Group1 = {indication: osteoporosis, medication: none, administration\_route: none, invasive\_dental\_treatment: none}

(Baillargeon et al., 2011; Grbic et al., 2010; Kim et al., 2021; Lyles et al., 2007; McClung et al., 2009; Papapoulos et al., 2012; Yamazaki et al., 2012)

Baillargeon, J., Kuo, Y. F., Lin, Y.-L., Wilkinson, G. S., & Goodwin, J. S. (2011). \*\*\*Osteonecrosis of the Jaw in Older Osteoporosis Patients Treated with Intravenous Bisphosphonates. *The Annals of Pharmacotherapy*, *45*(10), 1199–1206. https://doi.org/10.1345/aph.1Q239

Grbic, J. T., Black, D. M., Lyles, K. W., Reid, D. M., Orwoll, E., McClung, M., Bucci-Rechtweg, C., & Su, G. (2010). \*\*\*The Incidence of Osteonecrosis of the Jaw in Patients Receiving 5 Milligrams of Zoledronic Acid. *The Journal of the American Dental Association*, *141*(11), 1365–1370. https://doi.org/10.14219/jada.archive.2010.0082

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Lyles, K. W., Colón-Emeric, C. S., Magaziner, J. S., Adachi, J. D., Pieper, C. F., Mautalen, C., Hyldstrup, L., Recknor, C., Nordsletten, L., Moore, K. A., Lavecchia, C., Zhang, J., Mesenbrink, P., Hodgson, P. K., Abrams, K., Orloff, J. J., Horowitz, Z., Eriksen, E. F., & Boonen, S. (2007). Zoledronic Acid in Reducing Clinical Fracture and Mortality after Hip Fracture. *The New England Journal of Medicine*, *357*, nihpa40967. https://doi.org/10.1056/NEJMoa074941

McClung, M., Miller, P., Recknor, C., Mesenbrink, P., Bucci-Rechtweg, C., & Benhamou, C.-L. (2009). Zoledronic Acid for the Prevention of Bone Loss in Postmenopausal Women With Low Bone Mass: A Randomized Controlled Trial. *Obstetrics & Gynecology*, *114*(5), 999. https://doi.org/10.1097/AOG.0b013e3181bdce0a

Papapoulos, S., Chapurlat, R., Libanati, C., Brandi, M. L., Brown, J. P., Czerwiński, E., Krieg, M.-A., Man, Z., Mellström, D., Radominski, S. C., Reginster, J.-Y., Resch, H., Ivorra, J. A. R., Roux, C., Vittinghoff, E., Austin, M., Daizadeh, N., Bradley, M. N., Grauer, A., … Bone, H. G. (2012). \*\*\*\*Five years of denosumab exposure in women with postmenopausal osteoporosis: Results from the first two years of the FREEDOM extension. *Journal of Bone and Mineral Research*, *27*(3), 694–701. https://doi.org/10.1002/jbmr.1479

Yamazaki, T., Yamori, M., Ishizaki, T., Asai, K., Goto, K., Takahashi, K., Nakayama, T., & Bessho, K. (2012). \*\*\*Increased incidence of osteonecrosis of the jaw after tooth extraction in patients treated with bisphosphonates: A cohort study. *International Journal of Oral and Maxillofacial Surgery*, *41*(11), 1397–1403.

Group2 = {indication: osteoporosis, medication:bisphosphonate, administration\_route: oral, invasive\_dental\_treatment: none}

(Chiu et al., 2014; Eiken et al., 2017; Kim et al., 2021; Mahvar et al., 2019; Mirelli et al., 2022; Orwoll et al., 2010; Reid et al., 2009; Saag et al., 2017; Yamazaki et al., 2012)

Chiu, W.-Y., Chien, J.-Y., Yang, W.-S., Juang, J.-M. J., Lee, J.-J., & Tsai, K.-S. (2014). \*\*The Risk of Osteonecrosis of the Jaws in Taiwanese Osteoporotic Patients Treated With Oral Alendronate or Raloxifene. *The Journal of Clinical Endocrinology & Metabolism*, *99*(8), 2729–2735. https://doi.org/10.1210/jc.2013-4119

Eiken, P. A., Prieto-Alhambra, D., Eastell, R., & Abrahamsen, B. (2017). \*\*Surgically treated osteonecrosis and osteomyelitis of the jaw and oral cavity in patients highly adherent to alendronate treatment: A nationwide user-only cohort study including over 60,000 alendronate users. *Osteoporosis International: A Journal Established as Result of Cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA*, *28*(10), 2921–2928. https://doi.org/10.1007/s00198-017-4132-y

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Mahvar, P. B., Imran ,Amna, Enciso ,Reyes, Sanapanya ,Andrew, Khalifeh ,Mohammad, Sedghizadeh ,Parish P., & and Henderson, L. (2019). \*\*\*10-Year Institutional Retrospective Case-Control Study of Medication-Related Osteonecrosis of the Jaw. *Journal of the California Dental Association*, *47*(12), 793–799. https://doi.org/10.1080/19424396.2019.12220864

Mirelli, C., Marino, S., Bovio, A., Pederielli, S., Dall’Agnola, C., Gianni, A. B., & Biagi, R. (2022). \*\*\*Medication-Related Osteonecrosis of the Jaw in Dental Practice: A Retrospective Analysis of Data from the Milan Cohort. *Dentistry Journal*, *10*(5), 89. https://doi.org/10.3390/dj10050089

Orwoll, E. S., Miller, P. D., Adachi, J. D., Brown, J., Adler, R. A., Kendler, D., Bucci-Rechtweg, C., Readie, A., Mesenbrink, P., & Weinstein, R. S. (2010). Efficacy and safety of a once-yearly i.v. Infusion of zoledronic acid 5 mg versus a once-weekly 70-mg oral alendronate in the treatment of male osteoporosis: A randomized, multicenter, double-blind, active-controlled study. *Journal of Bone and Mineral Research*, *25*(10), 2239–2250. https://doi.org/10.1002/jbmr.119

Reid, D. M., Devogelaer, J.-P., Saag, K., Roux, C., Lau, C.-S., Reginster, J.-Y., Papanastasiou, P., Ferreira, A., Hartl, F., Fashola, T., Mesenbrink, P., & Sambrook, P. N. (2009). Zoledronic acid and risedronate in the prevention and treatment of glucocorticoid-induced osteoporosis (HORIZON): A multicentre, double-blind, double-dummy, randomised controlled trial. *The Lancet*, *373*(9671), 1253–1263. https://doi.org/10.1016/S0140-6736(09)60250-6

Saag, K. G., Petersen, J., Brandi, M. L., Karaplis, A. C., Lorentzon, M., Thomas, T., Maddox, J., Fan, M., Meisner, P. D., & Grauer, A. (2017). Romosozumab or Alendronate for Fracture Prevention in Women with Osteoporosis. *New England Journal of Medicine*, *377*(15), 1417–1427. https://doi.org/10.1056/NEJMoa1708322

Yamazaki, T., Yamori, M., Ishizaki, T., Asai, K., Goto, K., Takahashi, K., Nakayama, T., & Bessho, K. (2012). \*\*\*Increased incidence of osteonecrosis of the jaw after tooth extraction in patients treated with bisphosphonates: A cohort study. *International Journal of Oral and Maxillofacial Surgery*, *41*(11), 1397–1403.

Group2-1 = {indication: osteoporosis, medication:bisphosphonate\_Alendronate, administration\_route: oral, invasive\_dental\_treatment: none}

(Chiu et al., 2014; Eiken et al., 2017; Kim et al., 2021; Mahvar et al., 2019; Mirelli et al., 2022; Orwoll et al., 2010; Saag et al., 2017)

Chiu, W.-Y., Chien, J.-Y., Yang, W.-S., Juang, J.-M. J., Lee, J.-J., & Tsai, K.-S. (2014). \*\*The Risk of Osteonecrosis of the Jaws in Taiwanese Osteoporotic Patients Treated With Oral Alendronate or Raloxifene. *The Journal of Clinical Endocrinology & Metabolism*, *99*(8), 2729–2735. https://doi.org/10.1210/jc.2013-4119

Eiken, P. A., Prieto-Alhambra, D., Eastell, R., & Abrahamsen, B. (2017). \*\*Surgically treated osteonecrosis and osteomyelitis of the jaw and oral cavity in patients highly adherent to alendronate treatment: A nationwide user-only cohort study including over 60,000 alendronate users. *Osteoporosis International: A Journal Established as Result of Cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA*, *28*(10), 2921–2928. https://doi.org/10.1007/s00198-017-4132-y

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Mahvar, P. B., Imran ,Amna, Enciso ,Reyes, Sanapanya ,Andrew, Khalifeh ,Mohammad, Sedghizadeh ,Parish P., & and Henderson, L. (2019). \*\*\*10-Year Institutional Retrospective Case-Control Study of Medication-Related Osteonecrosis of the Jaw. *Journal of the California Dental Association*, *47*(12), 793–799. https://doi.org/10.1080/19424396.2019.12220864

Mirelli, C., Marino, S., Bovio, A., Pederielli, S., Dall’Agnola, C., Gianni, A. B., & Biagi, R. (2022). \*\*\*Medication-Related Osteonecrosis of the Jaw in Dental Practice: A Retrospective Analysis of Data from the Milan Cohort. *Dentistry Journal*, *10*(5), 89. https://doi.org/10.3390/dj10050089

Orwoll, E. S., Miller, P. D., Adachi, J. D., Brown, J., Adler, R. A., Kendler, D., Bucci-Rechtweg, C., Readie, A., Mesenbrink, P., & Weinstein, R. S. (2010). Efficacy and safety of a once-yearly i.v. Infusion of zoledronic acid 5 mg versus a once-weekly 70-mg oral alendronate in the treatment of male osteoporosis: A randomized, multicenter, double-blind, active-controlled study. *Journal of Bone and Mineral Research*, *25*(10), 2239–2250. https://doi.org/10.1002/jbmr.119

