DAFTAR PUSTAKA

Akamatsu, H., Karasawa, K., Omatsu, T., Isobe, Y., Ogata, R., & Koba, Y. (2014). First experience of carbon-ion radiotherapy for early breast cancer. *Japanese Journal of Radiology*, *32*(5), 288–295. https://doi.org/10.1007/s11604-014-0300-6

Asadi, A., Akhavanallaf, A., Hosseini, S. A., Vosoughi, N., & Zaidi, H. (2021). *Dosimetric Comparison of Passive Scattering and Active Scanning Proton Therapy Techniques Using GATE Simulation*. https://doi.org/10.21203/rs.3.rs-847332/v1

Beltran, C., Amos, R. A., & Rong, Y. (2020). We are ready for clinical implementation of Carbon Ion Radiotherapy in the United States. *Journal of Applied Clinical Medical Physics*, *21*(12), 6–9. https://doi.org/10.1002/acm2.13133

Bisello, S., Cilla, S., Benini, A., Cardano, R., Nguyen, N. P., Deodato, F., Macchia, G., Buwenge, M., Cammelli, S., Wondemagegnehu, T., Uddin, A. F. M. K., Rizzo, S., Bazzocchi, A., Strigari, L., & Morganti, A. G. (2022). Dose–Volume Constraints fOr oRganS At risk In Radiotherapy (CORSAIR): An "All-in-One" Multicenter–Multidisciplinary Practical Summary. *Current Oncology*, *29*(10), 7021–7050. https://doi.org/10.3390/curroncol29100552

Boice Jr, J., Cooper, U. J., Lee, U. J., Lochard, K. J., Clarke, R., Mettler Jr, F., Stewart Akleyev M Hauer-Jensen JH Hendry NJ Kleiman TJ MacVittie, F. A., & Aleman Edgar K Mabuchi CR Muirhead RE Shore WH Wallace, B. A. (2011). *Annals of the ICRP Published on behalf of the International Commission on Radiological Protection International Commission on Radiological Protection Members of the 2010-2013 Main Commission of the ICRP*.

Boyer, A., Biggs, P., Galvin, J., Klein, E., LoSasso, T., Low, D., Mah, K., & Yu, C. (2001). *Basic Applications of Multileaf Collimators*. https://doi.org/10.37206/71

Briesmeister, J. F. (2000). *MCNP –A General Monte Carlo N–Particle Transport Code*.

Cardoso, F., Kyriakides, S., Ohno, S., Penault-Llorca, F., Poortmans, P., Rubio, I. T., Zackrisson, S., & Senkus, E. (2019). Early breast cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Annals of Oncology*, *30*(8), 1194–1220. https://doi.org/10.1093/annonc/mdz173

Daugherty, L. C., Fisher, B. J., Knowlton, C. A., Mackay, M. K., Wazer, D. E., Dragun, A. E., Brashears, J. H., Brashears, J. H., Brashears, J. H.,

Brashears, J. H., Brashears, J. H., Brashears, J. H., Brashears, J. H., Komarnicky-Kocher, L. T., Alite, F., Brashears, J. H., Kong, F.-M., Wang, J., Knowlton, C. A., … Poli, J. (2013). Proton Therapy. Dalam *Encyclopedia of Radiation Oncology* (hlm. 675–690). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-85516-3_28

Endo, M. (2020). Construction of heavy ion radiotherapy system HIMAC and its effects - from the viewpoint of medical physics - Part 1. Until the start of treatment (1975-1994). *J-STAGE (medical physics)*, *40*(2), 61–67.

Endo, S., Takada, M., Tanaka, H., Onizuka, Y., Tanaka, K., Miyahara, N., Baba, H., Oishi, A., Ishikawa, M., Hoshi, M., Kimura, S., Minematsu, M., Morimune, Y., Kojima, Y., & Shizuma, K. (2010). Measurement of microdosimetric spectra produced from a 290 MeV/n Spread Out Bragg Peak carbon beam. *Radiation and Environmental Biophysics*, *49*(3), 469–475. https://doi.org/10.1007/s00411-010-0285-1

