# Bridging the divide between standardisation and individualisation of care to minimise on-the-day surgery cancellations.

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Health Services Management Centre

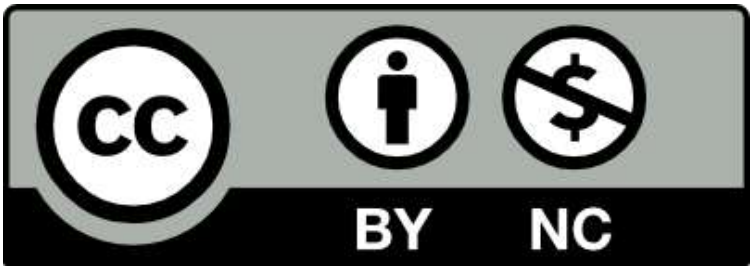
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## Volume two of two

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## Continued from volume one


**1 References ..... 3**

**2 Appendices ..... 40**

**2.1 Appendix 1 - Glossary of terms related to surgical care and realist methodology ..... 40**

**2.2 Appendix 3.6.2 - Tables related to MMAT in phase two ..... 44**

**2.3 Appendix 3.6.2 – One of the images of the flip chart diagram summarises the feedback findings. ..... 49**

**2.4 Appendix 3.6.3-1 - Pre-interview guide to interviewee ..... 50**

**2.5 Appendix 3.6.3-2 - Information sheet ..... 52**

**2.6 Appendix 3.6.3-3 - Consent form ..... 55**

**2.7 Appendix 3.6.3-3 - Qualitative interview schedule ..... 57**

**2.8 Appendix 3.6.2 - An example of the flip chart image that used to synthesised IPTs in phase two. ..... 60**

**2.9 Appendix 3.6.3-4 - Interview transcript of a theatre improvement manager ..... 61**

**2.10 Appendix 3.6.3-1 - An example of the flip chart image that used to analyse the findings in phase three. ..... 83**

**2.11 Appendix 3.6.3-2 - An example of the flip chart image that used to synthesised CMOCs in phase three. ..... 84**

**2.12 Appendix 4.4 – Variation of the reasons for OTDSCs in the eight NHS trusts. 85**

**2.13 Appendix 7.1.1 - RAMESES quality and publication standards for realist synthesis ..... 90**

**2.14 Appendix 7. 4.1 - All the empirical studies (except the evidence review), were appraised using MMAT ..... 95**

**2.15 Appendix 8.8 - RAMESES quality and publication standards for realist evaluation ..... 98**

# 1 References


Abate, S.M., Chekole, Y.A., Minaye, S.Y., et al. (2020) Global prevalence and reasons for case cancellation on the intended day of surgery: A systematic review and meta-analysis. *International Journal of Surgery Open*.

Abbott, T.E.F., Fowler, A.J., Dobbs, T.D., et al. (2017) Frequency of surgical treatment and related hospital procedures in the UK: a national ecological study using hospital episode statistics. *BJA: British Journal of Anaesthesia*, 119 (2): 249–257. doi:10.1093/BJA/AEX137.

Abrams, R., Park, S., Wong, G., et al. (2021) Lost in reviews: looking for the involvement of stakeholders, patients, public and other non-researcher contributors in realist reviews. *Research Synthesis Methods*, 12 (2): 239–247.

Akangbe, M., Hickey, I., Jha, S., et al. (2021) Elective cancer surgery in COVID-19 free surgical pathways during the SARS-CoV-2 pandemic: An international, multi-centre, comparative cohort study. *European Journal of Surgical Oncology*, 47 (1): e3–e4. doi:10.1016/J.EJSO.2020.11.020.

Allmark, P., Boote, J., Chambers, E., et al. (2009) Ethical issues in the use of in-depth interviews: literature review and discussion. *Research Ethics*, 5 (2): 48–54.

Amutio-Kareaga, A., García-Campayo, J., Delgado, L.C., et al. (2017) Improving Communication between Physicians and Their Patients through Mindfulness and Compassion-Based Strategies: A Narrative Review. *Journal of clinical medicine*, 6 (3): 33. doi:10.3390/jcm6030033.

Andel, C., Davidow, S.L., Hollander, M., et al. (2012) The economics of health care quality and medical errors. *Journal of health care finance*, 39 (1): 39.

Ansmann, L. and Pfaff, H. (2018) Providers and Patients Caught Between Standardization and Individualization: Individualized Standardization as a Solution Comment on “(Re) Making the Procrustean Bed? Standardization and Customization as Competing Logics in Healthcare.” *International Journal of Health Policy and Management,* 7 (4): 349–352. doi:10.15171/ijhpm.2017.95.

Arakelian, E., Swenne, C.L., Lindberg, S., et al. (2017) The meaning of person-centred care in the perioperative nursing context from the patient’s perspective–an integrative review. *Journal of clinical nursing*, 26 (17–18): 2527–2544.

Argo, J.L., Vick, C.C., Graham, L.A., et al. (2009) Elective surgical case cancellation in the Veterans Health Administration system: identifying areas for improvement. *American Journal of Surgery*, 198 (5): 600–606. doi:10.1016/j.amjsurg.2009.07.005.

Association, W.M. (2001) World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. *Bulletin of the World Health Organization*, 79 (4): 373.

Astbury, B. and Leeuw, F.L. (2010a) Unpacking Black Boxes: Mechanisms and Theory Building in Evaluation. *American Journal of Evaluation*, 31 (3): 363–381. doi:10.1177/1098214010371972.

Astbury, B. and Leeuw, F.L. (2010b) Unpacking Black Boxes: Mechanisms and Theory Building in Evaluation. *American Journal of Evaluation*, 31 (3): 363–381. doi:10.1177/1098214010371972.

Babaei, S., Taleghani, F. and Kayvanara, M. (2016) Compassionate behaviours of clinical nurses in Iran: an ethnographic study. *International Nursing Review*, 63 (3): 388–394.

Bamashmus, M., Haider, T. and Al-Kershy, R. (2010) Why is cataract surgery cancelled? A retrospective evaluation. *European journal of ophthalmology*, 20 (1): 101–105.

Bandura, A. (1977) Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review*, 84 (2): 191–215. doi:10.1037/0033-295X.84.2.191.

Bandura, A. (1982) Self-efficacy mechanism in human agency. *American Psychologist*, 37 (2): 122–147. doi:10.1037/0003-066X.37.2.122.

Barbeiro, F.M. dos S. (2010) Why surgeries are cancelled? A study about the causes, rates and consequences [sic] in a general hospital in Rio de Janeiro. *Revista de Pesquisa: Cuidado e Fundamental*, 2 (4): 1353–1362.

Barnes, P.K., Emerson, P.A., Hajnal, S., et al. (2000) Influence of an anaesthetist on nurse-led, computer-based, pre-operative assessment. *Anaesthesia*, 55 (6): 576–580.

Basson, M.D., Butler, T.W. and Verma, H. (2006) *Predicting Patient Nonappearance for Surgery as a Scheduling Strategy to Optimize Operating Room Utilization in a Veterans' Administration Hospital*. Available at: www.anesthesiology.org. (Accessed: 16 May 2019).

Beijnen, U.E.A.A., Noonan Caillouette, C., Flath-Sporn, S.J., et al. (2018) Factors Associated with Late Surgical Cancellations in Paediatric Plastic and Oral Surgery. *Annals of Plastic Surgery*, 80 (4): 412–415. doi:10.1097/SAP.0000000000001262.

Berg, M. and Berg, P.A.M. (1997) *Rationalizing medical work: decision-support techniques and medical practices*. MIT press.

Berger A.A., et al. (2017) The Impact of the Affordable Care Act on Urogynecologic Surgery Cancelation Rates. *Female Pelvic Medicine and Reconstructive Surgery*, 24 (2): 90–94. doi:10.1097/SPV.0000000000000501.

Bergeron, D.A. and Gaboury, I. (2020) Challenges related to the analytical process in realist evaluation and latest developments on the use of NVivo from a realist perspective. *International Journal of Social Research Methodology*, 23 (3): 355–365. doi:10.1080/13645579.2019.1697167.

Berwick, D.M. (2009) What 'Patient-Centered' Should Mean: Confessions Of An Extremist. *Health Affairs*, 28 (Supplement 1): w555–w565. doi:10.1377/hlthaff.28.4.w555.

Berwick, D.M. (2022) Getting serious about producing health: The ten teams challenge. *JAMA*, 327 (19): 1865–1866.

Berwick, D.M., Kelley, E., Kruk, M.E., et al. (2018) Three global health-care quality reports in 2018. *The Lancet*, 392 (10143): 194–195.

Bevan, M.T. (2014) A Method of Phenomenological Interviewing. *Qualitative Health Research*, 24 (1): 136–144. doi:10.1177/1049732313519710.

Bhaskar, R. (1975) *realist theory of science*.

Bhaskar, R. (1978) A realist theory of science. *Hassocks, England*.

Bhaskar, R. (2013) *A realist theory of science*. Routledge.

Bickler, S.W. and Spiegel, D.A. (2008) Global surgery-defining a research agenda. *The Lancet*, 372 (9633): 90–92. doi:10.1016/S0140-6736(08)60924-1.

Björn, C., Rissén, D., Wadensten, B., et al. (2017) The opportunities and obstacles nurses have in carrying out their work–A case study in an operating department in Sweden. *Perioperative Care and Operating Room Management*, 6: 1–6. doi:10.1016/J.PCORM.2016.12.002.

Bombeke, K., Symons, L., Vermeire, E., et al. (2012) Patient-centredness from education to practice: the 'lived'impact of communication skills training. *Medical teacher*, 34 (5): e338–e348.

Borges, G.A., Tortorella, G., Rossini, M., et al. (2019) Lean implementation in healthcare supply chain: a scoping review. *Journal of Health Organization and Management*, 33 (3): 304–322. doi:10.1108/JHOM-06-2018-0176.

Borkowski, N.M. and Allen, W.R. (2003) Does attribution theory explain physicians' nonacceptance of clinical practice guidelines? *Hospital topics*, 81 (2): 9–21.

Bosk, C.L., Dixon-Woods, M., Goeschel, C.A., et al. (2009) Perspectives The art of medicine Reality check for checklists. *The Lancet*, 374: 444–445. doi:10.1016/S0140-6736(09)61440-9.

Booth, A., Briscoe, S. and Wright, J.M. (2020) The "realist search": a systematic scoping review of current practice and reporting. *Research synthesis methods*, 11 (1): 14–35.

Bougeard, A.M., Brent, A., Swart, M., et al. (2017) A survey of UK peri-operative medicine: pre-operative care. *Anaesthesia*, 72 (8): 1010–1015. doi:10.1111/ANAE.13934.

Bradshaw, C., Atkinson, S. and Doody, O. (2017) Employing a Qualitative Description Approach in Health Care Research. *Global Qualitative Nursing Research*, 4: 2333393617742282. doi:10.1177/2333393617742282.

Braithwaite, J. (2018) Changing how we think about healthcare improvement. *BMJ (Online)*, 361. doi:10.1136/bmj.k2014.

Brattheim, B., Faxvaag, A. and Seim, A. (2011) Process support for risk mitigation: a case study of variability and resilience in vascular surgery. *BMJ Quality & Safety*, 20 (8): 672–679. doi:10.1136/BMJQS.2010.045062.

Brazil, D., Moss, C. and Blinko, K. (2021) Acute hospital preoperative assessment redesign: streamlining the patient pathway and reducing on-the-day surgery cancellations. *BMJ Open Quality*, 10 (3): e001338. doi:10.1136/BMJOQ-2021-001338.

Brennan, P.A., Holden, C., Shaw, G., et al. (2020) Leading article: What can we do to improve individual and team situational awareness to benefit patient safety? *British Journal of Oral and Maxillofacial Surgery*, 58 (4): 404–408.

Breyer, J.Z., Giacomazzi, J., Kuhmmer, R., et al. (2019) Hospital quality indicators: a systematic review. *International journal of health care quality assurance*.

Briggs, T., Kay, P., Vig, S., et al. (2022) Optimising surgical hubs for staff: Case studies on training, wellbeing and retention. *British Journal of Health Care Management*, 11 (5). doi:10.12968/BJHC.2022.0126/ASSET/IMAGES/LARGE/BJHC.2022.0126_F02.JPEG.

Brittain, H.K., Scott, R. and Thomas, E. (2017) The rise of the genome and personalised medicine. *Clinical Medicine*, 17 (6): 545.

Brousselle, A. and Buregeya, J.-M. (2018) Theory-based evaluations: Framing the existence of a new theory in evaluation and the rise of the 5th generation. *Evaluation*, 24 (2): 153–168.

Brown, R., Grehan, P., Brennan, M., et al. (2019) Using Lean Six Sigma to improve rates of day of surgery admission in a national thoracic surgery department. *International journal for quality in health care : journal of the International Society for Quality in Health Care*, 31 (1): 14–21. doi:10.1093/intqhc/mzz083.

Brugha, R., Bijlmakers, L., Borgstein, E., et al. (2015) The evidence needed to make surgery a global health priority. *The Lancet Global Health*. 3 (12) p. e741. doi:10.1016/S2214-109X(15)00181-3.

Bukecık, E. and Terzioglu, F. (2021a) Individualized care: Perceptions of gynecologic oncology patients and nurses. *Journal of Cancer Education*, 36: 811–818.

Bukecık, E. and Terzioglu, F. (2021b) Individualized Care: Perceptions of Gynecologic Oncology Patients and Nurses. *Journal of cancer education : the official journal of the American Association for Cancer Education*, 36 (4): 811–818. doi:10.1007/S13187-020-01708-2.

Caesar, U., Karlsson, J., Olsson, L.-E., et al. (2014) Incidence and root causes of cancellations for elective orthopaedic procedures: a single center experience of 17,625 consecutive cases. *Patient Safety in Surgery*, 8 (1): 24. doi:10.1186/1754-9493-8-24.

Caffrey, L., Wolfe, C. and McKevitt, C. (2016) Embedding research in health systems: Lessons from complexity theory. *Health Research Policy and Systems*, 14 (1): 1–9. doi:10.1186/s12961-016-0128-x.

Castelli, A., Street, A., Verzulli, R., et al. (2015) Examining variations in hospital productivity in the English NHS. *The European Journal of Health Economics*, 16 (3): 243–254. doi:10.1007/s10198-014-0569-5.

Chalkley, M., McCormick, B., Anderson, R., et al. (2017) *Demand management for elective care: system reform and other drivers of growth – an examination of the factors affecting the growth of elective hospital activity in England from 1998 to 2012 and the implications of these for managing demand for elective activity*. Available at: https://www.ncbi.nlm.nih.gov/books/NBK424482/ (Accessed: 28 December 2021).

Chalya, P.L., Gilyoma, J.M., Mabula, J.B., et al. (2011) Incidence, causes and pattern of cancellation of elective surgical operations in a university teaching hospital in the Lake Zone, Tanzania. *African Health Sciences*, 11 (3): 438–443.

Chandler, J. (2018) The Paradox of Intervening in Complex Adaptive Systems Comment on "Using Complexity and Network Concepts to Inform Healthcare Knowledge Translation." *International Journal of Health Policy and Management,* 7 (6): 569–571. doi:10.15171/ijhpm.2018.05.

Chandler, J., Rycroft-Malone, J., Hawkes, C., et al. (2016) Application of simplified Complexity Theory concepts for healthcare social systems to explain the implementation of evidence into practice. *Journal of Advanced Nursing*, 72 (2): 461–480. doi:10.1111/jan.12815.

Chang, J.H., Chen, K.W., Chen, K.B., Poon, K.S. and Liu, S.K., 2014. Case review analysis of operating room decisions to cancel surgery. *BMC surgery*, *14*(1), pp.1-6.

Chen, C.-K., Lin, C., Hou, T.-H., et al. (2010) A Study of Operating Room Scheduling That Integrates Multiple Quantitative and Qualitative Objectives. *Journal of Nursing Research*, 18 (1): 62–74. doi:10.1097/JNR.0b013e3181d0365f.

Childers, C.P. and Maggard-Gibbons, M. (2018) Understanding costs of care in the operating room. *JAMA surgery*, 153 (4): e176233–e176233.

Chiu, C.H., Lee, A. and Chui, P.T. (2012) Cancellation of elective operations on the day of intended surgery in a Hong Kong hospital: Point prevalence and reasons. *Hong Kong Medical Journal*, 18 (1): 5–10. Available at: http://www.hkmj.org/system/files/hkm1202p5.pdf (Accessed: 16 June 2018).

Christou, C.D., Athanasiadou, E.C., Tooulias, A.I., et al. (2022a) The process of estimating the cost of surgery: Providing a practical framework for surgeons. *The International journal of health planning and management*, 37 (4): 1926–1940. doi:10.1002/HPM.3431.

Christou, C.D., Athanasiadou, E.C., Tooulias, A.I., et al. (2022b) The process of estimating the cost of surgery: Providing a practical framework for surgeons. *The International Journal of Health Planning and Management*, 37 (4): 1926–1940. doi:10.1002/HPM.3431.

Cihoda, J.H., Alves, J.R., Fernandes, L.A., et al. (2015) The Analysis for the Causes of Surgical Cancellations in a Brazilian University Hospital. *Care Management Journals*, 16 (1): 41–47. doi:10.1891/1521-0987.16.1.41.

*Complexity in health and health care systems*. *Social Science & Medicine*. doi:10.1016/j.socscimed.2013.06.017.

Conversano, C., Ciacchini, Ŕ., Orrù, G., et al. (2020) Mindfulness, compassion, and self-compassion among health care professionals: What's new? a systematic review. *Frontiers in Psychology*, 11: 564573. doi:10.3389/FPSYG.2020.01683/BIBTEX.

Cook, D., Thompson, J.E., Habermann, E.B., et al. (2014) From 'solution shop'model to 'focused factory'in hospital surgery: increasing care value and predictability. *Health Affairs*, 33 (5): 746–755.

Cookson, G., Jones, S. and McIntosh, B., 2013. Cancelled procedures: inequality, inequity and the National Health Service reforms. *Health Economics*, *22*(7), pp.870-876.

Costa, L.B.M. and Godinho Filho, M. (2016) Lean healthcare: review, classification and analysis of literature. *Production Planning & Control*, 27 (10): 823–836. doi:10.1080/09537287.2016.1143131.

Coulter, A. and Ellins, J. (2007) Effectiveness of strategies for informing, educating, and involving patients. *Bmj*, 335 (7609): 24–27.

Coyle, D., Lowery, A.J., Khan, W., et al. (2012) Successful introduction of ring-fenced inpatient surgical beds in a general hospital setting. *Irish medical journal*, 105 (8): 269–71.

Craig, P., Dieppe, P., Macintyre, S., et al. (2008) Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ*, 337 (7676): 979–983. doi:10.1136/BMJ.A1655.

Creswell John, W. (2007) Qualitative inquiry and research design: Choosing among five approaches. *Lincoln: Sage Publications*.

Crisp, N. (2022) *Turning the World Upside Down Again: global health in a time of pandemics, climate change and political turmoil*. CRC Press.

Crowley, K. and Head, B.W. (2017) The enduring challenge of 'wicked problems': revisiting Rittel and Webber. *Policy Sciences 2017 50:4*, 50 (4): 539–547. doi:10.1007/S11077-017-9302-4.

Cruickshank, J. (2012) Positioning positivism, critical realism and social constructionism in the health sciences: a philosophical orientation. *Nursing inquiry*, 19 (1): 71–82.

Cura, Ş.Ü., Yilmaz Coskun, E. and Cura, Ü. (2022) *Correlation of nurses' mindfulness with their perception of individualized care: A cross-sectional study*. doi:10.1111/ppc.13095.

Cyr, J. (2016) The pitfalls and promise of focus groups as a data collection method. *Sociological methods & research*, 45 (2): 231–259.

Dada, S., Dalkin, S., Gilmore, B., et al. (2023) Applying and reporting relevance, richness and rigour in realist evidence appraisals: Advancing key concepts in realist reviews. *Research Synthesis Methods*, 14 (3): 504–514. doi:10.1002/JRSM.1630.

Dalkin, S., Forster, N., Hodgson, P., Lhussier, M., & Carr, S. M. (2021). Using computer assisted qualitative data analysis software (CAQDAS; NVivo) to assist in the complex process of realist theory generation, refinement and testing. *International Journal of Social Research Methodology*, *24*(1), 123–134.

Dalkin, S.M., Greenhalgh, J., Jones, D., et al. (2015) What's in a mechanism? Development of a key concept in realist evaluation. *Implementation Science*, 10 (1): 49. doi:10.1186/s13012-015-0237-x.

Dall'Ora, C., Ball, J., Reinius, M., et al. (2020) Burnout in nursing: a theoretical review. *Human Resources for Health 2020 18:1*, 18 (1): 1–17. doi:10.1186/S12960-020-00469-9.

Dalton, D.M., Kelly, E.G., Murphy, T.P., et al. (2016) Day of Surgery Admission in Total Joint Arthroplasty: Why Are Surgeries Cancelled? An Analysis of 3195 Planned Procedures and 114 Cancellations. *Advances in Orthopedics*, 2016: 1–6. doi:10.1155/2016/1424193.

D'Andreamatteo, A., Ianni, L., Lega, F., et al. (2015) Lean in healthcare: A comprehensive review. *Health Policy*, 119 (9): 1197–1209. doi:10.1016/j.healthpol.2015.02.002.

David Cook, B., Thompson, J.E., Habermann, E.B., et al. (2014) *Hospital Productivity*., 33: 5. doi:10.1377/hlthaff.2013.1266.

Davies, J.E. and Taylor, D.G. (2013) Individualisation or standardisation: trends in National Health Service prescription durations in England 1998–2009. *Primary Health Care Research & Development*, 14 (2): 164–174. doi:10.1017/S146342361200045X.

Delisle, M., Pradarelli, J.C., Panda, N., et al. (2020) Variation in global uptake of the Surgical Safety Checklist. *British Journal of Surgery*, 107 (2): e151–e160. doi:10.1002/BJS.11321.

DelliFraine, J.L., Langabeer, J.R. and Nembhard, I.M. (2010) Assessing the Evidence of Six Sigma and Lean in the Health Care Industry. *Quality Management in Health Care*, 19 (3): 211–225. doi:10.1097/QMH.0b013e3181eb140e.

Deming, W.E. (1986) Out of crisis, centre for advanced engineering study. *Massachusetts Institute of Technology, Cambridge, MA*.

Denholm, L., Lal, A., Henderson, M., et al. (2020) Bioethics: cancelling patient operations. *Current Opinion in Anaesthesiology*, 33 (2): 211–217. doi:10.1097/ACO.0000000000000828.

Dhafar, K.O., Ulmalki, M.A.U.A., Felemban, M.A., et al. (2015) Cancellation of operations in Saudi Arabian hospitals: Incidence, reasons and suggestions for improvements. *Pakistan Journal of Medical Sciences*, 31 (5). doi:10.12669/pjms.315.7932.

Dickerson, S.S., Alqaissi, N., Underhill, M., et al. (2011) Surviving the wait: defining support while awaiting breast cancer surgery. *Journal of Advanced Nursing*, 67 (7): 1468–1479. doi:10.1111/j.1365-2648.2011.05612.x.

Díez-García, C., Gich Saladich, I. and Bolibar Ribas, I. (2023) Effectiveness of Nurse-Led Preoperative Assessment for Anesthesia: A Prospective Cohort Study. *Journal of perianesthesia nursing : official journal of the American Society of PeriAnesthesia Nurses*, 38 (4): 595–603. doi:10.1016/J.JOPAN.2022.10.007.

Dimitriadis, P.A., Iyer, S. and Evgeniou, E. (2013) The challenge of cancellations on the day of surgery. *International Journal of Surgery*, 11 (10): 1126–1130. doi:10.1016/J.IJSU.2013.09.002.

