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Guidelines on Basic Training and Safety in Acupuncture

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Consultation on Acupuncture at Cervia, Italy, 1996

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Introduction

Acupuncture is an important element of traditional Chinese medicine. It began to be used more than 2500 years ago, and its theory was already well developed at a very early time, as is shown in many of the Chinese classics. It was introduced to neighbouring countries in Asia in the 6th Century, being readily accepted, and by the early 16th Century it had reached Europe. Over the past two decades acupuncture has spread worldwide, which has encouraged the further development of this therapy, particularly through studies from modern medical perspectives and research methodologies.

Many elements of traditional medicine are beneficial, and WHO encourages and supports countries to identify safe and effective remedies and practices for use in public and private health services. It has paid particular attention to supporting research in and the proper application of acupuncture and, in 1991, the Forty-fourth World Health Assembly urged Member States to introduce measures for its regulation and control (Resolution WHA44.34).

With the increasing use of acupuncture, the need for a common language to facilitate communication in teaching, research, clinical practice and exchange of information had become pressing and, in 1989, WHO convened a Scientific Group which approved a Standard International Acupuncture Nomenclature which is being widely disseminated and applied.

The Scientific Group also recommended that the Organization develop a series of statements and guidelines on acupuncture relating to basic training, safety in clinical practice, indications and contraindications, and clinical research. Guidelines for clinical research on acupuncture were issued by the WHO Regional Office for the Western Pacific in 1995.

The present document consists of guidelines on basic training and safety in acupuncture. More than 50 international experts shared their knowledge and experience in their preparation.

Basic training in acupuncture

The guidelines cover basic requirements for training non-physician acupuncturists and physicians wishing to use acupuncture in their clinical work, and include a core syllabus. They are intended to assist national health authorities in setting standards and establishing official examinations, and also medical schools and institutions wishing to arrange training programmes.

Safety in acupuncture

These guidelines are meant for hospitals, clinics and practitioners, and provide standards for safety in the clinical practice of acupuncture. Their purpose is to minimize the risk of infection and accidents, to alert acupuncturists to contraindications, and to advise on the management of complications occurring during treatment.

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Section I:

Basic training in acupuncture

The increasing popularity in recent years of acupuncture as a form of therapy and the interest of some countries in introducing it into primary health care mean that national health authorities must ensure safety and competence in its use.

In countries with a formal system of education in traditional medicine, and where acupuncture is firmly established as a normal component of health care, training may extend over several years at college level, and suitable mechanisms for supervision of its practitioners have been created.

However, for other countries, where "modern Western medicine" forms the only basis of the national health system, the position is different and there may be no educational, professional or legislative framework to govern the practice of acupuncture.

Making use of acupuncture in modern medical care means taking it out of its traditional context and applying it as a therapeutic technique for a limited number of conditions for which it has been shown to be effective, without having to reconcile the underlying theories of modern and traditional medicine.

In this type of situation, lengthy periods of instruction in traditional medicine as a background to acupuncture are neither feasible nor necessary, and shorter training must suffice.

Furthermore, in many countries, acupuncture is not yet officially recognized and regulations and registration requirements, where they exist, vary considerably. In some, only qualified physicians may practice acupuncture, while in others, practitioners trained in traditional medicine may also do so.

It seems useful, therefore, to provide guidelines for relatively short periods of theoretical and practical training in acupuncture which, with well designed curricula and skilled instructors, would be sufficient to ensure the safety and competence of those so trained.

In recent decades, the theoretical and practical aspects of acupuncture have been developed in various countries, particularly in those where modern Western medical perspectives and research methodologies have been applied to studies of this traditional therapy. The achievements of these studies should be included in the training. However, since a new theoretical system has not yet been established, traditional Chinese medical theory is still taken as the basis of the Core Syllabus.

1. Purpose of the guidelines

These guidelines will, it is hoped, assist national health authorities in countries where modern Western medicine forms the basis of health care to establish regulations concerning:

- general requirements for basic training in and the practice of acupuncture;
- the knowledge and experience of modern Western medicine required of acupuncture practitioners employed as such in the national health care system; and the knowledge and experience of acupuncture required of physicians and other health staff wishing to include acupuncture in their professional work in modern Western medicine.

2. Use of acupuncture in national health systems

A decision by the Ministry of Health to incorporate acupuncture in primary health care (or at any other level of government health services) in a system based on modern Western medicine raises a number of important issues which would need to be taken into account.