Furuta, T., & Sato, T. (2021). Medical application of particle and heavy ion transport code system PHITS. *Radiological Physics and Technology*, *14*(3), 215–225. https://doi.org/10.1007/s12194-021-00628-0

Han, M. C., Yeom, Y. S., Lee, H. S., Shin, B., Kim, C. H., & Furuta, T. (2018). Multi-threading performance of Geant4, MCNP6, and PHITS Monte Carlo codes for tetrahedral-mesh geometry. *Physics in Medicine & Biology*, *63*(9), 09NT02. https://doi.org/10.1088/1361-6560/aabd20

Hill-Kayser, C. E., Both, S., & Tochner, Z. (2011). Proton Therapy: Ever Shifting Sands and the Opportunities and Obligations within. *Frontiers in Oncology*, *1*. https://doi.org/10.3389/fonc.2011.00024

International Atomic Energy Agency. (2007). *Dosimetry in diagnostic radiology: an international code of practice.* Technical Reports Series No. 457.

Iwata, Y., Nishiuchi, M., Noda, E., Noda, K., Sakaki, H., Saotome, N., Saraya, Y., Sato, S., Shirai, T., Tansho, R., Fujita, T., Fujimoto, T., Furukawa, T., Hara, Y., Kondo, K., Mizushima, K., Murakami, T., & Muramatsu, M. (2018). Development of Carbon-Ion Radiotherapy Facilities at NIRS. *IEEE Transactions on Applied Superconductivity*, *28*(3), 1–7. https://doi.org/10.1109/TASC.2017.2785835

JAEA. (2024). *User's Manual Ver. 3.33 English version Preface*.

Journal of the ICRU. (2010). Prescribing, Recording, and Reporting Photon-Beam Intensity-Modulated Radiation Therapy (IMRT): *Journal of the ICRU*, *10*(1), NP.3-NP. https://doi.org/10.1093/jicru/ndq002

Kamada, T., Tsujii, H., Blakely, E. A., Debus, J., De Neve, W., Durante, M., Jäkel, O., Mayer, R., Orecchia, R., Pötter, R., Vatnitsky, S., & Chu, W. T. (2015). Carbon ion radiotherapy in Japan: an assessment of 20 years

of clinical experience. *The Lancet Oncology*, *16*(2), e93–e100. https://doi.org/10.1016/S1470-2045(14)70412-7

Kanazawa, M., Sato, K., Itano, A., Sudou, M., Noda, K., Takada, E., Kumada, M., Yamazaki, C., Yamagishi, T., Morii, Y., Toyoda, E., Tsuzuki, N., & Yagi, T. (2000). HIMAC RF system with a digital synthesizer. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, *443*(2–3), 205–214. https://doi.org/10.1016/S0168-9002(99)01069-4

Kementerian Kesehatan RI. (2013). *Pedoman Teknis Pengendalian Kanker Payudara dan Kanker Leher Rahim* . https://p2ptm.kemkes.go.id/dokumen-ptm/pedoman-teknis-pengendalian-kanker-payudara-kanker-leher-rahim

Kim, C. H., Yeom, Y. S., Petoussi-Henss, N., Zankl, M., Bolch, W. E., Lee, C., Choi, C., Nguyen, T. T., Eckerman, K., Kim, H. S., Han, M. C., Qiu, R., Chung, B. S., Han, H., & Shin, B. (2020). ICRP Publication 145: Adult Mesh-Type Reference Computational Phantoms. *Annals of the ICRP*, *49*(3), 13–201. https://doi.org/10.1177/0146645319893605

Kim, H. M., Kim, S. H., & Kang, B. S. (2018). Radioprotective effects of delphinidin on normal human lung cells against proton beam exposure. *Nutrition Research and Practice*, *12*(1), 41. https://doi.org/10.4162/nrp.2018.12.1.41

Kim, J., Park, J. M., & Wu, H.-G. (2020). Carbon Ion Therapy: A Review of an Advanced Technology. *Progress in Medical Physics*, *31*(3), 71–80. https://doi.org/10.14316/pmp.2020.31.3.71

Koh, J., & Kim, M. J. (2019). Introduction of a New Staging System of Breast Cancer for Radiologists: An Emphasis on the Prognostic Stage. *Korean Journal of Radiology*, *20*(1), 69. https://doi.org/10.3348/kjr.2018.0231

Krstic, D., & Nikezic, D. (2007). Input files with ORNL-mathematical phantoms of the human body for MCNP-4B. *Computer Physics communications*, *176*, 33–37.

