1. **Aim/Purpose of this Guideline**

1.1. This protocol contains essential information for all staff involved in replantation, from ED through theatre, ICU/HDU, the ward and outpatients. It will guide users through the typical events in the patient journey and the requirements of the patient and surgical team at each step. It will facilitate the timely provision of necessary resources and help to standardise the care given, with the aim of ensuring safe and reproducible results.

1.2. Ultimately the exact nature of treatment and aftercare given is at the discretion of the Consultant led team, to suit the priorities of each individual patient.

1.3. We strive to give our patients here in Cornwall world class Hand Surgery care, tailored to their specific needs.

1.4. This version supersedes any previous versions of this document.

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**Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation**

The Trust has a duty under the DPA18 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed and documented. We cannot rely on opt out, it must be opt in.

DPA18 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the DPA18 please see the *Information Use Framework Policy* or contact the Information Governance Team

rch-tr.infogov@nhs.net

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2. **The Guidance**

2.1. Replantation refers to the reattachment and revascularisation of an amputated part such as digit or hand. This is highly specialised surgery, which involves significant surgical, nursing and therapy input plus patient cooperation. There is a recognised morbidity associated with it and the Consultant Microvascular Hand Surgeon(s) makes the decision for or against surgery with the individual patient.

2.1.1 Surgery may take many hours and use significant resources in terms of theatre time, equipment and inpatient stay.

2.1.2 The success or otherwise of surgery is measured not just by viability of the replanted part, but by function, which should be greater than that which could be achieved by shortening or prosthesis.

2.1.3 Replantation success depends on many factors such as:

- Injury type- sharp versus crush or avulsion injury, zone of injury
- Timing- time from injury, warm versus cold ischaemia
- Pre-theatre care of amputated part
• Patient co-morbidities- smoking status, general health (including psychiatric conditions), coagulopathy

2.1.4 Technical- surgical expertise and experience, quality of magnification and instruments.

2.1.5 Post-operative care- intensity and experience of nursing care, availability of patient side-room, leeches and theatre for re-exploration, Hand Therapy, patient compliance.

2.2. Care of the amputated part

2.2.1. When a patient has suffered a devastating upper limb traumatic injury such as amputation, life-threatening injuries and haemorrhage should be treated as per ATLS principles.

2.2.2. The amputated part, if completely detached from the patient, should be wrapped in saline-soaked sterile gauze, placed in a sealed plastic bag and then onto ice. The bag should be labelled with the patient’s details. No ice should come directly into contact with the tissue, as this can cause a thermal injury. Saline rather than water should be used in order to prevent tissue damage caused by hypo-osmolality.

2.2.3. When a part is incompletely detached from the patient, for example there is a small skin bridge; the amputation should not be completed, since the skin bridge may include veins or nerves which should be preserved.

2.2.4. Cooling of an incompletely amputated part is controversial and our current practice is to support the part to prevent torsion/rotation and to place a sterile, absorbent, non-constrictive dressing on top.

2.3. Indications for Upper Limb Replantation

Not all patients are candidates for prolonged replantation surgery and not all amputated parts are suitable. The decision whether or not to attempt replantation is complex, taking into account patient and injury factors. In some instances it is immediately obvious to the treating team that a case is not suitable for replantation. When the decision is not obvious, or when the patient disagrees with the treating team, the Consultant Microvascular Hand Surgeon should be involved, either on the phone or in person.

2.4. Absolute contraindications for replantation include:

2.4.1. Patient is unfit for surgery, for example has other life threatening injuries or is physiologically unstable.

2.4.2. Patient refuses surgery and is competent: in cases of lack of competence please seek advice from Consultant Psychiatrist for legal position regarding performing or withholding surgery.

2.4.3. Amputated part cannot be found, or is too badly damaged to salvage (for example severe crush injury, burn, multi-level injury, significant agricultural contamination).
2.4.4 Warm ischaemia time > 12 hours for part without muscle e.g. digit, or >6 hours for part with muscle (significantly longer cold ischaemic times can be tolerated for parts without muscle).

2.5. Relative contraindications for replantation include
- Crush or avulsion type injury
- Single digit amputation in flexor zone 2 (from distal palmar crease to FDS insertion) due to inferior functional results
- Indications for attempted replantation
- Most injury types in a child
- Thumb amputations
- Single digit amputation in flexor zone 1 (between FDS and FDP insertions)
- Multiple digit or more proximal amputations

2.6. Timing of Replantation Surgery
2.6.1. Replantation, where appropriate, should be undertaken as soon as possible post injury. Therefore, these patients should be seen and assessed as a priority in the emergency department and if called by a peripheral unit or general practice, the patient should be delivered to RCHT Emergency Department by emergency/blue light ambulance.