2.1 Administrative and academic considerations

The training of health personnel in acupuncture involves certain administrative and academic considerations, for example:

- Which types of personnel should be trained?
- What would be their functions and responsibilities?
- What would be the content of training, in each case?
- Where would such training be given and by whom?
- Are suitably qualified instructors available or would they also have to be trained?
- What would be the mechanisms for official recognition of training courses, instructors and institutions?

2.2 Examinations and licensing

A system of examination and licensing would be needed to ensure the competence of those trained, and to prevent unauthorized practice of acupuncture.

This would bring under control the situation, current in certain industrialized and developing countries, where commercial exploitation of acupuncture training and practice is not uncommon, with all the harmful consequences that may ensue.

2.3 Supervision, monitoring and evaluation

The introduction of one or more new categories of personnel in the health system would probably make it necessary to provide for:

- a period of supervised practice after training;
- monitoring of performance of the trainees individually and as a group; and
- evaluation of the benefits (or otherwise) of including acupuncture in primary health care (and at other levels) where it was not previously available, and of its cost-effectiveness compared with other forms of treatment for common conditions.

2.4 Further education and career possibilities

Possibilities to be envisaged, and perhaps encouraged, are that some acupuncture practitioners may wish to increase their knowledge of modern Western medicine, while other health personnel who have not received the basic training may wish to acquire a knowledge of acupuncture and later apply it. Ultimately, a blending of the two disciplines must, to some extent, take place.

3. Levels of training

The guidelines address four levels of training in acupuncture, namely:

- full training for those with little or no prior medical education or experience, who wish to qualify as recognized acupuncture practitioners licensed to practise independently, subject to the limitations imposed by the Ministry of Health;
- full training of qualified physicians (modern Western medicine) in acupuncture;
- training of qualified physicians (and certain other medical graduates) from schools of modern Western medicine, who wish to include acupuncture as a technique in their clinical work; and
- limited training of other health personnel (modern Western medicine) working in the primary health care system of their country.

4. Training programmes

The basic training of the four groups is different. For traditional acupuncture practitioners, a complete course extending over two years is recommended. For physicians and medically trained non-physicians, training would be adapted to their specific requirements and confined to the clinical applications of acupuncture. An indication of the period of training to be desired in each case is given in Table 1 below.

Table 1
Basic training in acupuncture

Category of Personnel	Level of Training	Acupuncture (ACU)			Modern Western Medicine (MED)	Official Examination	Certificate
		Core Syllabus	Theory	Clinical Supervised Practice			
Acupuncture practitioners (non-medical)	Full course of training	1000 hours	500 hours	500 hours	500 hours	ACU + MED ¹	ACU
Qualified physicians	Full course of training	500 hours	500 hours	500 hours		ACU	
Qualified physicians	Limited training in ACU as a technique for their clinical work	Not less than 200 hours				ACU	
Other health personnel	Limited training in ACU for use in primary health care	Varies according to application envisaged				ACU	

¹ State examination in acupuncture and modern Western medicine (at appropriate level).

5. Training of acupuncture practitioners

5.1 Acupuncture practitioners

This training programme is designed for personnel of suitable educational level, but with little or no formal training or experience in modern Western health care.

5.2 Entrance requirements

Completed secondary schooling, university entrance or equivalent, and appropriate training in the basic biosciences.

5.3 Duration of training

Two years full time (2500 hours), or the part-time equivalent, with not less than 1000 hours of practical and clinical work.

5.4 Objective

The aim of training at this level is to prepare acupuncture practitioners who would subsequently be employed by national health services. Training would equip them to give safe and effective acupuncture treatment to selected patients in hospitals, or as part of the primary health care team at health centres or community level. They would initially work under the general supervision of the medical officer in charge.

5.5 Core syllabus in acupuncture

1. **Brief history of acupuncture**
2. **Basic theory**
 - Philosophy of traditional Chinese medicine, including but not limited to concepts of *yin-yang* and the five phases.
 - Functions of *qi*, blood, mind, essence and body fluids, as well as their relationship to one another.
 - Physiological and pathological manifestations of *zang-fu* (visceral organs) and their relationship to one another.
 - Meridians and collaterals, their distribution and functions.

