



Fetal Monitoring Training System Users Guide



Chapters Version 4 / Simulator Version 3

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Using the Fetal Monitoring Training System

This guide is designed to help you to log on and use the Fetal Monitoring Training System. The Training System comprises two revision chapters - Acid Base and Cardiotocograph. The system also comprises the Training Simulator (a CTG interpretation rehearsal tool) and the Assessment Tool, a quiz with which to determine your knowledge levels.

Before we Start

Your administrator

If you are using the training system within a hospital and you encounter problems with the teaching package (for example you forget your password), we recommend your first point of contact should be your Training System Administrator. This will likely be a designated colleague who will have added you as a user and given you your UserID.

For home users, please email support@k2ms.com quoting 'Internet Training System' and detailing the problem you are experiencing.

Getting Started

Running the Training System

To run the Fetal Monitoring Training System, open up a web browser and enter the following address:

<http://training.k2ms.com>

Alternatively, your hospital may provide you with a desktop icon (figure 1) which will do the same task. In this case, double click on the desktop icon using the left mouse button, as shown below.



Figure 1 – Desktop Icon example

Compatibility

The Training System is fully compatible with Windows 2000, Windows XP, Windows Vista using Internet Explorer 6, 7 or 8 and Mozilla Firefox web browsers, among others.

The Training System can be used with Linux, Mac and Windows Operating Systems and most web browsers provided that the Flash player is supported and installed.

Please refer to the online help or contact K2 Medical Systems if you experience any issues with accessing and using the Training System.

Logging onto the Training System

When the Training System web page is accessed, you will be asked for your login ID and password (figure 9). If you have not previously logged into the Training System, your password will either have been emailed to you, or your administrator will provide you with one. At your first log-in with this password, you will be prompted to change it again to one of your own choice.



The image shows a web page for logging into the Training System. At the top left is the K2 Medical Systems logo, which consists of a stylized 'K2' inside a circle, with the text 'Medical Systems' and 'Knowledge in Medicine' below it. To the right of the logo is a login form with two input fields: 'Ligon ID' and 'Password'. Below these fields is a blue 'Sign in' button. To the left of the login form is a vertical navigation menu with four buttons: 'Home', 'Register', 'Sign in', and 'Help'. Below the 'Sign in' button are two links: 'Register' and 'Forgotten Password?'.

Figure 9 - Logging onto the Training System

Your new password must be between 6 and 16 characters long and will need to be entered twice to ensure it was not accidentally mistyped in the first instance. Should this be the case you will be requested to re-enter it.

We strongly recommend changing your password from time to time to help maintain your data security. **Do not reveal or share your password with a colleague.**

If your Unique Login ID and password are valid, the main menu of the Training System will be displayed (figure 10).

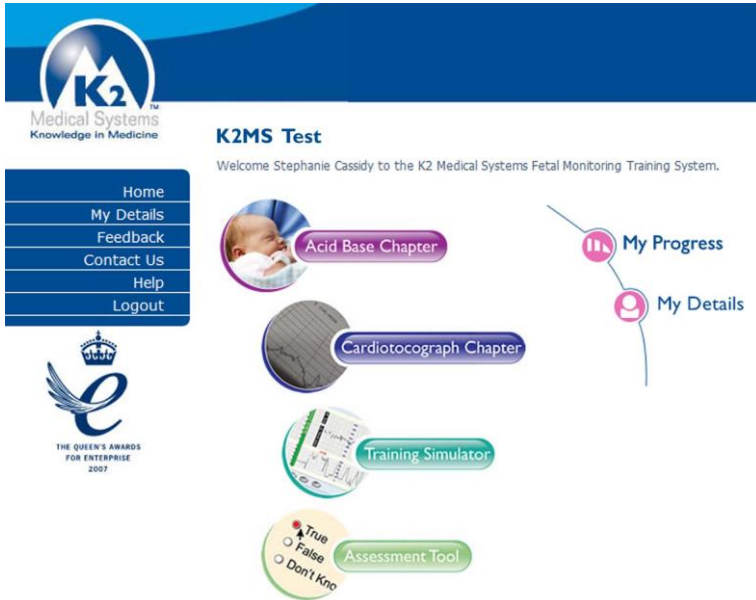


Figure 10 - Training System main option page

Flash Player Download using Internet Explorer

Many computers will already have the flash player downloaded and installed – if your current machine does not, and you are using Internet Explorer please follow the procedure below.

Select the 'Acid Base' Chapter, the window will open as a blank window with a broken link shown in the top left hand corner. A few moments later another window will open asking you if you want to install the Flash Player. Select the 'Install' button (figure 10.1). The blank window behind will then open up with the 'Acid Base' Chapter.

