

## Research Publications over the last 10 years:

1. Prof Timothy G Short, Douglas Campbell, Prof Christopher Frampton, Prof Matthew T V Chan, Prof Paul S Myles, Prof Tomás B Corcora, Prof Daniel I Sessler, Prof **Gary H Mills**, Juan P Cata, Thomas Painter, Kelly Byrne, Prof Ruquan Han, Mandy H M Chu, Davina J McAllister, Prof Kate Leslie, Australian and New Zealand College of Anaesthetists Clinical Trials Network. Anaesthetic depth and complications after major surgery: an international, randomised controlled trial. *Lancet* Volume 394, Issue 10212, 23–29 November 2019, Pages 1907-1914. [https://doi.org/10.1016/S0140-6736\(19\)32315-3](https://doi.org/10.1016/S0140-6736(19)32315-3).
2. Probese collaborative group. Protective Ventilation Network PROVENet. Effect of Intraoperative High Positive End-Expiratory Pressure (PEEP) with Recruitment Maneuvers vs Low PEEP on Postoperative Pulmonary Complications in Obese Patients: A Randomised Clinical Trial. *JAMA* 2019; 321 (23): doi 10.1001/jama.2019.7505. (**G H Mills** steering group, study design, UK Lead, UK CI Probese grant from AAGBI/NIAA).
3. C O'Connor, R Lawson, J Waterhouse, **G H Mills**. Is Inspiratory Muscle Training an acceptable treatment option for people with chronic obstructive pulmonary disease (COPD) who have declined pulmonary rehabilitation and can IMT enhance pulmonary rehabilitation uptake? A single-group prepost feasibility study in a home based setting. *BMJ Open* 2019; 0e028507. Doi 10.1136/bmjopen-2018-028507.
4. A Tridente, P.A.H Holloway, P Hutton, A. C. Gordon, **G.H. Mills**, G.M. Clarke, J-D. Frank, C Garrard, C Hinds, J Bion. Methodological challenges in European ethics approvals for a genetic epidemiology study in critically ill patients: the GenOSept experience. *BMC Medical Ethics*. METH-D-18-00146R1 Accepted April 2019.
5. T. Kiss, J. Wittenstein, C. Becker, K. Birr, G. Cinnella, E. Cohen, M. R. El Tahan, L. F. Falcão, C. Gregoretti, M. Granell, T. Hachenberg, M. W. Hollmann, R. Jankovic, W. Karzai, J. Krassler, T. Loop, M. J. Licker, N. Marczin, **G. H. Mills**, M. T. Murrell, V. Neskovic, Z. Nisnevitch-Savarese, P. Pelosi, R. Rossaint, M. J. Schultz, A. Serpa Neto, P. Severgnini, L. Szegedi, T. Vegh, G. Voyagis, J. Zhong, M. Gama de Abreu, M. Senturk, for the PROTHOR investigators and the Research Workgroup PROtective VEntilation Network (PROVENet) of the European Society of Anaesthesiology (ESA). Protective ventilation with high versus low positive end-expiratory pressure during one-lung ventilation for thoracic surgery (PROTHOR): study protocol for a randomized controlled trial. *Trials* 2019; 20:213 <https://doi.org/10.1186/s13063-019-3208-8>
6. A. Cortegiani<sup>1</sup>, C. Gregoretti<sup>1</sup>, A. S. Neto, S. N. T. Hemmes, L. Ball, J. Canet, M. Hiesmayr, M. W. Hollmann, **G. H. Mills**, M. F. V. Melo, C. Putensen, W. Schmid, P. Severgnini, H. Wrigge, M. Gama de Abreu, M. J. Schultz, P. Pelosi for the LAS VEGAS Investigators, the PROVE Network, and the Clinical Trial Network of the European Society of Anaesthesiology. Association between night-time surgery and occurrence of intraoperative adverse events and postoperative pulmonary complications. *British Journal of Anaesthesia*, 122 (3): 361e369 (2019). doi: 10.1016/j.bja.2018.10.063. [https://bjanaesthesia.org/article/S0007-0912\(18\)31333-3/fulltext](https://bjanaesthesia.org/article/S0007-0912(18)31333-3/fulltext)
7. Neto, Ary Serpa; da Costa, Luiz Guilherme V.; Hemmes, Sabine N.T.; Canet, Jaume; Hedenstierna, Göran; Jaber, Samir; Hiesmayr, Michael; Hollmann, Markus W.; **Mills, Gary H.**; Vidal Melo, Marcos F.; Pearse, Rupert; Putensen, Christian; Schmid, Werner; Severgnini, Paolo; Wrigge, Hermann; Gama de Abreu, Marcelo; Pelosi, Paolo; Schultz, Marcus J. The LAS VEGAS risk score for prediction of postoperative pulmonary complications: an observational study. *Eur J Anaesthesiol*. September 2018 - Volume 35 - Issue 9 - p 691–701; 35: 691e701
8. Thomas Kiss, MD; Jakob Wittenstein; Charlotte Becker; Katharina Birr; Gilda Cinnella; Edmond Cohen; Mohamed Refaa El Tahan; Luiz Fernando dos Reis Falcão;

