Bilaga 33 Exkluderade studier samt studier med hög risk för bias för TÅ-par 47 och 48

Vetenskapligt underlag till Socialstyrelsens nationella riktlinjer för tandvården

Rapport nr 334

Appendix 33 Excluded studies and studies with high risk of bias for TÅ-par 47 and 48

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This list consists of articles not included in SBU's report. It has two parts:

Excluded studies

This part consists of articles considered relevant in terms of abstract, but the full-text articles were considered to be irrelevant to the research question and other inclusion criteria, after assessment.

Studies with high risk of bias

This part consists of articles that were relevant in terms of abstract and full-text, but after quality assessment considered to be studies with high risk of bias.

Statens beredning för medicinsk och social utvärdering • www.sbu.se
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Excluded studies

Reference	Main reason for exclusion
Actrn. A prospective randomised comparative study on the use of panoramic radiograph and cone beam scan with respect to the outcomes and incidence of inferior alveolar nerve injury after lower third molar removal, and establishing guidelines for the indications of cone beam scan as an adjunct to panoramic radiographs. http://www.who.int/trialsearch/Trial2.aspx?TrialID=ACTRN12610000638033 2010.	Wrong study design
Adibi S, Paknahad M. Comparison of cone-beam computed tomography and osteometric examination in preoperative assessment of the proximity of the mandibular canal to the apices of the teeth. British Journal of Oral and Maxillofacial Surgery 2017;55:246-250.	Not relevant
Alqerban A, Jacobs R, Fieuws S, Willems G. Comparison of two cone beam computed tomographic systems versus panoramic imaging for localization of impacted maxillary canines and detection of root resorption. European journal of orthodontics 2011;33:93-102.	Not relevant
Alqerban A, Jacobs R, Fieuws S, Willems G. Predictors of root resorption associated with maxillary canine impaction in panoramic images. European journal of orthodontics 2016;38:292-9.	Not relevant
Alqerban A, Jacobs R, Fieuws S, Willems G. Radiographic predictors for maxillary canine impaction. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2015;147:345-54.	Not relevant
Alqerban A, Jacobs R, Lambrechts P, Loozen G, Willems G. Root resorption of the maxillary lateral incisor caused by impacted canine: a literature review. Clinical oral investigations 2009;13:247-55.	Wrong study design
Alqerban A, Jacobs R, van Keirsbilck P-J, Aly M, Swinnen S, Fieuws S, et al. The effect of using CBCT in the diagnosis of canine impaction and its impact on the orthodontic treatment outcome. Journal of orthodontic science 2014;3:34-40.	Not relevant
Alqerban A, Willems G, Bernaerts C, Vangastel J, Politis C, Jacobs R. Orthodontic treatment planning for impacted maxillary canines using conventional records versus 3D CBCT. European journal of orthodontics 2014;36:698-707.	Not relevant
Amintavakoli N, Spivakovsky S. Cone-beam computed tomography or conventional radiography for localising of maxillary impacted canines? Evidence-based dentistry 2018;19:22-23.	Wrong study design

An S, Wang J, Li J, Cheng Q, Jiang CM, Wang YT, et al. Comparison of methods for localization of impacted maxillary canines by panoramic radiographs. Dento maxillo facial radiology 2013;42:20130129.	Not relevant
Araujo GDTT, Peralta-Mamani M, Silva ADFMD, Rubira CMF, Honório HM, Rubira-Bullen IRF. Influence of cone beam computed tomography versus panoramic radiography on the surgical technique of third molar removal: a systematic review. International Journal of Oral and Maxillofacial Surgery 2019.	Wrong study design
Aravindaksha SP, Balasundaram A, Gauthier B, Pervolarakis T, Boss H, Dhawan A, et al. Does the use of cone beam CT for the removal of wisdom teeth change the surgical approach compared with panoramic radiography? Journal of Oral and Maxillofacial Surgery 2015;73:e12.	Wrong study design
Aravindaksha SP, Lee M, Geist J, Wheater M, Waligoria BM, Zaid ZR, et al. Safety of coronectomy versus surgical extraction: A randomized control trial. Journal of Oral and Maxillofacial Surgery 2015;73:e11-e12.	Wrong study design
Arora A, Patil BA, Sodhi A. Validity of the vertical tube-shift method in determining the relationship between the mandibular third molar roots and the inferior alveolar nerve canal. Journal of the Korean Association of Oral and Maxillofacial Surgeons 2015;41:66-73.	Not relevant
Bedoya MM, Park JH. A review of the diagnosis and management of impacted maxillary canines. Journal of the American Dental Association (1939) 2009;140:1485-93.	Duplicate
Benn DK. Diagnostic accuracy studies needed for cone beam computed tomography. Evidence-based dentistry 2011;12:37.	Duplicate
Bjorksved M, Magnuson A, Bazargani SM, Lindsten R, Bazargani F. Are panoramic radiographs good enough to render correct angle and sector position in palatally displaced canines? American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2019;155:380-387.	Not relevant
Botticelli S, Verna C, Cattaneo PM, Heidmann J, Melsen B. Two- versus three-dimensional imaging in subjects with unerupted maxillary canines. European journal of orthodontics 2011;33:344-9.	Not relevant
Bozkurt P, Gorurgoz C. Detecting direct inferior alveolar nerve - Third molar contact and canal decorticalization by cone-beam computed tomography to predict postoperative sensory impairment. Journal of stomatology, oral and maxillofacial surgery 2019.	Not relevant

