

Bilaga till rapport

Undersökning av kromosomavvikeler i
embryot vid assisterad
befruktnings/Effectiveness,
complications and health economic and
ethical aspects of preimplantation
genetic testing for aneuploidy (PGT-A)
during in vitro fertilisation (IVF) report
393 (2025)

Bilaga 2 Exkluderade referenser och studier med oacceptabel risk för bias/Appendix 2 Compilation of excluded studies after full text review and studies with critical risk of bias

Table of contents

Excluded studies due to non relevant	2
Studies with critical risk of bias	43
Excluded health economic studies due to non relevant	49
Health economic studies with low quality or transferability	51

Excluded studies due to non relevant

Reference	Reason for exclusion
Assisted reproductive technology in Europe, 2002. Results generated from European registers by ESHRE. Human Reproduction. 2006;21(7):1680-97. Available from: https://doi.org/10.1093/humrep/del075 .	Not relevant control
Preimplantation genetic testing: a Practice Committee opinion. Fertility and Sterility. 2007;88(6):1497-504. Available from: https://doi.org/10.1016/j.fertnstert.2007.10.010 .	Not relevant study design
Abduljabbar HS, Hashim H, Abduljabar HH, Elnaeim AA, Abduljabar NH. The Effect of Autologous Platelet-Rich Plasma Treatment on In Vitro Fertilization/Intracytoplasmic Sperm Injection and Its Impact on the Endometrium and Clinical Pregnancy Rate. Cureus. 2022;14(8):e27913. Available from: https://doi.org/10.7759/cureus.27913 .	Not relevant control
Aghajani S, Salehzadeh A, Ghasemian F, Mehrafza M, Hosseini A. TEffec of Single Embryo Blastomere Biopsy from Human Frozen Embryos on Assisted Reproductive Outcomes. Cell Journal (Yakhteh). 2022;24(10):628-36. Available from: https://doi.org/10.22074/cellj.2022.8328 .	Not relevant outcome
Ahrens M, LeRoy BS. Genetic issues in assisted reproductive technology. Minnesota medicine. 1998;81(10):43-7.	Not relevant study design
Allen M, Hale L, Lantsberg D, Kieu V, Stevens J, Stern C, et al. Post-warming embryo morphology is associated with live birth: a cohort study of single vitrified-warmed blastocyst transfer cycles. Journal of Assisted Reproduction and Genetics. 2022;39(2):417-25. Available from: https://doi.org/10.1007/s10815-021-02390-z .	Not relevant outcome
Alonso-Mayo C, Kohls G, Santos-Ribeiro S, Soares SR, Garcia-Velasco JA. Modified natural cycle allows a window of 7 days for frozen embryo transfer planning. Reproductive biomedicine online. 2024;49(1):103774. Available from: https://doi.org/https://dx.doi.org/10.1016/j.rbmo.2023.103774 .	Not relevant control
Andersen AN, Goossens V, Gianaroli L, Felberbaum R, de Mouzon J, Nygren KG. Assisted reproductive technology in Europe, 2003. Results generated from European registers by ESHRE. Human Reproduction. 2007;22(6):1513-25. Available from: https://doi.org/10.1093/humrep/dem053 .	Not relevant outcome
Anderson RE, Whitney JB, Schiwe MC. Clinical benefits of preimplantation genetic testing for aneuploidy (PGT-A) for all in vitro fertilization treatment cycles. European Journal of Medical Genetics. 2020;63(2):103731. Available from: https://doi.org/https://doi.org/10.1016/j.ejmg.2019.103731 .	Not relevant outcome

<p>Arnanz A, Bayram A, Elkhatib I, Abdala A, El-Damen A, Patel R, et al. Antimüllerian hormone (AMH) and age as predictors of preimplantation genetic testing for aneuploidies (PGT-A) cycle outcomes and blastocyst quality on day 5 in women undergoing in vitro fertilization (IVF). <i>Journal of Assisted Reproduction and Genetics</i>. 2023;40(6):1467-77. Available from: https://doi.org/10.1007/s10815-023-02805-z.</p>	Not relevant control
<p>Audibert C, Glass D. A global perspective on assisted reproductive technology fertility treatment: an 8-country fertility specialist survey. <i>Reproductive Biology and Endocrinology</i>. 2015;13(1):133. Available from: https://doi.org/10.1186/s12958-015-0131-z.</p>	Not relevant control
<p>Bakkensen JB, Flannagan KSJ, Mumford SL, Hutchinson AP, Cheung EO, Moreno PI, et al. A SART data cost-effectiveness analysis of planned oocyte cryopreservation versus in vitro fertilization with preimplantation genetic testing for aneuploidy considering ideal family size. <i>Fertility and sterility</i>. 2022;118(5):875-84. Available from: https://doi.org/https://dx.doi.org/10.1016/j.fertnstert.2022.07.022.</p>	Not relevant outcome
<p>Banker M, Dyer S, Chambers GM, Ishihara O, Kupka M, de Mouzon J, et al. International Committee for Monitoring Assisted Reproductive Technologies (ICMART): world report on assisted reproductive technologies, 2013. <i>Fertility and Sterility</i>. 2021;116(3):741-56. Available from: https://doi.org/https://doi.org/10.1016/j.fertnstert.2021.03.039.</p>	Not relevant outcome
<p>Banti M, Van Zyl E, Kafetzis D. Sperm Preparation with Microfluidic Sperm Sorting Chip May Improve Intracytoplasmic Sperm Injection Outcomes Compared to Density Gradient Centrifugation. <i>Reproductive Sciences</i>. 2024;31(6):1695-704. Available from: https://doi.org/10.1007/s43032-024-01483-1.</p>	Not relevant control
<p>Bao J, Chen L, Hao Y, Wu H, He X, Lu C, et al. Prognosis of Congenital Anomalies in Conceptions Following In Vitro Fertilization: A Multicenter Retrospective Cohort Study in China. <i>Front Endocrinol (Lausanne)</i>. 2022;13:900499. Available from: https://doi.org/10.3389/fendo.2022.900499.</p>	Not relevant control
<p>Barrenetxea G, Celis R, Barrenetxea J, Martinez E, De Las Heras M, Gomez O, et al. Intraovarian platelet-rich plasma injection and IVF outcomes in patients with poor ovarian response: a double-blind randomized controlled trial. <i>Human reproduction (Oxford, England)</i>. 2024;39(4):760-9. Available from: https://doi.org/https://dx.doi.org/10.1093/humrep/deae038.</p>	Not relevant intervention
<p>Baukloh V, Figueira RCS, Bento FC, Nakano FY, Zabaglia SFC, Esteves SC, et al. The Fischer protocol for assisted reproductive technology treatment: Real-world data experience comparing elective single versus double embryo transfer with or without comprehensive chromosome screening. <i>Best Practice & Research Clinical Obstetrics & Gynaecology</i>. 2023;88:102325. Available from: https://doi.org/https://doi.org/10.1016/j.bpobgyn.2023.102325.</p>	Not relevant control

<p>Bedrick BS, Christianson MS. Preimplantation genetic testing and hypertensive disorders of pregnancy: Is the risk real? Fertility and Sterility. 2022;117(3):571-2. Available from: https://doi.org/10.1016/j.fertnstert.2022.01.019.</p>	<p>Not relevant study design</p>
<p>Bedrick BS, Nickel KB, Riley JK, Jain T, Jungheim ES. Association of State Insurance Mandates for Fertility Treatment With Multiple Embryo Transfer After Preimplantation Genetic Testing for Aneuploidy. Obstetrical & Gynecological Survey. 2023;78(7). Available from: https://doi.org/10.1097/01.ogx.0000947124.53578.bc.</p>	<p>Not relevant outcome</p>
<p>Bedrick BS, Nickel KB, Riley JK, Jain T, Jungheim ES. Association of State Insurance Mandates for Fertility Treatment With Multiple Embryo Transfer After Preimplantation Genetic Testing for Aneuploidy. JAMA Network Open. 2023;6(1):e2251739-e. Available from: https://doi.org/10.1001/jamanetworkopen.2022.51739.</p>	<p>Not relevant study design</p>
<p>Bedrick BS, Tipping AD, Nickel KB, Riley JK, Jain T, Jungheim ES. State-Mandated Insurance Coverage and Preimplantation Genetic Testing in the United States. Obstetrics and gynecology. 2022;139(4):500-8. Available from: https://doi.org/https://dx.doi.org/10.1097/AOG.0000000000004712.</p>	<p>Not relevant outcome</p>
<p>Beyer CE, Osianlis T, Boekel K, Osborne E, Rombauts L, Catt J, et al. Preimplantation genetic screening outcomes are associated with culture conditions. Human Reproduction. 2009;24(5):1212-20. Available from: https://doi.org/10.1093/humrep/den502.</p>	<p>Not relevant outcome</p>
<p>Bhatt SJ, Marchetto NM, Roy J, Morelli SS, McGovern PG. Pregnancy outcomes following in vitro fertilization frozen embryo transfer (IVF-FET) with or without preimplantation genetic testing for aneuploidy (PGT-A) in women with recurrent pregnancy loss (RPL): a SART-CORS study. Human Reproduction. 2021;36(8):2339-44. Available from: https://doi.org/10.1093/humrep/deab117.</p>	<p>Not relevant outcome</p>
<p>Blockeel C, Schutyser V, De Vos A, Verpoest W, De Vos M, Staessen C, et al. Prospectively randomized controlled trial of PGS in IVF/ICSI patients with poor implantation. Reprod Biomed Online. 2008;17(6):848-54. Available from: https://doi.org/10.1016/s1472-6483(10)60414-2.</p>	<p>Not relevant outcome</p>
<p>Bonduelle M, Legein J, Derde MP, Buysse A, Schietecatte J, Wisanto A, et al. Comparative follow-up study of 130 children born after intracytoplasmic sperm injection and 130 children born after in-vitro fertilization. Hum Reprod. 1995;10(12):3327-31. Available from: https://doi.org/10.1093/oxfordjournals.humrep.a135914.</p>	<p>Not relevant intervention</p>
<p>Bori L, Toschi M, Esteve R, Delgado A, Pellicer A, Meseguer M. External validation of a fully automated evaluation tool: a retrospective analysis on 68,471 scored embryos. Fertility and sterility. 2024. Available from: https://doi.org/10.1016/j.fertnstert.2024.10.006.</p>	<p>Not relevant study design</p>