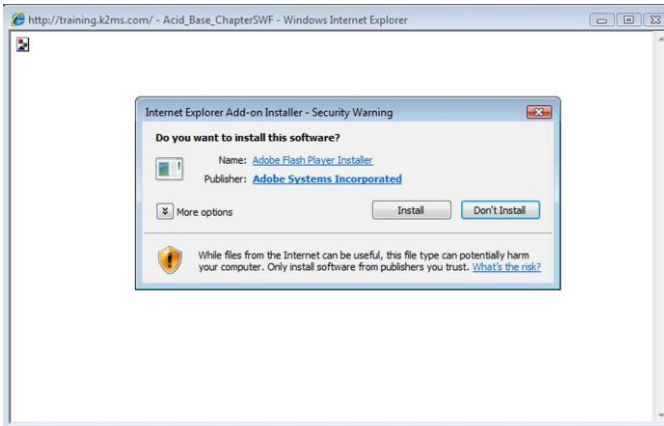


Figure 10.1 – Install Flash Player screen for Internet Explorer.

Flash Player Download using Firefox

Many computers will already have the flash player downloaded and installed – if your current machine does not, and you are using Mozilla Firefox please follow the procedure below.

Select the 'Acid Base' Chapter, a window will appear saying 'Additional plugins are required to display all the media on this page'. Select the 'Click here to download plugin' icon (figure 10.2).

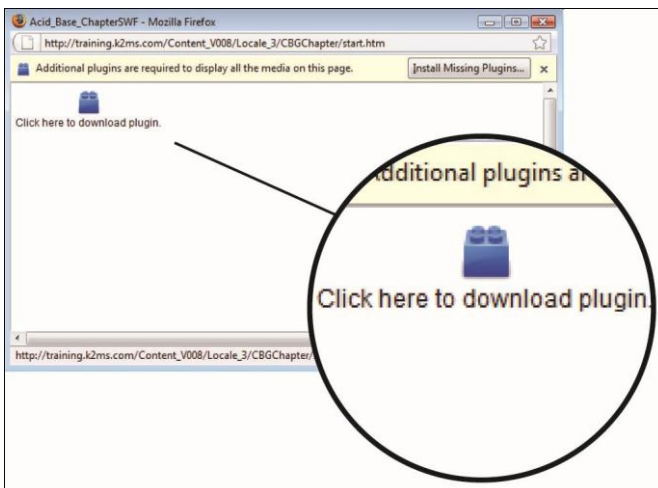


Figure 10.2 – Click to download flash player.

The next window will give you the option to select the latest flash player available, you will need to install flash player 9 or later (figure 10.3). Select next and agree to the terms and conditions. Your computer will then proceed to download the flash player (figure 10.4).

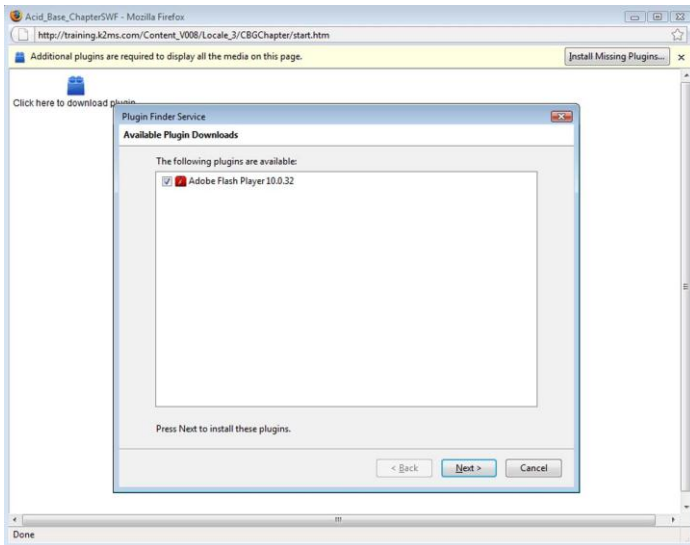


Figure 10.3 – Select the latest flash player available – 9 or above is needed.

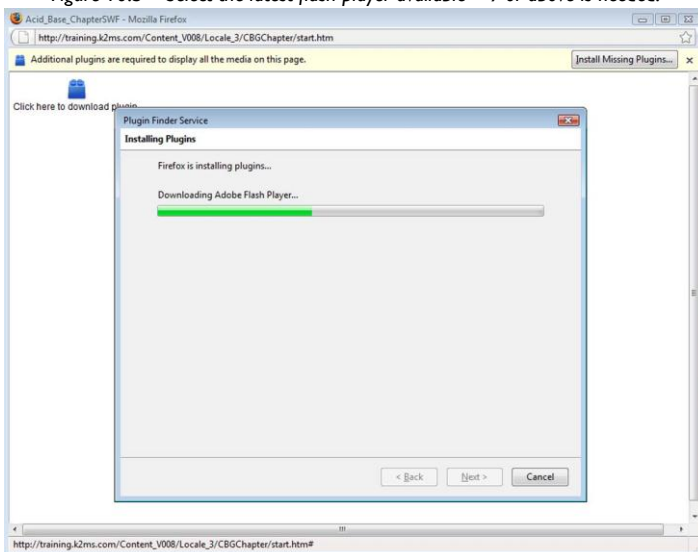


Figure 10.4 – Downloading Flash Player.

You will then see a confirmation window that will say you have successfully installed flash player. Click on finish, the 'Acid Base' Chapter will then open.

If you are presented with the following screen (figure 10.5) it means that the training system session has ended after 10 minutes of inactivity. As a result you will need to close the screen, log out and then log back into the training system.

