

# THE NEW K2 Simulator

## Quick Help Guide



CTG Training Simulator Version 2.0

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K2's new simulator provides you with an opportunity to both train and assess your CTG interpretation and management skills. Interpretation rules are based on RANZCOG guidelines and assessment incorporates both independent expert and INFANT™ technology (please refer to Appendix A if you would like to know more about INFANT™).

**The simulator presents you with historical patient cases for review in two ways:**

### Training Mode



The first time you review a case will be in **Training mode**. Training mode uses both independent expert review and INFANT™ interpretation to provide immediate feedback on your interpretation of the trace, your assessment of the risk of fetal compromise, and chosen management. At the end of the case, feedback is provided on the level of agreement with the clinical experts (who independently interpret each case) and INFANT™ for two categories:

- Concern Agreement
- CTG Classification

### Assessment Mode



7 days after reviewing a case in Training mode you can revisit the case in **Assessment mode**. In this mode immediate feedback is suppressed to more closely simulate what happens in real life. At the end of the case, feedback is provided on the level of agreement with the clinical experts (who independently interpret each case) and INFANT™ for two categories:

- Concern Agreement
- CTG Classification

## Using the Simulator

① Select the case to be reviewed from the File tab and click [Load Case File] as shown below in Figure 1. Previously reviewed traces will be marked as 'reviewed' in the Status column with a countdown in days to when you 'Can Score' the trace again in Assessment mode. Once you completed both training and assessment modes, your Concern Agreement and CTG Classification scores are displayed in their relevant columns

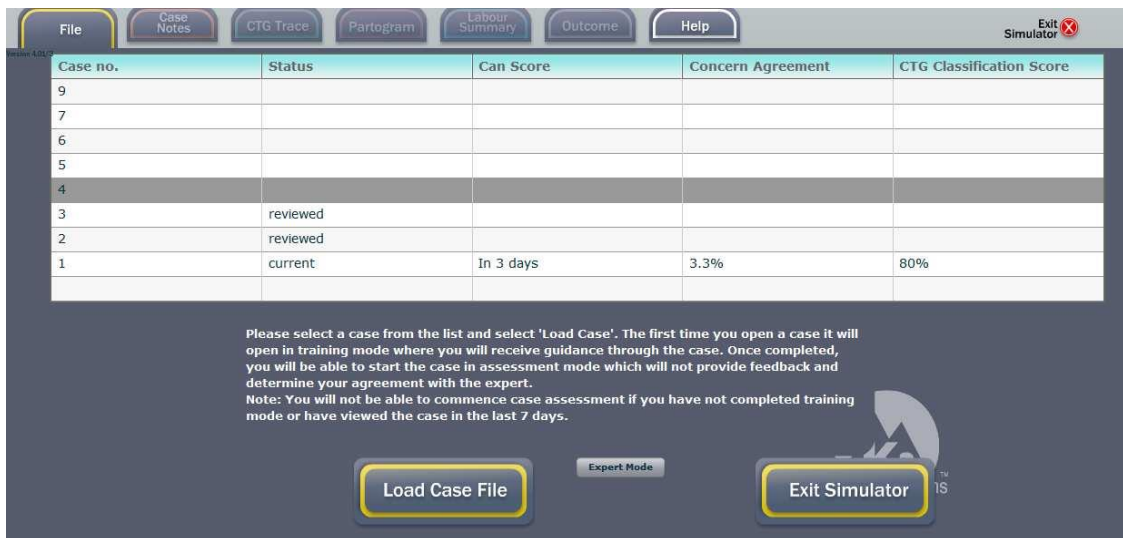


Fig.1

- ② Once your chosen case has loaded the 'Case Notes' tab will reveal the patient notes as shown below in Figure 2



Fig.2


- ③ Click the CTG Tab and the trace will appear as shown below in Figure 3. This screen also displays the INFANT Concern Ladder (indicated by the  heart symbol) which is explained in more detail in Appendix A



Fig.3

- ③ a. At the bottom of this screen you can identify the current CTG segment features according to the RANZCOG guidelines (see Figure 4). Click on the relevant range or feature in each column and then classify the likelihood that these features will result in fetal compromise

Baseline Not Classified	Variability Not Classified	Decelerations Not Classified	Accelerations Not Classified	Sinusoidal	RANZCOG Overall Classification
<input type="radio"/> >180 <input type="radio"/> 170->180 <input type="radio"/> 160->170 <input type="radio"/> 150->160 <input type="radio"/> 140->150 <input type="radio"/> 130->140 <input type="radio"/> 120->130 <input type="radio"/> 110->120 <input type="radio"/> 100->110 <input type="radio"/> <100	<input type="radio"/> <3 Absent <input type="radio"/> <5 Reduced <input type="radio"/> 5-25 Normal <input type="radio"/> >25 Increased	<input type="radio"/> None <input type="radio"/> Early <input type="radio"/> Late <input type="radio"/> Variable <input type="radio"/> Complicated Variable <input type="radio"/> Prolonged  decels duration:10 mins	<input type="radio"/> None <input type="radio"/> Present	<input type="radio"/> Yes <input type="radio"/> No	<b>Fetal Compromise</b> <input type="radio"/> Very likely <input type="radio"/> May be <input type="radio"/> Unlikely <input checked="" type="radio"/> Normal
Click here to enter Management					

