


# CRANIAL V2.2 - version 36.81

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## 1. CRANIAL - Baseline

Number	Question	Answers
1.1	NANSIG	
<hr/> <p><b>Welcome to the CSF Rhinorrhoea After Endonasal Intervention to the Anterior Skull Base - A National Prospective Service Evaluation on Incidence and Management (CRANIAL) project</b></p> <hr/> <p>Please find below our data collection proformas which should be filled in <b>within 30 days of admission</b>.</p> <hr/> <p>Please read our <b>Local Lead Guidance</b> and <b>Step-by-Step Guidance</b> documents before beginning.</p> <hr/> <p>By collecting data, you are <b>offered citation as a CRANIAL Consortium collaborator</b> on the project report/manuscript(s). At the end of the data collection window, members of the local team are invited to apply for the <b>opportunity to be a full author</b>. Applications will be reviewed in the context of the performance of the local data team. Emphasis will be placed on <b>data completeness, with data quantity a secondary consideration at most (relative to the caseload of the respective local centre)</b>. Successful applicants will be invited to contribute significantly to the final audit report/manuscript after which, they will be entitled full authorship.</p> <hr/> <p>If you have any outstanding questions, feel free to contact us by emailing <b>cranialnansig@gmail.com</b></p> <hr/> <p><b>Thank you and welcome to the CRANIAL team.</b></p> <hr/>		
1.2	Age of patient at time of surgery	<input type="text"/>
1.3	Biological sex?	<input type="radio"/> Male <input type="radio"/> Female
1.4	BMI >30 ?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.5	Visual loss at presentation?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.5.1	<b>If 'Visual loss at presentation?' is equal to 'Yes' answer this question:</b> Is the patient blind (binocular and < 6/60)?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available

1.6	Pre-operative anterior pituitary insufficiency requiring hydrocortisone?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.7	Pre-operative posterior pituitary insufficiency requiring desmopressin (DDAVP)/ Antidiuretic hormone (ADH)?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.8	Tumour type?	<input type="radio"/> Pituitary adenoma (functioning) <input type="radio"/> Pituitary adenoma (non-functioning) <input type="radio"/> Craniopharyngioma <input type="radio"/> Meningioma <input type="radio"/> Rathke's Cleft Cyst <input type="radio"/> Chordoma <input type="radio"/> Other
1.8.1	<b>If 'Tumour type?' is equal to 'Pituitary adenoma (functioning)' answer this question:</b> Did the patient have Cushing's Disease?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.8.2	<b>If 'Tumour type?' is equal to 'Pituitary adenoma (functioning)' answer this question:</b> Did the patient have Acromegaly/Gigantism?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.8.3	<b>If 'Tumour type?' is equal to 'Other' answer this question:</b> Tumour type? (fill if other selected)	<input style="border: 1px dashed black;" type="text"/>
1.9	Tumour maximum diameter? (on radiology)	<input type="radio"/> Less than 1 cm <input type="radio"/> Greater than or equal to 1cm
1.10	Does the patient have any of the following symptoms?	<input type="checkbox"/> Fever <input type="checkbox"/> New cough <input type="checkbox"/> Short of breath <input type="checkbox"/> None of the above <input type="checkbox"/> Data unavailable
1.11	Has the patient been screened for COVID-19?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
1.11.1	<b>If 'Has the patient been screened for COVID-19?' is equal to 'Yes' answer this question:</b> How was the patient screened for COVID 19?	<input type="checkbox"/> Swab <input type="checkbox"/> Serology <input type="checkbox"/> CT Thorax <input type="checkbox"/> Other
1.11.1.1	<b>If 'How was the patient screened for COVID 19?' is equal to 'Other' answer this question:</b> Other: How was the patient screened for COVID 19?	<input style="border: 1px dashed black;" type="text"/>

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1.11.2 **If 'Has the patient been screened for COVID-19?' is equal to 'Yes' answer this question:**  Yes  
Did the patient test positive for COVID-19?  No  
 Not available

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1.11.2.1 **If 'Did the patient test positive for COVID-19?' is equal to 'Yes' answer this question:**  Swab  
By which method(s) did the patient test positive?  Serology  
 CT Thorax  
 Other

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1.11.2.1.1 **If 'By which method(s) did the patient test positive?' is equal to 'Other' answer this question:**   
Other: By which method(s) did the patient test positive

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1.12 Optional: Any other comments? (See help text for examples)  
For example: -Pre-operative CSF diversion (VP shunts, Lumbar drains, etc) -Pressure measurements (opening pressure, ICP) -Hydrocephalus or Idiopathic Intracranial Hypertension

## 2. CRANIAL - Operative

Number Question

Answers

This section covers data points for the primary surgery (transsphenoidal or expanded endonasal) and intra-op CSF barrier repair (if undertaken).

Please refer to the table below to give an overview where to find the relevant repair techniques in our form.

2.1 Castor Matrix

Skull base repair techniques – Reference taxonomy for Castor form									
Category	Dural Closure	Dural replacement	Vascularised flap	Graft	Adhesive	Tissue glue	Neural packing	Other	
Technique	Sutures	Dura-free	Fascial/Leptomeningeal Flap (e.g. temporalis)	a) Synthetic grafts	None	Epoxy	Bone wax/Gelatin/Gelatin sponge	a) Haemostatic agents	
	Clips	Overlays	Others	Spongiform	Titanium Mesh	Tissue	Fat/Self Fat	Surgicel	
	Others	Quilts		Scaffold	Polysiloxane (e.g. Master)	Adhesive	Minicore	Flowable	
Technique	Endogenous tissue (e.g. Temporalis)			Cellular		Others	Others	Others	b) Others
				b) Tissue grafts: Fat					
				Others					

**Definitions**

**Dural Closure:** Separated sections of dura are approximated back together - for example by using sutures - such that total or near total apposition is achieved.