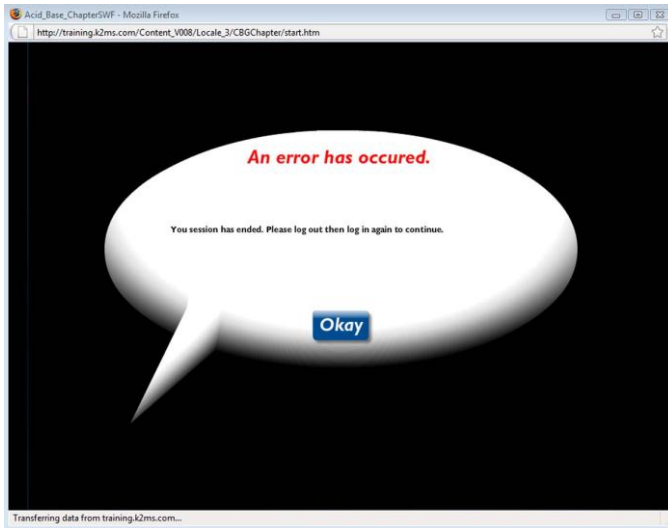


Figure 10.5 – Window directing you to log out and log back into the training system.

Using the Teaching Package

The main option screen provides access to the “Acid Base Chapter” and “Cardiotocograph Chapter”. To exit, click on the **Logout** link on the left hand menu.

When either the “Acid Base Chapter” or “Cardiotocograph Chapter” is selected, you will be presented with that chapter’s main menu screen.

In our example (figure 11) the user has chosen the “Cardiotocograph Chapter”.

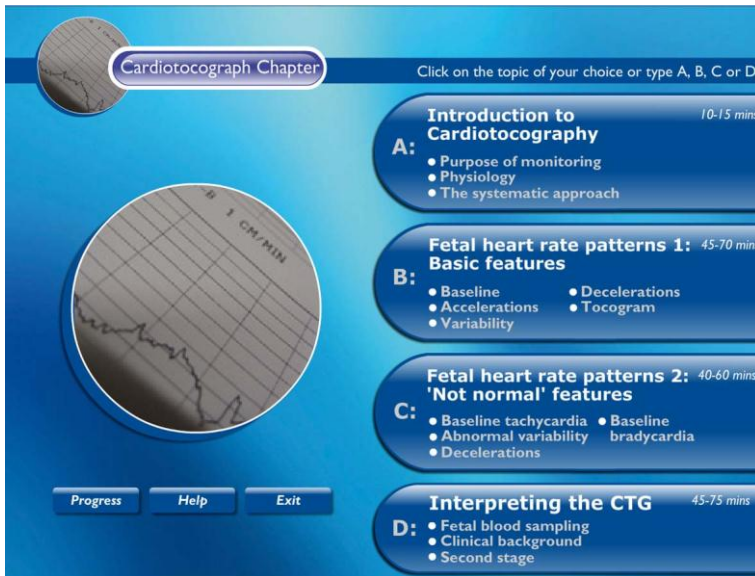


Figure 11 - Cardiotocograph Chapter main screen

The Teaching Package is divided into **chapters, topics** and **sections**.

You will have already seen the available **chapters** (“Acid Base Chapter” and “Cardiotocograph Chapter”) in figure 10.

Before progressing, it is important to know how the Teaching Package is presented; the topics are displayed on the main menu screen of the chapter. Using the example of the “Cardiotocograph Chapter” (figure 11), you can see the topics and their sections displayed on the right hand side. To proceed to a topic, use your mouse to click on a menu item, or type the corresponding letter (A, B, C or D) using the keyboard.

You will also notice the three buttons **Progress**, **Help**, and **Exit**, at the bottom left of the screen.

We recommend taking time to examine the help screen first, as there are a few shortcut keys that may help with faster navigation (figure 12). You may view this screen as often as you like throughout the package. On each occasion you will be returned to your previous screen when you click the **Close** button.

