Chapter 17: Photo-Documentation

Good Practice Recommendations

1. Paediatricians should work to a locally agreed protocol to ensure adequate standards of photography, including storage of images.
2. Photograph all significant visible findings using an L-shaped metric scale to measure the size of injuries.
3. Record whether the photo documentation represents what you saw at examination.
4. Obtain consent to take images and for which purposes they can be used; e.g. to share images at peer review or use for teaching purposes.

17.1. Introduction

17.1.1. Photographic imaging of external injuries in suspected child abuse serves several purposes:

- A good quality image forms part of the medical case notes to serve as a record of the injury seen and its characteristics. The image is an adjunct to examination and should be interpreted alongside documented clinical findings and diagrams.
- The image may be used to inform case discussion at peer review or when seeking a second or expert opinion without subjecting the child to repeat examinations.
- The image may be used in child protection and court proceedings for evidential purposes.
- Images taken to a high forensic standard can be used in the forensic analysis of the case. The shape, size, and position of a patterned injury can be of forensic significance when comparing the pattern, characteristics or measurements of the injury to the implement alleged or suspected to have been used, e.g. bite or slap marks.

17.1.2. Interpretation will depend upon the quality of the images recorded, for example how well patterns of injury are reproduced in the photograph. Factors such as sharpness, exposure, tone, contrast, colour, angular distortion, skin reflection from the flash, lens flare and artefacts can all affect the standard of image quality.

17.1.3. It is good practice to photograph any visible finding in suspected child abuse or neglect. Digital imaging is now the standard technique used and can be undertaken by the:

- Medical photographer
- Examining doctor with appropriate training and equipment
- Police photographer.

17.1.4. A medical photographer with specific training in clinical photography is the preferred option, with the exception of CSA examinations. If taken by a medical photographer, the images become part of the medical records which are accessible to the paediatrician for peer review purposes and preparation of reports. Most regional-based hospitals will have an imaging unit that can be contacted to attain the services of a professional photographer. Where this is unavailable, medical examiners, if taking photographs, should receive appropriate training to maintain standards outlined in this chapter as far as possible. All imaging should follow local policy and images are protected in the same way as any other medical record. They are subject to the same statutory and professional rules of confidentiality. For example, photographs should not be taken and stored on mobile telephones or personal photographic or IT equipment.

17.2. Photo-documentation

17.2.1. Photo-documentation may be used to record:

- Injuries (e.g. bruises, burns, lacerations)
- Genital and anal signs (intimate images) – colposcopy still or video imaging is recommended[1]
- Signs of neglect (e.g. states of hygiene, infestations)

17.2.2. All injuries and features should be described and recorded in case notes and body maps.

17.3. Consent

See Chapter 7

17.3.1. Consent to obtain photographic images is required from the parent/carer and/or child where appropriate (See Chapter 7 and Appendix 1). This applies for all injuries and intimate images in the assessment of CSA.

- Informed consent must include information about the function of the image; namely for diagnostic and forensic purposes and consequently that they might be shown to other medical experts or used as evidence in court or peer review
- If the child or parent /carer refuses permission for images to be obtained this must be respected and recorded in the notes
- Specific consent should be obtained for the images to be used for medical education or publication
- Copies of images are only provided with the consent of the doctor responsible for the child's care, or at judicial request and should follow local procedures.

17.4. Basic standards in photographic imaging

17.4.1. It is recognised that gold standards may not be achievable in all areas but it is important to ensure the highest quality of photo-documentation and this chapter highlights best practice standards.

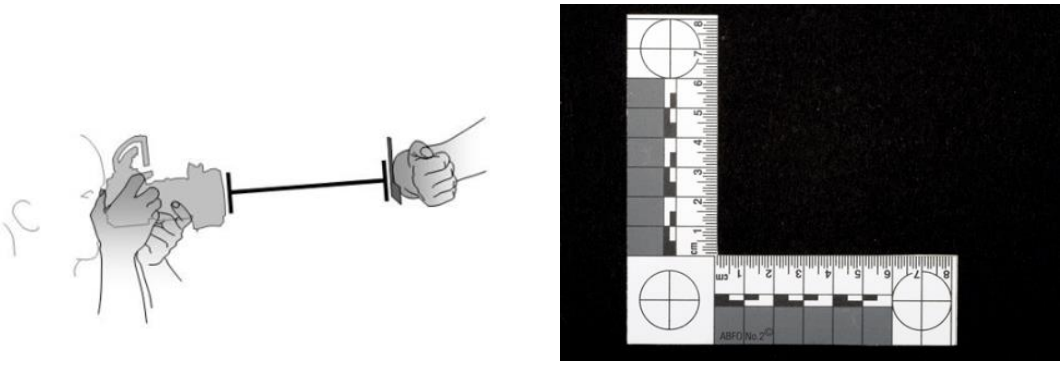

Figure 1. Correct positioning resulting in no distortion[2]