Saag, K. G., Petersen, J., Brandi, M. L., Karaplis, A. C., Lorentzon, M., Thomas, T., Maddox, J., Fan, M., Meisner, P. D., & Grauer, A. (2017). Romosozumab or Alendronate for Fracture Prevention in Women with Osteoporosis. *New England Journal of Medicine*, *377*(15), 1417–1427. https://doi.org/10.1056/NEJMoa1708322

Group2-2 = {indication: osteoporosis, medication:bisphosphonate\_Risedronate, administration\_route: oral, invasive\_dental\_treatment: none}

(Kim et al., 2021; Mahvar et al., 2019; Mirelli et al., 2022; Reid et al., 2009)

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Mahvar, P. B., Imran ,Amna, Enciso ,Reyes, Sanapanya ,Andrew, Khalifeh ,Mohammad, Sedghizadeh ,Parish P., & and Henderson, L. (2019). \*\*\*10-Year Institutional Retrospective Case-Control Study of Medication-Related Osteonecrosis of the Jaw. *Journal of the California Dental Association*, *47*(12), 793–799. https://doi.org/10.1080/19424396.2019.12220864

Mirelli, C., Marino, S., Bovio, A., Pederielli, S., Dall’Agnola, C., Gianni, A. B., & Biagi, R. (2022). \*\*\*Medication-Related Osteonecrosis of the Jaw in Dental Practice: A Retrospective Analysis of Data from the Milan Cohort. *Dentistry Journal*, *10*(5), 89. https://doi.org/10.3390/dj10050089

Reid, D. M., Devogelaer, J.-P., Saag, K., Roux, C., Lau, C.-S., Reginster, J.-Y., Papanastasiou, P., Ferreira, A., Hartl, F., Fashola, T., Mesenbrink, P., & Sambrook, P. N. (2009). Zoledronic acid and risedronate in the prevention and treatment of glucocorticoid-induced osteoporosis (HORIZON): A multicentre, double-blind, double-dummy, randomised controlled trial. *The Lancet*, *373*(9671), 1253–1263. https://doi.org/10.1016/S0140-6736(09)60250-6

Group2-3 = {indication: osteoporosis, medication:bisphosphonate\_Ibandronate, administration\_route: oral, invasive\_dental\_treatment: none}

(Kim et al., 2021)

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Group2-4 = {indication: osteoporosis, medication:bisphosphonate\_Clodronate, administration\_route: oral, invasive\_dental\_treatment: none}

(Mirelli et al., 2022)

Mirelli, C., Marino, S., Bovio, A., Pederielli, S., Dall’Agnola, C., Gianni, A. B., & Biagi, R. (2022). \*\*\*Medication-Related Osteonecrosis of the Jaw in Dental Practice: A Retrospective Analysis of Data from the Milan Cohort. *Dentistry Journal*, *10*(5), 89. https://doi.org/10.3390/dj10050089

Group3 = {indication: osteoporosis, medication:bisphosphonate, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Baillargeon et al., 2011; Grbic et al., 2010; Kim et al., 2021; Lyles et al., 2007; McClung et al., 2009; Mirelli et al., 2022; Orwoll et al., 2010; Reid et al., 2009)

Baillargeon, J., Kuo, Y. F., Lin, Y.-L., Wilkinson, G. S., & Goodwin, J. S. (2011). \*\*\*Osteonecrosis of the Jaw in Older Osteoporosis Patients Treated with Intravenous Bisphosphonates. *The Annals of Pharmacotherapy*, *45*(10), 1199–1206. https://doi.org/10.1345/aph.1Q239

Grbic, J. T., Black, D. M., Lyles, K. W., Reid, D. M., Orwoll, E., McClung, M., Bucci-Rechtweg, C., & Su, G. (2010). \*\*\*The Incidence of Osteonecrosis of the Jaw in Patients Receiving 5 Milligrams of Zoledronic Acid. *The Journal of the American Dental Association*, *141*(11), 1365–1370. https://doi.org/10.14219/jada.archive.2010.0082

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Lyles, K. W., Colón-Emeric, C. S., Magaziner, J. S., Adachi, J. D., Pieper, C. F., Mautalen, C., Hyldstrup, L., Recknor, C., Nordsletten, L., Moore, K. A., Lavecchia, C., Zhang, J., Mesenbrink, P., Hodgson, P. K., Abrams, K., Orloff, J. J., Horowitz, Z., Eriksen, E. F., & Boonen, S. (2007). Zoledronic Acid in Reducing Clinical Fracture and Mortality after Hip Fracture. *The New England Journal of Medicine*, *357*, nihpa40967. https://doi.org/10.1056/NEJMoa074941

McClung, M., Miller, P., Recknor, C., Mesenbrink, P., Bucci-Rechtweg, C., & Benhamou, C.-L. (2009). Zoledronic Acid for the Prevention of Bone Loss in Postmenopausal Women With Low Bone Mass: A Randomized Controlled Trial. *Obstetrics & Gynecology*, *114*(5), 999. https://doi.org/10.1097/AOG.0b013e3181bdce0a

Mirelli, C., Marino, S., Bovio, A., Pederielli, S., Dall’Agnola, C., Gianni, A. B., & Biagi, R. (2022). \*\*\*Medication-Related Osteonecrosis of the Jaw in Dental Practice: A Retrospective Analysis of Data from the Milan Cohort. *Dentistry Journal*, *10*(5), 89. https://doi.org/10.3390/dj10050089

Orwoll, E. S., Miller, P. D., Adachi, J. D., Brown, J., Adler, R. A., Kendler, D., Bucci-Rechtweg, C., Readie, A., Mesenbrink, P., & Weinstein, R. S. (2010). Efficacy and safety of a once-yearly i.v. Infusion of zoledronic acid 5 mg versus a once-weekly 70-mg oral alendronate in the treatment of male osteoporosis: A randomized, multicenter, double-blind, active-controlled study. *Journal of Bone and Mineral Research*, *25*(10), 2239–2250. https://doi.org/10.1002/jbmr.119

Reid, D. M., Devogelaer, J.-P., Saag, K., Roux, C., Lau, C.-S., Reginster, J.-Y., Papanastasiou, P., Ferreira, A., Hartl, F., Fashola, T., Mesenbrink, P., & Sambrook, P. N. (2009). Zoledronic acid and risedronate in the prevention and treatment of glucocorticoid-induced osteoporosis (HORIZON): A multicentre, double-blind, double-dummy, randomised controlled trial. *The Lancet*, *373*(9671), 1253–1263. https://doi.org/10.1016/S0140-6736(09)60250-6

Group3-1 = {indication: osteoporosis, medication:bisphosphonate\_Zoledronate, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Grbic et al., 2008; Kim et al., 2021; Lyles et al., 2007; McClung et al., 2009; Orwoll et al., 2010; Reid et al., 2009)

Grbic, J. T., Landesberg, R., Lin, S.-Q., Mesenbrink, P., Reid, I. R., Leung, P.-C., Casas, N., Recknor, C. P., Hua, Y., Delmas, P. D., & Eriksen, E. F. (2008). Incidence of Osteonecrosis of the Jaw in Women With Postmenopausal Osteoporosis in the Health Outcomes and Reduced Incidence With Zoledronic Acid Once Yearly Pivotal Fracture Trial. *The Journal of the American Dental Association*, *139*(1), 32–40. https://doi.org/10.14219/jada.archive.2008.0017

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

Lyles, K. W., Colón-Emeric, C. S., Magaziner, J. S., Adachi, J. D., Pieper, C. F., Mautalen, C., Hyldstrup, L., Recknor, C., Nordsletten, L., Moore, K. A., Lavecchia, C., Zhang, J., Mesenbrink, P., Hodgson, P. K., Abrams, K., Orloff, J. J., Horowitz, Z., Eriksen, E. F., & Boonen, S. (2007). Zoledronic Acid in Reducing Clinical Fracture and Mortality after Hip Fracture. *The New England Journal of Medicine*, *357*, nihpa40967. https://doi.org/10.1056/NEJMoa074941

McClung, M., Miller, P., Recknor, C., Mesenbrink, P., Bucci-Rechtweg, C., & Benhamou, C.-L. (2009). Zoledronic Acid for the Prevention of Bone Loss in Postmenopausal Women With Low Bone Mass: A Randomized Controlled Trial. *Obstetrics & Gynecology*, *114*(5), 999. https://doi.org/10.1097/AOG.0b013e3181bdce0a

Orwoll, E. S., Miller, P. D., Adachi, J. D., Brown, J., Adler, R. A., Kendler, D., Bucci-Rechtweg, C., Readie, A., Mesenbrink, P., & Weinstein, R. S. (2010). Efficacy and safety of a once-yearly i.v. Infusion of zoledronic acid 5 mg versus a once-weekly 70-mg oral alendronate in the treatment of male osteoporosis: A randomized, multicenter, double-blind, active-controlled study. *Journal of Bone and Mineral Research*, *25*(10), 2239–2250. https://doi.org/10.1002/jbmr.119

Reid, D. M., Devogelaer, J.-P., Saag, K., Roux, C., Lau, C.-S., Reginster, J.-Y., Papanastasiou, P., Ferreira, A., Hartl, F., Fashola, T., Mesenbrink, P., & Sambrook, P. N. (2009). Zoledronic acid and risedronate in the prevention and treatment of glucocorticoid-induced osteoporosis (HORIZON): A multicentre, double-blind, double-dummy, randomised controlled trial. *The Lancet*, *373*(9671), 1253–1263. https://doi.org/10.1016/S0140-6736(09)60250-6

---

Group3-2 = {indication: osteoporosis, medication:bisphosphonate\_Ibandronate, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Kim et al., 2021)

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

---

Group3-3 = {indication: osteoporosis, medication:bisphosphonate\_Pamidronate, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Kim et al., 2021)

Kim, S. H., Lee, Y.-K., Kim, T.-Y., Ha, Y.-C., Jang, S., & Kim, H. Y. (2021). \*\*\*Incidence of and risk for osteonecrosis of the jaw in Korean osteoporosis patients treated with bisphosphonates: A nationwide cohort-study. *Bone*, *143*, 115650. https://doi.org/10.1016/j.bone.2020.115650

---

Group4 = {indication: osteoporosis, medication:denosumab, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Papapoulos et al., 2012)