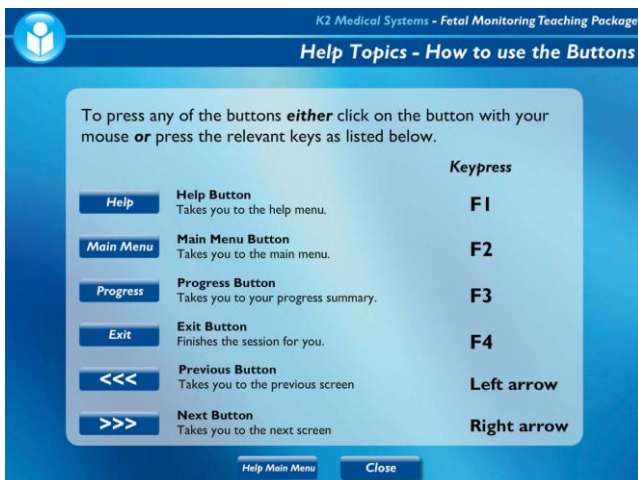


Figure 12 - Explanation of navigation buttons

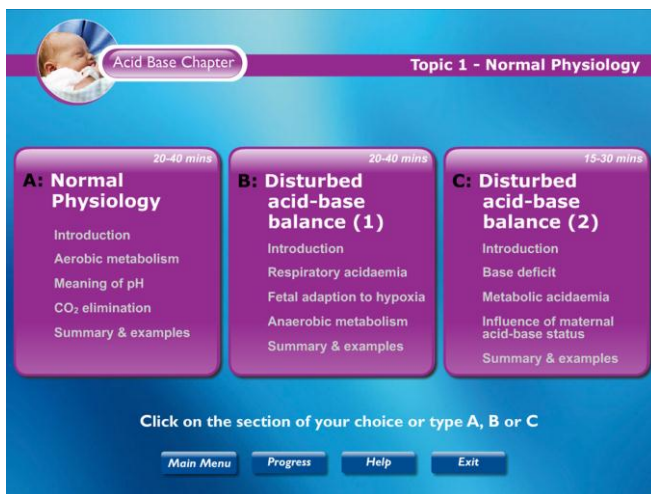


Figure 13 – Example of Section menu

From the main menu (figure 11), selection of a topic will present that topic's section menu (e.g. figure 13). To gain a certificate it is mandatory to complete all topic sections including Introductions; we strongly recommend you complete these in the order shown.

As shown, each section covers a particular element within the topic. For your information a list of the lessons to be covered are displayed below the section heading.

Navigate to the desired section by using either a mouse click on the section of your choice, or by typing the corresponding number (in this example A, B, C).

Progress Facility

If at any time you wish to review your progress, you can do this either at the main option page (figure 10) by clicking the “My Progress” icon...



Figure 14 – Progress from main option page

...or by clicking the progress button from within either chapter (figures 13).

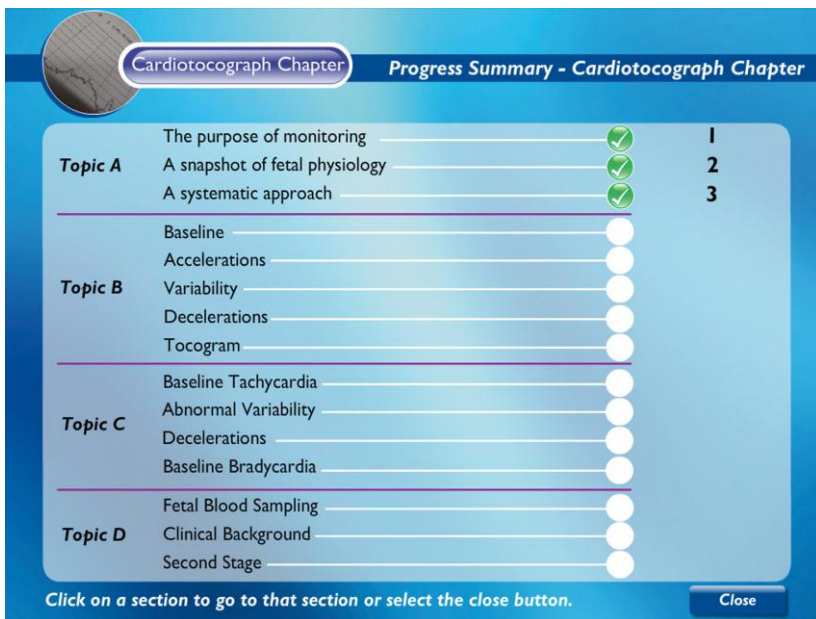


Figure 15 – Progress from within teaching package chapter

In order to help you to easily track your progress, when each section is completed, a green tick will appear to the right of it on the section menu. Also, once all sections are complete for a topic, a green tick will also be displayed on the topic menu (figure 16).

Once all sections are completed for all topics in both chapters, a congratulations screen will be displayed and your progress automatically reset so you can start afresh.

Note: Automatic resetting of progress does not delete any data from the database.

Cardiotocograph Chapter Introduction to Fetal Monitoring

3-5 mins

A: The purpose of monitoring

Aims, benefits and pitfalls of the intrapartum CTG

3-5 mins

B: A snapshot of fetal physiology

Control of the fetal heart rate

3-5 mins

C: A systematic approach

Some basic principles of CTG interpretation.

Click on the section of your choice or type A, B, or C

Main Menu
Progress
Help
Exit

Cardiotocograph Chapter Click on the topic of your choice or type A, B, C or D

10-15 mins

Introduction to Cardiotocography

A:

- Purpose of monitoring
- Physiology
- The systematic approach

45-70 mins

Fetal heart rate patterns 1: Basic features

B:

- Baseline
- Accelerations
- Variability
- Decelerations
- Tocogram

40-60 mins

Fetal heart rate patterns 2: 'Not normal' features

C:

- Baseline tachycardia
- Abnormal variability
- Decelerations
- Baseline bradycardia

45-75 mins

Interpreting the CTG

D:

- Fetal blood sampling
- Clinical background
- Second stage

Progress
Help
Exit

Figure 16 - Progress tracked on section and topic menus

To exit from the chapter progress screen and return to the previous screen, click on the **Exit** button.