Lawrence, R. A., & Lawrence, R. M. (2015). *Breastfeeding: A Guide for the Medical Profession* (8 ed.). Elsevier Health Sciences.

Malouff, T. D., Mahajan, A., Krishnan, S., Beltran, C., Seneviratne, D. S., & Trifiletti, D. M. (2020). Carbon Ion Therapy: A Modern Review of an Emerging Technology. *Frontiers in Oncology*, *10*. https://doi.org/10.3389/fonc.2020.00082

Malouff, T. D., Mahajan, A., Mutter, R. W., Krishnan, S., Hoppe, B. S., Beltran, C., Trifiletti, D. M., & Vallow, L. A. (2020). Carbon ion radiation therapy in breast cancer: a new frontier. *Breast Cancer*

Research and Treatment, *181*(2), 291–296. https://doi.org/10.1007/s10549-020-05641-2

Maughan, R. L., Chuba, P. J., Porter, A. T., Ben-Josef, E., & Lucas, D. R. (1997). The elemental composition of tumors: Kerma data for neutrons. *Medical Physics*, *24*(8), 1241–1244. https://doi.org/10.1118/1.598144

Mckinney, G. P. (2000). *A general Monte Carlo code n-particle transport code, Version 5. X-5 Monte Carlo* .

Mohamad, O., Makishima, H., & Kamada, T. (2018). Evolution of Carbon Ion Radiotherapy at the National Institute of Radiological Sciences in Japan. *Cancers*, *10*(3), 66. https://doi.org/10.3390/cancers10030066

Mohamad, O., Sishc, B., Saha, J., Pompos, A., Rahimi, A., Story, M., Davis, A., & Kim, D. W. (2017). Carbon Ion Radiotherapy: A Review of Clinical Experiences and Preclinical Research, with an Emphasis on DNA Damage/Repair. *Cancers*, *9*(12), 66. https://doi.org/10.3390/cancers9060066

Mohamad, O., Yamada, S., & Durante, M. (2018). Clinical Indications for Carbon Ion Radiotherapy. *Clinical Oncology*, *30*(5), 317–329. https://doi.org/10.1016/j.clon.2018.01.006

Muramatsu, M., & Kitagawa, A. (2012). A review of ion sources for medical accelerators (invited). *Review of Scientific Instruments*, *83*(2), 02B909. https://doi.org/10.1063/1.3671744

Newhauser, W. D., & Zhang, R. (2015). The physics of proton therapy. *Physics in Medicine and Biology*, *60*(8), R155–R209. https://doi.org/10.1088/0031-9155/60/8/R155

nirs.qst.go.jp. (t.t.). *Process of Carbon Ion Radiotherapy*. Diambil 26 April 2023, dari https://www.nirs.qst.go.jp/hospital/en/patients/radiotherapy-flow.php

Noda, K. (2019). Progress of radiotherapy technology with HIMAC. *Journal of Physics: Conference Series*, *1154*, 012019. https://doi.org/10.1088/1742-6596/1154/1/012019

Novianti, D. (2013). *ANALISIS DISTRIBUSI DOSIS RADIASI PADA TERAPI KANKER PAYUDARA DENGAN BORON NEUTRON CAPTURE THERAPY (BNCT) MENGGUNAKAN MCNP5*. Gadjah Mada University.

Nurrohmah, A., Aprianti, A., & Hartutik, S. (2022). Risk Factors of Breast Cancer. *Gaster*, *20*(1), 1. https://doi.org/10.30787/gaster.v20i1.777

PTCOG. (2023). *Particle Therapy Co-Operative Group*. https://ptcog.site/

Purdy, J. A. (2016). *Conformal Radiation Therapy Physics, Treatment Planning, and Clinical Aspects*. https://oncohemakey.com/conformal-radiation-therapy-physics-treatment-planning-and-clinical-aspects/

Rizka, A., Khalilul Akbar, M., & Putri, N. A. (2022). CARCINOMA MAMMAE SINISTRA T4bN2M1 METASTASIS PLEURA. Dalam *AVERROUS: Jurnal Kedokteran dan Kesehatan Malikussaleh* (Vol. 8, Nomor 1).

