High-intelligence Digital Neonatal Comprehensive Emergency Skill Training System

Mode: ACLS1400

Instruction Mannual

C o n t e n t

Preface

Thanks for your buying ACLS1400 High-intelligence Digital Neonatal (Emergency) Skill Training System!

The birth of the system shows our Honglian's consistent pursuit of innovation and quality once again. The system follows the 2005 guideline for CPR and ECC, officially published by American Heart Association (AHA) and International CPR Federation, which adds many new functions and a large number of realizable up-to-date technology of the manikin on the basis of the original CPR training device to make it outstanding among congeneric products.

- ✧ Education benefit: provide highly vivid simulative training of first aid to make learners master standard emergency operation rapidly and correctly.
- ✧ Multifunction: can simulate real cases of various types which are suitable for medical workers of all the departments to use.
- ✧ Cost benefit: let you enjoy service of low cost and high quality.
- ✧ Abundant case scripts: make learners confront rare abnormal cases in real life.
- ✧ Easy to use: can be used flexibly in different subjects.
- ✧ Realistic anatomy: vividly simulate vital signs, which make extensive emergency treatment practice available.

✧ Convenient transportation: easy, quick installation and dismantlement.

Honglian is willing to cooperate cordially with friends, new and old, home and abroad, and hand in hand to create a better future!

Shanghai Honglian Medical Instrument Dev. Co., Ltd was established in 1993. Now, with more than 15 years efforts and cooperation with ten famous national universities and academic institutes, Honglian has developed to a high-tech enterprise with her own research and development, production, sales and service system. The marketing center located in Shanghai Bund commercial circle covers 1000 square meters and the production base in high-tech developing area even covers ten thousand square meters. The company annual sales have more than 100million, and General Doctor has become well-known in the industry and also renowned in international market.

In order to maintain the product competiveness in the international arena, Honglian has invested heavily in recent years for medical education software and digital network, and many other independent core technology research and development; and achieved a major breakthrough in the mold and material production process. For the first time, the product standard and quality achieves world strong opponents. Meanwhile, the company core technology development has made great progress, more than a dozen of product parameters have been examined and verifies by authorities and become the industry standard-setting; of which a number of designs and functions have reached international first-class level that truly achieved the primary goal-base on domestic and towards world.

In 2002, Honglian were authenticated by British MoDi Company with ISO9001-2000; in 2006, she won the CE certificate for quality; in 2008 passed the Environmental Management System GB/T24001-2004-ISO14001:2004 standard. Also in 2008 and 2010, Honglian joint hand with Red Cross and provided emergency training products for Beijing Olympic Games and Shanghai Expo.

The General Doctor product covers 10series and more than 1000 species, e.g.: medical emergency, diagnosis, clinic, nursing, OB/GYN, pediatric department, anatomy, multimedia, traditional Chinese medicine, stomatology and specimen section. In particular, the CPR manikin and emergency products have won the bid of Chinese Red Cross and UNFPA; therefore, Honglian is the stable supplier for them.

Since the establishment of International Trade Department in 2005, she has exported products to 81 countries, such as USA, Germany, Holland, Belgium, Japan, Korea, Ukraine, etc. The annual export amount has reached more than USD3, 000,000 with a fast growth rate of 64% every year. What is more, the

brand ”General Doctor” has been recognized by more and more foreign customers in international market and win honor for China.

As the creator of modern education equipment, Honglian has established 10 service centers throughout the country and created a practical and popular service management system to achieve rapid feedback, online help, the nearest maintenance, emergency treatment, regular tracking and many other services, so that to be the reliable partner of customers.

In achieving the primary goal of “Complete variety, leading technology, perfect service”, “Honglian people” once again look further. In Aug. 2007, the company launched “The Third Venture” call to build “Quality, Innovation; Brand, Integrity; Service, Honest; qualified people, system” the national business model as the goal and achieve the transmission of modern management enterprise. With the development of national medical education, Honglian would like to cooperate with old and new friends at home and abroad to develop hand in hand. We will make every effort to serve domestic medical education and make more outstanding contribution for human health.

Instructions of ACLS1400 Manikin

The main function of GD/ACLS1400 system is to provide training and assessment of advanced neonatal emergency (ACLS) operation procedures, which can help medical care

learners do standard training by the simulation of virtual emergency cases and the training of emergency skills. This is an emergency teaching system, a collection of the female manikin all over, vital signs simulator, multi-parameter simulative monitor and computer. It has ACLS emergency functions including non-invasive BP measurement, auscultation, recognition of normal and abnormal heart sounds, lung sounds and bowel sounds, and ECG, etc. Simultaneously, the system, whose content features pictures and essays, acoustic image and video, is suitable for skills training of country physicians and provides emergency operation skills of CPR and external defibrillation and functions of operation log, storage, examination and evaluation, scores printing and interactive network. The birth of ACLS1400 will fill in the civil blanks, which stands for our emergency training mode geared to developed countries.

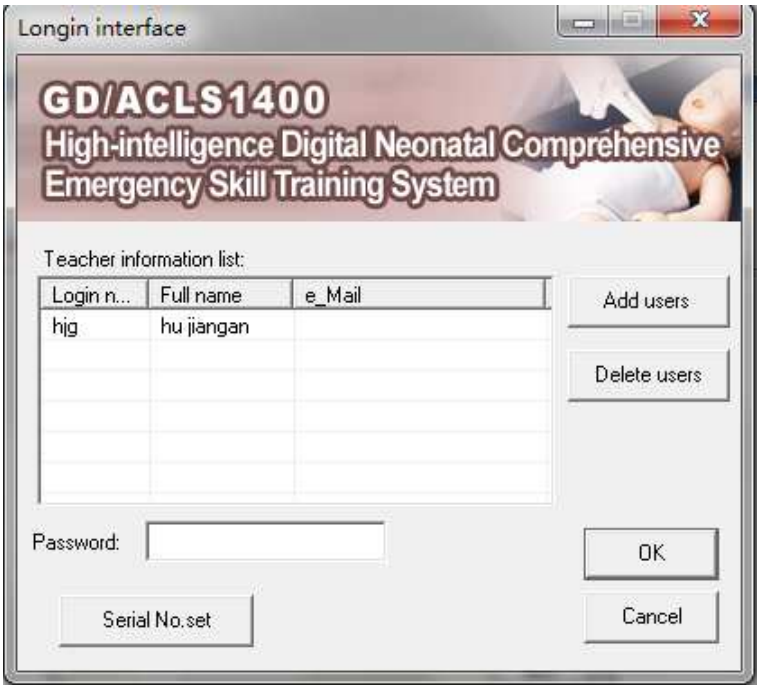
ACLS1400 Neonatal Emergency Skill Training Software

Introduction of System Functions:

1. Neonatal special skills training
2. Neonatal self-set cases operation
3. Neonatal professional emergency cases training
4. Neonatal professional emergency cases assessment

Login

Choose login name, click ″confirm″ to enter the main interface;



