Subarachnoid Haemorrhage caused by ruptured aneurysm

Consultation on draft scope
Stakeholder comments table

22/08/2018 to 20/09/2018

ID	Type	Organisation name	Page no.	Line no.	Comments Please insert each new comment in a new row	Developer's response Please respond to each comment
1	SH	Brain & Spine Foundation	General	General	The Brain & Spine Foundation welcome and support the development of this guideline to support improved initial assessment, timely transfer, through treatment and vitally, ongoing long term care and support. Currently information and guidance on SAH for both patients and health professionals is very limited.	Thank you for your comment.
2	SH	Brain & Spine Foundation	8	4	BSF welcome the inclusion of this question as we know from recent feedback that over 60% of our service users who have had an SAH reported that they were not given lifestyle advice. Of those who were, some reported that family and friends were not involved at a time when they themselves were not receptive to advice and information. Consideration should be given to what information is given to who at all stages along the care pathway; from diagnosis right through to comprehensive communications back to the GP and throughout rehabilitation.	Thank you for your comment.
3	SH	Brain & Spine Foundation	5	11	Rehabilitation - The guideline will cross refer to the NICE guideline on Stroke rehabilitation. Whilst this is a comprehensive document, does the guidance address the specific neuropsychological needs facing those who have had an SAH? Our experience and feedback has shown many are living with the fear of recurrence and a constant fear of every headache which may persist for months/years after diagnosis. https://www.ncbi.nlm.nih.gov/pubmed/21415779 - *Subarachnoid haemorrhage patients' fears of recurrence are related to the presence of post-traumatic stress disorder.*	Thank you for your comments. The scope for the NICE guideline on Stroke rehabilitation included SAH and contains recommendations for cognitive and emotional functioning, return to work, and long term health and social support. The SAH guideline will assess the risk of recurrence and the implications of this risk for patients.
4	SH	Brain & Spine Foundation	4	3	Will follow-up include guidance for those with a family history of brain aneurysms?	Thank you for your comment. Identification of family members who are at risk of SAH has been added to the scope. Please refer to this additional scope question (3.7).
5	SH	Brain & Spine Foundation	5	6	Please signpost to BSF www.brianandspine.org.uk for information and support in the guideline section- 'Information for the public' – Thank you.	Thank you for highlighting this resource. NICE does not refer to other organisations publications within the scope.
6	SH	British Dietetic Association	7	Would be line 21	In section 3.52, we would like to see a 2.9 which considers nutritional intervention as a key issue. This would be the draft question we would recommend: *What is the clinical and cost effectiveness of therapy management, including nutritional*	Thank you for your comments. We agree that dietary support for acutely medically ill people is important. At this time we do not

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					intervention?	consider this to be a specific priority for SAH.
7	SH	British Dietetic Association	9	6	Within the 'early management' section of flow diagram, we would recommend including best practice guidance for therapy involvement i.e. / for optimising nutrition in acute phase.	Thank you for your comments. We agree that dietary support for acutely medically ill people is important. At this time we do not consider this to be a specific priority for SAH.
8	SH	Department of Health and Social Care	General	General	The Department of Health and Social Care has no substantive comments to make	Thank you for your comment
9	SH	Medtronic	2	1-29	We suggest that the definitions of SAH and aSAH be more clearly defined such as, "**Subarachnoid haemorrhage** (SAH) is defined as the presence of blood in the subarachnoid space. Traditionally, SAH has been classified as traumatic or spontaneous and the latter is often related to rupture of an intracranial aneurysm. **Aneurysmal SAH** (aSAH) is the most common presentation of intracranial aneurysm rupture. During an aSAH, blood pushes into the subarachnoid space at arterial pressure until the intracranial pressure equalizes across the rupture site and stops the bleeding, with thrombus formation at the bleeding site. The reported case fatality rate is 25 to 50% [1] owing to consequences of either the original bleeding or re-rupture; this estimate does not fully account for patients who die before receiving medical attention." [2] 1. Nieuwkamp DJ, Setz LE, Algra A, Linn FH, de Rooij NK, Rinkel GJ. Changes in case fatality of aneurysmal subarachnoid haemorrhage over time, according to age, sex, and region: a meta-analysis. Lancet Neurol. 2009;8(7):635-642. doi:10.1016/S1474-4422(09)70126-7. 2. Huang J, Van Gelder J. The Probability of Sudden Death From Rupture of Intracranial aneurysms: a Meta - Analysis. Neurosurgery. 2002;51(5):1101-1107. doi:10.1227/01.NEU.0000031748.68572.C6.	We agree and will amend the scope to 'aneurysmal subarachnoid haemorrhage rather than subarachnoid haemorrhage.
10	SH	Medtronic	2	8-14	This section (key facts and figure) touches upon surviving patents being "severely disabled" and the substantial economic burden SAH places on the NHS. We believe it should be highlighted that "since those who have an ICH (intracerebral haemorrhage) experience stroke at a younger age, those that survive have a greater duration of disability due to their greater life expectancy [3]" 3. Cadilhac DA, Dewey HM, Vos T, Carter R, Thrift AG. The health loss from ischemic stroke and intracerebral haemorrhage: evidence from the North East Melbourne Stroke	Thank you for your comment. The introduction is intended as a brief summary, and we consider the main points outlined on mortality and morbidity in this population to be sufficient.