Brasil DM, Nascimento EHL, Gaêta-Araujo H, Oliveira-Santos C, Maria de Almeida S. Is Panoramic Imaging Equivalent to Cone-Beam Computed Tomography for Classifying Impacted Lower Third Molars? Journal of Oral and Maxillofacial Surgery 2019.	Not relevant
Česaitienė G, Česaitis K, Junevičius J, Venskutonis T. The reliability of panoramic radiography versus cone beam computed tomography when evaluating the distance to the alveolar nerve in the site of lateral teeth. Medical Science Monitor 2017;23:3247-3252.	Not relevant
Chaushu S, Chaushu G, Becker A. The role of digital volume tomography in the imaging of impacted teeth. World journal of orthodontics 2004;5:120-32.	Not relevant
Chen Y, Liu J, Pei J, Liu Y, Pan J. The risk factors that can increase possibility of mandibular canal wall damage in adult: A cone-beam computed tomography (CBCT) study in a Chinese population. Medical Science Monitor 2018;24:26-36.	Not relevant
Christell H, Birch S, Bondemark L, Horner K, Lindh C, consortium S. The impact of Cone Beam CT on financial costs and orthodontists' treatment decisions in the management of maxillary canines with eruption disturbance. European journal of orthodontics 2018;40:65-73.	Not relevant
Cuminetti F, Boutin F, Frapier L. Predictive factors for resorption of teeth adjacent to impacted maxillary canines. International orthodontics 2017;15:54-68.	Not relevant
da Silva Santos LM, Bastos LC, Oliveira-Santos C, da Silva SJA, Neves FS, Campos PSF. Cone-beam computed tomography findings of impacted upper canines. Imaging science in dentistry 2014;44:287-92.	Not relevant
Dalessandri D, Migliorati M, Visconti L, Contardo L, Kau CH, Martin C. KPG index versus OPG measurements: A comparison between 3D and 2D methods in predicting treatment duration and difficulty level for patients with impacted maxillary canines. BioMed Research International 2014;2014.	Not relevant
Dalili Z, Mahjoub P, Sigaroudi AK. Comparison between cone beam computed tomography and panoramic radiography in the assessment of the relationship between the mandibular canal and impacted class C mandibular third molars. Dental research journal 2011;8:203-10.	Not relevant
de-Azevedo-Vaz SL, Oenning ACC, Felizardo MG, Haiter-Neto F, de Freitas DQ. Accuracy of the vertical tube shift method in identifying the relationship between the third molars and the mandibular canal. Clinical oral investigations 2015;19:583-8.	Not relevant