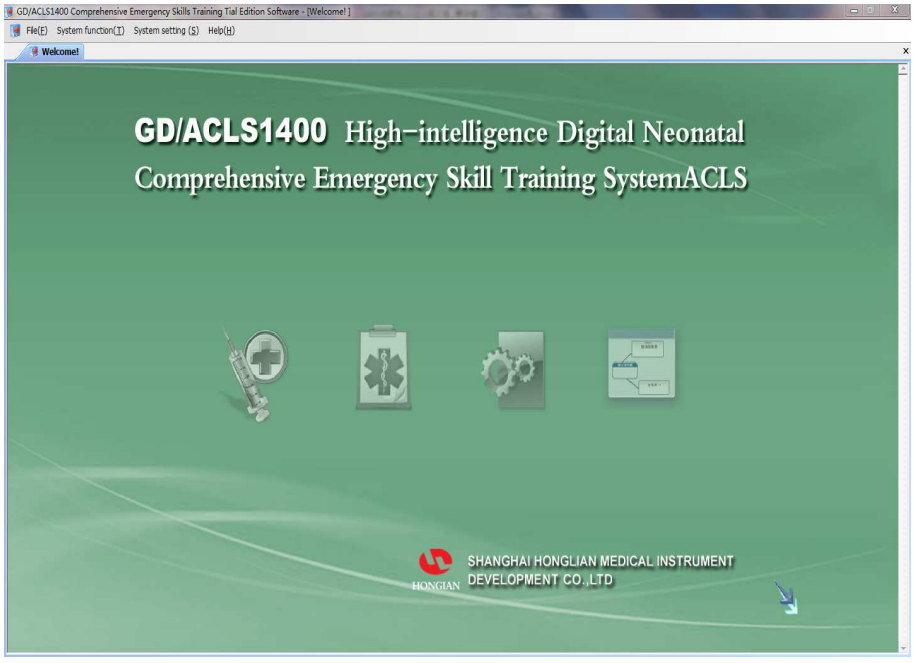
Features:

1. Add users: add login members, which will appear in the list of teacher information;

2. Click the login name, enter the passwords, select the serial port No., click "confirm", and enter the main interface;

3. Delete users:delete login members, the login name can be deleted after the password is entered.

Main Interface:



Introduction of main interface:

The main interface consists of title bar, menu bar, function display space and output window, etc.

(1) Title bar: Minimize ( ), Maximize ( ), Close ( );

(2) Menu bar: the menu bar, whose function is in accordance with the functional zone, contains nearly all the orders of the system;

(3) Function display space: it is the uppermost component, and intuitively shows the main functions and components of the system, which including special skills training, system scripts operation, system settings and script editor.

Special Skills Training

Way I: click "  ", and enter the interface (shown as the following picture);

Way II: click system function--special skills training--directly enter the required courseware content.

Special skills training including items of:

1). Neonatal cardiac rhythm recognition training

2). CPR emergency training

3). Trachea cannula training

4). Umbilical intubation training

5). Simulation defibrillation training

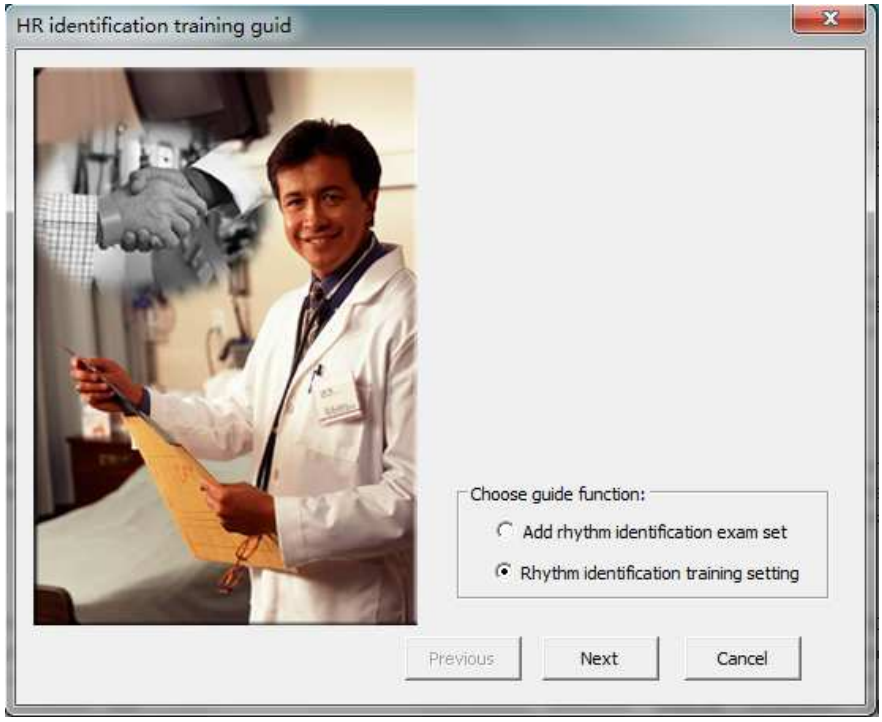
6). Injection pump use training

7). Infusion pump use training

8). Positive pressure respirator operation

Neonatal cardiac rhythm recognition training

Click " " to enter the interface:

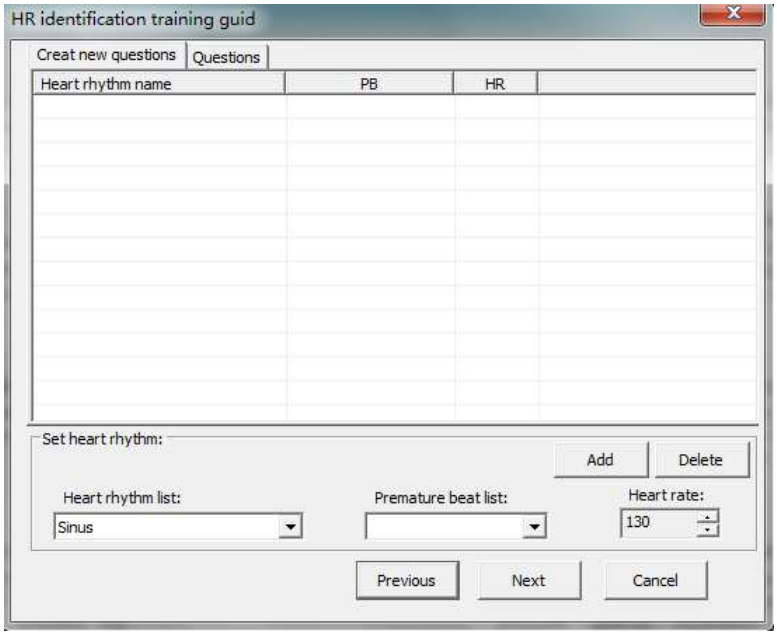


1. Add test questions:

Step 1: choose "settings of adding test questions about cardiac rhythm recognition";

Step 2: choose "New test question" or "existed test question", herein take the new test question for example:

Step 3: choose "list of cardiac thythm" and "list of premature beats", and click "add";