- Causes and mechanisms of illness.
- 3. Knowledge of acupuncture points**
- Location of the 361 classical points on the 14 meridians and the 48 extraordinary points. Location and anatomical description of the Commonly Used Points selected for Basic Training.
 - Alphanumeric codes and names, classifications of points, direction and depth of insertion of needles, actions and indications of the commonly used points listed in the Appendix.
- 4. Diagnosis**
- Methods of diagnosis, history taking, inspection and tongue diagnosis, palpation and pulse taking, auscultation and olfaction.
 - Differentiation of syndromes according to the eight principles, the theory of visceral manifestations (*zang-fu*), the theory of *qi* and blood, and the theory of meridians and collateral vessels.
- 5. Treatment (as permitted by national laws and health service regulations)**

Principles of treatment

- Practical application of theory and diagnosis to treatment in each individual case.
- Appropriateness of acupuncture treatment for the patient.
- Planning of the acupuncture treatment to be given.
- Appropriate selection of points and methods of needle manipulation.
- Limitations of acupuncture, and need for referral to other health professionals or specialists.

Guidelines on safety in acupuncture

Treatment techniques

- Needling: sterile and safe needling technique, selection of needles, proper insertion, depth, duration, manipulation (various measures of reinforcement, reduction, uniform reinforcement-reduction) and withdrawal, and contraindications of needling.
- Microsystems acupuncture used in the country concerned: theory, location of points and applications.
- Electrical stimulation and laser therapy: theory and applications.
- Moxibustion: direct and indirect methods, appropriate use and contraindications.
- Cupping methods: appropriate use and contraindications.

Treatment of the diseases, illnesses, and conditions for which patients commonly seek acupuncture treatment

Acupuncture treatment of emergencies

Prevention in traditional medicine

5.6 Core syllabus in modern Western medicine

1. Approach to training

By the end of the course the student should have:

- a sound understanding of the essentials of anatomy (including the anatomical location of acupuncture points), physiology, and the basic mechanisms of disease;
- an understanding of the principles of hygiene, the common forms of disease and ill-health in the community, and their causative factors;
- proficiency in making a simple but competent examination of a patient, and in arriving at a tentative diagnosis and a reasonable assessment of the gravity of symptoms and signs;
- the ability to decide whether a patient may safely and suitably be treated by acupuncture, or should be referred to a health professional or facility; and
- training in first aid, cardiopulmonary resuscitation, and the action to take in emergencies.

2. Scope and depth of training

These must be defined by the national health authorities, according to the duties and responsibilities the acupuncture practitioners will have in the national health system; including whether these will also involve the use of modern Western medicine (alone or in combination with acupuncture), and the degree of supervision under which the practitioner will work.

5.7 Other related fields of health care

As future personnel in the national health system, student non-physician acupuncturists should also have adequate knowledge of the organization of health services in the country, relevant regulations and procedures, the disposition of health staff and facilities, ethical considerations, and insurance requirements.

5.8 Examination

On completion of the full period of training, the student's theoretical knowledge of and proficiency in acupuncture, and knowledge of modern Western medicine (at the appropriate level), should be evaluated by an official examination,

recognized by national health authorities as evidence of the suitability of the trainee to be licensed to practise.

6. Full training in acupuncture for qualified physicians

This training programme is designed for qualified physicians (modern Western medicine) who wish to practise acupuncture independently, treating the various conditions for which patients are commonly treated by acupuncture practitioners.

Qualified physicians who already have adequate knowledge and skills in modern Western medicine, would only need to follow the Core Syllabus for acupuncture. The theoretical course could be shortened, as qualified physicians can learn traditional medicine more easily than those with no prior medical education. The course should comprise at least 1500 hours of formal training, including 1000 hours of practical and clinical work.

On completion of the course and after passing an official examination, participants should be entitled to practise acupuncture in various fields of medicine where it is indicated.

7. Limited training in acupuncture for qualified physicians

7.1 Basic training

Shorter training courses would be suitable for qualified physicians (and certain other graduates) who wish to become competent in acupuncture as a form of therapy in modern Western clinical practice (or as a subject for scientific research).

For them, a brief introduction to traditional acupuncture (derived from the Core Syllabus) would probably suffice, and the training would then be largely orientated to the use of acupuncture in modern Western medicine.

The course should comprise at least 200 hours of formal training, and should include the following components:

- 1. Introduction to traditional Chinese acupuncture**
- 2. Acupuncture points**

- Location of the 361 classical points on the 14 meridians and the 48 extraordinary points.
- Alphanumeric codes and names, classifications of points, direction and depth of insertion of needles, actions and indications of the Commonly Used Points selected for Basic Training.