- Cesare Gregoretti; Manuel Granell; Thomas Hachenberg; Marcus Hollmann; Radmilo Jankovic; Waheedullah Karzai; Jens Krassler; Torsten Loop; Marc-Joseph Licker; Nandor Marczin; **Gary H Mills**; Matthew Murrell; Zoufira Nisnevitch-Savarese; Paolo Pelosi; Rolf Rossaint; Marcus Schultz; Ary Serpa Neto; Paolo Severgnini; Laszlo Szegedi; Tamás Végh; Gregorios Voyagis; Jing Zhong; Marcelo Gama de Abreu; Mert Sentürk. *Trials* 2019, **TRLS-D-18-00909R1**. Protective ventilation with high versus low positive end-expiratory pressure during one-lung-ventilation for thoracic surgery (PROTHOR): Study protocol for a randomized controlled trial.
9. Ball L, Hemmes SNT, Serpa Neto A, Bluth T, Canet J, Hiesmayr M, Hollmann MW, **Mills GH**, Vidal Melo MF, Putensen C, Schmid W, Severgnini P, Wrigge H, Gama de Abreu M, Schultz MJ, Pelosi P; LAS VEGAS investigators; PROVE Network; Clinical Trial Network of the European Society of Anaesthesiology. Intraoperative Ventilation Settings and Their Associations with Postoperative Pulmonary Complications in Obese Patients Intraoperative Ventilation Settings and Their Associations with Postoperative Pulmonary Complications in Obese Patients. **Br J Anaesth.** 2018 Oct;**121(4):899-908**. doi: 0.1016/j.bja.2018.04.021. Epub 2018 Jun 2.
  10. Potentially modifiable respiratory variables contributing to outcome in ICU patients without ARDS: a secondary analysis of PROVENT. Fabienne D. Simonis, Carmen S. V. Barbas, Antonio Artigas -Raventós, Jaume Canet, Rogier M. Determann, James Anstey, Goran Hedenstierna, Sabine N. T. Hemmes, Greet Hermans, Michael Hiesmayr, Markus W. Hollmann, Samir Jaber, Ignacio Martin-Loeches, **Gary H. Mills**, Rupert M. Pearse, Christian Putensen, Werner Schmid, Paolo Severgnini, Roger Smith, Tanja A. Treschan, Edda M. Tschernko, Marcos F. Vidal Melo, Hermann Wrigge, Marcelo Gama de Abreu, Paolo Pelosi, Marcus J. Schultz, Ary Serpa Neto, For the PROVENT investigators, The PROVE Network investigators. *Ann. Intensive Care* 2018 Mar 21;**8(1):39**. PubMed PMID: 29564726. Pubmed Central PMCID: 5862714.  
  
<https://doi.org/10.1186/s13613-018-0385-7>
  11. Bluth T, Teichmann R, Kiss T, Bobek I, Canet J, Cinnella G, De Baerdemaeker L, Gregoretti C, Hedenstierna G, Hemmes SN, Hiesmayr M, Hollmann MW, Jaber S, Laffey JG, Licker MJ, Markstaller K, Matot I, Muller G, **Mills GH**, Mulier JP, Putensen C, Rossaint R, Schmitt J, Senturk M, Serpa Neto A, Severgnini P, Sprung J, Vidal Melo MF, Wrigge H, Schultz MJ, Pelosi P, Gama de Abreu M, Protective intraoperative ventilation with higher versus lower levels of positive end-expiratory pressure in obese patients (PROBESE): study protocol for a randomized controlled trial. *Trials.* 2017 Apr 28;**18(1):202**. PubMed PMID: 28454590. Pubmed Central PMCID: 5410049.
  12. Bourne RS, Shulman R, Tomlin M, Borthwick M, Berry W, **Mills GH**. Reliability of clinical impact grading by healthcare professionals of common prescribing error and optimisation cases in critical care patients. *International journal for quality in health care : journal of the International Society for Quality in Health Care.* 2017 Apr 1;**29(2):250-5**. PubMed PMID: 28453820.
  13. Derivation and validation of a prognostic model for post-operative risk stratification of critically ill patients with faecal peritonitis. Ascanio Tridente; Julian Bion; **Gary Mills**; Anthony Gordon; Geraldine Clarke; Andrew Walden; Paula Hutton; Paul Holloway; Jean-Daniel Chiche; Frank Stueber; Christopher Garrard; Charles Hinds. *Annals of Intensive Care* 2017, **AOIC-D-16-00387R2**
  14. Reliability of clinical impact grading by healthcare professionals of common prescribing errors and optimisations in critical care patients. Bourne RS, Shulman R, Tomlin M, Borthwick M, Berry W, **Mills GH**.. *Int J Qual Health Care.* 2017 Apr 1;**29(2):250-255**. doi: 10.1093/intqhc/mzx003