Bori L, Meseguer F, Valera MA, Galan A, Remohi J, Meseguer M. The higher the score, the better the clinical outcome: retrospective evaluation of automatic embryo grading as a support tool for embryo selection in IVF laboratories. <i>Human Reproduction</i> . 2022;37(6):1148-60. Available from: https://doi.org/10.1093/humrep/deac066 .	Not relevant outcome
Borsa A, Bruch JD. Prevalence and performance of private equity-affiliated fertility practices in the United States. <i>Fertility and Sterility</i> . 2022;117(1):124-30. Available from: https://doi.org/https://doi.org/10.1016/j.fertnstert.2021.08.035 .	Not relevant intervention
Bortolotto P, Romanski PA, Magaoay BI, Rosenwaks Z, Spandorfer SD. Time from oocyte retrieval to frozen embryo transfer in the natural cycle does not impact reproductive or neonatal outcomes. <i>Fertility and Sterility</i> . 2021;115(5):1232-8. Available from: https://doi.org/10.1016/j.fertnstert.2020.11.011 .	Not relevant control
Bos H, van Balen F. Children of the new reproductive technologies: Social and genetic parenthood. <i>Patient Education and Counseling</i> . 2010;81(3):429-35. Available from: https://doi.org/https://doi.org/10.1016/j.pec.2010.09.012 .	Not relevant intervention
Boulet SL, Kirby RS, Reehuis J, Zhang Y, Sunderam S, Cohen B, et al. Assisted Reproductive Technology and Birth Defects Among Liveborn Infants in Florida, Massachusetts, and Michigan, 2000-2010. <i>JAMA Pediatrics</i> . 2016;170(6):e154934-e. Available from: https://doi.org/10.1001/jamapediatrics.2015.4934 .	Not relevant intervention
Boynukalin FK, Yarkiner Z, Gultomruk M, Turgut NE, Ecemis S, Findikli N, et al. Elevation of progesterone on the trigger day exerts no carryover effect on live birth in freeze-all cycles. <i>Gynecological Endocrinology</i> . 2021;37(4):367-71. Available from: https://doi.org/10.1080/09513590.2020.1786510 .	Not relevant outcome
Brockmeier C, Borgstrom MB, Madsen K, Pinborg A, Freiesleben NL, Zedeler A, et al. Association between the length of in vitro embryo culture, mode of ART, and the initial endogenous hCG rise in ongoing singleton pregnancies. <i>Human reproduction (Oxford, England)</i> . 2024. Available from: https://doi.org/https://dx.doi.org/10.1093/humrep/deae100 .	Not relevant control
Broussard AL, Leader B, Tirado E, Russell H, Beydoun H, Colver R, et al. Sperm deoxyribonucleic acid fragmentation index at the time of intracytoplasmic sperm injection and standard in vitro fertilization is correlated with lower fertilization but not with blastocyst genetic diagnosis. <i>F&S Reports</i> . 2023;4(2):183-9. Available from: https://doi.org/https://doi.org/10.1016/j.xfre.2023.04.006 .	Not relevant control
Bui TH, Harper JC. Preimplantation genetic diagnosis. <i>Clinical Obstetrics and Gynecology</i> . 2002;45(3):640-8. Available from: https://doi.org/10.1097/00003081-200209000-00007 .	Not relevant study design

Burks CA, Purdue-Smithe A, DeVilbiss E, Mumford S, Weinerman R. Frozen autologous and donor oocytes are associated with differences in clinical and neonatal outcomes compared with fresh oocytes: a Society for Assisted Reproductive Technology Clinic Outcome Reporting System Analysis. F&S reports. 2024;5(1):40-6. Available from: https://doi.org/https://dx.doi.org/10.1016/j.xfre.2023.11.003 .	Not relevant control
Cagino K, Bortoletto P, McCarter K, Forlenza K, Yau A, Thomas C, et al. Association between low fetal fraction and hypertensive disorders of pregnancy in in vitro fertilization-conceived pregnancies. American journal of obstetrics & gynecology MFM. 2021;3(6):100463. Available from: https://doi.org/https://dx.doi.org/10.1016/j.ajogmf.2021.100463 .	Not relevant intervention
Calhaz-Jorge C, De Geyter C, Kupka MS, de Mouzon J, Erb K, Mocanu E, et al. Assisted reproductive technology in Europe, 2013: results generated from European registers by ESHRE† The European IVF-monitoring Consortium for the European Society of Human Reproduction Embryology. Human Reproduction. 2017;32(10):1957-73. Available from: https://doi.org/10.1093/humrep/dex264 .	Not relevant control
Reproduction TEI-MCftESoH, Embryology, Calhaz-Jorge C, de Geyter C, Kupka MS, de Mouzon J, et al. Assisted reproductive technology in Europe, 2012: results generated from European registers by ESHRE†. Human Reproduction. 2016;31(8):1638-52. Available from: https://doi.org/10.1093/humrep/dew151 .	Not relevant control
Cao M, Zhang Q, Zhou W, Zhu Y, Li H, Yan J. Analysis of Aneuploidy Rate and Pregnancy Outcomes in Unexplained Recurrent Pregnancy Loss Couples With Chromosome Polymorphism After PGT-A. Frontiers in medicine. 2022;9:803988. Available from: https://doi.org/https://dx.doi.org/10.3389/fmed.2022.803988 .	Not relevant control
Cascante SD, Blakemore JK, DeVore S, Hodes-Wertz B, Fino ME, Berkeley AS, et al. Fifteen years of autologous oocyte thaw outcomes from a large university-based fertility center. Fertility and Sterility. 2022;118(1):158-66. Available from: https://doi.org/https://doi.org/10.1016/j.fertnstert.2022.04.013 .	Not relevant outcome
Chada AR, Crawford S, Hipp HS, Kawwass JF. Trends and outcomes for preimplantation genetic testing for monogenic disorders in the United States, 2014–2018. Fertility and Sterility. 2022;118(6):1190-3. Available from: https://doi.org/10.1016/j.fertnstert.2022.08.854 .	Not relevant control
Charkviani T, Kristasashvili J, Barbakadze T, Gabadze M, Kbilashvili T, Makharadze M. THE RELATIONSHIP BETWEEN FOLLICLE SIZE, OOCYTE MATURATION, BLASTOCYST FORMATION, BLASTOCYST PLOIDY, AND PREGNANCY OUTCOMES IN YOUNG WOMEN UNDERGOING IVF. Georgian medical news. 2024(352-353):196-203.	Not relevant control