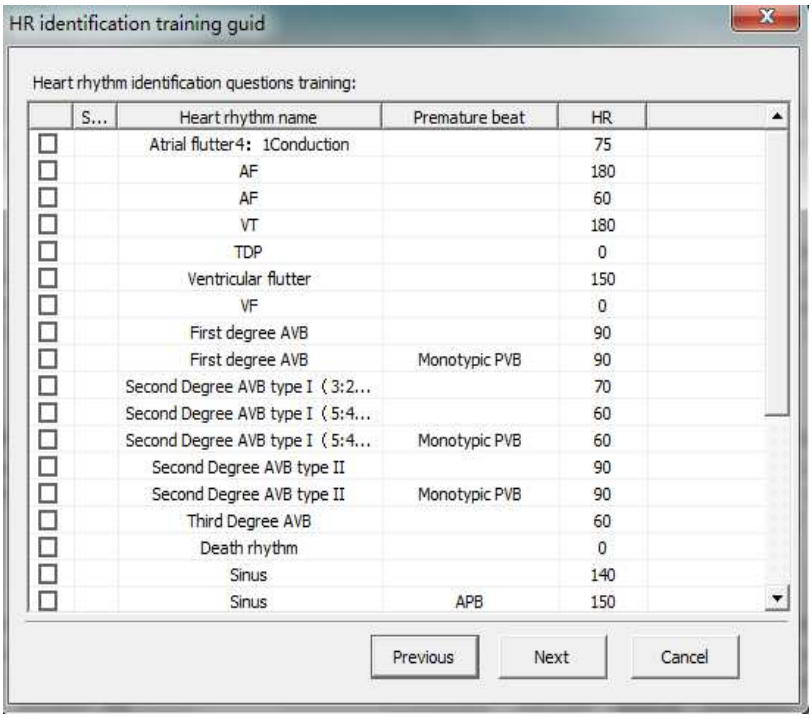
Step 4: click "next";

Step 5: click "finish".

2. Edit test paper:

Step 1: choose "settings of cardiac rhythm recognition training";

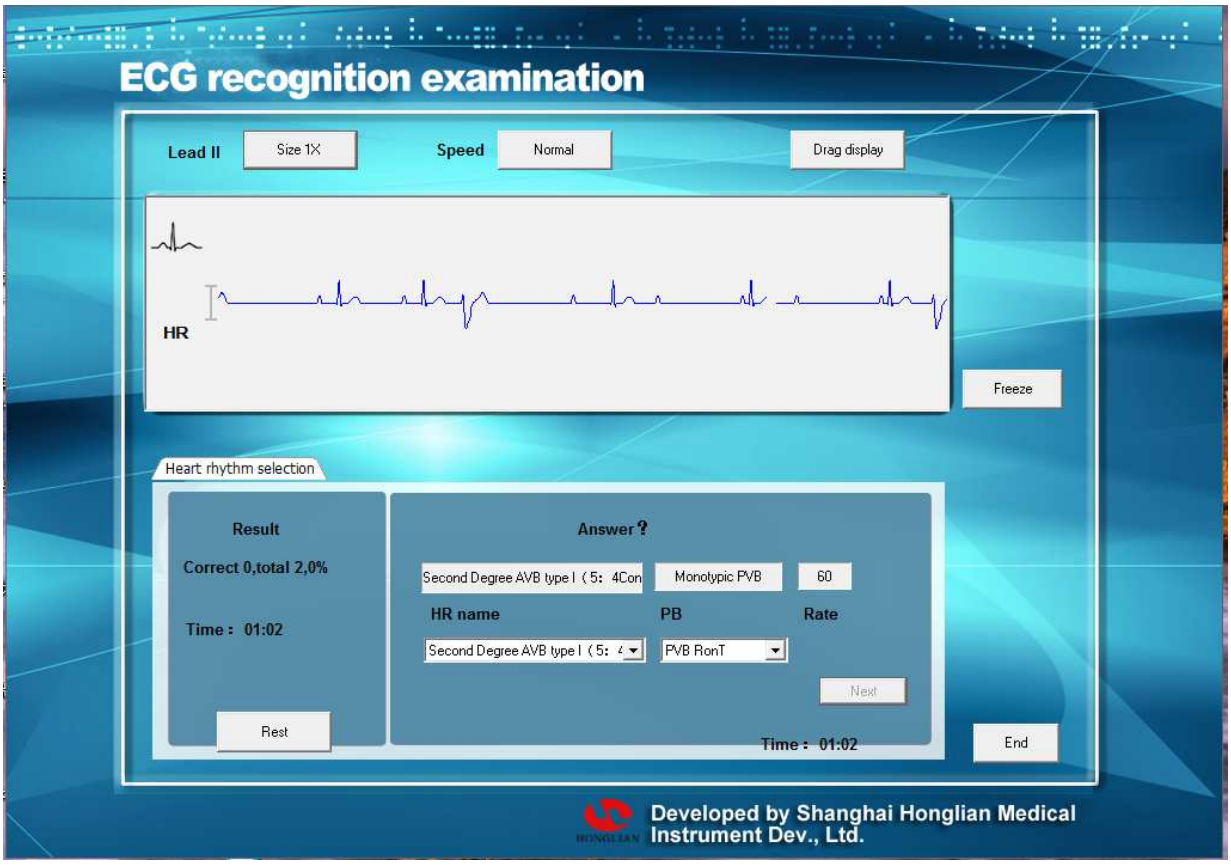
Step 2: choose test questions of cardiac rhythm recognition;



Step 3: click "next";

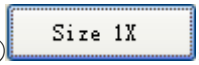
Step 4: click "finish".

3. Enter the training interface after the paper is finished editing.

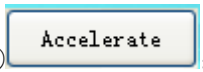


Features:

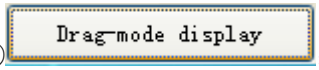
① ECG wave forms appear in the main interface;

② 

: Once and twice enlargement of ECG wave forms;

③ 

: Can speed up;

④ 

: Can display by dragging and refreshing;

⑤ 

: Gridlines appear at the back of ECG;

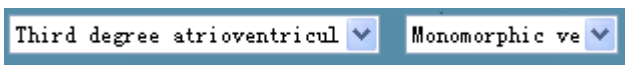
⑥ 

: Show the outcome and accuracy;

⑦ 

: Keep the training time;

⑧ Choose ECG name from the drop-down box;



⑨ Click "next", and the reference answer will appear transiently in last row.