Deppe H, Ritschl LM, Kleinschmidt J, Wagenpfeil S, Sculean A. Contiguity between the mandibular canal and the mandibular third molar in panoramic tomography compared with cone beam computed tomography: A topographic analysis. Quintessence International 2019;50:470-477.	Not relevant
Elkhateeb SM, Awad SS. Accuracy of panoramic radiographic predictor signs in the assessment of proximity of impacted third molars with the mandibular canal. Journal of Taibah University Medical Sciences 2018;13:254-261.	Not relevant
Eslami E, Barkhordar H, Abramovitch K, Kim J, Masoud MI. Cone-beam computed tomography vs conventional radiography in visualization of maxillary impacted-canine localization: A systematic review of comparative studies. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2017;151:248-258.	Wrong study design
Fee PA, Wright A, Cunningham C. Cone beam computed tomography in pre-surgical assessment of mandibular third molars. Evidence-based dentistry 2016;17:117-118.	Wrong study design
Flygare L, Ohman A. Preoperative imaging procedures for lower wisdom teeth removal. Clinical oral investigations 2008;12:291-302.	Wrong study design
Freire BB, Nascimento EHL, Vasconcelos KdF, Freitas DQ, Haiter-Neto F. Radiologic assessment of mandibular third molars: an ex vivo comparative study of panoramic radiography, extraoral bitewing radiography, and cone beam computed tomography. Oral surgery, oral medicine, oral pathology and oral radiology 2019;128:166-175.	Not relevant
Ghaeminia H, Meijer GJ, Soehardi A, Borstlap WA, Mulder J, Bergé SJ. Position of the impacted third molar in relation to the mandibular canal. Diagnostic accuracy of cone beam computed tomography compared with panoramic radiography. International Journal of Oral and Maxillofacial Surgery 2009;38:964-971.	Not relevant
Ghaeminia H, Meijer GJ, Soehardi A, Borstlap WA, Mulder J, Vlijmen OJC, et al. The use of cone beam CT for the removal of wisdom teeth changes the surgical approach compared with panoramic radiography: A pilot study. International Journal of Oral and Maxillofacial Surgery 2011;40:834-839.	Not relevant
Ghai S, Choudhury S. Role of Panoramic Imaging and Cone Beam CT for Assessment of Inferior Alveolar Nerve Exposure and Subsequent Paresthesia Following Removal of Impacted Mandibular Third Molar. Journal of maxillofacial and oral surgery 2018;17:242-247.	Not relevant

Gill I, Kwok J, Johnson J, Cobourne M. Does cone-beam computed tomography imaging have an impact on treatment planning for ectopic maxillary canines? International Journal of Oral and Maxillofacial Surgery 2017;46:275-276.	Wrong study design
Guerrero ME, Botetano R, Beltran J, Horner K, Jacobs R. Can preoperative imaging help to predict postoperative outcome after wisdom tooth removal? A randomized controlled trial using panoramic radiography versus cone-beam CT. Clinical oral investigations 2014;18:335-42.	Not relevant
Guerrero ME, Nackaerts O, Beinsberger J, Horner K, Schoenaers J, Jacobs R. Inferior alveolar nerve sensory disturbance after impacted mandibular third molar evaluation using cone beam computed tomography and panoramic radiography: A pilot study. Journal of Oral and Maxillofacial Surgery 2012;70:2264-2270.	Duplicate
Guerrero ME, Shahbazian M, Elsiena Bekkering G, Nackaerts O, Jacobs R, Horner K. The diagnostic efficacy of cone beam CT for impacted teeth and associated features: a systematic review. Journal of oral rehabilitation 2011;38:208-16.	Wrong study design
Hajem S, Brogardh-Roth S, Nilsson M, Hellen-Halme K. CBCT of Swedish children and adolescents at an oral and maxillofacial radiology department. A survey of requests and indications. Acta odontologica Scandinavica 2019:1-7.	Not relevant
Haney E, Gansky SA, Lee JS, Johnson E, Maki K, Miller AJ, et al. Comparative analysis of traditional radiographs and cone-beam computed tomography volumetric images in the diagnosis and treatment planning of maxillary impacted canines. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2010;137:590-7.	Wrong study design
Harada N, Beloor Vasudeva S, Matsuda Y, Seki K, Kapila R, Ishikawa N, et al. Characteristic findings on panoramic radiography and cone-beam CT to predict paresthesia after extraction of impacted third molar. The Bulletin of Tokyo Dental College 2015;56:1-8.	Not relevant
Hasani A, Ahmadi Moshtaghin F, Roohi P, Rakhshan V. Corrigendum to 'Diagnostic value of cone beam computed tomography and panoramic radiography in predicting mandibular nerve exposure during third molar surgery' [International Journal of Oral and Maxillofacial Surgery 46 (2017) 230–235](S0901502716302764)(10.1016/j.ijom.2016.10.003). International Journal of Oral and Maxillofacial Surgery 2019;48:1128-1129.	Wrong study design