Papapoulos, S., Chapurlat, R., Libanati, C., Brandi, M. L., Brown, J. P., Czerwiński, E., Krieg, M.-A., Man, Z., Mellström, D., Radominski, S. C., Reginster, J.-Y., Resch, H., Ivorra, J. A. R., Roux, C., Vittinghoff, E., Austin, M., Daizadeh, N., Bradley, M. N., Grauer, A., … Bone, H. G. (2012). \*\*\*\*Five years of denosumab exposure in women with postmenopausal osteoporosis: Results from the first two years of the FREEDOM extension. *Journal of Bone and Mineral Research*, *27*(3), 694–701. https://doi.org/10.1002/jbmr.1479

Group5 = {indication: osteoporosis, medication:romosozumab, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Saag et al., 2017)

Saag, K. G., Petersen, J., Brandi, M. L., Karaplis, A. C., Lorentzon, M., Thomas, T., Maddox, J., Fan, M., Meisner, P. D., & Grauer, A. (2017). Romosozumab or Alendronate for Fracture Prevention in Women with Osteoporosis. *New England Journal of Medicine*, *377*(15), 1417–1427. https://doi.org/10.1056/NEJMoa1708322

Group6 = {indication: osteoporosis, medication: none, administration\_route: none, invasive\_dental\_treatment: yes}

(Colella et al., 2023; Watts et al., 2019)

Colella, A., Yu, E., Sambrook, P., Hughes, T., & Goss, A. (2023). \*\*\*What is the Risk of Developing Osteonecrosis Following Dental Extractions for Patients on Denosumab for Osteoporosis? *Journal of Oral and Maxillofacial Surgery: Official Journal of the American Association of Oral and Maxillofacial Surgeons*, *81*(2), 232–237. https://doi.org/10.1016/j.joms.2022.10.014

Watts, N. B., Grbic, J. T., Binkley, N., Papapoulos, S., Butler, P. W., Yin, X., Tierney, A., Wagman, R. B., & McClung, M. (2019). \*\*\*Invasive Oral Procedures and Events in Postmenopausal Women With Osteoporosis Treated With Denosumab for Up to 10 Years. *The Journal of Clinical Endocrinology & Metabolism*, *104*(6), 2443–2452. https://doi.org/10.1210/jc.2018-01965

Group7 = {indication: osteoporosis, medication:bisphosphonate, administration\_route: oral, invasive\_dental\_treatment: yes}

(Fujimori et al., 2025; Jeong et al., 2017; Kang et al., 2020)

Fujimori, M., Toriyabe, Y., Kaku, N., Shimazaki, K., Suzuki, T., Abe, T., Tanimura, A., Kudou, A., Donen, M., Kawaguchi, Y., Sakakibara, N., Nojima, M., & Makino, S. (2025). Multicenter prospective study on the incidence and cure rates of medication-related osteonecrosis of the jaw (complete translation). *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology*, *37*(4), 765–777. https://doi.org/10.1016/j.ajoms.2025.01.011

Jeong, H.-G., Hwang, J. J., Lee, J.-H., Kim, Y. H., Na, J. Y., & Han, S.-S. (2017). \*\*Risk factors of osteonecrosis of the jaw after tooth extraction in osteoporotic patients on oral bisphosphonates. *Imaging Science in Dentistry*, *47*(1), 45–50. https://doi.org/10.5624/isd.2017.47.1.45

Kang, S.-H., Park, S.-J., & Kim, M.-K. (2020). \*\*The effect of bisphosphonate discontinuation on the incidence of postoperative medication-related osteonecrosis of the jaw after tooth extraction. *Journal of the Korean Association of Oral and Maxillofacial Surgeons*, *46*(1), 78–83. https://doi.org/10.5125/jkaoms.2020.46.1.78

Group7-1 = {indication: osteoporosis, medication:bisphosphonate\_Aledronate, administration\_route: oral, invasive\_dental\_treatment: yes}

(Jeong et al., 2017)

Jeong, H.-G., Hwang, J. J., Lee, J.-H., Kim, Y. H., Na, J. Y., & Han, S.-S. (2017). \*\*Risk factors of osteonecrosis of the jaw after tooth extraction in osteoporotic patients on oral bisphosphonates. *Imaging Science in Dentistry*, *47*(1), 45–50. https://doi.org/10.5624/isd.2017.47.1.45

Group7 = {indication: osteoporosis, medication:bisphosphonate\_Risedronate, administration\_route: oral, invasive\_dental\_treatment: yes}

(Jeong et al., 2017)

Jeong, H.-G., Hwang, J. J., Lee, J.-H., Kim, Y. H., Na, J. Y., & Han, S.-S. (2017). \*\*Risk factors of osteonecrosis of the jaw after tooth extraction in osteoporotic patients on oral bisphosphonates. *Imaging Science in Dentistry*, *47*(1), 45–50. https://doi.org/10.5624/isd.2017.47.1.45

Group7 = {indication: osteoporosis, medication:bisphosphonate\_Ibandronate, administration\_route: oral, invasive\_dental\_treatment: yes}

(Jeong et al., 2017)

Jeong, H.-G., Hwang, J. J., Lee, J.-H., Kim, Y. H., Na, J. Y., & Han, S.-S. (2017). \*\*Risk factors of osteonecrosis of the jaw after tooth extraction in osteoporotic patients on oral bisphosphonates. *Imaging Science in Dentistry*, *47*(1), 45–50. https://doi.org/10.5624/isd.2017.47.1.45

----

Group8 = {indication: osteoporosis, medication:bisphosphonate, administration\_route: IV/SC, invasive\_dental\_treatment: yes}

(Wei et al., 2025)

Wei, L.-Y., Cheng, Y.-W., Chiu, W.-Y., Kok, S.-H., Chang, H.-H., Cheng, S.-J., & Lee, J.-J. (2025). \*\*\*Risk Factors Influencing Medication-Related Osteonecrosis of the Jaws (MRONJ) Following Dental Extraction Among Osteoporotic Patients in Taiwan. *Head & Neck*, *47*(4), 1151–1161. https://doi.org/10.1002/hed.28011

Group8-1 = {indication: osteoporosis, medication:bisphosphonate\_Zoledronate, administration\_route: IV/SC, invasive\_dental\_treatment: yes}

(Wei et al., 2025)

Wei, L.-Y., Cheng, Y.-W., Chiu, W.-Y., Kok, S.-H., Chang, H.-H., Cheng, S.-J., & Lee, J.-J. (2025). \*\*\*Risk Factors Influencing Medication-Related Osteonecrosis of the Jaws (MRONJ) Following Dental Extraction Among Osteoporotic Patients in Taiwan. *Head & Neck*, *47*(4), 1151–1161. https://doi.org/10.1002/hed.28011

Group9 = {indication: osteoporosis, medication:denosumab, administration\_route: IV/SC, invasive\_dental\_treatment: yes}

(Colella et al., 2023; Everts-Graber et al., 2022; Watts et al., 2019; Wei et al., 2025)

Colella, A., Yu, E., Sambrook, P., Hughes, T., & Goss, A. (2023). \*\*\*What is the Risk of Developing Osteonecrosis Following Dental Extractions for Patients on Denosumab for Osteoporosis? *Journal of Oral and Maxillofacial Surgery: Official Journal of the American Association of Oral and Maxillofacial Surgeons*, *81*(2), 232–237. https://doi.org/10.1016/j.joms.2022.10.014

Everts-Graber, J., Lehmann, D., Burkard, J.-P., Schaller, B., Gahl, B., Häuselmann, H., Studer, U., Ziswiler, H.-R., Reichenbach, S., & Lehmann, T. (2022). \*\*\*Risk of Osteonecrosis of the Jaw Under Denosumab Compared to Bisphosphonates in Patients With Osteoporosis. *Journal of Bone and Mineral Research*, *37*(2), 340–348. https://doi.org/10.1002/jbmr.4472

Watts, N. B., Grbic, J. T., Binkley, N., Papapoulos, S., Butler, P. W., Yin, X., Tierney, A., Wagman, R. B., & McClung, M. (2019). \*\*\*Invasive Oral Procedures and Events in Postmenopausal Women With Osteoporosis Treated With Denosumab for Up to 10 Years. *The Journal of Clinical Endocrinology & Metabolism*, *104*(6), 2443–2452. https://doi.org/10.1210/jc.2018-01965

Wei, L.-Y., Cheng, Y.-W., Chiu, W.-Y., Kok, S.-H., Chang, H.-H., Cheng, S.-J., & Lee, J.-J. (2025). \*\*\*Risk Factors Influencing Medication-Related Osteonecrosis of the Jaws (MRONJ) Following Dental Extraction Among Osteoporotic Patients in Taiwan. *Head & Neck*, *47*(4), 1151–1161. https://doi.org/10.1002/hed.28011

Group10 = {indication: cancer, medication: none, administration\_route: none, invasive\_dental\_treatment: none}

(R. Coleman et al., 2014; R. E. Coleman et al., 2011; Gnant et al., 2008, 2015; Kamba et al., 2017; Meulenbeld et al., 2012; Pan et al., 2014; Smith et al., 2012, 2014; Ueno et al., 2013)

(El-Ibrashi et al., 2016; Gnant et al., 2008; Paterson et al., 2012)

(Powles et al., 1998)

Powles, T. J., McCloskey, E., Paterson, A. H., Ashley, S., Tidy, V. A., Nevantaus, A., Rosenqvist, K., & Kanis, J. (1998). Oral clodronate and reduction in loss of bone mineral density in women with operable primary breast cancer. *Journal of the National Cancer Institute*, *90*(9), 704–708. https://doi.org/10.1093/jnci/90.9.704

Coleman, R., Cameron, D., Dodwell, D., Bell, R., Wilson, C., Rathbone, E., Keane, M., Gil, M., Burkinshaw, R., Grieve, R., Barrett-Lee, P., Ritchie, D., Liversedge, V., Hinsley, S., & Marshall, H. (2014). \*\*\*Adjuvant zoledronic acid in patients with early breast cancer: Final efficacy analysis of the AZURE (BIG 01/04) randomised open-label phase 3 trial. *The Lancet Oncology*, *15*(9), 997–1006. https://doi.org/10.1016/S1470-2045(14)70302-X