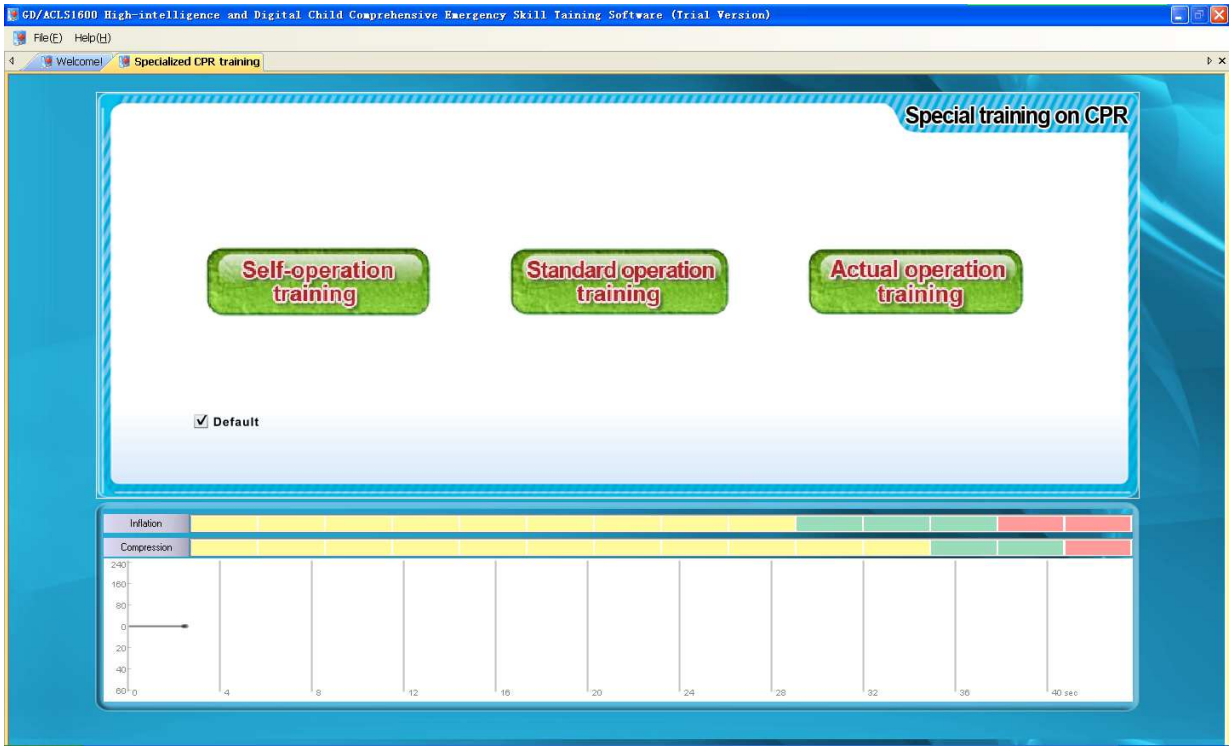
Click "end" and exit from the training interface directly.

CPR emergency training, click " " to enter the interface:

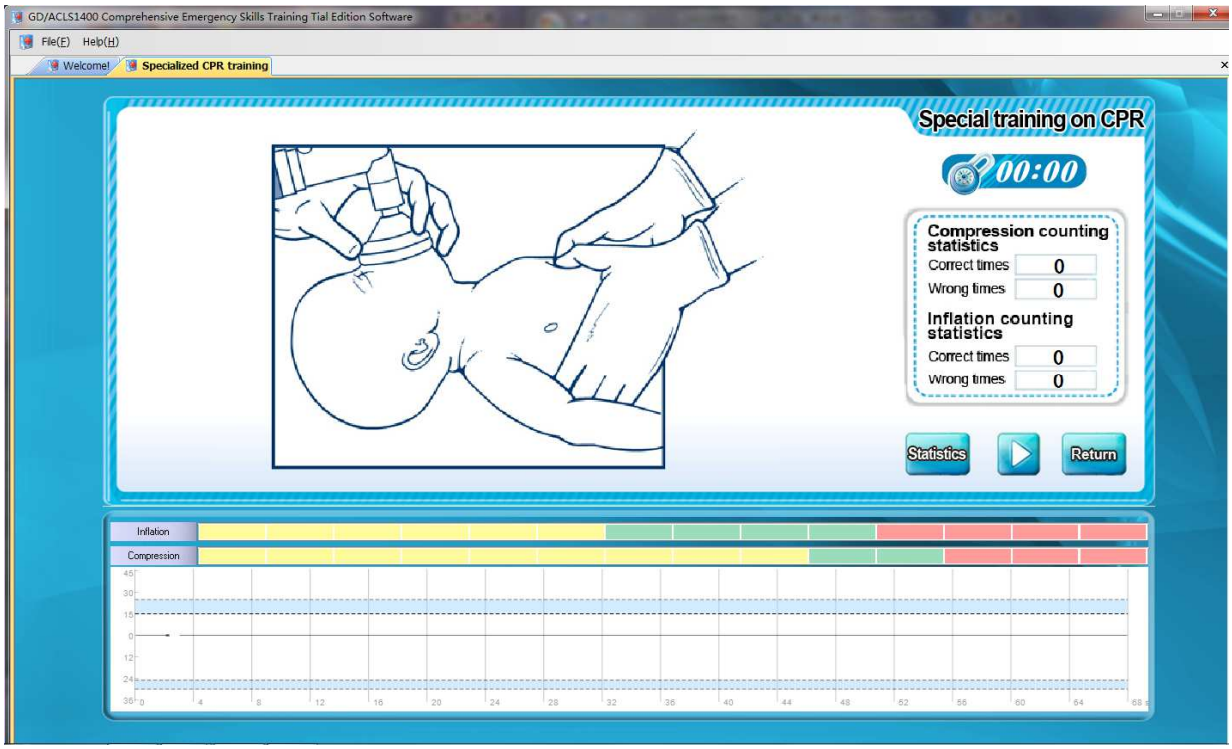
Features:

1. Training modes: three

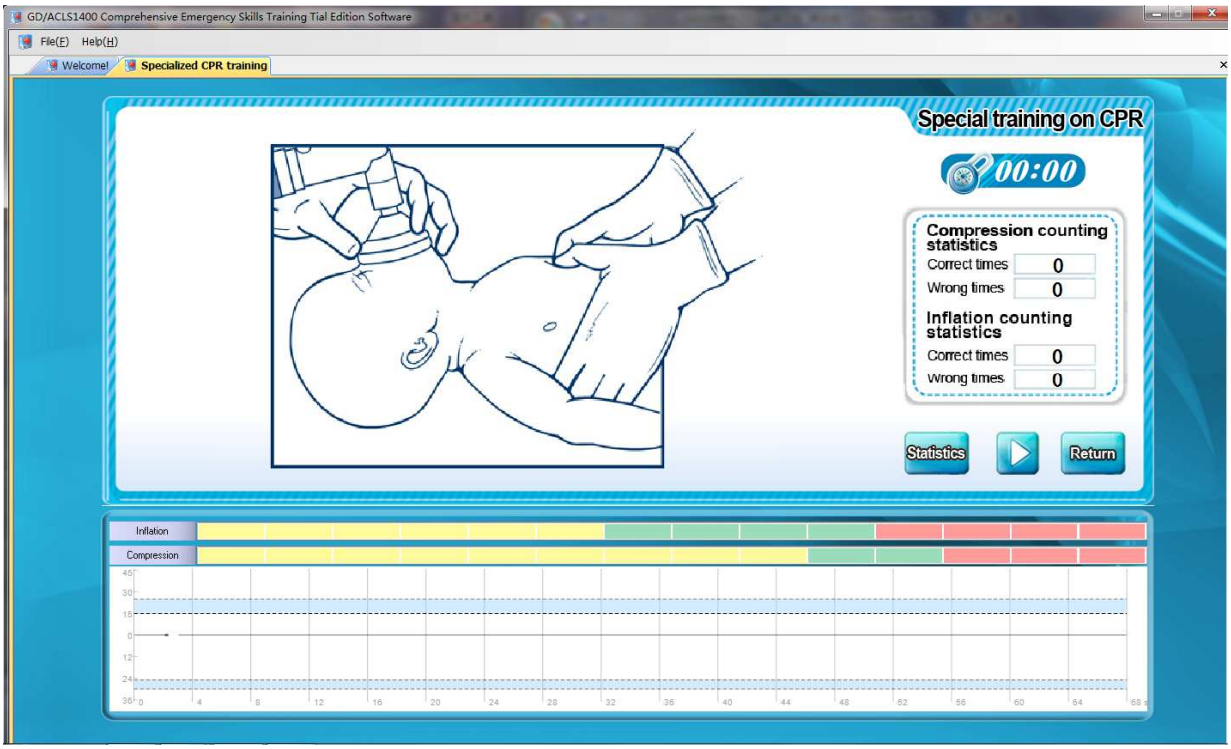
- ✧ Self-operation exercise: can perform artificial respiration and extracardial compression at random instead of operating according to the 1:3 ratio of artificial breathing and extracardial compression;
- ✧ Standard operation exercise: must do as the 1:3 ratio, 3 correct compressions only follow once correct insufflation; (Times of wrong operation cannot be counted.)
- ✧ Competitive operation exercise: must do as the 1:3 ratio, three compressions follow once insufflation. (Whatever the operation is wrong or correct, times of them all can be counted.)