**Dural replacement:** A substitute material used specifically to reconstruct the dura - (single pieces are lacking structural integrity, this material can be endogenous tissue (eg. nasal mucosa) or synthetic (eg. Gelfoam). The replacement may either be placed such that it bridges the gap beneath the dura (underlay), or over the dura (overlay).

**Vascularised Flap:** Tissue that is moved from donor sites to reconstruct the dura with its own vasculature. An example in the context of skull base repair is a temporalis flap.

**Synthetic Graft:** Synthetic material usually in the form of sheets (e.g. TachoSil) or sponges (eg. collagen sponges), as seen here, which have been created as alternatives to traditional tissue grafts and thus avoid potential donor site morbidity.

**Tissue Graft:** Tissue that is moved from a donor site to a recipient site without its blood supply.

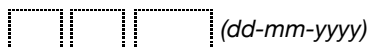
**Bone wax:** Natural wax that stabilises and supports the skull base repair material. It comes in the composition of bone, titanium mesh, or polysiloxane e.g. medpor.

**Tissue glue:** A liquid monomer, which needs polymerisation on contact with living tissue to form a hard surgical plastic.

**Neural packing:** Using a material to occupy a neural space and provide structural support through its local pressure effects. They can also be coated with substances (eg. fibrin) to augment particular qualities (eg. haemostatic).

For more definitions and explanatory diagrams, please see: <https://tinyurl.com/CRANIAL-Picture-Guide>

2.2 Date of index surgery?



2.3 Approach used for the index surgery?

- The transsphenoidal (transsellar) approach is defined by its purpose of accessing the sella tursica through the sphenoid bone.
- The expanded endoscopic endonasal approach refers to accessing an area beyond the sella alone - bounded by the frontal sinus, cribriform plate, medial orbital wall, cavernous sinus, posterior clinoid processes and clivus.

- Transsphenoidal (Transsellar) Approach
- Expanded Endoscopic Endonasal Approach

2.3.1 **If 'Approach used for the index surgery?' is equal to 'Transsphenoidal (Transsellar) Approach' answer this question:**

Method used for transsphenoidal approach?

- Endoscopic
- Microscopic
- Combination of both

2.3.1.1 **If 'Method used for transsphenoidal approach?' is not equal to 'Microscopic' answer this question:**

Why is an endoscopic endonasal approach being utilised? (Please see help text)

This question is in the context of recent SBNS guidelines to avoid endoscopic endonasal approaches during the COVID pandemic. Answers could be along the lines of:

- The patient is COVID negative and/or asymptomatic
- Alternatives are unavailable
- Insufficient experience in alternatives
- The endoscopic approach is most appropriate because of X, Y, Z.



2.3.2 **If 'Approach used for the index surgery?' is equal to 'Expanded Endoscopic Endonasal Approach' answer this question:**

Why is an endoscopic endonasal approach being utilised?  
(Please see help text)

This question is in the context of recent SBNS guidelines to avoid endoscopic endonasal approaches during the COVID pandemic. Answers could be along the lines of:

1. The patient is COVID negative and/or asymptomatic
2. Alternatives are unavailable
3. Insufficient experience in alternatives
4. The endoscopic approach is most appropriate because of X, Y, Z.

2.4 Is this surgery primary or revision?  
 Primary surgery  
 Revision surgery  
 Not available

2.5 Neurosurgeon involved?  
 Yes  
 No  
 Not available

2.5.1 **If 'Neurosurgeon involved?' is equal to 'Yes' answer this question:**  
Grade(s) of the primary operating neurosurgeon?  
 Consultant  
 Registrar

2.6 ENT surgeon involved?  
 Yes  
 No  
 Not available

2.6.1 **If 'ENT surgeon involved?' is equal to 'Yes' answer this question:**  
Grade(s) of the primary operating ENT surgeon?  
 Consultant  
 Registrar

2.7 Neuro-navigation used?  
 Yes  
 No  
 Not available

2.8 Operative time (in minutes) ?

2.9 Personal protective equipment used in theatre?  
 Surgical face mask  
 FFP3 mask  
 Powered hood respirator  
 Eye glasses  
 Face shield  
 Extended cuff gloves  
 Fluid resistant hood  
 Standard surgical gown  
 Double surgical gowns  
 Reinforced surgical gown  
 Not available  
 Other