Donnellan, C., Sweetman, S. and Shelley, E. (2013) Health professionals' adherence to stroke clinical guidelines: A review of the literature. *Health Policy*. 111 (3) pp. 245–263. doi:10.1016/j.healthpol.2013.05.002.

Dowd, S., Thompson, J.A., Pearson, J.A., et al. (2023) Education for Registered Nurses Completing Preoperative Anesthesia Interviews: A Quality Improvement Project. *Journal of PeriAnesthesia Nursing*, 38 (3): 382–393. doi:10.1016/J.JOPAN.2022.06.003.

Duddy, C. and Wong, G. (2022) Grand rounds in methodology: when are realist reviews useful, and what does a 'good'realist review look like? *BMJ Quality & Safety*.

Dwamena, F., Holmes-Rovner, M., Gaulden, C.M., et al. (2012) Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database of Systematic Reviews*. 2012 (12). doi:10.1002/14651858.CD003267.pub2.

Dzau, V.J., Ginsburg, G.S., Chopra, A., et al. (2016) Realizing the full potential of precision medicine in health and health care: a vital direction for health and health care. *NAM Perspectives*.

Elkassabany, N., Speck, R.M., Oslin, D., et al. (2013) Preoperative screening and case cancellation in cocaine-abusing veterans scheduled for elective surgery. *Anesthesiology research and practice*, 2013. doi:10.1155/2013/149892.

Elkomy, S. and Cookson, G. (2020) Performance Management Strategy: Waiting Time in the English National Health Services. *Public Organization Review*, 20 (1): 95–112. doi:10.1007/s11115-018-0425-7.

Ellins, J. (2011) Great expectations? Reflections on the future of patient and public involvement in the NHS. *Clinical Medicine*, 11 (6): 544.

Ellins, J. (2012) Public and user involvement in commissioning. *Commissioning for Health and Well-being*, pp. 189–208.

Ellis, G., Spiers, M., Coutts, S., et al. (2012) Preoperative assessment in the elderly: evaluation of a new clinical service. *Scottish Medical Journal*, 57 (4): 212–216. doi:10.1258/smj.2012.012120.

Emmel, N., Greenhalgh, J., Manzano, A., et al. (2018) *Doing Realist Research*. Sage.

Endsley, M.R. (1995) Toward a theory of situation awareness in dynamic systems. *Human factors*, 37 (1): 32–64.

Enkin, M.W., Glouberman, S., Groff, P., et al. (2006) Beyond Evidence: The Complexity of Maternity Care. *Birth*, 33 (4): 265–269. doi:10.1111/j.1523-536X.2006.00117.x.

Ensor, T., Virk, A. and Aruparayil, N. (2020) Factors influencing use of essential surgical services in North-East India: a cross-sectional study of obstetric and gynaecological surgery. *BMJ Open*, 10 (10): e038470. doi:10.1136/BMJOPEN-2020-038470.

Etheridge, Z. (2023) The inefficiency of NHS surgery: Beds aren't "stolen" by the medical team. *BMJ*. doi:10.1136/BMJ.P364.

Exworthy, M. (2008) Policy to tackle the social determinants of health: using conceptual models to understand the policy process. *Health policy and planning*, 23 (5): 318–327.

Exworthy, M., Gabe, J., Jones, I.R., et al. (2019) Professional autonomy and surveillance: the case of public reporting in cardiac surgery. *Sociology of Health and Illness*, 41 (6): 1040–1055. doi:10.1111/1467-9566.12883.

Exworthy, M. and Halford, S. (1998) *Professionals and the new managerialism in the public sector*. Open University.

Falk-Brynhildsen, K., Jaensson, M., Gillespie, B.M., et al. (2019) Swedish Operating Room Nurses and Nurse Anesthetists' Perceptions of Competence and Self-Efficacy. *Journal of PeriAnesthesia Nursing*, 34 (4): 842–850. doi:10.1016/J.JOPAN.2018.09.015.

Falleti, T.G. and Lynch, J.F. (2009) Context and causal mechanisms in political analysis. *Comparative political studies*, 42 (9): 1143–1166.

Ferlie, E. (2017) Personalisation - An Emergent Institutional Logic in Healthcare? Comment on "(Re) Making the Procrustean Bed? Standardization and Customization as Competing Logics in Healthcare." *International Journal of Health Policy and Management,* 7 (1): 92–95. doi:10.15171/ijhpm.2017.71.

Ferlie, E., Fitzgerald, L., Wood, M., et al. (2005) The nonspread of innovations: the mediating role of professionals. *Academy of management journal*, 48 (1): 117–134.

Fisher, B.J. and Peterson, C. (1993) She won't be Dancing Much Anyway: A Study of Surgeons, Surgical Nurses, and Elderly Patients. *Qualitative Health Research*, 3 (2): 165–183. doi:10.1177/104973239300300203.

Fletcher, A.J. (2017) Applying critical realism in qualitative research: methodology meets method. *International journal of social research methodology*, 20 (2): 181–194.

Flin, R., Youngson, G. and Yule, S. (2007) How do surgeons make intraoperative decisions? *BMJ Quality & Safety*, 16 (3): 235–239.

Flynn, R., Schick-Makaroff, K., Levay, A., et al. (2020) Developing an initial program theory to explain how patient-reported outcomes are used in health care settings: methodological process and lessons learned. *International Journal of Qualitative Methods*, 19: 1609406920916299.

Fodale, V., Tripodi, V.F., Penna, O., et al. (2017) An update on anesthetics and impact on the brain. *Expert Opinion on Drug Safety*. 16 (9) pp. 997–1008. doi:10.1080/14740338.2017.1351539.

Fong, A.J., Smith, M. and Langerman, A. (2016) Efficiency improvement in the operating room. *Journal of Surgical Research*, 204 (2): 371–383.

Fotaki, M. (2015) Why and how is compassion necessary to provide good quality healthcare? *International journal of health policy and management*, 4 (4): 199–201. doi:10.15171/ijhpm.2015.66.

Fowler, A.J., Brayne, A.B., Pearse, R.M., et al. (2023) *Long-term healthcare use after postoperative complications: an analysis of linked primary and secondary care routine data*. doi:10.1016/j.bjao.2023.100142.

Freidson, E. (2001) *Professionalism, the third logic: On the practice of knowledge*. University of Chicago press.

Fridberg, H., Wallin, L. and Tistad, M. (2021) The innovation characteristics of person-centred care as perceived by healthcare professionals: an interview study employing a deductive-inductive content analysis guided by the consolidated framework for implementation research. *BMC health services research*, 21 (1): 1–13.

Gabbay, J. and le May, A. (2004) Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. *BMJ*, 329 (7473): 1013. doi:10.1136/bmj.329.7473.1013.

Gaucher, S., Boutron, I., Marchand-Maillet, F., et al. (2016) Assessment of a Standardized Pre-Operative Telephone Checklist Designed to Avoid Late Cancellation of Ambulatory Surgery: The AMBUPROG Multicenter Randomized Controlled Trial. *PLoS ONE*, 11 (2): e0147194. doi:http://dx.doi.org/10.1371/journal.pone.0147194.

Gaughan, J., Gravelle, H. and Siciliani, L. (2017) Delayed Discharges and Hospital Type: Evidence from the English NHS. *Fiscal Studies*, 38 (3): 495–519. doi:10.1111/j.1475-5890.2017.12141.

Gawande, A. (2010) *Checklist manifesto,*. Penguin Books India.

Gibney, D.R. (2018) Cancelling routine surgery: Creating more problems than it solves. *BMJ (Online)*, 360: k897. doi:http://dx.doi.org/10.1136/bmj.k897.

GiddensA. Profiles and Critiques in Social Theory. Berkeley and LA: University of California Press; 1982

Gillen, S.M.I., Catchings, K., Edney, L., et al. (2009) What's All the Fuss About? Day-of-Surgery Cancellations and the Role of Perianesthesia Nurses in Prevention. *Journal of Perianesthesia Nursing*, 24 (6): 396–398. doi:10.1016/j.jopan.2009.10.008.

Gillies, M.A., Wijeysundera, D.N. and Harrison, E.M. (2018) Counting the cost of cancelled surgery: a system wide approach is needed. *British journal of anaesthesia*, 121 (4): 691–694.

Gilmartin, J. and Wright, K. (2008) Day surgery: patients' felt abandoned during the preoperative wait. *Journal of Clinical Nursing*, 17 (18): 2418–2425. doi:10.1111/J.1365-2702.2008.02374.X.

Gilmore, B., McAuliffe, E., Power, J., et al. (2019) Data analysis and synthesis within a realist evaluation: toward more transparent methodological approaches. *International Journal of Qualitative Methods*, 18: 1609406919859754.

Gilmore, H.L. (1974) Product conformance cost. *Quality progress*, 7 (5): 16–19.

Glasby, J. and Littlechild, R. (2009) *Direct payments and personal budgets: putting personalisation into practice*. Policy Press.

Glouberman, S. and Zimmerman, B. (2002) Complicated and complex systems: what would successful reform of Medicare look like? *Romanow Papers*, 2: 21–53.

Goode WJ. Community within a Community: The Professions. American Sociological Review.1957; 22:p.194-200.

González-Arévalo, A., Gómez-Arnau, J.I., DelaCruz, F.J., et al. (2009) Causes for cancellation of elective surgical procedures in a Spanish general hospital. *Anaesthesia*, 64 (5): 487–493. doi:10.1111/j.1365-2044.2008.05852.x.

Grasmuck, S. and Espinal, R. (2000) Market success or female autonomy ?: Income, Ideology, and Empowerment among Microentrepreneurs in the Dominican Republic. *Gender & Society*, 14 (2): 231–255. doi:10.1177/089124300014002002.

Greenhalgh, J. and Manzano, A. (2022) Understanding 'context' in realist evaluation and synthesis. *International Journal of Social Research Methodology*, 25 (5): 583–595. doi:10.1080/13645579.2021.1918484.

Greenhalgh, T., Howick, J. and Maskrey, N. (2014) Evidence based medicine: a movement in crisis? *BMJ*, 348. doi:10.1136/BMJ.G3725.

Greenhalgh, T. and Papoutsi, C. (2018) Studying complexity in health services research: desperately seeking an overdue paradigm shift. *BMC Medicine*, 16 (1): 95. doi:10.1186/s12916-018-1089-4.

Greenhalgh, T., Potts, H.W.W., Wong, G., et al. (2009) Tensions and paradoxes in electronic patient record research: A systematic literature review using the meta-narrative method. *Milbank Quarterly*, 87 (4): 729–788. doi:10.1111/J.1468-0009.2009.00578.X.

Greenhalgh, T., Robert, G., Macfarlane, F., et al. (2004) Diffusion of innovations in service organizations: systematic review and recommendations. *The milbank quarterly*, 82 (4): 581–629.

Greenhalgh, T., Wherton, J., Papoutsi, C., et al. (2017) Beyond adoption: A new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the scale-up, spread, and sustainability of health and care technologies. *Journal of Medical Internet Research*, 19 (11): e367. doi:10.2196/jmir.8775.

Grocott, M.P.W., Edwards, M., Mythen, M.G., et al. (2019) Peri-operative care pathways: re-engineering care to achieve the 'triple aim'. *Anaesthesia*, 74: 90–99. doi:10.1111/anae.14513.

Grocott, M.P.W., Plumb, J.O.M., Edwards, M., et al. (2017) Re-designing the pathway to surgery: better care and added value. *Perioperative Medicine*, 6 (1). doi:10.1186/S13741-017-0065-4.

Guillaumie, L., Boiral, O. and Champagne, J. (2017) A mixed-methods systematic review of the effects of mindfulness on nurses. *Journal of Advanced Nursing*, 73 (5): 1017–1034. doi:10.1111/JAN.13176.

Guo, M.Y., Crump, R.T., Karimuddin, A.A., et al. (2022) Prioritization and surgical wait lists: A cross-sectional survey of patient's health-related quality of life. *Health Policy*, 126 (2): 99–105. doi:10.1016/J.HEALTHPOL.2021.12.006.

Halim, U.A., Khan, M.A. and Ali, A.M. (2018) Strategies to improve start time in the operating theatre: a systematic review. *Journal of medical systems*, 42 (9): 160.

Ham, C., Berwick, D. and Dixon, J. (2016) Improving quality in the English NHS. *London: The King's Fund*.

Harrison, S. and Ahmad, W.I.U. (2000) Medical autonomy and the UK state 1975 to 2025. *Sociology*, 34 (1): 129–146. doi:10.1177/s0038038500000092.

Hartzband, P. and Groopman, J. (2016) Medical Taylorism. *The New England journal of medicine*, 374 (2): 106.

Hashimoto, D.A., Rosman, G., Rus, D., et al. (2018) Artificial intelligence in surgery: promises and perils. *Annals of surgery*, 268 (1): 70.

Haufler, K. and Harrington, M. (2011) Using Nurse-to-Patient Telephone Calls to Reduce Day-of-Surgery Cancellations. *AORN Journal*, 94 (1): 19–26. doi:http://dx.doi.org/10.1016/j.aorn.2010.12.024.

Heinen, M.M., van Achterberg, T., Schwendimann, R., et al. (2013) Nurses' intention to leave their profession: a cross sectional observational study in 10 European countries. *International journal of nursing studies*, 50 (2): 174–184.

Hines, S., Chang, A. and Hollin, R. (2009) Effectiveness of nurse-led preoperative assessment services. *JBI Library of Systematic Reviews*, 7 (Supplement): 1–8. doi:10.11124/JBISRIR-2009-553.

Hines, S., Munday, J. and Kynoch, K. (2015) Effectiveness of nurse-led preoperative assessment services for elective surgery: a systematic review update. *The JBI Database of Systematic Reviews and Implementation Reports*, 13 (6): 279. doi:10.11124/jbisrir-2015-1996.

Holweg, M., Davies, J., De Meyer, A., et al. (2018) *Process theory: The principles of operations management*. Oxford University Press.

Hong, Q.N., Fàbregues, S., Bartlett, G., et al. (2018) The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. *Education for Information*, 34 (4): 285–291.

Hoot, N.R. and Aronsky, D. (2008) Systematic Review of Emergency Department Crowding: Causes, Effects, and Solutions. *Annals of Emergency Medicine*, 52 (2): 126-136.e1. doi:10.1016/j.annemergmed.2008.03.014.

Houdmont, J., Daliya, P., Theophilidou, E., et al. (2022) Burnout Among Surgeons in the UK During the COVID-19 Pandemic: A Cohort Study. *World journal of surgery*, 46 (1). doi:10.1007/S00268-021-06351-6.

Hovlid E, Bukve O, Haug K, Aslaksen AB, von P.C. (2012) A new pathway for elective surgery to reduce cancellation rates. *BMC Health Services Research*, 12 (1): 154. doi:10.1186/1472-6963-12-154.

Hovlid, E. and Bukve, O.O. (2014) A qualitative study of contextual factors' impact on measures to reduce surgery cancellations. *BMC Health Services Research*, 14 (1): 215. doi:10.1186/1472-6963-14-215.

Hovlid, E., Von Plessen, C., Haug, K., et al. (2013a) Patient experiences with interventions to reduce surgery cancellations: a qualitative study. *BMC Surgery*, 13 (1): 30. doi:10.1186/1471-2482-13-30.

Howell, A.-M., Panesar, S.S., Burns, E.M., et al. (2014) Reducing the burden of surgical harm: a systematic review of the interventions used to reduce adverse events in surgery. *Annals of surgery*, 259 (4): 630–641.

Hunter, J., Porter, M. and Williams, B. (2020) Towards a theoretical framework for situational awareness in paramedicine. *Safety Science*, 122: 104528. doi:https://doi.org/10.1016/j.ssci.2019.104528.

Hunter, R., Gorely, T., Beattie, M., et al. (2022) Realist review. *International Review of Sport and Exercise Psychology*, pp. 1–24. doi:10.1080/1750984X.2021.1969674.

Hussain, M., Berger, M., Eckenhoff, R.G., et al. (2014) General anesthetic and the risk of dementia in elderly patients: Current insights. *Clinical Interventions in Aging*, 9: 1619–1628. doi:10.2147/CIA.S49680.

Jabeen, S. (2016) Do we really care about unintended outcomes? An analysis of evaluation theory and practice. *Evaluation and Program Planning*, 55: 144–154.

Jabeen, S. (2018) Unintended outcomes evaluation approach: A plausible way to evaluate unintended outcomes of social development programmes. *Evaluation and program planning*, 68: 262–274.

Jackson, S.F. and Kolla, G. (2012) A New Realistic Evaluation Analysis Method: Linked Coding of Context, Mechanism, and Outcome Relationships. *American Journal of Evaluation*, 33 (3): 339–349. doi:10.1177/1098214012440030.

Jagger, J., Gomaa, A.E. and Phillips, E.K. (2008) Safety of surgical personnel: a global concern. *The Lancet*, 372 (9644): 1149. doi:10.1016/S0140-6736(08)61478-6.

Jagosh, J. (2019) Realist synthesis for public health: Building an ontologically deep understanding of how programs work, for whom, and in which contexts. *Annual review of public health*.

Jagosh, J. (2020) Retroductive theorizing in Pawson and Tilley's applied scientific realism. *Journal of Critical Realism*, 19 (2): 121–130. doi:10.1080/14767430.2020.1723301.

Jagosh, J., Macaylay, A.C., Pluye, P., et al. (2012) Uncovering the Benefits of Participatory Research: Implications of a Realist Review for Health Research and Practice. *Milbank Quarterly*, 90 (2): 311–346. doi:10.1111/j.1468-0009.2012.00665.x.

Jangland, E., Larsson, J. and Gunningberg, L. (2011) Surgical nurses' different understandings of their interactions with patients: a phenomenographic study. *Scandinavian Journal of Caring Sciences*, 25 (3): 533–541.

Jarvis, P.R.E. (2016) Improving emergency department patient flow. *Clinical and experimental emergency medicine*, 3 (2): 63–68. doi:10.15441/ceem.16.127.

Jeffery, R.A., To, M.J., Hayduk-Costa, G., et al. (2015) Interventions to improve adherence to cardiovascular disease guidelines: a systematic review. *BMC Family Practice*, 16 (1): 147. doi:10.1186/s12875-015-0341-7.

Jiménez, A., Artigas, C., Elia, M., et al. (2006) Cancellations in ambulatory day surgery: Ten years observational study. *Ambulatory Surgery*, 12 (3): 119–123. doi:10.1016/J.AMBSUR.2005.09.002.

Johnson, J.R., Emmons, H.C., Rivard, R.L., et al. (2015) Resilience Training: A Pilot Study of a Mindfulness-Based Program with Depressed Healthcare Professionals. *EXPLORE*, 11 (6): 433–444. doi:10.1016/J.EXPLORE.2015.08.002.

Johnson, L., Edward, K.L. and Giandinoto, J.A. (2018) A systematic literature review of accuracy in nursing care plans and using standardised nursing language. *Collegian*, 25 (3): 355–361. doi:10.1016/J.COLEGN.2017.09.006.

John, W. S., & Johnson, P. (2000). The pros and cons of data analysis software for qualitative research. *Journal of Nursing Scholarship*, *32*(4), 393–397.

Kaddoum, R., Fadlallah, R., Hitti, E., et al. (2016) Causes of cancellations on the day of surgery at a Tertiary Teaching Hospital. *BMC health services research*, 16 (1): 259. doi:10.1186/s12913-016-1475-6.

Kanov, J.M., Maitlis, S., Worline, M.C., et al. (2004) *Compassion in Organizational Life*. doi:10.1177/0002764203260211.

Karemere, H., Ribesse, N., Marchal, B., et al. (2015) Analyzing katana referral hospital as a complex adaptive system: Agents, interactions and adaptation to a changing environment. *Conflict and Health*, 9 (1): 17. doi:10.1186/s13031-015-0046-5.

Kastner, M., Hayden, L., Wong, G., et al. (2019) Underlying mechanisms of complex interventions addressing the care of older adults with multimorbidity: a realist review. *BMJ Open*, 9 (4): e025009. doi:10.1136/BMJOPEN-2018-025009.

Katz-Navon, T., Naveh, E. and Stern, Z. (2007) Safety self-efficacy and safety performance: Potential antecedents and the moderation effect of standardization. *International journal of health care quality assurance*, 20 (7): 572–584.

Keller, A., Ashrafi, A. and Ali, A. (2014) Causes of elective surgery cancellation and theatre throughput efficiency in an Australian urology unit. *F1000Research*, 3: 4824.1. doi:10.12688/f1000research.4824.1.

Keogh, B., Culliford, D., Guerrero-Ludueña, R., et al. (2018) Exploring emergency department 4-hour target performance and cancelled elective operations: A regression analysis of routinely collected and openly reported NHS trust data. *BMJ Open*, 8 (5): e020296. doi:10.1136/bmjopen-2017-020296.

Kerasidou, A. (2019) Empathy and Efficiency in Healthcare at Times of Austerity. *Health Care Analysis*, 27 (3): 171–184. doi:10.1007/s10728-019-00373-x.

Kerr, R.S.C. (2020) Surgery in the 2020s: Implications of advancing technology for patients and the workforce. *Future healthcare journal*, 7 (1): 46.

Khan, A., Teoh, K.R.H., Islam, S., et al. (2018) Psychosocial work characteristics, burnout, psychological morbidity symptoms and early retirement intentions: a cross-sectional study of NHS consultants in the UK. *BMJ open*, 8 (7): e018720.

Kitson, A., Marshall, A., Bassett, K., et al. (2013) What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *Journal of Advanced Nursing*, 69 (1): 4–15. doi:10.1111/J.1365-2648.2012.06064.X.

Knox, M., Myers, E., Wilson, I., et al. (2009) The impact of pre-operative assessment clinics on elective surgical case cancellations. *Surgeon*, 7 (2): 76–78. doi:10.1016/S1479-666X(09)80019-X.

Koblinsky, M., Moyer, C.A., Calvert, C., et al. (2016) Quality maternity care for every woman, everywhere: a call to action. *The Lancet*, 388 (10057): 2307–2320.

Kramer, M., Maguire, P. and Schmalenberg, C.E. (2006) Excellence through evidence: the what, when, and where of clinical autonomy. *JONA: The Journal of Nursing Administration*, 36 (10): 479–491.

Kuhn, Lesley. (2009) *Adventures in complexity : for organisations near the edge of chaos*. Triarchy Press.

Kvæl, L.A.H., Hellesø, R., Bergland, A., et al. (2022) Balancing standardisation and individualisation in transitional care pathways: a meta-ethnography of the perspectives of older patients, informal caregivers and healthcare professionals. *BMC Health Services Research*, 22 (1): 1–17. doi:10.1186/S12913-022-07823-8/FIGURES/1.

Lacouture, A., Breton, E., Guichard, A., et al. (2015) The concept of mechanism from a realist approach. *Implementation Science*, 10 (1): 153.

Lacqua, M.J., Evans, J.T. and M.J., L. (1994) Cancelled elective surgery: An evaluation. *American Surgeon*, 60 (11): 809–811.

Laisi, J., Tohmo, H., Keränen, U., et al. (2013) Surgery cancelation on the day of surgery in same-day admission in a Finnish hospital. *Scandinavian journal of surgery : SJS : official organ for the Finnish Surgical Society and the Scandinavian Surgical Society*, 102 (3): 204–208. doi:http://dx.doi.org/10.1177/1457496913492626.

Lander, E. and Liker, J.K. (2007) The Toyota Production System and art: making highly customized and creative products the Toyota way. *International Journal of Production Research*, 45 (16): 3681–3698. doi:10.1080/00207540701223519.

Lazzara, E.H., Simonson, R.J., Gisick, L.M., et al. (2022) Does standardisation improve post-operative anaesthesia handoffs? Meta-analyses on provider, patient, organisational, and handoff outcomes. *Ergonomics*, 65 (8): 1138–1153. doi:10.1080/00140139.2021.2020341.