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Hasani A, Ahmadi Moshtaghin F, Roohi P, Rakhshan V. Diagnostic value of cone beam computed tomography and panoramic radiography in predicting mandibular nerve exposure during third molar surgery. International Journal of Oral and Maxillofacial Surgery 2017;46:230-235.	
Hauge Matzen L, Christensen J, Hintze H, Schou S, Wenzel A. Diagnostic accuracy of panoramic radiography, stereoscanography and cone beam CT for assessment of mandibular third molars before surgery. Acta odontologica Scandinavica 2013;71:1391-8.	Not relevant
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Hermann L, Wenzel A, Schropp L, Matzen LH. Marginal bone loss and resorption of second molars related to maxillary third molars in panoramic images compared with CBCT. Dento maxillo facial radiology 2019;48:20180313.	
	Not relevant
Ishak MH, Zhun OC, Shaari R, Rahman SA, Hasan MN, Alam MK. Panoramic radiography in evaluating the relationship of mandibular canal and impacted third molars in comparison with cone-beam computed tomography. Mymensingh medical journal : MMJ 2014;23:781-6.	
Jawad Z, Carmichael F, Houghton N, Bates C. A review of cone beam computed tomography for the diagnosis of root resorption associated with impacted canines, introducing an innovative root resorption scale. Oral surgery, oral medicine, oral pathology and oral radiology 2016;122:765-771.	Not relevant
Jun SH, Kim CH, Ahn JS, Padwa BL, Kwon JJ. Anatomical differences in lower third molars visualized by 2D and 3D X-ray imaging: Clinical outcomes after extraction. International Journal of Oral and Maxillofacial Surgery 2013;42:489-496.	Not relevant
Jung YH, Liang H, Benson BW, Flint DJ, Cho BH. The assessment of impacted maxillary canine position with panoramic radiography and cone beam CT. Dento maxillo facial radiology 2012;41:356-60.	Not relevant
Jung Y-H, Nah K-S, Cho B-H. Correlation of panoramic radiographs and cone beam computed tomography in the assessment of a superimposed relationship between the mandibular canal and impacted third molars. Imaging science in dentistry 2012;42:121-7.	Not relevant
Kadesjo N, Lynds R, Nilsson M, Shi X-Q. Radiation dose from X-ray examinations of impacted canines: cone beam CT vs two-dimensional imaging. Dento maxillo facial radiology 2018;47:20170305.	Not relevant

Kanazirska PG, Jordanov GY, Angelova IA, Bakardjiev AG. Comparison of diagnostic capabilities of orthopantomography and cone beam computed tomography in determining the topographic relationship between impacted mandibular third molars and mandibular channel. Journal of IMAB - Annual Proceeding (Scientific Papers) 2017;23:1546-1549.	Wrong study design
Kanazirska PG, Yordanov GY, Angelova IA, Kanazirski ND. X-ray measurements of impacted mandibular third molars. Journal of IMAB - Annual Proceeding (Scientific Papers) 2017;23:1516-1519.	Not relevant
Kapila R, Harada N, Araki K, Sano T, Goto TK. Relationships between third-molar juxta-apical radiolucencies and mandibular canals in panoramic and cone beam computed tomography images. Oral surgery, oral medicine, oral pathology and oral radiology 2014;117:640-644.	Not relevant
Kau CH, Pan P, Gallerano RL, English JD. A novel 3D classification system for canine impactions--the KPG index. The international journal of medical robotics + computer assisted surgery : MRCAS 2009;5:291-6.	Not relevant
Kim H-G, Lee J-H. Analysis and evaluation of relative positions of mandibular third molar and mandibular canal impacts. Journal of the Korean Association of Oral and Maxillofacial Surgeons 2014;40:278-84.	Not relevant
Kim S-H, Son W-S, Yamaguchi T, Maki K, Kim S-S, Park S-B, et al. Assessment of the root apex position of impacted maxillary canines on panoramic films. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2017;152:489-493.	Not relevant
Kositbowornchai S, Densiri-aksorn W, Piumthanaroj P. Ability of two radiographic methods to identify the closeness between the mandibular third molar root and the inferior alveolar canal: a pilot study. Dento maxillo facial radiology 2010;39:79-84.	Not relevant
Koye V, Grondahl H-G. Characteristics of patients referred for Cone Beam Computed Tomography (CBCT) of ectopically erupting maxillary canines. Swedish dental journal 2011;35:159-65.	Not relevant
Kubota S, Imai T, Nakazawa M, Uzawa N. Risk stratification against inferior alveolar nerve injury after lower third molar extraction by scoring on cone-beam computed tomography image. Odontology 2019.	Not relevant
Lai CS, Bornstein MM, Mock L, Heuberger BM, Dietrich T, Katsaros C. Impacted maxillary canines and root resorptions of neighbouring teeth: a radiographic analysis using cone-beam computed tomography. European journal of orthodontics 2013;35:529-38.	Not relevant