<p>Chavez-Badiola A, Farias AF-S, Mendizabal-Ruiz G, Silvestri G, Griffin DK, Valencia-Murillo R, et al. Use of artificial intelligence embryo selection based on static images to predict first-trimester pregnancy loss. <i>Reproductive biomedicine online</i>. 2024;49(2):103934. Available from:</p>	<p>Not relevant outcome</p>
<p>Chen M, Li ZL, Lin H, Xia RB, Wang YL. Comparison of Pregnancy and Neonatal Outcomes between Fresh Embryo Transfer and Frozen-Thawed Embryo Transfer. <i>Therapeutic Hypothermia and Temperature Management</i>. 2023;13(3):120-5. Available from:</p>	<p>Not relevant population</p>
<p>Chen NQ, Si CR, Yung SC, Hon SK, Arasoo J, Ng S-C. Analysis of a preimplantation genetic test for aneuploidies in 893 screened blastocysts using KaryoLite BoBs: a single-centre experience. <i>Singapore medical journal</i>. 2024. Available from:</p>	<p>Not relevant outcome</p>
<p>https://doi.org/https://dx.doi.org/10.4103/singaporemedj.SMJ-2021-200.</p> <p>Chera-aree P, Thanaboonyawat I, Thokha B, Laokirkkiat P. Comparison of pregnancy outcomes using a time-lapse monitoring system for embryo incubation versus a conventional incubator in in vitro fertilization: An age-stratification analysis. <i>Clin Exp Reprod Med</i>. 2021;48(2):174-83. Available from:</p>	<p>Not relevant outcome</p>
<p>https://doi.org/10.5653/cerm.2020.04091.</p> <p>Chiamchanya C, Pruksananonda K. Development of assisted reproductive technology services in Thailand between 2008 and 2014 before the new law: Results generated from the National ART Registry, Royal Thai College of Obstetricians and Gynecologists. <i>Asian Biomedicine</i>. 2019;13(5):189-96. Available from:</p>	<p>Not relevant control</p>
<p>https://doi.org/10.1515/abm-2019-0060.</p> <p>Chow JF, Yeung WS, Lee VC, Lau EY, Ho PC, Ng EH. Preimplantation genetic diagnosis and screening by array comparative genomic hybridisation: experience of more than 100 cases in a single centre. <i>Hong Kong Med J</i>. 2017;23(2):129-33. Available from:</p>	<p>Not relevant control</p>
<p>https://doi.org/10.12809/hkmj164883.</p> <p>Cimadomo D, Capalbo A, Levi-Setti PE, Soscia D, Orlando G, Albani E, et al. Associations of blastocyst features, trophectoderm biopsy and other laboratory practice with post-warming behavior and implantation. <i>Human Reproduction</i>. 2018;33(11):1992-2001. Available from: https://doi.org/10.1093/humrep/dey291.</p>	<p>Not relevant outcome</p>
<p>Cimadomo D, Scarica C, Maggiulli R, Orlando G, Soscia D, Albricci L, et al. Continuous embryo culture elicits higher blastulation but similar cumulative delivery rates than sequential: a large prospective study. <i>Journal of Assisted Reproduction and Genetics</i>. 2018;35(7):1329-38. Available from: https://doi.org/10.1007/s10815-018-1195-4.</p>	<p>Not relevant study design</p>

<p>Cozzolino M, Diaz-Gimeno P, Pellicer A, Garrido N. Evaluation of the endometrial receptivity assay and the preimplantation genetic test for aneuploidy in overcoming recurrent implantation failure. <i>J Assist Reprod Genet.</i> 2020;37(12):2989-97. Available from: https://doi.org/10.1007/s10815-020-01948-7.</p>	Not relevant outcome
<p>Cuevas I, Prados F, Pons I, de Andrés M, Sánchez-Castro L, Lafuente R, et al. Registro Nacional de Actividad-Registro de la Sociedad Española de Fertilidad de fecundación in vitro e inyección espermática intracitoplasmática. Años 2016 y 2017. Medicina Reproductiva y Embriología Clínica. 2020;7(1):5-15. Available from: https://doi.org/https://doi.org/10.1016/j.medre.2020.02.002.</p>	Wrong language
<p>Cuevas I, Prados F, Pons I, de Andrés M, Vidal E, Hernández J, et al. Registro Nacional de Actividad-Registro de la Sociedad Española de Fertilidad de fecundación in vitro e inyección espermática intracitoplasmática. Años 2014 y 2015. Medicina Reproductiva y Embriología Clínica. 2018;5(2):97-108. Available from: https://doi.org/https://doi.org/10.1016/j.medre.2018.03.001.</p>	Wrong language
<p>Davis OS, Favetta LA, Deniz S, Faghah M, Amin S, Karnis M, et al. Potential Costs and Benefits of Incorporating PGT-A Across Age Groups: A Canadian Clinic Perspective. <i>Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstétrique et gynécologie du Canada : JOGC.</i> 2024;46(5):102361. Available from: https://doi.org/https://dx.doi.org/10.1016/j.jogc.2024.102361.</p>	Not relevant outcome
<p>De Geyter C, Calhaz-Jorge C, Kupka MS, Wyns C, Mocanu E, Motrenko T, et al. ART in Europe, 2014: results generated from European registries by ESHRE: The European IVF-monitoring Consortium (EIM) for the European Society of Human Reproduction and Embryology (ESHRE). <i>Human reproduction (Oxford, England).</i> 2018;33(9):1586-601. Available from: https://doi.org/https://dx.doi.org/10.1093/humrep/dey242.</p>	Not relevant control
<p>de Mouzon J, Goossens V, Bhattacharya S, Castilla JA, Ferraretti AP, Korsak V, et al. Assisted reproductive technology in Europe, 2007: results generated from European registers by ESHRE. <i>Human reproduction (Oxford, England).</i> 2012;27(4):954-66. Available from: https://doi.org/https://dx.doi.org/10.1093/humrep/des023.</p>	Not relevant control
<p>De Mouzon J, Goossens V, Bhattacharya S, Castilla JA, Ferraretti AP, Korsak V, et al. Assisted reproductive technology in Europe, 2006: Results generated from European registers by ESHRE. <i>Human Reproduction.</i> 2010;25(8):1851-62. Available from: https://doi.org/10.1093/humrep/deq124.</p>	Not relevant control
<p>De Rycke M, Goossens V, Kokkali G, Meijer-Hoogeveen M, Coonen E, Moutou C. ESHRE PGD Consortium data collection XIV-XV: Cycles from January 2011 to December 2012 with pregnancy follow-up to October 2013. <i>Human Reproduction.</i> 2017;32(10):1974-94. Available from: https://doi.org/10.1093/humrep/dex265.</p>	Not relevant control

Debrock S, Melotte C, Spiessens C, Peeraer K, Vanneste E, Meeuwis L, et al. Preimplantation genetic screening for aneuploidy of embryos after in vitro fertilization in women aged at least 35 years: a prospective randomized trial. <i>Fertil Steril</i> . 2010;93(2):364-73. Available from: https://doi.org/10.1016/j.fertnstert.2008.10.072 .	Not relevant outcome
Delhanty JD. Chromosome analysis by FISH in human preimplantation genetics. <i>Hum Reprod</i> . 1997;12(11 Suppl):153-5.	Not relevant intervention
Deng A, Wang WH. Assessment of aneuploidy formation in human blastocysts resulting from cryopreserved donor eggs. <i>Mol Cytogenet</i> . 2015;8:12. Available from: https://doi.org/10.1186/s13039-015-0117-8 .	Not relevant outcome
Deng J, Hong HY, Zhao Q, Nadgauda A, Ashrafian S, Behr B, et al. Preimplantation genetic testing for aneuploidy in poor ovarian responders with four or fewer oocytes retrieved. <i>J Assist Reprod Genet</i> . 2020;37(5):1147-54. Available from: https://doi.org/10.1007/s10815-020-01765-y .	Not relevant population
Dolan SM, Goldwaser TH, Jindal SK. Preimplantation Genetic Diagnosis for Mendelian Conditions. <i>JAMA</i> . 2017;318(9):859-60. Available from: https://doi.org/10.1001/jama.2017.10892 .	Not relevant study design
Dolinko AV, Koelper NC, Berger DS, Dokras A. Outcomes of assisted reproductive technology procedures performed on weekdays versus weekends: a retrospective cohort study. <i>Journal of assisted reproduction and genetics</i> . 2023;40(9):2091-9. Available from: https://doi.org/https://dx.doi.org/10.1007/s10815-023-02872-2 .	Not relevant control
Donoso P, Verpoest W, Papanikolaou EG, Liebaers I, Fatemi HM, Sermon K, et al. Single embryo transfer in preimplantation genetic diagnosis cycles for women <36 years does not reduce delivery rate. <i>Hum Reprod</i> . 2007;22(4):1021-5. Available from: https://doi.org/10.1093/humrep/del470 .	Not relevant outcome
Du Y, Guan Y, Li N, Shi C, Zhang Y, Ren B, et al. Is it necessary for young patients with recurrent implantation failure to undergo preimplantation genetic testing for aneuploidy? <i>Frontiers in Endocrinology</i> . 2023;14. Available from: https://doi.org/10.3389/fendo.2023.1020055 .	Not relevant outcome
Eisenberg E. Long-Term Outcomes in Children Born after Assisted Conception. <i>Semin Reprod Med</i> . 2012;30(02):123-30. Available from: https://doi.org/10.1055/s-0032-1307420 .	Not relevant study design
Escribá MJ, Zulategui JF, Galán A, Mercader A, Remohí J, de los Santos MJ. Vitrification of preimplantation genetically diagnosed human blastocysts and its contribution to the cumulative ongoing pregnancy rate per cycle by using a closed device. <i>Fertil Steril</i> . 2008;89(4):840-6. Available from: https://doi.org/10.1016/j.fertnstert.2007.04.035 .	Not relevant outcome