15. Epidemiological characteristics, practice of ventilation, and clinical outcome in patients at risk of acute respiratory distress syndrome in intensive care units from 16 countries (PROVENT): an international, multicentre, prospective study. Neto AS, Barbas CS, Simonis FD, Artigas-Raventós A, Canet J, Determann RM, Anstey J, Hedenstierna G, Hemmes SN, Hermans G, Hiesmayr M, Hollmann MW, Jaber S, Martin-Loeches I, **Mills GH**, Pearse RM, Putensen C, Schmid W, Severgnini P, Smith R, Treschan TA, Tschernko EM, Melo MF, Wrigge H, de Abreu MG, Pelosi P, Schultz MJ; PROVENT; PROVE Network investigators. *Lancet Respir Med*. 2016 Nov;4(11):882-893. doi: 10.1016/S2213-2600(16)30305-8. Epub 2016 Oct 4
16. Patient-completed, preoperative web-based anaesthetic assessment questionnaire (electronic Personal Assessment Questionnaire PreOperative): Development and validation. IM. Goodhart, J Andrzejowski, G Jones, M Berthoud, A Dennis, **GH Mills**, S Radley. *European Journal of Anaesthesiology* 10/2016; DOI:10.1097/EJA.0000000000000545
17. Faulds MC, Bauchmuller K, Miller D, Rosser JH, Shuker K, Wrench I, Wilson P, **Mills GH**; South Yorkshire Hospitals Audit and Research Collaboration (SHARC); The feasibility of using 'bring your own device' (BYOD) technology for electronic data capture in multicentre medical audit and research. *Anaesthesia*. 2015 Nov 3. doi: 10.1111/anae.13268.
18. A Tridente, GM Clarke, A Walden, AC Gordon, P Hutton, J-D. Chiche, PAH Holloway, **GH Mills**, J Bion, F Stuber, C Garrard, C J Hinds. Association between trends in clinical variables and outcome in intensive care patients with faecal peritonitis: analysis of the GenOSept cohort. *Critical Care*. *Critical Care* 2015, **19**:210 doi:10.1186/s13054-015-0931-8 (e pub May 2015)
19. The Lancet, Volume 384, Issue 9942, Pages 495 - 503, 9 August 2014 doi:10.1016/S0140-6736(14)60416-5. The Lancet, Early Online Publication, 1 June 2014doi:10.1016/S0140-6736(14)60416-5. High versus low positive end-expiratory pressure during general anaesthesia for open abdominal surgery (PROVHILO trial): a multicentre randomised controlled trial. The PROVE Network Investigators† for the Clinical Trial Network of the European Society of Anaesthesiology (GH Mills UK Lead). Article: High versus low positive end-expiratory pressure during general anaesthesia for open abdominal surgery (PROVHILO trial): a multicenter randomised controlled trial The PROVE. Network investigators *Lancet* 2014 384 495 503 10.1016/S0140-6736(14)60416-5. The PROVE Network Investigators, Michael Hiesmayr, Werner Schmid, Luc De Baerdemaeker, Stefan De Hert, Bjorn Heyse, Jurgen Van Limmen, Jan-Paul Mulier, David Velghe, Luc Jamaer, [...], Juan F Mayoral, Mercè Prieto, Manuel Granell Gil, Conrado Minguez Marín, Göran Hedenstierna, **Gary H. Mills**, Phoebe Bodger, Marcos F. Vidal Melo, Demet Sulemanji, Juraj Sprung  
  