Leape, L.L. and Berwick, D.M. (2005) Five Years After To Err Is Human: What Have We Learned? *JAMA*, 293 (19): 2384–2390. doi:10.1001/JAMA.293.19.2384.

Leatherman, S. and Berwick, D.M. (2020) Accelerating global improvements in health care quality. *JAMA*, 324 (24): 2479–2480.

Lee, L.L., Arthur, A. and Avis, M. (2008) Using self-efficacy theory to develop interventions that help older people overcome psychological barriers to physical activity: a discussion paper. *International journal of nursing studies*, 45 (11): 1690–1699. doi:10.1016/J.IJNURSTU.2008.02.012.

Leino-Kilpi, H. and Rannikko, S. (2019) “Individualised Nursing Care of Operative Surgical Patients.” In *Individualized Care*. Springer. pp. 109–120.

Leite, K.A., Hobgood, T., Hill, B., et al. (2019) Reducing Preventable Surgical Cancellations: Improving the Preoperative Anesthesia Interview Process. *Journal of perianesthesia nursing : official journal of the American Society of PeriAnesthesia Nurses*, 34 (5): 929–937. doi:10.1016/J.JOPAN.2019.02.001.

Leotsakos, A., Zheng, H., Croteau, R., et al. (2014) Standardization in patient safety: the WHO High 5s project. *International Journal for Quality in Health Care*, 26 (2): 109–116. doi:10.1093/INTQHC/MZU010.

Leslie, R.J., Beiko, D., van Vlymen, J., et al. (2013a) Day of surgery cancellation rates in urology: Identification of modifiable factors. *Journal of the Canadian Urological Association*, 7 (5-6 JUN): 167–173. doi:10.5489/cuaj.12020.

Levy, N., Selwyn, D.A. and Lobo, D.N. (2021) Turning 'waiting lists' for elective surgery into 'preparation lists'. *British Journal of Anaesthesia*, 126 (1): 1–5. doi:10.1016/j.bja.2020.08.021.

Limb, M. (2023) Four ways to fix the inefficiency of NHS surgery. *BMJ*, 380. doi:10.1136/BMJ.O2455.

Litvak, E., Buerhaus, P.I., Davidoff, F., et al. (2005) Managing unnecessary variability in patient demand to reduce nursing stress and improve patient safety. *Joint Commission journal on quality and patient safety*, 31 (6): 330–8.

Litvak, E. and Long, M.C. (2000) Cost and quality under managed care: irreconcilable differences? *The American journal of managed care*, 6 (3): 305–12.

Litvak, E., Long, M.C., Cooper, A.B., et al. (2001) Emergency department diversion: causes and solutions. *Academic emergency medicine : official journal of the Society for Academic Emergency Medicine*, 8 (11): 1108–10.

Lofvendahl, S. (2005) Waiting for orthopaedic surgery: factors associated with waiting times and patients' opinion. *International Journal for Quality in Health Care*, 17 (2): 133–140. doi:10.1093/intqhc/mzi012.

Lomas, T., Medina, J.C., Ivtzan, I., et al. (2018) A systematic review of the impact of mindfulness on the well-being of healthcare professionals. *Journal of clinical psychology*, 74 (3): 319–355. doi:10.1002/JCLP.22515.

López-Domingo, B. and Rodríguez-Martín, B. (2021) Factors associated with the provision of individualized care during hospitalization: A systematic review. *Journal of nursing management*, 29 (2): 113–132. doi:10.1111/JONM.13150.

Lord, J. and Littlejohns, P. (1997) Evaluating healthcare policies: The case of clinical audit. *British Medical Journal*. 315 (7109) pp. 668–671. doi:10.1136/bmj.315.7109.668.

Lu, K., Marino, N.E., Russell, D., et al. (2018) Use of Short Message Service and Smartphone Applications in the Management of Surgical Patients: A Systematic Review. *Telemedicine and e-Health*, 24 (6): 406–414. doi:10.1089/tmj.2017.0123.

Lydahl, D. (2021) Standard tools for non-standard care: The values and scripts of a person-centred assessment protocol. *Health (London, England : 1997)*, 25 (1): 103–120. doi:10.1177/1363459319851541.

Macario, A. (2006a) Are Your Hospital Operating Rooms “Efficient”? *Anesthesiology*, 105 (2): 237–240. doi:10.1097/00000542-200608000-00004.

Macario, A. (2006b) Are your hospital operating rooms “efficient”? A scoring system with eight performance indicators. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, 105 (2): 237–240. doi:10.1097/00000542-200608000-00004.

Mahajan, A., Islam, S.D., Schwartz, M.J., et al. (2017) A Hospital Is Not Just a Factory, but a Complex Adaptive System—Implications for Perioperative Care. *Anesthesia & Analgesia*, 125 (1): 333–341. doi:10.1213/ANE.0000000000002144.

Mahase, E. (2023) *Waiting lists are unlikely to fall before mid-2024, analysis finds*.

Mako, T., Svanäng, P. and Bjerså, K. (2016) Patients’ perceptions of the meaning of good care in surgical care: a grounded theory study. *BMC nursing*, 15 (1): 1–9.

Mannion, R. and Braithwaite, J. (2012) Unintended consequences of performance measurement in healthcare: 20 salutary lessons from the English National Health Service. *Internal Medicine Journal*, 42 (5): 569–574. doi:10.1111/j.1445-5994.2012.02766.x.

Mannion, R. and Exworthy, M. (2017) (Re) Making the Procrustean Bed? Standardization and Customization as Competing Logics in Healthcare. *International Journal of Health Policy and Management,* 6 (6): 301–304. doi:10.15171/ijhpm.2017.35.

Mannion, R. and Exworthy, M. (2018) Researching the Co-Existence and Continuity of Standardization and Customization in Healthcare: A Response to Recent Commentaries. *International Journal of Health Policy and Management,* 7 (6): 572–573. doi:10.15171/ijhpm.2018.07.

Manojlovich, M., Lee, S. and Lauseng, D. (2016) A systematic review of the unintended consequences of clinical interventions to reduce adverse outcomes. *Journal of patient safety*, 12 (4): 173–179.

Manzano, A. (2016) The craft of interviewing in realist evaluation. *Evaluation*, 22 (3): 342–360. doi:10.1177/1356389016638615.

Manzano, A. (2022) Conducting focus groups in realist evaluation. *Evaluation (London, England : 1995)*, 28 (4): 406–425. doi:10.1177/13563890221124637.

Marchal, B., Van Belle, S., De Brouwere, V., et al. (2013) Studying complex interventions: reflections from the FEMHealth project on evaluating fee exemption policies in West Africa and Morocco. *BMC health services research*, 13 (1): 469.

Marchal, B., Van, S., Btc, B., et al. (2012) Is realist evaluation keeping its promise? A review of published empirical studies in the field of health systems research. *Evaluation*, 18 (2): 192–212. doi:10.1177/1356389012442444.

Martin, G.P., Kocman, D., Stephens, T., et al. (2017) Pathways to professionalism? Quality improvement, care pathways, and the interplay of standardisation and clinical autonomy. *Sociology of Health & Illness*, 39 (8): 1314–1329. doi:10.1111/1467-9566.12585.

Mason, S.E., Nicolay, C.R. and Darzi, A. (2015) The use of Lean and Six Sigma methodologies in surgery: A systematic review. *Surgeon*. doi:10.1016/j.surge.2014.08.002.

Massenburg, B.B., Saluja, S., Jenny, H.E., et al. (2017) Assessing the Brazilian surgical system with six surgical indicators: A descriptive and modelling study. *BMJ Global Health*, 2 (2). doi:10.1136/BMJGH-2016-000226.

McCartney, M. (2013) Patient information leaflets: A stupid system. *BMJ (Online)*. 347 (7920). doi:10.1136/bmj.f4748.

McCulloch, P., Nagendran, M., Campbell, W.B., et al. (2013) Strategies to reduce variation in the use of surgery. *The Lancet*, 382 (9898): 1130–1139.

McDaniel, R.R. and Driebe, D.J. (2001) “Complexity science and health care management.” In *Advances in health care management*. JAI Press. pp. 11–36.

McDaniel, R.R., Lanham, H.J. and Anderson, R.A. (2009) Implications of complex adaptive systems theory for the design of research on health care organizations. *Health Care Management Review*, 34 (2): 191–199. doi:10.1097/HMR.0b013e31819c8b38.

Mcdonald, R., Waring, J. and Harrison, S. (2006) Rules, safety and the narrativisation of identity: a hospital operating theatre case study. *Sociology of Health & Illness*, 28 (2): 178–202. doi:10.1111/j.1467-9566.2006.00487.x.

McEvoy, P. and Richards, D. (2003) Critical realism: a way forward for evaluation research in nursing? *Journal of advanced nursing*, 43 (4): 411–420.

McIntosh, B., Cookson, G. and Jones, S. (2012) Cancelled surgeries and payment by results in the English National Health Service. *Journal of Health Services Research and Policy*, 17 (2): 79–86. doi:http://dx.doi.org/10.1258/jhsrp.2011.011053.

McIntyre, D. and Chow, C.K. (2020) Waiting Time as an Indicator for Health Services Under Strain: A Narrative Review. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 57: 0046958020910305. doi:10.1177/0046958020910305.

McKendrick, DouglasR.A., Cumming, G. and Lee, A. (2014) A 5-year observational study of cancellations in the operating room: Does the introduction of preoperative preparation have an impact? *Saudi Journal of Anaesthesia*, 8 (5): 8. doi:10.4103/1658-354X.144053.

McManus, M.L., Long, M.C., Cooper, A., et al. (2003) Variability in Surgical Caseload and Access to Intensive Care Services. *Anesthesiology*, 98 (6): 1491–1496. doi:10.1097/00000542-200306000-00029.

Meara, J.G., Leather, A.J.M., Hagander, L., et al. (2015) Global Surgery 2030: Evidence and solutions for achieving health, welfare, and economic development. *The Lancet*. 386 (9993) pp. 569–624. doi:10.1016/S0140-6736(15)60160-X.

Merton, R.K. (1936) The unanticipated consequences of purposive social action. *American sociological review*, 1 (6): 894–904.

Merton, R.K. (1967) *On theoretical sociology*. Free Press New York.

Milam, L.A., Cohen, G.L., Mueller, C., et al. (2019) The Relationship Between Self-Efficacy and Well-Being Among Surgical Residents. *Journal of Surgical Education*, 76 (2): 321–328. doi:10.1016/J.JSURG.2018.07.028.

Miller, M.R., Robinson, K.A., Lubomski, L.H., et al. (2007) Medication errors in paediatric care: a systematic review of epidemiology and an evaluation of evidence supporting reduction strategy recommendations. *Quality & safety in health care*, 16 (2): 116–26. doi:10.1136/qshc.2006.019950.

Miri Bonjar, M.R., Khammarnia, M., Bakhshi, M., et al. (2019) Impact of the Health Transformation Plan on the Number of Surgical Operations and Their Cancelation. *Inquiry : a journal of medical care organization, provision and financing*, 56. doi:10.1177/0046958019846385.

Moon, K. and Blackman, D. (2014) A guide to understanding social science research for natural scientists. *Conservation biology*, 28 (5): 1167–1177.

Moore, G.F., Audrey, S., Barker, M., et al. (2015) Process evaluation of complex interventions: Medical Research Council guidance. *BMJ (Online)*, 350: h1258. doi:10.1136/bmj.h1258.

Moran, O., Almada, P. and McHugh, L. (2018) An investigation into the relationship between the three selves (Self-as-Content, Self-as-Process and Self-as-Context) and mental health in adolescents. *Journal of Contextual Behavioral Science*, 7: 55–62. doi:10.1016/j.jcbs.2018.01.002.

Morton, A. and Cornwell, J. (2009) What's the difference between a hospital and a bottling factory? *BMJ*, 339 (7718): 428–430. doi:10.1136/BMJ.B2727.

Rai, M.R. and Pandit, J.J., 2003. Day of surgery cancellations after nurse-led pre-assessment in an elective surgical centre: the first 2 years. *Anaesthesia*, *58*(7), pp.692-699.

Mukumbang, F.C., Marchal, B., Van Belle, S., et al. (2018) Unearthing how, why, for whom and under what health system conditions the antiretroviral treatment adherence club intervention in South Africa works: A realist theory refining approach. *BMC Health Services Research*, 18 (1): 1–15.

Mukumbang, F.C., Marchal, B., Van Belle, S., et al. (2019) Using the realist interview approach to maintain theoretical awareness in realist studies. *Qualitative Research*, p. 1468794119881985.

Mukumbang, F.C., De Souza, D.E. and Eastwood, J.G. (2023) The contributions of scientific realism and critical realism to realist evaluation. *Journal of Critical Realism*, pp. 1–21.

Nabhan, M., Elraiyah, T., Brown, D.R., et al. (2012) What is preventable harm in healthcare? A systematic review of definitions. *BMC health services research*, 12: 1–8.

Needham, C. (2018) Best of Both Worlds Comment on "(Re) Making the Procrustean Bed? Standardization and Customization as Competing Logics in Healthcare." *International Journal of Health Policy and Management,* 7 (4): 356–358. doi:10.15171/ijhpm.2017.99.

Nguyen, D.T., Donnelly, M., Van Hoang, M., et al. (2023) The case for individualised public health interventions: Smoking prevalence and inequalities in Northern Ireland 1985-2015. *Health Policy*, 135: 104879. doi:10.1016/J.HEALTHPOL.2023.104879.

Nicolson, D.J. (2013) Good quality patient leaflets are prerequisite to concordance between patients and healthcare professionals. *BMJ (Clinical research ed.)*. 347. doi:10.1136/bmj.f5475.

Nielsen, S.B., Jaspers, S.Ø. and Lemire, S. (2023) The curious case of the realist trial: Methodological oxymoron or unicorn? *Evaluation*, p. 13563890231200292.

Nordesjö, K., Ulmestig, R. and Denvall, V. (2022) Coping with tensions between standardization and individualization in social assistance. *Nordic Social Work Research*, 12 (4): 435–449. doi:10.1080/2156857X.2020.1835696.

Nørgaard, B. (2011) *Communication with patients and colleagues. An intervention study on the impact of a communication skills training course on health care professionals´ ability to communicate with patiets and colleagues*.

O'Dwyer, A.J., Pridgeon, S., Green, J.S.A., et al. (2015) Preventing `same-day' cancellations in elective urological surgery: Are different strategies needed for inpatient, day case and procedural admissions? *Journal of Clinical Urology*, 8 (5): 334–341. doi:10.1177/2051415815587213.

Olson, R.P. and Dhakal, I.B. (2015) Day of surgery cancellation rate after preoperative telephone nurse screening or comprehensive optimization visit. *Perioperative Medicine*, 4 (1): 12. doi:10.1186/s13741-015-0022-z.

Øvretveit, J. (1997) A comparison of hospital quality programmes: lessons for other services. *International Journal of Service Industry Management*, 8 (3): 220–235. doi:10.1108/09564239710185415.

Panagioti, M., Khan, K., Keers, R.N., et al. (2019) Prevalence, severity, and nature of preventable patient harm across medical care settings: systematic review and meta-analysis. *bmj*, 366.

Pang, B., Xie, X., Song, Y., et al. (2019) Surgery Scheduling Under Case Cancellation and Surgery Duration Uncertainty. *IEEE Transactions on Automation Science and Engineering*, 16 (1): 74–86. doi:10.1109/TASE.2018.2834486.

Papastavrou, E., Acaroglu, R., Sendir, M., et al. (2015) The relationship between individualized care and the practice environment: an international study. *International journal of nursing studies*, 52 (1): 121–133.

Park, M. (2021) Implementing patient and family involvement interventions for promoting patient safety: a systematic review and meta-analysis. *Journal of Patient Safety*, 17 (2): 131–140.

Paterson-Brown, S. (2018) Cost-effective surgery for better outcomes. *British Journal of Surgery*, 105 (1): 11–12. doi:10.1002/BJS.10797.

Pawson, R. (1996) Theorizing the Interview. *The British Journal of Sociology*, 47 (2): 295. doi:10.2307/591728.

Pawson, R. (2006a) Digging for Nuggets: How 'Bad' Research Can Yield 'Good' Evidence. *International Journal of Social Research Methodology*, 9 (2): 127–142. doi:10.1080/13645570600595314.

Pawson, R. (2006b) *Evidence-based policy : a realist perspective*. SAGE.

Pawson, R. (2013) *The science of evaluation : a realist manifesto*. SAGE.

Pawson, R., Greenhalgh, J., Brennan, C., et al. (2014) Do reviews of healthcare interventions teach us how to improve healthcare systems? *Social Science and Medicine*. doi:10.1016/j.socscimed.2014.05.032.

Pawson, R., Greenhalgh, T., Harvey, G., et al. (2004) *Realist synthesis: an introduction*. Available at: https://pdfs.semanticscholar.org/4351/46e6e6617491ff1c4b32b76e0a534c86d6c7.pdf (Accessed: 31 May 2018).

Pawson, R. and Manzano-Santaella, A. (2012) A realist diagnostic workshop. *Evaluation*, 18 (2): 176–191. doi:10.1177/1356389012440912.

Pawson, R. and Tilley, Nick. (1997) Realistic evaluation. 1997. *London, California and New Delhi: Sage*, p. 235.

Pawson, R., Wong, G. and Owen, L. (2011) Known Knowns, Known Unknowns, Unknown Unknowns. *American Journal of Evaluation*, 32 (4): 518–546. doi:10.1177/1098214011403831.

Pawson, R (2024) Re: Analytical appraisal journaling - qualitative data analysis realist evaluation. rameses@jiscmail.ac.uk to everyone, 30 January.

Petrakaki, D. and Kornelakis, A. (2016) *"We can only request what's in our protocol": technology and work autonomy in healthcare*.

Pfaff, H., Driller, E., Ernstmann, N., et al. (2010) Standardization and Individualization in Care for the Elderly: Proactive Behavior Through Individualized Standardization. *Open Longevity Science*, 4: 51–57. Available at: https://benthamopen.com/ABSTRACT/TOLSJ-4-51.

Plsek, P.E. and Greenhalgh, T. (2001) Complexity science: The challenge of complexity in health care. *BMJ*, 323 (7313): 625–628. doi:10.1136/bmj.323.7313.625.

Poirier, P. and Sossong, A. (2010) Oncology patients' and nurses' perceptions of caring. *Canadian Oncology Nursing Journal/*, 20 (2): 62–65.

Pollitt, C. (2018) Performance management 40 years on: a review. Some key decisions and consequences. *Public Money and Management*, 38 (3): 167–174. doi:10.1080/09540962.2017.1407129.

Pollock, K. and Grime, J. (2003) GPs' perspectives on managing time in consultations with patients suffering from depression: a qualitative study. *Family Practice*, 20 (3): 262–269. doi:10.1093/fampra/cmg306.

Pope, C. (2023) NHS waiting times: a government pledge. *bmj*. 380.

Powell, A.A., White, K.M., Partin, M.R., et al. (2012) Unintended consequences of implementing a national performance measurement system into local practice. *Journal of General Internal Medicine*, 27 (4): 405–412. doi:10.1007/s11606-011-1906-3.

Powell, M. (2019) The English National Health Service in a cold climate: a decade of austerity. *Social Policy Review 31: Analysis and Debate in Social Policy, 2019*, p. 7.

Prashanth, N.S., Marchal, B., Devadasan, N., et al. (2014) Advancing the application of systems thinking in health: a realist evaluation of a capacity building programme for district managers in Tumkur, India. *Health Research Policy and Systems*, 12 (1): 42.

Pratap, J.N., Varughese, A.M., Mercurio, P., et al. (2015) Reducing cancelations on the day of scheduled surgery at a children's hospital. *Pediatrics*, 135 (5): e1292–e1299. doi:http://dx.doi.org/10.1542/peds.2014-2418.

Price, T., Wong, G., Withers, L., et al. (2021) Optimising the delivery of remediation programmes for doctors: A realist review. *Medical Education*, 55 (9): 995–1010. doi:10.1111/MEDU.14528.

Priebe, H.J. (2011) Preoperative cardiac management of the patient for non-cardiac surgery: an individualized and evidence-based approach. *BJA: British Journal of Anaesthesia*, 107 (1): 83–96. doi:10.1093/BJA/AER121.

Prin, M., Eaton, J., Mtalimanja, O., et al. (2017) Cancellation of Scheduled Surgery at a Tertiary Hospital in Sub-Saharan Africa: A Barrier to Access to Surgical Care. *Journal of the American College of Surgeons*, 225 (4, 1): S99. doi:10.1016/j.jamcollsurg.2017.07.217.

Pulido, R., Aguirre, A.M., Ortega-Mier, M., et al. (2014) Managing daily surgery schedules in a teaching hospital: a mixed-integer optimization approach. *BMC Health Services Research*, 14 (1): 464. doi:10.1186/1472-6963-14-464.

Pursio, K., Kankkunen, P., Sanner-Stiehr, E., et al. (2021) Professional autonomy in nursing: An integrative review. *Journal of Nursing Management*, 29 (6): 1565–1577. doi:10.1111/JONM.13282.

Radnor, Z. and Osborne, S.P. (2013) Lean: A failed theory for public services? *Public Management Review*, 15 (2): 265–287. doi:10.1080/14719037.2012.748820.

Radnor, Z.J., Holweg, M. and Waring, J. (2012) Lean in healthcare: The unfilled promise? *Social Science & Medicine*, 74 (3): 364–371. doi:10.1016/j.socscimed.2011.02.011.

Rai, M.R. and Pandit, J.J. (2003) Day of surgery cancellations after nurse-led pre-assessment in an elective surgical centre: the first 2 years. *Anaesthesia*, 58 (7): 692–699. doi:10.1046/J.1365-2044.2003.03189_3.X.

Randell, R., Greenhalgh, J., Hindmarsh, J., et al. (2019) How do team experience and relationships shape new divisions of labour in robot-assisted surgery? A realist investigation. *Health*, 25 (2): 250–268. doi:10.1177/1363459319874115.

Realo, A., Koido, K., Ceulemans, E., et al. (2002) Three components of individualism. *European Journal of Personality*, 16 (3): 163–184.

Reiger, K. and Morton, C. (2012) Standardizing or individualizing? A critical analysis of the 'discursive imaginaries' shaping maternity care reform. *International Journal of Childbirth*, 2 (3): 173–186.

Renmans, D. and Pleguezuelo, V.C. (2023) Methods in realist evaluation: A mapping review. *Evaluation and program planning*, 97: 102209.

Richards, H.M. and Schwartz, L.J. (2002) Ethics of qualitative research: are there special issues for health services research? *Family practice*, 19 (2): 135–139.

Van Riet, C. and Demeulemeester, E. (2015) Trade-offs in operating room planning for electives and emergencies: A review. *Operations Research for Health Care*, 7: 52–69. doi:10.1016/j.orhc.2015.05.005.

Robinson, M., Blaise, M., Weber, G., et al. (2022) The Effects and Costs of Personalized Budgets for People with Disabilities: A Systematic Review. *International Journal of Environmental Research and Public Health*, 19 (23): 16225.

Rojas-García, A., Turner, S., Pizzo, E., et al. (2018) Impact and experiences of delayed discharge: A mixed-studies systematic review. *Health Expectations*, 21: 41–56. doi:10.1111/hex.12619.

Rojas-García, A., Turner, S., Pizzo, E., et al. (2018) Impact and experiences of delayed discharge: A mixed-studies systematic review. *Health Expectations*, 21 (1): 41–56.

Rose, J., Weiser, T.G., Hider, P., et al. (2015) Estimated need for surgery worldwide based on prevalence of diseases: a modelling strategy for the WHO Global Health Estimate. *The Lancet. Global health*, 3 Suppl 2 (Suppl 2): S13–S20. doi:10.1016/S2214-109X(15)70087-2.