Fabres C, Fernández E, Zegers-Hochschild F, Mackenna A, Crosby JA. First polar body genetic diagnosis (PbGD) as a selection tool of euploid oocytes before insemination. <i>JBRA Assist Reprod.</i> 2012;16(4):231-4.	Not relevant outcome
Farahmand K, Kalantari H, Fakhri M, Fazeli AS, Moradi SZ, Almadani N, et al. Evaluation of 1100 couples with recurrent pregnancy loss using conventional cytogenetic, PGD, and PGS: hype or hope. <i>Gynecological Endocrinology.</i> 2016;32(6):483-7. Available from: https://doi.org/10.3109/09513590.2015.1134476 .	Not relevant outcome
Fedorova EM, Shlykova SA, Shunkina KV, Zaitceva OG, Lapina EN, Yanchuk TV, et al. Outcomes of IVF cycles coupled with PGS by aCGH of embryos from donor and autologous oocytes, transferred after vitrification to women of advanced maternal age. <i>Gynecological endocrinology : the official journal of the International Society of Gynecological Endocrinology.</i> 2017;33(9):737-40. Available from: https://doi.org/https://dx.doi.org/10.1080/09513590.2017.1318274 .	Not relevant outcome
Feichtinger M, Stopp T, Göbl C, Feichtinger E, Vaccari E, Mädel U, et al. Increasing live birth rate by preimplantation genetic screening of pooled polar bodies using array comparative genomic hybridization. <i>PLoS One.</i> 2015;10(5):e0128317. Available from: https://doi.org/10.1371/journal.pone.0128317 .	Not relevant outcome
Ferraretti AP, Goossens V, de Mouzon J, Bhattacharya S, Castilla JA, Korsak V, et al. Assisted reproductive technology in Europe, 2008: results generated from European registers by ESHRE. <i>Human reproduction (Oxford, England).</i> 2012;27(9):2571-84. Available from: https://doi.org/https://doi.org/10.1093/humrep/des255 .	Not relevant control
Ferraretti AP, Goossens V, Kupka M, Bhattacharya S, De Mouzon J, Castilla JA, et al. Assisted reproductive technology in Europe, 2009: Results generated from European registers by ESHRE. <i>Human Reproduction.</i> 2013;28(9):2318-31. Available from: https://doi.org/10.1093/humrep/det278 .	Not relevant control
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<p>Hobeika E, Singh S, Malik S, Knochenhauer ES, Traub ML. Initial maternal serum human chorionic gonadotropin levels in pregnancies achieved after assisted reproductive technology are higher after preimplantation genetic screening and after frozen embryo transfer: a retrospective cohort. Journal of Assisted Reproduction and Genetics. 2017;34(10):1333-40. Available from: https://doi.org/10.1007/s10815-017-0987-2.</p>		<p>Not relevant outcome</p>
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<p>Huang C, Jiang W, Zhu Y, Li H, Lu J, Yan J, et al. Pregnancy outcomes of reciprocal translocation carriers with two or more unfavorable pregnancy histories: before and after preimplantation genetic testing. <i>Journal of assisted reproduction and genetics</i>. 2019;36(11):2325-31. Available from: https://doi.org/https://dx.doi.org/10.1007/s10815-019-01585-9.</p>	<p>Not relevant control</p>
<p>Huang TTF, Kosasa T, Walker B, Arnett C, Huang CTF, Yin C, et al. Deep learning neural network analysis of human blastocyst expansion from time-lapse image files. <i>Reproductive biomedicine online</i>. 2021;42(6):1075-85. Available from: https://doi.org/https://dx.doi.org/10.1016/j.rbmo.2021.02.015.</p>	<p>Not relevant study design</p>
<p>Hughes LM, Schuler A, Sharmuk M, Schauer JM, Pavone ME, Bernardi LA. Early beta-hCG levels predict live birth after single embryo transfer. <i>Journal of assisted reproduction and genetics</i>. 2022;39(10):2355-64. Available from: https://doi.org/https://dx.doi.org/10.1007/s10815-022-02606-w.</p>	<p>Not relevant outcome</p>

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<p>Ingerslev HJ, Hindkjaer J, Jespersgaard C, Lind MP, Kolvraa S. [Preimplantation genetic diagnosis. The first experiences in Denmark]. Praeimplantations genetisk diagnostik De forste erfaringer i Danmark. 2001;163(40):5525-8.</p>	Not relevant control
<p>Ingerslev HJ, Degn B, Hnida C, Diemer T, Petersen MB, Olesen TN, et al. [Preimplantation genetic diagnosis]. Ugeskrift for laeger. 2018;180(14).</p>	Not relevant study design
<p>Insogna IG, Lanes A, Lee MS, Ginsburg ES, Fox JH. Association of Fresh Embryo Transfers Compared With Cryopreserved-Thawed Embryo Transfers With Live Birth Rate Among Women Undergoing Assisted Reproduction Using Freshly Retrieved Donor Oocytes. JAMA. 2021;325(2):156-63. Available from: https://doi.org/10.1001/jama.2020.23718.</p>	Not relevant outcome
<p>Ioscovich A, Eldar-Geva T, Weitman M, Altarescu G, Rivilis A, Elstein D. Anesthetic management for oocyte retrieval: An exploratory analysis comparing outcome in: in vitro: fertilization cycles with and without pre-implantation genetic diagnosis. Journal of Human Reproductive Sciences. 2013;6(4):263-6. Available from: https://doi.org/10.4103/0974-1208.126303.</p>	Not relevant outcome
<p>Irani M, Robles A, Gunnala V, Reichman D, Rosenwaks Z. Optimal parameters for determining the LH surge in natural cycle frozen-thawed embryo transfers. Journal of Ovarian Research. 2017;10(1):70. Available from: https://doi.org/10.1186/s13048-017-0367-7.</p>	Not relevant outcome
<p>ISRCTN. Preimplantation genetic screening (PGS) through 24-chromosome aneuploidy screening of day 3 embryos in advanced maternal aged patients: a prospective randomised controlled trial. 2010. Available from: https://www.isRCTN.com/ISRCTN37972669.</p>	Not relevant study design
<p>Iwamoto A, Van Voorhis BJ, Summers KM, Sparks A, Mancuso AC. Intracytoplasmic sperm injection vs. conventional in vitro fertilization in patients with non-male factor infertility. Fertility and sterility. 2022;118(3):465-72. Available from: https://doi.org/https://dx.doi.org/10.1016/j.fertnstert.2022.06.009.</p>	Not relevant outcome
<p>Iwasa T, Kuwahara A, Takeshita T, Taniguchi Y, Mikami M, Irahara M. Preimplantation genetic testing for aneuploidy and chromosomal structural rearrangement: A summary of a nationwide study by the Japan Society of Obstetrics and Gynecology. Reproductive medicine and biology. 2023;22(1):e12518. Available from: https://doi.org/https://dx.doi.org/10.1002/rmb2.12518.</p>	Not relevant study design

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Ji H, Zhou Y, Cao S, Zhang J, Ling X, Zhao C, et al. Effect of Embryo Developmental Stage, Morphological Grading, and Ploidy Status on Live Birth Rate in Frozen Cycles of Single Blastocyst Transfer. <i>Reproductive Sciences</i> . 2021;28(4):1079-91. Available from: https://doi.org/10.1007/s43032-020-00381-6 .	Not relevant control
Kadour-Peero E, Feferkorn I, Bellemare V, Arab S, Buckett W. A comparison of frozen-thawed embryo transfer protocols in 2920 single-blastocyst transfers. <i>Archives of Gynecology and Obstetrics</i> . 2022;306(3):887-92. Available from: https://doi.org/10.1007/s00404-022-06588-z .	Not relevant control
Kahraman S, Sertyel S, Findikli N, Kumtepe Y, Oncu N, Melil S, et al. Effect of PGD on implantation and ongoing pregnancy rates in cases with predominantly macrocephalic spermatozoa. <i>Reproductive BioMedicine Online</i> . 2004;9(1):79-85. Available from: https://doi.org/https://doi.org/10.1016/S1472-6483(10)62114-1 .	Not relevant outcome
Kahraman S, Yakın K, Dönmez E, Şamlı H, Bahçe M, Cengiz G, et al. Relationship between granular cytoplasm of oocytes and pregnancy outcome following intracytoplasmic sperm injection. <i>Human Reproduction</i> . 2000;15(11):2390-3. Available from: https://doi.org/10.1093/humrep/15.11.2390 .	Not relevant control
Kahraman S, Candan ZN. Outcomes of vitrified - warmed day-4 embryos after day-3 cleavage-stage biopsy. <i>Reproductive BioMedicine Online</i> . 2010;21(5):636-41. Available from: https://doi.org/10.1016/j.rbmo.2010.07.011 .	Not relevant outcome
Kahraman S, Duzguner INB, Sahin Y, Irez T. What to advise to patients with only one good quality blastocyst, PGT-A or not? Outcomes of 2064 cycles. <i>Journal of Assisted Reproduction and Genetics</i> . 2022;39(11):2555-62. Available from: https://doi.org/10.1007/s10815-022-02617-7 .	Not relevant outcome
Kalma Y, Bar-El L, Asaf-Tisser S, Malcov M, Reches A, Hasson J, et al. Optimal timing for blastomere biopsy of 8-cell embryos for preimplantation genetic diagnosis. <i>Hum Reprod</i> . 2018;33(1):32-8. Available from: https://doi.org/10.1093/humrep/dex343 .	Not relevant outcome