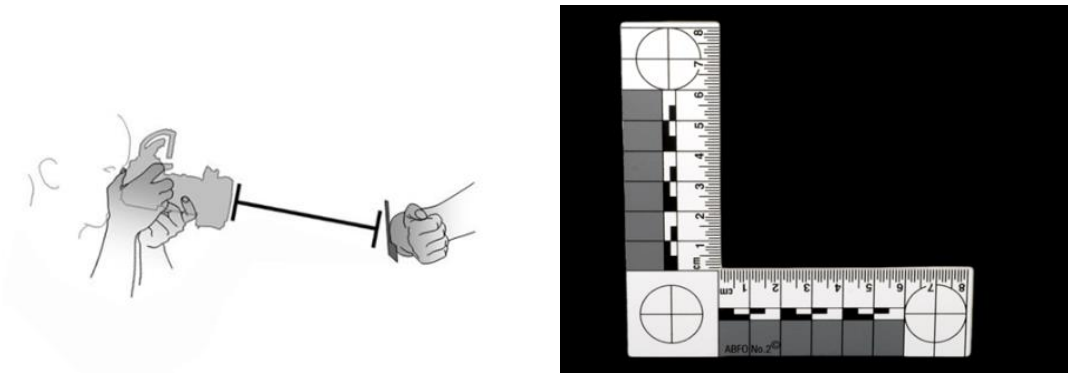

Figure 2. Incorrect positioning resulting in angular distortion[2]

17.4.2. Optimising photographic quality

17.4.3. Recommended camera equipment includes:

- Digital Single Lens Reflex (DSLR) camera of a professional or semi-professional grade
- Prime Lens (not a zoom lens) with macro capabilities (e.g. 60mm or 105mm)
- Flashguns. Reasonable results can be obtained with a suitable single flashgun or ringflash if properly positioned. Placement of the flash is important to make sure that unwanted shadows do not obscure the injury. This requires the flashgun to be placed near the front of the lens.

17.4.4. Verify camera date and time to ensure that the correct date and time is embedded within the metadata of the digital images.

17.4.5. The recommended file format for capturing images of injuries is the RAW file, where the image captured by the image sensor is stored with minimal processing and maximum quality. If RAW files are not supported by the camera being used and/or the organisation taking the images, a TIFF (tagged image file format) file format should be used instead which is the next highest quality available.

17.4.6. In order to estimate or measure the size or patterns within an injury, a rigid L-shaped metric scale, or a longer straight one if required for large patterns, should be included in all images[3]. Without this scale being placed correctly and photographed with the injury, further analysis is affected and results in the evidence being inadmissible in court. Scales with adhesive backs should not be used. These types of scale will bend around the contour of body and as such will make any forensic measurements unreliable.

17.4.7. An accurate colour chart should be employed when photographing bruising. A small mini-colour checker will be the most practical to use. This will enable colour balancing to render colours in the scene faithfully.

17.4.8. Forensic analysis of patterned injuries is severely affected by photographic distortion which may also impair evidential quality for court. Operator error can introduce angular distortion, which can change the shape of the patterned bruise. To avoid distortion:

- The film plane of the camera MUST be perpendicular (90 degrees) to the plane of the injury
- The metric scale must be placed on the surface of the skin. This will ensure the scale is on the same plane as the injury
- Avoid applying too much pressure when the linear scale is placed next to the injury which can warp a portion of the scale. Furthermore, if the scale is tilted it will cause error
- The scale should be close to the injury, but not so close as to obscure any outlying less obvious marks
- Use an uncluttered, neutral-coloured background
- It is recommended that the examining doctor or nurse assists the photographer when taking the images to reassure the child, act as an additional pair of hands and chaperone the photographer. Assistance in holding the rigid scale in the correct place is essential for correct imaging.

17.4.9. Imaging should ensure that the photographs can be identified to belong to the correct child.

17.4.10. A sequence of images is recommended to keep track of the patient's name and date of the photographs. If taken in this manner the digital images will be recorded electronically such that a chain of evidence can be maintained. **ALL** images **MUST** be transferred to a computer; none of the images should be deleted. An example of such a sequence is as follows.

- Image of person's I.D (patient label, consent form, etc.)
- Image of person's face (with the exception of intimate images)
- Location shot showing the injury and identifying anatomical area; without a scale (for example, the whole arm or full face or leg that includes the injury)
- Close up shots of the injury, including the whole of the linear scale
- If the injury is on a curved surface, then multiple views (at least three) will be needed
- Detailed shots if required

- Images using photographic filters, specialty film, or alternate methods of illumination may be used to record the injury in addition to unfiltered photographs
- Image of person's I.D
- Consideration should be given for repeat photography at periodic intervals to begin to document physical signs.

17.4.11. Audit trail of digital images

17.4.12. It is important to maintain an audit trail of every change that is made to an image from the moment it is first captured on a camera to the time when it is presented in court. In this way, it can be demonstrated that the image presented in court can be reproduced from the original image using a sequence of repeatable, recognised processes that represents the audit trail.

17.4.13. Guidance relating to starting and maintaining an audit trail is provided by the Home Office and NPIA guidance[4]. In summary, the recommended procedure is to save a 'Master Copy' of the file from the camera in the original file format (RAW is recommended). This Master Copy may be stored as a Write Once Read Many (WORM) format such as a CD, or on a secure server. This Master Copy must remain unchanged from its original format, but copies may be taken from it for subsequent image processing. These are defined as 'Working Copies'.