Rostgaard, T. (2012) Quality reforms in Danish home care – balancing between standardisation and individualisation. *Health & Social Care in the Community*, 20 (3): 247–254. doi:10.1111/J.1365-2524.2012.01066.X.

Rouse, W.B. (2008) Health care as a complex adaptive system: implications for design and management. *Bridge-Washington-National Academy of Engineering-*, 38 (1): 17.

Rouse, W.B. and Serban, N. (2014) *Understanding and Managing the Complexity of Healthcare*. The MIT Press. doi:10.2307/j.ctt9qf9g5.

Rozich, J.D., Howard, R.J., Justeson, J.M., et al. (2004) Standardization as a mechanism to improve safety in health care. *Joint Commission journal on quality and safety*, 30 (1): 5–14. doi:10.1016/S1549-3741(04)30001-8.

Rycroft-Malone, J., Fontenla, M., Seers, K., et al. (2009a) Protocol-based care: the standardisation of decision-making? *Journal of Clinical Nursing*, 18 (10): 1490–1500. doi:10.1111/J.1365-2702.2008.02605.X.

Rycroft-Malone, J., McCormack, B., Hutchinson, A.M., et al. (2012b) Realist synthesis: illustrating the method for implementation research. *Implementation Science*, 7 (1): 33. doi:10.1186/1748-5908-7-33.

Rycroft-Malone, J., Morrell, C. and Bick, D. (2004) The research agenda for protocol-based care. *Nursing standard*, 19 (6).

Rymaruk, S. (2011) A retrospective observational study of patient cancellations on the day of surgery in the general surgical directorate. *Journal of perioperative practice*, 21 (10): 337–341. doi:10.1177/175045891102101001.

Saks, M., 2016. Professions and power: a review of theories of professions and power. *The Routledge companion to the professions and professionalism*, pp.71-86.

Salter, K.L., Kothari, A., Pawson, R., et al. (2010) Realist review: a new method of systematic review designed for complex policy interventions. *BMC health services research*. doi:10.1186/1472-6963-10-49.

Samarasinghe BSW, Millar R, Exworthy M (2024) Bridging the divide? Why the integration of standardisation and individualisation of care remains paramount during turbulent times *BMJ Leader* Published Online First: 23 October 2024. doi: 10.1136/leader-2023-000920

Sanjay, P., Dodds, A., Miller, E., et al. (2007) Cancelled elective operations: An observational study from a district general hospital. *Journal of Health, Organisation and Management*, 21 (1): 54–58. doi:10.1108/14777260710732268.

Santos, G.A.A.C. dos and Bocchi, S.C.M. (2017) Cancellation of elective surgeries in a Brazilian public hospital: reasons and estimated reduction. *Revista Brasileira de Enfermagem*, 70 (3): 535–542. doi:10.1590/0034-7167-2016-0084.

Saufl, N.M. (2004) Preparing the older adult for surgery and anesthesia. *Journal of PeriAnesthesia Nursing*, 19 (6): 372–378. doi:10.1016/j.jopan.2004.08.008.

Schantz, M.L. (2007) "Compassion: a concept analysis." In *Nursing forum*. 2007. Wiley Online Library. pp. 48–55.

Schmenner, R.W. (2015) The pursuit of productivity. *Production and Operations Management*, 24 (2): 341–350.

Schoenfeld, A.J., Tipirneni, R., Nelson, J.H., et al. (2014) The influence of race and ethnicity on complications and mortality after orthopedic surgery: a systematic review of the literature. *Medical care*, pp. 842–851.

Schofield, W.N., Rubin, G.L., Piza, M., et al. (2005) Cancellation of operations on the day of intended surgery at a major Australian referral hospital. *Medical Journal of Australia*, 182 (12): 612–615. doi:10.5694/j.1326-5377.2005.tb07176.x.

Schretlen, S., Hoefsmit, P., Kats, S., et al. (2021) Reducing surgical cancellations: a successful application of Lean Six Sigma in healthcare. *BMJ Open Quality*, 10 (3): e001342. doi:10.1136/BMJOQ-2021-001342.

Schrijvers, G., van Hoorn, A. and Huiskes, N. (2012) The care pathway: Concepts and theories: An introduction. *International Journal of Integrated Care*, 12 (SPECIAL EDITION I). doi:10.5334/ijic.812.

Schulz, C.M., Krautheim, V., Hackemann, A., et al. (2015) Situation awareness errors in anesthesia and critical care in 200 cases of a critical incident reporting system. *BMC anesthesiology*, 16 (1): 1–10.

Schuster, M., Neumann, C., Neumann, K., et al. (2011) The Effect of Hospital Size and Surgical Service on Case Cancellation in Elective Surgery. *Anesthesia and Analgesia*, 113 (3): 578–585. doi:10.1213/ANE.0b013e318222be4d.

Seim, A.R., Fagerhaug, T., Ryen, S.M., et al. (2009) Causes of cancellations on the day of surgery at two major university hospitals. *Surgical Innovation*, 16 (2): 173–180. doi:10.1177/1553350609335035.

Seme, M.E., Resch, S., Haynes, A.B., et al. (2010) Adopting a surgical safety checklist could save money and improve the quality of care in U.S. hospitals. *Health affairs (Project Hope)*, 29 (9): 1593. doi:10.1377/HLTHAFF.2009.0709.

Shahid, S. and Thomas, S. (2018) Situation, Background, Assessment, Recommendation (SBAR) Communication Tool for Handoff in Health Care – A Narrative Review. *Safety in Health*, 4 (1): 7. doi:10.1186/s40886-018-0073-1.

Sharp, S., Mcallister, M. and Broadbent, M. (2018) The tension between person centred and task focused care in an acute surgical setting: A critical ethnography. *Collegian*, 25 (1): 11–17.

Shaw, J., Gray, C.S., Baker, G.R., et al. (2018) Mechanisms, contexts and points of contention: operationalizing realist-informed research for complex health interventions. *BMC Medical Research Methodology*, 18 (1): 178. doi:10.1186/s12874-018-0641-4.

Sheard, L. and Peacock, R. (2019) Fiddling while Rome burns? Conducting research with healthcare staff when the NHS is in crisis. *Journal of health organization and management*, ahead-of-print (ahead-of-print): 77–84. doi:10.1108/JHOM-04-2019-0105.

Shearn, K., Allmark, P., Piercy, H., et al. (2017) Building Realist Program Theory for Large Complex and Messy Interventions. *International Journal of Qualitative Methods*, 16 (1): 160940691774179. doi:10.1177/1609406917741796.

Siciliani, L. and Hurst, J. (2005) Tackling excessive waiting times for elective surgery: a comparative analysis of policies in 12 OECD countries. *Health policy*, 72 (2): 201–215.

Sillero-Sillero, A. and Zabalegui, A. (2020) Analysis of the work environment and intention of perioperative nurses to quit work. *Revista Latino-Americana de Enfermagem*, 28: 1–10. doi:10.1590/1518-8345.3239.3256.

Skivington, K., Matthews, L., Simpson, S.A., et al. (2021) A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *BMJ*, 374. doi:10.1136/BMJ.N2061.

Skjold-Ødegaard, B. and Søreide, K. (2020) Standardization in surgery: friend or foe? *British Journal of Surgery*, 107 (9): 1094–1096. doi:10.1002/BJS.11573.

Smith, K. (2009) Standardization as a key to quality. *HealthcarePapers*, 9 (3): 56–58. doi:10.12927/HCPAP.2009.20928.

Smith, M.M., Mauermann, W.J., Cook, D.J., et al. (2014) Same-day cancellation of cardiac surgery: A retrospective review at a large academic tertiary referral center. *The Journal of Thoracic and Cardiovascular Surgery*, 148 (2): 721–725. doi:10.1016/j.jtcvs.2014.03.002.

Sneddon, A., Mearns, K. and Flin, R. (2006) Situation awareness and safety in offshore drill crews. *Cognition, Technology & Work*, 8 (4): 255–267. doi:10.1007/s10111-006-0040-1.

Sobanko, J.F., Da Silva, D., Chiesa Fuxench, Z.C., et al. (2017) Preoperative telephone consultation does not decrease patient anxiety before Mohs micrographic surgery. *Journal of the American Academy of Dermatology*, 76 (3): 519–526. doi:10.1016/J.JAAD.2016.09.027.

De Souza, D.E. (2013) Elaborating the Context-Mechanism-Outcome configuration (CMOc) in realist evaluation: A critical realist perspective. *Evaluation*, 19 (2): 141–154.

Spagnolo, A.M., Ottria, G., Amicizia, D., et al. (2013) Operating theatre quality and prevention of surgical site infections. *Journal of preventive medicine and hygiene*, 54 (3): 131.

Spahn, D.R. and Priebe, H.-J. (2004) Editorial II: Preoperative hypertension: remain wary? “Yes”--cancel surgery? “No”. *British journal of anaesthesia*, 92 (4): 461–464. Available at: http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=med5&NEWS=N&AN=15013957.

Stelfox, H.T., Palmisani, S., Scurlock, C., et al. (2006) The ““To Err is Human”” report and the patient safety literature. *Qual Saf Health Care*, 15: 174–178. doi:10.1136/qshc.2006.017947.

Stone, K.B. (2012) Four decades of lean: a systematic literature review. *International Journal of Lean Six Sigma*, 3 (2): 112–132. doi:10.1108/20401461211243702.

Stubbings, L., Chaboyer, W. and McMurray, A. (2012) Nurses’ use of situation awareness in decision-making: an integrative review. *Journal of advanced nursing*, 68 (7): 1443–1453.

Suchman, E. (1968) *Evaluative Research: Principles and Practice in Public Service and Social Action Progr*. Russell Sage Foundation.

Suhonen, R. and Charalambous, A. (2018) *The concept of individualised care*. Springer International Publishing. doi:10.1007/978-3-319-89899-5_4/TABLES/2.

Suhonen, R., Stolt, M. and Papastavrou, E. (2018) Individualized care theory, measurement, research and practice. *Individualized Care: Theory, Measurement, Research and Practice*, pp. 1–232. doi:10.1007/978-3-319-89899-5.

Suhonen, R., Välimäki, M., Katajisto, J., et al. (2007) Provision of individualised care improves hospital patient outcomes: an explanatory model using LISREL. *International journal of nursing studies*, 44 (2): 197–207.

Sullivan, R., Alatise, O.I., Anderson, B.O., et al. (2015) Global cancer surgery: delivering safe, affordable, and timely cancer surgery. *The lancet oncology*, 16 (11): 1193–1224.

Sung, W.-C., Chou, A.-H., Liao, C.-C., et al. (2010) Operation cancellation at Chang Gung Memorial Hospital. *Chang Gung medical journal*, 33 (5): 568–75.

Al Talalwah, N. and McIltrot, K.H. (2019) Cancellation of Surgeries: Integrative Review. *Journal of PeriAnesthesia Nursing*, 34 (1): 86–96. doi:10.1016/j.jopan.2017.09.012.

Tan, A.L., Chiew, C.J., Wang, S., et al. (2019) Risk factors and reasons for cancellation within 24 h of scheduled elective surgery in an academic medical centre: A cohort study. *International Journal of Surgery*. doi:10.1016/j.ijsu.2019.04.009.

Tehranineshat, B., Rakhshan, M., Torabizadeh, C., et al. (2019) Compassionate Care in Healthcare Systems: A Systematic Review. *Journal of the National Medical Association*. 111 (5) pp. 546–554. doi:10.1016/j.jnma.2019.04.002.

Theys, S., Van Hecke, A., Akkermans, R., et al. (2021) The Dutch Individualised Care Scale for patients and nurses – a psychometric validation study. *Scandinavian Journal of Caring Sciences*, 35 (1): 308–318. doi:10.1111/SCS.12853.

Thomas, P. and Hewitt, J. (2011) Managerial organization and professional autonomy: A discourse-based conceptualization. *Organization studies*, 32 (10): 1373–1393.

Thorlby, R., Gardner, T. and Turton, C. (2019) NHS performance and waiting times. *The Health Foundation*.

Timmermans, S. and Berg, M. (1997) Standardization in action: achieving local universality through medical protocols. *Social studies of science*, 27 (2): 273–305.

Timmermans, S. and Berg, M. (2010) *The gold standard: the challenge of evidence-based medicine*. Temple University Press.

Timmermans, S. and Epstein, S. (2010) A world of standards but not a standard world: Toward a sociology of standards and standardization. *Annual review of Sociology*, 36: 69–89.

Todres, L., Galvin, K.T. and Holloway, I. (2009) The humanization of healthcare: A value framework for qualitative research. *International Journal of Qualitative Studies on Health and well-being*, 4 (2): 68–77.

Torres, G.C.S., Relf, M. V. and Tuazon, J.A. (2020) The mediating role of pre-operative patient readiness on surgical outcomes: A structural equation model analysis. *Journal of Advanced Nursing*, 76 (6): 1371–1383. doi:10.1111/JAN.14339.

Trentman, L., Mueller, J.T., Fassett, S.L., et al. (2010) Day of surgery cancellations in a tertiary care hospital: A one year review. *Journal of Anesthesia and Clinical Research*, 1 (3): 2155–6148. doi:10.4172/2155-6148.1000109.

Turunen, E., Miettinen, M., Setälä, L., et al. (2018) The impact of a structured preoperative protocol on day of surgery cancellations. *Journal of Clinical Nursing*, 27 (1–2): 288–305. doi:10.1111/jocn.13896.

Ulin, K., Olsson, L.E., Wolf, A., et al. (2016) Person-centred care - An approach that improves the discharge process. *European journal of cardiovascular nursing*, 15 (3): e19–e26. doi:10.1177/1474515115569945.

Urbach, D.R. (2015) The Challenge of Quality Improvement in Surgical Care. *JAMA Surgery*, 150 (3): 215–215. doi:10.1001/JAMASURG.2014.2908.

Üzen Cura, Ş. and Atay, S. (2023) Correlation between mindfulness, empathy and compassion levels of nursing students: A cross-sectional study. *Archives of Psychiatric Nursing*, 42: 92–96. doi:10.1016/J.APNU.2022.12.017.

Valsangkar, N.P., Eppstein, A.C., Lawson, R.A., et al. (2017) Effect of Lean Processes on Surgical Wait Times and Efficiency in a Tertiary Care Veterans Affairs Medical Center. *JAMA surgery*, 152 (1): 42–47. doi:10.1001/jamasurg.2016.2808.

Varughese, A.M., Hagerman, N. and Townsend, M.E. (2013) Using quality improvement methods to optimize resources and maximize productivity in an anesthesia screening and consultation clinic. *Pediatric Anesthesia*, 23 (7): 597–606. doi:10.1111/PAN.12185.

Vaughn, L.M., DeJonckheere, M. and Pratap, J.N. (2017) Putting a face and context on pediatric surgery cancelations: The development of parent personas to guide equitable surgical care. *Journal of Child Health Care*, 21 (1): 14–24. doi:10.1177/1367493516645858.

Viberg, N., Forsberg, B.C., Borowitz, M., et al. (2013) International comparisons of waiting times in health care - Limitations and prospects. *Health Policy*, 112 (1–2): 53–61. doi:10.1016/j.healthpol.2013.06.013.

Viccellio, P. (2001) Emergency Department Overcrowding: An Action Plan. *Academic Emergency Medicine*, 8 (2): 185–187. doi:10.1111/j.1553-2712.2001.tb01286.x.

Viftrup, A., Dreyer, P., Nikolajsen, L., et al. (2020) Surgery cancellation: A scoping review of patients' experiences. *Journal of Clinical Nursing*.

van Wagtendonk, I., Smits, M., Merten, H., et al. (2010) Nature, causes and consequences of unintended events in surgical units. *British Journal of Surgery*, 97 (11): 1730–1740. doi:10.1002/bjs.7201.

Walsh, E.K., Hansen, C.R., Sahm, L.J., et al. (2017) Economic impact of medication error: a systematic review. *Pharmacoepidemiology and Drug Safety*, 26 (5): 481–497. doi:10.1002/pds.4188.

Waring, J., Allen, D., Braithwaite, J., et al. (2016) Healthcare quality and safety: A review of policy, practice and research. *Sociology of Health and Illness*, 38 (2): 198–215. doi:10.1111/1467-9566.12391.

De Weger, E., Van Vooren, N.J.E., Wong, G., et al. (2020) What's in a Realist Configuration? Deciding Which Causal Configurations to Use, How, and Why. *International Journal of Qualitative Methods*, 19: 1609406920938577. doi:10.1177/1609406920938577.

Weigelt, J.A., Lipsky, B.A., Tabak, Y.P., et al. (2010) Surgical site infections: causative pathogens and associated outcomes. *American journal of infection control*, 38 (2): 112–120.

Weiser, T.G. and Haynes, A.B. (2018) Ten years of the Surgical Safety Checklist. *British Journal of Surgery*, 105 (8): 927–929. doi:10.1002/bjs.10907.

Weiser, T.G., Makary, M.A., Haynes, A.B., et al. (2009) Standardised metrics for global surgical surveillance. *The Lancet*, 374 (9695): 1113–1117.

Weiser, T.G., Regenbogen, S.E., Thompson, K.D., et al. (2008a) An estimation of the global volume of surgery: a modelling strategy based on available data. *The Lancet*, 372 (9633): 139–144.

Weiser, T.G., Regenbogen, S.E., Thompson, K.D., et al. (2008b) An estimation of the global volume of surgery: a modelling strategy based on available data. *Lancet (London, England)*, 372 (9633): 139–144. doi:10.1016/S0140-6736(08)60878-8.

Welsh, E. (2002). Dealing with data: Using NVivo in the qualitative data analysis process. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, *3*(2).

Weprin, S., Crocerossa, F., Meyer, D., et al. (2021) Risk factors and preventive strategies for unintentionally retained surgical sharps: a systematic review. *Patient Safety in Surgery*, 15: 1–10.

West, M.A. (2021) *Compassionate leadership: sustaining wisdom, humanity and presence in health and social care*. Swirling Leaf Press.

Westhorp, G. (2012) Using complexity-consistent theory for evaluating complex systems. *Evaluation*, 18 (4): 405–420. doi:10.1177/1356389012460963.

Westhorp, G. (2018) Understanding mechanisms in realist evaluation and research. *Doing realist research. London: Sage*.

WHO (2009) *WHO guidelines for safe surgery: 2009: safe surgery saves lives*. World Health Organization.

Wiegmann, D.A. and Shappell, S.A. (2001) *Human error analysis of commercial aviation accidents using the human factors analysis and classification system (HFACS)*. United States. Office of Aviation Medicine.

Wilhelm, H., Bullinger, B. and Chromik, J. (2019) White Coats at the Coalface: The Standardizing Work of Professionals at the Frontline. *Organization Studies*, 41 (8): 1169–1200. doi:10.1177/0170840619862833.

Wong, D.J.N., Harris, S.K. and Moonesinghe, S.R. (2018) Cancelled operations: a 7-day cohort study of planned adult inpatient surgery in 245 UK National Health Service hospitals. *British Journal of Anaesthesia*, 121 (4): 730–738. doi:10.1016/J.BJA.2018.07.002.

Wong, G. (2013) Is complexity just too complex? *Journal of Clinical Epidemiology*. 66 (11) pp. 1199–1201. doi:10.1016/j.jclinepi.2013.06.019.

Wong, G. (2018) Data gathering in realist reviews: looking for needles in haystacks. *Doing realist research. London: SAGE*, pp. 131–145.

Wong, G., Greenhalgh, T., Westhorp, G., et al. (2012) Realist methods in medical education research: what are they and what can they contribute? *Medical Education*, 46 (1): 89–96. doi:10.1111/J.1365-2923.2011.04045.X.

Wong, G., Greenhalgh, T., Westhorp, G., et al. (2013) RAMESES publication standards: realist syntheses. *BMC Medicine*, 11 (1): 21. doi:10.1186/1741-7015-11-21.

Wong, G., Greenhalgh, T., Westhorp, G., et al. (2015) *Development of methodological guidance, publication standards and training materials for realist and meta-narrative reviews:*

*the RAMESES (Realist And Meta-narrative Evidence Syntheses–Evolving Standards) project*.

Wong, J.L.C., Ho, C.W.Y., Scott, G., et al. (2019) Getting it right first time: The national survey of surgical site infection rates in NHS trusts in England. *Annals of the Royal College of Surgeons of England*, 101 (7): 463–471.

Wu, X., Hayter, M., Lee, A.J., et al. (2021) Nurses' experiences of the effects of mindfulness training: A narrative review and qualitative meta-synthesis. *Nurse Education Today*, 100: 104830. doi:10.1016/J.NEDT.2021.104830.

Wye, L., Lasseter, G., Percival, J., et al. (2014) What works in 'real life' to facilitate home deaths and fewer hospital admissions for those at end of life?: results from a realist evaluation of new palliative care services in two English counties. *BMC Palliative Care 2014 13:1*, 13 (1): 1–11. doi:10.1186/1472-684X-13-37.

Xue, W., Yan, Z., Barnett, R., et al. (2013) Dynamics of Elective Case Cancellation for Inpatient and Outpatient in an Academic Center. *Journal of anesthesia & clinical research*, 4 (5): 314. Available at: /pmc/articles/PMC3839960/ (Accessed: 4 October 2023).

Yu, K. and Frempong, G. (2012) Standardise and individualise – an unsolvable tension in assessment? *New Pub: Unisa*, 16 (1): 143–157. doi:10.1080/16823206.2012.692210.

Yu-Hsin Liao, K., Stead, G.B. and Liao, C.-Y. (n.d.) *A Meta-Analysis of the Relation Between Self-Compassion and Self-Efficacy*. doi:10.1007/s12671-021-01626-4/Published.

Zachariadis, M., Scott, S. and Barrett, M. (2013) Methodological Implications of Critical Realism for Mixed-Methods Research. *MIS Quarterly*, 37 (3): 855–879.

Zuiderent-Jerak, T. (2007) Preventing implementation: Exploring interventions with standardization in healthcare. *Science as Culture*, 16 (3): 311–329..

De Zwart, F. (2015) Unintended but not unanticipated consequences. *Theory and Society*, 44: 283–297.

Zygourakis, C.C., Valencia, V., Moriates, C., et al. (2017) Association Between Surgeon Scorecard Use and Operating Room Costs. *JAMA Surgery*, 152 (3): 284–291. doi:10.1001/jamasurg.2016.4674.

