

Royal College of Anaesthetists' Budget Submission

We are pleased to have the opportunity to provide evidence to inform the development of the 2017 Budget. This short submission outlines the central role that anaesthetists play in supporting the delivery of a sustainable health and social care system. As the single largest hospital specialty, anaesthesia plays a prominent role in secondary care, facilitating service delivery throughout the NHS, both inside and out of the operating theatre.

If you have any questions regarding our submission please contact Chris Woodhall, Policy & Public Affairs Manager, at cwoodhall@rcoa.ac.uk or on 020 7092 1690.

About the Royal College of Anaesthetists

- 16% of all hospital consultants are anaesthetists making anaesthesia the single largest hospital specialty in the UK^{1,2,3}
- Anaesthetists play a critical role in the care of two-thirds of all hospital patients⁴ and 99 per cent of patients would recommend their hospital's anaesthesia service to family and friends⁵
- With a combined membership of over 22,000 fellows and members, representing the three specialties of anaesthesia, intensive care and pain medicine, we are the third largest Medical Royal College by UK membership.

Introductory comments:

The recommendations included in our response address the sustainability of the health and social care system, highlighting – in many places – evidence of a measurable threat to patient safety and a negative impact on patient outcomes arising from pressures in the system. The information provided in our introductory comments aims to provide context of the environment in which these recommendations are made.

However, in addition to highlighting areas where investment is required, there is an overarching point we wish to raise with respect to the way in which hospital staff are valued – which extends beyond the issue of pay alone. Through a period of major structural change processes for clinical input to system reconfiguration have been unnavigable or non-existent, perpetuating a feeling that changes are being implemented 'to' rather than 'with' the clinical community and wider workforce. The impact of increasing demand, during a time of financial austerity for the NHS, is inevitably being felt by staff working in the NHS and analysis suggests that hospital staff working in an acute care setting are at the sharp end of these impacts.^{6,7,8}

The expectations placed on system transformation, most notably through Sustainability and Transformation Partnerships in England, place emphasis on reducing hospital activity but without adequately providing out-of-hospital care. The immediate impact of this is felt in the failure to meet the target for delayed transfers of care (DToc) in the latest NHS Mandate.⁹

In one London STP a 44% reduction in inpatient bed days is expected as a result of new models of community care by 2020/21 against baseline.¹⁰ The Secretary of State for Health has stated that "The STPs are very simply about reducing hospital bed days per thousand population and reducing emergency admissions" noting that £4 billion of the NHS's £22 billion efficiency savings will be found in demand reduction.¹¹ However the research from the

Nuffield Trust notes that it is not likely that out-of-hospital care will be cheaper for the NHS in the short to medium term and certainly not within the tight timescales under which the STPs are expected to deliver change. Therefore the wider problem remains: more patient-centred, efficient and appropriate models of care require more investment.¹²

The hospital regulator has noted that a lack of adequate staff in the acute setting threatens patient safety¹³ while staff welfare is being compromised by the workload being demanded of them. An RCoA survey of anaesthetists in training showed that 85% are at risk of becoming burned out (as measured on the Oldenburg Burnout Inventory).¹⁴

The recommendations provided below address specific issues which we believe can be addressed through the mechanism of the Budget and which we believe can support our membership at a time of considerable pressure.

Our submission identifies the following three key recommendations:

Recommendation 1: We are advocating for the introduction of a ring-fenced capital fund for the NHS to ensure that modern infrastructure supports the long-term sustainability of the health service and provides assurance of the availability of care for patients and facilities for staff to ensure their safety and wellbeingⁱ. We believe that a proportion of funds identified in the Naylor Review¹⁵ would be an appropriate mechanism for funding the provision of rest facilities for clinicians working in acute specialities during and after on-call periods, including anaesthetists.

The provision of capital funding should also be extended to ensure proper office, study and IT facilities to provide space for peer support, discussion of clinical issues as well as exam preparation and continuing professional development for all grades of doctors working in acute specialities.