Coleman, R. E., Marshall, H., Cameron, D., Dodwell, D., Burkinshaw, R., Keane, M., Gil, M., Houston, S. J., Grieve, R. J., Barrett-Lee, P. J., Ritchie, D., Pugh, J., Gaunt, C., Rea, U., Peterson, J., Davies, C., Hiley, V., Gregory, W., & Bell, R. (2011). Breast-Cancer Adjuvant Therapy with Zoledronic Acid. *New England Journal of Medicine*, *365*(15), 1396–1405. https://doi.org/10.1056/NEJMoa1105195

El-Ibrashi, M., El-Sadda, W., Abdel-Halim, I., & Elashri, M. (2016). Abstract P5-15-04: Zoledronic acid combined with adjuvant tamoxifen with or without ovarian function suppression in premenopausal early breast cancer patients. *Cancer Research*, *76*(4\_Supplement), P5-15–04. https://doi.org/10.1158/1538-7445.SABCS15-P5-15-04

Gnant, M., Mlineritsch, B., Luschin-Ebengreuth, G., Kainberger, F., Kässmann, H., Piswanger-Sölkner, J. C., Seifert, M., Ploner, F., Menzel, C., Dubsky, P., Fitzal, F., Bjelic-Radisic, V., Steger, G., Greil, R., Marth, C., Kubista, E., Samonigg, H., Wohlmuth, P., Mittlböck, M., … Austrian Breast and Colorectal Cancer Study Group (ABCSG). (2008). Adjuvant endocrine therapy plus zoledronic acid in premenopausal women with early-stage breast cancer: 5-year follow-up of the ABCSG-12 bone-mineral density substudy. *The Lancet. Oncology*, *9*(9), 840–849. https://doi.org/10.1016/S1470-2045(08)70204-3

Gnant, M., Mlineritsch, B., Stoeger, H., Luschin-Ebengreuth, G., Knauer, M., Moik, M., Jakesz, R., Seifert, M., Taucher, S., Bjelic-Radisic, V., Balic, M., Eidtmann, H., Eiermann, W., Steger, G., Kwasny, W., Dubsky, P., Selim, U., Fitzal, F., Hochreiner, G., … Greil, R. (2015). \*\*(ABCSG-12)Zoledronic acid combined with adjuvant endocrine therapy of tamoxifen versus anastrozol plus ovarian function suppression in premenopausal early breast cancer: Final analysis of the Austrian Breast and Colorectal Cancer Study Group Trial 12. *Annals of Oncology*, *26*(2), 313–320. https://doi.org/10.1093/annonc/mdu544

Kamba, T., Kamoto, T., Maruo, S., Kikuchi, T., Shimizu, Y., Namiki, S., Fujimoto, K., Kawanishi, H., Sato, F., Narita, S., Satoh, T., Saito, H., Sugimoto, M., Teishima, J., Masumori, N., Egawa, S., Sakai, H., Okada, Y., Terachi, T., … ZAPCA Study Group. (2017). A phase III multicenter, randomized, controlled study of combined androgen blockade with versus without zoledronic acid in prostate cancer patients with metastatic bone disease: Results of the ZAPCA trial. *International Journal of Clinical Oncology*, *22*(1), 166–173. https://doi.org/10.1007/s10147-016-1037-2

Meulenbeld, H. J., Van Werkhoven, E. D., Coenen, J. L. L. M., Creemers, G. J., Loosveld, O. J. L., De Jong, P. C., Ten Tije, A. J., Fosså, S. D., Polee, M., Gerritsen, W., Dalesio, O., & De Wit, R. (2012). \*\*\*Randomised phase II/III study of docetaxel with or without risedronate in patients with metastatic Castration Resistant Prostate Cancer (CRPC), the Netherlands Prostate Study (NePro). *European Journal of Cancer*, *48*(16), 2993–3000. https://doi.org/10.1016/j.ejca.2012.05.014

Pan, Y., Jin, H., Chen, W., Yu, Z., Ye, T., Zheng, Y., Weng, Z., & Wang, F. (2014). \*\*\*Docetaxel with or without zoledronic acid for castration-resistant prostate cancer. *International Urology and Nephrology*, *46*(12), 2319–2326. https://doi.org/10.1007/s11255-014-0824-9

Paterson, A. H. G., Anderson, S. J., Lembersky, B. C., Fehrenbacher, L., Falkson, C. I., King, K. M., Weir, L. M., Brufsky, A. M., Dakhil, S., Lad, T., Baez-Diaz, L., Gralow, J. R., Robidoux, A., Perez, E. A., Zheng, P., Geyer, C. E., Swain, S. M., Costantino, J. P., Mamounas, E. P., & Wolmark, N. (2012). Oral clodronate for adjuvant treatment of operable breast cancer (National Surgical Adjuvant Breast and Bowel Project protocol B-34): A multicentre, placebo-controlled, randomised trial. *The Lancet. Oncology*, *13*(7), 734–742. https://doi.org/10.1016/S1470-2045(12)70226-7

Smith, M. R., Halabi, S., Ryan, C. J., Hussain, A., Vogelzang, N., Stadler, W., Hauke, R. J., Monk, J. P., Saylor, P., Bhoopalam, N., Saad, F., Sanford, B., Kelly, W. K., Morris, M., & Small, E. J. (2014). \*\*\*Randomized Controlled Trial of Early Zoledronic Acid in Men With Castration-Sensitive Prostate Cancer and Bone Metastases: Results of CALGB 90202 (Alliance). *Journal of Clinical Oncology*, *32*(11), 1143–1150. https://doi.org/10.1200/JCO.2013.51.6500

Smith, M. R., Saad, F., Coleman, R., Shore, N., Fizazi, K., Tombal, B., Miller, K., Sieber, P., Karsh, L., Damião, R., Tammela, T. L., Egerdie, B., Van Poppel, H., Chin, J., Morote, J., Gómez-Veiga, F., Borkowski, T., Ye, Z., Kupic, A., … Goessl, C. (2012). \*\*Denosumab and bone-metastasis-free survival in men with castration-resistant prostate cancer: Results of a phase 3, randomised, placebo-controlled trial. *Lancet (London, England)*, *379*(9810), 39–46. https://doi.org/10.1016/S0140-6736(11)61226-9

Ueno, S., Mizokami, A., Fukagai, T., Fujimoto, N., Oh-Oka, H., Kondo, Y., Arai, G., Ide, H., Horie, S., Ueki, O., Kawaguchi, K., Shimamura, M., Orito, M., Ishida, T., Ikeda, D., & Namiki, M. (2013). \*\*\*Efficacy of Combined Androgen Blockade with Zoledronic Acid Treatment in Prostate Cancer with Bone Metastasis: The ZABTON-PC (Zoledronic Acid/Androgen Blockade Trial on Prostate Cancer) Study. *ANTICANCER RESEARCH*.

Group11 = {indication: cancer, medication:bisphosphonate, administration\_route: not\_specific, invasive\_dental\_treatment: none}

(Addison et al., 2014; Amadori et al., 2013; Barrett-Lee et al., 2012; Brufsky et al., 2012; Coleman et al., 2014; Eidtmann et al., 2010; Fizazi et al., 2011; Gralow et al., 2014; D. Henry et al., 2014; D. H. Henry et al., 2011; Heras et al., 2009; Himelstein et al., 2017; Hortobagyi et al., 2017; Kamba et al., 2017; Llombart et al., 2012; Meulenbeld et al., 2012; Pan et al., 2014; Paterson et al., 2012; Powles et al., 1998; Raje et al., 2018; Scagliotti et al., 2012; Smith et al., 2014; Ueno et al., 2013; von Minckwitz et al., 2016)

Addison, C. L., Bouganim, N., Hilton, J., Vandermeer, L., Dent, S., Amir, E., Hopkins, S., Kuchuk, I., Segal, R., Song, X., Gertler, S., Mazzarello, S., Dranitsaris, G., Ooi, D., Pond, G., & Clemons, M. (2014). A phase II, multicentre trial evaluating the efficacy of de-escalated bisphosphonate therapy in metastatic breast cancer patients at low-risk of skeletal-related events. *Breast Cancer Research and Treatment*, *144*(3), 615–624. https://doi.org/10.1007/s10549-014-2906-x

Amadori, D., Aglietta, M., Alessi, B., Gianni, L., Ibrahim, T., Farina, G., Gaion, F., Bertoldo, F., Santini, D., Rondena, R., Bogani, P., & Ripamonti, C. I. (2013). Efficacy and safety of 12-weekly versus 4-weekly zoledronic acid for prolonged treatment of patients with bone metastases from breast cancer (ZOOM): A phase 3, open-label, randomised, non-inferiority trial. *The Lancet. Oncology*, *14*(7), 663–670. https://doi.org/10.1016/S1470-2045(13)70174-8

Barrett-Lee, P., Casbard, A., Abraham, J., Grieve, R., Wheatley, D., Simmons, P., Coleman, R., Hood, K., Griffiths, G., & Murray, N. (2012). Abstract PD07-09: Zoledronate versus ibandronate comparative evaluation (ZICE) trial - first results of a UK NCRI 1,405 patient phase III trial comparing oral ibandronate versus intravenous zoledronate in the treatment of breast cancer patients with bone metastases. *Cancer Research*, *72*(24\_Supplement), PD07-09. https://doi.org/10.1158/0008-5472.SABCS12-PD07-09

Brufsky, A. M., Harker, W. G., Beck, J. T., Bosserman, L., Vogel, C., Seidler, C., Jin, L., Warsi, G., Argonza-Aviles, E., Hohneker, J., Ericson, S. G., & Perez, E. A. (2012). Final 5-year results of Z-FAST trial: Adjuvant zoledronic acid maintains bone mass in postmenopausal breast cancer patients receiving letrozole. *Cancer*, *118*(5), 1192–1201. https://doi.org/10.1002/cncr.26313