Book Marking Facility

Each chapter of the Teaching Package maintains a bookmark of your progress as you work through its content. When the Teaching Package is closed down, the page you are working on is saved in the bookmark. The next time you log on, and open that chapter you will be returned to the page you were last working on.

Note: Please work through the Acid-Base chapter before you work through the CTG chapter. Both chapters have been designed to be completed in order and hence the CTG chapter will draw upon information provided in the Acid Base chapter.

Auto Log off

The training system has an inbuilt, automated log-off that operates after 10 minutes of inactivity (figure 17). This feature helps prevent others from viewing your training record and personal details. If you return to your computer after a break and find the application has closed do not worry; your position will have been bookmarked and when you next log on, and open the chapter the system will resume from the point you had reached.

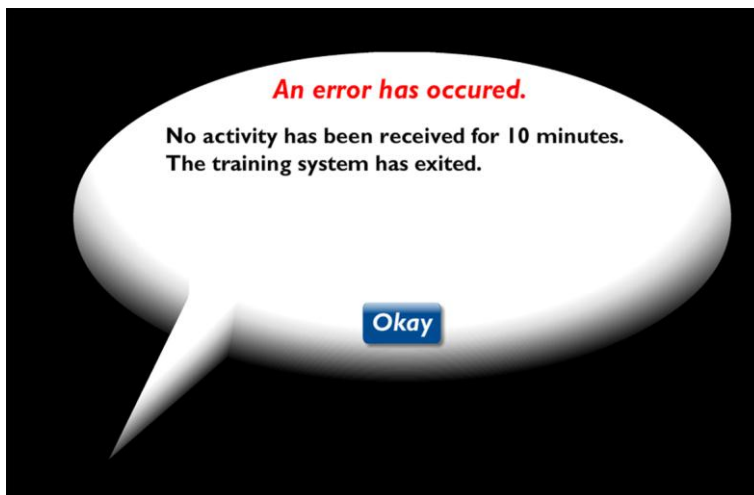


Figure 17 – Auto Log Off Screen

Using the Fetal Monitoring Training Simulator

In this section we will look at the Fetal Monitoring Training Simulator in some detail.

'The goal of the Simulator is to provide a practice environment in which to apply the knowledge learned from the Teaching Package.'

Using the Training Simulator.

On selecting the Training Simulator from the main website menu, the file window appears (figure 18).

File Window

Clicking on the [File](#) tab at the top of the screen also reveals the Case File Window:

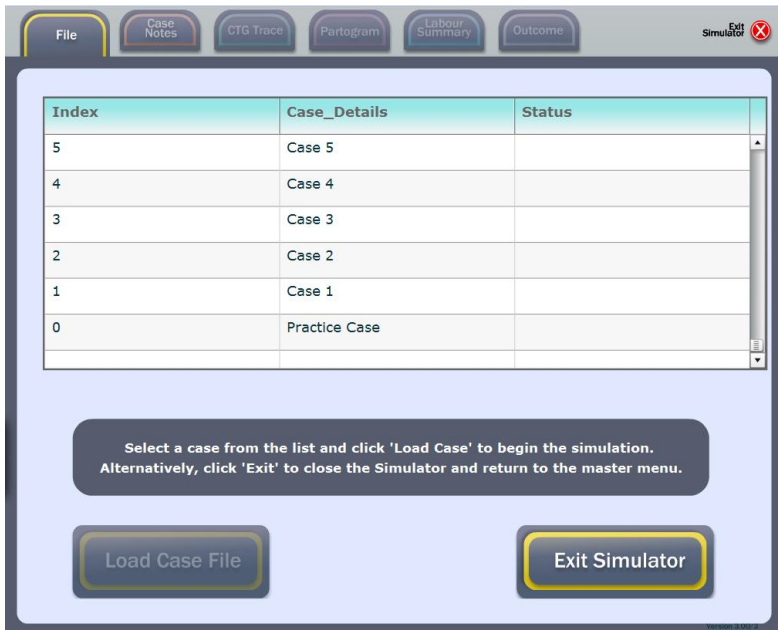


Figure 18 - Simulator case files
0024-9-0003 Rev 4

The Case File window is used to either load a trace or to exit the simulator. To load a case, select the row containing the required case by clicking on it once with the left mouse button. Then click on the [Load Case File](#) button.

Selecting a case that shows 'Reviewed' in the status column will load the entire case for the user to review, but they will be unable to score it again.

Any case the user currently has open whether the trace is being scored or is already completed, will be shown as 'current' in the status column (?), this is to help the user understand which case they currently have open and which have been reviewed.

Clicking on the [Exit Simulator](#) button will close the Simulator program.

Case History

When the case has been loaded a summary of the patient history is given. This information can also be accessed at any time during the review by clicking on the [Case Notes](#) tab.

CTG Trace Window

Clicking on the CTG Trace tab reveals the CTG Trace window (figure 19 - this is the default window for the simulator):



Figure 19 - Simulator CTG Trace

This is the most important simulator window as it is where the trace is shown divided into 15 minute segments. The user manages the case using the decision buttons situated at the bottom of the window. A marker showing the segment number and the user's management score is displayed on the trace for each managed segment.