Click one of the CPR operation, e.g. "self-operation exercise". Enter the interface (shown as the following picture) .



1. The interface is display with CPR operation flash, time control zone, statistics zone, insufflation and compression bar codes, and operation time zone.

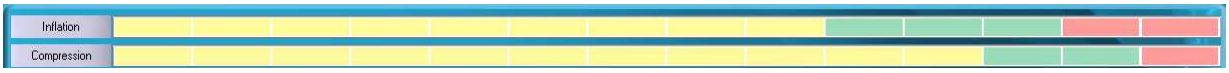


2. Click "  ", and the manikin begins the timekeeping of original state. 

3. Flash demonstrates the operation synchronously.

4. Statistics of compression times: according to the compression depth; can count wrong times and correct times.

5. Statistics of insufflation times: according to the insufflation volume; can count wrong times and correct times.
6. Insufflation bar code: the bar code will separately be yellow, green and red when the insufflation volume is insufficient, correct and excessive.
7. Compression bar code: the bar code will separately be yellow, green and red when the compression depth is insufficient, correct and excessive. The following picture shows the insufficient compression with yellow bar code.



8. Real time display of artificial respiration and extracardial compression oscillograms (matched pictures).

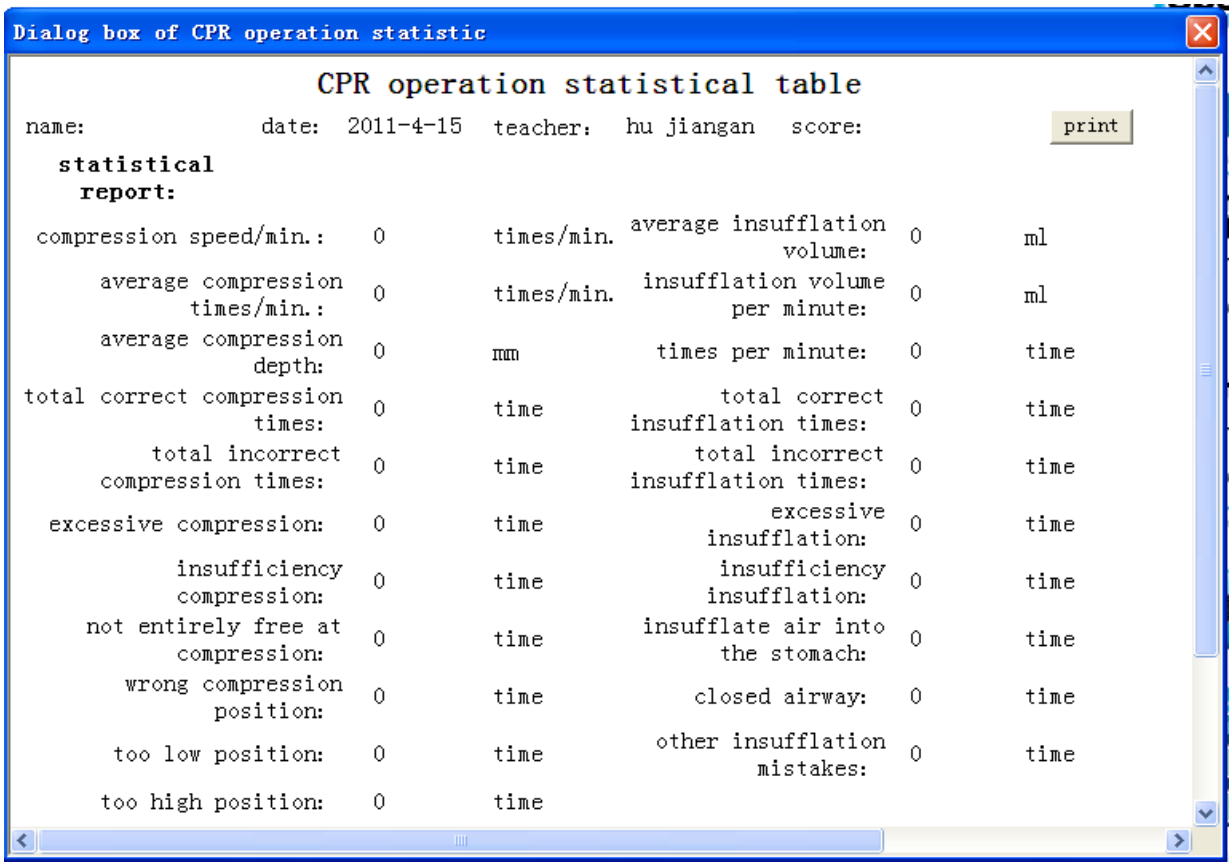
9. " 

" : can return the superior interface.

10. " 

": work out statistics when the operation is up. Students' names, operation date, teachers and scores will be displayed and can be printed. (shown as the following picture)

c



✧ Self-operation exercise procedures:

1. Check the manikin's state: mydriasis, no spontaneous carotid pulse; comply to CPR operation standard.
2. Click "start", and begin timekeeping.
3. Insufflation exercise.

