CODE OF PRACTICE

PROCEDURES FOR UNIVERSAL INFECTION CONTROL

Procedures which must be followed by all staff and students within the Prince Philip Dental Hospital

The Prince Philip Dental Hospital
and
The Faculty of Dentistry
The University of Hong Kong

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Contents

Introduction

Dental personnel can be exposed to a wide variety of micro-organisms from the blood and saliva of patients they treat. Infections can be transmitted in dental practice by blood or saliva through direct contact, droplets or aerosols. Furthermore, although not documented, indirect contact transmission of infection by contaminated instruments is possible. Thus patients and dental health-care workers have the potential of transmitting infections to each other.

To prevent this occurring meticulous attention must be given to the general principles of cleanliness of instruments, equipment and fittings as well as personal hygiene in designated clinical areas. Such practices will reduce the pool of common pathogens and improve the working environment.

An infection control strategy should be effective for preventing the spread of Hepatitis B and C, Human Immune-deficiency Virus (HIV) infection, and other infectious diseases caused by blood-borne micro-organisms. Because infected patients cannot always be identified by history, physical examination, or readily available laboratory tests, the recommendations of this Code of Practice should be adopted routinely during the care of all patients in the Prince Philip Dental Hospital.

The Code is arranged in three parts as shown in Figure 1. The reader can commence at Section 1, which is an introduction to the theory of infection control, and then proceed to Section 2, the general practice of infection control. The reader can end there or read further about one or more of special situations in the Dental Hospital where additional task-specific universal infection control measures are needed. These are given in Section3.

Alternatively the reader can go directly to Section 2 and either read that as it stands or additionally read about the special situations in Section 3. **It is emphasised that it is Section 2 that is the most important part of the Code.** The instructions in Section 2 are intended to fully conform to the standards of Universal Infection Control to be used in the Dental Hospital.

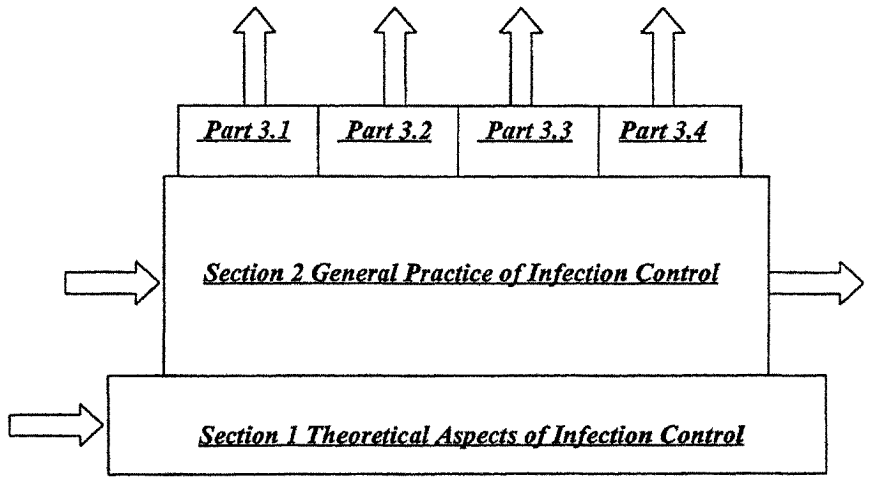

Figure 1 Arrangement of this Code of Practice

This Code of Practice for Universal Infection Control must be adhered to in all Designated Clinical Areas. Those uncertain about any aspect of this Code must seek guidance from their supervisory staff member.

Copies of the Code of Practice must be available from the Offices of the Senior Clinicians during office hours. Further copies are available from the Hospital Administration and the Faculty Office.

Section 1 Theoretical Aspects of Infection Control

1.1 Concept of universal infection control

It is often impossible to ascertain whether a patient who attends for dental treatment is a carrier of infectious agents. Therefore, all patients should be treated as if they were a likely reservoir of pathogens. The infection control procedures involved in such treatment are *universal precautions*. Therefore, all clinical procedures conducted on any patient and involving contact should be conducted using *universal infection control.*

A corollary of this is that no additional infection control precautions should be necessary when a patient who is a carrier of infection such as Hepatitis B attends the clinic. That is because, as has been emphasised, the measures described in Section 2 for all patients are designed to meet the standards of universal infection control. It follows that they should never be relaxed for any patient who is receiving treatment involving physical contact with a member of staff or a student.

The universal infection control precautions now applied in the case of all patients where contact with staff and students is involved means that the two tier infection control system formally employed in the Hospital is no longer applicable.

The importance of the **concept and practice** of universal infection control cannot be overemphasised and must be adopted in all the designated clinical areas of the Hospital by all members of the dental team.

1.2 Contaminated, clean and sterile items

Objects, (instruments, equipment, fittings, attire and exposed parts of the body) are in order of acceptability, either:

Sterile (i.e. totally free of micro-organisms)

Clean (i.e. with a minimal amount of non-pathogenic organisms)

Contaminated (i.e. with pathogenic organisms including viruses transmitted by blood and saliva)

Whereas a *sterile* object is devoid of micro-organisms, a *clean* object may carry a very small load of non-pathogenic organisms. In other words, cleaning an object can reduce the bio-burden to an acceptable level for the procedure in question. A *contaminated* object, by definition, carries either a small or large bio-burden of pathogenic organisms.

A cardinal rule to remember is that it is presumed that when an object in a higher category of cleanliness comes in contact with an object in a lower category its state will be converted to that of the object in the lower category. For example, when a person wearing a contaminated glove reaches into a box of sterile masks to remove a mask, then that and the other masks in the container are presumed to have changed from being sterile to being contaminated.

1.3 Transmission of infection

Infections may be transmitted between patients and personnel in several ways as outlined below (Figure 2):

Direct contact
Indirect contact
Inoculation
Airborne spread

Transmission by DIRECT CONTACT

When one person directly infects another by physical contact.

Prevention: by hand disinfection and by wearing gloves.

Transmission by INDIRECT CONTACT

When a person acquires micro-organisms from contaminated objects (e.g. instruments, work surfaces, patient records, impressions).

Prevention: by sterilisation, disinfection, no-touch and barrier techniques.

Transmission by INOCULATION

When micro-organisms are introduced into the body through either a pre-existing lesion or a lesion produced by a contaminated instrument, needle or scalpel. Micro-organisms unable to penetrate intact skin and mucosa may be transmitted in this way, especially the Hepatitis B virus and the Human Immunodeficiency Virus (HIV).

Prevention: by sterilisation, use of disposable needles, and safe handling and disposal of sharp items.

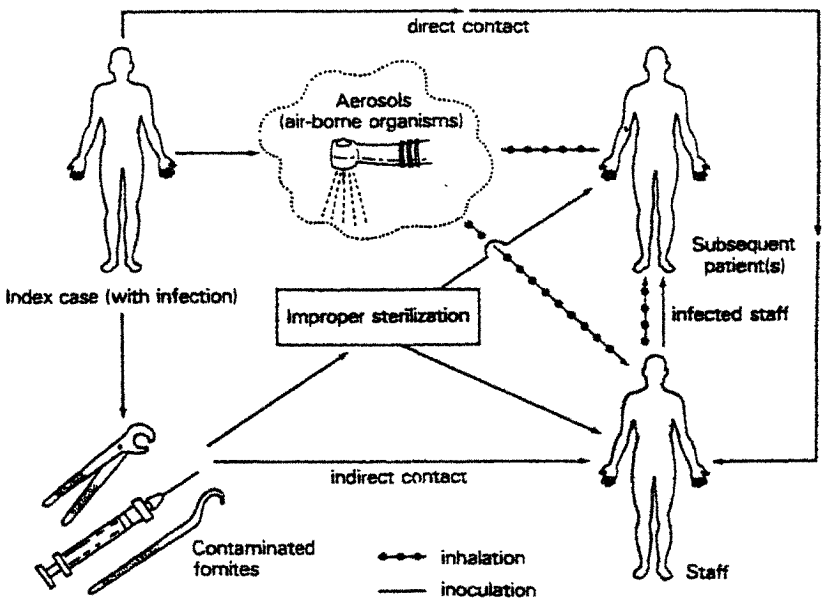

Figure 2 Routes and modes of infection transmission in the dental clinic (From Samaranayake LP, *Dental Update 1989; 16: 58-63,* with permission).]

Transmission by the AIRBORNE ROUTE

Leads to inhalation of, or eye infections from, contaminated droplets, aerosols, dust, pumice, and particles of calculus or dental materials. The risk is especially high when using three-in-one syringes, water-cooled drills and ultrasonic scalers, or when polishing dentures and appliances.

Prevention: by use of suction, rubber dam, facemask, glasses, and clinic attire, as well as disinfection of work surfaces.

1.4 Sterilisation, disinfection and cleaning

STERILISATION

Sterilisation is a process by which all forms of micro-organisms are destroyed, including viruses bacteria, fungi, and spores. There are three major modes of sterilisation used in dentistry:

1. Moist heat (autoclaving using steam under pressure)
2. Dry heat
3. Gaseous chemicals (chemiclave; not used in the Dental Hospital).

Under appropriate conditions, immersion of objects and items in disinfectants is another method of obtaining sterility. This is sometimes termed "chemical sterilisation" although the correct term is high level disinfection.

DISINFECTION

Disinfection aims at eliminating pathogenic micro-organisms in order to prevent transmission.

Methods of disinfection include the use of:

1. Moist heat at lower temperatures (e.g. boiling water)
2. Chemical disinfectants and antiseptics.

Major groups of chemical *disinfectants* used in dentistry are glutaraldehydes (by far the most commonly used), chlorine and iodine compounds, alcohols, phenols, and chlorhexidine. *Antiseptics* are disinfectants that can be used on skin and mucosa.

Disinfection lacks the safety margin achievable by sterilisation and usually does not destroy bacterial spores. The effectiveness of a disinfection procedure depends on a variety of factors including, i) the number and nature of contaminating micro-organisms, ii) type and concentration of the agent used, iii) length of exposure, and iv) amount of residual organic matter present (i.e. bio-burden) on the item. The result of disinfection can vary from sterility at one extreme to a minimal reduction of microbial numbers at the other.