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					Incidence Study (NEMESIS). *Health Qual Life Outcomes*. 2010;8(1):49. doi:10.1186/1477-7525-8-49.	
11	SH	Medtronic	2	8-14	It is stated SAH is associated with high morbidity, we suggest it may be useful to include some examples of morbidity associated with SAH. For example - Neurological complications after aSAH can include: rebleeding, hydrocephalus, seizures, delayed cerebral ischemia, and elevated intracranial pressure (ICP) [4]. - Anaemia is common after aSAH and haemoglobin levels are less than 11 g/dL in 80% of patients. In a prospective registry study, patients with higher haemoglobin had a reduced risk of poor outcome independent of other factors associated with poor outcome [5]. Etiologies of anaemia include blood loss during surgery, systemic inflammatory response syndrome (SIRS), and frequent phlebotomies. 4. Garg R, Bar B. Systemic Complications Following Aneurysmal Subarachnoid Hemorrhage. *Curr Neurol Neurosci Rep*. 2017;17(1). doi:10.1007/s11910-017-0716-3. 5. Naidech AM, Jovanovic B, Wartenberg KE, et al. Higher hemoglobin is associated with improved outcome after subarachnoid hemorrhage. *Crit Care Med*. 2007;35(10):2383-2389. http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L47476238.	Thank you for your comments. A number of significant morbidities are associated with survival after aSAH. We have prioritised the following for inclusion in the scope: prevention of rebleeding, seizure management, identification and management of hydrocephalus, delayed cerebral ischemia, and intracranial hypertension.
12	SH	Medtronic	2	24	The scope states once SAH is confirmed it should be discussed immediately with a specialist neurosurgical centre. We suggest that neuroradiology should be included. This would align with the ESO 2013 guidelines which states: "**The best mode of intervention should be discussed in an interdisciplinary dialogue between Neurosurgery and Neuroradiology**." [6] 6. Steiner T, Juvela S, Unterberg A, Jung C, Forsting M, Rinkel G. European Stroke Organization guidelines for the management of intracranial aneurysms and subarachnoid haemorrhage. Cerebrovascular diseases. 2013;35(2):93-112.	Thank you for your comments. In the UK setting, neuroradiology and neurosurgery tend to be located within specialist neurosurgical centres.
13	SH	Medtronic	3	12-17	ESO 2013 guidelines for patients with aneurysmal SAH outline factors in favour of operative intervention (clipping): younger age, presence of space occupying ICH, and aneurysm-specific factors such as location (middle cerebral artery and pericallosal aneurysm), wide aneurysm neck and arterial branches exiting directly out of the aneurysmal sack [7-10]. Factors in favour of endovascular intervention (coiling): age above 70 years, space occupying ICH not present, and aneurysm-specific factors such as posterior location, small aneurysm neck, unilobar shape [8,9]. **We agree with the above risk stratification although we suggest within the equality considerations section it is outlined that patient cohorts should not be excluded from treatments as the decision whether to treat should depend on the clinical and physical**	Thank you for your comments. We will address these issues during the development of the guideline. We will review the evidence and make recommendations in line with the NICE guidelines manual.