Fig.4

3 b. Click on the management bar at the bottom of the screen (as shown above in Figure 4) to display and select possible Management actions as shown below in Figure 5. Any number of management options can be selected

Baseline Normal 150->160	Variability Normal 5-25 Normal	Decelerations Present Late	Accelerations None None	Sinusoidal Not Present No	RANZCOG Overall Classification
<b>Management</b>					
<input type="checkbox"/> Adjust US Belt/Attach FSE <input type="checkbox"/> Adjust TOCO belt <input type="checkbox"/> Change Maternal Position <input type="checkbox"/> Concerned. Watching CTG closely	<input type="checkbox"/> Call Senior Review <input type="checkbox"/> Review Oxytocin <input type="checkbox"/> VE <input type="checkbox"/> Request Immediate Assistance <input type="checkbox"/> FBS <input type="checkbox"/> Prepare for Operative Delivery	<input type="checkbox"/> Deliver now			
					<input type="button" value="Next Segment"/>

Fig .5

3 c. Click on the 'Next Segment' button to obtain feedback and continue to the next section. Expert feedback is then displayed as shown below in Figure 6

**Segment Review**

**training mode**

**Comment**  
 Comment: This trace is commencing very reassuring.

**Interpretation Feedback**

Baseline:

Variability:

Decelerations:

Accelerations:

**Concern Feedback**

None/Mild

**Management Feedback**


Adjust US Belt/Attach FSE:

Fig.6

Segment Review Feedback symbols:

The agrees  expert with you

The  expert disagrees with you

Your chosen  actions are unlikely to have an impact

Supporting comments from the expert may also appear. At this point it is possible to challenge or query the expert's opinion via email by clicking on the [Challenge Expert] button. To move on to the next segment click on the [close] button.

④ Another 15 minutes of CTG trace will then be revealed and the process from step 3a starts again. Please note that your previous classification values will be retained on the screen unless you decide to change them.

⑤ If you decide to intervene or reach the end of the recorded CTG trace, feedback and agreement levels are displayed as shown in Figure 7 below



Fig.7

The agreement levels rate the user's review scores with the Expert and INFANT™ scores. The expert's agreement is also rated against INFANT™ as a comparison.

## Understanding your results

The higher your concern agreement scores, the more closely you agree with the levels of concern expressed by the expert or INFANT™ throughout the case review. We encourage you to seek further guidance on CTG management if you rate poorly in these areas.

The higher your CTG classification score, the more accurate your identification of trace features. We encourage you to seek further training on CTG interpretation if you rate poorly in this area.

You can also use the forward and back controls below the trace to compare your feature identification, concern levels and management actions with the expert and INFANT™ for each trace segment.

## Appendix A

### What is INFANT?

INFANT™ assesses the same CTG features that a clinical expert would in real time. These include Baseline, Variability, Accelerations, Decelerations, Signal Quality, Contraction patterns, Pushing, Sinusoidal and Bimodal patterns. Where these parameters become abnormal they are clearly identified and marked on the CTG display.

Due to the challenging nature of CTG interpretation, INFANT™ has taken over 20 years to develop as it must be **both** good at detecting problems within all manner of CTG patterns **and** not so sensitive that it raises unnecessary concerns. Achieving this balance has been historically difficult for people and computer systems.

INFANT™ analyses both the FHR and contraction pattern and alerts clinicians to potential problems in a timely manner by displaying a 4 stage concern rating for the trace as described below:

**Red**

**Serious & Urgent Concerns:** Review all aspects of the labour, make a plan & document.

**Yellow**

**Serious Concerns:** Inform senior staff. Review all aspects of the labour, make a plan & document.

**Blue**

**Minor Concerns:** Continue to observe the trace closely, document your plan and inform senior staff where appropriate.

**Green**

**No Concerns**

The technology has been validated on databases containing several thousands of interesting, abnormal and challenging traces; it has been found to perform at the level of clinical experts whose interpretation ability had been previously determined in a randomised controlled trial. <sup>1, 2, 3</sup>

INFANT™ is currently undergoing widespread validation in a large multicentre randomised controlled trial across the U.K. involving 46,000 births. The trial is being conducted by the National Perinatal Epidemiology Unit at Oxford University and is the largest maternity study to be funded by the National Health Service.

1. Keith RDF, Beckley S, Garibaldi JM, Westgate JA, Ifeachor EC, Greene KR. A multicentre comparative study of 17 experts and an intelligent computer system for managing labour using the cardiotocogram. Br J Obstet Gynaecol 1995;102:688-700.

2. Skinner JF, Harris M, Greene KR. Computerised decision support for managing labour using the cardiotocogram: 500 cases with the range of abnormality. 28th British Congress of Obstetrics and Gynaecology, Harrogate, June 30 - July 4, 1998.

3. Keith RDF, Greene KR. Development, evaluation and validation of an intelligent decision support tool for the management of labour. In 'Analysis of Complex Data and Artificial Intelligence in Obstetrics' Eds. Chang and Rogers. Bailliere's Clinical Obstetrics and Gynaecology (International Practice and Research), Bailliere Tindall, London. 1994;8:No.3 583-605.