CLEANING

Cleaning is the removal of visible dirt by means of water, soap, detergent, brush, cloth, or vacuum cleaner. Cleaning reduces microbial density, but may leave large numbers of microorganisms behind. However failure to remove physically obvious deposits may reduce the efficiency of subsequent sterilisation procedures. It is therefore **absolutely essential** that all objects and items are cleaned thoroughly prior to disinfection or sterilisation.

Part 2 The Practice of Infection Control

2.1 Designated Clinical Areas

The Prince Philip Dental Hospital building is multi-functional and accommodates a wide range of clinical and non-clinical activities. Universal infection control is obligatory for all staff and students within all designated clinical areas of the Hospital. Everyone must act according to the Code of Practice once they cross the boundary between a non-clinical area and a *Designated Clinical Area.*

The designated clinical areas of the Dental Hospital are shown on plans in an Appendix to this document. The plan relevant to each particular area is displayed prominently in that area. When building modifications permit, the boundaries of the areas will be prominently marked. Special attention should be given to the entry and exit points of the designated clinical areas. In some cases corridors or parts of corridors have been included within an area where that inclusion makes operation of infection control more convenient.

Cleansing procedures within the areas must be carried out by nurses, dental surgery assistants and specially trained workmen in accordance with the instructions in Part 2.2 of this Code of Practice. They should wear uniform or protective clothing as required by the Hospital.

With in the designated clinical area, clinical staff and students must equip themselves with protective clothing provided if they will be in contact with patients, sterile materials and/or instruments for treating patients as well as waste clinical material. As they leave a designated clinical area for any reason they must leave behind protective clothing, including gloves within the area, and may resume wearing them as they re-enter the area.

It is the responsibility of the dental surgery assistants and nurses to ensure that all clinical waste is placed in the correct containers and bags as the waste is generated. The containers and bags should be properly sealed, and at the end of the clinic the seals and labels should be checked. They should then be placed prominently for collection as described below.

At the end of office hours trained workmen wearing protective clothing as required by the Hospital must remove waste materials from designated areas. They will take it to the Refuse Room on the Lower Ground Floor using the procedures described in Part 2.2 of this Code of Practice from where it will be removed by authorised contractors.

Operating theatres are designated clinical areas and require task-specific procedures to be employed within them, as described in Part 3.1 of this Code of Practice. Whilst technical laboratories, and the Soft Tissue and Hard Tissue Research Laboratories as well as the Dental Illustration Unit are not designated clinical areas, special infection control procedures have to be taken within them as described in Section 3.

2.2 Sterilisation and Disinfection Procedures

2.2.1 STERILISATION OF INSTRUMENTS

Instruments, including handpieces, must be sterilised between patients to prevent cross infection. Furthermore, for surgical and endodontic procedures where sterility is essential, the instruments must be stored in a sterile state until use. Instruments only remain sterile if they are sterilised in containers impermeable to micro-organisms (e.g. sterilised bags, or metal trays with tight-fitting covers) and kept unopened and dry. Although students should learn to clean and sterilise instruments, dental surgery assistants, nurses or specially trained hospital cleansing staff, should normally carry out the work. It should always be done in working zones in designated clinical areas identified for the purpose.

Preparation of sterile instruments

After use, instruments must be treated as follows:

- Rinsed in cold water.
- Cleaned in an ultrasonic cleaner and/or hand scrubbed with brush and detergent (dishwashing type).
- Rinsed, dried and inspected.
- Packed in suitable containers (covered metal trays, paper, linen, or autoclave bags) and marked with the date.
- Sterilised in an autoclave with a drying cycle available in Oral and Maxillofacial Surgery, or in the case of endodontic kits in a hot steriliser.
- Sterilisation monitoring should be performed routinely. Mechanical, process or biological indicators should be used as described below.
- Kept sterile in unopened containers until use. The expiry date is to be printed on all packages. Maximum storage time is two weeks.

Preparation of clean instruments

Due to practical limitations, instruments for procedures other than surgery and endodontics are sterilised between patients without being packed for sterile storage, and therefore cannot be considered sterile unless used immediately.

After use, they must be treated as follows:

- Rinsed in cold water.
- Cleaned in an ultrasonic cleaner and/or hand scrubbed with a brush and detergent (dishwashing type).
- Rinsed, dried and inspected.
- Packed in perforated boxes.
- Sterilised in the 'Little Sister' autoclaves in the clinic areas, (134°C for 15-20 minutes). Where possible using a steriliser with a drying cycle.
- Dried in a hot air oven. (80°C-100°C for one hour) if a steriliser with a drying cycle was not used. The ovens must not be over-filled otherwise a longer sterilising time is required.
- Kept in the boxes in pick up areas. This is not sterile storage. The instruments may become grossly contaminated if the boxes are opened before re-use, or left in an environment with dust or aerosols.

Handpieces

All sterilisable handpieces must be cleaned and sterilised after each use according to the following procedure:

- Flushed through with water for (20-30 seconds)
- Cleaned with a liquid disinfecting agent (e.g. Lobiasept).
- Dismantled if required by the manufacturer.
- Lubricated according to the manufacturer's instructions.
- Run for a short period as required by the manufacturer.
- Packed in a paper bag.
- Sterilised in an autoclave with a drying cycle available in Oral and Maxillofacial Surgery.

Monitoring of autoclaves and dry heat sterilisers

Chemical indicators (or process indicators) should be used in each load, with indicator tape on each kit. However these only indicate that the load has been processed and do not guarantee sterilisation.

Spore tests (biological indicators), should be used once a week to check that sterilisation is being achieved.

Instruments and equipment that cannot be heat sterilised

These should be immersed in a solution of 2% glutaraldehyde or an equivalent liquid agent in containers with tight-fitting lids for 10 hours to achieve disinfection (high level disinfection). The proprietary product Cidex which contains sodium nitrate as anti-corrosive agent is used for at least 10 minutes to produce disinfection. The solution should be replaced every 14 days.

2.2.2 DISINFECTION OF DENTAL UNITS AND CLINIC AREAS

All procedures should be performed in a way that minimises the formation of droplets, spatter and aerosols, by using rubber dam, high-speed suction and proper patient positioning. Staff and students carrying out treatment procedures should not touch objects such as cabinets, drawers, patient folders, pens, or telephones unless covered by barrier plastic wrap. Personal items like spectacles or objects in pockets should never be touched. Proper planning ahead prior to gloving will minimise the necessity for touching such items in the middle of a treatment procedure.

Limiting contamination

Many objects and surfaces are likely to be contaminated during routine treatment if they are touched with gloved hands (e.g. light handles, operating buttons of chairs, three-in-one syringe handles and tubing). It is difficult to remove heavy contamination adequately and perform thorough cleaning and disinfection of dental units and other surfaces between patients. Additional protection is required to overcome this problem.

Therefore, clear plastic wrap should be used routinely to cover the following items and surfaces to prevent cross infection:

- bracket tables
- dental light handles and switches
- head-rests

- operating buttons of chairs
- three-in-one syringe handles and tubing
- aspirator tubing and saliva ejector tubing
- amalgamators
- light curing machines
- curing light shields
- drawer and cupboard handles

Cleaning and disinfection

All disinfectants are chemicals that if improperly handled, may both toxic and hazardous in other ways. Therefore great care should be taken when using disinfectants.

Although students should learn how to clean and disinfect the dental unit and clinic areas, the procedures should usually be done by dental surgery assistants or nurses.

At the beginning of each session

The dental chair, unit, bracket tables, stools and work surfaces must first be disinfected with a liquid surface disinfecting agent, e.g. Lobiasept and left to dry. Any surface residues from such agents can be removed by wiping with 70% ethyl alcohol. Equipment and surfaces in the clinic area must be covered with clear plastic wrap to limit contamination if it is likely that they may be:

Touched by the operator or the chairside assistant during treatment.

Contaminated with droplets, spatter or aerosols.

The number of surfaces covered will depend on the type of treatment planned for each patient. Coverage may vary from a minimum number of surfaces for a simple review visit (i.e. bracket tables, dental light handles and switches, and buttons on the chair if hand operated) to a maximum for restorative treatment (i.e. all the items listed earlier).

Between patients

Clear plastic wrap must be carefully removed from each surface after the completion of each patient's treatment to avoid further contamination. It should then be replaced if a further patient is to be seen. There is no need to clean the underlying surfaces between patients unless the plastic wrap is torn during the treatment of a patient.

Although there is a 'no suck back' feature on Planmeca dental chairs, as a precaution, handpieces must be run for 20-30 seconds to flush water through to remove any contaminated material which may have been aspirated into the dental unit.

Clean water is aspirated through the tubing of aspirators and saliva ejectors to remove any debris.

At the end of each session

The dental chair, unit, bracket tables, stools, all work surfaces and other areas previously covered with clear plastic wrap must be cleaned and disinfected with a liquid surface disinfectant.

Dental unit water systems

In order to remove any sediment that may have accumulated in the system overnight, each sink and dental unit must be flushed for one minute each morning prior to the start of the clinic operation.

Aspirators

Aspirator tubing (including filters) should cleaned at least once a week, and more frequently if needed, using water and an aspirator cleanser, e.g. Rotaclenz.

Catchpots should be cleaned at least once a week with water and aspirator cleanser e.g. Rotaclenz.

Filters should be cleaned at least once a month with water and a disinfectant/detergent e.g. Hibiscrub.

Mobile surgical suction units should be cleaned at the end of each session with water and disinfectant e.g. sodium hypochlorite.

Large catchpots under units must be dismantled for cleaning at least twice a year by trained staff.

X-ray equipment and films

Infection control procedures must be strictly adhered to when taking radiographs and handling film packets in order to avoid transmission of salivary pathogens by direct or indirect contact.

Contamination of X-ray equipment must be avoided by using the following methods:

Disinfection of the X-ray tube, handles, exposure button and timer with liquid surface disinfectant e.g. Lobiasept at the beginning and end of each session.

Covering those parts of the radiographic equipment with clear plastic wrap that will be handled by the operator. These covers must be changed after each patient.