2.9.1	<p><b>If 'Personal protective equipment used in theatre?' is equal to 'Other' answer this question:</b></p>	<input type="text"/>
	<p>Personal protective equipment used in theatre? (fill if other selected)</p>	
2.10	<p>Were any other precautions taken to reduce the risk of airborne pathogen transmission? See help text for examples. Examples could include: minimizing bone drilling, modifying draping techniques, etc. Please discuss with operating surgeon</p>	<input type="text"/>
2.11	<p>CSF leak detected during surgery?  <i>Notice shown if field's value is not equal to Leak present but grade unknown: 'This data point must be confirmed with the operating surgeon'</i>  <i>Notice shown if field's value is equal to Leak present but grade unknown: 'This data point must be confirmed with the operating surgeon'</i></p>	<p><input type="radio"/> Grade 0 (None)  <input type="radio"/> Grade 1 (Small leak without obvious dural/diaphragmatic defect)  <input type="radio"/> Grade 2 (Moderate leak with obvious dural/diaphragmatic defect)  <input type="radio"/> Grade 3 (Large leak with large dural/diaphragmatic defect and/or opening of the 3rd ventricle)  <input type="radio"/> Leak present but grade unknown</p>
2.11.1	<p><b>If 'CSF leak detected during surgery?' is not equal to 'Grade 0 (None)' answer this question:</b>  Method of CSF leak discovery in theatre?  <i>Notice shown if field's value is not equal to Other: 'This data point must be confirmed with the operating surgeon'</i>  <i>Notice shown if field's value is equal to Other: 'This data point must be confirmed with the operating surgeon'</i></p>	<p><input type="checkbox"/> CSK leak seen under direct vision (without any adjuncts required)  <input type="checkbox"/> Valsalva manoeuvre  <input type="checkbox"/> Intrathecal fluorescein  <input type="checkbox"/> Other  <input type="checkbox"/> Not applicable (arachnoid breach was a planned &amp; necessary part of the operation)</p>
2.11.1.1	<p><b>If 'Method of CSF leak discovery in theatre?' is equal to 'Other' answer this question:</b>  How was the leak discovered in theatre? (fill if other selected)</p>	<input type="text"/>
2.12	<p>Maximum diameter of dural defect at surgery?  <i>Notice shown if field's value is not equal to Data not available: 'This data point must be confirmed with the operating surgeon'</i>  <i>Notice shown if field's value is equal to Data not available: 'This data point must be confirmed with the operating surgeon'</i>  For standard pituitary adenomas with cruciate durotomy - it is likely that "&lt;1cm" is the appropriate option for the resulting dural defect. Please check with the operating surgeon before populating. If unable to characterise this point, please select "Not available".</p>	<p><input type="radio"/> &lt;1cm  <input type="radio"/> 1-3cm (inclusive)  <input type="radio"/> &gt;3cm  <input type="radio"/> Data not available</p>
2.13	<p>Method(s) of CSF diversion utilised peri-operatively?</p>	<p><input type="checkbox"/> Lumbar Drain  <input type="checkbox"/> Other  <input type="checkbox"/> None recorded</p>

2.13.1	<p><b>If 'Method(s) of CSF diversion utilised peri-operatively?' is equal to 'Lumbar Drain' answer this question:</b>  When was this peri-operative lumbar drain placed? (Lumbar drains placed in response to post-operative rhinorrhoea are recorded in the  <i>Notice shown if field's value is equal to Pre-procedure (before patient taken to theatre): 'This data point must be confirmed with the operating surgeon'</i>  <i>Notice shown if field's value is not equal to Pre-procedure (before patient taken to theatre): 'This data point must be confirmed with the operating surgeon'</i></p>	<input type="radio"/> Pre-procedure (before patient taken to theatre) <input type="radio"/> Pre-procedure (in theatre, under the same GA but before skull base surgery begins) <input type="radio"/> Immediately post-procedure (e.g. in theatre or under same GA) as a prophylactic measure <input type="radio"/> Not available
2.13.2	<p><b>If 'Method(s) of CSF diversion utilised peri-operatively?' is equal to 'Lumbar Drain' answer this question:</b>  Type of drainage regime used  An example of an "other" regime is when using Liquoguard</p>	<input type="checkbox"/> Volume lead <input type="checkbox"/> Pressure lead <input type="checkbox"/> Other
2.13.2.1	<p><b>If 'Type of drainage regime used' is equal to 'Volume lead' answer this question:</b>  Volume lead regime: State mls/hour  Can enter multiple regimes if data present or can simply state the ml/hour used for the longest period.</p>	<div style="border: 1px dashed black; height: 80px; width: 100%;"></div>
2.13.2.2	<p><b>If 'Type of drainage regime used' is equal to 'Pressure lead' answer this question:</b>  Pressure led regime: State cmH2O level  Can enter multiple regimes if data present or can simply state the ml/hour used for the longest period.</p>	<div style="border: 1px dashed black; height: 80px; width: 100%;"></div>
2.13.2.3	<p><b>If 'Type of drainage regime used' is equal to 'Other' answer this question:</b>  Other: Type of lumbar drainage regime used</p>	<div style="border: 1px dashed black; height: 20px; width: 100%;"></div>
2.13.3	<p><b>If 'Method(s) of CSF diversion utilised peri-operatively?' is equal to 'Other' answer this question:</b>  Method(s) of CSF diversion utilised? (fill if other selected)  CSF diversion refers to allowing the flow of CSF through an alternative passage (e.g. out of the body through a drain).</p>	<div style="border: 1px dashed black; height: 20px; width: 100%;"></div>
2.13.4	<p><b>If 'Method(s) of CSF diversion utilised peri-operatively?' is equal to 'Lumbar Drain' answer this question:</b>  How many days of drainage occurred before drain removal (i.e. excluding days clamped) ?</p>	<div style="border: 1px dashed black; height: 20px; width: 100%;"></div>
2.14	<p>Was dura closed directly as part of the repair?  Direct dural closure is where separated sections of dura are approximated back together - for example by using sutures - such that total or near-total apposition is achieved.</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.14.1	<p><b>If 'Was dura closed directly as part of the repair?' is equal to 'Yes' answer this question:</b>  How was dura closed?</p>	<input type="checkbox"/> Sutures <input type="checkbox"/> Clips <input type="checkbox"/> Other