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					condition of the patient. 7. Steiner T, Juvela S, Unterberg A, Jung C, Forsting M, Rinkel G. European Stroke Organization guidelines for the management of intracranial aneurysms and subarachnoid haemorrhage. Cerebrovascular diseases. 2013;35(2):93-112. 8. Molyneux AJ, Kerr RSC, Yu L-M, et al. International subarachnoid aneurysm trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised comparison of effects on survival, dependency, seizures, rebleeding, subgroups, and . *Lancet (London, England)*. 2005;366(9488):809-817. doi:10.1016/S0140-6736(05)67214-5. 9. Johnston S, Dowd C, Higashida R, Lawton M, Duckwiler G, Gress D. Predictors of rehemorrhage after treatment of ruptured intracranial aneurysms: the Cerebral Aneurysm Rerupture after Treatment (CARAT) study. *Stroke*. 2008;39:120–125. 10. Ryttlefors M, Enblad P, Kerr R, Molyneux A. International subarachnoid aneurysm trial of neurosurgical clipping versus endovascular coiling: subgroup analysis of 278 elderly patients. *Stroke*. 2008;39:2720–2726.	
14	SH	Medtronic	7	9-10	We agree that the **clinical effectiveness of interventions to prevent re-bleeding** is imperative and there is a large evidence base to reflect this: 11. Molyneux AJ, Kerr RS, Birks J, et al. Risk of recurrent subarachnoid haemorrhage, death, or dependence and standardised mortality ratios after clipping or coiling of an intracranial aneurysm in the International Subarachnoid Aneurysm Trial (ISAT): long-term follow-up. *Lancet Neurol*. 2009;8(5):427-433. doi:10.1016/S1474-4422(09)70080-8. 12. 63. Molyneux AJ, Kerr RSC, Yu L-M, et al. International subarachnoid aneurysm trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised comparison of effects on survival, dependency, seizures, rebleeding, subgroups, and . *Lancet (London, England)*. 2005;366(9488):809-817. doi:10.1016/S0140-6736(05)67214-5. 13. 194. Mcdougall CG, Spetzler RF, Zabramski JM, et al. The Barrow Ruptured Aneurysm Trial. J Neurosurg. 2012;116:135-144. 14. 195. Spetzler RF, Mcdougall C, Albuquerque FC, Zabramski JM, Nakaji P. The Barrow Ruptured Aneurysm Trial: 3-Year results. J Neurosurg. 2013;119:146-157. doi:10.3171/2013.11.JNS12683a. 15. 196. Spetzler RF, McDougall CG, Zabramski JM, et al. The Barrow Ruptured Aneurysm Trial: 6-year results. J Neurosurg. 2015;123(3):609-617. doi:10.3171/2014.9.JNS141749. 16. 197. Koivisto T, Vanninen R, Hurskainen H, Saari T, Hernesniemi J, Vapalahti M.	Thank you for your comment and providing these references.