Using a new pair of protective gloves or over-gloves when handling the radiographic equipment.

Using a foot control to operate the exposure switch where one has been installed.

Film holders and bite blocks must be autoclaved between patients. Film packets must be handled in such a manner to prevent cross contamination. In the X-ray room and after exposure, the films should be dropped out of the barrier packets without touching the film and the contaminated packets discarded carefully. Only clean films should be delivered to the darkroom to avoid contamination.

Clinic floors

These must be washed daily by cleaning staff using sodium hypochlorite or printol. Additional programmes for extra cleaning and scrubbing should be introduced according to need.

2.2.3 DISINFECTION OF TECHNICAL WORK

Transfer of laboratory work and impressions

Laboratory work (e.g. casts, dentures, custom trays and wax rims) and impressions, can be adequately disinfected by immersing in a solution of 0.5% sodium hypochlorite for 3 minutes. This solution must be discarded at the end of each session.

From laboratory to clinic

All laboratory work to be handled at the clinical appointment must be disinfected in sodium hypochlorite solution in the clinic before patient treatment commences.

From clinic to laboratory

Impressions and all items of laboratory work which have been in direct or indirect contact with the patient must also be disinfected in the same way before transferring to the laboratory.

Surveyors and articulators

These items cannot be disinfected. Therefore, for infection control purposes, chairside procedures involving the use of these devices should be considered as being equivalent to a laboratory procedure in respect of infection control measures. Thus the laboratory work involved must be disinfected and gloves of the operator must be changed both before and after the chairside procedure.

Hydrocolloid, plaster and polyether impressions

- Rinse the impression under running water (avoid splashing) and shake off surface water.
- Dip the impression in sodium hypochlorite solution. (The impression and tray must be totally immersed in the solution but should be removed within 1-2 seconds).
- Rinse under running water and shake off surface water.
- Dip again in sodium hypochlorite solution.
- Cover the impression with gauze dampened with the sodium hypochlorite solution and leave for 10 minutes.
- Rinse well under running water and shake off surface water.
- Hydrocolloid impressions should be covered with gauze dampened with water and placed in a polythene bag.
- Attach a label indicating that the impression has been disinfected before despatch to the laboratory.

All other impressions and items of laboratory work

- Rinse under running water and shake off surface water.
- Immerse in sodium hypochlorite solution for 3 minutes.

- Rinse well again under running water.

- Attach a label indicating that the impression/appliance has been disinfected before despatch to the laboratory.

2.3 Personal Protection

2.3.1 VACCINATIONS

All oral health care workers should have received vaccinations recommended for the general population of Hong Kong, including vaccination against tuberculosis and, for young women, rubella.

In addition all clinical personnel, students and technicians must be vaccinated against Hepatitis B. Blood tests and vaccinations for Hepatitis B can be carried out by arrangement with the University Health Service (in the case of University staff and students) or the Hospital Administrator (in the case of Dental Hospital staff and students). After the vaccination course has been completed antibody levels must be measured to ascertain that an adequate titre has been achieved. This information must be recorded and kept on file for future reference. If there are inadequate antibody levels following vaccination, re-vaccination is required.

2.3.2 HYGIENE IN CLINICAL AREAS

Personal Hygiene

Hair should be short or tied back. Beards must be well trimmed. Fingernails must be short and free from nail polish. Cuts and abrasions on hands or arms must be covered with clean waterproof adhesive dressings or rubber fingerstalls. Rings, bracelets and watches must be removed before preparing to treat patients. Briefcases, handbags and other personal items that cannot be left outside the clinical area must not be placed on clinical work surfaces.

Clinic Attire

Approved clinic attire must be worn when examining and treating patients where physical contact is involved. Those assisting in or observing such procedures must also wear such protective clothing. Disposable gowns are provided for the purpose and together with gloves, should cover all skin surfaces and clothing to protect against blood and saliva. Clean long-sleeved white coats, or uniform in the case of students and dental surgery assistants, may be worn when a consultation not involving patient contact takes place. In cold weather, extra clothes, if worn, must be under the coat or uniform and not over them.

Protective gowns and gloves should be removed at the end of treatment before crossing the boundary of the designated clinical area, and must not be worn elsewhere in the building. Also they must be changed as soon as possible if contamination or staining occurs during treatment. White coats, uniforms and other non-disposable clinic attire can be adequately disinfected using a normal washing cycle at high temperature (at least 60°C).

Masks

Surgical masks should be worn when examining and treating patients and when assisting in or observing such procedures. Masks protect the patient from micro-organisms from the operator's mouth and nose, and the operator from aerosols, spatter and particles from the patient's mouth. Masks must be removed before leaving the designated clinical area and be disposed of correctly

Head Caps

Disposable paper head caps must be used when performing surgical procedures in the clinic. They should cover the hair of the operator and assistant observers to prevent contamination of the surgical field.

Protective Eyewear

Clinicians and assistants must wear spectacles (preferably with large frames) or special protective eyewear to avoid getting saliva, blood, drill debris, pumice, or particles of calculus, amalgam etc. into the eyes. Similarly the eyes of supine patients must always be protected with spectacles to prevent instruments, materials debris or fluids from falling onto them.

Disposable face shields may be used to protect eyes, as well as the exposed skin surface of the operator, especially during procedures that produce heavy spatter, such as scaling and prophylaxis using a Prophy-jet.

2.3.3 HANDWASHING

Handwashing can be categorised into clinical handwashing and surgical handwashing. Both procedures are hand disinfection techniques.

Clinical handwashing

Clinical handwashing is intended to eliminate pathogenic micro-organisms contaminating the hands and possibly reduce the resident microflora. The aim is to prevent cross infection by direct and indirect contact. All personnel must develop a good hand washing technique, as shown in Figure 3.

Method for clinical handwashing

- Remove watches, rings, bracelets.
- Scrub the nails with a clean nailbrush.
- Wash hands and wrists with cool water using a liquid antiseptic hand cleaner e.g. Hibiscrub, from a hygienic dispenser.
- Wash hands and wrists for one minute, (see Figure 3), so that all areas of the hand are consistently cleaned.
- Do not touch the water tap or soap dispenser with the hands - use an elbow.
- Use a disposable towel and dry hands and wrists thoroughly.

Surgical handwashing

Surgical handwashing is used before surgical procedures. The aim here is to eliminate the contaminating micro-organisms as well as to reduce the resident microflora (e.g. staphylococci) and thereby prevent wound infection.

Method for surgical handwashing

- Remove watches, rings and bracelets.

- Wash hands and arms with cool water using a liquid antiseptic hand cleaner (e.g. Hibiscrub) from a hygienic dispenser.
- Wash hands (see Figure 3) and arms to just below the elbows for one minute.
- Scrub the nails with a sterile nailbrush for one minute.
- Rinse and wash hands and arms again for one minute.
- Dry hands and arms thoroughly with a sterile towel.

The six movements required for a satisfactory handwash.

1. The palms
2. The webs between fingers
3. The webs again with altered grip
4. Palms knuckles of opposing hands
5. Thumbs clasped opposing palm
6. Tips of fingers against palms opposing hand
7. (4,5,6 repeated for each hand in turn).
8. Continue washing hands and wrists for one minute

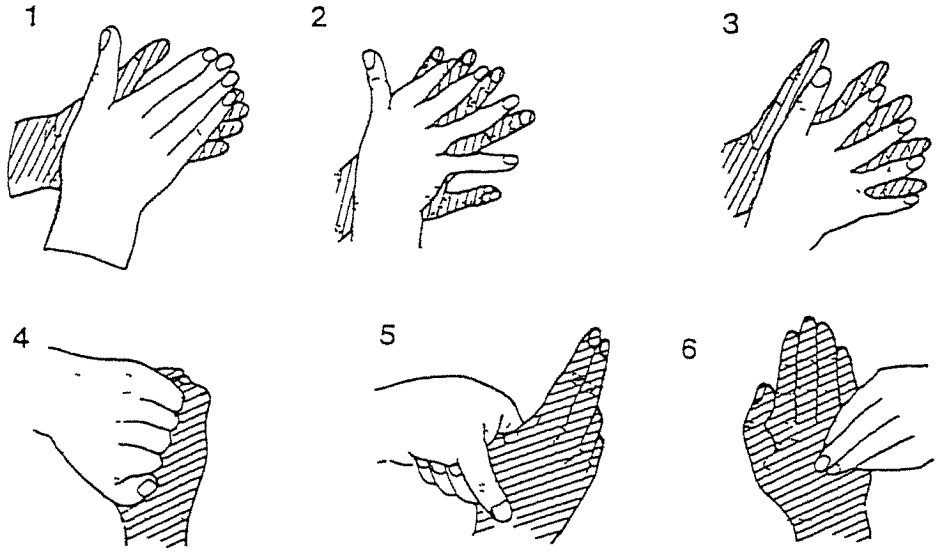

Figure 3 A suggested handwashing technique. (From Samaranayake, Scheutz & Cottone, *Infect Control for the Dental Team, 1991,* Copenhagen Munksgaard, with permission)

2.3.4 GLOVES

Gloves are intended to protect patients against micro-organisms which may be present on the hands of health care workers, and to protect personnel against micro-organisms from oral mucosae, saliva and blood of patients.

All staff and students performing or assisting in the examination or treatment of patients involving contact must wear gloves. Similarly, gloves must be worn when handling contaminated instruments, impressions and samples, and cleaning and disinfecting areas contaminated with blood or saliva.

Note: Any obvious cuts or abrasions on the hands must be covered with a waterproof adhesive dressing prior to wearing any kind of glove.

There are four types of gloves used in dentistry:

1. Surgical (sterile) gloves

2. Protective (non-sterile) gloves

3. Over-gloves (non-sterile)

4. Heavy-duty gloves (non-sterile)

Surgical gloves

These must be worn for any invasive procedures entailing a breach of the oral mucosa. A new pair should be used for each patient. First, surgical handwashing is performed and then the gloves are put on in a manner so as to avoid contaminating the outer surface. The gloves must not come into contact with any non-sterile objects before or during the operation. If a glove is torn or punctured it must be replaced immediately. After the operation, remove gloves and perform clinical handwashing.