2.6.2. The viability of the amputated part declines over time, especially if it contains muscle. Maximum ischaemic times in hours are seen in the table below. Cold ischaemia refers to a part which has been correctly stored at 5°C.

<table>
<thead>
<tr>
<th></th>
<th>Part with muscle</th>
<th>Part without muscle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm ischaemic time</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Cold ischaemic time</td>
<td>12</td>
<td>24</td>
</tr>
</tbody>
</table>

2.6.3. From this table it can be seen that the maximum cold ischaemic time for a digit may be quite prolonged, therefore although the patient resuscitation and assessment should be undertaken rapidly, depending on the time of day, availability of surgeon and theatre, it is quite possible that surgery may be delayed for some hours without detriment to the outcome, indeed it could even enhance outcome. For example, a surgeon is unlikely to start a digital replant at 2am, when they could start the surgery with a full team and backup at 8am.

2.7. Pre-theatre patient preparation
2.7.1. Adequate resuscitation and treatment of other injuries takes place as per ATLS guidelines.

2.7.2. Bleeding from the stump should be controlled by direct pressure and elevation alone. Attempting cautery or ligation of bleeding vessels carries a high risk of damage to potentially valuable vessels needed for the replantation, or indeed mistaking other structures such as nerves for the source of bleeding.

2.7.3. The patient should be cannulated on the contralateral limb or lower limb
and blood drawn for FBC, U&E, G&S and coagulation profile, plus other tests as appropriate.

2.7.4. Tetanus booster if appropriate

2.7.5. Commence broad spectrum antibiotics as per Trust guidelines

2.7.6. ECG and CXR should only be performed if appropriate for that patient.

2.7.7. Both the stump and amputated parts should be x-rayed in at least 2 planes (usually PA and lateral), with the digits fully extended to allow an assessment of bony injury or bone loss.

2.7.8. Clinical photographs should be taken on an approved device as per Trust guidelines and uploaded to Bluespier

2.7.9. Consent for surgery:
- The pre-operative consent process for a patient (and their carer or next of kin) is hugely important in both managing their expectations and in patient selection for surgery. Whenever possible the senior operating surgeon should meet the patient pre-operatively.
- The patient must be made aware that replantation is lengthy and specialised surgery, with no guarantee of technical success, however timely the presentation and favourable the injury. Further surgery, either in the early post-operative period or months later, may be necessary. Other procedures which are frequently necessary include vein grafting (necessitating an additional donor site), blood transfusion and urinary catheter (mandatory). The typical inpatient stay for a successful replantation may be 3-7 days. Tobacco smoking and nicotine patches have a significant detrimental effect on success rates and the patient must not partake of these.

2.8. **Operating Theatre Requirements**

Once the decision has been made to perform replantation surgery, the operating theatre nurse ‘in charge’ as well as the anaesthetic staff should be informed. It must be made explicitly clear when the case is expected to take place and if an on-going trauma list is to be interrupted, the consultant running that list should be spoken to directly. Staff should be prepared for the case to last several hours and a surgical assistant will be needed throughout.

- Theatre must be pre-warmed
- Operating table with hand table attached
- Tourniquet
- Operating microscope
- Mini C-arm
- Instruments
- Basic hand set
- Microvascular set with heparinised saline
- K-wiring and hand fracture plating sets
2.9. **Anaesthetic Requirements:**
- Tourniquet
- No cannulation of affected limb (even temporary)
- Urethral catheter with measurement chamber on bag
- Patient warming
- Pneumatic calf pumps and care of pressure areas
- Antibiotic prophylaxis and further doses as necessary
- Avoid vasoconstrictive agents
- i.v. bolus of heparin (5000u) at time of revascularisation and tourniquet release

Regional block is often performed post-operatively for analgesia but also for vasodilation. Digital or wrist blocks are contra-indicated in replantation due to the small but potential risk of worsening vascular compromise.

2.10. **Operative Sequence**
2.10.1. This section is useful for scrub team and junior surgeons who have not previously been involved in replantation surgery. The exact sequence of structures to be repaired may vary from surgeon to surgeon and case to case. The sequence described below is typical for a digital amputation. Proximal amputations mandate early revascularisation with vessel repair or temporary shunting.