# 2 Appendices

## 2.1 Appendix 1 - Glossary of terms related to surgical care and realist methodology

| | |
|---|---|
| **Anaesthesia** | Generally, medication that creates or enables a deep sleep-like state: an essential part of some surgery and invasive procedures. Patients undergoing anaesthesia are unconscious and feel nothing. Can also be described as a medical way of relieving pain. |
| **Anaesthetist** | A medical doctor trained to administer anaesthesia. |
| **Anticoagulant** | Medication given to stop blood clotting. |
| **Complications** | Problems that might develop after surgery, treatment or illness. |
| **Day-case** | A surgery after which it is expected the patient will be well enough to leave hospital on the same day. |
| **Hypertension** | High blood pressure. |
| **Hypotension** | Low blood pressure. |
| **Inpatient** | A patient admitted to hospital to undergo treatment who is staying in hospital after treatment. |
| **Theatre practitioner** | A skilled and trained member of staff who assists in surgery and works in the operating theatre. Sometimes known as an operating department practitioner. |
| **Pre-operative care** | Physical and psycho-social care that prepares a patient to undergo surgery as intended and safely. The pre-operative period is initiated when the patient is scheduled for surgery and ends with their transfer to surgical theatre. Scheduled surgical care patients tend to have a longer pre-operative time than emergency care patients. |

| | |
|---|---|
| **Post-operative care** | Care that starts immediately after surgery. The type of post-operative care required depends on several factors, such as the severity of surgery and the patient's health history. It often includes nutrition, pain management and wound care. |
| **Surgical theatre** | A sizeable room in a hospital where surgical procedures are performed. |

**Glossary of terms related to realist methodology.**

| | |
|---|---|
| Abduction | The intellectual process that collectively brings creativity and expertise to re-conceptualisation of accounts for observations. |
| Actors | The individuals, groups and organisations that play a role in the implementation of interventions or programmes (e.g., patients, carers, anaesthetists, PONs, surgical nurses, administrators, surgeons and theatre practitioners). |
| CMOC | A heuristic used in realist reviews to unpack the causative explanations that reflect the liaison of context, mechanism and outcome of interest in a particular programme or intervention. A CMOC might be valid for a whole programme or intervention, or only certain aspects. |
| Co-morbidity | The presence of one or more physical or mental long-term condition in addition to the primary condition (e.g., depression, dietetic, obesity). |
| Context | Conditions existing at different levels (micro, meso and macro), impacting the inner workings of the operation of a programme or intervention. The salient conditions (i.e., context) are likely to enable or limit activation of mechanisms. |
| ICAMO | A heuristic tool mainly offering fundamental building blocks, applied in the thesis as a useful model for analysis, which includes retroductive and abductive thinking processes. The |

| | |
|---|---|
| | ICAMO reflects the liaison of context, mechanism and outcome of interest in an intervention or particular programme. |
| Mechanism | There are many definitions of mechanisms in realist reviews, but, generally, they generate outcomes. In realist research, mechanisms are often hidden but real and considered to be underlying entities, processes or structures that operate contexts to generate outcomes of interest. The thesis defines mechanisms as underlying determinants of social behaviour activated in certain contexts. |
| Programme theory | Programme or intervention expected to work and create intended or unintended outcomes. |
| Theory | One general way of thinking of theory is as an endeavour to organise knowledge, which includes facts (proven or abstract), into a structurally coherent system. |
| Reproduction | Building on abduction, the process of revealing activated causal mechanisms in a theory-testing approach to gain a comprehensive view of the nature of interventions and programmes (Jagosh, 2020). |

## 2.2 Appendix 3.6.2 - Tables related to MMAT in phase two

As highlighted in section 3.6.2. In all empirical studies, quality was appraised using MMAT (Hong et al., 2018). The tool categorises studies into five types: quantitative descriptive (table 1.1), mixed method studies (table 1.2), qualitative (table 1.3), and Quantitative non-randomised controlled trials (table 1.4). Each table represents screening questions related to the type of study. The 35 studies include the seven interventional studies highlighted in bold.

| | | | SCREENING QUESTIONS | | 4. QUANTITATIVE DESCRIPTIVE STUDIES | | | | |
|---|---|---|---|---|---|---|---|---|---|
| First author and Year | Title | Country | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 4.1. Is the sampling strategy relevant to address the research question? | 4.2. Is the sample representative of the target population? | 4.3. Are the measurements appropriate? | 4.4. Is the risk of nonresponse bias low? | 4.5. Is the statistical analysis appropriate to answer the research question? |
| (Caesar et al 2014 | Incidence and root causes of cancellations for elective orthopaedic procedures a single-centre experience of 17 625 consecutive cases | Sweden | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Cihoda et al 2015) | The Analysis for the Causes of Surgical Cancellations in a Brazilian University Hospital | Brazil | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Chalya et al 2011) | Incidence causes and pattern of cancellation of elective surgical operations in a university teaching hospital in the Lake Zone Tanzania | Tanzania | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Chiu et al 2012) | Cancellation of elective operations on the day of intended surgery in a Hong Kong hospital Point prevalence and reasons | Hong Kong | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Dalton et al 2016) | Day of Surgery Admission in Total Joint Arthroplasty Why Are Surgeries Cancelled? An Analysis of 3195 Planned Procedures and 114 Cancellations | Ireland | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Dimitriadis et al 2013) | The challenge of cancellations on the day of surgery | UK | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (González Arévalo et al 2009) | Causes for cancellation of elective surgical procedures in a Spanish general hospital | Spain | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Kaddoum et al 2016) | Causes of cancellations on the day of surgery at a Tertiary Teaching Hospital | Lebanon | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Laisi et al 2013) | Surgery cancellation on the day of surgery in same-day admission in a Finnish hospital | Finland | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (McIntosh et al 2012) | Cancelled surgeries and payment by results in the English National Health Service | UK | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (O'Dwyer et al 2015) | Preventing same-day' cancellations in elective urological surgery Are different strategies needed for inpatient day case and procedural admissions? | UK | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Proudlove et al 2017) | Investigating consistent patterns of variation in short-notice cancellations of elective operations The potential for learning and improvement through multi-site evaluations | UK | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Santos and Bocchi 2017) | Cancellation of elective surgeries in a Brazilian public hospital reasons and estimated reduction | Brazil | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Seim et al 2009) | Causes of cancellations on the day of surgery at two major university hospitals | USA | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Schuster et al 2011) | The effect of hospital size and surgical service on case cancellation in elective surgery results from a prospective multicentre study | German | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Sung et al 2010) | Operation cancellation at Chang Gung Memorial Hospital | Taiwan | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Wong et al 2018) | Cancelled operations a 7-day cohort study of planned adult inpatient surgery in 245 UK National Health Service hospitals | UK | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Table 2.2-1 Related to quantitative descriptive studies*

| | | | | SCREENING QUESTIONS | | 5. MIXED METHODS STUDIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| First author and Year | Title | Country | Category of the study designs | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 5.1. Is there an adequate rationale for using a mixed methods design to address the research question? | 5.2. Are the different components of the study effectively integrated to answer the research question? | 5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted? | 5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed? | 5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved? |
| (Argo et al., 2009) | Elective surgical case cancellation in the veterans' health administration system: identifying areas for improvement | USA | Mixed-method | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **(Hovlid et al.,2012)** | **A new pathway for elective surgery to reduce CRs** | **Norway** | **Mixed-method** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| (Leslie *et al.*, 2013) | Day of surgery CRs in urology: Identification of modifiable factors | Canada | Mixed-method | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Table 2.2-2 Related to mixed-method studies*

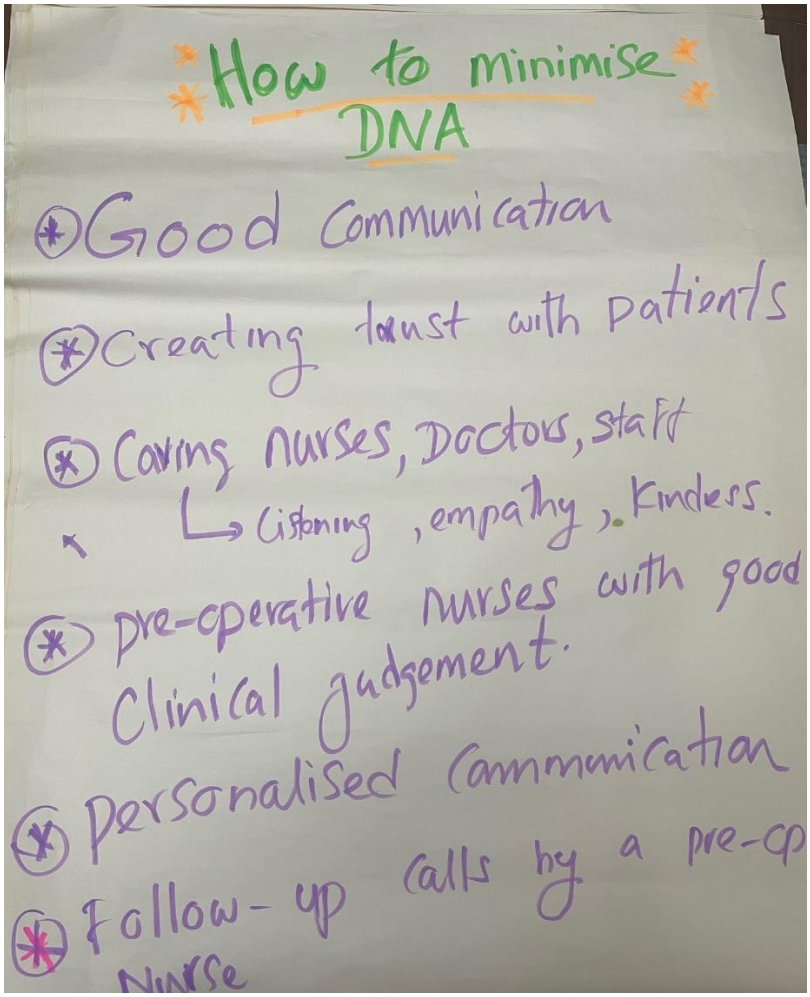
| | | | | SCREENING QUESTIONS | | 1. QUALITATIVE STUDIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| First author and Year | Title | Country | Category of the study designs | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 1.1. Is the qualitative approach appropriate to answer the research question? | 1.2. Are the qualitative data collection methods adequate to address the research question? | 1.3. Are the findings adequately derived from the data? | 1.4. Is the interpretation of results sufficiently substantiated by data? | 1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation? |
| (Hovlid et al., 2013) | Patient experiences with interventions to reduce surgery cancellations: A qualitative study | Norway | Qualitative study | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Vaughn et al., 2017) | Putting a face and context on paediatric surgery cancellations: The development of parent personas to guide equitable surgical care. | USA | Qualitative study | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Table 2.2-3 Related to qualitative studies*

| | | | | SCREENING QUESTIONS | | 3. QUANTITATIVE NON-RANDOMIZED STUDIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| First author and Year | Title | Country | Category of the study designs | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 3.1. Are the participants representative of the target population? | 3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)? | 3.3. Are there complete outcome data? | 3.4. Are the confounders accounted for in the design and analysis? | 3.5. During the study period, is the intervention administered (or exposure occurred) as intended? |
| (Ballon-Landa et al., 2019) | A novel video-based patient education program to reduce penile prosthetic surgery cancellations | USA | Quantitaive non-randomised control trail | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **(Barnes et al., 2000)** | **Influence of an anaesthetist on nurse-led, computer-based, pre-operative assessment** | **USA** | **Quantitaive non randomised control trail** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| (Basson et al., 2006) | Predicting patient nonappearance for surgery as a scheduling strategy to optimise operating room utilisation in a veterans' administration hospital | USA | Quantitaive non-randomised control trail | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Berger et al., 2017) | The impact of the Affordable Care Act(ACA) on Urogynecologic Surgery Cancelation Rates | USA | Quantitaive non-randomised control trail | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Coyle et al., 2012) | Successful introduction of ring-fenced inpatient surgical beds in a general hospital setting | Ireland | Quantitaive non-randomised control trail | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **(Haufler and Harrington, 2011a)** | **Using nurse-to-patient telephone calls to reduce day –of –surgery cancellations** | **USA** | **Quantitaive non randomised control trail** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| **(McKendrick et al., 2014)** | **A 5-year observational study of cancellations in the operating room Does the introduction of preoperative preparation have an impact?** | **UK** | **Quantitaive non randomised control trail** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| **(Olson and Dhakal, 2015)** | **Day of surgery CR after preoperative telephone nurse screening or comprehensive optimisation visit** | **USA** | **Quantitaive non randomised control trail** | | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| (Pang et al., 2019) | Surgery Scheduling Under Case Cancellation and Surgery Duration Uncertainty | China | Quantitaive non-randomised control trail | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Pratap et al., 2015) | Reducing cancellations on the day of scheduled surgery at a children's hospital | USA | Quantitaive non-randomised control trail | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Tan et al., 2019) | Risk factors and reasons for cancellation within 24 h of scheduled elective surgery in an academic medical centre: A cohort study. | singapore | Quantitative non-ransdomised study | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **(Turunen et al., 2018)** | **The impact of a structured preoperative protocol on day of surgery cancellations** | **Finland** | **Quantitaive non randomised control trail** | | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |

*Table 2.2-4 Tables related quantitative non- randomised control studies. Seven out of five studies selected were quantitative non- randomised control studies.*

## 2.3 Appendix 3.6.2 – One of the images of the flip chart diagram summarises the feedback findings.




In the feedback events, the patient representatives identified the following main themes that can minimise DNA ( i.e., patient did not attend surgery): good communication between patients and HCPs, developing trust among patients undergoing surgery, caring nurses, doctors and staff (listening, empathy, kindness), PONs with good clinical judgment, personalised communication, follow up calls by PON.

## 2.4 Appendix 3.6.3-1 - Pre-interview guide to interviewee

**Pre-interview Guidance to Interviewee – Please read this document before the interview**

**How to minimise On the Day of Surgery Cancellations(OTDSC)? (Version 9 after pilot three - 11/03/19)**

Thank you for agreeing to support this study On the Day of Surgery Cancellations(OTDSC) by participating in a semi-structured interview. Please read this document before the interview and identify ideas that you would like to explore in the interview. This interview consists of a series of open-ended questions to gain a good understanding of your experience of how OTDSCs happen and how to prevent them. Please share your valuable experience and insights into preventing OTDS cancellation.

**What is the focus of this study?**

When a surgery is cancelled on the day of the admission or surgery, this is called OTDSCs . OTDSCs are an unwanted outcome of elective care delivery and can be directly linked to care design, various human interactions, organisational policies and practices. In this study, we aim to investigate beyond the initial reasons presented for OTDSCs, such as a patient being unfit for surgery or beds not being available. During this exploratory interview, we are hoping to understand what underlying processes, mechanisms and organisational contexts influence all types (clinical and non-clinical) of OTDSCs.

**What are the questions that will be asked during the interview?**

The interview will start by asking you to explain your role and experience and explore the ideas presented below. We present five ideas that may influence OTDSCs, which we would like to explore in depth. In this interview, it may not be possible to explore all the ideas because of time limitations, but it is vital that we examine each idea that we talk about in depth. This interactive interview focuses on how these ideas and contexts (i.e. features) increase or decrease OTDS cancellations. If you have any preferences regarding which ideas you would like to discuss, please do let me know in advance.

**Please familiarise yourself with the ideas listed below**

I. Some organisations use **standardised clinical care planning interventions** (e.g. structured pre-assessment tools, checklists or pre-assessment tools) that may influence OTDSCs.

II. Some organisations use **standardised patient communication interventions** (e.g. follow-up telephone calls and text reminders) that may influence OTDSCs.

III. Some organisations use **standardised resource allocation interventions** (e.g. use of historical time to predict theatre time, healthcare professionals estimating theatre time) to identify the time needed for surgery, which may influence OTDSCs.

IV. Some organisations use **elective and emergency resource separation interventions** (e.g. dedicated theatres and admission wards for elective care patients or ring-fencing beds), which may influence OTDSC.

V. In addition to the ideas given, can you think of any ideas or interventions that may influence or prevent OTDSCs? If so, please share.

Thank you for taking the time to read this document. Any queries, please contact Buddhika Samarasinghe via

## 2.5 Appendix 3.6.3-2 - Information sheet

**Manchester Business School, University of Manchester**

**Realist Review: Mixed Method Study of the On the Day Operation (OTDO) Cancellations**

**INTERVIEW INFORMATION SHEET**

You are being invited to take part in a research study a mixed methods study on improving productivity and patient experience in elective care among NHS acute care providers in England by investigating reduction of OTDO (on the day of operation) cancellations.

When a planned operation is cancelled on the scheduled date it is called an OTDO (On The Day of Operation) cancellation. These OTDO cancellations have a great negative impact on the patient's and carers' experience (emotional distress, disappointment and inconvenience). The OTDO cancellations create a lot of waste of NHS resources and provide a signal of potentially low productivity of planned care.

Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

**Who will conduct the research?** Buddhika Samarasinghe who is a NIHR Doctoral Fellow. He can be contacted by email at [redacted] or by mail at Manchester Business School, Oxford Road, Manchester, M15 6PB.

**What is the aim of the research?** The main aim of this research project is to complete an in-depth analysis of OTDO cancellations, and understand the factors that influence tem in order to improve elective productivity by learning from the NHS trusts that have lower cancellation rates.

**Why have I been chosen?** We are interviewing or surveying staff in some NHS organisations involved developing case studies. You have been chosen because of your work/professional

role and involvement in planned care which may able to provide a contribution to the research enquiry.

**What would I be asked to do if I took part?** You will be asked to take part in an interview with a researcher, face to face or by telephone, at a time, date and location convenient to you. If interviewed, you will be asked if the interview can be digitally recorded and transcribed.

**What happens to the data collected?** All the Interviews will be transcribed, and qualitative analysis will be undertaken. Survey data, interview recordings and transcripts will only be available to the research team. No data will be used in any report in any way that would identify, either directly or indirectly, any research participant. Data will be retained for 5 years and may be used for further or future research.

**How is confidentiality maintained?** All survey responses and interviews are confidential to the research team. Data will be stored in accordance with the Data Protection Act and University requirements for data protection.

**What happens if I do not want to take part or if I change my mind?** It is up to you to decide whether or not to take part. If you decide not to take part then you do not have to give a reason, and this will be without detriment to yourself. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form if you are being interviewed. If you

decide to take part you are still free to withdraw at any time without giving a reason and without detriment to yourself.

**Will I be paid for participating in the research?** No, but we will provide you with a copy of the research report when it is available, if you would like to see it.

**What is the duration of the research?** Interviews are likely to take 30-60 minutes, and most interviewees will be interviewed only once but in some occasions twice.

**Where will the research be conducted?** Interviews will be conducted face to face at the offices/sites of healthcare organisations in England, or by telephone.

**Will the outcomes of the research be published?** The research will be published in a research report which will be made available to all participants, and subsequently in academic peer-reviewed journal papers.

**Who has reviewed the research project?** This project has been reviewed and approved by the University of Manchester Research Ethics Committee. The project is funded, following a competitive peer-reviewed application process, by the National Institute for Health Research.

**Who to contact for further information or if you have any concerns?** Buddhika Samarasinghe who is a NIHR Doctoral Fellow. He can be contacted by email at

If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Co-ordinator by either writing to 'The Research Practice and Governance Co-ordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL', by emailing: Research-Governance@manchester.ac.uk, or by telephoning 0161 275 7583 or 275 8093.

V3.0. 19/10/2018

## 2.6 Appendix 3.6.3-3 - Consent form

**Title: Consent Form for Interviews: A mixed methods study on OTDO (On The Day of Operation) Cancellations**

Thank you for reading the information sheet about the interview sub-study. If you are happy to participate then please complete and sign the form below. Please initial the boxes below to confirm that you agree with each statement:

| | ***Please Initial box:*** |
|---|---|
| I confirm that I have read and understood the information sheet dated and have had the opportunity to ask questions. | ☐ |
| I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. | ☐ |
| I understand that my responses will be kept strictly confidential. I understand that my name will not be linked with the research materials, and will not be identified or identifiable in the report or reports that result from the research. | ☐ |
| I agree for this interview to be tape-recorded. I understand that the audio recording made of this interview will be used only for analysis and that extracts from the interview, from which I would not be personally identified, may be used in any conference presentation, report or journal article developed as a result of the research. I understand that no other use will be made of the recording without my written permission, and that no one outside the research team will be allowed access to the original recording. | ☐ |
| I agree that my anonymised data will be kept for future research purposes such as publications related to this study after the completion of the study. | ☐ |

I agree to take part in this interview.

| _____ | _____ | _____ |
|---|---|---|
| Name of participant | Date | Signature |

| _____ | _____ |
|---|---|
| _____ | |
| Principal Investigator | Date | Signature |

*To be counter-signed and dated electronically for telephone interviews or in the presence of the participant for face to face interviews*

**Copies**: *Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, and the information sheet. A copy of the signed and dated consent form should be placed in the main project file which must be kept in a secure location.*

## 2.7 Appendix 3.6.3-3 - Qualitative interview schedule

(Two-page simple format version 6 after the pilot – 02/03/2019)

The following template is to be used as a guide to conduct the semi-structured interviews by the researcher. The questionnaire covers the interview during the recording period and consists of three main sections of the recording.

1) **Opening** – Interview start and welcome

2) **Body** – Presents “ideas” using the teacher-learner approach {e.g. Some organisations use standardised care planning interventions (e.g. structured pre-assessment tools, checklists or pre-assessment tools) that may influence OTDS cancellation rates} given in the pre-interview guide one by one to the interviewee.

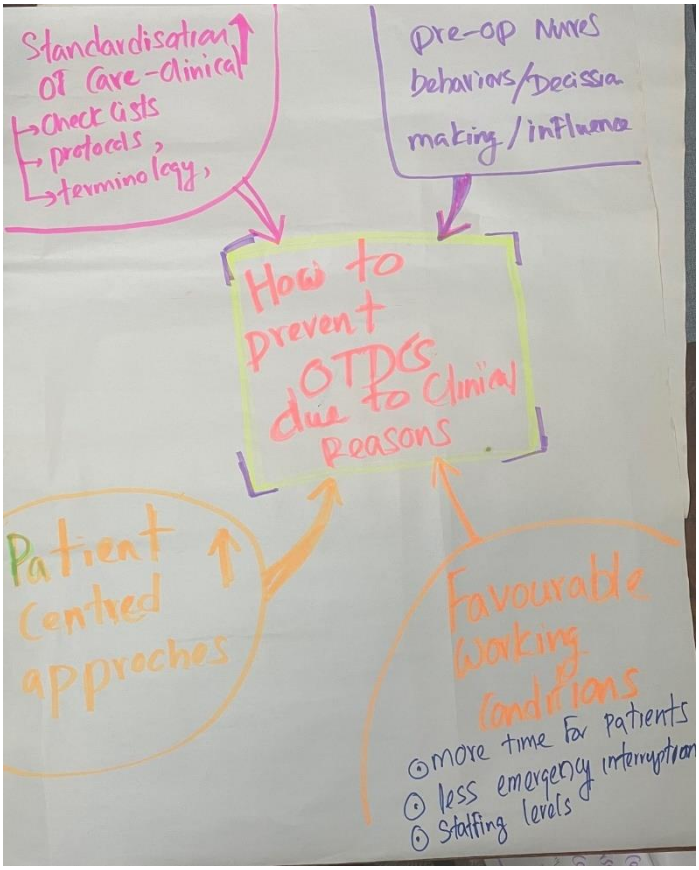
3) **Close** – Interview end

| Question | Notes/further prompts |
|---|---|
| **Opening** | |
| **Welcome and thank you** | |
| Q1 – Could you begin by describing your role? | Gain an understanding of the role beyond the job title. |
| Q2 – How would you describe your experience in managing or dealing with OTDSCs? | Could be strategic, operational or involve experiences as a patient. |
| **Body** | |
| **Moving through the ideas highlighted in the pre-interview guide** | |
| Q3 – Present an idea from the pre-interview guide – What are your thoughts on the idea? | For example, – Some organisations use **standardised clinical care planning interventions** (e.g. clinical protocol, structured pre-assessment tools, checklists or pre-assessment tools) that may influence OTDSCs |
| Q4 – How does this idea work in practice in influencing OTDSCs? | Where the interviewee struggles to answer the question, present the same question in an alternative way – for example, "how would you explain the interventions you mentioned that influence OTDSCs to a layperson?" |

| | |
|---|---|
| Q5. Will this idea work in any organisation? Or would this idea work in any patient community or hospital? | Where the interviewee is struggling, give some prompts highlighting various organisation features such as size or type of organisation, patient community, behaviours, or organisational contexts that appears to influence OTDSCs. |
| Q6. What are the unintended consequences/events of implementing this idea? | These unintended outcomes can be favourable or unfavourable and may not be related to OTDSCs. |
| Similarly, repeat other ideas one at a time, based on the pre-interview guidance, using Q3 to Q6. | |
| Move to close five minutes before the agreed time. | |
| **Close** | |
| Q7. Can you think of any ideas or interventions that might influence OTDSCs cancellation that we have not discussed? | Where the interviewee struggles to answer the question, present the same question in an alternative way – for example, "Any other practices or approaches that stand out for you that reduce on the day surgery?" |
| Q8. Finally, do you have any other insights on how to reduce OTDSCs from your experience in theatres? | This is optional based on the time available and the interviewee – present the same question in an alternative way for example, any other wisdom or practices that stand out for you that reduce on the day surgery |
| Say thank you and highlight that, if anything comes to the interviewee's mind that is relevant, they should not hesitate to get in touch. Thank them again and mention that you are stopping the recording. | |

## 2.8 Appendix 3.6.2 - An example of the flip chart image that was used to synthesise IPTs in phase two.

The following main themes emerge from empirical data on how to prevent OTDSCs due to clinical reasons: standardisation of care-related clinical aspects (e.g., checklists, protocols, terminology); Pre-operative care nurses' behaviours/decision-making/influence related to preparing patients for surgery, patient-centred approaches to prepare patients for surgery; favourable working conditions ( e.g. more time for patients, less emergency interruptions, staffing levels)



## 2.9 Appendix 3.6.3-4 - Interview transcript of a theatre improvement manager

Coding was used as a guide to identifying relevant data to develop CMOCs using a multi-step iterative process.

