CHAPTER 1

Introduction

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OVERVIEW
By the end of this chapter you should be able to understand:
• the importance of becoming proficient at practical procedures
• the principle of ‘competency’
• how to learn and maintain these skills
• the principles and purpose of a logbook.

Practical procedures
The importance of practical procedures and of performing them safely cannot be underestimated. Healthcare professionals (HCPs) will be expected to perform a wide range of practical procedures with competence and confidence. Some of these procedures will be diagnostic, some therapeutic and others life-saving. The structure of healthcare organisations dictates that even the most junior trainees will on occasion have to undertake some of the procedures described in this book without supervision.

This book contains procedures that are a part of medical, nursing and allied health curriculums throughout the world. The focus is on understanding not just the practical aspects of how to do a particular procedure but also why, when and where to do it.

Competency
Throughout healthcare education, ‘competency-based training’ has evolved to address gaps between theory and practice. The purpose is to demonstrate that an individual has received training and assessment in knowledge and skills relevant to all aspects of their clinical practice. Perhaps most importantly, maintaining a portfolio of competencies stimulates the trainee and their clinical supervisor to reflect on their professional development and training needs frequently to help direct future learning goals and strategies. An additional benefit may be to limit the susceptibility of practitioners, trainers and organisations to successful litigation should complications occur. Up to 30% of incidents where patients come to physical harm in hospital are due to practical procedures being inadequately or incompetently performed. Those responsible for the training and supervision of the HCPs performing these procedures are under increasing pressure to ensure the skills required to perform these procedures are adequately taught and maintained. To do this a learning and assessment process must be demonstrated.

Becoming adept at the practical procedures expected of you within your role is a key step in achieving overall clinical competence. A competency relates to performing a single skill or procedure, but also includes the underlying knowledge, abilities and attitudes necessary for optimal performance. In order to assess competency in a procedure it must be performed to a specific standard under specific conditions – standards and conditions this text attempts to outline. Competence also implies a minimum level of proficiency which must be attained and maintained; in the United Kingdom, case law dictates that an individual must perform a procedure to the standard which can reasonably be expected of others with a similar level of training and experience.

Learning practical procedures: attaining competency
The days of ‘see one, do one, teach one’ are over. Experts estimate that each new practical competency (e.g. intravenous cannulation) must be performed a minimum of 30 times to be ‘learned’ as a new psychomotor process; it is more difficult to estimate how frequently the process must be performed to be retained.

More complex procedures (e.g. insertion of a central venous catheter) must be performed on 50–80 occasions before an ‘acceptable’ level of failure/complication (5%) is reached. However, healthcare now strives to achieve an adverse event rate of fewer than 1 in 100 episodes, and in anaesthesia and blood transfusion fewer than 1 in 1000 episodes result in adverse events. A failure rate of 5%, therefore, may become unacceptable to patients in the foreseeable future.

It is impossible to generalise competency to a certain number of procedures for all individuals; the number needed to become and remain competent will vary vastly depending on the experience and dexterity of the practitioner, the procedure, how regularly it is performed, who it is performed upon and the environment in which it is performed.

There are a number of essential preconditions that a practitioner must satisfy before embarking upon a practical procedure.
**Background knowledge**
Before attempting a new procedure it is essential to gain sufficient background knowledge to attempt the procedure competently. This is not just ‘how’ to do a procedure but also why and when it should be done, what contraindications to it exist, the anatomy behind the procedure and its potential complications. This knowledge can be attained from discussions, teaching sessions and prereading. This book attempts to comprise the essential preprocedure reading for each of the procedures covered.

**Equipment**
The practitioner should attempt to familiarise themself with the equipment used for a procedure. Equipment will vary both between hospitals and between departments within the same hospital. Familiarise yourself before you have to perform a potentially life-saving procedure; an emergency situation is not the time to have to learn the basics.

**Mannequins**
Mannequins are a great way to familiarise yourself with a new procedure and also maintain familiarity with a previously learnt procedure in a safe way. They are especially useful for infrequently performed, potentially dangerous procedures such as surgical chest drain insertion. Mannequins alone are not an acceptable substitute for multiple supervised procedures on ‘real’ patients. Other forms of substitute training include the use of animal models, which carries ethical implications, and high-fidelity simulation. This latter mode of training incorporates training in practical skills with realistic real-time scenarios, and includes elements of interprofessional working.

**Patients**
Patients are not there to be practised upon without knowing the experience and role of the practitioner. They should be made fully aware of your position as a trainee and the role of your trainer. A vast majority of patients will not withdraw consent: they appreciate the need for junior HCPs to learn.

**Logbooks and assessment forms**
It is essential to keep a logbook of the practical procedures you perform. Many professions (e.g. anaesthesia) have mandatory logbooks for all trainees provided by their governing body. A logbook shows not only the number of procedures performed but also how frequently and under what circumstances. The logbook should not contain patients’ personal details, although unique identifiers (e.g. their hospital number) are permitted.

Additionally, a number of the professions now encourage regular assessment of individuals’ performance in practical procedures. This may take the form of a practical mannequin-based test (ideal to test emergency situations which infrequently occur) or an assessment of how the procedure is performed for ‘real’. It is essential that assessments in whatever form evaluate knowledge, skills and abilities; preferably in a multidimensional manner.

**Summary**
Practical procedures form an essential part of diagnosis and treatment, and may be life-saving. A healthcare professional due to undertake a procedure must be satisfied that he or she possesses the required knowledge and skills to perform it – in other words, that he or she is competent. This competence may have been assessed through informal supervision in a number of the procedures, or, increasingly, through formal ‘competency-based training’.

This book provides the knowledge required to understand the reasons for performing each of the procedures described herein, together with their contraindications, the relevant anatomy and potential complications. This, together with a step-by-step guide to performing each procedure should provide the practitioner with a robust grounding to proceed to practice under supervision and ultimately competence.