Decision Buttons

Buttons are provided to enable the user to indicate their preferred method of management. Once a decision button is clicked, the next segment of trace will be revealed. The protocol is as follows:

1. **No concerns** – I am not concerned for this fetus.
 2. **Some concerns** – I have concerns for the fetus but they are not sufficient to request an FBS. I may take some remedial action (e.g. turn people on their side).
 3. **FBS** - I am sufficiently concerned to request an FBS. When this is clicked, an FBS result will be provided with which you can determine your subsequent management. In certain circumstances an FBS is not possible and the candidate will be informed accordingly.
 4. **Serious Concerns** – The information I have leads me to be seriously concerned for this fetus. I am not going to recommend immediate delivery although I am thinking of delivery and will do so if things deteriorate further.
 5. **Recommend Delivery** – I am so concerned for this fetus that I want to recommend immediate delivery.
- VE. **Vaginal Examination** – This button allows you to carry out a vaginal examination. This option is designed to provide information only and will not cause the next segment of trace to be revealed.

The decision buttons can also be activated using the keys 1 to 5 on the upper left of the computer keyboard. The review is complete when either the trace ends or a recommendation for operative intervention is made.

Clinical Objective: As in clinical practice, the objective is to manage the case with the minimum of intervention without jeopardising the safety of the mother or infant. The emphasis is on interpretation of the CTG in clinical context and intervention should be on this basis and not on lack of progress in labour alone.

The cases displayed are actual cases (with personal data removed) and as a result the information available for each case depends on what was actually collected and recorded at the time the case occurred. We realise that during the management of a real case in clinical practice there may be other things that could be done to alter the CTG (e.g. reduction of syntocinon, change position, etc) which might change the overall decision making process but these options are not available within the Simulator. The case has to be managed with the data available and the focus of the Simulator is on the interpretation of the CTG trace as seen. We can assure users that the experts referred to in the Simulator were presented with each case in the same manner and with the same information, so comparison with their opinion is meaningful.

Note: *Users can assume that all maternal parameters are normal unless specified otherwise, e.g. maternal temperature is normal until informed if a pyrexia. There is no syntocinon unless marked on the partogram etc.*

Navigation buttons

The row of buttons displayed just above the decision buttons form the *Control Panel* (figure 20). This allows the available trace to be scrolled forward and backward.

Figure 20 - Simulator navigation buttons



To Beginning / Scroll Back / Stop / Scroll Forward / To End

To Beginning Button: This button will display the beginning of the trace.

Scroll Back Button: This button will scroll the trace backwards. It has three speeds, on the first click of this button, the scroll speed is set to slow, click on this button again and the scroll speed is set to medium, click on this button a third time and the scroll speed is set to fast.

Stop Button: This button stop the trace if it is scrolling.

Scroll Forward Button: This button will scroll the trace forwards. It has three speeds, on the first click of this button, the scroll speed is set to slow, click on this button again and the scroll speed is set to medium, click on this button a third time and the scroll speed is set to fast.

To End Button: This button will display the end of the trace or the last scored segment where the case has still to be completed.

Scroll Bar: The scroll bar can be found directly under the trace, it enables the user to scroll freely through the trace, the user will only be able to scroll through trace segments that have been scored or if the case has already been reviewed the user can scroll through the whole trace.



Figure 20.1 - Simulator navigation

Partogram Window

Clicking on the *Partogram* tab reveals the Partogram (figure 21).

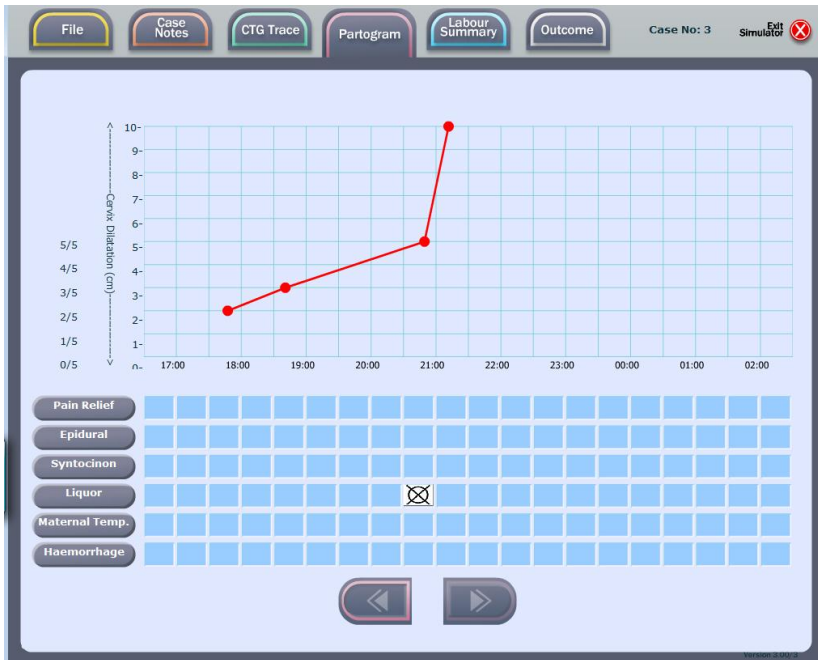


Figure 21 - Simulator Partogram screen

This window provides additional labour information and is updated as the simulation progresses. Cervical dilatation, FBS and pushing are displayed on the upper chart. The lower part of the partogram shows icon images corresponding to certain events that occur during labour.