Coleman, R., Cameron, D., Dodwell, D., Bell, R., Wilson, C., Rathbone, E., Keane, M., Gil, M., Burkinshaw, R., Grieve, R., Barrett-Lee, P., Ritchie, D., Liversedge, V., Hinsley, S., & Marshall, H. (2014). Adjuvant zoledronic acid in patients with early breast cancer: Final efficacy analysis of the AZURE (BIG 01/04) randomised open-label phase 3 trial. *The Lancet Oncology*, *15*(9), 997–1006. https://doi.org/10.1016/S1470-2045(14)70302-X

Eidtmann, H., de Boer, R., Bundred, N., Llombart-Cussac, A., Davidson, N., Neven, P., von Minckwitz, G., Miller, J., Schenk, N., & Coleman, R. (2010). Efficacy of zoledronic acid in postmenopausal women with early breast cancer receiving adjuvant letrozole: 36-month results of the ZO-FAST Study. *Annals of Oncology: Official Journal of the European Society for Medical Oncology*, *21*(11), 2188–2194. https://doi.org/10.1093/annonc/mdq217

Fizazi, K., Carducci, M., Smith, M., Damião, R., Brown, J., Karsh, L., Milecki, P., Shore, N., Rader, M., Wang, H., Jiang, Q., Tadros, S., Dansey, R., & Goessl, C. (2011). \*\*\*Denosumab versus zoledronic acid for treatment of bone metastases in men with castration-resistant prostate cancer: A randomised, double-blind study. *Lancet (London, England)*, *377*(9768), 813–822. https://doi.org/10.1016/S0140-6736(10)62344-6

Gralow, J., Barlow, W. E., Paterson, A. H. G., Lew, D., Stopeck, A., Hayes, D. F., Hershman, D. L., Schubert, M., Clemons, M., Van Poznak, C. H., Dees, E. C., Ingle, J. N., Falkson, C. I., Elias, A. D., Messino, M. J., Margolis, J. H., Dakhil, S. R., Chew, H. K., Livingston, R. B., & Hortobagyi, G. N. (2014). SWOG S0307 phase III trial of bisphosphonates as adjuvant therapy in primary breast cancer: Comparison of toxicities and patient-stated preference for oral versus intravenous delivery. *Journal of Clinical Oncology*, *32*(15\_suppl), 558–558. https://doi.org/10.1200/jco.2014.32.15\_suppl.558

Henry, D. H., Costa, L., Goldwasser, F., Hirsh, V., Hungria, V., Prausova, J., Scagliotti, G. V., Sleeboom, H., Spencer, A., Vadhan-Raj, S., Von Moos, R., Willenbacher, W., Woll, P. J., Wang, J., Jiang, Q., Jun, S., Dansey, R., & Yeh, H. (2011). \*\*Randomized, Double-Blind Study of Denosumab Versus Zoledronic Acid in the Treatment of Bone Metastases in Patients With Advanced Cancer (Excluding Breast and Prostate Cancer) or Multiple Myeloma. *Journal of Clinical Oncology*, *29*(9), 1125–1132. https://doi.org/10.1200/JCO.2010.31.3304

Henry, D., Vadhan-Raj, S., Hirsh, V., Von Moos, R., Hungria, V., Costa, L., Woll, P. J., Scagliotti, G., Smith, G., Feng, A., Jun, S., Dansey, R., & Yeh, H. (2014). \*\*Delaying skeletal-related events in a randomized phase 3 study of denosumab versus zoledronic acid in patients with advanced cancer: An analysis of data from patients with solid tumors. *Supportive Care in Cancer*, *22*(3), 679–687. https://doi.org/10.1007/s00520-013-2022-1

Heras, P., Kritikos, K., Hatzopoulos, A., & Georgopoulou, A.-P. (2009). Efficacy of ibandronate for the treatment of skeletal events in patients with metastatic breast cancer. *European Journal of Cancer Care*, *18*(6), 653–656. https://doi.org/10.1111/j.1365-2354.2008.00980.x

Himelstein, A. L., Foster, J. C., Khatcheressian, J. L., Roberts, J. D., Seisler, D. K., Novotny, P. J., Qin, R., Go, R. S., Grubbs, S. S., O’Connor, T., Velasco, M. R., Weckstein, D., O’Mara, A., Loprinzi, C. L., & Shapiro, C. L. (2017). \*\*Effect of Longer-Interval vs Standard Dosing of Zoledronic Acid on Skeletal Events in Patients With Bone Metastases: A Randomized Clinical Trial. *JAMA*, *317*(1), 48–58. https://doi.org/10.1001/jama.2016.19425

Hortobagyi, G. N., Van Poznak, C., Harker, W. G., Gradishar, W. J., Chew, H., Dakhil, S. R., Haley, B. B., Sauter, N., Mohanlal, R., Zheng, M., & Lipton, A. (2017). Continued Treatment Effect of Zoledronic Acid Dosing Every 12 vs 4 Weeks in Women With Breast Cancer Metastatic to Bone: The OPTIMIZE-2 Randomized Clinical Trial. *JAMA Oncology*, *3*(7), 906–912. https://doi.org/10.1001/jamaoncol.2016.6316

Kamba, T., Kamoto, T., Maruo, S., Kikuchi, T., Shimizu, Y., Namiki, S., Fujimoto, K., Kawanishi, H., Sato, F., Narita, S., Satoh, T., Saito, H., Sugimoto, M., Teishima, J., Masumori, N., Egawa, S., Sakai, H., Okada, Y., Terachi, T., & Ogawa, O. (2017). \*\*\*A phase III multicenter, randomized, controlled study of combined androgen blockade with versus without zoledronic acid in prostate cancer patients with metastatic bone disease: Results of the ZAPCA trial. *International Journal of Clinical Oncology*, *22*(1), 166–173. https://doi.org/10.1007/s10147-016-1037-2

Llombart, A., Frassoldati, A., Paija, O., Sleeboom, H. P., Jerusalem, G., Mebis, J., Deleu, I., Miller, J., Schenk, N., & Neven, P. (2012). Immediate Administration of Zoledronic Acid Reduces Aromatase Inhibitor–Associated Bone Loss in Postmenopausal Women With Early Breast Cancer: 12-Month Analysis of the E-ZO-FAST Trial. *Clinical Breast Cancer*, *12*(1), 40–48. https://doi.org/10.1016/j.clbc.2011.08.002

Meulenbeld, H. J., Van Werkhoven, E. D., Coenen, J. L. L. M., Creemers, G. J., Loosveld, O. J. L., De Jong, P. C., Ten Tije, A. J., Fosså, S. D., Polee, M., Gerritsen, W., Dalesio, O., & De Wit, R. (2012). \*\*\*Randomised phase II/III study of docetaxel with or without risedronate in patients with metastatic Castration Resistant Prostate Cancer (CRPC), the Netherlands Prostate Study (NePro). *European Journal of Cancer*, *48*(16), 2993–3000. https://doi.org/10.1016/j.ejca.2012.05.014

Pan, Y., Jin, H., Chen, W., Yu, Z., Ye, T., Zheng, Y., Weng, Z., & Wang, F. (2014). \*\*\*Docetaxel with or without zoledronic acid for castration-resistant prostate cancer. *International Urology and Nephrology*, *46*(12), 2319–2326. https://doi.org/10.1007/s11255-014-0824-9

Paterson, A. H. G., Anderson, S. J., Lembersky, B. C., Fehrenbacher, L., Falkson, C. I., King, K. M., Weir, L. M., Brufsky, A. M., Dakhil, S., Lad, T., Baez-Diaz, L., Gralow, J. R., Robidoux, A., Perez, E. A., Zheng, P., Geyer, C. E., Swain, S. M., Costantino, J. P., Mamounas, E. P., & Wolmark, N. (2012). Oral clodronate for adjuvant treatment of operable breast cancer (National Surgical Adjuvant Breast and Bowel Project protocol B-34): A multicentre, placebo-controlled, randomised trial. *The Lancet. Oncology*, *13*(7), 734–742. https://doi.org/10.1016/S1470-2045(12)70226-7

Powles, T. J., McCloskey, E., Paterson, A. H., Ashley, S., Tidy, V. A., Nevantaus, A., Rosenqvist, K., & Kanis, J. (1998). Oral clodronate and reduction in loss of bone mineral density in women with operable primary breast cancer. *Journal of the National Cancer Institute*, *90*(9), 704–708. https://doi.org/10.1093/jnci/90.9.704

Raje, N., Terpos, E., Willenbacher, W., Shimizu, K., García-Sanz, R., Durie, B., Legieć, W., Krejčí, M., Laribi, K., Zhu, L., Cheng, P., Warner, D., & Roodman, G. D. (2018). \*\*Denosumab versus zoledronic acid in bone disease treatment of newly diagnosed multiple myeloma: An international, double-blind, double-dummy, randomised, controlled, phase 3 study. *The Lancet Oncology*, *19*(3), 370–381. https://doi.org/10.1016/S1470-2045(18)30072-X

Scagliotti, G. V., Hirsh, V., Siena, S., Henry, D. H., Woll, P. J., Manegold, C., Solal-Celigny, P., Rodriguez, G., Krzakowski, M., Mehta, N. D., Lipton, L., García-Sáenz, J. A., Pereira, J. R., Prabhash, K., Ciuleanu, T.-E., Kanarev, V., Wang, H., Balakumaran, A., & Jacobs, I. (2012). \*\*Overall Survival Improvement in Patients with Lung Cancer and Bone Metastases Treated with Denosumab Versus Zoledronic Acid: Subgroup Analysis from a Randomized Phase 3 Study. *Journal of Thoracic Oncology*, *7*(12), 1823–1829. https://doi.org/10.1097/JTO.0b013e31826aec2b

Smith, M. R., Halabi, S., Ryan, C. J., Hussain, A., Vogelzang, N., Stadler, W., Hauke, R. J., Monk, J. P., Saylor, P., Bhoopalam, N., Saad, F., Sanford, B., Kelly, W. K., Morris, M., & Small, E. J. (2014). \*\*\*Randomized Controlled Trial of Early Zoledronic Acid in Men With Castration-Sensitive Prostate Cancer and Bone Metastases: Results of CALGB 90202 (Alliance). *Journal of Clinical Oncology*, *32*(11), 1143–1150. https://doi.org/10.1200/JCO.2013.51.6500