Protective gloves

These must be worn for all other procedures that involve contact with oral mucosae, saliva or blood but do not result in a breach of the mucosa. A new pair of gloves should be worn for each patient. Perform clinical handwashing before the gloves are put on and after removing them.

To limit contamination, gloves must not contact equipment or objects outside the immediate working area. Obviously, if a glove is damaged it must be replaced immediately. Remove gloves when leaving designated clinical areas, laboratories or other special areas. Gloves must not be worn in lifts or other public areas.

Over-gloves

These thin plastic gloves may be worn for a short period over protective gloves to prevent contaminating objects or surfaces which are outside the immediate clinical area and when they have served their purpose should be disposed of immediately.

Heavy-duty gloves

These thick rubber gloves must be worn when cleaning and scrubbing instruments, washing and cleaning the floor areas, and during removal of contaminated, spilled material.

2.4 Patient Evaluation

A thorough medical history should be obtained from each patient at the first visit, and this must be updated and reviewed regularly. It should be clearly recorded if any patient has a known serious infection (e.g Hepatitis B, HIV infection, AIDS) or is a haemophiliac (who may have become infected through blood products). The clinician-in-charge may require that some of these patients are treated in a particular part of the designated clinical area so that matters like disclosure of sensitive clinical information can be attended to in a confidential manner.

However as noted previously, it is important to realise that not all the infectious diseases of patients will be identified through medical histories. Therefore, all patients must be treated as if they are potentially infectious and appropriate infection control procedures must be used at every visit.

Staff and students who are carriers of Hepatitis B may perform clinical duties in the normal manner provided universal precautions are followed.

2.5 Control of Infection After Accident Injury

2.5.1 CONTAMINATED SHARPS OR NEEDLESTICK INJURIES

If an injury occurs due to a contaminated needlestick or sharp instrument, the wound must be dealt with immediately to limit infection.

Wound Management

- Wash the wound thoroughly using running water and an antiseptic agent e.g. Hibiscrub. Express blood from the wound.
- Dress the wound with a sterile adhesive dressing.
- Identify the cause of the injury and dispose the instrument correctly.
- Report the injury to the clinician-in-charge of the clinic.

Further Management

The injured person should discuss the need for further action as soon as possible with the clinician-in-charge of the clinic, to minimise the risk of Hepatitis B or HIV infection. It should be remembered however, the risk of contracting these diseases in a dental environment is extremely low. As far as is known there have been no instances recorded world wide of any dental personnel contracting HIV infection through contaminated needlesticks or other injuries.

Hepatitis B

The antibody response of the injured person to his or her earlier Hepatitis B vaccination will be reviewed immediately, together with the patient's HBV status. Where there has been a normal antibody response with an antibody level greater than 10 mIU/ml, no further action is necessary (See Chart 1, Appendix V).

HIV infection

The patient's medical history will be assessed to determine if there are risk factors for HIV infection. No further action is required where there are no risk factors. If the patient is known to be HIV positive or there are factors present that indicate an increased chance of the patient being a symptomless carrier, then further measures are needed immediately. These are summarised in Chart 2, Appendix V.

2.5.2 EYE INJURIES

If splashes or foreign bodies get into the eyes: rinse immediately with sterile irrigating solution using an eye bath.

2.5.3 REPORTING OF INJURIES

All incidents occurring in the hospital in which a member of staff or a student sustains an injury must be reported so that details can be recorded.

CODE OF PRACTICE
PROCEDURE FOR UNIVERSAL INFECTION CONTROL
Version 2.17

Addendum 1

Part 2.6, Page 18 should be replaced with the following:

2.6 Waste Disposal

2.6.1 HANDLING OF WASTE

Careful attention must be paid to the safe disposal of waste, as this is potentially infectious material. Staff handling waste must wear gloves.

Needles and other sharp objects including broken glass etc. must be discarded into puncture-proof containers. The containers must then be securely sealed.

Under universal infection control procedures all solid waste from clinics and laboratories should be treated as infected and disposed of in impervious plastic bags safely closed.

Liquid waste should be carefully poured directly into sink drains avoiding spatter, and flushed with water.

At the end of clinics it is the responsibility of dental surgery assistants, nurses or radiographers to ensure that all waste is in containers, or bags that can be either inside or outside cabinetry.

Dental surgery assistants, nurses or radiographers should seal containers and also, all bags that are not within cabinetry using non-reversible cable ties.

Throughout clinical sessions it is the responsibility of dental surgery assistants, nurses or radiographers to ensure that bags within cabinetry are not over-filled, and that they can be easily removed at the time of collection by cleansing staff.

2.6.2 COLLECTION OF WASTE

Cleansing staff must pay careful attention to the safe disposal of waste, as this is potentially infectious. They must wear gloves and required protective clothing.

They are responsible for removing unsealed bags from cabinetry, a few at a time, and transferring them by the shortest practicable route into larger disposal bags that they must seal as soon as possible using non-reversible cable ties.

The cleansing staff should take those sealed bags and other bags and containers sealed by dental surgery assistants and nurses to the refuse room on the Lower Ground Floor level.

Puncture-proof containers and bags containing blood-contaminated material and other potentially pathological waste will be picked up from the refuse room by authorised contractors.

University staff and students should use the University of Hong Kong "Accident Report" form, and send a copy to the Hospital Administrator.

Hospital staff and trainees should complete the Prince Philip Dental Hospital "Report on Injury on Duty" form and return it to the Hospital Administrator. In the case of dental surgery assistants and dental surgery assistant trainees, an extra copy should be sent to the Tutor in Dental Surgery Assisting.

2.6 Waste Disposal

2.6.1 HANDLING OF WASTE

Careful attention must be paid to the safe disposal of waste, as this is potentially infectious material. Staff handling waste must wear gloves.

Needles and other sharp objects including broken glass etc. must be discarded into puncture-proof containers. The containers must then be securely sealed.

Any material contaminated with blood and all pathological waste, such as teeth and oral tissue, should be separated and placed in impervious plastic bags.

All other solid waste from clinics and laboratories should be disposed of in thick garbage bags safely closed.

Liquid waste should be carefully poured into drain, avoiding spatter, and flushed with water.

At the end of clinics it is the responsibility of dental surgery assistants and nurses to ensure that all waste is in containers and bags and that they are properly sealed and available for collection.

2.6.2 COLLECTION OF WASTE

Cleansing staff must pay careful attention to the safe disposal of waste, as this is potentially infectious. They must wear gloves and required protective clothing.

The cleansing staff should take all waste to the refuse room on the Lower Ground Floor level.

Puncture-proof containers and bags containing blood-contaminated material and other potentially pathological waste will be picked up from the refuse room by authorised contractors.

Section 3. Situational Practice of Infection Control

3.1 Procedures for the Operating Theatres within the Dental Hospital

Personnel working in the operating theatre must follow a strict protocol to ensure asepsis that includes the following additional measures:

Pre-operative preparation

Before entering the theatre all personnel must change into clean theatre clothes. Boots, theatre shoes or plastic shoe covers must be worn, and hair must be covered with a paper cap. Masks must be worn at all times.

The surgical team must perform surgical handwashing before putting on sterile surgical gowns and gloves.

During the operation

The scrubbed nurse must lay out sterile instruments on the sterile surface of a trolley. Sterile equipment, drapes and sterile materials, such as gauze swabs and suturing materials, should be added to the trolley. Any equipment used within the operative area must be covered to ensure sterility e.g. non-sterilisable handpiece cable should be protected with a sterile paper sleeve.

Non-scrubbed personnel in the theatre must take care not to contaminate the operative field by accidentally touching a sterile item.

At the end of the session

Any equipment used in the theatre, all work surfaces and the theatre floor must be disinfected at the end each operating session.

3.2 Procedures for Technical Laboratories

Dental laboratories must routinely practice infection control procedures to prevent transmission of infectious agents from the clinic or the laboratory, via impressions, models, work-in-progress and completed work. Hence the basic rules for clinical hygiene must also be observed in the laboratory.

Impressions and all laboratory work transferred between the clinic and the laboratory is disinfected in a solution of sodium hypochlorite before leaving the clinic. These items can therefore be handled normally in the laboratory.

Hygiene measures in the laboratory

Laboratory staff should be aware of the various measures that must be taken for their own protection.

General procedures

These have been fully described earlier in Section 2 of this booklet. Staff working in technical laboratories must closely follow these recommendations:

Vaccinations

Protective clothes (laboratory coats and disposable aprons)

Face masks

Protective eyewear

Hand disinfection

Specific procedures

Further measures specific to the dental laboratory must be taken in order to prevent cross infection:

Surface disinfection of table tops, work surfaces and exposed equipment.

Disinfection of ragwheels and brushes.

Use of shields and suction when using grinding and polishing equipment.

Dispense pumice in small amounts in disposable containers for individual cases.

Dispose of laboratory waste safely.

Eating, drinking or smoking is not permitted in working areas.

3.3 Procedures for Clinical Laboratories

3.3.1 LABORATORIES INVOLVED WITH THE CODE OF PRACTICE

The laboratories involved in this Code of Practice fall into two groups. Firstly there are the Pathology, Microbiology and Clinical Chemistry Laboratories which provide clinical reports on specimens to the staff of the Prince Philip Dental Hospital. These laboratories are located at Queen Mary Hospital. Secondly there are the Soft and Hard Tissue Research Laboratories within the Prince Philip Dental Hospital. Clinical specimens are processed there for purposes of research.

The procedures below apply to all specimens intended for processing in laboratories at either location. However the laboratories at Queen Mary Hospital may change their transporation requirements from time to time, so those preparing specimen for dispatch to that Hospital should be fully conversant with those requirements.

There is also guidance in this section for conduct required in the Soft and Hard Tissue Research Laboratories within the Prince Philip Dental Hospital.

3.3.2 CLINICAL SPECIMEN COLLECTION AND TRANSPORTATION

All specimens sent to the Clinical Laboratories must be regarded as potentially infectious and staff taking such specimens from clinics to laboratories such exercise caution in respect of themselves and others.