Recommendation 2: We reaffirm support¹⁶ for the statement from the Academy of Medical Royal Colleges (AoMRC) first published in November 2016, 'Delivering a sustainable health and care system'.¹⁷ The health and social care system needs more resources and we support the establishment of an independent Office for Health and Care Sustainability¹⁸ to inform future funding decisions

Recommendation 3: There is a clear case for extra investment in public health and prevention services when informed by modelling which incorporates the impact across the full health and social care pathway - from primary care through to social care - and including associated reductions in hospital admissions

Capital budgets and the provision of appropriate facilities for doctors working in acute specialities

A detailed 2015 review from the National Institute for Health Research (NIHR) into hospital design¹⁹ found that:

ⁱ The House of Commons Committee of Public Accounts noted in its [February 2017 report](#), that 'NHS England admitted that capital investment has fallen short of what it had considered was needed to deliver the NHS Five Year Forward View'. The Chief Executive of NHS England stated in his evidence to the Committee that the movement of allocated capital funding to revenue spending '[W]ill have taken about £4 billion out of capital expenditure over the course of five years.'

Over the life cycle of a hospital, there is typically a 1 : 1 : 20 ratio of capital expenditure to estates-related operational expenditure to medical costs in discounted cash flow terms; that is, if it costs £100M to build a hospital, it will cost about the same in discounted total maintenance costs through its lifespan, but 20 times that in costs relating to the provision of medical care.

This financial model is undermined by a failure to invest in capital expenditure and estates-related operational expenditure which undermines the ability to plan and maintain sustainable hospital services.

Capital budgets - which were intended for the maintenance of facilities and roll-out of new technologies and equipment - have been used to fund shortfalls in revenue budgets and reduce provider deficits in 2014/15, 2015/16 and 2016/17.²⁰

As well as the impact of poorly maintained facilities for patients, there is concern that a lack of appropriate rest facilities for staff threatens the welfare and safety of NHS doctors. Clinicians working in acute specialties such as anaesthesia are disproportionately affected by a lack of rest facilities due to the 24/7 nature of service delivery, including overnight resident on-call and late-night shift patterns which they undertake.

A joint survey run by members of the RCoA and the Association of Anaesthetists of Great Britain and Ireland (AAGBI) - the results of which were published in the journal *Anaesthesia*²¹ - highlights the impact that fatigue is having on anaesthetists in training in the UK. Overall 2,155 anaesthetists in training responded to the survey (a rate of 59% of UK anaesthetists in training), which revealed the following key findings:

- 75% of trainees drive to work and 60% have a commute of 30 minutes or more, each way
- 84% have felt too tired to drive home after a night-shift
- More than half of respondents (57%) have had an accident or a near miss
- Fewer than one-fifth (18%) get 30 mins or more uninterrupted rest at work
- Fewer than two-thirds (64%) have access to rest facilities
- 74% of respondents said that fatigue has adversely affected their physical health
- 69% of respondents said that their personal relationships have been affected by fatigue.

A separate RCoA survey of anaesthetists of all grades, to which 5,196 responses were received, found that one-third of anaesthetists identified resource issues impacted upon the delivery of safe and effective patient care, including high levels of fatigue and inadequate facilities.²²

Some hospital Trusts currently charge staff for the use of overnight rest facilities. In one example a charge of £37.45 per night is levied for a room which is not subsidised by the Trust: *'The Trust has a 'hotel' facility on the [site] whereby rooms can be let on a nightly basis. The hotel is mainly there to support clinical staff with difficult shifts who have a long commute...'*ⁱⁱ

The best way to ensure that clinicians working in acute specialties are able to provide safe patient care during a long-shift - and to ensure their personal safety after a shift - is to be able to provide rest facilities within the hospital grounds, free of any charges that could act as a deterrent to their use.