Kang H-J, Melnick AP, Stewart JD, Xu K, Rosenwaks Z. Preimplantation genetic screening: who benefits? <i>Fertility and Sterility</i> . 2016;106(3):597-602. Available from: https://doi.org/10.1016/j.fertnstert.2016.04.027 .	Not relevant outcome
Karatas JC, Barlow-Stewart K, Meiser B, McMahon C, Strong KA, Hill W, et al. Psychological adjustment, knowledge and unmet information needs in women undergoing PGD. <i>Human Reproduction</i> . 2010;25(6):1481-9. Available from: https://doi.org/10.1093/humrep/deq086	Not relevant study design
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Katler QS, Kawwass JF, Hurst BS, Sparks AE, McCulloh DH, Wantman E, et al. Vanquishing multiple pregnancy in in vitro fertilization in the United States-a 25-year endeavor. <i>American journal of obstetrics and gynecology</i> . 2022;227(2):129-35. Available from: https://doi.org/https://dx.doi.org/10.1016/j.ajog.2022.02.005 .	Not relevant study design
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Oliva M, Nazem TG, Lee JA, Copperman AB. Evaluating in vitro fertilization outcomes of patients with low body mass index following frozen-thawed embryo transfer. <i>International Journal of Gynecology & Obstetrics</i> . 2021;155(1):132-7. Available from: https://doi.org/https://doi.org/10.1002/ijgo.13570 .	Not relevant outcome
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<p>Verdyck P, Altarescu G, Santos-Ribeiro S, Vrettou C, Koehler U, Griesinger G, et al. Aneuploidy in Oocytes From Women of Advanced Maternal Age: Analysis of the Causal Meiotic Errors and Impact on Embryo Development. <i>Obstetrical and Gynecological Survey</i>. 2024;79(3):164-5. Available from: https://doi.org/10.1097/OGX.0000000000001254.</p>	Not relevant control
<p>Verdyck P, Altarescu G, Santos-Ribeiro S, Vrettou C, Koehler U, Griesinger G, et al. Aneuploidy in oocytes from women of advanced maternal age: analysis of the causal meiotic errors and impact on embryo development. <i>Human Reproduction</i>. 2023;38(12):2526-35. Available from: https://doi.org/10.1093/humrep/dead201.</p>	Not relevant outcome

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Verpoest W, De Rademaeker M, Sermon K, De Rycke M, Seneca S, Papanikolaou E, et al. Real and expected delivery rates of patients with myotonic dystrophy undergoing intracytoplasmic sperm injection and preimplantation genetic diagnosis. Human reproduction (Oxford, England). 2008;23(7):1654-60. Available from: https://doi.org/https://dx.doi.org/10.1093/humrep/den105 .	Not relevant control
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Wang J, Zhang J, Zhao N, Ma Y, Wang X, Gou X, et al. The effect of ovarian stimulation on aneuploidy of early aborted tissues and preimplantation blastocysts: comparison of the GnRH agonist long protocol with the GnRH antagonist protocol. <i>Journal of Assisted Reproduction and Genetics</i> . 2022;39(8):1927-36. Available from: https://doi.org/10.1007/s10815-022-02557-2 .	Not relevant control
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Wang S, Liu L, Ma M, Wang H, Han Y, Guo X, et al. Preimplantation genetic testing for aneuploidy helps to achieve a live birth with fewer transfer cycles for the blastocyst FET patients with unexplained recurrent implantation failure. <i>Archives of gynecology and obstetrics</i> . 2023;308(2):599-610. Available from: https://doi.org/https://dx.doi.org/10.1007/s00404-023-07041-5 .	Not relevant outcome
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<p>Wyns C, De Geyter C, Calhaz-Jorge C, Kupka MS, Motrenko T, Smeenk J, et al. ART in Europe, 2017: results generated from European registries by ESHRE. Hum Reprod Open. 2021;2021(3):hoab026. Available from: https://doi.org/10.1093/hropen/hoab026.</p>	Not relevant study design
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Yu HC, Rei WM, Chiou ST, Deng CY. Multivariate analysis of the factors associated with live births during in vitro fertilisation in Southeast Asia: a cross-sectional study of 104,015 in vitro fertilisation records in Taiwan. <i>Journal of Assisted Reproduction and Genetics</i> . 2021;38(9):2415-23. Available from: https://doi.org/10.1007/s10815-021-02086-4 .	Not relevant outcome
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Zegers-Hochschild F, Crosby JA, Musri C, de Souza MDCB, Martinez AG, Silva AA, et al. Assisted reproductive technologies in Latin America: the Latin American Registry, 2019. <i>Jornal Brasileiro de Reproducao Assistida</i> . 2022;26(4):637-58. Available from: https://doi.org/10.5935/1518-0557.20220034 .	Not relevant outcome
Zegers-Hochschild F, Crosby JA, Musri C, de Souza MDCB, Martinez AG, Silva AA, et al. Assisted reproductive techniques in Latin America: The Latin American registry, 2017. <i>Jornal Brasileiro de Reproducao Assistida</i> . 2020;24(3):362-78. Available from: https://doi.org/10.5935/1518-0557.20200029 .	Not relevant outcome
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Zegers-Hochschild F, Schwarze JE, Crosby JA, Musri C, Urbina MT. Assisted reproductive techniques in Latin America: The Latin american registry, 2016. Jornal Brasileiro de Reproducao Assistida. 2019;23(3):255-67. Available from: https://doi.org/10.5935/1518-0557.20190037 .	Not relevant outcome
Zegers-Hochschild F, Crosby JA, Musri C, Petermann-Rocha F, Borges de Souza MdC, Martinez AG, et al. ART in Latin America: the Latin American Registry, 2020. Reproductive biomedicine online. 2023;47(2):103195. Available from: https://doi.org/https://dx.doi.org/10.1016/j.rbmo.2023.03.006 .	Not relevant outcome
Zegers-Hochschild F, Schwarze JE, Crosby JA, Musri C, Urbina MT. Assisted reproductive techniques in Latin America: the Latin American Registry 2016. Reproductive biomedicine online. 2019;39(3):452-60. Available from: https://doi.org/https://dx.doi.org/10.1016/j.rbmo.2019.04.129 .	Duplicate
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Zhao S, Lyu C, Liu Y, Wang X, Zhang Z, Lv H, et al. Preimplantation genetic testing for aneuploidy could not improve cumulative live birth rate among 1003 couples with recurrent pregnancy loss. Chinese Medical Journal. 2024;137(17).	Not relevant outcome

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Studies with critical risk of bias

Reference	Reason
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Bay B, Ingerslev HJ, Lemmen JG, Degn B, Rasmussen IA, Kesmodel US. Preimplantation genetic diagnosis: a national multicenter obstetric and neonatal follow-up study. <i>Fertility and Sterility</i> . 2016;106(6):1363-9.e1. Available from: https://doi.org/10.1016/j.fertnstert.2016.07.1092 .	Singles not separately reported
Beukers F, Houtzager BA, Paap MC, Middelburg KJ, Hadders-Algra M, Bos AF, et al. Parental psychological distress and anxiety after a successful IVF/ICSI procedure with and without preimplantation genetic screening: follow-up of a randomised controlled trial. <i>Early Hum Dev</i> . 2012;88(9):725-30. Available from: https://doi.org/10.1016/j.earlhumdev.2012.03.001 .	Singles not separately reported
Beukers F, van der Heide M, Middelburg KJ, Cobben JM, Mastenbroek S, Breur R, et al. Morphologic abnormalities in 2-year-old children born after in-vitro fertilization/intracytoplasmic sperm injection with preimplantation genetic screening: follow-up of a randomized controlled trial. <i>Fertility and Sterility</i> . 2013;99(2):408-13.e4. Available from: https://doi.org/10.1016/j.fertnstert.2012.10.024 .	Singles not separately reported
Chang J, Boulet SL, Jeng G, Flowers L, Kissin DM. Outcomes of in vitro fertilization with preimplantation genetic diagnosis: an analysis of the United States Assisted Reproductive Technology Surveillance Data, 2011–2012. <i>Fertility and Sterility</i> . 2016;105(2):394-400. Available from: https://doi.org/https://doi.org/10.1016/j.fertnstert.2015.10.018 .	Singles not separately reported
Cho YJ, Kim JY, Song IO, Lee HS, Lim CK, Koong MK, et al. Does blastomere biopsy in preimplantation genetic diagnosis affect early serum β-hCG levels? <i>Clin Exp Reprod Med</i> . 2011;38(1):31-6. Available from: https://doi.org/10.5653/cerm.2011.38.1.31 .	Singles not separately reported
Chu CS, Li D, Olson-Chen C, Kawkass J, Vitek W. Recurrence risk and risk factors for monozygotic twin and triplet birth in over 65,000 single-embryo transfers. <i>Journal of Assisted Reproduction and Genetics</i> . 2023;40(4):851-5. Available from: https://doi.org/10.1007/s10815-023-02737-8 .	Lack information of previous parity
Desmyttere S, Bonduelle M, Nekkebroeck J, Roelants M, Liebaers I, De Schepper J. Growth and health outcome of 102 2-year-old children conceived after preimplantation genetic diagnosis or screening. <i>Early Human Development</i> . 2009;85(12):755-9. Available from: https://doi.org/https://doi.org/10.1016/j.earlhumdev.2009.10.003 .	Lack information on day of embryo transfer, can differ between groups
Forman EJ, Hong KH, Fransasiak JM, Scott RT, Jr. Obstetrical and neonatal outcomes from the BEST Trial: single embryo transfer with aneuploidy screening improves outcomes after in-vitro fertilization without compromising delivery rates. <i>American Journal of Obstetrics & Gynecology</i> . 2014;210(2):157.e1-e6. Available from: https://doi.org/10.1016/j.ajog.2013.10.016 .	Singles not separately reported
Giles J, Meseguer M, Mercader A, Rubio C, Alegre L, Vidal C, et al. Preimplantation genetic testing for aneuploidy in patients with partial X monosomy using their own oocytes: is this a suitable indication? <i>Fertility and Sterility</i> . 2018;110(1):111-6. Available from: https://doi.org/10.1016/j.fertnstert.2017.10.021 .	Singles not separately reported, not relevant control PICO1