Specimen containers

Appropriate leak-proof containers or bags must be used for specimens. Never send aspirates for histopathology in syringes. (However, microbiology aspirates should be sent in recapped syringes as described below.)

Transfer of specimen to container

Avoid contaminating the outside of the container and that part of the inside that will later be in contact with the cap.

Specimens must be kept separate from the request form and kept upright during transportation to the Clinical Laboratory. Contaminated request forms are a health hazard, and will not be processed.

Histopathology specimens

Routine specimens

For ordinary purposes the specimen should be fixed immediately with an adequate amount of 10% buffered formalin. The amount should be approximately 10 to 20 times the volume of specimen. Never overfill a container.

Large specimens

Use wide-mouthed containers for larger specimen. Large specimens must be placed in polythene bags of double thickness.

Cytology specimens

Fluid specimens

An equal volume of 50% ethyl alcohol should be added to the fluid specimen immediately a collection. The fixed specimen should be kept in refrigerator at 4°C when there will be a delay transportation to the laboratory.

Cytology smears

Direct smears should be labelled with the name the patient on each slide, and fixed immediately 95% ethyl alcohol.

Unfixed specimens

Immunofluorescence study

Fresh, unfixed tissue is required for enzyme histochemical, immunofluorescence or EM studies. In such cases the specimen should be sent immediate to the clinical laboratory. Prior arrangement be necessary in these cases. Requests immunofluorescence study service will only accepted after prior arrangement by 5:00 p.m. on day before the test. Fresh specimens for this purpose are best placed on gauze moistened with normal saline for transportation, and should not be wrapped in dry gauze or immersed in normal saline.

Frozen sections

Frozen sections should not be used as a fast alternative to paraffin sections for routine surgical specimens. Frozen sections should not normally be requested for specimens with any known infective agent such as known cases of tuberculosis, HBV or HIV infection. This will contaminate the frozen section laboratory equipment and expose the staff to an unnecessary health hazard.

"High Infectious Risk" Specimens

Bottles containing high risk specimens must be placed in a sealed plastic bag. The bottle, plastic bag and request form must be labelled "HIGH RISK SPECIMEN". The request form must be placed separately inside a second plastic bag and clipped (not stapled) to the bag containing the specimen.

Labelling

A properly completed request form providing the required patient data must accompany all specimens. Each specimen must be correctly and legibly labelled. A request will not be accepted if there is a major discrepancy in labelling between the form and the sample.

All clinical specimens sent to the Soft and Hard Tissue Research Laboratories must be regarded as potentially infectious.

Procedures described for the tissue specimens in the foregoing Part also apply to the collection and transport of microbiology specimens. One exception however is the aspirated sample pus, which should be sent to the laboratory in the re-capped syringe itself. However, great care should be taken when re-capping the needle to prevent injury.

3.3.3. BIOSAFETY PROCEDURES IN SOFT AND HARD TISSUE LABORATORIES

Tissues, body fluids and secretions are capable transmitting infection depending on the nature of the agents. Detailed bio-safety instructions are displayed in the laboratories, and must be observed by persons using the laboratories, at all times.

The staff-in-charge of the laboratories have the responsibility for assessing each circumstance and determining who may enter or work in the laboratory. Other personnel may only use laboratory equipment when there is a trained technician in attendance.

3.4 Procedures for Clinical Photography in Dental Illustration

A dental surgery assistant or student who is responsible for cleaning and disinfecting and for holding mirrors and cheek retractors must accompany the patient. The photographer should not place these items in the mouth or touch any objects contaminated with saliva or blood.

Handwashing and gloves

The assistant should perform clinical handwashing before and after photography. Protective gloves should be worn throughout the procedure.

Photographic mirrors

All mirrors must be autoclaved, using one of the autoclaves in Reception and Primary Care or Oral Radiology.

Cheek retractors

Autoclavable retractors must be sterilised in an autoclave as above.

Non-autoclavable plastic retractors must be rinsed in running water after use. They must then be disinfected with an immersion disinfectant held in a container with a tight-fitting lid. These retractors must be immersed for 20 minutes to achieve high level disinfection. Before use they are rinsed with water.

References and Further Reading

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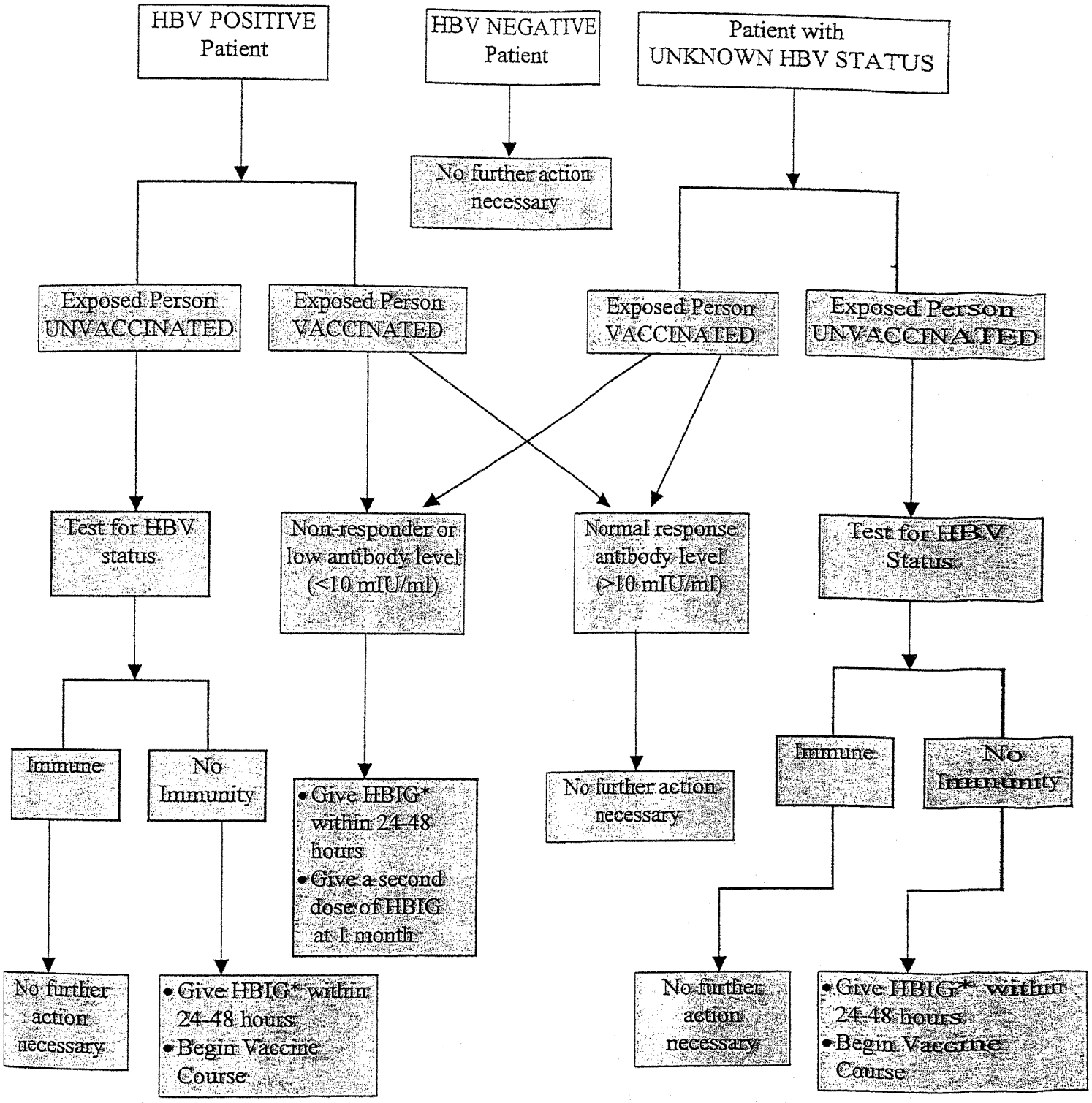
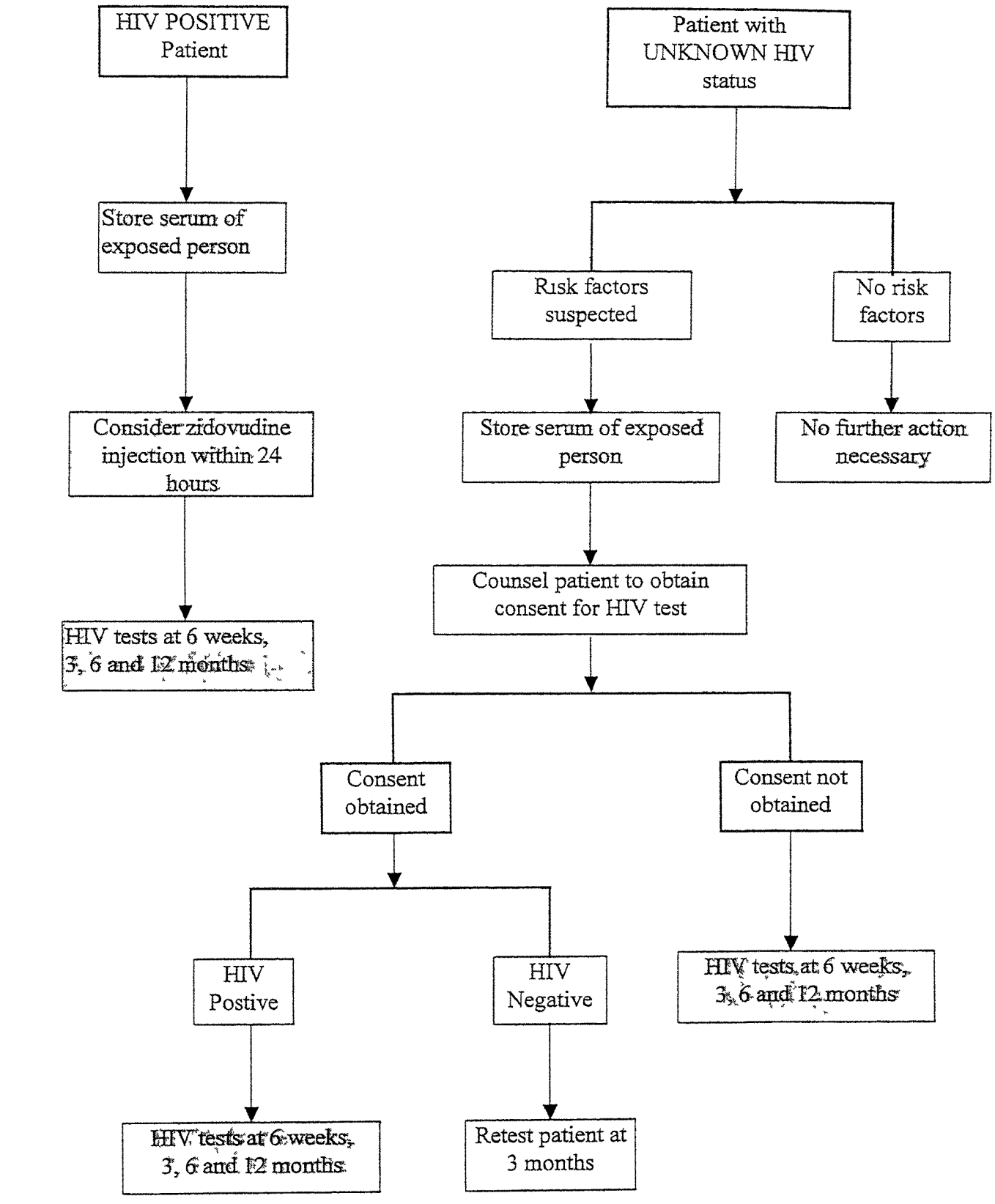
Chart 1: Hepatitis B Virus (HBV) Exposure Management