Associated Editorial: The Lancet, Early Online Publication, 1 June 2014doi:10.1016/S0140-6736(14)60894-1. Positive end-expiratory pressure in surgery: good or bad? Emmanuel Futier.
20. A Tridente, GM Clarke, A Walden, S McKechnie, P Hutton, **GH Mills**, AC Gordon, PAH Holloway, J-D. Chiche, J Bion, F Stuber, C Garrard, C J Hinds, GenOSept Investigators. 2014. Patients with faecal peritonitis admitted to European intensive care units: an epidemiological survey of the GenOSept cohort. *Intensive Care Med* (2014) **40**:202–210. DOI 10.1007/s00134-013-3158-7. Associated editorial: C Eckmann, M Bassetti 2014. Prognostic factors for mortality in (fecal) peritonitis: back to the roots. *Intensive Care Med* (2014) **40**:269–271. DOI 10.1007/s00134-013-3155-x.
21. Glossop AJ, Shephard N, Bryden DC, **Mills GH**. Non-invasive ventilation for weaning, avoiding reintubation after extubation and in the postoperative period: a meta-analysis. *Br J Anaesth*. 2012 Sep;109(3):305-14. doi: 10.1093/bja/aes270. Systematic Review.

22. ACTA ACUSTICA Vol. 98 (2012) 1 – 7. Sound Power Levels of Typical Medical Equipment in Intensive Care Units. H Xie, J Kang, GH Mills.
23. Effect of intravenous  $\beta$ -2 agonist treatment on clinical outcomes in acute respiratory distress syndrome (BALTI-2): a multicentre, randomised controlled trial FG Smith, GD Perkins, S Gates, D Young, DF McAuley, W Tunnicliffe, Z Khan, SE Lamb, for the BALTI-2 study investigators. *Lancet* 2012; 379: 229–35. DOI:10.1016/S0140- 6736(11)61623-1.  
Collaborators: Baudouin S, Cuthbertson B, Rowan K, Williams B, Gao Smith F, Gates S, Lamb S, Young D, Wheatley K, Bion J, Bellingan G, Gao Smith F, Perkins G, Gates S, Lamb S, Young D, Barber V, McCabe C, Duggan S, Melody T, Daffern C, Adey E, Latif T, Bell J, Ezra R, Hoddell B, Johnson H, Ruders I, Snaith C, Dale S, Reay H, McLoughlin A, Gordon V, Khan Z, Tunnicliff W, Krige A, Hull J, Howard-Griffin R, Danbury C, Harding R, Makings E, Afolami S, Shah S, Laha S, McAuley D, Trinder J, Vuylsteke A, Watson D, Jefferson P, Wood J, Black H, Dempsey G, Gao F, Orme R, Arora A, Brett S, Sonksen J, Schoub R, Snape S, Higgins D, Nortje J, Blenk K, Martin M, Graystone S, Daum R, Pugh R, Smith I, Bewley J, Johnston A, Beatty M, Watters M, Grocott M, Cuesta JM, Rogerson D, Park J, Ranganathan M, Tote S, Long T, Alexander P, Khalil M, Little J, **Mills G**, Hunter J, Mills G, Ghrew M, Milligan L, Ballie R, Padkin A, Wright S, Wright S, Beatty M, Wright S, Schoub R, Sharawi R, Soar J, Highley D, Allen D, Noble D, Ruddy J, Popescu M.
24. Bartlam B, Crome P, Lally F, Beswick AD, Cherubini A, Clarfield AM, Farré A, Hertogh C, Lesauskaite V, **Mills GH**, Edbrooke D, Muller M, Oristrell J, Prada GI, Ruggiero C, Sinclair-Cohen J, Szczerbinska K, Topinkova E, Zalewski Z. 2012. The Views of Older People and Carers on Participation in Clinical Trials: the PREDICT Study. *Clinical Investigation*, vol. 2(3), 327-336.
25. Nebuya S, **Mills GH**, Milnes P, Brown BH. Indirect measurement of lung density and air volume from electrical impedance tomography (EIT) data. *Physiol Meas*. 2011 Dec;32(12):1953-67. Epub 2011 Nov 2. PubMed PMID: 22048128.
26. Crome P, Lally F, Cherubini A, Oristrell J, Beswick AD, Clarfield AM, Hertogh C, Lesauskaite V, Prada GI, Szczerbińska K, Topinkova E, Sinclair-Cohen J, Edbrooke D, **Mills G**. Exclusion of older people from clinical trials: professional views from nine European countries participating in the PREDICT study. *Drugs Aging*. 2011 Aug 1;28(8):667-77. doi: 10.2165/11591990-000000000-00000. PubMed PMID: 21812501.
27. Cherubini A, Oristrell J, Pla X, Ruggiero C, Ferretti R, Diestre G, Clarfield AM, Crome P, Hertogh C, Lesauskaite V, Prada GI; Szczerbinska K, Topinkova E, Sinclair Cohen J, Edbrooke D, **Mills GH**. The persistent exclusion of older subjects from ongoing trials on heart failure. *Arch Intern Med*.2011; 171: 550-556. (Accompanying Editorial: Age-Based Exclusions from Cardiovascular Clinical Trials: Gurwitz and Goldberg *Arch Intern Med*.2011; 171: 557-558.)
28. DL Edbrooke, C Minelli, **G H Mills**, G Iapichino, A Pezzi, P Jacobs, D Corbella, A Lippert, J Wiis, R Pirrachio, A Pesenti, N Patroniti, D Payen, G Gurman, J Bakker, J Kesecioglu, C Hargreaves, SL Cohen, M Baras, A Artigas and CL Sprung. Implications of ICU triage decisions on patient mortality: a cost effectiveness analysis. *Critical Care*. *Critical Care* 2011, 15: R56. doi:10.1186/cc10029
29. Iapichino G, Corbella D, Minelli C, **Mills GH**, Artigas A, Edbrooke DL, Pezzi A, Kesecioglu J, Patroniti N, Baras M, Sprung CL. Reasons for refusal of admission to intensive care and impact on mortality. *Intensive Care Med*. 2010 Jun 9. [Epub ahead of print] PMID: 20533023 and in print *ICM* 2010; 36, 10: 1772. <http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1007/s00134-010-1933-2>
30. Wang A, Mahfouf M, **Mills GH**, Panoutsos G, Linkens DA, Goode K, Kwok HF, Denai M. Intelligent model-based advisory system for the management of ventilated intensive care