2.10.2. Where multiple digits have been amputated if not all digits are viable for replantation the thumb then the middle and ring fingers should be prioritised. This may occasionally mean using a better quality part for a different digit.

2.10.3. Position patient supine on operating table, arm abducted on hand table, tourniquet in place but not inflated and with all necessary monitoring, warming devices and thromboprophylaxis.

1. Have bowl stand with amputated part wrapped and resting on ice (as previously described) in theatre.
2. Have x-rays visible and mini c-arm programmed with patient details.
3. Have microscope positioned for ease of access and plugged in.
4. Prep and drape patient’s arm above elbow
5. Drape mini c-arm
6. Principle surgeon should sit ‘south’ or towards the feet, assistant ‘north’ or towards the head. The scrub nurse should sit behind their trolley at the end of the hand table.
7. If two consultant surgeons are available, the second one should have a separately draped trolley for preparation of the amputated part(s) under the microscope
8. Potential sites for vein graft harvest are marked out on the volar forearm using purple marker pen prior to tourniquet inflation
9. Limb is elevated and tourniquet inflated
10. Amputated part and stump are debrided and inspected, arteries and
11. Bony shortening of amputated part as necessary, to allow for fixation and facilitate tension-free anastomoses and neurorrhaphy

12. Bone fixation (k-wires or plate), primary arthrodesis of PIPJ may be performed

13. Extensor and flexor tendon repairs

14. Nerve repairs (easier whilst tourniquet still inflated)

15. Release tourniquet for arterial repairs. Generally one artery and two vein anastomoses are adequate for each digit; however more vessels should be repaired if available. Ask the Anaesthetist to give the patient an i.v. heparin bolus (5000u) when clamps removed from first vessel.

16. Turn hand over to identify and repair veins. These thin-walled vessels are often only visible once the digit has re-perfused. If no veins are available, leeches should be sent for (Pharmacy: these will need to be ordered) and the nail plate removed to allow bleeding. Heparin-soaked pledgets applied regularly to the nailbed are useful whilst awaiting the leeches.

17. Perform loose skin closure or skin grafting

18. Loosely dress digit with non-adherent absorbent dressing and place hand in volar POP splint. Dressings should be well padded and non-constrictive. On-going bleeding is common and dressing changes are required frequently

19. Position limb as required (usually elevation to reduce venous insufficiency)

20. Anaesthetist to perform regional block prior to patient transfer to recovery

21. Patient warming blanket to remain on at all times

**2.12. Immediate Post-Operative Care on HDU**

2.12.1. The patient post replantation requires a warmed side room and intensive nursing care, which is best accomplished in the HDU setting. This will be the case for the first 24-48 hours while the initial successful reperfusion becomes established.

2.12.2. Inadequate nursing observations and input at this stage jeopardise the success of surgery and replantation should not be offered in a centre that cannot match the surgical expertise with appropriate nursing support. Clearly as replantation is a relatively uncommon surgical procedure, individual nurses will not be expected to be immediately familiar with how to assess the digit. The Hand Surgery team will provide support and training with each case and be heavy involved in the first few critical hours and days.

2.12.3. The patient should be kept warm, well hydrated and pain-free during this time, to minimise vasoconstriction. Vasoconstrictive agents such as caffeine, nicotine or inotropes are contraindicated.
2.12.4. Aspirin and LMWH are commenced. The use of anticoagulant medication in replantation surgery is controversial and the evidence is limited and often contradictory. LMWH for DVT prophylaxis is good medical practice and the addition of aspirin may be beneficial, with significant harmful effects unlikely.

2.12.5. Warming blanket: this should remain on for at least 24 hours post operatively, even if the patient is sweating and feels mildly uncomfortable. On no account is the patient allowed to leave the ward. Smokers may find this period stressful however leaving the ward for a single cigarette even in warm weather is likely to cause loss of the digit.

2.12.6. Fluids: copious oral fluids should be encouraged (and i.v. crystalloid if necessary) to maintain a urine output of at least 50ml/hour and systolic BP at least 100mmHg. Diuretics should be avoided.

2.12.7. Analgesia: regional block given in theatre, PCA and oral analgesia.

2.12.8. Diet: clear fluids only until 12 hours post-operatively, in case of need to return to theatre. Light diet only after this point to minimise nausea.