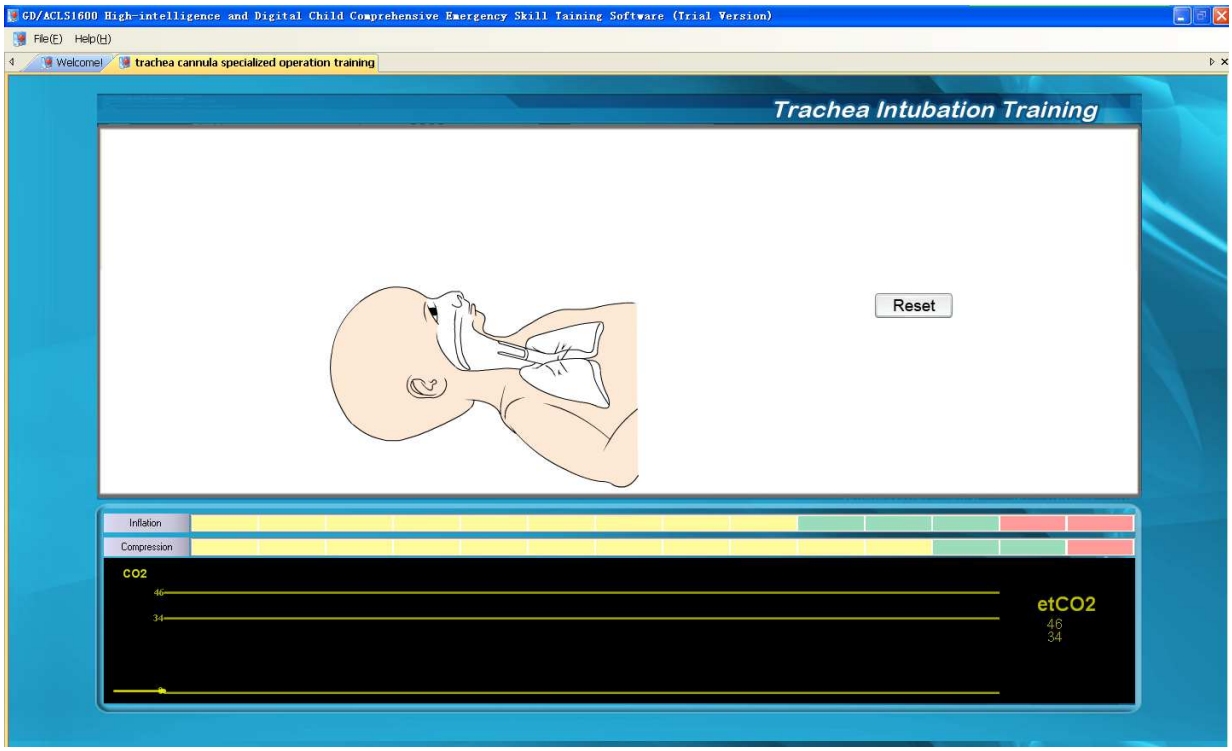
4. Compression exercise.

✧ Procedures of standard and competitive operation exercise:

1. Check the manikin's state: mydriasis, no spontaneous carotid pulse; comply to CPR operation standard.
2. Click "start", and begin timekeeping.
3. Once correct insufflation.
4. Three correct compressions.
5. Complete the examination of manikin's state, myosis and spontaneous carotid pulse within the schedule time; successful rescue.
6. Work out the statistics and print the transcript.

Trachea Cannula Training

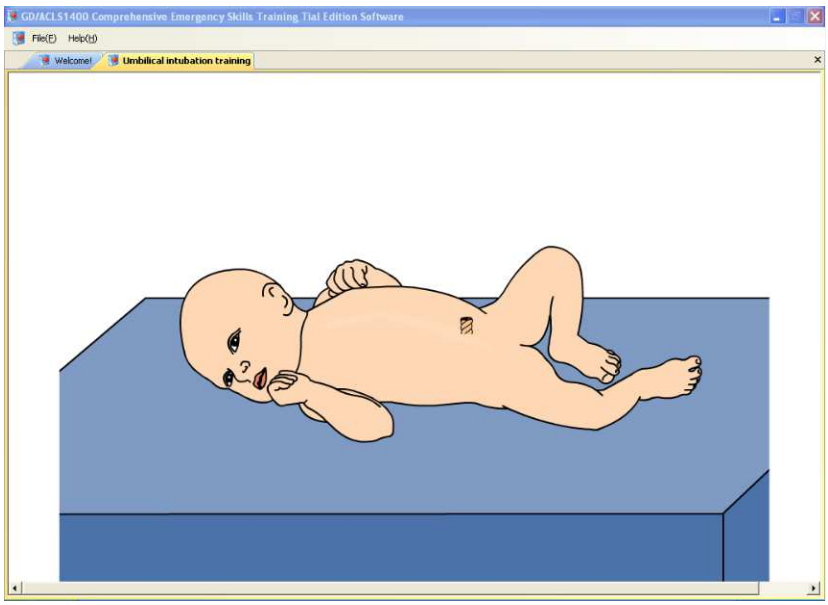
Click "  " to enter the special training of intubation, shown as the following picture:



1. Manikin is apnoea at the original state.
2. Judge the position of trachea cannula by different animation shows. (illustrated above)
3. When the intubation is successful, we can auscultate breath sounds by lung of the manikin with an electronic stethoscope.

Umbilical intubation training

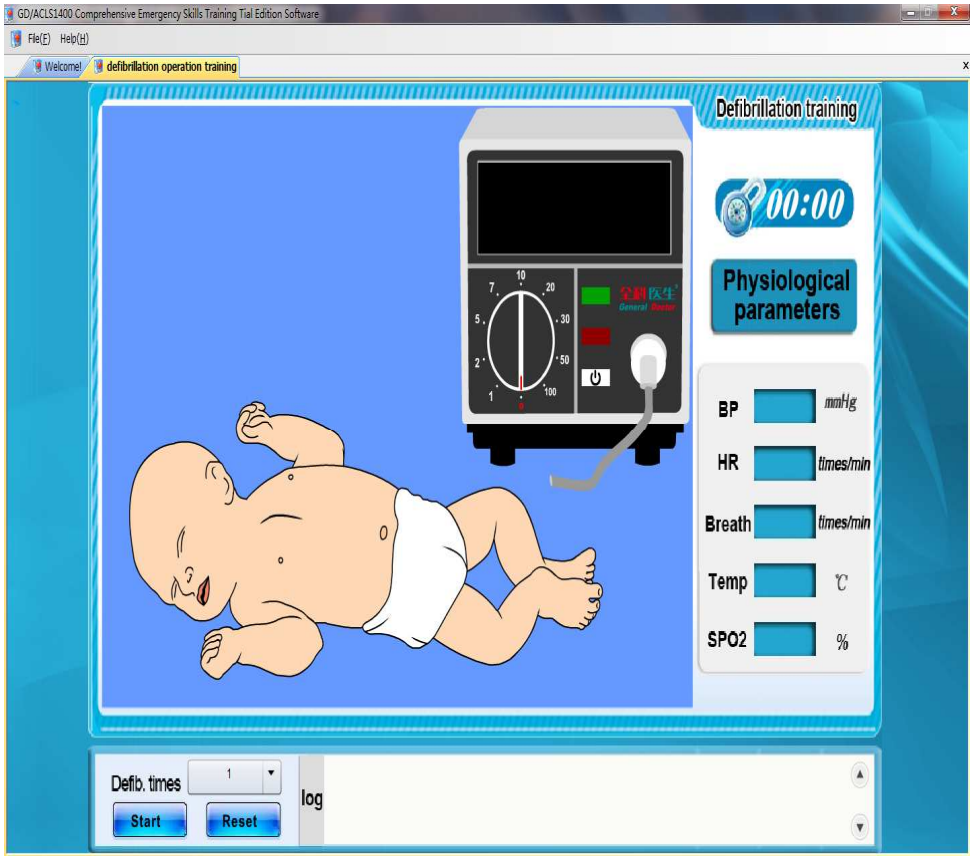
Click "  " to enter the special training of umbilical intubation, shown as the following picture:



1. Connect the manikin at the original state.
2. Insert the intubation tube into umbilical artery.
3. Correct intubation, and the blood backflow into the tube will emerge.

