

Clinical Skills in Hospitals Project

12-Lead electrocardiogram (ECG)

Module 1: Basic ECG recording and interpretation

Module 2: Abnormal ECGs

Module 3: Management of arrhythmias

Module 4: Management of acute coronary syndrome

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Preface

In 2007 the Department of Human Services commissioned St Vincent's Hospital Melbourne, to design and develop simulation-based training packages for clinical skills trainers in Victorian hospitals.

The project provides Victorian health professionals—specifically, hospital clinical educators—with a resource to deliver simulation-based clinical skills training.

The information in this manual complements current training programs and should be considered as a resource in the workplace, rather than the definitive resource on the topic.

Every effort has been made to provide the most current literature references. Authors have consulted other health professionals and current programs when possible in development to ensure that the modules produced in this package are consistent with current health practices.



Course delivery in condensed form

Sample timetable for one-day workshop

This is an example of how the modules in the ECG package could be combined into half day workshops. A sample timetable is provided for a course consisting of a half day workshop combining modules 1 and 2, and a half day workshop combining modules 3 and 4.

Course 1 (Modules 1 and 2)

Timing	Activity	Objective
8.30 to 8.45	Introduction faculty and participants	
8.45 to 9.20	Facilitated Discussion—Basic ECG	Module 1: All
9.20 to 10.20	Skills Stations: <ul style="list-style-type: none"> ■ ECG recording ■ ECG Interpretation 	Module 1: 3, 4, 5
10.20 to 10.30	Summation Module 1	Module 1: All
10.30 to 11.00	Morning Tea	
11.00 to 11.40	Facilitated Discussion—Abnormal ECG	Module 2: 1
11.40 to 12.40	Skills Stations: <ul style="list-style-type: none"> ■ Arrhythmias ■ ST/QRS abnormalities 	Module 2: 2, 3, 4
12.40 to 12.50	Summation Module 2	Module 2: All
12.50 to 13.00	Evaluation	

Course 2 (Modules 3 and 4)

Timing	Activity	Objective	
8.30 to 8.45	Introduction Faculty and Participants		
8.45 to 9.00	Facilitated Discussion—Arrhythmias	Module 3: 1, 2, 3	
9.00 to 9.10	Simulation 1	Simulation 2	Module 3: All
9.10 to 9.35	Debrief	Debrief	Module 3: All
9.35 to 9.45	Simulation 2	Simulation 1	Module 3: All
9.45 to 10.05	Debrief	Debrief	Module 3: All
10.05 to 10.15	Summation Module 3	Module 3: All	

Course 2 (Modules 3 and 4) cont.

10.15 to 10.30	Morning Tea		
10.30 to 11.10	Facilitated Discussion—ACS		Module 4: 1, 2, 3
11.10 to 11.20	Simulation 1	Simulation 2	Module 4: All
11.20 to 11.45	Debrief	Debrief	Module 4: All
11.45 to 11.55	Simulation 2	Simulation 1	Module 4: All
11.55 to 12.15	Debrief	Debrief	Module 4: All
12.15 to 12.30	Summation Module 4		Module 4: All
12.30 to 13.00	Evaluation		

12-Lead electrocardiogram (ECG)

Introduction

This package has been developed as a teaching and learning tool for Victorian Clinical Educators. The information contained within each module has been developed using evidence based resources and examples of best practice. Where expert opinion varies a discussion section has been included. However, it is not within the scope of this package to address the full spectrum of local variations. Variations can occur in a number of areas such as; practices relating to types of equipment used, infection control processes, practice guidelines etc. As such, educators should, where appropriate, adapt content to reflect their local policies, procedures and protocols. This will ensure the relevancy of the package content to your learners.

The modules have been designed to be discrete courses in their own right. They have been timetabled to be able to be completed within a 1-2 hour timeframe. This timeframe was chosen after feedback from clinical educators who requested short courses as there is often limited time available to educate health professionals away from patients. However the packages may also be combined into a half or one-day course should you desire. A sample of how you may go about this is included in this package.

This package should be used as an educational tool to assist in the teaching of clinical skills. It is structured as a guide to assist clinical educators and uses many of the concepts taught in the *Clinical Skills in Hospitals Project* (Train-the-Trainer courses). Educators are encouraged to build upon this resource by adding their own scenarios that incorporate hospital / health service protocols, policies and other resources. Each module is designed as a 'lesson plan' to incorporate simulation into the teaching of clinical skills.

Aims

The aim of this package is for participants to be able to confidently record and interpret electrocardiogram (ECG) tracings on adult patients and to initiate appropriate therapeutic interventions for patients with common clinical conditions that lead to ECG abnormalities. It is not intended to be a comprehensive text book on ECG interpretation. In contrast to adult patients, the need to perform an ECG on a paediatric patient is a rare occurrence outside of specialist paediatric cardiology services. This module does not address the issue of ECGs in children.

Package Structure

The ECG package contains four modules aimed at providing learning opportunities for health professionals at all levels of experience and from all health disciplines. Modules 1 and 2 are regarded as fundamental modules. Modules 3 and 4 are more difficult and are regarded as intermediate modules.

Level of complexity	Package structure
<p>Complex For participants with more than 4 years experience or who have completed Modules 1–4</p>	<pre> graph TD A[Management of arrhythmias] <--> B[Management of acute coronary syndrome] C[Basic ECG recording and interpretation] <--> D[Abnormal ECGs] A <--> C B <--> D </pre>
<p>Intermediate For participants in postgraduate years 3–4 or who have completed Modules 1 and 2</p>	
<p>Fundamental For participants in postgraduate years 1–2</p>	

This package has been designed to develop participant’s knowledge, skills and behaviours in ECG interpretation, and to expose them to increasingly complex scenarios aimed at testing their ability to combine these skills, work as a team and problem solve in more difficult situations.

Educators delivering these modules need to be aware of the level of experience of their participants and choose appropriate modules accordingly. There is an increasing level of presumed knowledge required for each module. This ranges from knowledge of anatomy and physiology for the basic modules, up to a detailed knowledge of arrhythmia and acute coronary syndrome management for the more complex modules. Novice participants (such as first year graduates) would be expected to start with the basic modules and only move onto intermediate modules as they demonstrate proficiency. More experienced participants may start at the intermediate level if the educator is satisfied that they have the prior knowledge and skills to do so. It will be up to individual educators to assess the participant’s baseline knowledge and to determine which modules they need to complete. While there is considerable medical knowledge and detail in the intermediate modules, non-medical participants can still gain valuable experience from these modules by focusing on their roles and expectations in these scenarios. Where there are no medical staff in the group, facilitators may need to play the medical roles. More specific descriptions of presumed knowledge are outlined in each module.

The design of these packages presumes that the clinical educators using them have knowledge and expertise in current best practice regarding the teaching of clinical skills and conducting facilitated discussions. Knowledge and expertise are presumed commensurate with of the Department of Human Services' basic and advanced Train-the-Trainer Programs. Clinical educators are encouraged to refer to Department of Human Services' *Clinical Skills Facilitators Manual* for theory on:

1. Peyton's model for teaching clinical skills
2. leading small group discussions
3. giving feedback
4. crisis resource management skills.