and Sterility. 2020;114(2):346-53. Available from: https://doi.org/10.1016/j.fertnstert.2020.04.003 .	
Gingold JA, Kucherov A, Wu H, Fazzari M, Lieman H, Ball GD, et al. Preimplantation genetic testing for aneuploidy is associated with reduced live birth rates in fresh but not frozen donor oocyte in vitro fertilization cycles: an analysis of 18,562 donor cycles reported to Society for Assisted Reproductive Technology Clin. Fertility and Sterility. 2024. Available from: https://doi.org/10.1016/j.fertnstert.2024.08.315 .	Singles not separately reported
Go VA, Goros M, Choi BY, Farland LV, Robinson RD, Mak W. Perinatal Outcomes of Women with Recurrent Pregnancy Loss Undergoing Frozen Embryo Transfer from the Society of Assisted Reproductive Technology Database. Fertility and sterility. 2024. Available from: https://doi.org/10.1016/j.fertnstert.2024.10.016 .	Singles not separately reported
Gu R-H, Fu J, Ge N-D, Li Z-C, Huang B, Xu Y, et al. Preimplantation genetic testing for aneuploidy improves clinical outcomes in patients with repeated implantation failure. Reproductive and Developmental Medicine. 2023;7(1):12-9. Available from: https://doi.org/10.1097/rd9.0000000000000043 .	Lack baseline data for intervention and control group
Harris BS, Acharya KS, Unnithan S, Neal SA, Mebane S, Truong T, et al. Success rates with preimplantation genetic testing for aneuploidy in good prognosis patients are dependent on age. Fertility and Sterility. 2024. Available from: https://doi.org/https://doi.org/10.1016/j.fertnstert.2024.09.043 .	Singles not separately reported
Hatirnaz S, Ozer A, Hatirnaz E, Atasever M, Başaranoglu S, Kanat-Pektaş M, et al. Pre-implantation genetic screening among women experiencing recurrent failure of in vitro fertilization. International Journal of Gynecology & Obstetrics. 2017;137(3):314-8. Available from: https://doi.org/https://doi.org/10.1002/ijgo.12135 .	Singles not separately reported
Haviland MJ, Murphy LA, Modest AM, Fox MP, Wise LA, Nillni YI, et al. Comparison of pregnancy outcomes following preimplantation genetic testing for aneuploidy using a matched propensity score design. Human Reproduction. 2020;35(10):2356-64. Available from: https://doi.org/10.1093/humrep/deaa161 .	Singles not separately reported
Heijligers M, Peeters A, van Montfoort A, Nijsten J, Janssen E, Gunnewiek FK, et al. Growth, health, and motor development of 5-year-old children born after preimplantation genetic diagnosis. Fertility and Sterility. 2019;111(6):1151-8. Available from: https://doi.org/10.1016/j.fertnstert.2019.01.035 .	Singles not separately reported
Heijligers M, Verheijden LMM, Jonkman LM, van der Sangen M, Meijer-Hoogeveen M, Arens Y, et al. The cognitive and socio-emotional development of 5-year-old children born after PGD. Human Reproduction. 2018;33(11):2150-7. Available from: https://doi.org/10.1093/humrep/dey302 .	Singles not separately reported
Hu L, Bu Z, Huang G, Sun H, Deng C, Sun Y. Assisted Reproductive Technology in China: Results Generated From Data Reporting System by CSRM From 2013 to 2016. Front Endocrinol (Lausanne). 2020;11:458. Available from: https://doi.org/10.3389/fendo.2020.00458 .	Singles not separately reported
Kucherov A, Fazzari M, Lieman H, Ball GD, Doody K, Jindal S. PGT-A is associated with reduced cumulative live birth rate in first reported IVF stimulation cycles age ≤ 40: an analysis of 133,494 autologous cycles reported to SART CORS. Journal of Assisted Reproduction and Genetics.	Singles not separately reported

2023;40(1):137-49. Available from: https://doi.org/10.1007/s10815-022-02667-x .	
Kuiper D, Bennema A, la Bastide-van Gemert S, Seggers J, Schendelaar P, Mastenbroek S, et al. Developmental outcome of 9-year-old children born after PGS: follow-up of a randomized trial. <i>Human Reproduction</i> . 2017;33(1):147-55. Available from: https://doi.org/10.1093/humrep/dex337 .	Difference in frozen or fresh embryo transfers between groups
Lei C-X, Ye J-F, Sui Y-L, Zhang Y-P, Sun X-X. Retrospective Cohort Study of Preimplantation Genetic Testing for Aneuploidy with Comprehensive Chromosome Screening versus Nonpreimplantation Genetic Testing in Normal Karyotype, Secondary Infertility Patients with Recurrent Pregnancy Loss. <i>Reproductive and Developmental Medicine</i> . 2019;3(4). Available from: https://mednexus.org/doi/full/10.4103/2096-2924.274544	Singles not separately reported
Li Y, Chang Q, Mai Q. Pregnancy and neonatal outcomes of monozygotic twins resulting from assisted reproductive technology: a 10-year retrospective study. <i>Reprod Biol Endocrinol</i> . 2023;21(1):51. Available from: https://doi.org/10.1186/s12958-023-01104-7 .	Singles not separately reported
Liebaers I, Desmyttere S, Verpoest W, De Rycke M, Staessen C, Sermon K, et al. Report on a consecutive series of 581 children born after blastomere biopsy for preimplantation genetic diagnosis. <i>Hum Reprod</i> . 2010;25(1):275-82. Available from: https://doi.org/10.1093/humrep/dep298 .	Lack information on day of embryo transfer, can differ between groups
Ma S, Hu L, Chen H, Liu Y, Hocher J-G, Xu X, et al. Inverse association of prepregnancy systolic blood pressure and live birth rate in normotensive women undergoing in vitro fertilization/intracytoplasmic sperm injection. <i>Fertility and Sterility</i> . 2024;122(4):667-77. Available from: https://doi.org/https://doi.org/10.1016/j.fertnstert.2024.05.150 .	Lack baseline data for intervention and control group
Ma S, Liao J, Zhang S, Yang X, Hocher B, Tan J, et al. Exploring the efficacy and beneficial population of preimplantation genetic testing for aneuploidy start from the oocyte retrieval cycle: a real-world study. <i>J Transl Med</i> . 2023;21(1):779. Available from: https://doi.org/10.1186/s12967-023-04641-2 .	Singles not separately reported
MacKenna A, Schwarze JE, Crosby J, Zegers-Hochschild F. Factors associated with embryo splitting and clinical outcome of monozygotic twins in pregnancies after IVF and ICSI. <i>Hum Reprod Open</i> . 2020;2020(1):hoaa024. Available from: https://doi.org/10.1093/hropen/hoaa024 .	Difference in day of embryo transfer and frozen or fresh embryo transfers between groups
Maithripala S, Durland U, Havelock J, Kashyap S, Hitkari J, Tan J, et al. Prevalence and Treatment Choices for Couples with Recurrent Pregnancy Loss Due to Structural Chromosomal Anomalies. <i>Journal of Obstetrics and Gynaecology Canada</i> . 2018;40(6):655-62. Available from: https://doi.org/https://doi.org/10.1016/j.jogc.2017.09.024 .	Lack information on day of embryo transfer, can differ between groups
Martello CL, Kulmann MIR, Donatti LM, Bos-Mikich A, Frantz N. Preimplantation genetic testing for aneuploidies does not increase success rates in fresh oocyte donation cycles: a paired cohort study. <i>Journal of Assisted Reproduction and Genetics</i> . 2021;38(11):2909-14. Available from: https://doi.org/10.1007/s10815-021-02339-2 .	Singles not separately reported
Mateizel I, Santos-Ribeiro S, Done E, Van Landuyt L, Van de Velde H, Tournaye H, et al. Do ARTs affect the incidence of monozygotic	Singles not separately reported