Simulation Defibrillation Training

Click "  " to enter the special training of simulation defibrillation, shown as the following picture:

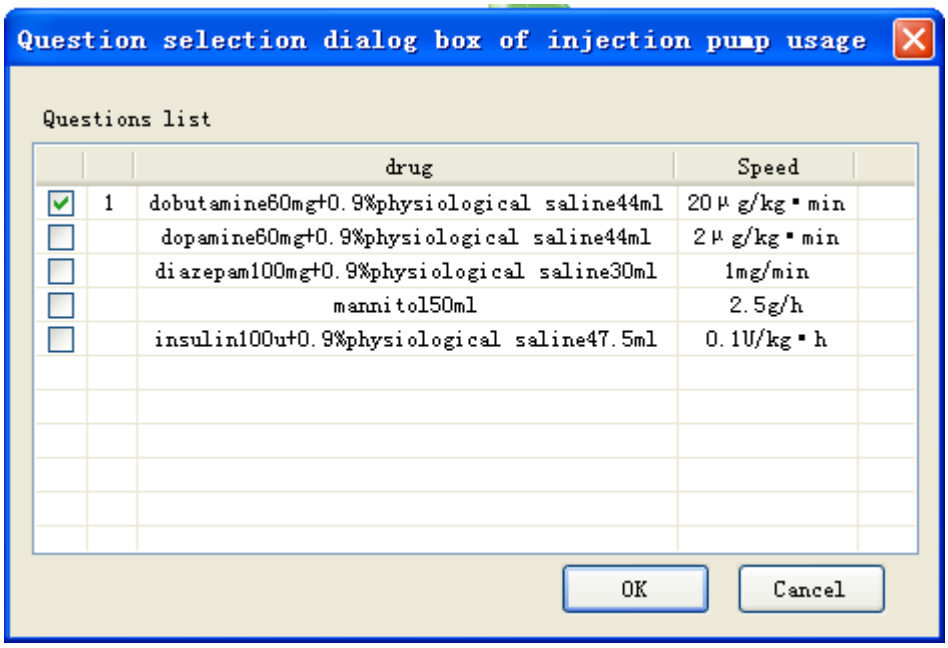


1. Choose defibrillation times;
2. Click " 

", and start operation;
3. If it is connected to the real monitor, ECG will appear;
4. Choose the energy for defibrillation;
5. Charging is available when the defibrillation is finished;
6. Log will record the specific operation course;
7. It will restore to the initial state after resetting.

Injection Pump Use Training

Click "  " to enter the training interface of injection pump use, shown as the following picture:

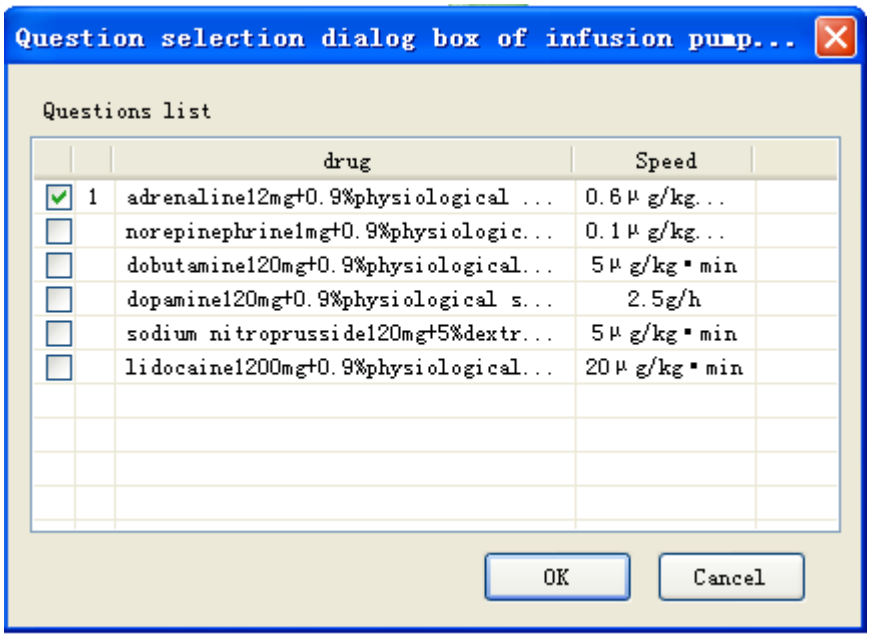


Step 1: choose drugs for injection.

1.  Turn on the power switch.
2. Set the flow of transfusion; 36ml/h of the flow and 20ml of the container is correct.
3. Click "  " to start injection.
4. The injection is finished.

Infusion Pump Use Training

Click "  " to enter the interface.



Step 1: choose drugs for injection.

Step 2: "  " boot up.

Step 3: "  " input the injection speed.

Step 4: "  " start.

Step 5: infuse liquid.

Step 6: 

show the volume of infused liquid.

Step 7: when the transfusion is finished, 

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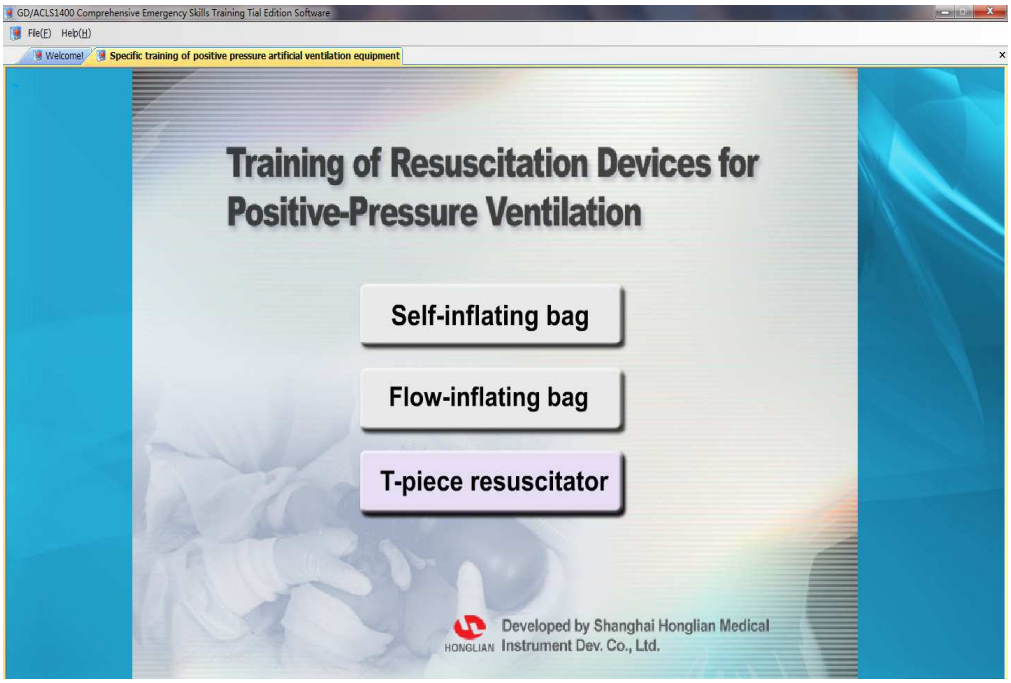
Operation of Positive Pressure Respirator