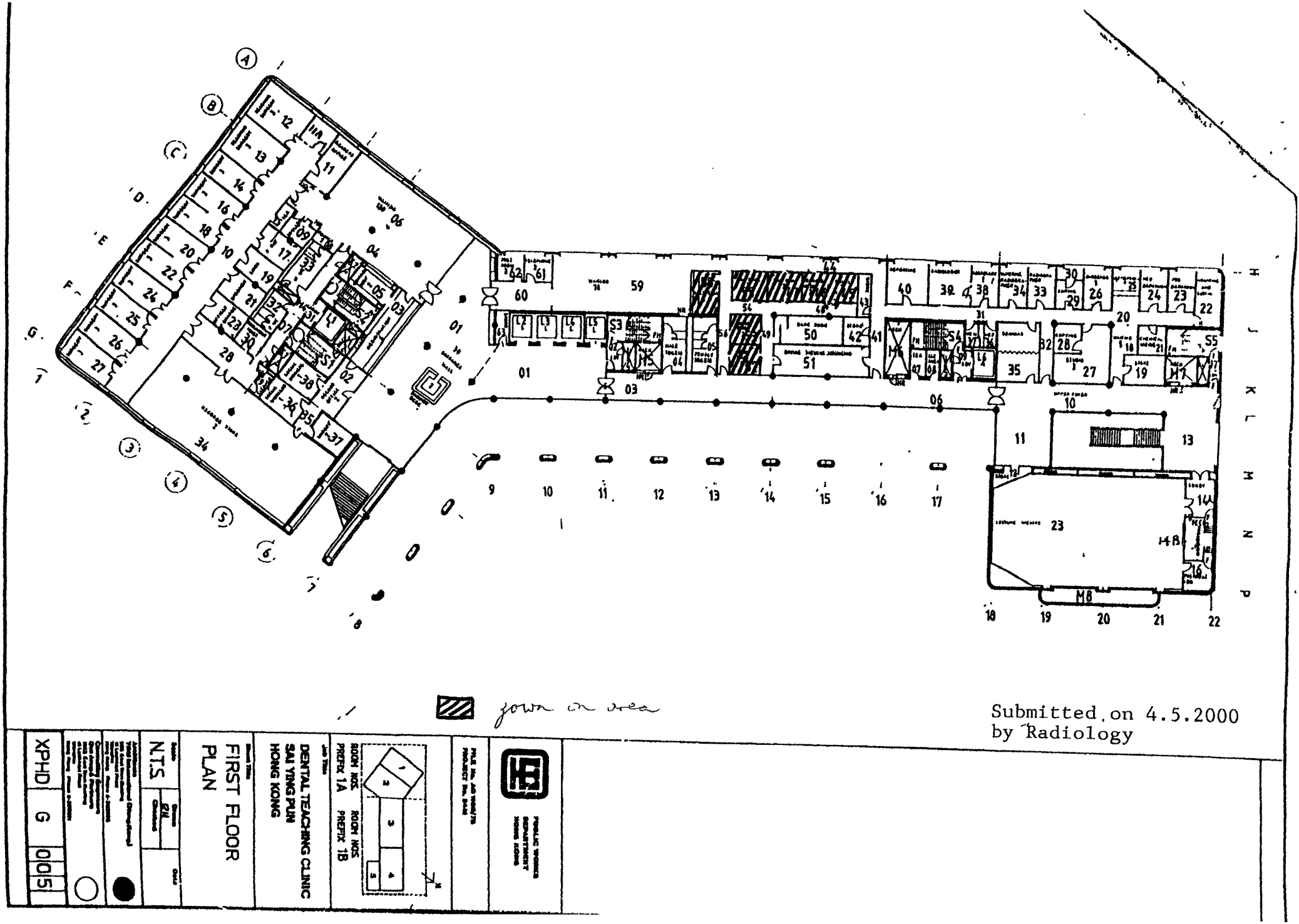
Patient Staff/student

* HBIG, Hepatitis B immunoglobulin

Chart 2 : Human Immunodeficiency Virus (HIV) Exposure Management



☐ Patient ☐ Staff/student



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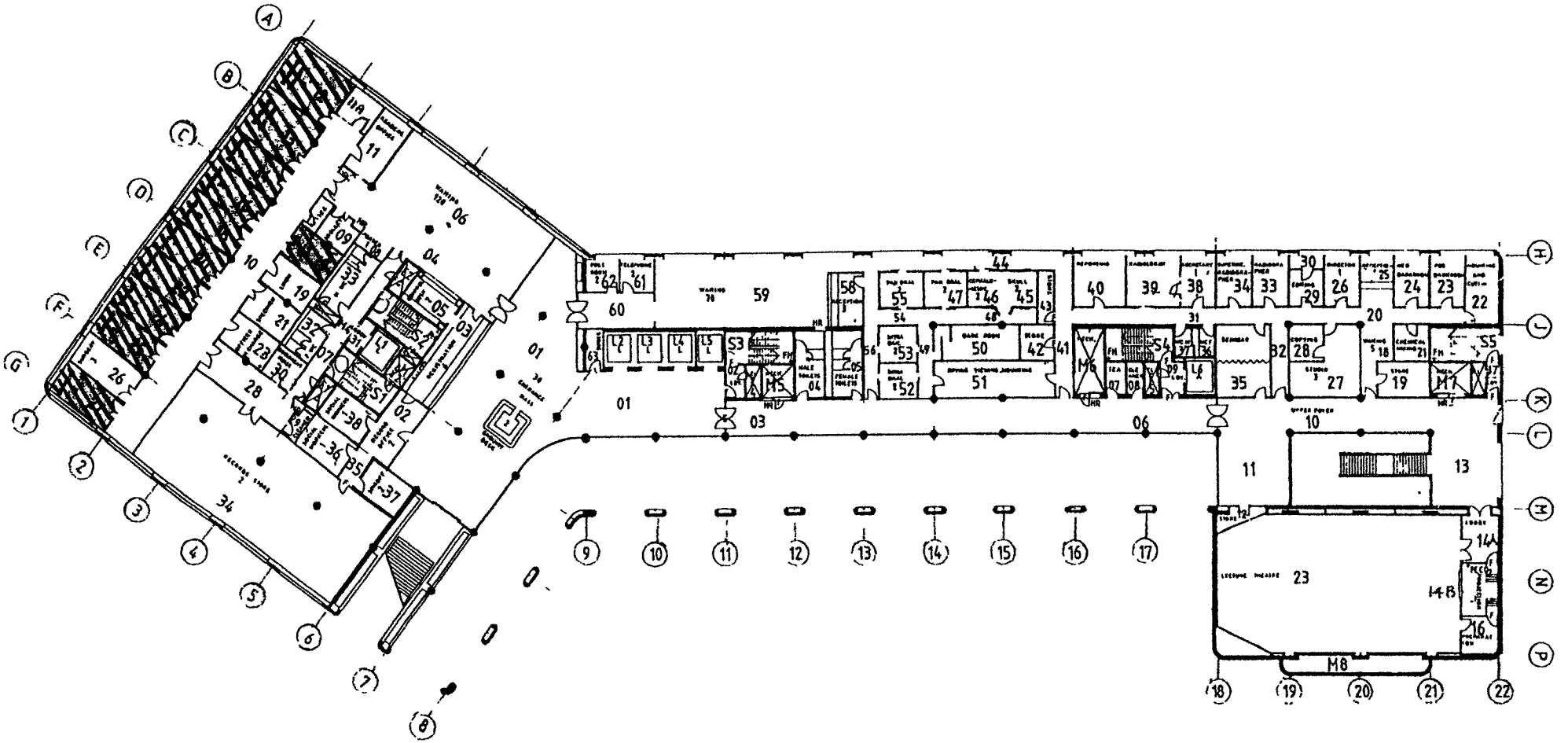