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					Outcomes of early endovascular versus surgical treatment of ruptured cerebral aneurysms. A prospective randomized study. *Stroke*. 2000;31(10):2369-2377. doi:10.1161/01.STR.31.10.2369. 17. 167. Falk Delgado A, Andersson T, Falk Delgado A. Clinical outcome after surgical clipping or endovascular coiling for cerebral aneurysms: A pragmatic meta-Analysis of randomized and non-randomized trials with short-and long-Term follow-up. J Neurointerv Surg. 2017;9(3):264-277. doi:10.1136/neurintsurg-2016-012292. 18. 169. Li H, Pan R, Wang H, et al. Clipping versus coiling for ruptured intracranial aneurysms: A systematic review and meta-analysis. Stroke. 2013;44(1):29-37. http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L52357564. 19. 176. Gaberel T, Borha A, Di Palma C, Emery E. Clipping Versus Coiling in the Management of Posterior Communicating Artery Aneurysms with Third Nerve Palsy: A Systematic Review and Meta-Analysis. World Neurosurg. 2016;87:498-506E4. doi:10.1016/j.wneu.2015.09.026. 20. 182. Guan J, Li G, Kong X, et al. Endovascular treatment for ruptured and unruptured vertebral artery dissecting aneurysms: A meta-analysis. *J Neurointerv Surg*. 2017;9(6):558-563. doi:10.1136/neurintsurg-2016-012309. 21. 189. Fang S, Brinjikji W, Murad MH, Kallmes DF, Cloft HJ, Lanzino G. Endovascular Treatment of Anterior Communicating Artery Aneurysms : A Systematic Review and Meta-Analysis. AJNR Am J Neuroradiol. 2014;(May):1-5. doi:10.3174/ajnr.A3802. 22. NHS Commissioning Board. Clinical Commissioning Policy Statement: Flow Diverting Devices for Intracranial Aneurysms (NHSCB/D03/d). 2013 Flow Diverting Devices Policy Statement- Adult Neurosurgey CRG. 1-7.	
15	SH	Medtronic	7	9-10	We agree that the **cost effectiveness of interventions to prevent re-bleeding** is important however, there is little available evidence reporting the costs associated with ruptured aSAH from an NHS perspective. 23. Wolstenholme J, Rivero-Arias O, Gray A, Molyneux AJ, Kerr RS, Yarnold JA, Sneade M. Treatment pathways, resource use, and costs of endovascular coiling versus surgical clipping after aSAH. Stroke. 2008 Jan 1;39(1):111-9.	Thank you for your comment and providing these references.
16	SH	Medtronic	7	11-12	We agree that **the optimal timing interventions to prevent re-bleeding** is crucial for patients, references for specified timeframes below. 24. Van Gijn J, Kerr R, Rinkel G. Subarachnoid haemorrhage. *Lancet*. 2007;369:306– 318.	Thank you for your comment and providing these references.

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					25. De Gans K, Nieuwkamp D, Rinkel G, Algra A. Timing of aneurysm surgery in subarachnoid hemorrhage: a systematic review of the literature. *Neurosurgery*. 2002;50:340–332. 26. Laidlaw J, Siu K. Poor-grade aneurysmal subarachnoid hemorrhage: outcome after treatment with urgent surgery. *Neurosurgery*. 2003;53:1275–1280.	
17	SH	Medtronic	8	19-28	The scope states links to NICE Stroke Pathway and NICE IPG 105/106 will be included in guidance. We believe it would also be beneficial to patients to also include the link to the **NICE stroke rehabilitation in adults CG162**.	Thank you for your comment. The link to the stroke pathway includes the stroke rehabilitation guideline.
18	SH	Microvention UK	2	27	Only surgical clipping or endovascular coiling are mentioned. Insertion of Intrasaccular device into intracranial aneurysms should be considered for unruptured procedure as make part of their indication	Thank you for your comment. The scope has been amended to refer to endovascular intervention.
19	SH	Microvention UK	4	19	Only surgical clipping or endovascular coiling are mentioned. Insertion of Intrasaccular device into intracranial aneurysms should be considered for unruptured procedure as make part of their indication	Thank you for your comment. The scope has been amended to refer to endovascular intervention.
20	SH	Microvention UK	7	10	Only surgical clipping or endovascular coiling are mentioned. Insertion of Intrasaccular device into intracranial aneurysms should be considered as make part of their indication. Out of remit procedure identified for one of them at the NICE web site. 1040/1 Insertion of Woven EndoBridge device into intracranial aneurysms (Reason Minor Modification of existing procedure)	Thank you for your comment. The scope has been amended to refer to endovascular intervention.
21	SH	Roche Diagnostics Ltd	General	General	The S-100 concentrations measured in CSF were related to the severity of the haemorrhage and to the development of delayed ischaemic deterioration. [2] Reference: 1. S-100 protein in cerebrospinal fluid of patients with subarachnoid haemorrhage: a potential marker of brain damage. Persson L, Hårdemark H, Edner G, Ronne E, Mendel-Hartvig I, Påhlman S. Acta Neurochir. (1988) 93:116-22.	Thank you for your comments. We have performed a top level literature search on the prognostic value of IL-6 and S100 within the context of aSAH. There is an absence of significant evidence to support the inclusion of these specific biomarkers within the scope of this guideline. The evidence suggests S100 can be linked to other causes of brain injury and not independently correlated to aSAH severity. A systematic review of S100 in aSAH found there isn't correlation of S100 levels and radiological findings,