2.14.1.1	<p><b>If 'How was dura closed?' is equal to 'Other' answer this question:</b> How was dura closed? (fill if other selected)</p>	<input type="text"/>
2.15	<p>Dural replacement used in repair? Dural replacement is a substitute material used specifically to reconstruct the dura - bridging gaps and adding structural integrity. This material can be endogenous tissue (eg nasal mucosa) or synthetic (eg. Duragen).</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.15.1	<p><b>If 'Dural replacement used in repair?' is equal to 'Yes' answer this question:</b> Type of dural replacement used?</p>	<input type="checkbox"/> Durarepair <input type="checkbox"/> Duragen <input type="checkbox"/> Durafoam <input type="checkbox"/> Other <input type="checkbox"/> Endogenous tissue (eg. fascia lata)
2.15.2	<p><b>If 'Dural replacement used in repair?' is equal to 'Yes' answer this question:</b> Under or overlay? (for dural replacement)</p>	<input type="radio"/> Underlay <input type="radio"/> Overlay <input type="radio"/> Both
2.15.1.1	<p><b>If 'Type of dural replacement used?' is equal to 'Endogenous tissue (eg. fascia lata)' answer this question:</b> Where was the endogenous tissue taken from?</p>	<input type="text"/>
2.15.1.2	<p><b>If 'Type of dural replacement used?' is equal to 'Other' answer this question:</b> Type of dural replacement used? (fill if other selected)</p>	<input type="text"/>
2.16	<p>Vascularised flap used in the repair? A flap is tissue that is moved from a donor site to a recipient site with an intact vasculature. An example in the context of skull base repair is a nasoseptal flap.</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.16.1	<p><b>If 'Vascularised flap used in the repair?' is equal to 'Yes' answer this question:</b> Type of vascularised flap used? For a flap to be pedicled, blood supply to the flap tissue must be maintained through the original donor site vessels via a pedicle.</p>	<input type="radio"/> Pedicled Nasal Flap <input type="radio"/> Other
2.16.1.1	<p><b>If 'Type of vascularised flap used?' is equal to 'Other' answer this question:</b> Type of flap used? (fill if other selected)</p>	<input type="text"/>
2.16.1.2	<p><b>If 'Type of vascularised flap used?' is equal to 'Pedicled Nasal Flap' answer this question:</b> Where was the pedicled flap taken from?</p>	<input type="radio"/> Nasoseptal <input type="radio"/> Middle Turbinate <input type="radio"/> Other
2.16.1.2.1	<p><b>If 'Where was the pedicled flap taken from?' is equal to 'Other' answer this question:</b> Where was the pedicled flap taken from? (fill if other selected)</p>	<input type="text"/>



2.17	<p>Graft (i.e. tissue graft or synthetic graft) used in the repair?          -A tissue graft is tissue that is moved from a donor site to a recipient site without its blood supply. For example fat, mucosa and bone grafts.</p> <p>-A synthetic graft is synthetic material usually in the form of sheets (e.g. Tachosil) or sponges (e.g. collagen sponges), which have been created as alternatives to traditional tissue grafts and thus avoid potential donor site morbidity.</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.17.1	<p><b><i>If 'Graft (i.e. tissue graft or synthetic graft) used in the repair?' is equal to 'Yes' answer this question:</i></b>          Which types of graft were used in the repair?</p>	<input type="radio"/> Tissue Graft <input type="radio"/> Synthetic Graft <input type="radio"/> Both
2.17.1.1	<p><b><i>If 'Which types of graft were used in the repair?' is not equal to 'Synthetic Graft' answer this question:</i></b>          Material(s) used for graft?</p>	<input type="checkbox"/> Bone <input type="checkbox"/> Fat <input type="checkbox"/> Mucosa <input type="checkbox"/> Periosteum <input type="checkbox"/> Fascia <input type="checkbox"/> Muscle <input type="checkbox"/> Other
2.17.1.1.1	<p><b><i>If 'Material(s) used for graft?' is equal to 'Bone' answer this question:</i></b>          Where was the bone taken from?</p>	<input type="text"/>
2.17.1.1.2	<p><b><i>If 'Material(s) used for graft?' is equal to 'Fat' answer this question:</i></b>          Where was the fat taken from?</p>	<input type="text"/>
2.17.1.1.3	<p><b><i>If 'Material(s) used for graft?' is equal to 'Mucosa' answer this question:</i></b>          Where was the mucosa taken from?</p>	<input type="text"/>
2.17.1.1.4	<p><b><i>If 'Material(s) used for graft?' is equal to 'Periosteum' answer this question:</i></b>          Where was the periosteum taken from?</p>	<input type="text"/>
2.17.1.1.5	<p><b><i>If 'Material(s) used for graft?' is equal to 'Fascia' answer this question:</i></b>          Where was the fascia taken from?</p>	<input type="text"/>
2.17.1.1.6	<p><b><i>If 'Material(s) used for graft?' is equal to 'Muscle' answer this question:</i></b>          Where was the muscle taken from?</p>	<input type="text"/>
2.17.1.1.7	<p><b><i>If 'Material(s) used for graft?' is equal to 'Other' answer this question:</i></b>          Name of material used? (fill if other selected)</p>	<input type="text"/>
2.17.1.2	<p><b><i>If 'Which types of graft were used in the repair?' is not equal to 'Tissue Graft' answer this question:</i></b>          Name of synthetic grafts used?</p>	<input type="checkbox"/> Spongstan <input type="checkbox"/> Tachosil <input type="checkbox"/> Gelfoam <input type="checkbox"/> Other