The partogram chart can be scrolled forward or backward in one-hour steps from the start of the case using the buttons at the bottom of the window.

By hovering over the left hand grey buttons (pain relief, epidural, syntocinon etc), a key will appear describing the icons used.

Labour Summary Window

Clicking on the *Labour Summary* tab reveals the Labour Summary (figure 22).

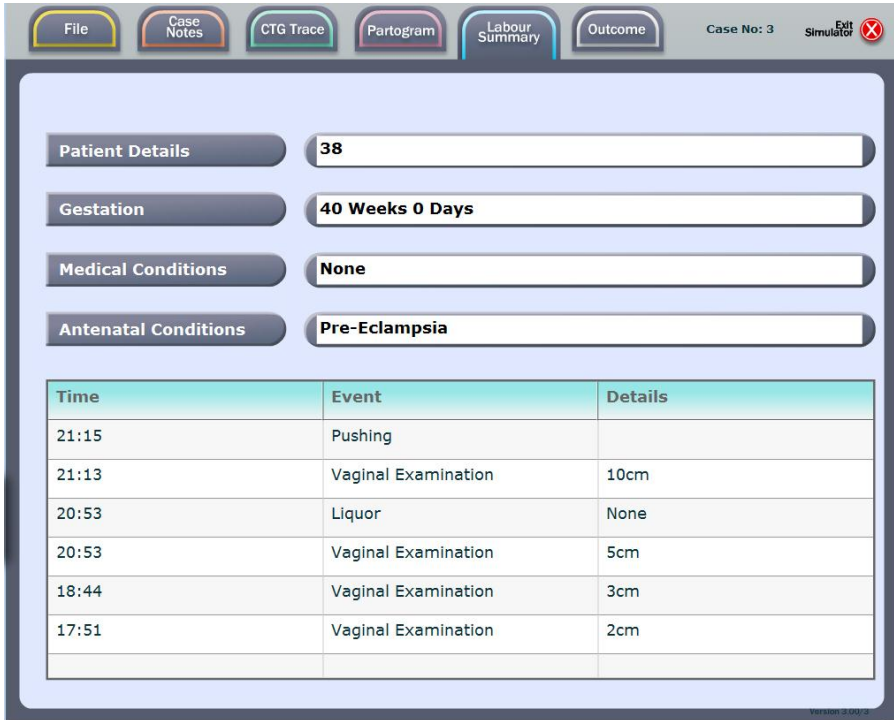


Figure 22 - Simulator labour summary screen

This window presents patient details in the top part of the window and event information shown as a list of events in the lower part of the window. The event information list is continually updated as the simulation unfolds, and as the list becomes longer a scrollbar appears on its right hand side.

Post Delivery

When the case ends or a decision to deliver is taken, a large dialog box will appear centre screen indicating that the simulator case has concluded and that outcome details are available via the Outcome tab.

Outcome Window

Clicking on the Outcome tab initially reveals the actual outcome of the infant and all applicable follow up information. Clicking on the Expert Opinion button - top right of the Outcome window - also reveals how 3 independent experts (and in the first ten cases, the Plymouth Decision Support System) managed the case. The user can compare their own actions with that of the experts.

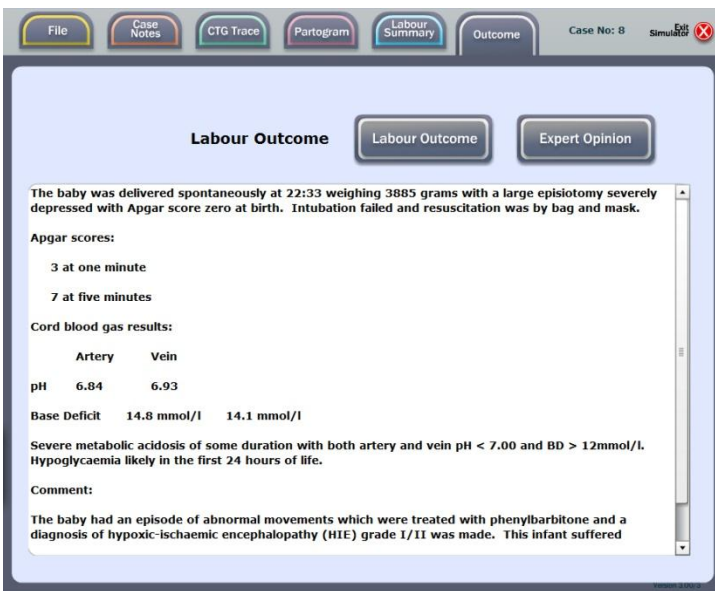


Figure 20.1 - Simulator conclusion screen

Auto-Log-Off

If no key press or mouse click is received for a ten-minute period, then the auto-log-off screen will be shown and the Simulator training session ended. Information is automatically saved before the Simulator closes and the user's position will be bookmarked.