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						suggesting there are other factors involved including basic clinical presentation aside from biomarkers. We will be looking at the prognostic value of scoring systems to assess the severity of aSAH episodes.
22	SH	Roche Diagnostics Ltd	General	General	There is evidence to support the inclusion of IL-6 in this guideline. The expression levels of IL-6 and S100 in CSF were higher in the unfavourable prognosis group at 1, 4, 7 and 10 days compared with the control group. There were positive correlations among the levels of IL-6 and S100 in CSF in SAH patients, confirming that IL-6 and S100 can reflect the severity and development process of inflammatory response, and may be involved in the occurrence and development of disease, late CVS and prognosis. [3] Reference: 2. Clinical significance of changes in IL-6, CRP and S100in serum and NO in cerebrospinal fluid insubarachnoid hemorrhage and prognosis. Zhang W, Sun L, Ma L, Li Z. Exp Ther Med. (2018)16 :816-820.	Thank you for your comments. We have performed a top level literature search on the prognostic value of IL-6 and S100 within the context of aSAH. There is an absence of significant evidence to support the inclusion of these specific biomarkers within the scope of this guideline. We will be looking at the prognostic value of scoring systems to assess the severity of aSAH episodes.
23	SH	Roche Diagnostics Ltd	General	General	PS100β > 0.13 µg/L at day 5 is an independent predicting factor of poor neurological outcome at 6 months following SAH. This result could support the use of this biomarker at the acute phase of SAH to help physician determine the prognosis. [4] Reference: 4. Early and persistent high level of PS 100β is associated with increased poor neurological outcome in patients with SAH: is there a PS 100β threshold for SAH prognosis? Quintard H, Leduc S, Ferrari P, Petit I, Ichai C. Crit Care. (2016) 20:33.	Thank you for your comments. We have performed a top level literature search on the prognostic value of IL-6 and S100 within the context of aSAH. There is an absence of significant evidence to support the inclusion of these specific biomarkers within the scope of this guideline. There also appear to variation in practice with regards to method of testing for S100 (blood or CSF) and for the timing of taking the sample.
24	SH	Roche Diagnostics Ltd	General	General	The initial S100 protein value is an independent prognostic factor for poor outcomes in SAH patients. The median S100 level in SAH patients on admission was significantly higher than in healthy controls (0.081 vs. 0.05µg/l, p < 0.0001). The baseline S100 value of 0.168 predicted poor outcomes with a sensitivity of 75% and a specificity of 83%. [5] Reference: 5. Which treatment modality is more injurious to the brain in patients with subarachnoid hemorrhage? Degree of brain damage assessed by serum S100 protein after aneurysm clipping or coiling. Shim JH, Yoon SM, Bae HG, Yun IG, Shim JJ, Lee KS, Doh JW. Cerebrovasc Dis.	Thank you for your comments. We have performed a top level literature search on the prognostic value of IL-6 and S100 within the context of aSAH. There is an absence of significant evidence to support the inclusion of these specific biomarkers within the

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					(2012) 34:38-47.	scope of this guideline. The evidence suggests S100 can be linked to other causes of brain injury and not independently correlated to aSAH severity. A systematic review of S100 in aSAH found there isn't correlation of S100 levels and radiological findings, suggesting there are other factors involved including basic clinical presentation aside from biomarkers. We will be looking at the prognostic value of scoring systems to assess the severity of aSAH episodes.
25	SH	Roche Diagnostics Ltd	General	General	Assessment of S100B levels in CSF and serum as a predictive parameter for shunt dependency in patients with posthemorrhagic hydrocephalus following aneurysmal SAH. [6] Reference: 6. Shunt-dependent hydrocephalus following subarachnoid hemorrhage correlates with increased S100B levels in cerebrospinal fluid and serum. Brandner S, Xu Y, Schmidt C, Emtmann I, Buchfelder M, Kleindienst A. Acta Neurochir Suppl. 2012;114:217-20.	Thank you for your comments. We have performed a top level literature search on the prognostic value of IL-6 and S100 within the context of aSAH. There is an absence of significant evidence to support the inclusion of these specific biomarkers within the scope of this guideline. The evidence suggests S100 can be linked to other causes of brain injury and not independently correlated to aSAH severity. A systematic review of S100 in aSAH found there isn't correlation of S100 levels and radiological findings, suggesting there are other factors involved including basic clinical presentation aside from biomarkers. We will be looking at the prognostic value of scoring systems to assess the severity of aSAH episodes.
26	SH	Roche Diagnostics Ltd	General	General	On a pooled analysis a higher serum S100B level was found to be associated with cerebral infarction and worse long-term aSAH outcome. No correlation was found with radiographic or clinical vasospasm. [7]	Thank you for your comments. We have performed a top level literature search on the prognostic