2.17.1.2.1	<b>If 'Name of synthetic grafts used?' is equal to 'Other' answer this question:</b>	<input type="text"/>
	Name of synthetic graft? (fill if other selected)	
2.17.2	<b>If 'Graft (i.e. tissue graft or synthetic graft) used in the repair?' is equal to 'Yes' answer this question:</b>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
	Grafts: Was the button hole technique used? Creation of a bilayer graft (often two grafts stitched together), with one layer squeezed through the dural defect to act as an underlay and the other layer as an overlay on the dural defect. <a href="https://onlinelibrary.wiley.com/doi/pdf/10.1002/lary.20861">https://onlinelibrary.wiley.com/doi/pdf/10.1002/lary.20861</a>	
2.18	Tissue glue used in the repair? Tissue glue is a liquid monomer, which rapidly polymerizes on contact with living tissues to form a hard-acrylic plastic. An example is Tisseal	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.18.1	<b>If 'Tissue glue used in the repair?' is equal to 'Yes' answer this question:</b>	<input type="checkbox"/> Evicel <input type="checkbox"/> Tisseal <input type="checkbox"/> Adherus <input type="checkbox"/> Duraseal <input type="checkbox"/> Other
	Tissue glue(s) used?	
2.18.1.1	<b>If 'Tissue glue(s) used?' is equal to 'Other' answer this question:</b>	<input type="text"/>
	Tissue glue(s) used? (fill if other selected)	
2.19	Haemostatic agents used directly in the skull base repair/reconstruction?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.19.1	<b>If 'Haemostatic agents used directly in the skull base repair/reconstruction?' is equal to 'Yes' answer this question:</b>	<input type="checkbox"/> Surgiflo <input type="checkbox"/> Floseal <input type="checkbox"/> Surgicel <input type="checkbox"/> Other
	Haemostatic agents used	
2.19.1.1	<b>If 'Haemostatic agents used' is equal to 'Other' answer this question:</b>	<input type="text"/>
	Haemostatic agents used (fill if other selected)	
2.20	Buttress used in the repair? A buttress is material used to stabilise and support the skull base repair materials.	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.20.1	<b>If 'Buttress used in the repair?' is equal to 'Yes' answer this question:</b>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
	Buttress: Was the gasket seal technique used? The gasket seal technique refers to the use of an overlay graft that is countersunk into the skull base defect with a rigid buttress to create a watertight seal against the bony margins of the defect.	

2.20.2	<p><b>If 'Buttress used in the repair?' is equal to 'Yes' answer this question:</b> Material(s) used for buttress?</p>	<input type="checkbox"/> Bone <input type="checkbox"/> Titanium Mesh <input type="checkbox"/> Polyethylene e.g. medpor <input type="checkbox"/> Other
2.20.2.1	<p><b>If 'Material(s) used for buttress?' is equal to 'Other' answer this question:</b> Material(s) used for buttress? (fill if other selected)</p>	<input type="text"/>
2.20.2.2	<p><b>If 'Material(s) used for buttress?' is equal to 'Bone' answer this question:</b> Material for buttress: Where was the bone taken from?</p>	<input type="text"/>
2.21	<p>Use of nasal pack following repair? Nasal packing refers to using a material to occupy a nasal space and provide structural support through its local pressure effects. They can also be coated with substances (eg. bismuth) to augment particular qualities (eg. haemostasis).</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
2.21.1	<p><b>If 'Use of nasal pack following repair?' is equal to 'Yes' answer this question:</b> Nasal pack used?</p>	<input type="checkbox"/> Bismuth Soaked Ribbon Gauze <input type="checkbox"/> Foley Catheter <input type="checkbox"/> Nasopore (absorbable) <input type="checkbox"/> Meroceel <input type="checkbox"/> Other
2.21.1.1	<p><b>If 'Nasal pack used?' is equal to 'Other' answer this question:</b> Nasal pack used? (fill if other selected)</p>	<input type="text"/>
2.21.2	<p><b>If 'Use of nasal pack following repair?' is equal to 'Yes' answer this question:</b> Was this nasal pack removed?</p>	<input type="radio"/> Yes <input type="radio"/> No (absorbable nasal pack)
2.21.2.1	<p><b>If 'Was this nasal pack removed?' is equal to 'Yes' answer this question:</b> How many days was the nasal pack kept in for?</p>	<input type="text"/>
2.22	<p>Other repair methods used (If any)? Please see help text for examples -For example: Surgicel, Flowseal, etc applied to the skull base -Please write NA if no other repair methods used</p>	<input type="text"/>