ⁱⁱ While this information is in the public domain we have chosen to remove reference to the name of the Trust as the example is indicative of the practice of charging - not the practice of just this particular Trust. The reference for the figure is available [here](#) and the description is [here](#). The information was accessed at 16.58 on 6 September 2017

We believe that the government should use the budget to announce a ring-fenced fund for capital investment in NHS facilities, including hypothecated funding for Trusts to develop appropriate rest facilities, as part of a wider programme of hospital investment. A proportion of the funds identified in the Naylor Review of NHS property and estates²³ would be an appropriate mechanism for providing this investment.

Extending action on NHS staff health and wellbeing is noted as a priority NHS England's *Next Steps on The Five Year Forward View* document including through the use of the CQUIN incentive payment; a recognition of the need to address staff welfare through a package of measures.²⁴

Recommendation 1: We are advocating for the introduction of a ring-fenced capital fund for the NHS to ensure that modern infrastructure supports the long-term sustainability of the health service and provides assurance of the availability of care for patients and facilities for staff to ensure their safety and wellbeingⁱⁱⁱ. We believe that a proportion of funds identified in the Naylor Review²⁵ would be an appropriate mechanism for funding the provision of rest facilities for clinicians working in acute specialities during and after on-call periods, including anaesthetists.

The provision of capital funding should also be extended to ensure proper office, study and IT facilities to provide space for peer support, discussion of clinical issues as well as exam preparation and continuing professional development for all grades of doctors working in acute specialities.

Service capacity, delayed transfers of care and long-term sustainability

Over the period 1990/91 to 2015/16 the number of general and acute hospital beds has fallen from around 160,000 to 103,000. While the reasons for this reduction may in part reflect developments in the treatment of medical patients, including improvements in anaesthesia²⁶ and an associated reduction in length of stay a number of Trusts have experienced sustained bed occupancy of over 99 per cent.²⁷

As part of the NHS efficiency plan hospitals were be tasked with freeing up 2 - 3,000 beds as a number of Trusts have experienced sustained bed occupancy of over 99 per cent.²⁸ Alongside this goal, the Mandate to NHS England (2017/18) set a target to reduce DToC to 3.5% by September 2017.²⁹ Analysis from NHS Providers³⁰ shows that in Q4 2016/17 the DToC rate hit 5.6%. The DToC rate has not been within the 3.5% target since Q1 2014/15.

The average age of hospital admitted patients rose from 49 to 53 years old between 2005-06 and 2015-16.³¹ Coupling this rise in the age of hospital admissions are changing co-morbidities which patients present with – most significantly the rise in dementia rates. At least 25% of hospital beds are occupied by people with dementia.³² In 2015, 24.4% of people over the age of 65 who experienced a delayed discharge had dementia.³³ This was as high as 65.4% in one hospital (from those Trusts who responded to a Freedom of Information request).

The proportion of total DToCs attributable to social care has increased from less than one-quarter (24.6%) to nearly four in 10 (38%) in just three years (June 2014-15 to June 2017-18).³⁴

ⁱⁱⁱ Ibid; see the House of Commons Committee of Public Accounts' February [2017 report](#)

DToCs that are the result of inadequate social care provision are contributing to the frequent cancellation of elective surgery that is distressing and potentially harmful for patients and compromises the ability to train the next generation of anaesthetists.

The Carter review identified that 'on any given day as many as 8,500 beds in Acute Trusts are occupied by a patient who is medically fit to be transferred'.³⁵ The Review also states that the cost of these delays to NHS Providers could be around £900m per year³⁶ - however this is based on a £300 per bed day model. In response to a Freedom of Information request the Department of Health stated that the estimated cost of a hospital stay in £400 per day³⁷ which would put the cost at around £1.2 billion.

The House of Lords' Select Committee report on the long-term sustainability of the NHS³⁸ published in April 2017 recommended the establishment of a new Office for Health and Care Sustainability (OHSC). The experience of the Better Care Funding planning process underlines the difficulty in finding consensus between the component parts of the health and social care system in addressing long-term challenges such as the operability of the interface between secondary and tertiary care.³⁹

We believe it is vital therefore for these decisions to be taken by an independent body with a similar operating model to the Office for Budget Responsibility.