3. Applications of acupuncture in modern Western medicine

- Principal clinical conditions in which acupuncture has been shown to be beneficial.
- Selection of patients and evaluation of progress/ benefit.
- Planning of treatment, selection of points and methods of needle manipulation, and use of medication or other forms of therapy concurrently with acupuncture.

4. Guidelines on safety in acupuncture

5. Treatment techniques

- General principles.
- Specific clinical conditions.

On completion of the course and after passing an official examination, participants should be able to integrate acupuncture into their clinical work or speciality.

7.2 Special courses

Some physicians or dental surgeons might wish to acquire proficiency in certain specific applications of acupuncture (for example, pain relief, or dental or obstetric analgesia) and for them flexibility would be needed in designing special courses adapted to their particular areas of interest.

7.3 Advanced training

Physicians or other health personnel who have satisfactorily completed a "short" course of basic training might wish to pursue their training at an advanced level, in which case suitable courses would have to be "tailor-made" to meet their needs.

8. Limited training in acupuncture for primary health care personnel

The introduction of "acupuncture" into primary health care at community level would require the training of a considerable number of personnel over a short period, if it is to have a demonstrable effect. This would probably strain the teaching and supervision resources of the country concerned.

It would seem wiser, in such cases, to train such personnel in acupressure (*zhi-ya*) rather than in acupuncture itself. Training in acupressure would make no great demands, could be incorporated into the general training of primary health care personnel, and would carry no risk to the patient. The use of acupressure in primary health care would have to be evaluated after a suitable trial period. Some personnel who show particular aptitude might be chosen for basic training in acupuncture, a training programme being arranged according to the applications envisaged.

9. Selected acupuncture points for basic training

Participants at the WHO Consultation on Acupuncture at Cervia, Italy in 1996 drew up a list of Commonly Used Points suitable for inclusion in basic training courses. These were selected from the document *A Proposed Standard International Acupuncture Nomenclature: Report of a WHO Scientific Group* (WHO, Geneva, 1991).

As may be seen from the table below, the selection includes 187 of the 361 classical points, and 14 of the 48 extra points. Thus, the basic training courses for the categories of personnel described lay emphasis on the use of only 201 of a total of 409 points.

The guidelines on safety, which follow, mention certain points as being potentially dangerous and requiring special skill and experience in their use. Some of these are included in the selection of Commonly Used Points, and attention is drawn to this fact.

10. Selected points for basic training in acupuncture

Meridians, vessels and extra points	Standard international ² acupuncture nomenclature	Selected points ³ for basic training
Lung	11	6
Large intestine	20	12
Stomach	45	25
Spleen	21	11
Heart	9	5
Small intestine	19	13
Bladder	67	34
Kidney	27	8
Pericardium	9	7
Triple energizer	23	12
Gallbladder	44	20
Liver	14	8
Governor vessel	28	13
Conception vessel	24	13
Sub-total	361	187
Extra points	48	14
Total points	409	201

² *Standard International Acupuncture Nomenclature, Report of a WHO Scientific Group* (WHO, Geneva, 1991).

³ Selected by participants at the WHO Consultation on Acupuncture, Cervia, Italy, 1996.

Section II: Safety in acupuncture

In competent hands, acupuncture is generally a safe procedure with few contraindications or complications. Its most commonly used form involves needle penetration of the skin and may be compared to a subcutaneous or intramuscular injection. Nevertheless, there is always a potential risk, however slight, of transmitting infection from one patient to another (e.g. HIV or hepatitis) or of introducing pathogenic organisms. Safety in acupuncture therefore requires constant vigilance in maintaining high standards of cleanliness, sterilization and aseptic technique.

There are, in addition, other risks which may not be foreseen or prevented but for which the acupuncturist must be prepared. These include: broken needles, untoward reactions, pain or discomfort, inadvertent injury to important organs and, of course, certain risks associated with the other forms of therapy⁵ classified under the heading of "acupuncture".

Finally, there are the risks due to inadequate training of the acupuncturist. These include inappropriate selection of patients, errors of technique, and failure to recognize contraindications and complications, or to deal with emergencies when they arise.

1. Prevention of infection

As with any subcutaneous or intramuscular injection, avoidance of infection in acupuncture requires:

- a clean working environment;
- clean hands of the practitioner;
- preparation of the needling sites;
- sterile needles and equipment, and their proper storage;
- aseptic technique; and
- careful management and disposal of used needles and swabs.

⁵ Acupuncture treatment is not limited to needling, but may also include: acupressure, electro-acupuncture, laser acupuncture, moxibustion, cupping, scraping and magnetotherapy.