2.12.9. Digital Observations: a chart should be kept of digital observations. Colour, warmth and capillary refill should be measured, typically half hourly for the first 12 hours, then hourly for a further 12 hours, then 2 hourly until transfer to the ward. Comparison should be made to adjacent uninjured digits if available. Observations should also be done at each nursing hand-over, with both the nurse leaving and the nurse starting their shift. The same light source should be used to illuminate the finger for observations each time. Digital temperature is not the best indication of perfusion, since the warming blanket may heat even non-viable tissue. Pinprick to assess bleeding should only be carried out by the surgical team, using a fresh sterile 23G needle each time.

2.12.10. Any changes in digital observations should be reported to the surgical team immediately, who should review the situation in person as a matter of urgency.

2.12.11. Leeching: if there is venous insufficiency, leeches may be used until venous drainage is re-established (usually 3-4 days). Leeches are obtained from Pharmacy and will have to be ordered in. Leeches are kept in the fridge and a single leech is applied to the distal digit each hour. The leech will feed and then drop off, leaving a puncture wound which will continue to bleed. The fed leech may be discarded. Each leech is only used once and should be counted ‘on’ and ‘off’ the patient. The patient may lose significant amounts of blood when being leached and requires daily haemoglobin check and transfusion if this drops below 7g/dl. Transfusion should generally not be undertaken with a haemoglobin value above this level, or blood viscosity is increased, potentially causing arterial thrombosis. In fact, the ideal haemoglobin level post replantation is between 8-10 g/dl: a good balance between viscosity and oxygen carrying capacity.
2.12.12. Whilst being leeched, the patient must receive ciprofloxacin prophylaxis against Aeromonas hydrophila, found in the leech mouth-parts.

2.12.13. If leeches are not available, the exposed nail bed may be scored with a needle and encouraged to bleed using a heparin-soaked pledget.


2.13. **Post-Operative Care on the Ward**

2.13.1. Transfer to the ward must be authorised by the senior surgeon when it is felt that digital perfusion is well established and the replantation can tolerate lower ambient temperature. Transfer before the revascularisation is established will jeopardise survival of the digit.

2.13.2. At this time, the patient should still be encouraged to stay warm and must not leave the ward to go outside, however generally the warming blanket may be removed.

2.13.3. The catheter may be removed and IV fluids discontinued as per surgical instructions.

2.13.4. Digital observations can now be extended to 2 hourly.

2.13.5. Frequent dressing changes may still be required.

2.13.6. Leeching may still be required, but less frequently as the venous drainage becomes re-established.

2.13.7. Antibiotics and blood products may still be required.

2.13.8. The Hand Therapy team may visit the patient on the ward at this stage, to meet the patient and to explain the rehabilitation process. The patient may be capable of limited exercised if appropriate.

2.14. **Post-Operative care as an Outpatient**

2.14.1. The patient is discharged home when the perfusion to the replanted part is deemed to be stable and when the patient themselves no longer need intensive nursing care, observations and interventions such as blood products and i.v. fluids or antibiotics.

2.14.2. This is still early days in the healing phase, the blood supply to the replant may easily be disrupted by trauma, smoking or low temperatures: the patient starts to take on more responsibility for this.

2.14.3. The patient will initially be seen weekly by both the surgical team and their therapist, often at separate appointments to maximise the support they receive. This can be arduous for the patient, especially since they will initially still not be able to drive. A lot of encouragement is needed for the patient who has got this far with their replantation, since diligence with their rehabilitation at this stage will be reflected in better long term function.
2.14.4. Aspirin is usually continued (if tolerated) for 30 days post replantation.

2.14.5. Clinical photographs should be arranged once the wound have healed.

2.14.6. Further surgeries to maximise functional outcome may be suggested, such as tenolysis or arthrodesis, however surgery to a post-replanted digit carries a risk of devascularisation, therefore should not be taken lightly.

2.14.7. It is important that the original operating surgeon and if possible the admitting team and ED be kept informed as to the patient’s progress and eventual discharge. This valuable information will help them to reflect on the assessments and decisions that were made. Experience helps to shape our practice.

2.15. **Common challenges and their management**

2.15.1. Patient selection for replantation surgery and the technical aspects of replantation are skills learned by experience, particularly in units with high volumes of this type of injury. Such units are often located near factories/sites of heavy industry or in the developing world. Junior surgeons and therapists are encouraged to ‘scrub in’ for replantation surgery at RCHT where a lot can be learned. Scrubbing in also helps develop an appreciation for the aetiology and management of postoperative complications.