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					Reference: 7. Association between S100B Levels and Long-Term Outcome after Aneurysmal Subarachnoid Hemorrhage: Systematic Review and Pooled Analysis. Pui Man Rosalind Lai, Rose Du. PLoS One (2016) 11.	value of IL-6 and S100 within the context of aSAH. There is an absence of significant evidence to support the inclusion of these specific biomarkers within the scope of this guideline. The evidence suggests S100 can be linked to other causes of brain injury and not independently correlated to aSAH severity. A systematic review of S100 in aSAH found there isn't correlation of S100 levels and radiological findings, suggesting there are other factors involved including basic clinical presentation aside from biomarkers. We will be looking at the prognostic value of scoring systems to assess the severity of aSAH episodes.
27	SH	Royal College of General Practitioners	4	24	Under the "follow up" section mental health assessment and treatment should be included as well as advice for carers	Thank you for your comment. We will refer to the NICE guideline on Stroke rehabilitation which included subarachnoid haemorrhage and contains recommendations for cognitive and emotional functioning, and long term health and social support.
28	SH	[Royal College of Nursing]	General	General	The Royal College of Nursing (RCN) welcomes proposals to develop guidelines for Subarachnoid haemorrhage (SAH) due to ruptured aneurysms. The RCN invited members who care for people with this condition to review the draft scope on its behalf. The comments below reflect the views of our reviewers.	Thank you for your comment.
29	SH	[Royal College of Nursing]	2	12/13	Adding the age range of those who have a SAH may link with the economic burden as many are still of working age.	We do not think the age range is needed here as the guideline covers adults age 16 and above and this is stated in the document. Any economic analysis conducted will include an assessment of

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						QALY.
30	SH	[Royal College of Nursing]	4	17	Will the medical management cover bed rest pre-treatment and how long it is required for post-treatment, fluid balance, nimodipine and the management of hypo/hypernatremia?	Thank you for your comment. We are not intending to look at bed rest pre-treatment as the scoping team are not aware of any specific evidence to inform recommendations.
31	SH	[Royal College of Nursing]	4	21	Will there be evidence for/against the usage of trans cranial Doppler for Delayed Cerebral Ischemia (DCI) management?	We will look for evidence on Trans Cranial Doppler for Delayed Cerebral Ischaemia to inform recommendations.
32	SH	Society and College of Radiographers	1	16,17	The Society and College of Radiographers recognises the rise in the number of CT scans being performed (as evidenced by the Diagnostic Imaging Dataset Annual Statistical Release 2016/17) https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2017/11/Annual-Statistical-Release-2016-17-DID-PDF-1.5MB.pdf and the increasing national shortage of radiologists https://www.rcr.ac.uk/posts/latest-workforce-report-underlines-%E2%80%9Cno-end-sight%E2%80%9D-uk%E2%80%99s-radiologist-staffing-crisis The Society and College of Radiographers is aware of national inconsistencies in the time taken from referral for imaging to clinical evaluation/written report https://www.cqc.org.uk/sites/default/files/20180718-radiology-reporting-review-report-final-for-web.pdf. The CQC note that the skills of reporting radiographers are not always being utilised. The opportunity to improve reporting times for 'on table' positive identification of aneurysmal subarachnoid haemorrhage by utilising both suitably qualified radiologists and reporting radiographers should be considered.	Thank you for your comments. The guidelines will seek to make recommendations about the optimal timing, location and sequencing of investigations.
33	SH	Society and College of Radiographers	2	18,19	Does this imply that CT is NOT indicated prior to L.P. if greater than 12 hours have elapsed since onset of headache? What are the implications for patients found collapsed with no known onset time?	Thank you for your comments. The guideline will address the clinical and cost effectiveness of diagnostic strategies and the optimal timing, location and sequencing of investigations. We will forward your question about patients found collapsed with no known onset time to the committee for consideration when they address this part of the scope.
34	SH	Society and College of Radiographers	3	21,22	The Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) 2017 require (Reg 10.(5)) that "*The referrer must supply the practitioner with sufficient medical data (such as previous diagnostic information or medical records) relevant to the exposure requested by the referrer to*	Thank you for your comments. The guidelines will make recommendations about the optimal