17.4.14. Every time an adjustment is made to the Working Copy, (e.g. changes in contrast and/or brightness or adjustments to colour saturation) they must be recorded either manually or by the software being used to carry out the adjustments. All adjustments should be in accordance with best practice.

17.4.15. This audit trail must be stored with the Working Copy, and both the Master Copy and the Working Copy and audit trail must then be archived for the period of time dictated by the requirements of the case. With all of these pieces of evidence in place it will be possible to demonstrate that the Working Copy has been legitimately obtained by progressively adjusting the Master Copy image using recognised procedures, and that the image shown in court is a true representation of what was photographed.

17.5. Images in medico-legal practice

17.5.1. The doctor must state in the statement or court report if the injuries and clinical findings have been photo-documented and it is the doctor's responsibility to confirm the identity of photographs.

17.5.2. The clinical findings must also be described and interpreted in writing; stating what evidence is contained within the photo-documentation. Line drawings are helpful.

17.5.3. The quality of the images must be referred to and whether they truly represent the clinical findings.

17.5.4. Images must not be attached to the statement or report.

17.5.5. Showing photographs in court should be arranged with prior warning.

17.5.6. Attention should be given to the sensitive nature of intimate images and it is strongly recommended that these are restricted to the medical professionals involved in the case only.

17.5.7. These photographs are usually only disclosed from one doctor to another (examining doctor to defence expert) or under the direction of the judge.

17.5.8. Images must be returned to source after use (property of NHS Trusts) or copies destroyed.

17.6. Intimate images[1]

See Chapter 6 and Chapter 10

17.6.1. An 'intimate image' is a photographic, digital or video/DVD image of the genitalia, anus or breast. These images may be taken during the course of clinical practice or an investigation into alleged or suspected sexual or physical abuse. The imaging is frequently obtained using a colposcope or similar technology. Recommendations are detailed in CSA guidelines and subject to the same consent procedures and advice set out in this chapter[5].

17.6.2. Concern has been expressed about inappropriate disclosure and use of intimate images obtained during the forensic medical examination of children with alleged and suspected of sexual violence or abuse. Guidance has been published to ensure respect for the privacy of the subjects of the intimate images and to eliminate the risk of improper distribution of the images[6]. It applies to the management of intimate images within clinical practice and all jurisdictions, including criminal, family and civil justice systems.

17.6.3. In addition to strict informed consent:

- All the images obtained will be coded, cross-referenced in the medical record and anonymised; with every care taken that the individual can never be recognised from the image itself or information that directly accompanies the image. Secure fall-back arrangements should be in place in case they are needed in the absence of the original coder. Where local practice differs there should be, robust operating procedures in place
- Images of faces must never be included
- Intimate images are retained as part of the medical record
- Intimate images will be stored securely with highly restricted access in accordance with local policy.

17.6.4. Doctors should not hand over intimate images or copies of images to the police or prosecutor without appropriate informed consent or a court order.

17.6.5. If images need to be reviewed by a medical expert, clear arrangements should be made to allow the medical expert to view the intimate images at an agreed venue in the presence of the examining doctor. Exceptionally, if this is not possible, a signed agreement by the medical expert should be made which includes secure transport and storage of a copy of the images, agreement not to show the intimate image to any person (save another medical expert without the permission of the judge), and safe return or guaranteed destruction. Transported images should be anonymised and encrypted.

17.7. Imaging bites

17.7.1. For many years it has been commonplace for bite marks to be photographed in a manner that allows for subsequent forensic analysis. It may be possible to identify features of the perpetrator's dentition within a bite mark, to confirm whether adult or child. These photographs have to be taken according to a strict protocol such that inter-canine measurements can be recorded for the images to be useful. Photographs taken must include both the upper and lower set of teeth marks.

17.7.2. Interpreting the images requires the expertise of forensic odontologists (See Chapter 9.4). Suitably encrypted digital images can then be sent to the forensic odontologist for rapid review.

- Photograph the bite:
  - With axis of camera lens perpendicular (90 degrees) to the bite
  - Both arches with right-angled scales parallel to the mark
  - Where the bite is on a curved surface, such as the forearm, each arch should be photographed separately with scales.
- A wide view showing anatomical landmarks is taken for orientation.
- It is good practice to take serial photographs at 12-24 hour intervals, using colour and black and white images, and consider UV illumination if the bite mark has faded[7].

17.7.3. Publication of photographs

17.7.4. GMC current advice is that express consent must be sought from patients (in the case of children who cannot give consent, those with parental responsibility) before publishing personal information about them (includes case histories or photographs), whether or not you believe the patient can be identified[8].

Further reading

- Faculty of Forensic and Legal Medicine, Royal College of Paediatrics and Child Health and Association of Chief Police Officers (2010) Guidance for best practice for the management of intimate images that may become evidence in court[1]
- Institute of Medical Illustrators. Non-accidental injuries[2]

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Update information

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