	Not relevant
Lai CS, Suter VGA, Katsaros C, Bornstein MM. Localization of impacted maxillary canines and root resorption of neighbouring teeth: a study assessing the diagnostic value of panoramic radiographs in two groups of observers. European journal of orthodontics 2014;36:450-6.	
Mahmood H, White L, Li T, Mohammed-Ali R. Third molar extractions: Are we over prescribing the Cone Beam CT? British Journal of Oral and Maxillofacial Surgery 2014;52:e101.	Wrong study design
Manor Y, Abir R, Manor A, Kaffe I. Are different imaging methods affecting the treatment decision of extractions of mandibular third molars? Dento maxillo facial radiology 2016:20160233.	Not relevant
Matzen LH, Berkhout E. Cone beam CT imaging of the mandibular third molar: a position paper prepared by the European Academy of DentoMaxilloFacial Radiology (EADMFR). Dento maxillo facial radiology 2019;48:20190039.	Wrong study design
Matzen LH, Christensen J, Hintze H, Schou S, Wenzel A. Influence of cone beam CT on treatment plan before surgical intervention of mandibular third molars and impact of radiographic factors on deciding on coronectomy vs surgical removal. Dento maxillo facial radiology 2013;42:98870341.	Not relevant
Matzen LH, Petersen LB, Schropp L, Wenzel A. Mandibular canal-related parameters interpreted in panoramic images and CBCT of mandibular third molars as risk factors to predict sensory disturbances of the inferior alveolar nerve. International Journal of Oral and Maxillofacial Surgery 2019;48:1094-1101.	Duplicate
Matzen LH, Schou S, Christensen J, Hintze H, Wenzel A. Audit of a 5-year radiographic protocol for assessment of mandibular third molars before surgical intervention. Dento maxillo facial radiology 2014;43:20140172.	Not relevant
Matzen LH, Schropp L, Spin-Neto R, Wenzel A. Radiographic signs of pathology determining removal of an impacted mandibular third molar assessed in a panoramic image or CBCT. Dento maxillo facial radiology 2017;46:20160330.	Wrong study design
Matzen LH, Wenzel A. Efficacy of CBCT for assessment of impacted mandibular third molars: a review - based on a hierarchical model of evidence. Dento maxillo facial radiology 2015;44:20140189.	Wrong study design
Moren D. Diagnosis and interceptive treatment of palatally displaced canines: a literature review. International journal of orthodontics (Milwaukee, Wis.) 2012;23:47-52.	Wrong study design

Nakagawa Y, Ishii H, Nomura Y, Watanabe NY, Hoshiba D, Kobayashi K, et al. Third Molar Position: Reliability of Panoramic Radiography. Journal of Oral and Maxillofacial Surgery 2007;65:1303-1308.	Not relevant
Nakayama K, Nonoyama M, Takaki Y, Kagawa T, Yuasa K, Izumi K, et al. Assessment of the Relationship Between Impacted Mandibular Third Molars and Inferior Alveolar Nerve With Dental 3-Dimensional Computed Tomography. Journal of Oral and Maxillofacial Surgery 2009;67:2587-2591.	Not relevant
Neugebauer J, Shirani R, Mischkowski RA, Ritter L, Scheer M, Keeve E, et al. Comparison of cone-beam volumetric imaging and combined plain radiographs for localization of the mandibular canal before removal of impacted lower third molars. Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics 2008;105:633-643.	Not relevant
Neves FS, Souza TC, Almeida SM, Haiter-Neto F, Freitas DQ, Boscolo FN. Correlation of panoramic radiography and cone beam CT findings in the assessment of the relationship between impacted mandibular third molars and the mandibular canal. Dento maxillo facial radiology 2012;41:553-7.	Not relevant
Ngo CTT, Fishman LS, Rossouw PE, Wang H, Said O. Correlation between panoramic radiography and cone-beam computed tomography in assessing maxillary impacted canines. The Angle orthodontist 2018;88:384-389.	Not relevant
Okano T, Joshi R, Matsuda Y, Harada N, Bamba J, Sakata M, et al. Additional information from volumetric cone-beam imaging over panoramic radiography in identifying the relationship of lower third molar to inferior alveolar canal. International Journal of Computer Assisted Radiology and Surgery 2011;6:S381.	Wrong study design
Pakbaznejad Esmaeili E, Ilo A-M, Waltimo-Siren J, Ekholm M. Minimum size and positioning of imaging field for CBCT scans of impacted maxillary canines. Clinical oral investigations 2019.	Not relevant
Pawelzik J, Cohnen M, Willers R, Becker J. A comparison of conventional panoramic radiographs with volumetric computed tomography images in the preoperative assessment of impacted mandibular third molars. Journal of Oral and Maxillofacial Surgery 2002;60:979-984.	Not relevant
Peixoto LR, Gonzaga AKG, Melo SLS, Pontual MLDA, Pontual ADA, Melo DPD. The effect of two enhancement tools on the assessment of the relationship between third molars and the inferior alveolar canal. Journal of Cranio-Maxillofacial Surgery 2015;43:637-642.	Wrong study design