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					enable the practitioner to decide whether there is a sufficient net benefit as required by regulation 11(1)(b)". Referral details need to be accurate and sufficient to determine if the patient meets the criteria for this guideline. The Society and College of Radiographers suggest minimum requirements should include time of onset of headache and any evidence of trauma.	timing, location and sequencing of investigations.
35	SH	Society and College of Radiographers	4	14	The Society and College of Radiographers suggest diagnostic strategy should include: • Protocols for non-contrast CT (NCCT) and CT cerebral angiography (CTA) including anatomical start and end positions. Variation in practice for CTA could lead to missed uncommon smaller proximal (cerebellar) and distal (peri-callosal) aneurysms • Agreement regarding where the CTA is performed when the patient initially presents to a local DGH with no neuroscience services (also relates to page 6 lines 25-27) • Recommendations for rapid on table reporting by a radiologist or adequately trained and suitably entitled reporting radiographer where available • Justification and prescribing pathway for progression to on table CTA where subarachnoid haemorrhage, due to ruptured aneurysm, is positively identified or suspected. SCoR believe there is widespread access to this procedure nationally. • Consideration of the role of MRI imaging in acute and sub-acute SAH. If more than 24 hours have elapsed since onset of symptoms, is CT still the best imaging choice. Is MRI (T2* or SWI) considered the gold standard in the sub-acute phase? • Consideration of guidelines for follow up imaging with CT and surveillance imaging with MRI (also relates to page 7 lines 6-8 and 24-26)	Thank you for your comments. The guidelines will make recommendations about the optimal timing, location and sequencing of investigations.
36	SH	Society and College of Radiographers	4	15	The Society and College of Radiographers believe some scoring systems are complex and undertaken by inadequately trained staff. If recommended for use, the Society and College of Radiographers suggest a simple and reproducible scoring system with audit to ensure excellent inter-observer correlation (also relates to page 6 lines 28-30)	Thank you for your comment. Interventions recommended by the guideline should be delivered by staff with the necessary qualifications and competencies - this would be implemented locally.
37	SH	Society and College of Radiographers	4	26	The identification of non-culprit aneurysms can be challenging, especially with disseminated SAH. The Society and College of Radiographers suggest this is undertaken by specialist radiologists or reporting radiographers with adequate training.	Thank you for your comment. Interventions recommended by the guideline should be delivered by staff with the necessary qualifications and competencies and this would be implemented locally.
38	SH	Society and College of Radiographers	7	27,28	Assessment of clinical and cost effectiveness should take into account who reports the initial examination and whether there is a requirement for further neuro specialist opinion (or double reporting) to exclude missed non-culprit aneurysms.	Thank you for your comment. Interventions recommended by the guideline should be delivered by staff with the necessary qualifications and competencies and this would be implemented

