



Institute of
Medical
Illustrators

IMI National Guidelines

A Guide to Good Practice

Clinical Photography Studio Design and Planning

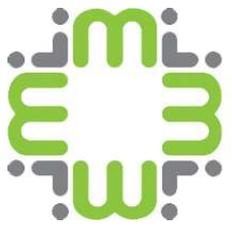
These guidelines have been developed by the Institute of Medical Illustrators, in consultation with specialist advisors. They should be considered a guide to good practice, providing a baseline for auditable standards. If necessary, adaptations may be made to take into account your local conditions.

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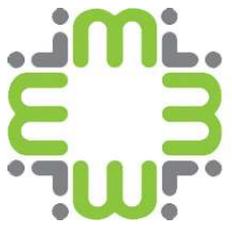
clinical photography, design and video in healthcare

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Introduction

The most common reason for undertaking clinical photography is to provide a record of the natural course of a condition, or to document the effect of treatment on that condition. Photographs are normally taken for the patients' case record but may also be used for teaching, research, publication, or for medico-legal purposes.

The essence of good clinical photography lies in standardised and repeated views over a period of time, from which objective comparisons can be made. This is achieved by careful control of lighting, scale, viewpoint and background, the photographic technique and all aspects of post-production.

There has not been an official national recommendation about clinical photography studio provision in hospitals since the 1960s and, to some extent; a detailed specification is dependent upon the specialties served by the Medical Illustration Department. For example if the department is situated in an eye hospital, then studio requirements will differ from those in a general hospital environment where a clinical photography service is provided for a range of clinical specialties.

There are a number of factors specific to a clinical photography studio and these will be discussed individually in the following sections.

Definition

The photographic studio used for the clinical recording of patients is designated a 'clinical area' and is therefore subject to hospital controls with regard to public and patient access and infection control as all other clinical areas.

1. Location

The clinical photographic studio should be easily accessible to referred patients. This normally implies that it should be located reasonably close to the out-patient areas or the area that the majority of referrals come from, as photographers may require nursing assistance and/or chaperones. Close proximity to treatment areas also prevents excessive delays in the care pathway.

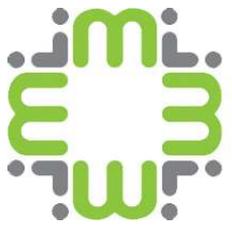
2. Associated areas

Clinical photography studios usually form part of a department which may comprise a main studio plus smaller specialised studios (such as ophthalmic or dental), video production facilities, a graphic studio, main reception, waiting area, image-processing and finishing room(s), printing facilities, store, and staff and office accommodation depending upon the size of the department.

Larger departments may also include staff and patient WCs, meeting/teaching rooms and staff rest rooms. It is not essential to have toilet facilities within the department although obviously they should be available reasonably close by.

Where clinical photographic studios are located away from the main department, they should include an image processing room adjacent to the photographic studio to allow the photographer to transfer images efficiently and securely to a computer, which will speed up the post-production process. A small waiting area for patients is also desirable.





3. Building Specification for the Clinical Photography Studio

The room should be windowless, or have windows with light-tight blinds, and have private changing facilities in the form of an adjacent changing room or cubicle where there should be a mirror and facilities to remove or replace makeup / wigs / clothing.

Ideally the ambient temperature of the studio should be locally controlled.

Some patients may enter the studio on a trolley or in a wheelchair and therefore appropriate access is necessary. In particular, a double-width door is recommended.

Hand washing facilities are required for the photographer to wash their hands prior to handling temporary dressings / retractors and for rinsing dental mirrors. Hot and cold running water should be available as well as a paper towel dispenser.

Drinking water is also useful to give to patients after dental photography.

Designated a 'clinical area', the ventilation system must be capable of quickly removing unwanted odours.

Ceiling tracking should be fitted to allow lighting to be positioned as required without cables trailing across the floor. See the 'Safety' section below.

4. Dimensions

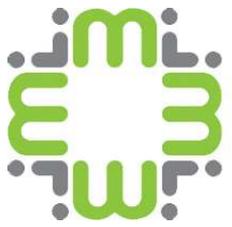
Studios must physically be big enough to allow for adequate camera-to-subject distances with the correct focal length lenses as described below when photographing a), b), c) and d).

The dimensions given here represent the ideal standard.

- a) Minimum dimensions for dental/head and neck photography / 3D imaging (depending on system) = 4m wide x 5m long x 3m high.
- b) Minimum dimensions for half-length photography = 5m wide x 6m long x 3m high.
- c) Minimum dimensions for full-length photography and for 3D imaging (depending on system) = 6m wide x 8m long x 3m high.
- d) Minimum dimensions for video gait analysis = 8m wide x 12m long x 3m high.

These are minimum dimensions required for clinical photography and additional space should be calculated where equipment can be stowed or lighting set-ups screened from the main clinical studio activity.