Ensuring the provision of a sustainable medical workforce is a vital component in the long-term planning process for health and social care services.

We welcomed the Government's decision to provide 1,500 extra medical training places from September 2018.⁴⁰ However, the increased cohort of medical students will not graduate until 2023 and would not be anticipated to complete specialist training in anaesthesia until 2032. The Care Quality Commission (CQC) has noted that inadequate staffing numbers and a lack of skilled staff continues to pose a risk to patient safety.⁴¹ The House of Commons' Public Accounts Committee estimates that the NHS is short of at least 50,000 staff.⁴²

While we acknowledge the need to reduce the costs associated with agency expenditure on medical locums⁴³ projections indicate significant medium-to-long-term shortfalls in the supply of doctors working in the specialties of anaesthesia and intensive care medicine, which will only be mitigated by front-loaded investment at the soonest opportunity.

A 2015 report by the Centre for Workforce Intelligence (CfWI) found that the number of anaesthetists and intensivist certificate of completion of training (CCT) holders needed to meet demand by 2033 would be 11,800 full-time-equivalents: nearly double the current level of around 6,100 and a 33% shortfall of the 8,000 projected to be trained by this date.⁴⁴ That is 2,800 anaesthetists that are needed beyond those anticipated to be in the workforce by this date.

However, training new doctors cannot (and will not) be the single solution. A key component of a comprehensive workforce strategy is the retention of experienced staff. There are indications that the cut in lifetime allowance (from £1.25 million to £1 million) has meant that more consultants reach the upper threshold by their mid to late 50s. Continuing to work in order to build one's pension past this point is not then an incentive. The pressure of

workforce shortages, coupled with greater scrutiny of expenditure, is having a significant impact on the clinical workload of consultant anaesthetists. Nearly half (48%) of anaesthetic departments across the UK rely on consultants 'acting down' to cover gaps in trainee or specialty and associate specialist (SAS) doctors' rotas.⁴⁵

Experienced anaesthetists also retain a wealth of non-clinical experience which is vital to the development of the future of the specialty. Across grades, 46% of respondents to the RCoA's 2016 member survey noted involvement in education, and 35% in training, as part of their non-clinical activity.⁴⁶

At current rates of demand-growth we anticipate that every Trust will be short of between 10 and 20 consultants by 2033. The positive impact of a consultant anaesthetist and a consultant surgeon during high-risk surgery, such as an emergency laparotomy, is supported by individual studies such as the July 2016 report of the National Emergency Laparotomy Audit.⁴⁷

Recommendation 2: We reaffirm support⁴⁸ for the statement from the AoMRC first published in November 2016, 'Delivering a sustainable health and care system'.⁴⁹ The health and social care system needs more resources and we support the establishment of an independent Office for Health and Care Sustainability⁵⁰ to inform future funding decisions

The case for investment in public health and prevention services

The condition in which patients arrive into secondary care influences not only individual health outcomes, but system pressures and associated costs, such as length of hospital stay after surgery.⁵¹⁻⁵² Provision of public health services and support outside of hospital is therefore an important concern for anaesthetists, alongside initiatives to improve the quality and effectiveness of services within the hospital setting.

Getting It Right First Time (GIRFT) is a clinician-led initiative which incorporates 32 different surgical and medical specialties to identify ways to improve hospital efficiency and patient care. GIRFT began as a pilot in the area of orthopaedic surgery which was subsequently scaled-up across a total of 32 specialties following a £60 million investment provided by Government in November 2016⁵³.

Two Leads for Anaesthesia and Perioperative Medicine have been appointed to the GIRFT programme, reflecting the evolution of the anaesthetist as the perioperative clinician who manages a patient before, during and after surgery. A Lead has also been appointed for Intensive Care Medicine.