Yellow–colour coding is used to explain dyads related to contexts, such as how contexts interact with each other, Context-Outcomes (C-O) or Outcome-Context(O-C)

Blue-colour coding is used to explain dyads related to contexts, such as how mechanisms interact with context or outcomes each other, Context-Mechanism (C-O), Mechanism - Outcome (M-O)

**KEY**

| | |
|---|---|
| Bold: | Interviewer |
| Regular: | Respondent |
| *[ ]:* | *Uncertain word(s)* |
| *XXXX:* | *anonymous words* |

**So thanks again for agreeing to participate in this telephone interview about on the day surgery [OTDS] cancellations. Thanks for sending the consent in advance and prepare for the interview by reading the pre-interview guide. Okay, so shall we start by explaining a little bit about the experience around the on the day surgery cancellations that you have so far, just a brief description?**

Last five years I have been working as a theatre improvement manager. As part of cost improvement work, I'm working on how to reduce patient on the day cancellations, it's like a piece of work that our organisation is doing and we're trying to use various quality improvement methodology to do that. Before that I have done similar improvement work in other NHS hospitals.

**Okay, how's the journey so far on reducing on the day surgery cancellation?**

Right, yeah we've got, it's taken us a while to get started, but actually we've got a good group of people who are now quite engaged. So I think we are making some progress; obviously it's not as quick as we'd like it to be, but the issues are kind of multiple and complex, so I think we're just trying to do it methodically and tackle a few things that are highest priority first.

**So did you say you're from a clinical background?**

Hmm, correct.

**Nursing or theatre, or?**

Operator practitioner.

**Ah okay, very good, this is quite useful. We're going to discuss these ideas as highlighted in the pre-interview guide that may or may not influence on the day surgery cancellations. These are just ideas and please feel free to challenge or agree with them. This is the first idea. Some organisations use various standardised patient communication/involvement interventions, such as text reminders and phone call reminders appear to influence on the day surgery cancellation rates. What is your thought on this idea?**

Right, I think the clinical teams play a major role in patient communication. Some patients find it going through surgery very anxious process. Patient communication can be very complex due to social issues and we remind the importance of working closely with patients to clinical teams. Most patient complaints and communication related cancellations, we get are due to failure to communicate with patients (failure of the communication intervention). I think nurses play an important role in communicating with patients. In addition to that, we're doing quite a few things to reduce cancellations, so in the first instance we are trying to make sure that we agree a TCI [To Come In] date with the patient over the telephone, as opposed to just sending a letter with a date on it. So that way we work in accordance with their individual patient needs when agreeing to TCI date (individualisation of communication – IPT Communication).

We try and time that so that the TCI is booked four to six weeks in advance, and then once that is booked in we will then use both text reminders and telephone reminder call for the person closer to the TCI date. So the text reminder goes out at two weeks, and it's a two-way text message, so patients can respond to, confirm, cancel or rebook, and then at about ten days we have a non-clinical person making telephone reminder calls. I think it is important to maintain continuity in communication to reduce [surgery] cancellation on the day(– continuity – IPT Communication). For phone calls, they use a script, they're different for each speciality, and that's focused on what the cancellation reasons are for that speciality. And so, they'll ask them whether they're well and whether anything's changed, and various other specifics. We are trying to individualised communication in the process (individualisation -IPT Communication) and the aim of these calls are to identify any issues for patient and prevent them from attending [surgery] or following pre-op [Pre-operative instructions] instructions (Intermediate Outcome – increase the adherence of care - IPT Communication).

**Okay. So how do you think these patient involvement interventions has influenced on the day surgery cancellations?**

I think it's quite important, particularly for some patients more than others.

**Such as?**

Such as, we do a lot of simple dental extractions (Context – low clinical complexity – IPT Communication), so those patients often have had quite a long period of time elapsed since they've been seen in out-patient clinics, and until they get their TCI date (Context – patient wating for long times – IPT Communication)

. In that time often they've taken antibiotics and their pain has gone away, so they're more likely to DNA. So I think it's quite important that we get in touch with them to confirm that they're still going to attend their appointment for surgery. ( individualised communication and clinical needs)

Yeah I think it's helped a lot and for the first time last week we had zero DNAs week, so that's, yeah, really pleased with that. When you do a high volume of simple daycase it is important to have these types of call system(Context – organisation treat high volume and low complex patients – IPT Communication)

**Okay. How does the patient involvement interventions work to reduce on the day surgery cancellation?**

Yeah. Patient communication is key to prevent many types of surgery cancellations. I think the clinical teams have a major role in maintaining communication (Mechanism – continuity – IPT Communication) throughtout the process and creating the trusting relationships with patients (intermediate outcome – trust – IPT Communication) that can prevent [OTDS] cancellations. Yes, so we're, doing many things to support that and reduce surgery cancellations. we've done a review of our consent processes by way of audit, and we have got an action plan from that, to work on three aspects, one of which is the patient information, the timing of it, how targeted it is for different patient groups, specifically languages and things, people with communication barriers. I think we need to move to communication approaches that suitable for each patient (outcome – individualisation – IPT Communication).

It's things about the timeliness of their communication and whether, in some instances if patients aren't being consented until the day of surgery (context – patient consented late- IPT communication), then we find that they're more likely to cancel, or be cancelled. So it's quite important that we get that communication with the patient right early and maintain throughout the process (Mechanism – continuity – IPT Communication) that suitable for the patient (Mechanism – individualisation – IPT Communication) to prevent [OTDS] cancellations.

**Of course. I mean you mention, you serve a large amount of patients from diverse groups of patients which English maybe not their first language.**

Yeah. These are big challenges that caused various complications including surgery cancellations.

**How do these kinds of things influence On the day Surgery cancellations?**

Sometimes we find that patients will use family members to interpret information, which you know, it's hard to know what the quality of the interpretation is, so being able to provide a leaflet in the correct language, then it's more likely to deliver the intended message, I think is quite important (Context -Patient have difficultly understanding English - IPT communication).

And certainly we've identified that we can do more to be able to do that, so we're in the process of increasing our language provision for our written leaflets (Mechanism – individualisation – IPT Communication – notes: identifying patient needs).Yeah, so I think that's kind of, quite key and we do provide translation services and things like that ( individualisation – IPT Communication). But again if that's only being done on the day of surgery, and then something hasn't been discussed with the patient in advance,(intermediate outcome – complications in communication – IPT communication) then they're potentially going to call for cancellation.

**I know you mentioned patient communication is key, but how would you explain to a layperson, how does the standardised patient communication helped to reduce on the day surgery cancellations? I mean, how does it happen?**

So I mean is, the patient should be reaching a decision with the clinician about the best plan for them, and so that discussion needs to be two ways, and that they both need to agree that if they are going for surgery that is the best option for them. The patient need to be aware of all of the risks and benefits of that course of treatment, and there is a clear agreement about what is going to happen. So there is a level of trust between the clinicians and the patient (Intermediate Outcome – trust - IPT Communication). So if there's anything they get told late about risks, then that might result in them saying, actually no, I don't want that anymore. So that's why it's important to make sure, we maintain continuous interactions (continuity – IPT communication) from decision to treat to near admission to prevent surgery cancellations. Most importantly, communication needs to be personalised. Most [OTDS] cancellations and complaints we get is due to clinical teams failed to personalise the communication (IPT Communication). When communication is personalised to each patient that makes them trust the clinical team and

follow pre-surgical instructions and turn up to surgery (– trust and adherence care and Mechanism – individualisation - IPT Communication). So you could avoid cancellations when you get the communication right from the beginning and maintain until on the day of admission(mechanism – continuity – IPT communication).

**Okay, that's very nice and clear. I think, I mean are you familiar with any other patient involvement that influence on the day surgery cancellation, work outside your organisation or within your organisation?**

So I mean we are planning on doing some feedback sessions with patients in the new year, so we're sort of in the early planning stages at the moment to, to potentially do a sort of, a feedback forum of patients who've been through, for surgery, to just capture the patient experience and what works and doesn't work in the patient pathway. So we're hoping to learn from that as well.

I don't know whether we would write to patients who ended up being cancelled and how we'll sort of frame that, but doing it certainly we're considering.

**How effective these interventions? I mean how, do you see changes in on the day surgery cancellation rates?**

Yeah so our overall combined [OTDS]cancellation and DNA rate has stayed around about the mean, it hasn't changed a lot yet. However, our patient DNA rate has gone down significantly recently. We've had specifically a significant change on our SPC chart that we're tracking that on; and so I think that's primarily due to the phone calls.

We've also seen some reduction in some of the reasons, so for example, we've reduced the number of patients that are being cancelled for an avoidable reason, of them not having been given the correct instructions about stopping anticoagulation medications prior to surgery, because we've implemented them (Intermediate Outcome – reduce various behavioural complications- IPT Clinical care planning and communication). Some steps in the process that remind both clinician and the patients of the need for that communication to take place. So yeah, so we're having some success, but like I say, the overall rate hasn't yet changed. I think potentially the time of year, we're coming to the time of year where we've got patients who are just unwell on the day of surgery, so for unavoidable, you know, they've had [a] recent cough and cold, although we are trying to reduce that through the telephone calls as well, to identify if patients are unwell and reschedule them in advance (context –seasonal changes – IPT – communication).

**That's good. Considering the avoidable cases, will this kind of communication or patient involvement interventions work in any organisation to reduce on the day surgery cancellations, is there any particular features in the organisation that will influence?**

Rephrase it, I'm not quite sure what you're thinking.

**So will these kinds of standardised interventions that you mention work in any healthcare organisation?**

Oh sure, yeah, so are they transferrable but may need some slight changes based on the patients.

**Could you explain this more how this influence surgery cancellations?**

Hmm, I'm sure much of what we're doing would be transferrable. I think there are specific things, so we've got specific scripts for the issues that we know are true for our organisation. So for example, we know that our urology patients, we do some urology stone work, we know that that patient group has a high incident of urinary tract infection, which drive a high rate of patient cancellation (Context – Patient from different clinical speciality i.e. – urology - IPT Communication).

To get the wider communication right staff is key. When you have staff with right knowledge and expertise (Context – staff knowledge – IPT communication), it makes a big difference to patient communication. The biggest complaint we get from the staff is that their workload is high and they do not have the time to deal with patients communication issues (Context – Staff workload – IPT Communication) affect their decision making.

So it's knowing the local context, what your patient groups are and what your reasons for cancellation rates are, and then doing targeted questions around that. But the concept overall of telephone reminder calls in a script that helped to maintain the continuity of communication among patient and hospital (continuity – IPT communication). I think it is transferrable to other hospitals. The reminder calls address both anxiety issues and encourage them to follow instructions (Intermediate Outcome – reduce anxiety and encourage adherence of care - IPT Communication).

I think these approaches helped to any hospital in general but maybe more helpful for hospitals where they do a large number of surgeries in different specialities (context – large organisations with multiple clinical specialities – IPT Communication)

**Some hospitals, you know, serve different types of communities, would this influence on the day surgery cancellation whether it's a rural community, or a diverse community, or a city community?**

Yeah I mean, our serving community is very diverse, so – and suffers from poor literacy levels as well, and so that's another factor, you know, potentially of telephone call reminders are potentially a good idea for our community, because if you send a letter they may not be able to read it (Context - literacy issues – IPT communication).

So just having that direct conversation might be helping us to understand their problems (Individualisation – IPT communication).

Yeah so I think in XXXX [taken out for anonymity – a name of a region in England] it would certainly be transferrable, other areas outside, might have different communities that they might need to adapt to.

**Okay. I mean that's quite interesting your observations. Are there any unintended consequences of, you know, doing this kind of standardised interventions like text messages.**

Yes (laughs). So from the telephone reminder calls, what we have found, one of our other KPIs is, we're tracking early finishing in theatres, i.e. unutilised theatre space, and so what we are finding is that we, maybe identifying patients who aren't going to – would otherwise be cancelled on the day of surgery, and we're identifying them in advance, but that theatre slot is then able to be reused to its full intention (Additional Outcome – underutilisation theatre list i.e. unintended outcome - IPT Communication)

So some of our lists are going, it is underfilled, so we're, at the moment we're sort of looking at strategies how we can pull patients in at short notice in the most efficient way, because that's obviously a, not ideal.

**So how, when do you send the reminders, is it a week to go or?**

The telephone reminders it's ten to seven days.

**Okay. Any other unintended consequences you think, with any other intervention, not only the text reminders, any communication?**

None that I can think of off the top of my head.

**Thank you. Thanks that's quite a nice one actually, quite comprehensively done. And let's go to the next idea which is, about workforce interventions like**

**providing overtime or extra bank staff. So there is an idea that healthcare organisations who adapt flexible workforce planning practices can influence on the day surgery cancellations. Any thoughts around this.**

So we have got a couple of things, so one of which is running additional sessions on a Saturday, so they're waiting lists initiatives basically, for specialities who have got waiting list issues. So they can influence the cancellation rates, because on assessing this, we first do patients who are more likely to be a day case who are more likely to be straightforward. But general surgery is a speciality I'm thinking of, and what we find is that those patients, some of them tend to be pulled patients, which we find does influence cancellation rates, it makes it more likely that patients will be cancelled on the day of surgery, because they'll be new information come to the surgeon that is operating and it, yeah results in a cancellation (Intermediate Outcome – Complications in care planning – IPT care planning). These are problems due to our pre-op protocol and most cancellations are more complex cases that need an inpatient bed (Context – clinical complexity – IPT standardised).

The other thing is that we have been trying to backfill theatre sessions when we have clinicians on leave. So as to, not have to run so many Saturday session, and keep waiting lists under control.

In some instances we've done this through the use of locum surgeons for a speciality in a particular issue, so where general surgery, max fax and orthopaedics we've tried that in; and again inherently those locums that are coming in, the patients will have been seen by someone else, and so that, for the same reasons as before tends to result as a higher rate of cancellation.

**Okay, so what you're saying is the clinical practice of different clinicians can create on the day surgery cancellations?**

Yeah.

**What is exactly driving these on the day surgery cancellations?**

Yeah, I think, I think it's just a difference in clinical opinion, or it might be that, with the clinician who's ordered the procedure, had meant to do an additional test and because they haven't turned up back on their list, they haven't then completed that task, so it might result in those tests and things like that. But generally it's mainly about not able to maintain consistency in the care planning process due to difference of clinical practice (=– consistency- IPT standardised care planning).

**Okay. So can you give me a little bit of example of something, anything you're familiar with, if possible?**

So in orthopaedics, it might be that the clinician decides that conservative treatment, on discussion with the patient that they both decide that conservative treatment would be better, or they need to have an injection rather than an actual operation or that sort of thing. So it's sort of, I think within the realms of normal clinical practice, that just, yeah, that on a different discussion, on a different day, they come to a different conclusion from the first person who saw them (– consistency- IPT standardised care planning). All these problems can be related to the limitations in our standardised pre-op process.

**Thank you, that's right. Coming back into workforce related interventions. Some hospitals use interventions like providing overtime to staff that may influence On the day surgery cancellations – have you familiar with it?**

Yeah, I am not sure about how and why overtime given in our theatres. We don't suffer from a great amount of overruns in daycase lists. We get overruns with complex cases. We do use historic patient time averages to plan this. So generally speaking, you know, we have a low rate of cancellation due to a lack of time in most daycase lists, and (contexts – low and high clinical complexity- IPT –theatre resource allocation) they don't tend to need to work a lot of overtime in our organisation, in comparison with others I've worked in. We used to provide overtime to avoid cancellations in my previous organisation. It is good for both the patient and organisations. The other thing is that in my previous hospital they use lots of overtime to discharge patients which I guess helped to maintain the patient flow and reduce cancellations (Intermediate outcome – complications related to patient flow, i.e. delay discharges – IPT – workforce flexibility)

**How does interventions like overtime help? I mean to reduce on the day surgery cancellations.**

In theatres things go out of the plan or have complications, some are predictable and some can be unpredictable. The overtime provides the resources that needed to avoid cancellations. (outcome/Mechanism – flexibility – IPT workforce/scheduling interventions)

**Okay. Will this kind of working practices like overtime work in any hospital, or any organisation in England, or outside?**

I think most hospitals probably do that, and I think it's quite a common way to try and increase capacity short term (outcome/mechanism – flexibility/scheduling interventions – IPT workforce) and my previous trust they gave lots of overtime to save cancellations from list overruns plus and reduce delay discharges. Particularly for addressing short term

problems, for example, if a surgeon has been on long term sick or something and/or been unavailable for a prolonged period of time, and they're waiting just to filter up, and I think it's a way of clearing a backlog. We are doing lots of weekend lists. Obviously, I don't think it's an effective way to plan, to run services, at additional cost, it's been a term bringing it into Monday to Friday working, and tackle patients that way, but yeah, sometimes.

**I mean yes, from a capacity point of view they really – I mean would the on the day surgery cancellation point of view, interventions like overtime and flexible rota have an impact?**

Yeah, I think possibly, at least you can guarantee that those lists are done by people who have seen their patients first. I think that would be an intervention that some might consider to reduce the cancellation rate on those sorts of lists. Generally, flexibility in resources can help to reduce cancellations due to list overruns (mechanism – flexibility – IPT workforce).

**So I mean I think you touched on it a little bit, what kind of unintended consequences that may arise due to these kind of practices?**

Yeah so, sometimes these lists are planned at short notice, so I think anything that's done that isn't part of the usual process makes it more likely to fail. So for example pre-assessment [night 0:22:08] might've been missed, or you know, something like that, or been communicated to the wrong person. Sorry I've gone off track slightly, yeah, no.

**Okay.**

Yeah sorry.

**That's okay. That's fine, Let's go to the next idea, which is that some organisations use various standardised theatre resource planning interventions, and sometimes they use predicted theatre times based on historic data or healthcare professional base approaches, which appears to have, influence On the day surgery cancellation rates ?**

So we do use predictive theatre times, we've redesigned our theatre list, so that the predictive theatre times appear on theatre lists, so that the teams are aware of how the lists have been planned at the beginning of the day, or in advance, ideally. So they can flag if they think that they have the information that means that it's likely to be untrue, so I think that's quite useful, because it just means that on the day, hopefully you're less likely to have an unexpected overrun, resulting in a patient cancellation due to lack of time.

So we've been using average operating time for a good couple of years now, and like I say, our overrun rates are not particularly high in daycase lists (context – low complexity – IPT theatre resource allocation). And our non-clinical cancellations due to lack of time are relatively high in the mix and complex case lists (context – the clinically complex patient- IPT – theatre resource allocation). For example, colon-rectal cancer cases, half of the time theatre time is wrong. It is a big issue for us, it is something that we monitor and try to plan accordingly.

Sometimes we try to prevent cancellation by moving the patient into a different theatre, where you can find a list that is going to complete early (mechanism – Flexibility – IPT workforce).

Sometimes it'll be a smaller case that gets cancelled as a result of the wrong time prediction in major case (Context – clinical complexity – IPT – theatre resource allocation). For example, with colon-rectal cancer case, they schedule two small cases which one or both tends to cancel. The staff were told to try to prevent cancellation by moving the patient into a different theatre.

Variation mostly coming from patient factors. I think if they're complex but predictable, then you should plan that, if it's completely unpredictable then, or high variation, then I think you'll struggle (intermediate outcome – variation)

If you consider all the patient factors in care planning, related to the surgery, you can make variation reduce (outcome– comprehensive – IPT standardised care planning).

**Yes. I mean what, any other interventions, or any other practices what make sure the resource allocated to patient the influence on the day of the surgery?**

Yes, so we're going through an exercise of reviewing our demand capacity and reviewing our planned theatre schedules in place at the moment. So it's quite a complex piece of work.

So yeah, so I think that is definitely something that, is, does help to get your right amount of capacity, and for each service. What we're trying to do with that is reduce half-day operation theatres, so that we have more all-day theatre to avoid the list finishing twice in a day, which in itself would raise the risk of overruns and therefore cancellations.

**Okay. So how do you allocate beds in the organisation?**

So we're really fortunate in that most of the time we don't lack surgical beds, and our particular hospital we do not have a high rate of day case surgery due to emergency

problems (Context – less emergency pressures). This may changed in the coming months and we are making changes for that. We do some inpatient work as well, but we tend to do lots of daycase surgeries. We do have ring fence beds, so our orthopaedic ward is ring fenced, so it's orthopaedic elective ward only, so that helps the orthopaedic service not be affected by, sort of any fluctuations in medical beds, or other specialities. Ring-fencing helped to protect beds (– protection – IPT separation) tends to work well until there is a big increase in emergency demands (context – increase in emergency demand – IPT separation)

**So basically you don't do much emergency work at all?**

We do but not the scale of large teaching hospitals, yeah. In some occasions, we do get some problems but mostly fine except in the winter months.

**So you do not get many post-operative beds related surgery cancellations.**

Not due to emergency issues similar to other large teaching hospitals. Mostly wrong beds booked that are related to care planning and variation in clinical practice (intermediate outcome –care planning complications – IPT care planning). Um, yes so occasionally we have that when patients haven't arranged an, if board, to attend hospital to collect them following day surgery . So in that case we would request whether there's a bed available from the site manager, and if there's not, then that would result in a patient cancellation if they can't be done under local[anaesthetics].

**Okay. Thank you.**

We have done some interventions to try and reduce that.

**Like?**

So in our pre-assessment clinic they always spoke to them about meeting an escort, but what they now do is they take the name and phone number off that person, just so that there is actually definitely a person and we've found that that's had reasonable success with that, you know, not perfect, but we feel like it's sort of giving that bit of ownership to the patient, you know, they've identified someone and we've got the number for that person, so they're going to give a call on the day.

I think it is important to maintain capacity alignment. Well if they don't align, we get many problems. Particularly we've got quite a number of morning and afternoons here, so if a morning list overruns and it's going to have an impact on the afternoon list, so a decision would need to be made whether their overrun can be allowed, or whether we need to

cancel to accommodate the speciality. This why some flexibility in resources can help( outcome/mechanism – flexibility)

**Okay. I mean you tend to understand your demand and capacity much more better as an organisation, how did you manage to do that?**

(Laughs), we're still learning. I think-

**At least from the bedside.**

Say again.

**At least from the bedside.**

Um, so we, um, how do we, so our demand capacity is worked out on average cases per list, so we've sort of used historical data to work out how many cases each speciality does, then a productivity measure, but we also have been used to match up demand capacity. So if we've been, if we're expecting to do 2.9 cases per list for a speciality, that then, if we've got a number of patients on our, if we know what our demand is, through our decisions to a bed, then we can work out how many, what our capacity needs to be based on that, so that's what we have been doing.

**What about the bedsides, do you know how many beds, for example, do you know tomorrow how many patients are coming, or somebody else know in the organisation?**

The site managers manage that. I personally don't know, yeah I sort of don't get involved in that part of the operation, but yeah.