2.15.2. **Vascular compromise:** Postoperative observations are aimed at recognising vascular compromise quickly, in order that it can be rectified. The colour and capillary return of a replanted digit should be essentially the same as adjacent uninjured digits. A deviation from this could well mean either arterial or venous insufficiency and will need immediate action to prevent loss of the replanted part.

<table>
<thead>
<tr>
<th>Signs</th>
<th>Problem</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swollen, purple digit, brisk capillary return, bleeding around skin edge</td>
<td>Poor venous outflow</td>
<td>Release tight dressing, Remove some sutures, Elevate digit, Apply leeches or heparin soaked pledgets, <em>Surgical re-exploration if a venous anastomosis is present</em></td>
</tr>
<tr>
<td>Empty, pale digit, no discernable blanching on attempted capillary return, cool</td>
<td>Poor arterial inflow</td>
<td>Release tight dressing, Remove some sutures, Reposition limb, Check patient’s fluid balance, blood pressure and temperature, Ensure no nicotine or inotropes, <em>Surgical re-exploration if improvement is not immediate</em></td>
</tr>
</tbody>
</table>

2.15.3. Any time that possible vascular compromise is noted, simple manoeuvres should be immediately put into place as above, the patient should become nil by mouth and the surgical team informed. Junior surgeons should not wait before calling for senior help and those with little experience of replantation surgery should not rely on their own judgement but should ask for help.
2.15.4. Pharmacological prevention of arterial or venous thrombosis is controversial in replantation surgery. Some hospitals use heparin and dextran, for which there is no reliable evidence of benefit. In addition, postoperative heparin results in an increased incidence of bleeding complications. Intra-operative heparin bolus and irrigation with heparin is routine to prevent microthrombi from propagating into clinically significant ones. There is some evidence for the use of aspirin in improving anastomotic patency rates in animal models and this intervention is less likely to cause harm. 30 days of postoperative aspirin is recommended unless there is a contra-indication.

2.16. **Low haemoglobin:** The combination of the injury, surgery, semi-open wounds and the use of leeches can rapidly lower the patient’s haemoglobin levels. Blood products are a precious resource and in any cases, the rheological properties of blood vary with haematocrit. Therefore unless the patient is symptomatic or on-going blood loss is expected, transfusion should not be routine for haemoglobin levels of 7-10 g/dl. Daily Hb checks should be undertaken until bleeding has stopped and leeches are no longer being used.

2.17. **Infection:** Antibiotic prophylaxis should be undertaken according to current RCHT guidelines for open fractures. Agricultural or marine contamination may require additional prophylaxis. The use of leeches is associated with a risk of infection by *Aeromonas Hydrophila* found in the mouthparts of the leech. The correct prophylaxis is ciprofloxacin for the duration of leech treatment. Any further antibiotic administration beyond prophylaxis should be as the patient’s condition dictates.

2.18. **Emotional Trauma:** Patients who have sustained amputation type injuries may well suffer significant emotional trauma during and after the event. The pain and horror of the accident combined with prolonged hospital treatment and the realisation of potential loss of function, appearance and earnings can be profound. These patients and their relatives must be treated sympathetically at all times and directed towards sources of emotional help such as their GP, patient groups and counselling services. Occasionally there is also a pre-existing mental health condition, which may require on-going treatment through the psychiatry team.

2.19. **Late digit loss or staged amputation:** We hope that the majority of our replantation surgeries will be a technical and functional success, however some patients will inevitably go on to lose the digit or to require amputation for functional reasons. As is the case with lower limb traumatic amputation, it can be easier for patients to deal with an amputation when it happens in the first instance rather than as a later procedure. This is likely partly because they have to deal with the idea of their treatment having ‘failed’ and also because they are more involved in the decision-making process of a staged amputation.

2.20. A practical approach by the treating team is likely to be the best one: After all, the upper limb is primarily functional rather than aesthetic, and must be of use rather than a hindrance to the patient.
2.21. **Cold intolerance**: This is universal in replanted digits and the patient will need to put on gloves before leaving the house in cooler weather and is unlikely to be able to return to an occupation involving significant cold exposure.