Sato, K., Endo, K., Endo, M., Hattori, T., Itano, A., Kanai, T., Kanazawa, M., Kawachi, K., Kohno, T., Matsumoto, S., Miyazawa, Y., & Noda, A. (1990). HEAVY ION MEDICAL ACCELERATOR IN CHIBA(HIMAC). *Particle Accelerators*, *33*, 147–152.

Sato, T., Niita, K., Matsuda, N., Hashimoto, S., Iwamoto, Y., Furuta, T., Noda, S., Ogawa, T., Iwase, H., Nakashima, H., Fukahori, T., Okumura, K., Kai, T., Chiba, S., & Sihver, L. (2015). Overview of particle and heavy ion transport code system PHITS. *Annals of Nuclear Energy*, *82*, 110–115. https://doi.org/10.1016/j.anucene.2014.08.023

Sharpe, M. B. (2006). *IAEA Technical Reports Series No. 430: Commissioning And Quality Assurance Of Computerized Planning Systems For Radiation Treatment Of Cancer*. *33*.

Son, J., Lee, S., Lim, Y., Park, S., Cho, K., Yoon, M., & Shin, D. (2018). Development of Optical Fiber Based Measurement System for the Verification of Entrance Dose Map in Pencil Beam Scanning Proton Beam. *Sensors*, *18*(2), 227. https://doi.org/10.3390/s18010227

Sulistya, E., & Hermanto, A. (2016). Determination of Proton Energy and Dosage to Obtain SOBP Curve in the Proton Beam Radiotherapy Treatment Planning. Dalam *Journal of Engineering Research and Application www.ijera.com* (Vol. 6). www.ijera.com

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, *71*(3), 209–249. https://doi.org/10.3322/caac.21660

Takei, H. (2020). Physical Characteristics of Proton Beams. Dalam *Proton Beam Radiotherapy* (hlm. 37–50). Springer Singapore. https://doi.org/10.1007/978-981-13-7454-8_4

Tamin, R. P. (2021, April 22). *Mengenali Anatomi Payudara Wanita*. Alodokter. https://www.alodokter.com/mengenali-anatomi-payudara-wanita

Tsujii, H., Kamada, T., Shirai, T., Noda, K., Tsuji, H., & Karasawa, K. (2014). *Carbon-Ion Radiotherapy*. Springer Japan. https://doi.org/10.1007/978-4-431-54457-9

Turner, J. E. (2007). *Atoms, Radiation, and Radiation Protection*. Wiley. https://doi.org/10.1002/9783527616978

Uchihori, Y., & Benton, E. (2006). *HIMAC Facility*. https://www.nirs.qst.go.jp/ENG/rd/1ban/himac_inf.html

Wahl, R. L., Sgouros, G., Iravani, A., Jacene, H., Pryma, D., Saboury, B., Capala, J., & Graves, S. A. (2021). Normal-Tissue Tolerance to Radiopharmaceutical Therapies, the Knowns and the Unknowns. *Journal of Nuclear Medicine*, *62*(Supplement 3), 23S-35S. https://doi.org/10.2967/jnumed.121.262751

Wambersie, A., Menzel, H. G., Andreo, P., DeLuca, P. M., Gahbauer, R., Hendry, J. H., & Jones, D. T. L. (2011). Isoeffective dose: a concept for biological weighting of absorbed dose in proton and heavier-ion therapies. *Radiation Protection Dosimetry*, *143*(2–4), 481–486. https://doi.org/10.1093/rpd/ncq410

Wang, X., Chen, X., Li, G., Han, X., Gao, T., Liu, W., & Tang, X. (2021). Application of Carbon Ion and Its Sensitizing Agent in Cancer Therapy: A Systematic Review. *Frontiers in Oncology*, *11*. https://doi.org/10.3389/fonc.2021.708724

xu, J., Murphy, S., Kochanek, K., & Arias, E. (2022). *Mortality in the United States, 2021*. https://doi.org/10.15620/cdc:122516