### 3. CRANIAL - Post-operative






Number	Question	Answers
<p><b>This section refers to data points after primary surgery (transsphenoidal or expanded endonasal operation +/- intra-operative CSF leak repair)</b></p>		
3.1	<p>Post-operative conservative measure(s) utilised to prevent OR treat CSF leak? Useful to check operation note for this</p>	<input type="checkbox"/> Bed rest (head of bed unspecified) <input type="checkbox"/> Bed rest with head of the bed flat <input type="checkbox"/> Bed rest with head of the bed elevated <input type="checkbox"/> Advice to avoid heavy stress (cough, sneeze, heavy lifting) <input type="checkbox"/> Other <input type="checkbox"/> None recorded
3.1.1	<p><b><i>If 'Post-operative conservative measure(s) utilised to prevent OR treat CSF leak?' is equal to 'Other' answer this question:</i></b> Post-operative conservative measure(s) utilised to prevent/ treat CSF leak? (fill if other selected)</p>	<div style="border: 1px dashed black; height: 20px; width: 100%;"></div>
3.2	<p>Post-operative medical measure(s) utilised to prevent OR treat CSF leak? Useful to check operation note for this</p>	<input type="checkbox"/> Stool softeners <input type="checkbox"/> Prophylactic antibiotics <input type="checkbox"/> Acetazolamide <input type="checkbox"/> Vaccines (eg. Pneumovax) <input type="checkbox"/> Other <input type="checkbox"/> None recorded
3.2.1	<p><b><i>If 'Post-operative medical measure(s) utilised to prevent OR treat CSF leak?' is equal to 'Other' answer this question:</i></b> Post-operative medical measure(s) utilised to prevent/ treat CSF leak? (fill if other selected)</p>	<div style="border: 1px dashed black; height: 20px; width: 100%;"></div>
3.3	<p>Did post-operative CSF rhinorrhoea occur during the index admission? The index admission refers to the admission episode for the operation in question (from arrival to discharge)</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
3.3.1	<p><b><i>If 'Did post-operative CSF rhinorrhoea occur during the index admission?' is equal to 'Yes' answer this question:</i></b> After how many days post-op was the CSF rhinorrhea reported?</p>	<div style="border: 1px dashed black; height: 20px; width: 100%;"></div>
3.3.2	<p><b><i>If 'Did post-operative CSF rhinorrhoea occur during the index admission?' is equal to 'Yes' answer this question:</i></b> How was the post-operative CSF rhinorrhea confirmed? <i>Notice shown if field's value is not equal to Data not available: 'This data point must be confirmed with the operating surgeon'</i> <i>Notice shown if field's value is equal to Data not available: 'This data point must be confirmed with the operating surgeon'</i> This is for all incidences of post-operative rhinorrhoea in this patient</p>	<input type="checkbox"/> Clinical assessment alone <input type="checkbox"/> Beta-2-transferrin <input type="checkbox"/> Significant pneumocephalus on CT Head <input type="checkbox"/> Intrathecal fluorescein <input type="checkbox"/> Other <input type="checkbox"/> Data not available

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3.3.2.1	<b><i>If 'How was the post-operative CSF rhinorrhea confirmed?' is equal to 'Other' answer this question:</i></b> How was the post-operative CSF rhinorrhea confirmed? (fill if other selected)	<div style="border: 1px dashed black; width: 200px; height: 20px; margin: 0 auto;"></div>
<hr/>		
3.3.3	<b><i>If 'Did post-operative CSF rhinorrhoea occur during the index admission?' is equal to 'Yes' answer this question:</i></b> Did any episode of post-operative CSF rhinorrhoea require CSF diversion and/or operative repair (i.e. an intervention)?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
<hr/>		
3.3.3.1	<b><i>If 'Did any episode of post-operative CSF rhinorrhoea require CSF diversion and/or operative repair (i.e. an intervention)?' is equal to 'Yes' answer this question:</i></b> Report a return to theatre	
<hr/>		
3.4	Were any of the following post-operative complications recorded during admission?	<input type="checkbox"/> Epistaxis (requiring surgical intervention) <input type="checkbox"/> Cranial Nerve Injury <input type="checkbox"/> Major blood vessel injury (carotids, anterior cerebrals) <input type="checkbox"/> Meningitis <input type="checkbox"/> Death <input type="checkbox"/> Residual or recurrent disease <input type="checkbox"/> Other <input type="checkbox"/> None recorded
<hr/>		
3.4.1	<b><i>If 'Were any of the following post-operative complications recorded during admission?' is equal to 'Other' answer this question:</i></b> Other post-operative complications reported	<div style="border: 1px dashed black; width: 200px; height: 20px; margin: 0 auto;"></div>
<hr/>		
3.5	Length of hospital stay after index surgery? (in days, with day of surgery as Day 0)	<div style="border: 1px dashed black; width: 200px; height: 20px; margin: 0 auto;"></div>

## 4. CRANIAL - 30-day COVID data

Number	Question	Answers
	In this form, please assess the COVID status of the patient (and staff if possible) at <b>30 days post-op</b> (day of surgery is Day 0)	
4.1	Did the patient have symptoms concerning for COVID-19 post-operatively?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not available
4.1.1	<b><i>If 'Did the patient have symptoms concerning for COVID-19 post-operatively?' is equal to 'Yes' answer this question:</i></b> Which symptoms did the patient have?	<input type="checkbox"/> Fever <input type="checkbox"/> New cough <input type="checkbox"/> Short of breath <input type="checkbox"/> None of the above <input type="checkbox"/> Data unavailable
4.1.2	<b><i>If 'Did the patient have symptoms concerning for COVID-19 post-operatively?' is not equal to 'Yes' answer this question:</i></b> After how many days post-op did the patient develop these symptoms? (Day of operation is Day 0)	<input type="text"/>
4.2	Has the patient been tested for COVID-19 post-operatively?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
4.2.1	<b><i>If 'Has the patient been tested for COVID-19 post-operatively?' is equal to 'Yes' answer this question:</i></b> How was the patient tested for COVID post-operatively?	<input type="checkbox"/> Swab <input type="checkbox"/> Serology <input type="checkbox"/> CT Thorax <input type="checkbox"/> Other
4.2.1.1	<b><i>If 'How was the patient tested for COVID post-operatively?' is equal to 'Other' answer this question:</i></b> Other: How was the the patient tested for COVID-19?	<input type="text"/>
4.2.2	<b><i>If 'Has the patient been tested for COVID-19 post-operatively?' is equal to 'Yes' answer this question:</i></b> Did the patient test positive for Covid-19?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
4.2.2.1	<b><i>If 'Did the patient test positive for Covid-19?' is equal to 'Yes' answer this question:</i></b> By which method(s) did the patient test positive?	<input type="checkbox"/> Swab <input type="checkbox"/> Serology <input type="checkbox"/> CT Thorax <input type="checkbox"/> Other
4.2.2.1.1	<b><i>If 'By which method(s) did the patient test positive?' is equal to 'Other' answer this question:</i></b> Other: By which method(s) did the patient test positive?	<input type="text"/>
4.2.2.2	<b><i>If 'Did the patient test positive for Covid-19?' is equal to 'Yes' answer this question:</i></b> After how many days post-op did the patient test positive? (Day of operation is Day 0)	<input type="text"/>