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						locally.
39	SH	Society and College of Radiographers	8	11	Diagnostic accuracy. The Society and College of Radiographers call for guidance to stress the need for accuracy when radiologists and reporting radiographers are describing implants as either coils or clips. The Society and College of Radiographers is aware of cases where coils have been reported as clips. If the term "aneurysm clip" is used generically in CT Head reports for aneurysm treatment implants there is a risk that an inaccurate description of the implant is passed on from referral to report and then to subsequent referrals. This becomes a problem particularly in MRI where the safety of some aneurysm clips is unknown, whereas aneurysm embolisation coiling is considered MRI safe or MRI conditional (safe for scanning under certain specific conditions). The Society and College of Radiographers is aware of delays for urgent MRI imaging caused by the incorrect use of terminology. Consequently, the patient is labelled, potentially for life, as being unsafe for MRI which may be to their future detriment. Inefficiency occurs when radiographers spend an unnecessary and avoidable amount of time investigating the accuracy of referral information. This is likely to cause delays to subsequent patients.	Thank you for highlighting this issue. The guideline committee will endeavour to ensure the terminology used within the guidance is accurate and clear.
40	SH	[Society of British Neurological Surgeons]	3	20-22	The guideline should include children because although brain aneurysms are uncommon in the paediatric population the treatment of the children affected is undertaken by the specialists (including interventional neuro-radiologists) who treat the adult population.	Thank you for your comment. The incidence of aSAH in paediatrics is very low and management strategies differ from the adult population.
41	SH	[Society of British Neurological Surgeons]	General		The NCEPOD National Audit 'Managing the Flow' published in November 2013 should inform the Guideline committee because it contains important data regarding key timelines in the clinical pathway of a ruptured brain aneurysm including the timelines regarding admission to a neurosurgical unit and treatment of the aneurysm. Admission within 24 hours and treatment no more than 24-48 hours are current standards in many units.	Thank you for highlighting this publication. The scope includes questions on the optimal timing of investigations and interventions.
42	SH	[Society of British Neurological Surgeons]	6	18-19	The guideline should cover recommendations regarding screening for Familial aneurysms because this is often raised by the families of those affected.	Thank you for your comment. Identification of family members who are at risk of SAH has been added to the scope. Please refer to additional scope question (3.7).
43	SH	[Society of British Neurological Surgeons]	6	18-19	Include seizures	Thank you for your comment. Seizure management is included within the medical management strategies question. Please refer to Q 2.1
44	SH	[Society of British Neurological Surgeons]	General		The guideline should define the role of Multidisciplinary Team working for this clinical pathway. However, because SAH is an acute life threatening condition the model should not be the same as for oncology MDT. It should be a case by case discussion between the vascular neurosurgeon, the interventional neuro-radiologists and the Critical care/Anaesthesia colleagues	Thank you for your comment. We agree health professionals delivering care to this population should work as part of a team when

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					without causing any delay in diagnosis and treatment.	considering treatment options. When considering the evidence and recommendations for managing aSAH the guideline committee will clarify any aspects of MDT working as necessary.
45	SH	The Royal College of Surgeons of Edinburgh			The NCEPOD national audit published in November 2013 should be included in the documents considered by the committee.	Thank you we are aware of this publication and will reference this within the guideline.
46	SH	The Royal College of Surgeons of Edinburgh			Paediatric aneurysms should be included because they are treated by specialists delivering adult practice.	The incidence of aSAH in paediatrics is very low and management strategies differ from the adult population. Therefore to widen the scope to include paediatrics would incur a delay in the publication of the guideline.

Document processed	Organisation name – Stakeholder or respondent	Disclosure on tobacco funding / links	Number of comments extracted	Comments
Brain & Spine Foundation.docx	Brain & Spine Foundation	N/A	5	
British Dietetic Association.docx	British Dietetic Association	Nil to disclose	2	
Department of Health and Social Care.docx	Department of Health and Social Care	N/A	1	
Medtronic.docx	Medtronic	Medtronic has no past or current, direct or indirect links to, or funding from, the tobacco industry.	9	
Microvention UK.docx	Microvention UK	Not Applicable	3	
Roche Diagnostics Ltd.docx	Roche Diagnostics Ltd	None.	6	
Royal College of General Practitioners.docx	Royal College of General Practitioners	None	1	

Royal College of Nursing.docx	[Royal College of Nursing]	[None declared]	4	
Society and College of Radiographers.docx	Society and College of Radiographers	No disclosures	8	
Society of British Neurological Surgeons.docx	[Society of British Neurological Surgeons]	None]	5	
The Royal College of Surgeons of Edinburgh.docx	The Royal College of Surgeons of Edinburgh	N/A	2	

Registered stakeholders [Insert link]