There is a clear case for the role of public health and prevention services to address avoidable harms which negatively influence surgical outcomes:

- Smokers are more likely to suffer a range of complications before, during and after surgery⁵⁴ and smokers are 38% more likely to die after surgery than non-smokers.⁵⁵
- Obesity is associated with prolonged length of stay for patients in critical care⁵⁶
- Among hazardous drinkers - consuming five or more alcoholic drinks per day - the post-operative complication rate increases to 200-400 per cent, compared to rates when consuming 0-2 drinks⁵⁷

Evidence demonstrates that these improved clinical outcomes can be supported through the delivery of services in advance of surgery which are highly cost effective.

The PREPARE for surgery programme highlights the cost-effectiveness of delivering comprehensive prehabilitation services to patients in advance of surgery. Analysis of the PREPARE programme – run by the Imperial College Healthcare NHS Trust – calculates that the cost of the core delivery team is £20,900 per year while identifying an estimated cost saving of £265,000 per year, based on a reduced rate and severity of complications and length of (hospital) stay.⁵⁸

Ultimately, with consideration to the growing pressures on hospital services, the best solution is to – insofar as is possible – help patients avoid the need for surgery altogether by investing in public health services which are delivered in the community and provided by local authorities.

The King's Fund estimates that out-of-hospital exercise and activity programmes have delivered a return on investment as high as £23 for every £1 spent⁵⁹. Despite the clear economic case for investment in public health and prevention services it is estimated that Council's planned public health spending in 2017/18 is 5 per cent less than in 2014/15.⁶⁰

As noted earlier in this response, the average cost of a day spent in a hospital bed is estimated to be up to £400. Based on an average inpatient length of stay of 6 days⁶¹ reducing the number of surgical procedures (in England only)⁶² by just 1% would save around £89 million per year^{iv}. Based on figures from NHS Wales, a level 3 intensive care bed costs an average of £1,932 which suggests that the figure of £89 million is likely to be an underestimate.⁶³

Recommendation 3: There is a clear case for extra investment in public health and prevention services when informed by modelling which incorporates the impact across the full health and social care pathway - from primary care through to social care - and including associated reductions in hospital admissions

¹ NHS Digital. [NHS Hospital & Community Health Service \(HCHS\) monthly workforce statistics - Provisional Statistics](#). July 2017.

² Stats Wales. [Medical and dental staff by specialty and year](#). March 2017.

³ Information Services Division Scotland. [HSHS Medical and Dental Staff by Specialty](#). December 2016.

⁴ Audit Commission. *Anaesthesia under examination: The efficiency and effectiveness of anaesthesia and pain relief services in England and Wales*, National report, 1998.

⁵ EMK Walker, M Bell, TM Cook, MPW Grocott, and SR Moonesinghe for the SNAP-1 investigators. Patient reported outcome of adult perioperative anaesthesia in the United Kingdom: a cross-sectional observational study. [British Journal of Anaesthesia 2016](#)

⁶ The King's Fund and Nuffield Trust. Sustainability and transformation plans in London: An independent analysis of the October 2016 STPs (completed in March 2017). September 2017

⁷ McClelland, L et al. A national survey of the effects of fatigue on trainees in anaesthesia in the UK.

DOI: [10.1111/anae.13965](#). First published 5 July 2017

⁸ General Medical Council. [National training survey 2016: Key findings](#). December 2016. See also <http://www.gmc-uk.org/news/29298.asp>

⁹ Department of Health. [The Government's Mandate to NHS England 2017-18](#). March 2017.

¹⁰ The King's Fund and Nuffield Trust. Sustainability and transformation plans in London: An independent analysis of the October 2016 STPs (completed in March 2017). September 2017

¹¹ National Health Executive. [STPs 'very simply' about reducing hospital bed days, says Hunt](#). 16 June 2016. (Report of speech to NHS Confederation in annual conference)

¹² Imison, et al. ['Shifting the balance of care: Great expectations'](#). Nuffield Trust. March 2017

¹³ Care Quality Commission. [The State of Care in NHS Acute Hospitals 2014-2016](#)

¹⁴ Campbell, D. [Two-thirds of young hospital doctors under serious stress, survey reveals](#). The Observer. 11 February 2017