Description	Quantity	Detail	Requirement
Clinical Photographic Studio	1,2 or 3	Depending on size of hospital, number of bases and specialties.	<u>Minimum</u> 4 metres wide x 5 metres long. Floor to ceiling height 3 metres. Sink – hot/cold running water.
Specialist photographic studios:			
- ophthalmic photography	1 or more	Depending on size of hospital, number of bases and specialties.	<u>Minimum</u> 4 metres wide x 5 metres long or 8 metres wide x -12 metres long depending on configuration of service.
- dental photography	1 or more		Approx. 4 metres wide x 5 metres long. Sink – hot/cold running water.
Waiting area	1	Min capacity 4 patients waiting.	
Reception office	1	Depending on number of staff employed.	
Photo finishing room	1	Depending on number of staff employed.	This will include a greater proportion of equipment than a standard office used for administration. Reliance on computer equipment will need carefully planned appropriate anti-glare lighting.
Video production room	1	Depending on number of staff employed.	
Graphics Studio	1	Depending on number of staff employed.	
Office – Service Manager	1		
Other		Meeting room, presentation/viewing area, rest room, equipment storage, supplies storage room, printing and finishing room(s), patient WC.	

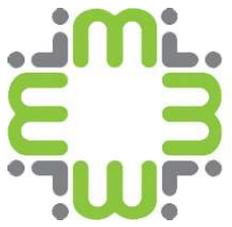
5. Infrastructure, utilities and finishes

Walls – Studio walls should be painted in a non-reflective matt material, very pale grey or white, to minimise colour casts.

Floors – Floors should be easily cleanable and non-slip to facilitate manoeuvre of equipment, trolleys etc. Rubber flooring is preferred and can be used to replace paper backgrounds. They should also be of a neutral colour so that colour casts are not reflected onto subjects.

Storage – Equipment should be stored in lockable cupboards. Those with wipeable worktops are ideal with electrical sockets above where batteries and other equipment can be re-charged.





Disposable glove and apron dispensers should be wall mounted and there should be sufficient space to store (sterilised) packs of dental mirrors and retractors close by.

Communication – There should be at least one telephone and computer network point for each workstation plus extras for network printing as well as adequate Wi-Fi coverage for the whole department. An emergency assistance button is essential when working alone with a patient in order to summon urgent help. This is different from the local procedure for telephoning for crash assistance.

6. Electrical Supply

A single isolator switch for the lighting system is recommended for safety reasons.

Electrical sockets and switches should not impede wall areas and be positioned in the ceiling and above benches. There should be sufficient power points for all equipment plus some extra capacity for future-proofing.

Studio flash lights should ideally be mounted on an overhead rail lighting system and should be securely fastened with safety cables in place. These should be checked regularly in accordance with local policies. See also 'Safety' below. Most studio rail systems require a minimum ceiling height.

If lights are placed on lighting stands (not recommended), these should include a tripod wheel based or a column stand on wheels. There should be no trailing cables which might be a trip hazard and lights should be connected to overhead power sockets.

An illuminated 'Engaged' sign outside of the studio is useful to indicate when the clinical studio is occupied.

7. Safety

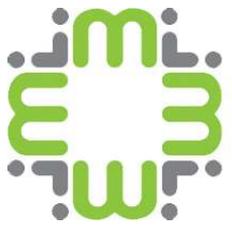
Alarm – A panic alarm for photographers is essential as photographers work alone with patients and this device is essential if either the patient or photographer needs urgent assistance. For clinical photographers working alone, care should be taken to ensure that assistance can gain access in an emergency.

Ceiling tracking – If possible lighting stands should be avoided as these can provide trip hazards. Details of overhead rail lighting systems are available from reputable photographic equipment suppliers (see: www.imi.org.uk/trade). These must be professionally installed. Wireless triggers should be fitted to lights to avoid trailing leads. Pantograph springs should be checked regularly for cracks or damage, according to the manufacturer's recommendations.

Typically a ceiling-mounted tracking system with two moving rails and four pantographs with lights and soft boxes could weigh around 100kg and therefore requires mounting to a solid ceiling and cannot be attached to a false/suspended ceiling.

Backgrounds – Paper background rolls can be suspended from an overhead system but can also be fixed to the rear wall of the studio. These should be easy to raise and lower on a pulley system and ideally have brackets for three background rolls (typically black, white and a colour: usually





blue or green depending on local service requirement). Use of a Perspex or continuous floor through to ceiling moulding is extremely useful but must be well designed and constructed, robust and easy to clean.

Scales – Where scales are required, these can be mounted onto a stand or suspended from the overhead rail lighting systems.

An ergonomics advisor, usually available through the Occupational Health Department can undertake work-place assessments. In addition disability advisors should be invited to review the patient area to ensure full accessibility for the patient's photographic experience.

All electrical equipment should be PAT-tested and labelled with a re-test date.

8. Patient positioning aids

Mirrors – These should be placed within the changing area and should be positioned so as to give full privacy to the patient.

Support – Rails should be appropriately placed where patients may need them. Patients may need to be raised above the line where the background meets the floor but care must be taken that positioning boxes are robustly constructed, easily moved, but stable when stood on by a patient. If they are mobile then the wheels should be locked down when in use.