1.1 Clean working environment

The treatment room should be free from dirt and dust, and should have a special working area, such as a table covered with a sterile towel, on which sterile equipment should be placed. This equipment (including trays of needles, cotton wool balls and sticks, and 70% alcohol) should be covered with a sterile towel until needed for use. Adequate light and ventilation should be provided throughout the treatment rooms.

1.2 Clean hands

Practitioners should always wash their hands before treating a patient. Washing the hands again immediately before the acupuncture procedure is particularly important in preventing infection, and should include thorough lathering with soap, scrubbing the hands and fingernails, rinsing under running water for 15 seconds, and careful drying on a clean paper towel.

Many acupuncturists palpate the acupuncture point after the needling site has been prepared. In such cases, their fingertips should again be cleaned with an alcohol swab. The use of sterile surgical gloves, or individual finger stalls, is recommended for the protection of the patient and the practitioner, especially if the latter has cuts or abrasions. Those with infected lesions on the hands should not practise until they are healed.

1.3 Preparation of the needling sites

The needling sites should be clean, free from cuts, wounds or infections. The point to be needled should be swabbed with 70% ethyl or isopropyl alcohol, from the centre to the surrounding area using a rotary scrubbing motion, and the alcohol allowed to dry.

1.4 Sterilization and storage of needles and equipment

Sterilization is required for all needles (filiform, plum-blossom, seven-star, subcutaneous, round-head subcutaneous), cups and other equipment used (storage trays, forceps, guide tubes for needles, cotton wool balls and sticks, etc.).

Disposable sterile acupuncture needles and guide tubes are strongly recommended in all instances. However, the use of disposable needles should not slacken the practitioner's vigilance in adopting aseptic techniques in other aspects of clinical practice. All disposable needles should be discarded immediately after use and placed in a special container.

Each sterile filiform needle should be used for puncturing once, and once only. Plum-blossom or seven-star needles may be used repeatedly on one and the same patient, but must be sterilized before being used for another patient, or else disposable plum-blossom heads should be used.

Sterilization procedures should conform to those described in the Appendix. The therapist is responsible for ensuring that these standards are maintained.

Immediately after use, reusable needles and other contaminated equipment should be immersed in an effective chemical disinfectant, then soaked in water, with or without detergent and, after careful cleaning, thoroughly rinsed in water before being packaged for resterilization.

The sterilized package should be stored in a safe and clean area, well ventilated and free from excessive humidity, to preclude any possibility of condensation and mould growth. The maximum safe storage time varies with the type of packaging. Needles should be placed in a test tube which should then be plugged with cotton wool, and clearly labelled with an expiry date not more than seven days after the date of sterilization. Improper storage conditions may, however, cause equipment to lose sterility long before the expiry date. The integrity of the package should be inspected before use. Sterile needles stored in needle trays should be resterilized at the end of the day because the trays may become contaminated during use in treatment.

1.5 Aseptic technique

The needle shaft must be maintained in a sterile state prior to insertion. Needles should be manipulated in such a way that the practitioner's fingers do not touch the shaft. If there is difficulty in inserting a long needle, such as that used in puncturing GB 30 huantiao or BL 54 zhibian by just grasping its handle, the shaft should be held in place with a sterile cotton wool ball or swab. The use of disposable sterile surgical gloves or finger stalls makes it easy to manipulate needles without contamination.

On withdrawing a needle, a sterile cotton wool ball should be used to press the skin at the insertion site, thus protecting the patient's broken skin surface from contact with potential pathogens, and the practitioner from exposure to the used needle shaft and the patient's body fluid. All compresses or cotton wool balls contaminated by blood or body fluids must be discarded in a special container for infectious waste.

2. Contraindications

In view of the "regulatory action" of acupuncture, it is difficult to stipulate absolute contraindications for this form of therapy. However, for reasons of safety, it should be avoided in the following conditions.

2.1 Pregnancy

Acupuncture may induce labour and, therefore, should not be performed in pregnancy, unless needed for other therapeutic purposes and then only with great caution.

Just the act of needling with a certain mode of manipulation at certain acupuncture points may cause strong uterine contractions and induce abortion. However, this may have a use in pregnancy for the purpose of inducing labour or shortening its duration.

Traditionally, acupuncture, and moxibustion are contraindicated for puncture points on the lower abdomen and lumbosacral region during the first trimester. After the third month, points on the upper abdomen and lumbosacral region, and points which cause strong sensations should be avoided, together with ear acupuncture points that may also induce labour.