¹⁵ Robert Naylor. [NHS Property and Estates](#). Independent report for the Department of Health. 31 March 2017

¹⁶ Royal College of Anaesthetists. RCoA supports AoMRC call for NHS and social care funding ahead of Government's Autumn Statement. <http://www.rcoa.ac.uk/news-and-bulletin/rcoa-news-and-statements/rcoa-supports-aomrc-call-nhs-and-social-care-funding>

¹⁷ Academy of Royal Medical Colleges. [Delivering a sustainable health and social care system](#). 18 November 2016

^{iv} Based on an average inpatient stay of 6 days (OECD) at a cost of £400 per bed day (Department of Health) and 3.7 million surgical procedures undertaken in England each year (Royal College of Surgeons)

- ¹⁸ House of Lords. Select Committee on the Long-term Sustainability of the NHS. [The Long-term Sustainability of the NHS and Adult Social Care](#). Report of session 2016-17. 5 April 2017
- ¹⁹ Maben, J et al. [Evaluating a major innovation in hospital design: workforce implications and impact on patient and staff experiences of all single room hospital accommodation](#). NIHR. Health services and delivery research. Volume 3, Issue 3, February 2015.
- ²⁰ House of Commons Public Accounts Committee. [Financial sustainability of the NHS](#). Risks to future performance. February 2017
- ²¹ McClelland, L et al. A national survey of the effects of fatigue on trainees in anaesthesia in the UK. DOI: [10.1111/anae.13965](#). First published 5 July 2017
- ²² Royal College of Anaesthetists. [RCoA warns that one-third of anaesthetists are struggling to deliver effective patient care](#). 27 October 2016
- ²³ Robert Naylor. [NHS Property and Estates](#). Independent report for the Department of Health. 31 March 2017
- ²⁴ NHS England. [Next Steps on the Five Year Forward View](#). March 2017
- ²⁵ Robert Naylor. [NHS Property and Estates](#). Independent report for the Department of Health. 31 March 2017
- ²⁶ Ham, C et al. [Delivering sustainability and transformation plans: From ambitious proposals to credible plans](#). February 2017
- ²⁷ Baker, C. House of Commons Library. [NHS Winter Pressures 2016/17: weekly update](#). (7057) 3 March 2017
- ²⁸ Baker, C. House of Commons Library. [NHS Winter Pressures 2016/17: weekly update](#). (7057) 3 March 2017
- ²⁹ Department of Health. [The Government's Mandate to NHS England 2017-18](#). March 2017.
- ³⁰ NHS Providers. Briefing: The Rise of Delayed Transfers of Care. August 2017 <https://nhsproviders.org/the-rise-of-delayed-transfers-of-care>
- ³¹ NHS Digital. Hospital admitted patient care activity, 2015-16. Published 9 November 2016. Accessed at <http://content.digital.nhs.uk/catalogue/PUB22378/hosp-epis-stat-admi-summ-rep-2015-16-rep.pdf>
- ³² Parliament.uk. Dementia: [Written questions – 213473](#). Accessed 12 September 2017
- ³³ Boaden, A. Alzheimer's Society. [Fix Dementia Care: Hospitals](#). January 2016
- ³⁴ NHS England. [Delayed Transfers of Care Times Series to June 2017](#). Published 10 August 2017.
- ³⁵ Operational productivity and performance in English NHS acute hospitals: Unwarranted variations. [An independent report for the Department of Health by Lord Carter of Coles](#). Published 5 February 2016.
- ³⁶ Operational productivity and performance in English NHS acute hospitals: Unwarranted variations. [An independent report for the Department of Health by Lord Carter of Coles](#). Published 5 February 2016.
- ³⁷ Data.gov.uk. NHS Hospital Stay. Published on 24 August 2015. Accessed at <https://data.gov.uk/data-request/nhs-hospital-stay>