**But do you know there's a process around that?**

Yeah, yeah, so and then what's also helped them with reassignment for the theatre list, is that the information is much more accurate now, and with patients, are expected to be day case or in-patients, so they've got visibility of the plan. So then if there's anything different from the plan that means we escalate it to the site managers.

**No that's fine, thank you. A quite interesting response to what I get normally, so.**

Okay (laughs).

**Because most university hospitals tend to have capacity issues related to beds?**

Oh right, because of emergencies.

Well I'd imagine like, like it's just inferred if you have a high rate of emergency work that impacts on elective, whether that's theatres based or beds. Then I'd imagine that, you know, that can be quite tricky to transfer over. I think the plan can be transferred over, but you would need to then take into account of what then happens, you know, the unpredicted effect, and look for any trends in that, and then basically factor that in I guess.

**Let's come back to the idea around interventions used to allocated theatre time such as using historical data to allocate theatre time. Will this kind of work in an organisation with emergencies or university hospitals, or tertiary hospitals, is that what you're saying?**

Yeah, so I think, tertiary hospitals may, I guess as soon as you've got a busy A&E, if you – yeah, I'm just trying to think back to my experience in other hospitals, where if you rely on, if you need a lot of ITU and HTU bed support, then you might be more likely to, you know, if patients can produce that. It's not as much of an issue here, although it's not without, you know, we're not without knowledge of the problem. Another thing is the delay discharges. But it's not such an issue for us here.

**Sorry – I lost you there, can you explain what are you saying again, please ? how does what are you saying influence on the day surgery cancellations?**

Sorry, emergency demand has a big impact on surgery cancellations (context – emergency capacity – IPT resource separation), but luckily, our emergency demand is not very high at the moment. Based on my previous experience, patient flow problems tends to create bed blocking (Intermediate outcome – capacity related complications) which tends to create [surgery] cancellation due to beds. Mainly critical care and inpatients bed which put cancer and other major cases at risk of cancellations. Maintaining patient flow throughout the hospital is very important to reduce cancellations due to beds. We have extra clinical space in recovery, and we got a small discharge lounge, which gives us the flexibility to maintain the patient flow better(Mechanism – flexibility). In winter, sometimes we get too many complex patients that need discharging (context - complex patient), which cause delays in discharges which tends to create cancellations.

The delay discharges and patient flow issues create lots of capacity problems like bed blocking can influence the various capacity related problems which can create delays or

patient result in surgery cancellation (intermediate outcome – complications in capacity due to bed blocking : mechanism – patient flow). In my other trusts, the main theatre delays are because the clinical team wait to get a bed from bed managers which is very common with hospitals who have a busy emergency department. I think it would just make it more difficult for you to get your accurate time required for theatre timing (context – busy emergency department – IPT – Theatre resource allocation).

**Thank you. That is helpful. Again, coming back to theatre predictive times that you mentioned? Would it work for any type so hospital?**

Sorry, I am saying theatre delays are connected to bed issues. Okay, In my view. All depend on the organisation case-mix, if they have many major cases, it is unlikely to work. For university hospitals do a high number of major cases it is unlikely to work predictive theatre timing(context – clinical complexity – IPT theatre time allocation). When it comes to reducing capacity related cancellations, I think the most important part is having the right leadership that aware of the problems and encourage teams to provide feedback and learn from each other(mechanism - feedback and learning and Intermediate outcomes – awareness). Having good capacity also helps. Most occasions, staff can save cancellation from list overrun by creating a flexible capacity (mechanism – flexibility)

**That's fine. So I mean the interventions that you mention, are there any unintended consequences, outcomes arise from these kinds of interventions, like you know, you said, the average theatre times?**

Not really, I think there's a danger in thinking that the numbers will always work. Some interventions may not work for some patients. Providing feedback is very important within the organisation is important to prevent cancellations (outcome/ mechanism- feedback). I think you have to talk to others and see what's happening, and so if you notice a drop in the number of patients going through, then you need to understand the reasons why, so I think it's about having KPIs set up to tell you what you need to know, and one of our services at the moment, we're a bit behind plan from where we thought we were going to be, and we have been changing the service. So we just need to dig down to understand what the changes have meant, and then re-plan basically, because – so, for example, the, one surgeon's retired and there's been a gap and we're waiting for another surgeon to start, and in that time the services case mix will have changed, because that surgeon did that kind of case mix, so things like that that you have to be aware of the whole time of what the changes were there, so you can't just go over those with the numbers, it isn't going to work.

**That's fine. I know you only allocated hour for this and the time is running out and lets move into the next idea. This is another idea. Standardised care planning interventions such as protocols, checklist and pre-assessment tool appears to influence on the day surgery cancellation rates. Any thoughts around this and in your experience, what type of standardisation is used in your organisation for elective care services?**

So one example of this is that patients on anticoagulation medication which leads to high variations in clinical practices (Intermediate outcome - variation in clinical practice) as we didn't have a clear, standardised process to cover perioperative anticoagulation guidance, which we now do have. And so having that in place has helped us engage with clinicians to say, oh you know, has this patient been given their instructions, whether they need to stop or whether they need bridging, has it been arranged, and it allows us to put a bit of challenge back to them, to say, oh has this been done. Whereas when there was no clear process or policy, there's no sort of standard to hold them against, so I think that that's quite helped. I think the clinicians have found that helpful as well, they know where to go for that information, so they can be confident with the information that they're giving to patients. So all clinicians work in a certain agreed framework (mechanism – consistency-standardised care planning -advantages of standardisation) which reduce surgery cancellations due to anticoagulation management. Yeah, it's been quite good.

**Thank you – Is the pre-assessment process been standardised? Or do you use these interventions I mentioned like pre-assessment tool or checklists**

Yeah, we do use that you mentioned may use slightly different names. We're working on our pre-assessment process, we're – yeah, it's not as effective as we'd like it to be for various reasons, around capacity and things. We've got a bit of a backlog of patients waiting to go into the service. Sometimes the process does not work for complex cases, So we are trying to put things in there (context – standardsation do not work for complex patients)

What we'd like to get to is we're intending to develop, like a patient passport, so that the patient has a booklet that basically has the steps of their pathway to surgery in it, so that they can record, or the clinicians can record for them in their book, bits of information that are pertinent to their surgery, to their pathway. So yeah, and what the enablers for others to see that as well, but most importantly for the patient to be, able to have that at home so that they can refer to it.

So we haven't developed it yet, we're kind of getting our processes sorted so that we, you know, get the right things for the booklet. But that's our intention.

**I mean do you think your pre-assessment processes are standardised?**

Yeah, I mean it is, you know, the actual information that's collected is on a form on our out-patient record, so it's quite, that is quite standardised. So yeah, I mean from that point of view it is.

**Okay. I mean you said it's difficult to, there were some difficulties?**

Yeah, capacity, the other issue is the timeliness of pre-assessment. So we would like to move to a walk-in model of pre-assessment, so that the patient is seen almost immediately once they're listed. At the moment we manage mostly a booked system, so patients are, tend to be booked for their pre-assessment at the point they're getting their TCI booked, rather than they've already been set.

So that can cause problems over a short notice. It takes away the point of pre-assessment if you're only doing it a few days before anyway. It doesn't give you much time to manage and optimise a patient.

**Okay. Does the standardisation in care clinical planning influence on the day surgery cancellations?**

Yeah, I guess for that example it would be clinical cancellations, and so – well the ones that I'm thinking of is when patients go through pre-assessment and need cardiology and important things like that, and you get a different clinician on the day who would like additional tests or an opinion. So I think there is some, it's much like the earlier example, there is some differences in clinical practice, around, where we would like to standardise there as much as possible,( intermediate outcome – reducing variation practice – IPT standardised care planning). Yeah, Standardised care planning reduce variation in practices but need good time to do all the assessment and caring. *The issue is pre-op nurses need to be very sensitive to patients' clinical and emotional needs and act caring ways (compassion - mechanism) to avoid surgery cancellations (main outcome)*

**That's fine. I think – will the standardisation work in any organisation? Or any features you can highlight?**

Yeah, I mean I would imagine so, I mean I think it's only what most organisations are trying to achieve, standardisation where we can. Standardised care planning reduces variation in practices by making the process consistent and gives the platform to improve team working (– consistency & intermediate outcome – reducing variation practice – IPT standardised care planning).

**What are the unintended consequences of, or outcomes, due to standardisation processes?**

I guess it's just if there's any individual patients that don't fit into the standard process, I suppose, or specific procedures. It might require things to be done outside of other SOP or a guideline, so I guess there'll always be exceptions to the rule is what I'm saying. *This is where nurses need to step up and be confident in their clinical decision (mechanism), empathy and caring behaviours (mechanism).* It is important that care planning become individualised, otherwise you will find some problem down the care pathway – individualisation – IPT standardise care planning) like surgery cancellations.

**OK – So it is important to be care being individualised but are saying pre-op nurses need to be trained in providing caring and empathy to reduced cancellations.**

Most nurses are really caring but they are under lots of pressure from many parts. Over the time, things got very bad for pre-op nurses. There working conditions do not allow them to do the job. The problem is we have too much pressure from CQC, NHS England (macro-context) plus the management (meso-context). Especially, pre-op nurses have been under a lots of pressure and suffering from very high workloads due to anaesthetists and nursing shortages(meso -context). This is the real cause of all these surgery cancellations. Pre-op nurses work is critical to avoid all types of surgery cancellations. Last few years we lost lots of good nurses due to NHS pressures(meso -context). They have very little support from anyone and cannot stand up for management to do the real nursing job. They are asked to do as told by the managers to get the targets done. They have very little control over their role (micro-context) and very extremely unhappy with the job micro-context). This is a big problem in all NHS trusts. Without good nurses, we will always have big problems like surgery cancellations and delayed discharges.

**Thank you – that is interesting. If I am not mistaken, you are saying, It is various policy and organisational contexts that negatively impact on nurses, I meant pre-operative nurses' practices or behaviours which create failures to the individualisation of care.**

I do not know what you meant by context, I mean unfavourable working conditions do affect pre-op nurses clinical decision-making. *Most important thing is pre-op nurses do all the right things to prepare patients, so that anaesthetist trust (mechanism) the patients care plan to make sure the patients do not get cancelled on the day of the surgery. But it*

*is hard to very hard with what is going on in the wider NHS. The nurse need time and head space to do their nursing job properly (micro -context – clinical autonomy). Things get very complex in some patients, so having this understanding about the anaesthetist's decision making(mechanism – situational awareness) is key to avoid cancellation but they need support from matrons and senior clinical team (inter-professional collaboration) to gain that understanding.*

**So you are saying pre-op nurses decision-making is critical to prevent OTDSCs due to clinical reasons, although the anaesthetist cancelled the patient?**

Yes but anaesthetist cancelled them when the patient is not clinically prepared properly by the nurse. *when PONs provide confident clinical decisions (self– efficacy mechanism – and individualisation of care ) is vital to have good clinical plans that address all the patients clinical risks. It is also important that pre-op nurses have empathy and caring practices (compassion - mechanism) and create trust among patients (mechanism) to prevent surgery cancellations.*

**Sorry – then the question is, so how do you create these behaviours among pre-operative nurses?**

The pre-op nurses are mostly, know what they need to do. The issue is that policies like austerity measures, high workloads, and emergency disruptions create very challenging situations for nurses. Making things hard to do their nursing job in a caring way. There is lots of documentation, tools and checklist. The pre-op nurse's confidence in their clinical decision and caring is important, every patient is different, so you really need to make the process standardised and individualised, so then you can prevent on the day surgery cancellations due clinical reasons.

**You mentioned something like standardised as well as individualised to prevent on the day surgery cancellations – how do you do in practice?**

Yehh, sure – the Pre-assessment protocol is standardised but the pre-op nurse need the time, training and support to do their job and make the protocol individualised for every patients.

**Ok -that is interesting - Can you give me an example how it work in practice? And how this prevent on the day surgery cancellations ?**

So pre-op nurses need the clinical time and less interruptions to do their job to complete the pre-assessment protocol and prepare patients for caring and good clinical decision making. It is a lot about making the right sort of environment to work, which will prevent problems on the day. When pre-op nurses prepare patients considering all clinical needs, they rarely get cancelled by anaesthetists on the day. I mean the one due to clinical reasons . But these are problems we can not really resolved by one group – this why things like surgery cancellations are massive problems and complex once to resolve. Things got really worse after austerity measures and due to high emergencies plus staffing issues.

**Okay. Thank you very much. Is there anything else do you think that helps, interventions or processes that helps cancellations that come to your mind, or anything, that influence cancellations?**

We've got sort of environment, like on our driver diagram one thing that we've put is sort of environmental issue, so that would be non-clinical cancellations due to sterilisation services failing, or to theatre temperatures not being maintained to optimum levels, things like that, that are kind of organisational issues that staff within theatres aren't necessarily able to directly affect. So that's something that we've raised up at organisation level to just make sure that there are contingency plans and for any of those sorts of things.

Apart from that, we've put in new stuff, processes into increase feedback among various clinical and management groups to improve the awareness ( situational awareness – mechanism) and identify problems early. Creating huddles in theatres and escalating potential cancellations early in the day, so that troubleshooting and senior management can help to resolve any reasons that are able to be resolved. So I think that that's quite

important to reduce cancellations in theatres. (intermediate outcome – situational awareness of problems)

**Yeah. So what kind of – do you have an escalation process, or is it a kind of-**

So we do, it wasn't particularly well followed, so we're in the process of revising it at the moment. It is similar to feedback but done in a formal way. Basically before a patient gets cancelled for non-clinical reasons, that should go up to the matron or to the general manager first, before the patient's cancelled. The idea is that make the matron aware about the problem and find a solution to reduce the cancellation where possible (mechanism/outcome – feedback :intermediate outcome – awareness about complication). If the cancellation's unavoidable, then we want the patient to leave with a new date arranged, so that we meet the twenty-eight day target as well.

**I mean the other question is, who cancels patients in your organisation?**

Um, that's slightly contentious. If it's a clinical cancellation, then it's usually clinicians, it could be, if it's non-clinical then that would usually be the general manager who makes that decision, yeah.

**What tends to happen in the practice?**

Clinicians often, it's only when you find out later, so that's the purpose of us putting a new installation protocol just to make sure that, just so that we can assess if we find that anything could've been done to, to avoid the cancellation has been done.

**Is there anything we missed that is important to reducing surgery cancellations?**

Yehh, Currently, to meet the emergency demand, we are separating emergency, and elective resources that help to protect electives from emergencies (mechanism – Protection – IPT separating resources) but all depend on emergency demand (context – emergency demand). But in the winter, the cancellations go high as the protection do not work when the emergency demand increase (context – emergency demand). Sadly major cases need inpatient and ITU beds tend to go down as when emergency demand increase which means whole day theatres are not being used and create big financial problems and big waste (outcome – waste of resources and financial problems)

**Finally, any other wisdom to reduce on the day surgery from your long service improvement career in theatres?**

*on the day surgery cancellation is a very hard problem to resolve in NHS. I think it takes a long time to get good results due to various complexity around surgical care and due to*

*austerity measures and problems in NHS. Most of the on the day surgery cancellations are preventable especially, clinical reasons*. I think, you can prevent or minimsie them by good clinical decision making.

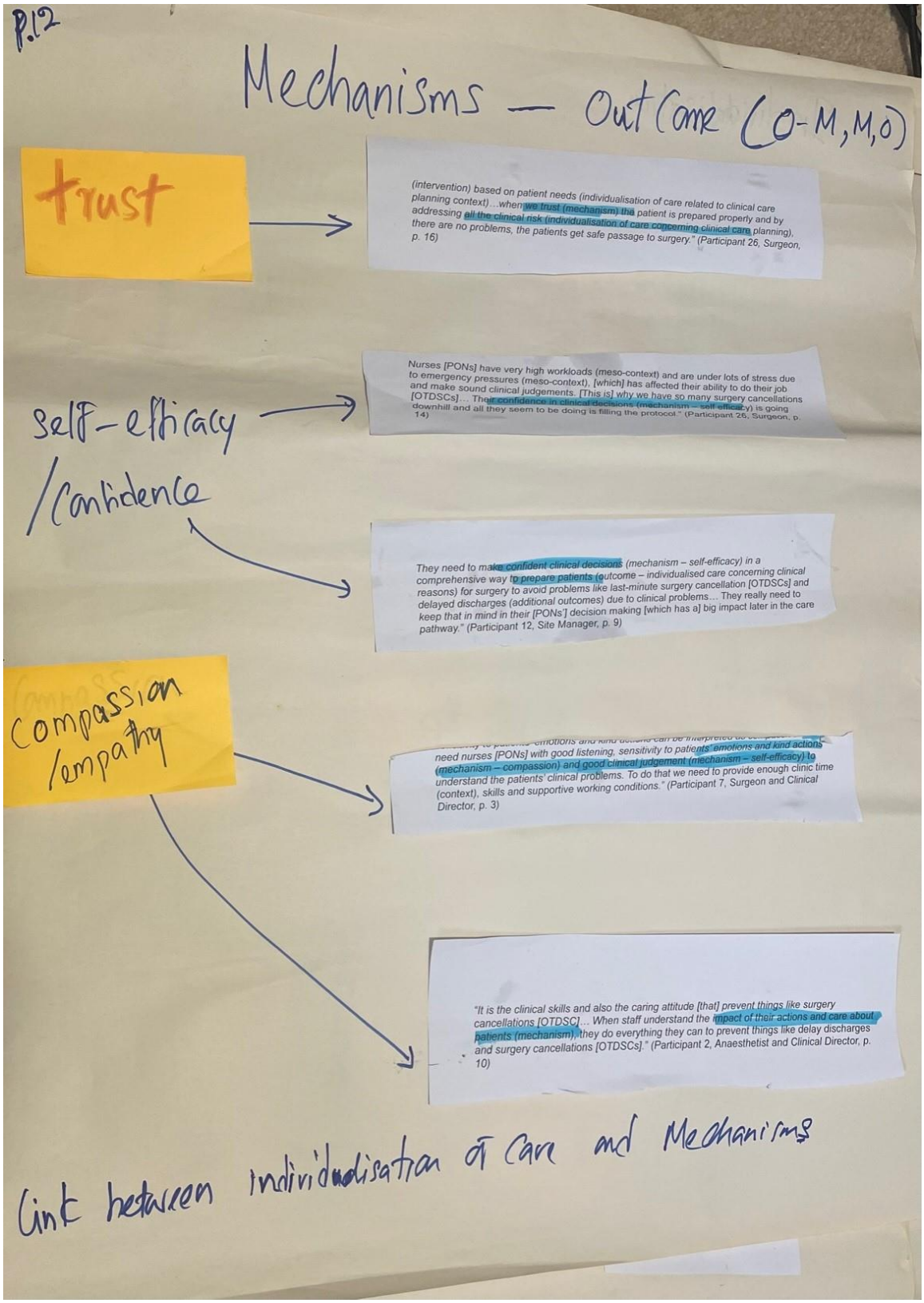
In my view, the most important thing is creating opportunities for feedback among the team members and different levels of the organisation (mechanism – feedback). Feedback and understanding the situation is very powerful to reduce cancellations as well as improve patient care needs. Feedback creates much needed awareness about the problem between teams and different levels of the organisation(intermediate outcome/mechanism – awareness of the problem). Last month in two consecutive weeks, we had several major colorectal cases went down due to simple care planning issues, providing feedback helps to make them aware about mistakes and prevent these happening (feedback). I guess, the work I do as service improvement professional is all about creating feedback (laughs) between various groups in the care pathway and hospitals. The other factor is very much connected to feedback, which is having good clinical engagement and caring culture towards patients which creates the learning culture (context – clinical engagement and caring culture).

**Okay. All right, thank you very much your time. If anything comes to you're your welcome to write to me. I'm going to stop the recording.**

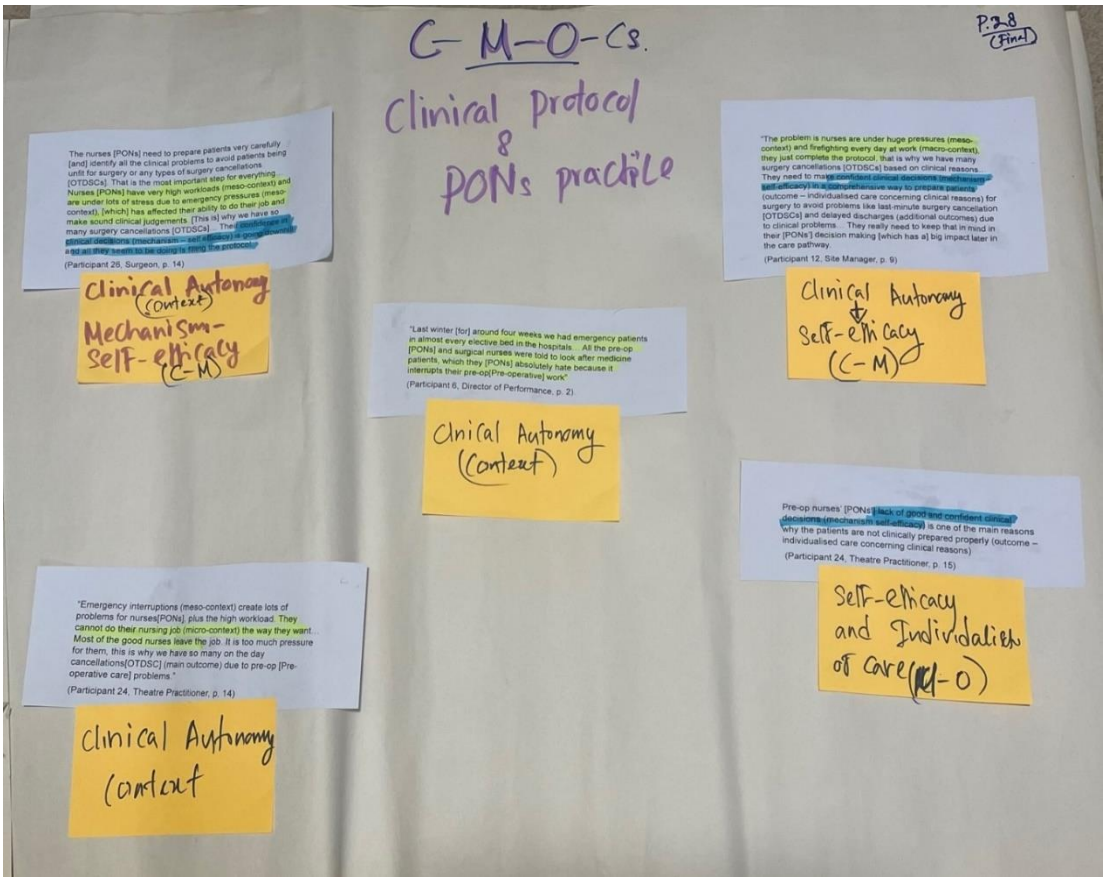
Perfect. I did enjoy the conversation. Sorry, have to go for a meeting in a few minutes on the other side of the hospital.