2.22. **Final thoughts and useful resources**

Thank you for reading the RCHT Hand Surgery Team Replantation Guide. Microsurgical replantation is one of the most challenging and rewarding treatments that we provide to our patients. The surgery is made possible by the hard work of our theatre teams, anaesthetists and ward staff and the functional outcomes of surgery are dependent on the expertise of our Hand Therapy colleagues.

2.23. Any of the Hand Surgery Consultants Mrs Dunlop, Mr Poulter or Mr Al-Shawi can answer any questions you may have and the following links and resources may also be of benefit.

- Microsurgeon.org
- RCHT Antibiotic Prophylaxis guidelines
- Evidence-based Orthopedics Mohit Bhandari BMJ books

3. **Monitoring compliance and effectiveness**

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>The technical success (or otherwise) of each replantation will be monitored and in cases where the replant fails, a thorough review of the individual patient’s notes would be undertaken to establish the cause(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>All 3 Hand Surgery Consultants</td>
</tr>
<tr>
<td>Tool</td>
<td>Feedback on the success or otherwise of individual replantation cases is routinely fed back to the individuals involved in treatment, this can be more formalized if necessary. Adherence to guidelines will be monitored as part of the ongoing audit process on a Word or Excel template specific to the topic.</td>
</tr>
<tr>
<td>Frequency</td>
<td>An unsuccessful replantation would stimulate a case notes review by the Hand Surgery team into the possible factors contributing to the result.</td>
</tr>
<tr>
<td>Reporting arrangements</td>
<td>Presented and discussed at Hand Surgery audit meeting</td>
</tr>
<tr>
<td></td>
<td>Likely to be multifactorial and sometimes no action is needed: a summary can be minuted in the audit meeting notes</td>
</tr>
<tr>
<td></td>
<td>The consultant Hand Surgeon who was the primary surgeon would take responsibility for making any necessary changes/actions</td>
</tr>
<tr>
<td>Acting on recommendations and Lead(s)</td>
<td>Hand Surgery Consultants</td>
</tr>
<tr>
<td></td>
<td>Required actions will be identified and completed within 1 month</td>
</tr>
</tbody>
</table>
Change in practice and lessons to be shared

Practice changes can be implemented by a change in the policy of necessary and be discussed at Hand Surgery team meeting (weekly)

Required changes to practice will be identified and actioned within 1 month. A lead member of the team (Consultant) will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders

<table>
<thead>
<tr>
<th>Change in practice and lessons to be shared</th>
<th>Practice changes can be implemented by a change in the policy of necessary and be discussed at Hand Surgery team meeting (weekly)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

4. **Equality and Diversity**

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Diversity & Human Rights Policy' or the [Equality and Diversity website](#).

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.
## Appendix 1. Governance Information

<table>
<thead>
<tr>
<th><strong>Document Title</strong></th>
<th>Hand and Digit Replantation Clinical Guideline V2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>This document replaces (exact title of previous version):</strong></td>
<td>Clinical Guideline for Hand &amp; Digit Replantation Protocol V1.0</td>
</tr>
<tr>
<td><strong>Date Issued/Approved:</strong></td>
<td>June 2020</td>
</tr>
<tr>
<td><strong>Date Valid From:</strong></td>
<td>July 2020</td>
</tr>
<tr>
<td><strong>Date Valid To:</strong></td>
<td>July 2023</td>
</tr>
<tr>
<td><strong>Directorate / Department responsible (author/owner):</strong></td>
<td>Rebecca Dunlop, Consultant Hand Surgeon</td>
</tr>
<tr>
<td><strong>Contact details:</strong></td>
<td>01872 253438</td>
</tr>
<tr>
<td><strong>Brief summary of contents</strong></td>
<td>This policy covers the assessment and treatment of all upper limb replantation cases</td>
</tr>
<tr>
<td><strong>Suggested Keywords:</strong></td>
<td>Replantation, Revascularisation, Amputation Upper Limb, Hand, Digit, Finger</td>
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<td><strong>Target Audience</strong></td>
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<tr>
<td></td>
<td>RCHT</td>
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<tr>
<td></td>
<td>✓</td>
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<tr>
<td><strong>Executive Director responsible for Policy:</strong></td>
<td>Medical Director</td>
</tr>
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<td><strong>Approval route for consultation and ratification:</strong></td>
<td>Care Group Governance</td>
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<tr>
<td><strong>General Manager confirming approval processes</strong></td>
<td>Johanna Floyd</td>
</tr>
<tr>
<td><strong>Name of Governance Lead confirming approval by specialty and care group management meetings</strong></td>
<td>Paul Evangelista</td>
</tr>
<tr>
<td><strong>Links to key external standards</strong></td>
<td>None required</td>
</tr>
<tr>
<td><strong>Related Documents:</strong></td>
<td>None</td>
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<tr>
<td><strong>Training Need Identified?</strong></td>
<td>Yes: nursing staff involved in looking after replants will need 'in vivo' teaching by the Consultant Hand Surgeon on a case by case basis. Ideally for each case there should be a nurse identified who is likely to be on duty for 3-4 consecutive days who can take some responsibility for helping other nurses learn how to do finger observations on that patient.</td>
</tr>
<tr>
<td><strong>Publication Location (refer to Policy on Policies – Approvals and Ratification):</strong></td>
<td>Internet &amp; Intranet ✓ Intranet Only</td>
</tr>
<tr>
<td><strong>Document Library Folder/Sub Folder</strong></td>
<td>Clinical / Trauma and Orthopaedics / Trauma</td>
</tr>
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## Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
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</thead>
<tbody>
<tr>
<td>May 2017</td>
<td>V1.0</td>
<td>First Issue</td>
<td>Rebecca Dunlop Consultant Hand Surgeon</td>
</tr>
<tr>
<td>June 2020</td>
<td>V2.0</td>
<td>Updated to latest Trust template</td>
<td>Rebecca Dunlop Consultant Hand Surgeon</td>
</tr>
</tbody>
</table>