They should be painted in a non-reflective matt material. Colour should be neutral and match the background so that colour casts are not reflected onto subjects where colour control of skin is an important factor. Surfaces must be non-slip and be able to be disinfected unless disposable paper is used for the patient to stand on.

Chairs and stools – These are a useful addition within every studio but once again should be made of a surface that can be wiped down and disinfected if necessary.

Floor mats – Cushioned floor mats are useful and provide a safe surface on which to photograph babies with no risk of them falling. These should be lightweight and easy to manoeuvre, cleanable and fire retardant. Physiotherapy mats are ideal.

Baby changing mat – cushioned mat useful for positioning young babies. These should be cleanable and fire-retardant.

9. Control of infection

The photographic studio is a designated clinical area and is therefore subject to the same cleaning regimes as for other clinical areas. Departments should liaise with local infection control professionals with regard to anticipated cleaning schedules (including deep-clean requirements).

Clinical wipes should be available for cleaning surfaces before and after each use.

Surfaces should be kept clear and equipment securely stored away, except when being used. Notices should be encapsulated.

Floors, surfaces and furniture must be easy to clean and disinfected where required.





Protective gloves should be provided for use during dental photography and other photography where touching the patient may be necessary.

A variety of waste bins must be available for clinical waste and other matter – each hospital should follow its own local protocols.

The availability of hand sanitising gels is extremely important for both staff and patients and must meet local policy guidelines.

Provision should be made for the storage (and rotation) of sterilised packs of dental mirrors and retractors.

10. Specialist dental and ophthalmic facilities

If a department is regularly expected to provide dental and ophthalmic photographic services, care should be taken to provide the correct facilities. A dental chair or stable chair with a head rest is useful.

There should be sufficient space for the storage and management of sterile packs of dental mirrors and retractors and a warming cabinet is useful. Hand washing facilities must be available close by.

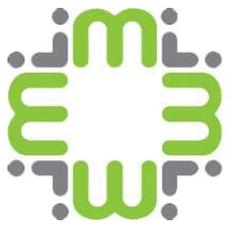
11. Additional equipment

Consideration should be given to the need for additional lighting set-ups which might be used whilst the main studio area is in use. In this circumstance, dividing screens or curtains are useful to partition off the studio area or behind which to stow large equipment.

Other equipment might include the following:

- A patient couch – useful if there is a high demand for genitourinary medicine requests. This should be used with a disposable paper roll.
- Still life equipment – these vary in shape and size and should be researched to meet the needs of the service for example light tents, infinity table etc.
- 3D imaging equipment can vary in design from handheld portable cameras to various multi-camera specialist rigs which once set up are best left alone as the sensitive nature of the equipment means they often requires regular recalibration. The space required is dependent on the system procured.
- Consider security measures, such as alarms and secure door/window locks.
- Reception desk – part or all should be low enough for wheelchair users and children.
- Check that sufficient signage is provided for patients to find the studio from main thoroughfares, outpatient clinics and wards.





- For video production and audio recording check to see what measures are in place to reduce ambient noise. Are there any particularly noisy activities nearby (e.g. engineering workshop, ambulance entrance)?
- Small steps may be useful along with a cleanable equipment trolley.
- There should be provision of adequate PPE for example glove and apron dispensers.
- When working with planners & architects, consider the ergonomics of moving between different spaces. Ask to see elevations as well as plan views; check heights above floor level of sockets, fittings, etc. make sure that electrical and plumbing plans are seen and check that there are no services below ceiling height that will interfere with the installation of a pantograph system. Ask for an explanation of any symbols that are not understood.

12. Studio examples

Figure 1 shows the clinical photography studio at Bradford Teaching Hospitals NHS Foundation Trust. This studio is approximately 6m wide x 5.5 m deep. Ceiling height is 4m at its maximum in the centre and 2.75m around the edge.



Figure 1



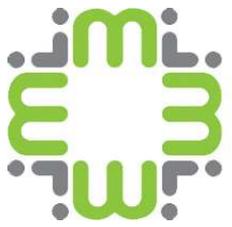


Figure 2 shows the second sub-studio at the University Hospitals Bristol NHS Foundation Trust, there was a requirement to develop a small studio facility in an area that had previously been a patient consultation room within the Dermatology department approximately 4m x 2m.



Figure 2

Further information about the development of small studio spaces can be found here:
<https://www.tandfonline.com/doi/full/10.3109/17453054.2015.1035635> or
<https://doi.org/10.3109/17453054.2015.1035635>

13. Further Information

Further information and details of suppliers of clinical studio equipment can be obtained from the Institute of Medical Illustrators at www.imi.org.uk/trade

14. Lead Authors and Working Group

Lead Authors: Carol Fleming and Jane Tovey.

Thanks to the following for their assistance in developing this document: Simon Brown, Nick White, Simon Brinkworth and Jeremy Nayler.

Institute of Medical Illustrators at www.imi.org.uk/trade