Submitted on 3.5.2000
by R&PC

PUBLIC WORKS DEPARTMENT HONG KONG

FILE No. AD 1104/75
PROJECT No. 8441

ROOM NOS PREFIX 1A
ROOM NOS PREFIX 1B

DENTAL TEACHING CLINIC
SAI YING PUN
HONG KONG

FIRST FLOOR PLAN

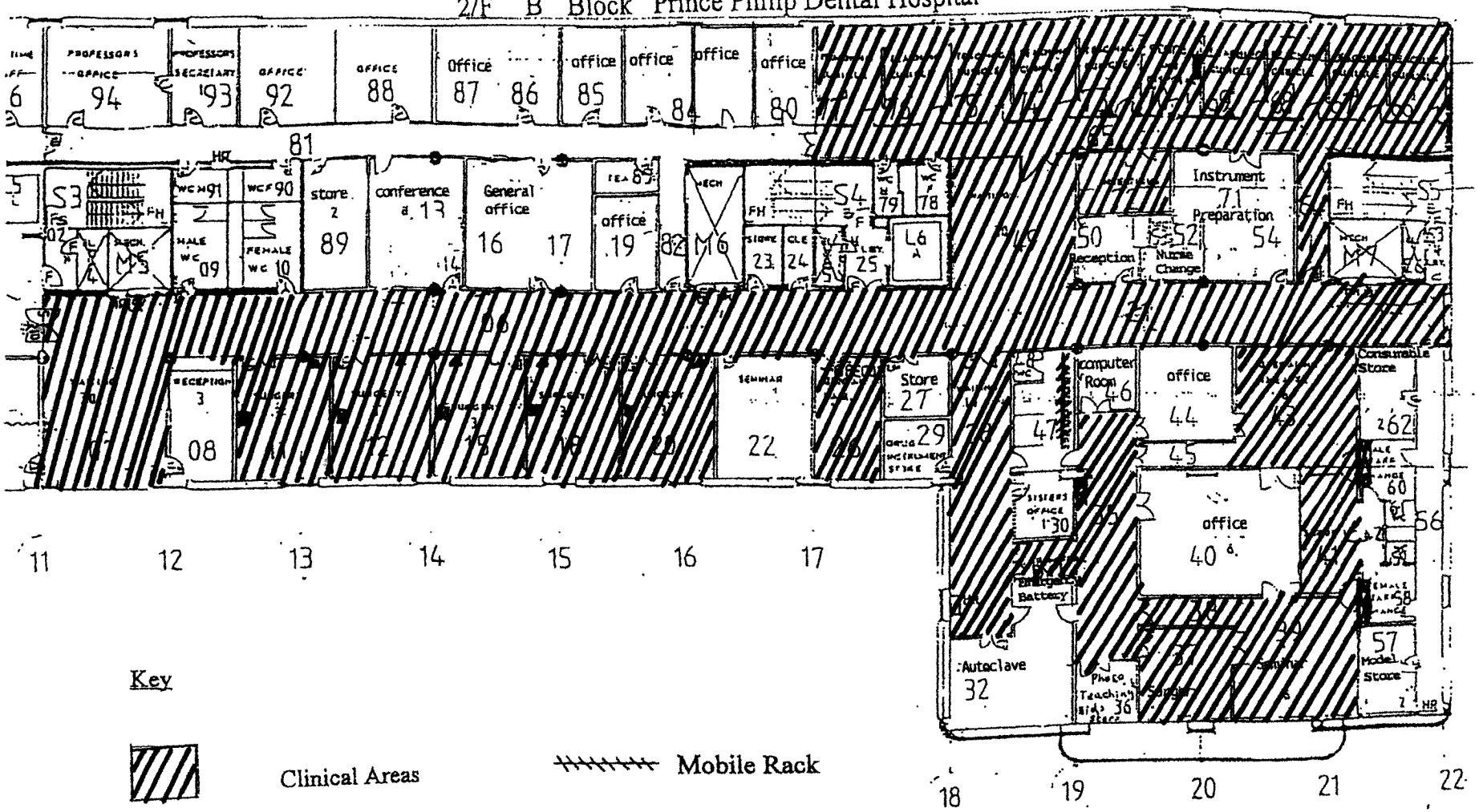
Scale: N.T.S.
Drawn: RL
Checked:
Date:

XPHD G 0015

Oral and Maxillofacial Surgery

Floor Plan

2/F 'B' Block Prince Philip Dental Hospital



Key

Clinical Areas

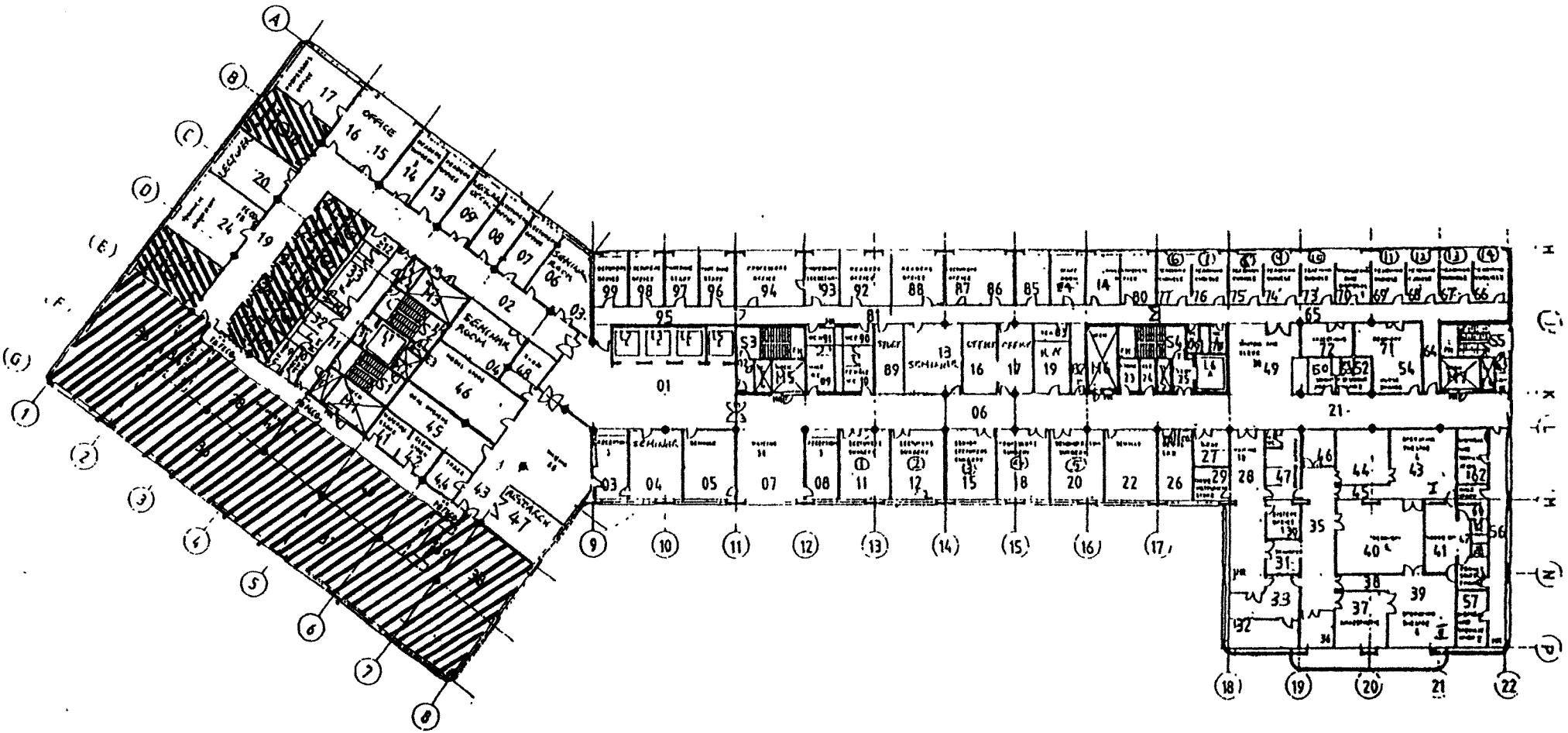
Mobile Rack

Locker

Hanger

Garbage bin

Submitted on 9.2.1999
by OMFS



gown on area

Submitted on 10.5.2000
by PDO

XPHD | G | 0006

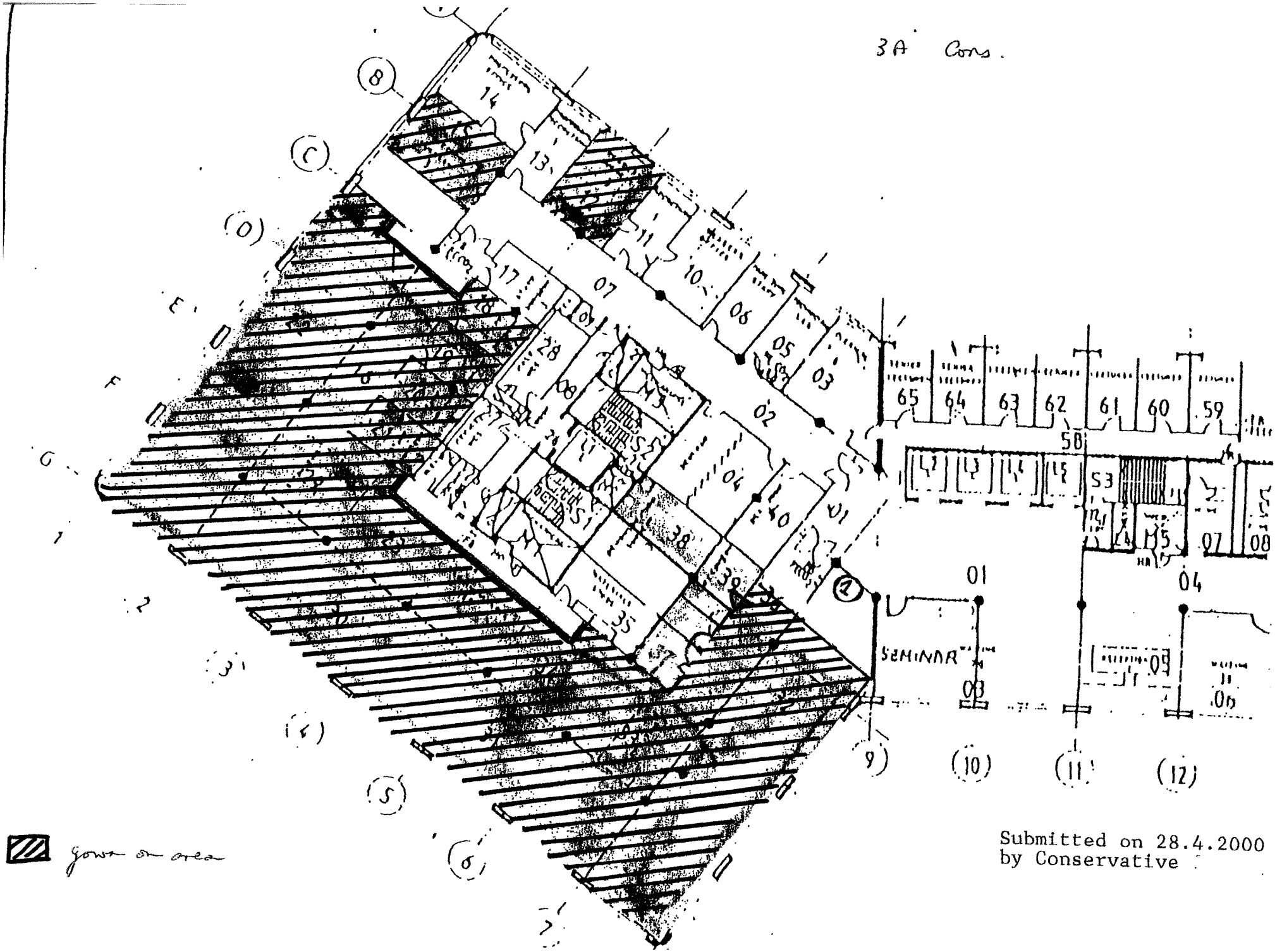
N.T.S.