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**This document is to be retained for 10 years from the date of expiry.**

**This document is only valid on the day of printing**

**Controlled Document**

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### Appendix 2. Equality Impact Assessment

#### Section 1: Equality Impact Assessment

<table>
<thead>
<tr>
<th>Name of the strategy / policy / proposal / service function to be assessed</th>
<th>Hand and Digit Replantation Clinical Guideline V2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directorate and service area:</td>
<td>Trauma and orthopaedics</td>
</tr>
<tr>
<td></td>
<td>Is this a new or existing Policy?</td>
</tr>
<tr>
<td></td>
<td>Existing</td>
</tr>
<tr>
<td>Name of individual/group completing EIA</td>
<td>Rebecca Dunlop, Consultant Hand Surgeon</td>
</tr>
<tr>
<td>Contact details:</td>
<td>01872 253438</td>
</tr>
</tbody>
</table>

1. Policy Aim  
Who is the strategy / policy / proposal / service function aimed at?  
To guide users through the typical events in the patient journey and the requirements of the patient and surgical team at each step.

2. Policy Objectives  
To Strive to give our patients here in Cornwall world class Hand Surgery care, tailored to their specific needs.

3. Policy Intended Outcomes  
We strive to give our patients here in Cornwall world class Hand Surgery care, tailored to their specific needs.

4. How will you measure the outcome?  
Review and monitor outcomes of this specific surgery and any incidents relating to this surgery.

5. Who is intended to benefit from the policy?  
Patients

6a). Who did you consult with?  
Workforce  Patients  Local groups  External organisations  Other

   X

b). Please list any groups who have been consulted about this procedure.  
Care Group Governance

c). What was the outcome of the consultation?  
Agreed
7. The Impact

Please complete the following table. If you are unsure/don’t know if there is a negative impact you need to repeat the consultation step.

Are there concerns that the policy **could** have a positive/negative impact on:

<table>
<thead>
<tr>
<th>Protected Characteristic</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (male, female non-binary, asexual etc.)</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Gender reassignment</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Race/ethnic communities /groups</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability (learning disability, physical disability, sensory impairment, mental health problems and some long term health conditions)</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion/other beliefs</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage and civil partnership</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual orientation (bisexual, gay, heterosexual, lesbian)</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If all characteristics are ticked ‘no’, and this is not a major working or service change, you can end the assessment here as long as you have a robust rationale in place.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Rebecca Dunlop, Consultant Hand Surgeon

If you have ticked ‘yes’ to any characteristic above OR this is a major working or service change, you will need to complete section 2 of the EIA form available here: [Section 2. Full Equality Analysis](#)

For guidance please refer to the Equality Impact Assessments Policy (available from the document library) or contact the Human Rights, Equality and Inclusion Lead [debby.lewis@nhs.net](mailto:debby.lewis@nhs.net)