Book marking facility

As a case is worked through, a bookmark file is continually updated with the user's progress. This means that the simulator can be exited at any time without losing data. When logging in again at a later time, the user will automatically be taken back to the point they left off. Once a simulation is started, it must be completed before any other cases can be loaded.

Using the Assessment Tool

In this section we will look at the Assessment Tool (Quiz) in some detail.

On selecting the Assessment Tool icon from the main menu the instruction screen appears (figure 23).

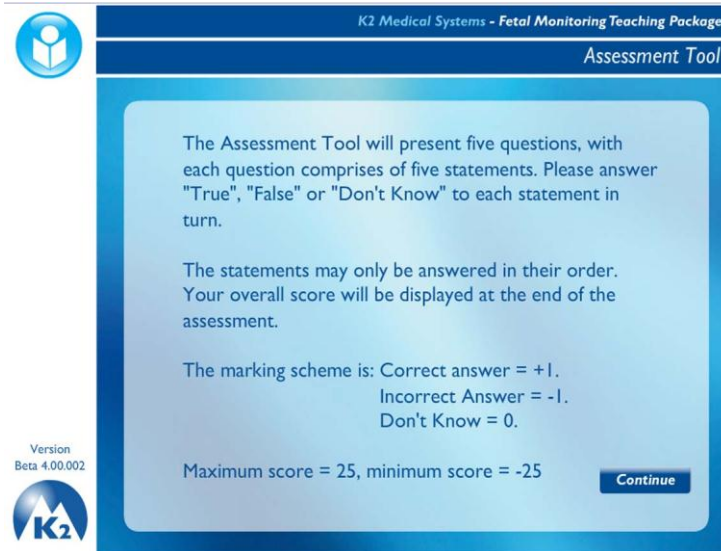


Figure 23 – Assessment Tool instructions

Clicking on the [Main Menu](#) button will close the Assessment Tool and return the user to the main training system menu. Clicking on [Continue](#) will begin the assessment tool, displaying the first of five questions (Figure 24).

Note: Once the assessment tool has been started, it cannot be exited until complete.



Question

|

Version 4.00



Question	
Statement 1	<input type="radio"/> True <input type="radio"/> Don't Know <input type="radio"/> False
Statement 2	<input type="radio"/> True <input type="radio"/> Don't Know <input type="radio"/> False
Statement 3	<input type="radio"/> True <input type="radio"/> Don't Know <input type="radio"/> False
Statement 4	<input type="radio"/> True <input type="radio"/> Don't Know <input type="radio"/> False
Statement 5	<input type="radio"/> True <input type="radio"/> Don't Know <input type="radio"/> False

Figure 24 – Assessment Tool question screen

The Assessment Tool will present the user with a number of randomly selected questions, each consisting of five related statements and sometimes an image. The user must read each statement and indicate whether the statement is true or false by clicking on the appropriate answer option to the right. If the answer is not known then the don't know answer option can be selected.

The statement currently being answered is highlighted and once all five statements have been answered, the next question is automatically displayed. If an image contains detail that cannot be clearly seen at the current size, an [Enlarge](#) button will be shown producing a larger image.

When all questions have been answered, a results screen is displayed giving a break down of answers given and an overall score (see figure 25).

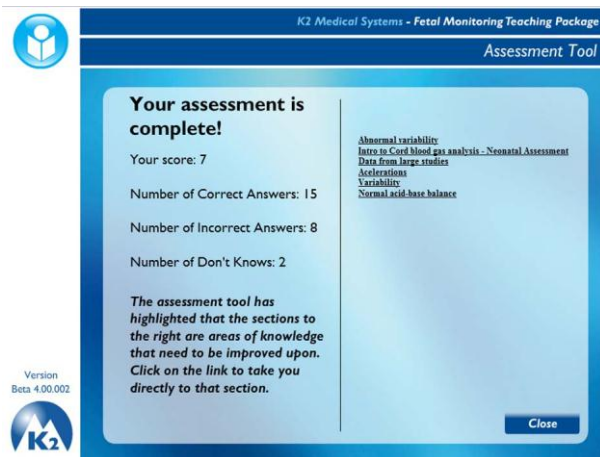


Figure 25 – Assessment Tool results screen

The scoring method used in the assessment tool adds one to the score when a question statement is answered correctly, removes one from the score when a question statement is answered incorrectly and does not alter the score if an answer is unknown. This means that the final score can be a negative number.

In the left hand column you will find a list of links. These are links to sections within the training system. Rather than providing the correct answers to questions, we direct you to the section that contains the correct answer. This, we hope, facilitates the learning process and recollection of the information.

Clicking on the [Main Menu](#) button will close the Assessment Tool and return the user to the main menu.

Certification

Users who have worked through **each** section of **both** chapters of the Teaching Package in the last twelve months will receive a certificate of completion (figure 26). At present the Simulator cases are not included as a part of certification, but are detailed in the reports to system administrators at the hospital.



Figure 26 - Fetal Monitoring Training System Certificate

Users can access the training system from any PC within a hospital (provided they are registered on the system) or from outside the hospital provided they have a valid internet connection and a functioning Flash player installation.