Peker I, Sarikir C, Alkurt MT, Zor ZF. Panoramic radiography and cone-beam computed tomography findings in preoperative examination of impacted mandibular third molars. BMC oral health 2014;14:71.	Not relevant
Petersen LB, Olsen KR, Matzen LH, Vaeth M, Wenzel A. Economic and health implications of routine CBCT examination before surgical removal of the mandibular third molar in the Danish population. Dento maxillo facial radiology 2015;44:20140406.	Not relevant
Pico C-L-V-R, do Vale F-J-F, Caramelo F-J-S-F-A, Corte-Real A, Pereira S-M-A. Comparative analysis of impacted upper canines: Panoramic radiograph Vs Cone Beam Computed Tomography. Journal of clinical and experimental dentistry 2017;9:e1176-e1182.	Not relevant
Pippi R, Santoro M, D'Ambrosio F. Accuracy of cone-beam computed tomography in defining spatial relationships between third molar roots and inferior alveolar nerve. European journal of dentistry 2016;10:454-458.	Not relevant
Portelli M, Nucera R, Fastuca R, Cicciù M, Giudice AL, Militi A. Use of 3D imaging for treatment planning in cases of impacted canines. Open Dentistry Journal 2019;13:137-142.	Not relevant
Powcharoen W, Chinkrua C. Cone beam computed tomographic assessment of mandibular canal as predictors of intraoperative nerve exposure after third molar surgery. International Journal of Oral and Maxillofacial Surgery 2015;44:e125.	Wrong study design
Rafflenbeul F, Gros C-I, Lefebvre F, Bahi-Gross S, Maizeray R, Bolender Y. Prevalence and risk factors of root resorption of adjacent teeth in maxillary canine impaction, among untreated children and adolescents. European journal of orthodontics 2018.	Not relevant
Rischen RJ, Breuning KH, Bronkhorst EM, Kuijpers-Jagtman AM. Records needed for orthodontic diagnosis and treatment planning: A systematic review. PLoS ONE 2013;8.	Wrong study design
Rodriguez Y Baena R, Beltrami R, Tagliabo A, Rizzo S, Lupi S-M. Differences between panoramic and Cone Beam-CT in the surgical evaluation of lower third molars. Journal of clinical and experimental dentistry 2017;9:e259-e265.	Not relevant
Roeder F, Wachtlin D, Schulze R. Necessity of 3D visualization for the removal of lower wisdom teeth: required sample size to prove non-inferiority of panoramic radiography compared to CBCT. Clinical oral investigations 2012;16:699-706.	Not relevant
Ryba FM, Woods M, Davies P, Stenhouse P. The role of CBCT imaging of unerupted canines in orthognathic treatment planning. British Journal of Oral and Maxillofacial Surgery 2016;54:e138.	Wrong study design