Ueno, S., Mizokami, A., Fukagai, T., Fujimoto, N., Oh-Oka, H., Kondo, Y., Arai, G., Ide, H., Horie, S., Ueki, O., Kawaguchi, K., Shimamura, M., Orito, M., Ishida, T., Ikeda, D., & Namiki, M. (2013). \*\*\*Efficacy of Combined Androgen Blockade with Zoledronic Acid Treatment in Prostate Cancer with Bone Metastasis: The ZABTON-PC (Zoledronic Acid/Androgen Blockade Trial on Prostate Cancer) Study. *ANTICANCER RESEARCH*.

von Minckwitz, G., Rezai, M., Tesch, H., Huober, J., Gerber, B., Zahm, D. M., Hilfrich, J., Costa, S. D., Dubsky, P., Blohmer, J. U., Denkert, C., Hanusch, C., Jackisch, C., Kümmel, S., Fasching, P. A., Schneeweiss, A., Paepke, S., Untch, M., Burchardi, N., … German Breast Group and Austrian Breast and Colon Cancer Study Group Investigators. (2016). Zoledronate for patients with invasive residual disease after anthracyclines-taxane-based chemotherapy for early breast cancer—The Phase III NeoAdjuvant Trial Add-oN (NaTaN) study (GBG 36/ABCSG 29). *European Journal of Cancer (Oxford, England: 1990)*, *64*, 12–21. https://doi.org/10.1016/j.ejca.2016.05.015

Group11-1 = {indication: cancer, medication:bisphosphonate\_Ibandronate, administration\_route: not\_specific, invasive\_dental\_treatment: none}

(Barrett-Lee et al., 2012; Gralow et al., 2014; Heras et al., 2009; Meulenbeld et al., 2012; Ueno et al., 2013)

Barrett-Lee, P., Casbard, A., Abraham, J., Grieve, R., Wheatley, D., Simmons, P., Coleman, R., Hood, K., Griffiths, G., & Murray, N. (2012). Abstract PD07-09: Zoledronate versus ibandronate comparative evaluation (ZICE) trial - first results of a UK NCRI 1,405 patient phase III trial comparing oral ibandronate versus intravenous zoledronate in the treatment of breast cancer patients with bone metastases. *Cancer Research*, *72*(24\_Supplement), PD07-09. https://doi.org/10.1158/0008-5472.SABCS12-PD07-09

Gralow, J., Barlow, W. E., Paterson, A. H. G., Lew, D., Stopeck, A., Hayes, D. F., Hershman, D. L., Schubert, M., Clemons, M., Van Poznak, C. H., Dees, E. C., Ingle, J. N., Falkson, C. I., Elias, A. D., Messino, M. J., Margolis, J. H., Dakhil, S. R., Chew, H. K., Livingston, R. B., & Hortobagyi, G. N. (2014). SWOG S0307 phase III trial of bisphosphonates as adjuvant therapy in primary breast cancer: Comparison of toxicities and patient-stated preference for oral versus intravenous delivery. *Journal of Clinical Oncology*, *32*(15\_suppl), 558–558. https://doi.org/10.1200/jco.2014.32.15\_suppl.558

Heras, P., Kritikos, K., Hatzopoulos, A., & Georgopoulou, A.-P. (2009). Efficacy of ibandronate for the treatment of skeletal events in patients with metastatic breast cancer. *European Journal of Cancer Care*, *18*(6), 653–656. https://doi.org/10.1111/j.1365-2354.2008.00980.x

Meulenbeld, H. J., Van Werkhoven, E. D., Coenen, J. L. L. M., Creemers, G. J., Loosveld, O. J. L., De Jong, P. C., Ten Tije, A. J., Fosså, S. D., Polee, M., Gerritsen, W., Dalesio, O., & De Wit, R. (2012). \*\*\*Randomised phase II/III study of docetaxel with or without risedronate in patients with metastatic Castration Resistant Prostate Cancer (CRPC), the Netherlands Prostate Study (NePro). *European Journal of Cancer*, *48*(16), 2993–3000. https://doi.org/10.1016/j.ejca.2012.05.014

Ueno, S., Mizokami, A., Fukagai, T., Fujimoto, N., Oh-Oka, H., Kondo, Y., Arai, G., Ide, H., Horie, S., Ueki, O., Kawaguchi, K., Shimamura, M., Orito, M., Ishida, T., Ikeda, D., & Namiki, M. (2013). \*\*\*Efficacy of Combined Androgen Blockade with Zoledronic Acid Treatment in Prostate Cancer with Bone Metastasis: The ZABTON-PC (Zoledronic Acid/Androgen Blockade Trial on Prostate Cancer) Study. *ANTICANCER RESEARCH*.

---

Group11-2 = {indication: cancer, medication:bisphosphonate\_Clodronate, administration\_route: not\_specific, invasive\_dental\_treatment: none}

(Gralow et al., 2014; Paterson et al., 2012; Powles et al., 1998)

Gralow, J., Barlow, W. E., Paterson, A. H. G., Lew, D., Stopeck, A., Hayes, D. F., Hershman, D. L., Schubert, M., Clemons, M., Van Poznak, C. H., Dees, E. C., Ingle, J. N., Falkson, C. I., Elias, A. D., Messino, M. J., Margolis, J. H., Dakhil, S. R., Chew, H. K., Livingston, R. B., & Hortobagyi, G. N. (2014). SWOG S0307 phase III trial of bisphosphonates as adjuvant therapy in primary breast cancer: Comparison of toxicities and patient-stated preference for oral versus intravenous delivery. *Journal of Clinical Oncology*, *32*(15\_suppl), 558–558. https://doi.org/10.1200/jco.2014.32.15\_suppl.558

Paterson, A. H. G., Anderson, S. J., Lembersky, B. C., Fehrenbacher, L., Falkson, C. I., King, K. M., Weir, L. M., Brufsky, A. M., Dakhil, S., Lad, T., Baez-Diaz, L., Gralow, J. R., Robidoux, A., Perez, E. A., Zheng, P., Geyer, C. E., Swain, S. M., Costantino, J. P., Mamounas, E. P., & Wolmark, N. (2012). Oral clodronate for adjuvant treatment of operable breast cancer (National Surgical Adjuvant Breast and Bowel Project protocol B-34): A multicentre, placebo-controlled, randomised trial. *The Lancet. Oncology*, *13*(7), 734–742. https://doi.org/10.1016/S1470-2045(12)70226-7

Powles, T. J., McCloskey, E., Paterson, A. H., Ashley, S., Tidy, V. A., Nevantaus, A., Rosenqvist, K., & Kanis, J. (1998). Oral clodronate and reduction in loss of bone mineral density in women with operable primary breast cancer. *Journal of the National Cancer Institute*, *90*(9), 704–708. https://doi.org/10.1093/jnci/90.9.704

---

Group11-3 = {indication: cancer, medication:bisphosphonate\_Zoledronate, administration\_route: not\_specific, invasive\_dental\_treatment: none}

(Addison et al., 2014; Amadori et al., 2013; Barrett-Lee et al., 2012; Brufsky et al., 2012; Coleman et al., 2014; Eidtmann et al., 2010; Fizazi et al., 2011; Gralow et al., 2014; D. Henry et al., 2014; D. H. Henry et al., 2011; Himelstein et al., 2017; Hortobagyi et al., 2017; Kamba et al., 2017; Llombart et al., 2012; Pan et al., 2014; Raje et al., 2018; Scagliotti et al., 2012; Smith et al., 2014; Ueno et al., 2013; von Minckwitz et al., 2016)

Addison, C. L., Bouganim, N., Hilton, J., Vandermeer, L., Dent, S., Amir, E., Hopkins, S., Kuchuk, I., Segal, R., Song, X., Gertler, S., Mazzarello, S., Dranitsaris, G., Ooi, D., Pond, G., & Clemons, M. (2014). A phase II, multicentre trial evaluating the efficacy of de-escalated bisphosphonate therapy in metastatic breast cancer patients at low-risk of skeletal-related events. *Breast Cancer Research and Treatment*, *144*(3), 615–624. https://doi.org/10.1007/s10549-014-2906-x

Amadori, D., Aglietta, M., Alessi, B., Gianni, L., Ibrahim, T., Farina, G., Gaion, F., Bertoldo, F., Santini, D., Rondena, R., Bogani, P., & Ripamonti, C. I. (2013). Efficacy and safety of 12-weekly versus 4-weekly zoledronic acid for prolonged treatment of patients with bone metastases from breast cancer (ZOOM): A phase 3, open-label, randomised, non-inferiority trial. *The Lancet. Oncology*, *14*(7), 663–670. https://doi.org/10.1016/S1470-2045(13)70174-8

Barrett-Lee, P., Casbard, A., Abraham, J., Grieve, R., Wheatley, D., Simmons, P., Coleman, R., Hood, K., Griffiths, G., & Murray, N. (2012). Abstract PD07-09: Zoledronate versus ibandronate comparative evaluation (ZICE) trial - first results of a UK NCRI 1,405 patient phase III trial comparing oral ibandronate versus intravenous zoledronate in the treatment of breast cancer patients with bone metastases. *Cancer Research*, *72*(24\_Supplement), PD07-09. https://doi.org/10.1158/0008-5472.SABCS12-PD07-09

Brufsky, A. M., Harker, W. G., Beck, J. T., Bosserman, L., Vogel, C., Seidler, C., Jin, L., Warsi, G., Argonza-Aviles, E., Hohneker, J., Ericson, S. G., & Perez, E. A. (2012). Final 5-year results of Z-FAST trial: Adjuvant zoledronic acid maintains bone mass in postmenopausal breast cancer patients receiving letrozole. *Cancer*, *118*(5), 1192–1201. https://doi.org/10.1002/cncr.26313

Coleman, R., Cameron, D., Dodwell, D., Bell, R., Wilson, C., Rathbone, E., Keane, M., Gil, M., Burkinshaw, R., Grieve, R., Barrett-Lee, P., Ritchie, D., Liversedge, V., Hinsley, S., & Marshall, H. (2014). Adjuvant zoledronic acid in patients with early breast cancer: Final efficacy analysis of the AZURE (BIG 01/04) randomised open-label phase 3 trial. *The Lancet Oncology*, *15*(9), 997–1006. https://doi.org/10.1016/S1470-2045(14)70302-X