**Cheers once again. Thank you so much for your input. It is very helpful any queries please get in touch with me.**

## 2.10 Appendix 3.6.3-1 - An example of the flip chart image that used to analyse the findings in phase three.



## 2.11 Appendix 3.6.3-2 - An example of the flip chart image that used to synthesised CMOCs in phase three.



## 2.12 Appendix 4.4 – Variation of the reasons for OTDSCs in the eight NHS trusts.

| Trust A | Trust B | Trust C | Trust D |
|---|---|---|---|
| 1. Patient cancel - unfit<br>2. Hospital cancel - lack theatre time/list overrun<br>3. DNA: reason not known<br>4. Hospital cancel - consultant decision<br>5. Hospital cancel - ward bed unavailable<br>6. Hospital cancel - HDU bed unavailable<br>7. Patient cancel - domestic reason<br>8. Hospital cancel - lack [of] theatre staff<br>9. Hospital cancel - infrastructure problems<br>10. Patient cancel - does not want operation/admission<br>11. Hospital cancel - lack [of] theatre equipment<br>12. Hospital cancel – Patient delayed to admin high priority patient<br>13. Hospital cancel - patient admitted as an emergency<br>14. Patient cancel - anaesthetic decision<br>15. Hospital cancel - equipment failure<br>16. Hospital cancel - lack [of] surgeon<br>17. DNA: Patient unfit<br>18. Patient cancel - already had operation/admission<br>19. Patient cancel - treatment not necessary<br>20. DNA: did not receive letter<br>21. DNA: Patient already had operation<br>22. Hospital cancel – case notes missing<br>23. Hospital cancel - patient given wrong information<br>24. DNA: domestic reason | 1. Medical reasons<br>2. DNA<br>3. Cancelled by patient<br>4. Beds not available<br>5. List Overrun<br>6. Sickness & Absence<br>7. Admin Reasons<br>8. Patient did not follow instructions<br>9. Emergency<br>10. Equipment & Facilities issues<br>11. Ward issues<br>12. Consent issue<br>13. Transport<br>14. Staffing Availability<br>15. Radiology - not booked | 1. Cancellation reasons<br>2. Cancellation reasons<br>3. Patient Unfit<br>4. Patient DNA<br>5. Theatre List Over Ran<br>6. Patient No Longer Required Procedure/Surgery<br>7. Emergency Surgery Took Precedence<br>8. Patient Declined Operation<br>9. No ITU bed available<br>10. Further Investigations Required<br>11. Essential Equipment Not Available (please specify in comments section)<br>12. No HDU bed available<br>13. Shortage of Theatre Staff<br>14. Difficult Case Earlier on the List<br>15. Other, Please specify in comments section.<br>16. No Surgeons Available<br>17. Admin Error<br>18. No Bed Available<br>19. No anaesthetist<br>20. Transplant Took Precedence<br>21. Patient Given Wrong Date<br>22. No ITU nurses available | 1. Previous Patient Complications<br>2. Replaced by Emergency Patient<br>3. Theatre Equipment - Breakdown<br>4. Ward Bed Unavailable<br>5. Staffing - Surgeon Unavailable<br>6. ICU/HDU Bed Unavailable - Critical Care<br>7. Sickness - Surgeon<br>8. Administrative - Other<br>9. Staffing - Theatre Staff Unavailable<br>10. Sterile Equipment - Preparation Error<br>11. ICU/HDU Bed Unavailable - Cardiac<br>12. Administrative - Interpreter Not Booked<br>13. Sterile Equipment - Breakdown<br>14. Theatre Closure<br>15. Administrative - Pre-assessment Inadequate<br>16. Winter Pressures<br>17. Untoward Incident<br>18. External Issue<br>19. Sickness - Theatre Staff |

| | | | |
|---|---|---|---|
| 25. Hospital cancel - admin error<br>26. DNA: does not want operation<br>27. DNA: short notice<br>28. Hospital cancel - unreasonable offer to patient<br>29. Hospital cancel - ward closed<br>30. Patient cancel - did not attend pre-assessment<br>31. Patient cancel - holiday<br>32. Hospital cancel - lack anaesthetic staff<br>33. Patient cancel - work commitment<br>34. Hospital cancel - date brought forward for clinical reason<br>35. Hospital cancel - ITU bed unavailable<br>36. Hospital cancel - service trans to outpatient<br>37. Patient - swine flu<br>38. Patient cancel - partial booking 1st offer refused<br>39. DNA: holiday<br>40. DNA: work commitment<br>41. Hospital cancel - patient already admitted electively<br>42. Maternity patient<br>43. Patient cancel – admin other trust - patient choice<br>44. Patient cancel - moved/moving away<br>45. Patient deceased | | | 20. Administrative - Specialist Staff Not Booked<br>21. List Overrun<br>22. Theatre Equipment - Not Ordered<br>23. Administrative - Equipment Not Ordered<br>24. Administrative - List Overbooked<br>25. Late Start<br>26. Staffing - Anaesthetist Unavailable<br>27. Sterile Equipment - Not Ordered<br>28. External Equipment Unavailable<br>29. Sickness - Anaesthetist<br>30. Non-Hospital<br>31. Patient Did Not Attend<br>32. Patient Unfit for Surgery (Hospital reason)<br>33. Patient Unfit (Patient Called to Cancel Due to Sickness)<br>34. Operation No Longer Required<br>35. Patient Temporarily Unavailable<br>36. Deferred Pending Clinical Review<br>37. Date Entered In Error, Patient Not Informed<br>38. Winter Pressures<br>39. Patient Deferred Pending Decision to Proceed<br>40. Pre-op Guidance Ignored<br>41. Patient Self Discharge |

| | | | |
|---|---|---|---|
| | | | 42. Patient No Longer Wants Operation<br>43. Duplicate Entry<br>44. Unsuitable For Day Surgery<br>45. Offer Declined<br>46. Patient Brought Forward/Accepted Earlier Date<br>47. Patient Treated Elsewhere<br>48. Patient On Holiday<br>49. 49.Administrative - Pre-assessment Inadequate<br>50. Patient Work Commitments<br>51. Patient Deceased<br>52. Transferred To Other Provider (Including Treatment Centre) |

| Trust E | Trust F | Trust G | Trust H |
|---|---|---|---|
| 1. Admin/Scheduling Error<br>2. Anaesthetist Unavailable<br>3. Assistant Surgeon Not Available<br>4. Blood products unavailable<br>5. Cancelled by hosp: on the advice of anaesthetist<br>6. Consent problem<br>7. Death during the list<br>8. Emergency slot required<br>9. Equipment / Instrumentation Unavailable<br>10. Equipment failure<br>11. HDU/ITU Bed Unavailable<br>12. Incorrectly Scheduled to Local List<br>13. Interpreter Unavailable<br>14. Investigations/tests not completed<br>15. Lack of preparation<br>16. List discontinued due to infected case<br>17. List overbooked<br>18. Medical condition | 1. Patient unfit for surgery<br>2. Operation not necessary<br>3. Patient DNA<br>4. Operation declined<br>5. Appointment inconvenient<br>6. No bed available<br>7. Urgent patient added to list<br>8. List overrun<br>9. No surgeon<br>10. Patient(s) cancelled on the day<br>11. Clin-hosp: other reason<br>12. Equipment unavailable / failure | 1. Medical reasons<br>2. DNA<br>3. Cancelled by patient<br>4. Cancelled due to anaesthetist reasons<br>5. Beds not available<br>6. List Overrun<br>7. Sickness & Absence<br>8. Admin Reasons<br>9. Patient clinically unwell<br>10. Patient did not follow instructions<br>11. Emergency<br>12. Equipment & Facilities issues | 1. Clinically unsuitable<br>2. DNA<br>3. Cancelled by patient<br>4. Beds not available<br>5. Cancelled by surgeon<br>6. List Overrun<br>7. Admin Reasons<br>8. Patient did not follow instructions<br>9. Emergency priority<br>10. Equipment & Facilities issues<br>11. Ward issues<br>12. Sickness & Absence of staff<br>13. Consent issue<br>14. Transport<br>15. Staffing Availability<br>16. Radiology - not booked<br>17. Cancelled by consultant |

| | | | |
|---|---|---|---|
| 19. Medical records unavailable<br>20. Medical staff called away to emergency<br>21. Medication not discontinued<br>22. Op Not Required<br>23. Operation abandoned due to peri-op comp<br>24. Operation not required<br>25. Operation performed in other departments/hosp<br>26. Other (Specify)<br>27. Patient deceased<br>28. Patient DNA<br>29. Patient inadequately prepared for surgery<br>30. Patient medically unfit (on arr in hosp)<br>31. Patient not Fasted<br>32. Patient refused op<br>33. Patient Self-Cancelled on Day<br>34. Pt admitted with cold/infection/virus<br>35. Pt didn't follow starving instructions<br>36. Pt medically unfit for surgery currently<br>37. Radiographer not available<br>38. Replaced with emergency<br>39. Surgeon Unavailable<br>40. Theatre Staff Unavailable<br>41. Ward Bed Unavailable/Delayed<br>42. Admin Error - Incorrect patient booked<br>43. Admin Error - Patient double-booked<br>44. Admin Error - Pt on incorrect list<br>45. Child had no parental supervision<br>46. Data cleansing<br>47. Emergency Bumped for Elective<br>48. Inappropriate grade of the anaesthetist<br>49. Incorrect starving - by patient<br>50. Incorrect starving - due to ward<br>51. Latex Allergy, Not scheduled first<br>52. Material not available<br>53. Modification to schedule | 13. No ITU/HDU bed available<br>14. Clin-patient:unfit for surgery<br>15. Non-clinical-hosp: other reason<br>16. No notes / results<br>17. Major incident<br>18. Previous operation not finished<br>19. Previous session overran<br>20. Non-clin-hosp:admin error<br>21. No theatre staff<br>22. No anaesthetist<br>23. Non-clin-hosp:list overbooked for session<br>24. Patient died<br>25. No data!<br>26. Clin-hosp:pre-op problem<br>27. Surgeon late<br>28. Operation abandoned<br>29. Clin-hosp:ward procedure completed<br>30. Military deployed<br>31. Patient not starved<br>32. Ward staff unavailable<br>33. unsuitable-day surgery<br>34. Anaesthetist late<br>35. Theatre staff late | 13. Ward issues<br>14. Medically unsuitable<br>15. Consent issue<br>16. Transport<br>17. Staffing Availability<br>18. 18. Radiology - not booked | |

| | | | |
|---|---|---|---|
| 54. Operation Not Required-Performed in other deptment<br>55. Operation Not Required-Treatm't no longer req<br>56. Out of theatre time - Anaesthetist<br>57. Out of theatre time - Delay Await'g Bed<br>58. Out of theatre time - List overbooked<br>59. Out of theatre time - Prev case overrun<br>60. Out of theatre time - Prev List Overran<br>61. Out of theatre time - Recovery Bed<br>62. Out of theatre time - Surgeon delay<br>63. Out of theatre time - Ward delay<br>64. Out of theatre time -Equipment Related<br>65. Out of theatre time -Theatre staff<br>66. Patient did not receive a letter<br>67. Problem with arranged transport<br>68. Prosthesis not available<br>69. Provisional Trauma Booking Removed<br>70. Surgeon declined to undertake a procedure<br>71. Surgeon ill<br>72. Too many patients scheduled (emergency only)<br>73. Unplanned maintenance<br>74. Ward Closed<br>75. Company Rep not available<br>76. On-Call Team called in During Night | | | |

## 2.13 Appendix 7.1.1 - RAMESES quality and publication standards for realist synthesis

*The following checklist adhered to refine the initial programme theory in an overall realist evaluation study.*

**Title:** *Bridging the divide between standardisation and individualisation of care to minimise on-the-day surgery cancellations.*

| Reporting item | | Description of item | Reported on sections (s) |
|---|---|---|---|
| | | | |
| 1 | | In the title, identify the document as a realist synthesis or review | Title page |
| **Abstract** | | | |
| 2 | | While acknowledging publication requirements and house style, abstracts should ideally contain brief details of: the study's background, review question or objectives; search strategy; methods of selection, appraisal, analysis and synthesis of sources; main results; and implications for practice | Section 7.1 |
| **Introduction** | | | |

| | Reporting item | Description of item | Reported on sections (s) |
|---|---|---|---|
| 3 | Rationale for review | Explain why the review is needed and what it is likely to contribute to existing understanding of the topic area | Section 3.6.4 |
| 4 | Objectives and focus of review | State the objective(s) of the review and/or the review question(s). Define and provide a rationale for the focus of the review | Section 7.1 |
| | **Methods** | | |
| 5 | Changes in the review process | Any changes made to the review process that was initially planned should be briefly described and justified | Section 3.6.1 |
| 6 | Rationale for using realist synthesis | Explain why realist synthesis was considered the most appropriate method to use and ethical approval | Section 3.6.4 |
| 7 | Scoping the literature | Describe and justify the initial process of exploratory scoping of the literature | Section 7.2 |
| 8 | Searching processes | While considering specific requirements of the journal or other publication outlet, state and provide a rationale for how the iterative searching was done. Provide details on all of the sources accessed for information in the review. Where searching in electronic databases has taken place, the details should include, for example, name of database, search terms, dates of coverage and date | Section 7.4 |

| Reporting item | | Description of item | Reported on sections (s) |
|---|---|---|---|
| | | last searched. If individuals familiar with the relevant literature and/or topic area were contacted, indicate how they were identified and selected | |
| 9 | Selection and appraisal of documents | Explain how judgements were made about including and excluding data from documents, and justify these | Section 7.5 |
| 10 | Data extraction | Describe and explain which data or information were extracted from the included documents and justify this selection | Section 7.6 |
| 11 | Analysis and synthesis processes | Describe the analysis and synthesis processes in detail. This section should include information on the constructs analysed and describe the analytic process | Section 7.6 |
| **Results** | | | |
| 12 | Document flow diagram | Provide details on the number of documents assessed for eligibility and included in the review, with reasons for exclusion at each stage, as well as an indication of their source of origin (e.g. from searching databases, reference lists and so on). You may consider using the example templates (which are likely to need modification to suit the data) that are provided | 7.4 and figure 7.4 -1 |

| Reporting item | | Description of item | Reported on sections (s) |
|---|---|---|---|
| 13 | Document characteristics | Provide information on the characteristics of the documents included in the review | Section 7.7 |
| 14 | Main findings | Present the key findings with a specific focus on theory building and testing | Section 7.8 |
| **Discussion** | | | |
| 15 | Summary of findings | Summarise the main findings, taking into account the reviews objective(s), research question(s), focus and intended audience(s) | Section 7.9 |
| 16 | Strengths, limitations and future research directions | Discuss both the strengths of the review and its limitations. These should include (but need not be restricted to) (a) consideration of all the steps in the review process and (b) comment on the overall strength of evidence supporting the explanatory insights which emerged<br>The limitations identified may point to areas where further work is needed | Section 7.9 and 7.10 |
| 17 | Comparison with existing literature | Where applicable, compare and contrast the reviews findings with the existing literature (e.g., other reviews) on the same topic | Sections 7.9, 8.4 and 8.5 |
| 18 | Conclusion and recommendations | List the main implications of the findings and place these in the context of other relevant | Sections 7.11, 9.2 and 9.3 |

| Reporting item | | Description of item | Reported on sections (s) |
|---|---|---|---|
| | | literature. If appropriate, offer recommendations for policy and practice | |
| 19 | Funding | Provide details of funding source (if any) for the review, the role played by the funder (if any) and any conflicts of interests of the reviewers | The project is funded by NIHR Doctoral Research Fellowship (DRF) grant. No conflict of interest |

## 2.14 Appendix 7. 4.1 - All the empirical studies (except the evidence review), were appraised using MMAT

As highlighted in section 3.6.2. In all empirical studies, quality was appraised using MMAT (Hong et al., 2018). The tool categorises studies into five types: quantitative descriptive (table 1.15 -1), Quantitative non-randomised controlled trials (table 1.15 -2), qualitative (table 1.15-3), and randomised control trial (table 1.15-4).

Each table represents screening questions related to the type of study.

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| | SCREENING | | 4. QUANTITATIVE DESCRIPTIVE STUDIES | | | | |
| Citation | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 4.1. Is the sampling strategy relevant to address the research question? | 4.2. Is the sample representative of the target population? | 4.3. Are the measurements appropriate? | 4.4. Is the risk of nonresponse bias low? | 4.5. Is the statistical analysis appropriate to answer the research question? |
| (Chang et al., 2014) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Elkassabany et al., 2013) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Jiménez et al., 2006) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Rai and Pandit, 2003 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Table 2.14-1 related to quantitative descriptive studies*

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| | SCREENING | | | | 3. NON-RANDOMIZED STUDIES | | |
| Citation | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 3.1. Are the participants representative of the target population? | 3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)? | 3.3. Are there complete outcome data? | 3.4. Are the confounders accounted for in the design and analysis? | 3.5. During the study period, is the intervention administered (or exposure occurred) as intended? |
| (Brazil et al., 2021) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Díez-García et al., 2023) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Dowd et al., 2023) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Ellis et al., 2012) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Leite et al., 2019) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Miri Bonjar et al., 2019) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Schretlen et al., 2021) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Sillero-Sillero and Zabalegui, 2020) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Varughese et al., 2013) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Xue et al., 2013) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Table 2.14-2 related quantitative non- randomised control studies. Seven out of five studies selected were quantitative non- randomised control studies.*

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| | SCREENING QUESTIONS | | | 1. QUALITATIVE STUDIES | | | |
| Citation | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 1.1. Is the qualitative approach appropriate to answer the research question? | 1.2. Are the qualitative data collection methods adequate to address the research question? | 1.3. Are the findings adequately derived from the data? | 1.4. Is the interpretation of results sufficiently substantiated by data? | 1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation? |
| (Björn et al., 2017) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| (Gilmartin and Wright, 2008) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Table 2.14-3 related to qualitative studies*

| | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| 1 | | SCREENING QUESTIONS | | 2. RANDOMIZED CONTROLLED TRIALS | | | | |
| 2 | Citation | S1. Are there clear research questions? | S2. Do the collected data allow to address the research questions? | 2.1. Is randomization appropriately performed? | 2.2. Are the groups comparable at baseline? | 2.3. Are there complete outcome data? | 2.4. Are outcome assessors blinded to the intervention provided? | 2.5 Did the participants adhere to the assigned intervention? |
| 3 | Gaucher et al., 2016) | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

*Table 2.14-4 related to randomised control trails*

## 2.15 Appendix 8.8 - RAMESES quality and publication standards for realist evaluation

**RAMESES II reporting standards for realist evaluations:**
*The following checklist was adhered to to refine the initial programme theory in an overall*

| | | Reported in document Y/N/ Not applicable | Section No./Page |
|---|---|---|---|
| 1 | **TITLE**<br>In the title, identify the document as a realist evaluation | Yes | See the title page |
| **SUMMARY OR ABSTRACT** | | | |
| **2** | Journal articles will usually require an abstract, while reports and other forms of publication will usually benefit from a short summary. The abstract or summary should include brief details on: the policy, programme or initiative under evaluation; programme setting; purpose of the evaluation; evaluation question(s) and/or objective(s); evaluation strategy; data collection, documentation and analysis methods; key findings and conclusions.<br>Where journals require it and the nature of the study is appropriate, brief details of respondents to the evaluation and recruitment and sampling processes may also be included.<br>Sufficient detail should be provided to identify that a realist approach was used and that realist programme theory was developed and/or refined | Yes<br><br>Yes<br><br>Yes | Abstract and see section 1.4. |

| | | | Reported1.4. document Y/N/Not applicable | Page(s) in document |
|---|---|---|---|---|
| **INTRODUCTION** | | | | |
| 3 | Rationale for evaluation | Explain the purpose of the evaluation and the implications for its focus and design | Yes | Section 1.1 |
| 4 | Programme theory | Describe the initial programme theory (or theories) that underpin the programme, policy or initiative | Yes | Sections 4.9 and 4.10 |
| 5 | Evaluation questions, objectives and focus | State the evaluation question(s) and specify the objectives for the evaluation. Describe whether and how the programme theory was used to define the scope and focus of the evaluation | Yes | Sections 1.2 and 3.6.1 |
| 6 | Ethical approval | State whether the realist evaluation required and has gained ethical approval from the relevant authorities, providing details as | Yes | Section 3.7 |

| | | | Reported in document Y/N/ Not applicable | Page(s) in document |
|---|---|---|---|---|
| | | appropriate. If ethical approval was deemed unnecessary, explain why | | |
| **METHODS** | | | | |
| 7 | Rationale for using realist evaluation | Explain why a realist evaluation approach was chosen and (if relevant) adapted. | Yes | Section 3.5 |
| 8 | Environment surrounding the evaluation | Describe the environment in which the evaluation took place | Yes | Section 2.4.41 |
| 9 | Describe the programme policy, initiative or product evaluated | Provide relevant details on the programme, policy or initiative evaluated | Yes | Section 2.4.4 |
| 10 | Describe and justify the evaluation design | A description and justification of the evaluation design should be included, at least in summary form or as an appendix, in the document which presents the main findings. If this is not done, the omission should be justified and a reference or link to the evaluation design given. It may also be useful to publish or make freely available any original evaluation design document or protocol, where they exist | Yes | Sections 2.4 and 1.4 |

| TITLE | | | Reported in document Y/N/Unclear/ Not applicable | Page(s) in document |
|---|---|---|---|---|
| 11 | Data collection methods | Describe and justify the data collection methods – which ones were used, why and how they fed into developing, supporting, refuting or refining programme theory | Yes | Sections 2.4 |
| | | Provide details of the steps taken to enhance the trustworthiness of data collection and documentation | Yes | Sections 2.4 and 8.8 |

| TITLE | | | Reported in document Y/N/Unclear/ Not applicable | Page(s) in document |
|---|---|---|---|---|
| 12 | Recruitment process and sampling strategy | Describe how respondents to the evaluation were recruited or engaged and how the sample contributed to the development, support, refutation or refinement of programme theory | Yes | Sections 3.6.2 and 3.6.3 |
| 13 | Data analysis | Describe in detail how data were analysed. This section should include information on the constructs that were identified, the process of analysis, how the programme theory was further developed, supported, refuted and refined, and (where relevant) how analysis changed as the evaluation unfolded | Yes | Sections 3.6.2, 3.6.3, and 3.6.5 |

| TITLE | | | Reported in document Y/N/Unclear/ Not applicable | Page(s) in document |
|---|---|---|---|---|
| 14 | Details of participants | Report (if applicable) who took part in the evaluation, the details of the data they provided and how the data was used to develop, support, refute or refine programme theory | Yes | Sections 3.6.2 and 3.6.3 |
| 15 | Main findings | Present the key findings, linking them to contexts, mechanisms and outcome configurations. Show how they were used to further develop, test or refine the programme theory | Yes | Section 8.3 |
| 16 | Summary of findings | Summarise the main findings with attention to the evaluation questions, purpose of the evaluation, programme theory and intended audience | Yes | Section 9.2 |

| TITLE | | | Reported in document Y/N/Unclear/ Not applicable | Page(s) in document |
|---|---|---|---|---|
| 17 | Strengths, limitations and future directions | Discuss both the strengths of the evaluation and its limitations. These should include (but need not be limited to): (1) consideration of all the steps in the evaluation processes; and (2) comment on the adequacy, trustworthiness and value of the explanatory insights which emerged<br>In many evaluations, there will be an expectation to provide guidance on future directions for the programme, policy or initiative, its implementation and/or design. The particular implications arising from the realist nature of the findings should be reflected in these discussions | Yes | Section 8.8 and 8.9 |

| TITLE | | | Reported in document Y/N/Unclear/ Not applicable | Page(s) in document |
|---|---|---|---|---|
| 18 | Comparison with existing literature | Where appropriate, compare and contrast the evaluation's findings with the existing literature on similar programmes, policies or initiatives | Yes | Sections 8.4 and 8.6 |
| 19 | Conclusion and recommendations | List the main conclusions that are justified by the analyses of the data. If appropriate, offer recommendations consistent with a realist approach | Yes | Sections 9.2 and 9.3 |
| 20 | Funding and conflict of interest | State the funding source (if any) for the evaluation, the role played by the funder (if any) and any conflicts of interests of the evaluators | Yes | See the acknowledgement section, The project is funded by NIHR Doctoral Research Fellowship (DRF) grant. No conflict of interest |

Adapted from table 1 in:

Wong G, Westhorp G, Manzano A, *et al*. RAMESES II reporting standards for realist evaluations. *BMC Med* 2016; 14:96.