SECOND FLOOR PLAN

DENTAL TEACHING CLINIC
SAI YING PUN
HONG KONG

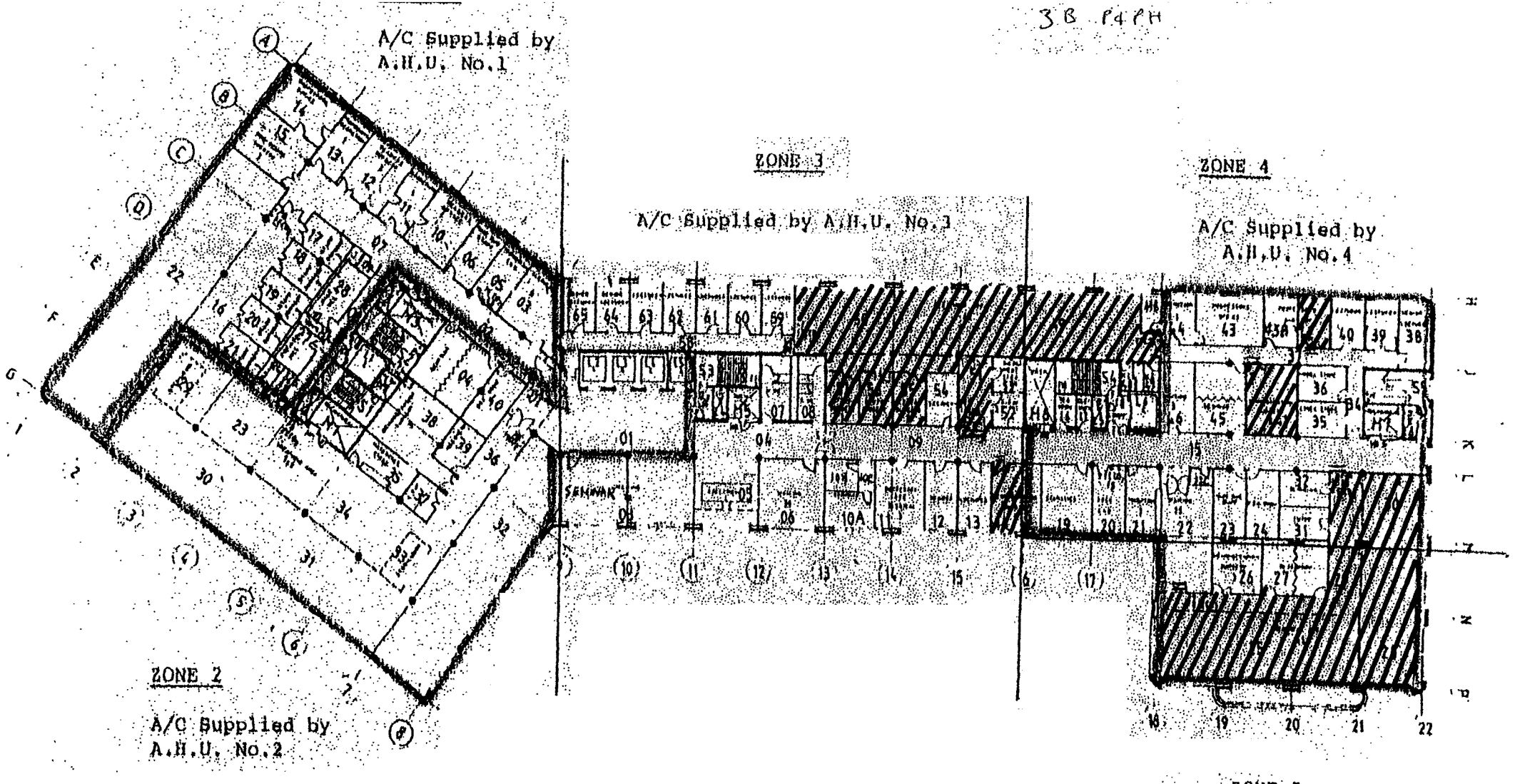
ROOM NOS PREFIX 2A
ROOM NOS PREFIX 2B

PUBLIC WORKS DEPARTMENT HONG KONG



Submitted on 28.4.2000
by Conservative

3B P&PH



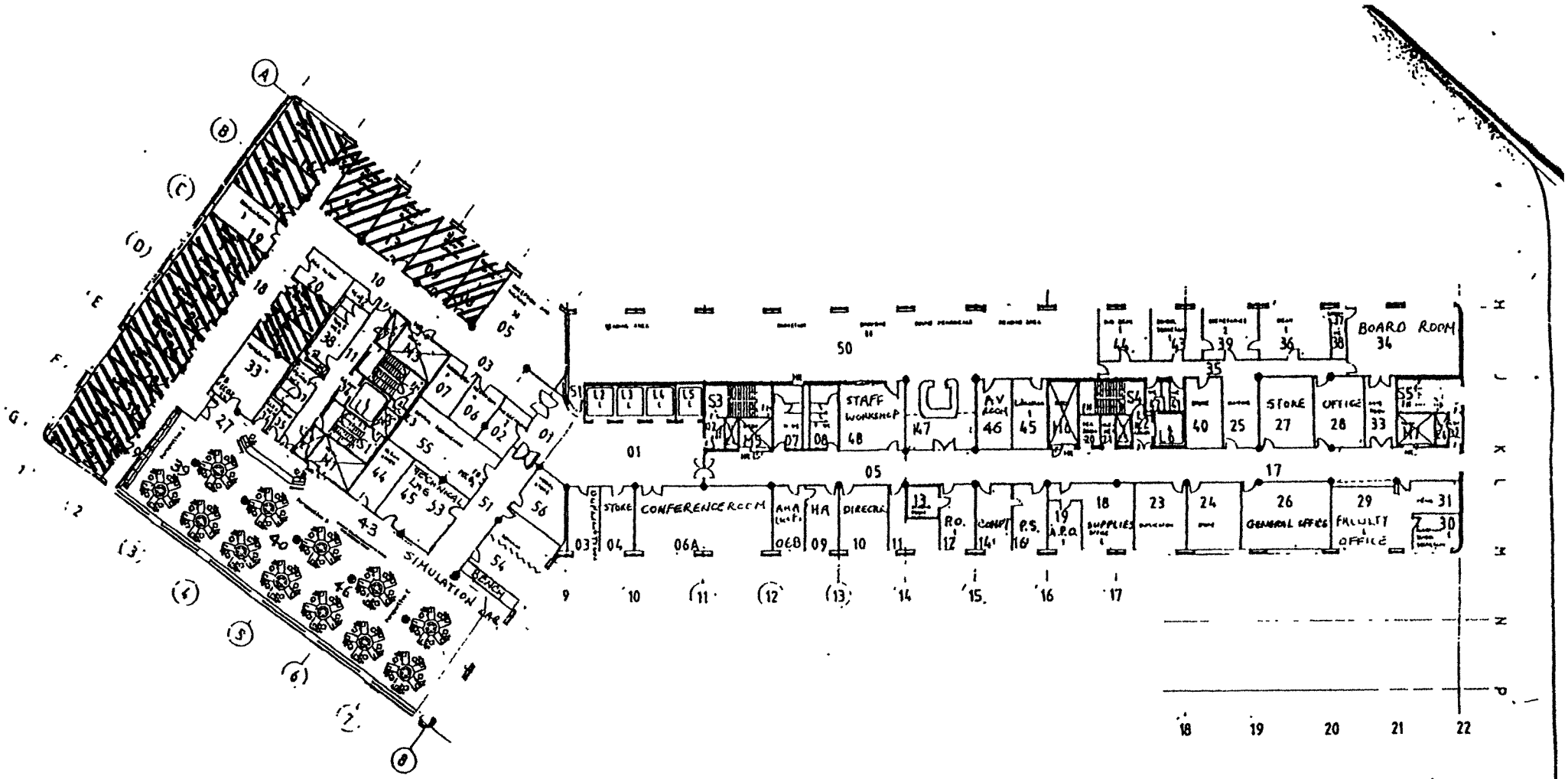
Submitted on 27.4.2000
by P&PH

DENTAL TEACHING CLINIC
SAI YING PUN
HONG KONG

THIRD FLOOR
PLAN

XPHD G 0107

Where ground may be worn.



zone in area

Submitted on 4.5.2000
by FPC

XPHD G 010

N.T.S.

SIXTH FLOOR PLAN

DENTAL TEACHING CLINIC
SAI YING PUN
HONG KONG

ROOM NOS. PREFIX 6A
ROOM NOS. PREFIX 6B

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