twinning? Hum Reprod. 2016;31(11):2435-41. Available from: https://doi.org/10.1093/humrep/dew216 .	
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Nekkebroeck J, Van den Broeck W, Desmyttere S, Ponjaert-Kristoffersen I, Bonduelle M. The mental, motor, socio-emotional and language development of 2-year-old twins born after PGD/PGS and parental well-being. Human Reproduction. 2011;27(1):299-301. Available from: https://doi.org/10.1093/humrep/der352 .	Singles not separately reported
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Platteau P, Staessen C, Michiels A, Van Steirteghem A, Liebaers I, Devroey P. Preimplantation genetic diagnosis for aneuploidy screening in women older than 37 years. Fertil Steril. 2005;84(2):319-24. Available from: https://doi.org/10.1016/j.fertnstert.2005.02.019 .	Singles not separately reported
Sacchi L, Albani E, Cesana A, Smeraldi A, Parini V, Fabiani M, et al. Preimplantation Genetic Testing for Aneuploidy Improves Clinical, Gestational, and Neonatal Outcomes in Advanced Maternal Age Patients Without Compromising Cumulative Live-Birth Rate. Journal of Assisted Reproduction and Genetics. 2019;36(12):2493-504. Available from: https://doi.org/10.1007/s10815-019-01609-4 .	Singles not separately reported
Sardana P, Banker J, Gupta R, Kotdawala A, Lalitkumar PGL, Banker M. The Influence of Delayed Blastocyst Development on the Outcome of Frozen-Thawed Transfer of Euploid and Untested Embryos. J Hum Reprod Sci. 2020;13(2):155-61. Available from: https://doi.org/10.4103/jhrs.JHRS_115_19 .	Singles not separately reported
Seggers J, Haadsma ML, Bastide-van Gemert S, Heineman MJ, Kok JH, Middelburg KJ, et al. Blood pressure and anthropometrics of 4-y-old children born after preimplantation genetic screening: follow-up of a unique, moderately sized, randomized controlled trial. Pediatr Res. 2013;74(5):606-14. Available from: https://doi.org/10.1038/pr.2013.137 .	Singles not separately reported
Sellers R, Castillo JC, Ten J, Rodríguez A, Ortiz JA, Sellers F, et al. Monozygotic twinning following embryo biopsy at the blastocyst stage. Jornal Brasileiro de Reproducao Assistida. 2021;25(1):122-7. Available from: https://doi.org/10.5935/1518-0557.20200069 .	Lack baseline data för intervention and control group
Sharpe A, Avery P, Choudhary M. Reproductive outcome following pre-implantation genetic diagnosis (PGD) in the UK. Human fertility (Cambridge, England). 2018;21(2):120-7. Available from: https://doi.org/https://dx.doi.org/10.1080/14647273.2017.1336259 .	Singles not separately reported
Sui YL, Lei CX, Ye JF, Fu J, Zhang S, Li L, et al. In vitro fertilization with single-Nucleotide polymorphism microarray-based preimplantation genetic testing for aneuploidy significantly improves clinical outcomes in infertile women with recurrent pregnancy loss: A randomized controlled	For complications (PICO 2), singles not separately reported, i.e. critical risk of bias.

<p>trial. Reproductive and Developmental Medicine. 2020;4(1):32-41. Available from: https://doi.org/10.4103/2096-2924.281852.</p>	<p>For effectiveness (PICO 1): The study was designed to transfer different numbers of embryos per embryo transfer in the intervention compared to the control group, i.e not a relevant study for PICO 1.</p>
<p>Sun Q, Xu J, Yao Y, Huang X, Zhao D, Lu S, et al. Efficacy of non-invasive chromosome screening, preimplantation genetic testing for aneuploidy, and morphological grading in selecting embryos of patients with advanced maternal age: a three-armed prospective cohort study. BMC pregnancy and childbirth. 2024;24(1):545. Available from: https://doi.org/https://dx.doi.org/10.1186/s12884-024-06736-0.</p>	<p>Singles not separately reported</p>
<p>Swanson K, Huang D, Kaing A, Blat C, Rosenstein MG, Mok-Lin E, et al. Is Preimplantation Genetic Testing Associated with Increased Risk of Abnormal Placentation After Frozen Embryo Transfer? Am J Perinatol. 2020;38(02):105-10. Available from: https://doi.org/10.1055/s-0040-1714681.</p>	<p>Singles not separately reported</p>
<p>Turan V, Gayete-Lafuente S, Bang H, Oktay KH. Outcomes of random-start letrozole protocol with PGT-A in women with breast cancer undergoing fertility preservation. Journal of Assisted Reproduction and Genetics. 2023;40(10):2401-8. Available from: https://doi.org/10.1007/s10815-023-02882-0.</p>	<p>Lack baseline data for intervention and control group</p>
<p>Van Heertum K, DeVilbiss EA, Goldfarb J, Mumford SL, Weinerman R. Does embryo biopsy, independent of vitrification, impact perinatal outcomes? An analysis of perinatal outcomes following preimplantation genetic testing biopsy in fresh and frozen embryo transfer cycles. F&S Reports. 2024;5(1):47-54. Available from: https://doi.org/https://doi.org/10.1016/j.xfre.2024.01.005.</p>	<p>Singles not separately reported</p>
<p>Wang X, Zhang S, Gu Y, Ma S, Peng Y, Gong F, et al. The impact of blastocyst freezing and biopsy on the association of blastocyst morphological parameters with live birth and singleton birthweight. Fertility and Sterility. 2023;119(1):56-66. Available from: https://doi.org/10.1016/j.fertnstert.2022.09.030.</p>	<p>Lack information of previous parity</p>
<p>Yang Z, Salem SA, Liu X, Kuang Y, Salem RD, Liu J. Selection of euploid blastocysts for cryopreservation with array comparative genomic hybridization (aCGH) results in increased implantation rates in subsequent frozen and thawed embryo transfer cycles. Molecular Cytogenetics. 2013;6(1):32. Available from: https://doi.org/10.1186/1755-8166-6-32.</p>	<p>Process and time point for randomization unsure, clinicians not blinded, no explanation to difference between groups in drop outs, no study protocol and no power calculation</p>
<p>Yang Z, Liu J, Collins GS, Salem SA, Liu X, Lyle SS, et al. Selection of single blastocysts for fresh transfer via standard morphology assessment alone and with array CGH for good prognosis IVF patients: results from a randomized pilot study. Molecular Cytogenetics. 2012;5(1):24. Available from: https://doi.org/10.1186/1755-8166-5-24.</p>	<p>Process and time point for randomization unsure, clinicians not blinded, no explanation to difference between</p>

	groups in drop outs, no study protocol and no power calculation
Ying LY, Sanchez MD, Baron J, Ying Y. Preimplantation genetic testing and frozen embryo transfer synergistically decrease very pre-term birth in patients undergoing in vitro fertilization with elective single embryo transfer. Journal of assisted reproduction and genetics. 2021;38(9):2333-9. Available from: https://doi.org/https://dx.doi.org/10.1007/s10815-021-02266-2 .	Singles not separately reported
Zakharova EE, Zaletova VV, Krivokharchenko AS. Biopsy of Human Morula-Stage Embryos: Outcome of 215 IVF/ICSI Cycles with PGS. PLOS ONE. 2014;9(9):e106433. Available from: https://doi.org/10.1371/journal.pone.0106433 .	Lack information of previous parity
Özdamar Ö, Boynukalin FK, Gültomruk M, Yarkiner Z, Findikli N, Bahceci M. Impact of trophoectoderm biopsy for preimplantation genetic testing on serum β-hCG levels, time of delivery and birthweight following frozen embryo transfer cycles. Gynecological Endocrinology. 2023;39(1):2227278. Available from: https://doi.org/10.1080/09513590.2023.2227278 .	Selected control group to not be comparable to intervention group

