: Photon therapy

29, Linear accelerator is used to produce the radiation.

Label: Photon therapy

30, Synchrotron or cyclotron is used to produce the radiation.

Label: Proton therapy

31, Magnetic field is used to direct the radiation.

Label: Proton therapy.

32, Hypothetical retinoblastoma lesions in the nasal, central and temporal locations of the posterior retina.

Label: Proton therapy

33, Craniospinal irradiation in pediatric patients with medulloblastoma.

Label: Proton therapy

34, Breast cancer patients that have heart very close to chest wall, and also close to the tumor.

Label: Proton therapy

35, Left-sided breast cancer patients.

Label: Proton therapy

36, Recurrent breast cancer after traditional radiation.

Label: Proton therapy

37, Postmastectomy breast cancer patients using ultrahypofractionation.

Label: Proton therapy

38, Machines that produce and deliver the radiation beam are large, need dedicated space, and are very expensive.

Label: Proton therapy

39, More robust to interplay effect.

Label: Photon therapy

40, Patients who need chemotherapy.

Label: Proton therapy

41, Patients who cannot have reached their limit for traditional radiation.

Label: Proton therapy

42, Higher survival for non-small cell lung cancer with higher cost.

Label: Proton therapy

43, Maxillary sinus or paranasal/ethmoid sinus tumors.

Label: Proton therapy

44, Any type of gynecologic cancers, i.e., cervical cancer, ovarian cancer, uterine neoplasms, or vulvar cancer.

Label: Photon therapy

45, Primary cutaneous lymphoma.

Label: Photon therapy

46, Esophageal and esophagogastric junction cancers.

Label: Proton therapy

47, Disease sites that respond well to higher doses of radiation, i.e., dose escalation.

Label: Proton therapy

48, Uveal melanoma (ocular tumor).

Label: Proton therapy

49, chondrosarcoma and chordoma.

Label: Proton therapy

50, Improved survival and/or fewer side effects for hepatocellular carcinoma.

Label: Proton therapy

51, Postoperative patients receiving adjuvant radiation for oropharyngeal squamous cell cancer.

Label: Proton therapy

52, Irregular shaped lesions near critical structures.

Label: Proton therapy

53, Distal esophageal tumors.

Label: Proton therapy

54, Benign or malignant central nervous system tumors.

Label: Proton therapy

55, Malignant lesions of paranasal sinus and other accessory sinuses.

Label: Proton therapy

56, Unresectable retroperitoneal sarcoma.

Label: Proton therapy

57, Pituitary neoplasms.

Label: Proton therapy

58, The range of the radiation beam can be adjusted to match the extent of the tumor without exiting into normal tissues.

Label: Proton therapy

59, Much more accessible in the United States.

Label: Photon therapy

60, Extreme sensitivity to changes in the patient’s anatomy.

Label: Proton therapy

61, Breast cancer patients of various ages without cardiac risk factors.

Label: Photon therapy

62, Older men with prostate cancer.

Label: Photon therapy

63, Younger breast cancer patients or breast cancer patients with increased coronary heart disease risk.

Label: Proton therapy

64, Lower skin toxicities for breast cancer.

Label: Photon therapy

65, Breast cancer patients with internal mammary nodal metastases.

Label: Proton therapy

66, Adjuvant radiation therapy for patients with stage II thymic malignancies.

Label: Proton therapy

67, Decreased toxicity and reduced secondary cancer risk in stage IIA/B seminoma.

Label: Proton therapy

68, Postmastectomy radiation with cardiopulmonary sparing.

Label: Proton therapy

69, Adjuvant radiation therapy for early stage seminoma.

Label: Proton therapy

70, Dome and central tumors larger than 3 cm in liver when using SBRT.

Label: Proton therapy

71, Risk reduction in grade 4 lymphopenia during in neoadjuvant chemoradiation therapy in esophagus cancer.

Label: Proton therapy

72, Risk reduction in radiation-induced lymphopenia during chemoradiotherapy for locally advanced non-small cell lung cancer.

Label: Proton therapy

73, Early stage lung cancer patients with high risk of pulmonary toxicity when treating with SBRT.

Label: Proton therapy

74, Pre-operative radiation for soft tissue sarcoma.

Label: Proton therapy

75, Locally advanced stage III esophageal squamous cell carcinoma.

Label: Proton therapy

76, Improved overall survival for patients with gliomas.

Label: Proton therapy

77, Testicular seminoma.

Label: Proton therapy

78, Definitive chemoradiotherapy for esophageal cancer.

Label: Proton therapy

79, Commercially available online adaptive therapy.

Label: Photon therapy

80, Radiation as part of primary or salvage treatment of adult craniopharyngioma.

Label: Proton therapy

81, Hodgkin lymphoma patients.

Label: Proton therapy

82, High-dose pelvic node radiation therapy delivered for patients with pelvic node adenopathy.

Label: Proton therapy

83, Radiosurgical treatment of liver metastases.

Label: Proton therapy

84, Reduced the acute gastrointestinal toxicities associated with irradiation when treating children with brain tumors using craniospinal irradiation.

Label: Proton therapy

85, Dose distribution more sensitive to anatomical heterogeneity.

Label: Proton therapy

86, Retroperitoneal sarcoma.

Label: Proton therapy

87, Localized unresectable hepatocellular carcinoma.

Label: Proton therapy

88, Intracranial arteriovenous malformation.

Label: Proton therapy

89, Higher LET and RBE near the distal edges could lead to higher severe toxicities.

Label: Proton therapy

90, Reduced adverse effects, particularly cognitive dysfunction for brain tumors.

Label: Proton therapy

91, Reduced toxicities and hospitalization in the treatment of head and neck malignancies.

Label: Proton therapy

92, Reduced symptom burden within 3 months after treatment for oropharyngeal cancer patients.

Label: Proton therapy

93, Lower doses to hippocampi and other brain structures for skull-base meningiomas.

Label: Proton therapy

94, Reduced dysphagia for patients with tumor in the upper head and neck area.

Label: Proton therapy

95, Pediatric orbital rhabdomyosarcoma.

Label: Proton therapy

96, Children and adolescent treated for craniopharyngioma using limited surgery and post-operation radiation.

Label: Proton therapy

97, Lower risk of hypothyroidism among craniospinal irradiation patients.

Label: Proton therapy

98, Lower vertebral bone marrow dose during chemoradiation therapy of esophageal cancer.

Label: Proton therapy

99, Locally advanced pancreatic cancer.

Label: Proton therapy

100, Vestibular schwannomas less than 3.0-4.0 cm in size.

Label: Photon therapy