2.2 Medical emergencies and surgical conditions

Acupuncture is contraindicated in emergencies. In such cases, first aid should be applied and transport to a medical emergency centre arranged.

Acupuncture should not be used to replace a necessary surgical intervention.

2.3 Malignant tumours

Acupuncture should not be used for the treatment of malignant tumours. In particular, needling at the tumour site should be prohibited. However, acupuncture may be used as a complementary measure, in combination with other treatments, for the relief of pain or other symptoms, to alleviate side-effects of chemotherapy and radiotherapy, and thus to improve the quality of life.

2.4 Bleeding disorders

Needling should be avoided in patients with bleeding and clotting disorders, or who are on anticoagulant therapy or taking drugs with an anticoagulant effect.

3. Accidents and untoward reactions

3.1 Needle quality

Stainless steel is the material of choice for acupuncture needles. Each should be carefully checked before use. If it is bent, the shaft eroded, or the tip hooked or blunt, the needle is defective and should be discarded.

It is recommended that the quality of manufacture of acupuncture needles be controlled by the national health authority.

3.2 Position of patient

The patient should assume a comfortable posture before needling and be requested to remain still and not to change position abruptly during treatment.

3.3 Fainting

During acupuncture treatment, the patient may feel faint. The needling procedure and the sensations it may cause should therefore be carefully explained before starting. For those about to receive acupuncture for the first time, treatment in a lying position with gentle manipulation is preferred. The complexion should be closely watched and the pulse frequently checked to detect any untoward reactions as early as possible. Particular care should be taken when needling points that may cause hypotension, e.g. LR 3 taichong.

Symptoms of impending faintness include feeling unwell, a sensation of giddiness, movement or swaying of surrounding objects, and weakness. An oppressive feeling in the chest, palpitations, nausea and sometimes vomiting may ensue. The complexion usually turns pale and the pulse is weak. In severe cases, there may be coldness of the extremities, cold sweats, a fall in blood pressure, and loss of consciousness. Such reactions are often due to nervousness, hunger, fatigue, extreme weakness of the patient, an unsuitable position, or too forceful manipulation.

If warning symptoms appear, remove the needles immediately and make the patient lie flat with the head down and the legs raised, as the symptoms are probably due to a transient, insufficient blood supply to the brain. Offer warm sweet drinks. The symptoms usually disappear after a short rest. In severe cases, first aid should be given and, when the patient is medically stable, the most appropriate of the following treatments may be applied:

- press GV 26 shuigou with the fingernail or puncture GV 26 shuigou, PC 9 zhongchong, GV 25 suliao, PC 6 neiguan and ST 36 zusanli; or
- apply moxibustion to GV 20 baihui, CV 6 qihai and CV 4 guanyuan.

The patient will usually respond rapidly to these measures, but if the symptoms persist, emergency medical assistance will be necessary.

3.4 Convulsions

All patients about to receive acupuncture should be asked if they have a history of convulsions. Patients who do have such a history should be carefully observed during treatment. If convulsions do occur, the practitioner should remove all

needles and render first aid. If the condition does not stabilize rapidly or if convulsions continue, the patient should be transferred to a medical emergency centre.

3.5 Pain

During needle insertion

Pain during insertion is usually due to clumsy technique, or to blunt, hooked or thick needles. It may also occur in highly sensitive patients. In most patients, skilful and rapid penetration of the needle through the skin is painless. The correct technique and optimum degree of force to use must be learned through practice. A few devices may facilitate smooth and fast penetration, such as the use of needle guide tubes (which hold the needle steady over the point while it is tapped into place), and the "flicking-in" technique (a method of inserting the needle by flicking the upper end of its handle with the middle or index finger of one hand while the handle of the needle is loosely held by the index and middle fingers of the other hand, with the tip of the needle lightly touching the acupuncture point). The "acupuncture sensation" of soreness, tingling and heaviness indicating the arrival of *qi (deqi)* at the point should be distinguished from painful reactions.

After insertion

Pain occurring when the needle is inserted deep into the tissues may be due to hitting pain receptor nerve fibres, in which case, the needle should be lifted until it is just beneath skin and carefully inserted again in another direction.

Pain occurring when the needle is rotated with too wide an amplitude, or is lifted and thrust, is often due to it becoming entwined with fibrous tissue. To relieve the pain, gently rotate the needle back and forth until the fibre is released.

Pain occurring while the needle is in place is usually caused by it curving when the patient moves, and is relieved by resuming the original position.