Saha N, Kedarnath NS, Singh M. Orthopantomography and Cone-Beam Computed Tomography for the Relation of Inferior Alveolar Nerve to the Impacted Mandibular Third Molars. Annals of maxillofacial surgery 2019;9:4-9.	Not relevant
Saraydar-Baser R, Dehghani-Tafti M, Navab-Azam A, Ezoddini-Ardakani F, Nayer S, Safi Y, et al. Comparison of the diagnostic value of CBCT and Digital Panoramic Radiography with surgical findings to determine the proximity of an impacted third mandibular molar to the inferior alveolar nerve canal. Journal of medicine and life 2015;8:83-89.	Not relevant
Şekerci AE, Şişman Y. Comparison between panoramic radiography and cone-beam computed tomography findings for assessment of the relationship between impacted mandibular third molars and the mandibular canal. Oral Radiology 2014;30:170-178.	Not relevant
Serrant PS, McIntyre GT, Thomson DJ. Localization of ectopic maxillary canines -- is CBCT more accurate than conventional horizontal or vertical parallax? Journal of orthodontics 2014;41:13-8.	Not relevant
Shahidi S, Zamiri B, Bronoosh P. Comparison of panoramic radiography with cone beam CT in predicting the relationship of the mandibular third molar roots to the alveolar canal. Imaging science in dentistry 2013;43:105-9.	Not relevant
Shenoi R, Siddiqui A. Cone beam CT-A messiah for the third molar. International Journal of Oral and Maxillofacial Surgery 2013;42:1259.	Wrong study design
Signorelli L, Patcas R, Peltomaki T, Schatzle M. Radiation dose of cone-beam computed tomography compared to conventional radiographs in orthodontics. Journal of orofacial orthopedics = Fortschritte der Kieferorthopadie : Organ/official journal Deutsche Gesellschaft fur Kieferorthopadie 2016;77:9-15.	Not relevant
Sigron GR, Pourmand PP, Mache B, Stadlinger B, Locher MC. The most common complications after wisdom-tooth removal: part 1: a retrospective study of 1,199 cases in the mandible. Swiss dental journal 2014;124:1042-6.	Not relevant
Sisman Y, Ercan-Sekerci A, Payveren-Arıkan M, Sahman H. Diagnostic accuracy of cone-beam CT compared with panoramic images in predicting retromolar canal during extraction of impacted mandibular third molars. Medicina Oral, Patologia Oral y Cirugia Bucal 2015;20:e74-e81.	Not relevant
Suomalainen A, Venta I, Mattila M, Turtola L, Vehmas T, Peltola JS. Reliability of CBCT and other radiographic methods in preoperative evaluation of lower third molars. Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics 2010;109:276-84.	Not relevant

Tantanapornkul W, Okouchi K, Fujiwara Y, Yamashiro M, Maruoka Y, Ohbayashi N, et al. A comparative study of cone-beam computed tomography and conventional panoramic radiography in assessing the topographic relationship between the mandibular canal and impacted third molars. Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics 2007;103:253-9.	Not relevant
Thomson A, Reddy S, Ganesan K. Use of cbct in surgical planning and damage limitation in deeply impacted teeth. International Journal of Oral and Maxillofacial Surgery 2019;48:69.	Wrong study design
Tsolakis AI, Kalavritinos M, Bitsanis E, Sanoudos M, Benetou V, Alexiou K, et al. Reliability of different radiographic methods for the localization of displaced maxillary canines. American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics 2018;153:308-314.	Not relevant
Ucar FI, Celebi AA, Tan E, Topcuoglu T, Sekerci AE. Effects of impacted maxillary canines on root resorption of lateral incisors : A cone beam computed tomography study. Auswirkungen impaktierter Oberkiefereckzahne auf eine Wurzelresorption im Bereich der lateralen Inzisivi : Eine Studie mit digitaler Volumentomograpie. 2017;78:233-240.	Not relevant
Wang D, Lin T, Wang Y, Sun C, Yang L, Jiang H, et al. Radiographic features of anatomic relationship between impacted third molar and inferior alveolar canal on coronal CBCT images: Risk factors for nerve injury after tooth extraction. Archives of Medical Science 2018;14:532-540.	Not relevant
Winstanley KL, Otway LM, Thompson L, Brook ZH, King N, Koong B, et al. Inferior alveolar nerve injury: Correlation between indicators of risk on panoramic radiographs and the incidence of tooth and mandibular canal contact on cone-beam computed tomography scans in a Western Australian population. Journal of investigative and clinical dentistry 2018;9:e12323.	Wrong study design
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Studies with high risk of bias

Reference
No studies