Excluded health economic studies due to non relevant

Reference	Reason for exclusion
A microcosting and cost-consequence analysis of genomic testing strategies (including trios) in autism spectrum disorder: an update. Jegathisawaran, J.; Tsiplova, K.; Ungar, W. J. 2019;(): Canada Technology Assessment at SickKids (TASK) 2019. Ref ID: 1767	Not relevant population
Blakemore JK, Trawick EC, Grifo JA, Goldman KN. Prognostic role of preimplantation genetic testing for aneuploidy in medically indicated fertility preservation. Fertil Steril. 2020 Feb;113(2):408-416. Available from: https://doi.org/10.1016/j.fertnstert.2019.09.040	Not relevant study design
Davis OS, Favetta LA, Deniz S, Faghih M, Amin S, Karnis M, Neal MS. Potential Costs and Benefits of Incorporating PGT-A Across Age Groups: A Canadian Clinic Perspective. J Obstet Gynaecol Can. 2024 May;46(5):102361. Available from: https://doi.org/10.1016/j.jogc.2024.102361	Not relevant study design
Doyle N, Gainty M, Eubanks A, Doyle J, Hayes H, Tucker M, Devine K, DeCherney A, Levy M, Jahandideh S, Hill M. Donor oocyte recipients do not benefit from preimplantation genetic testing for aneuploidy to improve pregnancy outcomes. Hum Reprod. 2020 Nov 1;35(11):2548-2555. Available from: https://doi.org/10.1093/humrep/deaa219	Not relevant outcome
El-Toukhy T. Clinical application of PGT-A: is the price too high? BJOG. 2020 May;127(6):719. Available from: https://doi.org/10.1111/1471-0528.16118	Not relevant study design
Iwamoto A, Summers KM, Sparks A, Mancuso AC. Intracytoplasmic sperm injection versus conventional in vitro fertilization in unexplained infertility. Fertil Steril. 2024 Jun 19;5(3):263-271. Available from: https://doi.org/10.1016/j.xfre.2024.06.003	Not relevant study design
Iwamoto A, Van Voorhis BJ, Summers KM, Sparks A, Mancuso AC. Intracytoplasmic sperm injection vs. conventional in vitro fertilization in patients with non-male factor infertility. Fertil Steril. 2022 Sep;118(3):465-472. Available from: https://doi.org/10.1016/j.fertnstert.2022.06.009	Not relevant control group
Khorshid A, Bavan B, Chung EH, Lathi RB. Mosaic embryo transfer versus additional IVF with PGT-A Cycle: a decision model comparing live birth rate and cost. J Assist Reprod Genet. 2024 Mar;41(3):635-641. Available from: https://doi.org/10.1007/s10815-024-03027-7	Not relevant control group
Khorshid A, Boyd ALH, Behr B, Zhao Q, Alvero R, Bavan B. Cost-effectiveness of IVF with PGT-M/A to prevent transmission of spinal muscular atrophy in offspring of carrier couples. J Assist Reprod Genet. 2023 Apr;40(4):793-801. Available from: https://doi.org/10.1007/s10815-023-02738-7	Not relevant population
Mersereau JE, Plunkett BA, Cedars MI. Preimplantation genetic screening in older women: a cost-effectiveness analysis. Fertil Steril. 2008 Sep;90(3):592-8. Available from: https://doi.org/10.1016/j.fertnstert.2007.07.1307	Not relevant intervention
Murugappan G, Ohno MS, Lathi RB. Cost-effectiveness analysis of preimplantation genetic screening and in vitro fertilization versus expectant management in patients with unexplained recurrent pregnancy loss. Fertil Steril. 2015 May;103(5):1215-20. Available from: https://doi.org/10.1016/j.fertnstert.2015.02.012	Not relevant control group
Nadgada A, Ganti T, Walter JR. Cost-effectiveness analyses of preimplantation genetic testing. Fertil Steril. 2024 Apr;121(4):693-702. Available from: https://doi.org/10.1016/j.fertnstert.2023.12.022	Not relevant study design

Oberle A, Feichtinger M. Polar body-based PGT-A: not dead yet? A step forward back to the roots of PGT-A. Reprod Biomed Online. 2025 Jan;50(1):104430. Available from: https://doi.org/10.1016/j.rbmo.2024.104430	Not relevant study design
Oberle A, Hanzer F, Kokocinski F, Ennemoser A, Carli L, Vaccari E, Hengstschläger M, Feichtinger M. Evaluation of Nanopore Sequencing on Polar Bodies for Routine Pre-Implantation Genetic Testing for Aneuploidy. Clin Chem. 2024 May 2;70(5):747-758. Available from: https://doi.org/10.1093/clinchem/hvae024	Not relevant study design
Olive E, Bull C, Gordon A, Davies-Tuck M, Wang R, Callander E. Economic evaluations of assisted reproductive technologies in high-income countries: a systematic review. Hum Reprod. 2024 May 2;39(5):981-991. Available from: https://doi.org/10.1093/humrep/deae039	Not relevant study design
Paulson RJ. Mathematics should clarify, not obfuscate: an inaccurate and misleading calculation of the cost-effectiveness of preimplantation genetic testing for aneuploidy. Fertil Steril. 2019 Jun;111(6):1113-1114. Available from: https://doi.org/10.1016/j.fertnstert.2019.04.008	Not relevant study design
Robins JC, McQueen DB. Preimplantation genetic testing for aneuploidy: costly or cost effective? Fertil Steril. 2018 Oct;110(5):851. Available from: https://doi.org/10.1016/j.fertnstert.2018.08.025	Not relevant study design
Robinson RD, Rippentrop S, McLaughlin JE. What are the cost considerations for preimplantation genetic testing for aneuploidy? Fertil Steril. 2019 Jun;111(6):1115-1116. Available from: https://doi.org/10.1016/j.fertnstert.2019.02.022	Not relevant study design
Sciven PN. Carrier screening and PGT for an autosomal recessive monogenic disorder: insights from virtual trials. J Assist Reprod Genet. 2022 Feb;39(2):331-340. Available from: https://doi.org/10.1007/s10815-022-02398-z	Not relevant population
Sciven PN. Towards a better understanding of preimplantation genetic screening for aneuploidy: insights from a virtual trial for women under the age of 40 when transferring embryos one at a time. Reprod Biol Endocrinol. 2017 Jun 30;15(1):49. Available from: https://doi.org/10.1186/s12958-017-0269-y	Not relevant study design
Si Y, Tan T, Pu K. Systematic review of the economic evaluation model of assisted reproductive technology. Health Econ Rev. 2024 May 20;14(1):34. Available from: https://doi.org/10.1186/s13561-024-00509-3	Not relevant study design

Health economic studies with low quality or transferability

Reference	Reason
Bakkensen JB, Flannagan KSJ, Mumford SL, Hutchinson AP, Cheung EO, Moreno PI, Jordan N, Feinberg EC, Goldman KN. A SART data cost-effectiveness analysis of planned oocyte cryopreservation versus in vitro fertilization with preimplantation genetic testing for aneuploidy considering ideal family size. <i>Fertil Steril.</i> 2022 Nov;118(5):875-884. Available from: https://doi.org/10.1016/j.fertnstert.2022.07.022	Low methodological quality
Facadio Antero M, Singh B, Pradhan A, Gornet M, Kearns WG, Baker V, Christianson MS. Cost-effectiveness of preimplantation genetic testing for aneuploidy for fresh donor oocyte cycles. <i>F S Rep.</i> 2020 Dec 9;2(1):36-42. Available from: https://doi.org/10.1016/j.xfre.2020.11.005	Low methodological quality
Lee E, Costello MF, Botha WC, Illingworth P, Chambers GM. A cost-effectiveness analysis of preimplantation genetic testing for aneuploidy (PGT-A) for up to three complete assisted reproductive technology cycles in women of advanced maternal age. <i>Aust N Z J Obstet Gynaecol.</i> 2019 Aug;59(4):573-579. Available from: https://doi.org/10.1111/ajo	Low methodological quality
Lee E, Zhang J. Which assisted reproductive technology (ART) treatment strategy is the most clinically and cost-effective for women of advanced maternal age: a Markov model. <i>BMC Health Serv Res.</i> 2022 Sep 23;22(1):1197. Available from: https://doi.org/10.1186/s12913-022-08485-2	Low methodological quality
Lee M, Lofgren KT, Thomas A, Lanes A, Goldman R, Ginsburg ES, Hornstein MD. The cost-effectiveness of preimplantation genetic testing for aneuploidy in the United States: an analysis of cost and birth outcomes from 158,665 in vitro fertilization cycles. <i>Am J Obstet Gynecol.</i> 2021 Jul;225(1):55.e1-55.e17. Available from: https://doi.org/10.1016/j.ajog.2021.01.021	Low methodological quality
Neal SA, Morin SJ, Fransasiak JM, Goodman LR, Juneau CR, Forman EJ, Werner MD, Scott RT Jr. Preimplantation genetic testing for aneuploidy is cost-effective, shortens treatment time, and reduces the risk of failed embryo transfer and clinical miscarriage. <i>Fertil Steril.</i> 2018 Oct;110(5):896-904. Available from: https://doi.org/10.1016/j.fertnstert.2018.06.021	Low methodological quality
Neumann K, Sermon K, Bossuyt P, Goossens V, Geraedts J, Traeger-Synodinos J, Parriego M, Schmutzler A, van der Ven K, Rudolph-Rothfeld W, Vonthein R, Griesinger G. An economic analysis of preimplantation genetic testing for aneuploidy by polar body biopsy in advanced maternal age. <i>BJOG.</i> 2020 May;127(6):710-718. Available from: https://doi.org/10.1111/1471-0528.16089	Low methodological quality
Neumann K, Griesinger G. An Economic Analysis of Aneuploidy Screening of Oocytes in Assisted Reproduction in Germany. <i>Geburtshilfe Frauenheilkd.</i> 2020 Feb;80(2):172-178. Available from: https://doi.org/10.1055/a-1079-5283	Low methodological quality
Sciven PN. Elucidating the PGT-A paradox: marginalising the detriment relegates the benefit. <i>J Assist Reprod Genet.</i> 2022 Nov;39(11):2475-2481. Available from: https://doi.org/10.1007/s10815-022-02640-8	Low methodological quality
Somigliana E, Busnelli A, Paffoni A, Vigano P, Riccaboni A, Rubio C, Capalbo A. Cost-effectiveness of preimplantation genetic testing for aneuploidies. <i>Fertil Steril.</i> 2019 Jun;111(6):1169-1176. Available from: https://doi.org/10.1016/j.fertnstert.2019.01.025	Low methodological quality