After withdrawal

This is usually due to unskilled manipulation or excessive stimulation. For mild cases, press the affected area; for severe cases, moxibustion may be applied in addition to pressure.

3.6 Stuck needle

After insertion, one may find it difficult or impossible to rotate, lift and thrust, or even to withdraw the needle. This is due to muscle spasm, rotation of the needle with too wide an amplitude, rotation in only one direction causing muscle fibres to tangle around the shaft, or to movement by the patient.

The patient should be asked to relax. If the cause is excessive rotation in one direction, the condition will be relieved when the needle is rotated in the

opposite direction. If the stuck needle is due to muscle spasm, it should be left in place for a while, then withdrawn by rotating, or massaging around the point, or another needle inserted nearby to divert the patient's attention. If the stuck needle is caused by the patient having changed position, the original posture should be resumed and the needle withdrawn.

3.7 Broken needle

Breaks may arise from poor quality manufacture, erosion between the shaft and the handle, strong muscle spasm or sudden movement of the patient, incorrect withdrawal of a stuck or bent needle, or prolonged use of galvanic current.

If, during insertion, a needle becomes bent, it should be withdrawn and replaced by another. Too much force should not be used when manipulating needles, particularly during lifting and thrusting. The junction between the handle and the shaft is the part that is apt to break. Therefore, in inserting the needle, one-quarter to one-third of the shaft should always be kept above the skin.

If a needle breaks, the patient should be told to keep calm and not to move, so as to prevent the broken part of the needle from going deeper into the tissues. If a part of the broken needle is still above the skin, remove it with forceps. If it is at the same level as the skin, press around the site gently until the broken end is exposed, and then remove it with forceps. If it is completely under the skin, ask the patient to resume his/ her previous position and the end of the needle shaft will often be exposed. If this is unsuccessful, surgical intervention will be needed.

3.8 Local infection

Negligence in using strict aseptic techniques may cause local infection, especially in ear acupuncture therapy. When such infection is found, appropriate measures must be taken immediately, or the patient referred for medical treatment.

Needling should be avoided in treating areas of lymphoedema.

3.9 Burning during moxibustion

Burning of the skin should be prevented in indirect moxibustion. Although scarring moxibustion is performed by means of burning the skin so as to result in non-bacterial suppuration, this technique should only be used with the full knowledge and prior consent of the patient. It is a special therapeutic technique only performed at specific points.

Direct moxibustion should not be applied to points on the face, or at sites where tendons or large blood vessels are located. Moxibustion with non-bacterial suppuration near a joint is also inappropriate because the joint movement may make healing difficult. Special care should be taken in patients with reduced levels of consciousness, sensory disturbance, psychotic disorders, purulent dermatitis, or in areas of impaired circulation.

Chest, back and abdomen

Points on the chest, back and abdomen should be needled cautiously, preferably obliquely or horizontally, so as to avoid injury to vital organs. Attention should be paid to the direction and depth of insertion of needles.

Lung and pleura

Injury to the lung and pleura caused by too deep insertion of a needle into points on the chest, back or supraclavicular fossa may cause traumatic pneumothorax. Cough, chest pain and dyspnoea are the usual symptoms and occur abruptly during the manipulation, especially if there is severe laceration of the lung by the needle. Alternatively, symptoms may develop gradually over several hours after the acupuncture treatment.

Liver, spleen and kidney

Puncture of the liver or spleen may cause a tear with bleeding, local pain and tenderness, and rigidity of the abdominal muscles. Puncturing the kidney may cause pain in the lumbar region and haematuria. If the damage is minor the bleeding will stop spontaneously but, if the bleeding is serious, shock may follow with a drop of blood pressure.

Central nervous system

Inappropriate manipulation at points between or beside the upper cervical vertebrae, such as GV 15 yamen and GV 16 fengfu may puncture the medulla oblongata, causing headache, nausea, vomiting, sudden slowing of respiration and disorientation, followed by convulsions, paralysis or coma. Between other vertebrae above the first lumbar, too deep needling may puncture the spinal cord, causing lightning pain felt in the extremities or on the trunk below the level of puncture.

Other points

Other points which are potentially dangerous and which therefore require special skill and experience in their use include:

- BL 1 jingming and ST 1 chengqi, located close to the eyeball;
- CV 22 tiantu, in front of the trachea;
- ST 9 renying, near the carotid artery;
- SP 11 jimen and SP 12 chongmen, near the femoral artery; and
- LU 9 taiyuan on the radial artery.