Eidtmann, H., de Boer, R., Bundred, N., Llombart-Cussac, A., Davidson, N., Neven, P., von Minckwitz, G., Miller, J., Schenk, N., & Coleman, R. (2010). Efficacy of zoledronic acid in postmenopausal women with early breast cancer receiving adjuvant letrozole: 36-month results of the ZO-FAST Study. *Annals of Oncology: Official Journal of the European Society for Medical Oncology*, *21*(11), 2188–2194. https://doi.org/10.1093/annonc/mdq217

Fizazi, K., Carducci, M., Smith, M., Damião, R., Brown, J., Karsh, L., Milecki, P., Shore, N., Rader, M., Wang, H., Jiang, Q., Tadros, S., Dansey, R., & Goessl, C. (2011). \*\*\*Denosumab versus zoledronic acid for treatment of bone metastases in men with castration-resistant prostate cancer: A randomised, double-blind study. *Lancet (London, England)*, *377*(9768), 813–822. https://doi.org/10.1016/S0140-6736(10)62344-6

Gralow, J., Barlow, W. E., Paterson, A. H. G., Lew, D., Stopeck, A., Hayes, D. F., Hershman, D. L., Schubert, M., Clemons, M., Van Poznak, C. H., Dees, E. C., Ingle, J. N., Falkson, C. I., Elias, A. D., Messino, M. J., Margolis, J. H., Dakhil, S. R., Chew, H. K., Livingston, R. B., & Hortobagyi, G. N. (2014). SWOG S0307 phase III trial of bisphosphonates as adjuvant therapy in primary breast cancer: Comparison of toxicities and patient-stated preference for oral versus intravenous delivery. *Journal of Clinical Oncology*, *32*(15\_suppl), 558–558. https://doi.org/10.1200/jco.2014.32.15\_suppl.558

Henry, D. H., Costa, L., Goldwasser, F., Hirsh, V., Hungria, V., Prausova, J., Scagliotti, G. V., Sleeboom, H., Spencer, A., Vadhan-Raj, S., Von Moos, R., Willenbacher, W., Woll, P. J., Wang, J., Jiang, Q., Jun, S., Dansey, R., & Yeh, H. (2011). \*\*Randomized, Double-Blind Study of Denosumab Versus Zoledronic Acid in the Treatment of Bone Metastases in Patients With Advanced Cancer (Excluding Breast and Prostate Cancer) or Multiple Myeloma. *Journal of Clinical Oncology*, *29*(9), 1125–1132. https://doi.org/10.1200/JCO.2010.31.3304

Henry, D., Vadhan-Raj, S., Hirsh, V., Von Moos, R., Hungria, V., Costa, L., Woll, P. J., Scagliotti, G., Smith, G., Feng, A., Jun, S., Dansey, R., & Yeh, H. (2014). \*\*Delaying skeletal-related events in a randomized phase 3 study of denosumab versus zoledronic acid in patients with advanced cancer: An analysis of data from patients with solid tumors. *Supportive Care in Cancer*, *22*(3), 679–687. https://doi.org/10.1007/s00520-013-2022-1

Himelstein, A. L., Foster, J. C., Khatcheressian, J. L., Roberts, J. D., Seisler, D. K., Novotny, P. J., Qin, R., Go, R. S., Grubbs, S. S., O’Connor, T., Velasco, M. R., Weckstein, D., O’Mara, A., Loprinzi, C. L., & Shapiro, C. L. (2017). \*\*Effect of Longer-Interval vs Standard Dosing of Zoledronic Acid on Skeletal Events in Patients With Bone Metastases: A Randomized Clinical Trial. *JAMA*, *317*(1), 48–58. https://doi.org/10.1001/jama.2016.19425

Hortobagyi, G. N., Van Poznak, C., Harker, W. G., Gradishar, W. J., Chew, H., Dakhil, S. R., Haley, B. B., Sauter, N., Mohanlal, R., Zheng, M., & Lipton, A. (2017). Continued Treatment Effect of Zoledronic Acid Dosing Every 12 vs 4 Weeks in Women With Breast Cancer Metastatic to Bone: The OPTIMIZE-2 Randomized Clinical Trial. *JAMA Oncology*, *3*(7), 906–912. https://doi.org/10.1001/jamaoncol.2016.6316

Kamba, T., Kamoto, T., Maruo, S., Kikuchi, T., Shimizu, Y., Namiki, S., Fujimoto, K., Kawanishi, H., Sato, F., Narita, S., Satoh, T., Saito, H., Sugimoto, M., Teishima, J., Masumori, N., Egawa, S., Sakai, H., Okada, Y., Terachi, T., & Ogawa, O. (2017). \*\*\*A phase III multicenter, randomized, controlled study of combined androgen blockade with versus without zoledronic acid in prostate cancer patients with metastatic bone disease: Results of the ZAPCA trial. *International Journal of Clinical Oncology*, *22*(1), 166–173. https://doi.org/10.1007/s10147-016-1037-2

Llombart, A., Frassoldati, A., Paija, O., Sleeboom, H. P., Jerusalem, G., Mebis, J., Deleu, I., Miller, J., Schenk, N., & Neven, P. (2012). Immediate Administration of Zoledronic Acid Reduces Aromatase Inhibitor–Associated Bone Loss in Postmenopausal Women With Early Breast Cancer: 12-Month Analysis of the E-ZO-FAST Trial. *Clinical Breast Cancer*, *12*(1), 40–48. https://doi.org/10.1016/j.clbc.2011.08.002

Pan, Y., Jin, H., Chen, W., Yu, Z., Ye, T., Zheng, Y., Weng, Z., & Wang, F. (2014). \*\*\*Docetaxel with or without zoledronic acid for castration-resistant prostate cancer. *International Urology and Nephrology*, *46*(12), 2319–2326. https://doi.org/10.1007/s11255-014-0824-9

Raje, N., Terpos, E., Willenbacher, W., Shimizu, K., García-Sanz, R., Durie, B., Legieć, W., Krejčí, M., Laribi, K., Zhu, L., Cheng, P., Warner, D., & Roodman, G. D. (2018). \*\*Denosumab versus zoledronic acid in bone disease treatment of newly diagnosed multiple myeloma: An international, double-blind, double-dummy, randomised, controlled, phase 3 study. *The Lancet Oncology*, *19*(3), 370–381. https://doi.org/10.1016/S1470-2045(18)30072-X

Scagliotti, G. V., Hirsh, V., Siena, S., Henry, D. H., Woll, P. J., Manegold, C., Solal-Celigny, P., Rodriguez, G., Krzakowski, M., Mehta, N. D., Lipton, L., García-Sáenz, J. A., Pereira, J. R., Prabhash, K., Ciuleanu, T.-E., Kanarev, V., Wang, H., Balakumaran, A., & Jacobs, I. (2012). \*\*Overall Survival Improvement in Patients with Lung Cancer and Bone Metastases Treated with Denosumab Versus Zoledronic Acid: Subgroup Analysis from a Randomized Phase 3 Study. *Journal of Thoracic Oncology*, *7*(12), 1823–1829. https://doi.org/10.1097/JTO.0b013e31826aec2b

Smith, M. R., Halabi, S., Ryan, C. J., Hussain, A., Vogelzang, N., Stadler, W., Hauke, R. J., Monk, J. P., Saylor, P., Bhoopalam, N., Saad, F., Sanford, B., Kelly, W. K., Morris, M., & Small, E. J. (2014). \*\*\*Randomized Controlled Trial of Early Zoledronic Acid in Men With Castration-Sensitive Prostate Cancer and Bone Metastases: Results of CALGB 90202 (Alliance). *Journal of Clinical Oncology*, *32*(11), 1143–1150. https://doi.org/10.1200/JCO.2013.51.6500

Ueno, S., Mizokami, A., Fukagai, T., Fujimoto, N., Oh-Oka, H., Kondo, Y., Arai, G., Ide, H., Horie, S., Ueki, O., Kawaguchi, K., Shimamura, M., Orito, M., Ishida, T., Ikeda, D., & Namiki, M. (2013). \*\*\*Efficacy of Combined Androgen Blockade with Zoledronic Acid Treatment in Prostate Cancer with Bone Metastasis: The ZABTON-PC (Zoledronic Acid/Androgen Blockade Trial on Prostate Cancer) Study. *ANTICANCER RESEARCH*.

von Minckwitz, G., Rezai, M., Tesch, H., Huober, J., Gerber, B., Zahm, D. M., Hilfrich, J., Costa, S. D., Dubsky, P., Blohmer, J. U., Denkert, C., Hanusch, C., Jackisch, C., Kümmel, S., Fasching, P. A., Schneeweiss, A., Paepke, S., Untch, M., Burchardi, N., … German Breast Group and Austrian Breast and Colon Cancer Study Group Investigators. (2016). Zoledronate for patients with invasive residual disease after anthracyclines-taxane-based chemotherapy for early breast cancer—The Phase III NeoAdjuvant Trial Add-oN (NaTaN) study (GBG 36/ABCSG 29). *European Journal of Cancer (Oxford, England: 1990)*, *64*, 12–21. https://doi.org/10.1016/j.ejca.2016.05.015

---

Group12 = {indication: cancer, medication:denosumab, administration\_route: IV/SC, invasive\_dental\_treatment: none}

(Chawla et al., 2013; Fizazi et al., 2011; Gnant et al., 2015; D. Henry et al., 2014; D. H. Henry et al., 2011; Raje et al., 2018; Scagliotti et al., 2012; Smith et al., 2012)

Chawla, S., Henshaw, R., Seeger, L., Choy, E., Blay, J.-Y., Ferrari, S., Kroep, J., Grimer, R., Reichardt, P., Rutkowski, P., Schuetze, S., Skubitz, K., Staddon, A., Thomas, D., Qian, Y., & Jacobs, I. (2013). \*\*Safety and efficacy of denosumab for adults and skeletally mature adolescents with giant cell tumour of bone: Interim analysis of an open-label, parallel-group, phase 2 study. *The Lancet Oncology*, *14*(9), 901–908. https://doi.org/10.1016/S1470-2045(13)70277-8