4.3	What was the patient's outcome from the COVID-19 infection (suspected or confirmed)	<input type="checkbox"/> Managed in the community <input type="checkbox"/> Managed in a ward based setting <input type="checkbox"/> Managed in HDU/ITU setting <input type="checkbox"/> Death <input type="checkbox"/> Other <input type="checkbox"/> Not available
4.3.1	<p><b><i>If 'What was the patient's outcome from the COVID-19 infection (suspected or confirmed)' is equal to 'Other' answer this question:</i></b></p> <p>Other: What was the patient's outcome from the COVID-19 infection (suspected or confirmed)</p>	
4.4	Have any staff members involved in the operation developed any symptoms concerning for COVID and/or taken any sickness leave for the same ? (if this data is available)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other <input type="checkbox"/> Not available
4.4.1	<p><b><i>If 'Have any staff members involved in the operation developed any symptoms concerning for COVID and/or taken any sickness leave for the same ? (if this data is available)' is equal to 'Other' answer this question:</i></b></p> <p>Other: Have any staff members involved in the operation developed any symptoms concerning for COVID and/or taken any sickness leave for the same ?</p>	
4.4.2	<p><b><i>If 'Have any staff members involved in the operation developed any symptoms concerning for COVID and/or taken any sickness leave for the same ? (if this data is available)' is equal to 'Yes' answer this question:</i></b></p> <p>How many staff members? (if this data is available)</p>	
4.5	Have any staff members involved in the operation tested positive for COVID-19? (if this data is available)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not available
4.5.1	<p><b><i>If 'Have any staff members involved in the operation tested positive for COVID-19? (if this data is available)' is equal to 'Yes' answer this question:</i></b></p> <p>By which method(s) did the staff member(s) test positive? (if this data is available)</p>	<input type="checkbox"/> Swab <input type="checkbox"/> Serology <input type="checkbox"/> CT Thorax <input type="checkbox"/> Other
4.5.1.1	<p><b><i>If 'By which method(s) did the staff member(s) test positive? (if this data is available)' is equal to 'Other' answer this question:</i></b></p> <p>Other: By which method(s) did the staff member(s) test positive?</p>	
4.5.2	<p><b><i>If 'Have any staff members involved in the operation tested positive for COVID-19? (if this data is available)' is equal to 'Yes' answer this question:</i></b></p> <p>How many staff members? (if this data is available)</p>	

4.4.3

**If 'Have any staff members involved in the operation developed any symptoms concerning for COVID and/or taken any sickness leave for the same ? (if this data is available)' is equal to 'Yes' answer this question:**

What were the staff member outcomes from the COVID-19 infection (suspected or confirmed)

- Managed in the community
- Managed in a ward based setting
- Managed in HDU/ITU setting
- Death
- Other
- Not available

4.4.3.1

**If 'What were the staff member outcomes from the COVID-19 infection (suspected or confirmed)' is equal to 'Other' answer this question:**

Other: What were the staff member outcomes from the COVID-19 infection (suspected or confirmed)





## 5. CRANIAL - Follow Up

Number	Question	Answers
<b>The below form refers to the follow-up of patient's outcomes &amp; complications.</b>		
<b>Time frame:</b> Ideally, data from a <b>3-6 month</b> follow-up window would be entered below. At each specific data point, you will be asked the <b>weeks</b> post-op that this outcome is being reported (practically, this will be the amount of weeks between the operation and the OPD follow up, etc). If the data is not available, <b>please select the "data not available" option</b> . If no 3-6 month data is available, <b>please enter whatever follow-up data you may have readily available (max follow-up time will be 6 months)</b> .		
<b>What follow-up?:</b> This could include recorded data from <b>neurosurgery or affiliated team</b> (eg. endocrinology, ophthalmology, ENT, etc) follow-up appointments.		
5.1	Were any of the following post-operative complications recorded? (If not recorded in the initial "post-operative" form) If CSF rhinorrhea was during the index admission, please record in "post-operative" form instead.	<input type="checkbox"/> CSF rhinorrhoea (please see help text) <input type="checkbox"/> Epistaxis (requiring surgical intervention) <input type="checkbox"/> Cranial Nerve Injury <input type="checkbox"/> Meningitis <input type="checkbox"/> Residual or recurrent disease <input type="checkbox"/> Death <input type="checkbox"/> Other (e.g. other repair-related complications) <input type="checkbox"/> None recorded
5.1.1	<b><i>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Cranial Nerve Injury' answer this question:</i></b> How many weeks post-operative is this outcome (Cranial Nerve Injury) reported?	<input type="text"/>
5.1.2	<b><i>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Epistaxis (requiring surgical intervention)' answer this question:</i></b> How many weeks post-operative is this outcome (Epistaxis) reported?	<input type="text"/>
5.1.3	<b><i>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Meningitis' answer this question:</i></b> How many weeks post-operative is this outcome (Meningitis) reported?	<input type="text"/>
5.1.4	<b><i>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Residual or recurrent disease' answer this question:</i></b> How many weeks post-operative is this outcome (Recurrence/Residual) reported?	<input type="text"/>