Circulatory system

Care should be taken in needling areas of poor circulation (e.g. varicose veins) where there is a risk of infection, and to avoid accidental puncture of arteries (sometimes aberrant) which may cause bleeding, haematoma, arterial spasm or more serious complications when pathological change is present (e.g. aneurysm, atherosclerosis). Generally, bleeding due to puncture of a superficial blood vessel may be stopped by direct pressure.

6. Patient records

Patient records should contain full details of the medical history, clinical findings, diagnostic data, treatment plan and the response to treatment. They should be regarded as confidential.

Appendix

1. Sterilization of acupuncture needles and equipment

Sterilization is defined as the destruction of all microbes, including bacterial spores (*Bacillus subtilis*, *Clostridium tetani*, etc.). High-level disinfection is defined as the destruction of all microbes, but spores may survive if initially present in large numbers.

2. Methods of sterilization

Steam sterilization is the most widely used method for acupuncture needles and other instruments made of metal. It is nontoxic, inexpensive, sporicidal and rapid if used in accordance with the manufacturer's instructions (e.g. time, temperature, pressure, wraps, load size and load placement). Steam sterilization is only fully effective when free from air, ideally at 100% saturated steam. Pressure itself has no influence on sterilization, but serves as a means of obtaining the high temperatures required.

Dry heat can also be used for sterilizing needles and particularly for sterilizing materials that might be damaged by moist heat, but it may cause the needle to become brittle. It requires higher temperatures and longer sterilization times.

Recommended sterilizing temperatures and times for steam under pressure, and for dry heat, are shown in the table below.

Recommended methods of sterilization	
* Steam under pressure (e.g. autoclave, pressure cooker) Required pressure: => 15 pounds per square inch (101 kilopascals)	
Temperature	Time
115°C	30 minutes
121°C	15 minutes
126°C	10 minutes
134°C	3 minutes
* Dry heat (e.g. electric oven)	
Temperature	Time
160°C	120 minutes
170°C	60 minutes
180°C	30 minutes

(Source: WHO - GPA /TCO /HCS /95 /16 p.15.)

Instruments made of rubber or plastic which are unable to stand the high temperature of an autoclave can be sterilized chemically, at appropriate concentrations and ensuring adequate immersion times (e.g. 6% stabilized hydrogen peroxide for six hours).

For cupping, it is recommended that glass rather than rubber or plastic cups should be used since glass can withstand the higher temperatures required for sterilization.

It should be noted that boiling needles in water is not sufficient for sterilization, nor is soaking in alcohol, since these methods do not destroy resistant bacterial spores or certain viruses.

3. Disinfection

A high level of disinfection is achieved when instruments are boiled for 20 minutes. This is the simplest and most reliable method of inactivating most pathogenic microbes, including HIV, when sterilization equipment is not available. Boiling should be used only when sterilization by steam or dry heat is not available. Hepatitis B virus is inactivated by boiling for several minutes; HIV, which is very sensitive to heat, is also inactivated by boiling for several minutes. However, in order to be sure, boiling should be continued for 20 minutes.

Chemical disinfection is used for heat-sensitive equipment that may be damaged by high temperatures. Most disinfectants are effective against a limited range of microorganisms only and vary in the rate at which they destroy microorganisms. Items must be dismantled and fully immersed in the disinfectant. Care must be taken to rinse disinfected items with clean water so that they do not become recontaminated. Chemical disinfectants are unstable and chemical breakdown can occur. They may also be corrosive and irritating to skin. Protective clothing may be required. Chemical disinfection is not as reliable as boiling or sterilization. The agents include:

- chlorine-based agents, e.g., bleach
- aqueous solution of 2% glutaraldehyde
- 70% ethyl or isopropyl alcohol.

(Source: WHO - GPA /TCO /HSC /95 /16 p.16 and WHO AIDS Series 2, 2nd edition, p.3, 1989.)

4. Maintenance

All sterilizers should be checked periodically. The sterilizer should be loaded in accordance with the manufacturer's instructions, with enough air space between packages to permit the proper circulation and penetration of steam or hot air. The effectiveness of sterilization should be regularly checked with biological indicators, autoclave control indicators or such other tests as may be devised to ensure that the contents of the load have been subjected to sterilization conditions.

Use of a new pattern of sterilizing box to contain needles is recommended. The box is made of a special kind of metal sensitive to heat, with air holes that open automatically under high temperature, and close when the temperature falls below 75°C.

Annex I: List of participants

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