Fizazi, K., Carducci, M., Smith, M., Damião, R., Brown, J., Karsh, L., Milecki, P., Shore, N., Rader, M., Wang, H., Jiang, Q., Tadros, S., Dansey, R., & Goessl, C. (2011). \*\*\*Denosumab versus zoledronic acid for treatment of bone metastases in men with castration-resistant prostate cancer: A randomised, double-blind study. *Lancet (London, England)*, *377*(9768), 813–822. https://doi.org/10.1016/S0140-6736(10)62344-6

Gnant, M., Pfeiler, G., Dubsky, P. C., Hubalek, M., Greil, R., Jakesz, R., Wette, V., Balic, M., Haslbauer, F., Melbinger, E., Bjelic-Radisic, V., Artner-Matuschek, S., Fitzal, F., Marth, C., Sevelda, P., Mlineritsch, B., Steger, G. G., Manfreda, D., Exner, R., … Austrian Breast and Colorectal Cancer Study Group. (2015). Adjuvant denosumab in breast cancer (ABCSG-18): A multicentre, randomised, double-blind, placebo-controlled trial. *Lancet (London, England)*, *386*(9992), 433–443. https://doi.org/10.1016/S0140-6736(15)60995-3

Henry, D. H., Costa, L., Goldwasser, F., Hirsh, V., Hungria, V., Prausova, J., Scagliotti, G. V., Sleeboom, H., Spencer, A., Vadhan-Raj, S., Von Moos, R., Willenbacher, W., Woll, P. J., Wang, J., Jiang, Q., Jun, S., Dansey, R., & Yeh, H. (2011). \*\*Randomized, Double-Blind Study of Denosumab Versus Zoledronic Acid in the Treatment of Bone Metastases in Patients With Advanced Cancer (Excluding Breast and Prostate Cancer) or Multiple Myeloma. *Journal of Clinical Oncology*, *29*(9), 1125–1132. https://doi.org/10.1200/JCO.2010.31.3304

Henry, D., Vadhan-Raj, S., Hirsh, V., Von Moos, R., Hungria, V., Costa, L., Woll, P. J., Scagliotti, G., Smith, G., Feng, A., Jun, S., Dansey, R., & Yeh, H. (2014). \*\*Delaying skeletal-related events in a randomized phase 3 study of denosumab versus zoledronic acid in patients with advanced cancer: An analysis of data from patients with solid tumors. *Supportive Care in Cancer*, *22*(3), 679–687. https://doi.org/10.1007/s00520-013-2022-1

Raje, N., Terpos, E., Willenbacher, W., Shimizu, K., García-Sanz, R., Durie, B., Legieć, W., Krejčí, M., Laribi, K., Zhu, L., Cheng, P., Warner, D., & Roodman, G. D. (2018). \*\*Denosumab versus zoledronic acid in bone disease treatment of newly diagnosed multiple myeloma: An international, double-blind, double-dummy, randomised, controlled, phase 3 study. *The Lancet Oncology*, *19*(3), 370–381. https://doi.org/10.1016/S1470-2045(18)30072-X

Scagliotti, G. V., Hirsh, V., Siena, S., Henry, D. H., Woll, P. J., Manegold, C., Solal-Celigny, P., Rodriguez, G., Krzakowski, M., Mehta, N. D., Lipton, L., García-Sáenz, J. A., Pereira, J. R., Prabhash, K., Ciuleanu, T.-E., Kanarev, V., Wang, H., Balakumaran, A., & Jacobs, I. (2012). \*\*Overall Survival Improvement in Patients with Lung Cancer and Bone Metastases Treated with Denosumab Versus Zoledronic Acid: Subgroup Analysis from a Randomized Phase 3 Study. *Journal of Thoracic Oncology*, *7*(12), 1823–1829. https://doi.org/10.1097/JTO.0b013e31826aec2b

Smith, M. R., Saad, F., Coleman, R., Shore, N., Fizazi, K., Tombal, B., Miller, K., Sieber, P., Karsh, L., Damião, R., Tammela, T. L., Egerdie, B., Van Poppel, H., Chin, J., Morote, J., Gómez-Veiga, F., Borkowski, T., Ye, Z., Kupic, A., … Goessl, C. (2012). \*\*Denosumab and bone-metastasis-free survival in men with castration-resistant prostate cancer: Results of a phase 3, randomised, placebo-controlled trial. *Lancet (London, England)*, *379*(9810), 39–46. https://doi.org/10.1016/S0140-6736(11)61226-9

Group13 = {indication: cancer, medication: mixed, administration\_route: mixed, invasive\_dental\_treatment: yes}

(Bracchi et al., 2023; Hasegawa et al., 2021; Soutome et al., 2018)

Bracchi, P., Zecca, E., Brunelli, C., Miceli, R., Tinè, G., Maniezzo, M., Lo Dico, S., Caputo, M., Shkodra, M., & Caraceni, A. T. (2023). \*\*A real-world study on the prevalence and risk factors of medication related osteonecrosis of the jaw in cancer patients with bone metastases treated with Denosumab. *Cancer Medicine*, *12*(17), 18317–18326. https://doi.org/10.1002/cam4.6429

Hasegawa, T., Ueda, N., Yamada, Si., Kato, S., Iwata, E., Hayashida, S., Kojima, Y., Shinohara, M., Tojo, I., Nakahara, H., Yamaguchi, T., Kirita, T., Kurita, H., Shibuya, Y., Soutome, S., Akashi, M., & Japanese Study Group of Co-operative Dentistry with Medicine (JCDM). (2021). \*\*Denosumab-related osteonecrosis of the jaw after tooth extraction and the effects of a short drug holiday in cancer patients: A multicenter retrospective study. *Osteoporosis International*, *32*(11), 2323–2333. https://doi.org/10.1007/s00198-021-05995-3

Soutome, S., Hayashida, S., Funahara, M., Sakamoto, Y., Kojima, Y., Yanamoto, S., & Umeda, M. (2018). \*\*Factors affecting development of medication-related osteonecrosis of the jaw in cancer patients receiving high-dose bisphosphonate or denosumab therapy: Is tooth extraction a risk factor? *PLOS ONE*, *13*(7), e0201343. https://doi.org/10.1371/journal.pone.0201343

Group14 = {indication: cancer, medication:bisphosphonate, administration\_route: oral/IV/SC, invasive\_dental\_treatment: yes}

(Bodem et al., 2015; Ikesue et al., 2021; Manfredi et al., 2017; Saia et al., 2010; Walter et al., 2008; Yamazaki et al., 2012)

Bodem, J. P., Kargus, S., Eckstein, S., Saure, D., Engel, M., Hoffmann, J., & Freudlsperger, C. (2015). \*\*Incidence of bisphosphonate-related osteonecrosis of the jaw in high-risk patients undergoing surgical tooth extraction. *Journal of Cranio-Maxillofacial Surgery*, *43*(4), 510–514. https://doi.org/10.1016/j.jcms.2015.02.018

Ikesue, H., Mouri, M., Tomita, H., Hirabatake, M., Ikemura, M., Muroi, N., Yamamoto, S., Takenobu, T., Tomii, K., Kawakita, M., Katoh, H., Ishikawa, T., Yasui, H., & Hashida, T. (2021). \*\*Associated characteristics and treatment outcomes of medication-related osteonecrosis of the jaw in patients receiving denosumab or zoledronic acid for bone metastases. *Supportive Care in Cancer*, *29*(8), 4763–4772. https://doi.org/10.1007/s00520-021-06018-x

Manfredi, M., Mergoni, G., Goldoni, M., Salvagni, S., Merigo, E., Meleti, M., & Vescovi, P. (2017). \*\*A 5-year retrospective longitudinal study on the incidence and the risk factors of osteonecrosis of the jaws in patients treated with zoledronic acid for bone metastases from solid tumors. *Medicina Oral Patología Oral y Cirugia Bucal*, 0–0. https://doi.org/10.4317/medoral.21728

Saia, G., Blandamura, S., Bettini, G., Tronchet, A., Totola, A., Bedogni, G., Ferronato, G., Nocini, P. F., & Bedogni, A. (2010). \*\*Occurrence of Bisphosphonate-Related Osteonecrosis of the Jaw After Surgical Tooth Extraction. *Journal of Oral and Maxillofacial Surgery*, *68*(4), 797–804. https://doi.org/10.1016/j.joms.2009.10.026

Walter, C., Al-Nawas, B., Grötz, K. A., Thomas, C., Thüroff, J. W., Zinser, V., Gamm, H., Beck, J., & Wagner, W. (2008). \*\*Prevalence and Risk Factors of Bisphosphonate-Associated Osteonecrosis of the Jaw in Prostate Cancer Patients with Advanced Disease Treated with Zoledronate. *European Urology*, *54*(5), 1066–1072. https://doi.org/10.1016/j.eururo.2008.06.070

Yamazaki, T., Yamori, M., Ishizaki, T., Asai, K., Goto, K., Takahashi, K., Nakayama, T., & Bessho, K. (2012). \*\*Increased incidence of osteonecrosis of the jaw after tooth extraction in patients treated with bisphosphonates: A cohort study. *International Journal of Oral and Maxillofacial Surgery*, *41*(11), 1397–1403. https://doi.org/10.1016/j.ijom.2012.06.020

Group15 = {indication: cancer, medication:denosumab, administration\_route: IV/SC, invasive\_dental\_treatment: yes}

(Ikesue et al., 2021)

Ikesue, H., Mouri, M., Tomita, H., Hirabatake, M., Ikemura, M., Muroi, N., Yamamoto, S., Takenobu, T., Tomii, K., Kawakita, M., Katoh, H., Ishikawa, T., Yasui, H., & Hashida, T. (2021). \*\*Associated characteristics and treatment outcomes of medication-related osteonecrosis of the jaw in patients receiving denosumab or zoledronic acid for bone metastases. *Supportive Care in Cancer*, *29*(8), 4763–4772. https://doi.org/10.1007/s00520-021-06018-x