patients. Part II: Advisory system design and evaluation. *Comput Methods Programs Biomed.* 2010; 99 (2), 195-207.

31. Kiely DG, Condliffe R, Webster V, **Mills GH**, Wrench I, Gandhi SV, Selby K, Armstrong IJ, Martin L, Howarth ES, Bu'lock FA, Stewart P, Elliot CA. Improved survival in pregnancy and pulmonary hypertension using a multiprofessional approach. *BJOG.* 2010 Apr;117(5):565-74.
32. Wang A, Mahfouf M, **Mills GH**, Panoutsos G, Linkens DA, Goode K, Kwok HF, Denai M. *Comput Methods Programs Biomed.* 2009 Oct 26. [Epub ahead of print]. Intelligent model-based advisory system for the management of ventilated intensive care patients: Hybrid blood gas patient model. 2010; 99, 208-217.

## Reviews

1. **Mills GH.** Respiratory complications of anaesthesia. *Anaesthesia.* 2018 Jan;73 Suppl 1:25-33. PubMed PMID: 29313906.
2. B Powell, A Al-Mukhtar, **GH Mills.** Carcinoid: the disease and implications for anaesthesia. *Contin Educ Anaesth Crit Care Pain (2011) 11 (1): 9-13.* doi: 10.1093/bjaceaccp/mkq045
3. **GH Mills.** Anaesthesia and the perioperative management of hepatic resection. *Anaesthesia and Critical Care.* 2011, 1(1) 147-152.
4. H Xie, J Kang and **GH Mills.** The impact of noise on patients' sleep and the effectiveness of noise reduction strategies in intensive care units. *Critical Care.* 2009; 13(2): 208 (8 pages) (doi:10.1186/cc7154)
5. Anaesthesia for hepatic resection surgery. A Hartog, **GH Mills,** *Continuing Education in Anaesthesia, Critical Care & Pain* 2009 9(1):1-5; doi:10.1093/bjaceaccp/mkn050

## Editorials

1. **Mills GH,** Bourne RS. Do earplugs stop noise from driving critical care patients into delirium? *Crit Care.* 2012 Jul 17;16(4):139. [Epub ahead of print] PubMed PMID: 22805535.

## Refereed Engineering Conference Papers: in Print

1. S. Mohamad Samuri, G. Panoutsos, M. Mahfouf, **G. H. Mills,** M. Denai, and B. H. Brown, Towards a Patient-Specific Model of Lung Volume Using Absolute Electrical Impedance Tomography (aEIT), *Biomedical Engineering Systems and Technologies, Communications in Computer and Information Science* Volume 273, pp 191-204 (2013)
2. Denai MA, Mahfouf M, Mohamad-Samuri S, Panoutsos G, Brown BH, **Mills GH.** Absolute electrical impedance tomography (aEIT) guided ventilation therapy in critical care patients: Simulations and future trends 2010, *IEEE Transactions on Information Technology in Biomedicine* 14 (3), art. no. 5325782, pp. 641-649.