5.1.5	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Death' answer this question:</b> How many weeks post-operative is this outcome (Death) reported?</p>	<input type="text"/>
5.1.6	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'None recorded' answer this question:</b> How many weeks post-operative is this outcome (None recorded) reported?</p>	<input type="text"/>
5.1.7	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Other (e.g. other repair-related complications)' answer this question:</b> Other post-operative complications reported</p>	<input type="text"/>
5.1.8	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'Other (e.g. other repair-related complications)' answer this question:</b> How many weeks post-operative is this outcome (Other) reported?</p>	<input type="text"/>
5.1.9	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'CSF rhinorrhoea (please see help text)' answer this question:</b> How many days after the primary surgery is the post-operative CSF rhinorrhoea?</p>	<input type="text"/>
5.1.10	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'CSF rhinorrhoea (please see help text)' answer this question:</b> How was the post-operative CSF rhinorrhea confirmed? This is for all incidences of post-operative rhinorrhoea in this patient</p>	<input type="checkbox"/> Clinical assessment alone <input type="checkbox"/> Beta-2-transferrin <input type="checkbox"/> Significant pneumocephalus on CT Head <input type="checkbox"/> Intrathecal fluorescein <input type="checkbox"/> Other <input type="checkbox"/> Data not available
5.1.10.1	<p><b>If 'How was the post-operative CSF rhinorrhea confirmed?' is equal to 'Other' answer this question:</b> How was the post-operative CSF rhinorrhea confirmed? (fill if other selected)</p>	<input type="text"/>
5.1.11	<p><b>If 'Were any of the following post-operative complications recorded? (If not recorded in the initial &amp;quot;post-operative&amp;quot; form)' is equal to 'CSF rhinorrhoea (please see help text)' answer this question:</b> Did any episode of post-operative CSF rhinorrhoea require CSF diversion and/or operative repair (i.e. an intervention)?</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not available
5.1.11.1	<p><b>If 'Did any episode of post-operative CSF rhinorrhoea require CSF diversion and/or operative repair (i.e. an intervention)?' is equal to 'Yes' answer this question:</b> Report a return to theatre</p>	

5.2	Optional: Visual change post-operatively?	<input type="radio"/> Normal Vision <input type="radio"/> Improved from initial presentation, but not normal vision <input type="radio"/> Vision has remained stable from initial presentation, but the patient does not have normal vision and is not blind <input type="radio"/> Deteriorated from initial presentation, but not blind <input type="radio"/> Blind (binocular and < 6/60) <input type="radio"/> Data not available
5.2.1	<p><b><i>If 'Optional: Visual change post-operatively?' is not equal to 'Data not available' answer this question:</i></b></p> <p>How many weeks post-operative is this outcome reported?</p>	<input type="text"/>
5.3	<p>Optional: Post-operative anterior pituitary insufficiency requiring hydrocortisone?</p> <p>Patients with Cushing's disease are excluded from this particular question. Therefore please select "Not applicable" if this is the case.</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Data not available <input type="radio"/> Not applicable (patient had Cushing's disease)
5.3.1	<p><b><i>If 'Optional: Post-operative anterior pituitary insufficiency requiring hydrocortisone?' is not equal to 'Data not available' answer this question:</i></b></p> <p>How many weeks post-operative is this outcome reported?</p>	<input type="text"/>
5.4	<p>Optional: Post-operative posterior pituitary insufficiency requiring desmopressin (DDAVP)?</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Data not available
5.4.1	<p><b><i>If 'Optional: Post-operative posterior pituitary insufficiency requiring desmopressin (DDAVP)?' is not equal to 'Data not available' answer this question:</i></b></p> <p>How many weeks post-operative is this outcome reported?</p>	<input type="text"/>
5.5	<p>Optional: Is the patient on testosterone replacement as a result of the primary surgery?</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Data not available
5.5.1	<p><b><i>If 'Optional: Is the patient on testosterone replacement as a result of the primary surgery?' is not equal to 'Data not available' answer this question:</i></b></p> <p>How many weeks post-operative is this outcome reported?</p>	<input type="text"/>
5.6	<p>Optional: Is the patient on thyroid replacement as a result of the primary surgery?</p>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Data not available
5.6.1	<p><b><i>If 'Optional: Is the patient on thyroid replacement as a result of the primary surgery?' is not equal to 'Data not available' answer this question:</i></b></p> <p>How many weeks post-operative is this outcome reported?</p>	<input type="text"/>



## 6. CRANIAL - Confirmation

Number	Question	Answers
6.1	I confirm that I have reviewed all of the above information with a neurosurgical trainee/SHO/registrar <b>AND</b> I have discussed requested data points (e.g. CSF repair method used, grade of CSF leak, size of skull base defect etc.) with the <b>operating surgeon(s)</b> .	<input type="radio"/> Yes <input type="radio"/> No