- ³⁸ House of Lords. Select Committee on the Long-term Sustainability of the NHS. [The Long-term Sustainability of the NHS and Adult Social Care](#). Report of session 2016-17. 5 April 2017
- ³⁹ National Health Executive. [NHS and council bosses at odds over divisive Better Care Fund targets](#). 6 July 2017.
- ⁴⁰ Department of Health. [Up to 1,500 extra medical training places announced](#). 4 October 2016
- ⁴¹ Care Quality Commission. [The State of Care in NHS Acute Hospitals 2014-2016](#)
- ⁴² House of Commons Committee of Public Accounts. [Managing the supply of NHS Clinical Staff in England](#). 40th report of session 2015-16
- ⁴³ NHS Improvement. [Agency controls: £1 billion saving and new measures](#). 28 February 2017
- ⁴⁴ Centre for Workforce Intelligence. [In-depth review of the anaesthetics and intensive care medicine workforce](#). February 2015
- ⁴⁵ Royal College of Anaesthetists. [Medical Workforce Census Report 2015](#).
- ⁴⁶ RCoA Member Survey 2016. Analysis undertaken by Member Engagement Services and presented to RCoA. Results are based on a response rate of 5,196 members.
- ⁴⁷ NELA Project Team. [Second patient report of the National Emergency Laparotomy Audit](#). July 2016
- ⁴⁸ Royal College of Anaesthetists. [RCoA supports AoMRC call for NHS and social care funding ahead of Government's Autumn Statement](#). November 2016
- ⁴⁹ Academy of Royal Medical Colleges. [Delivering a sustainable health and social care system](#). 18 November 2016
- ⁵⁰ House of Lords. Select Committee on the Long-term Sustainability of the NHS. [The Long-term Sustainability of the NHS and Adult Social Care](#). Report of session 2016-17. 5 April 2017
- ⁵¹ ASH, FPH, RCS (Edinburgh) and RCoA. [Joint briefing: Smoking and surgery](#). April 2016
- ⁵² Nguyen, A. T. et al. Obesity and Mortality, Length of Stay and Hospital Cost among Patients with Sepsis: A Nationwide Inpatient Retrospective Cohort Study. *PLoS ONE*, 11 (4), e0154599. <http://doi.org/10.1371/journal.pone.0154599>
- ⁵³ NHS Improvement. [Getting It Right First Time \(GIRFT\) recruits new clinical leads](#). 17 February 2017
- ⁵⁴ Theadom A, Cropley M. [Effects of preoperative smoking cessation on the incidence and risk of intraoperative and postoperative complications in adult smokers: a systematic review](#). *Tobacco Control* 2006; 15: 352-8.
- ⁵⁵ [Smoking and Surgery](#). Joint briefing by ASH in partnership with the Royal College of Surgeons of Edinburgh, the Royal College of Anaesthetists and the Faculty of Public Health, and endorsed by the Royal College of Surgeons, Royal College of Physicians and the Royal College of General Practitioners
- ⁵⁶ Akinnusi ME et al. Effect of obesity on intensive care morbidity and mortality: a meta-analysis. *Crit Care Med*. 2008 Jan;36(1):151-8. <https://www.ncbi.nlm.nih.gov/pubmed/18007266>
- ⁵⁷ H. Tønnesen, P. R. Nielsen, J. B. Lauritzen, A. M. Møller; Smoking and alcohol intervention before surgery: evidence for best practice. *Br J Anaesth* 2009; 102 (3): 297-306. doi: 10.1093/bja/aen401
- ⁵⁸ Royal College of Anaesthetists. Bulletin: September. PREPARE for surgery: a paradigm shift. P.30-31.
- ⁵⁹ The King's Fund and the Local Government Association. [Making the case for public health interventions](#). September 2014
- ⁶⁰ The King's Fund. [Big cuts planned to public health budgets](#). 12 July 2017
- ⁶¹ OECD. Length of hospital stay (indicator). <http://dx.doi.org/10.1787/8dda6b7a-en>. 2017
- ⁶² Royal College of Surgeons. [Surgery and the NHS in numbers](#). Accessed September 2017
- ⁶³ NHS Wales. [Annual statement of progress 2017 for the critically ill](#). August 2017