Click "  " to enter the interface.

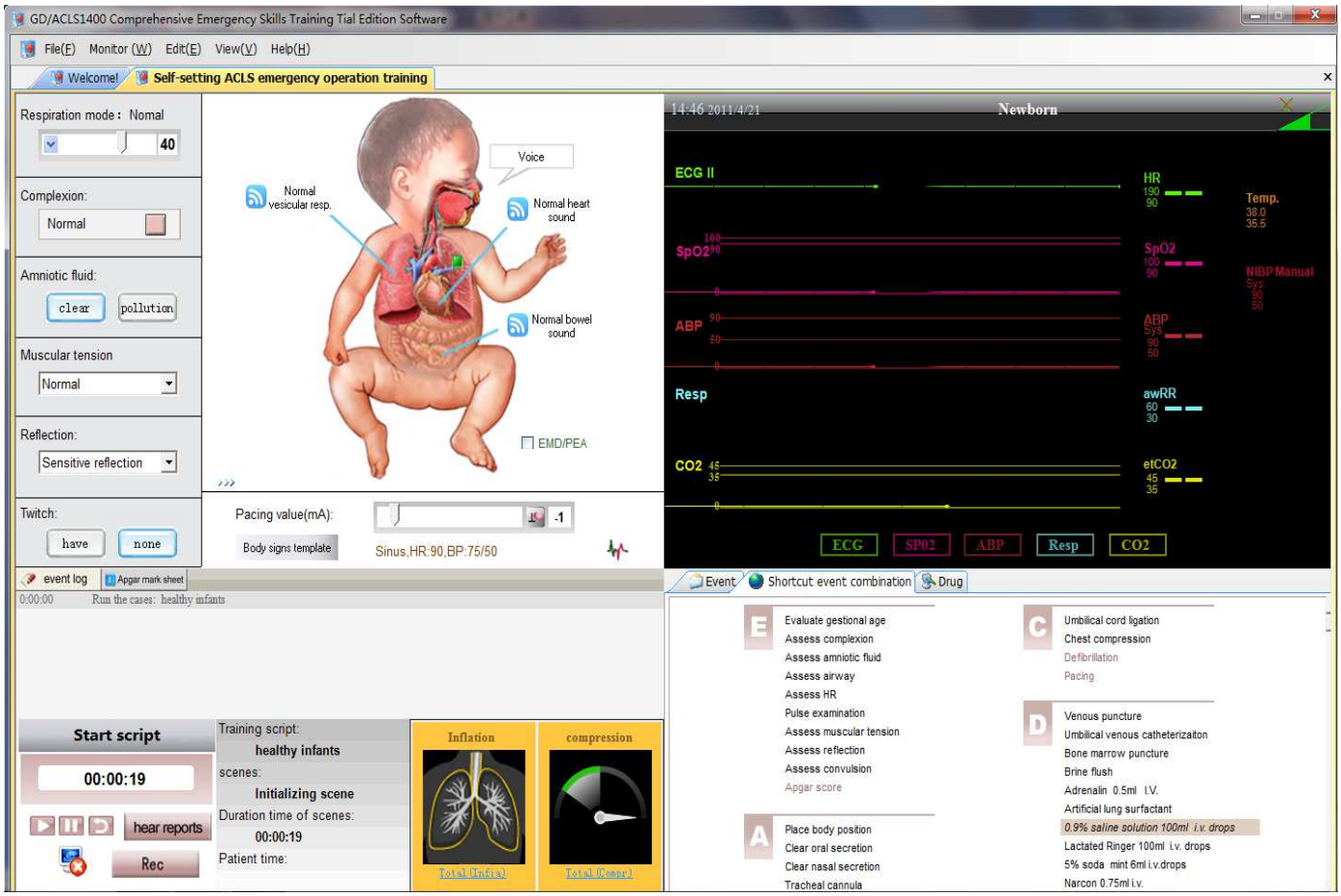


The positive pressure resuscitator has three types of special training: automatic inflatable air sac, airflow inflatable air sac and T-combined resuscitator.

Self-set cases operation

Way: system function-- self-set cases operation;

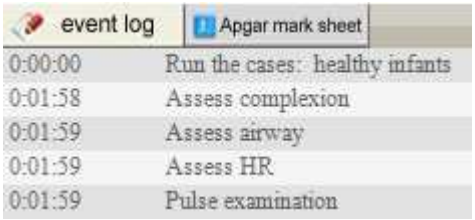
Set healthy outpatient cases as the operational scene in which can simulate the neonatal condition.

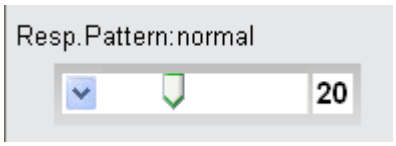


Functions:

1. Names of cases: show the name and time of the operational case;

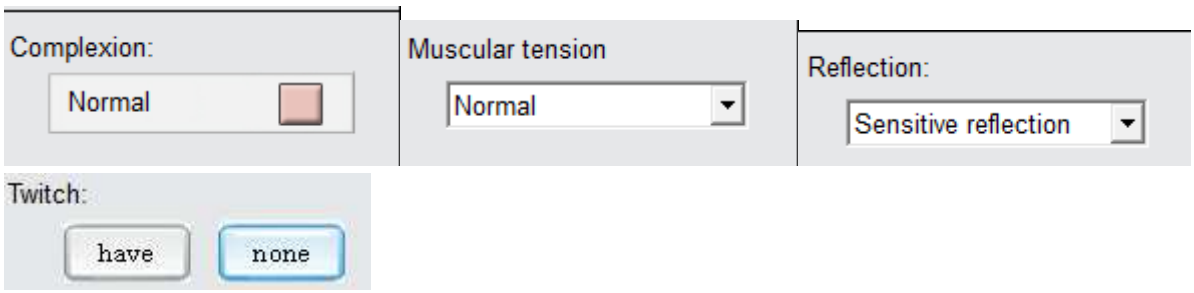
2. Event log: All the operations and vital signs changes can be displayed herein.



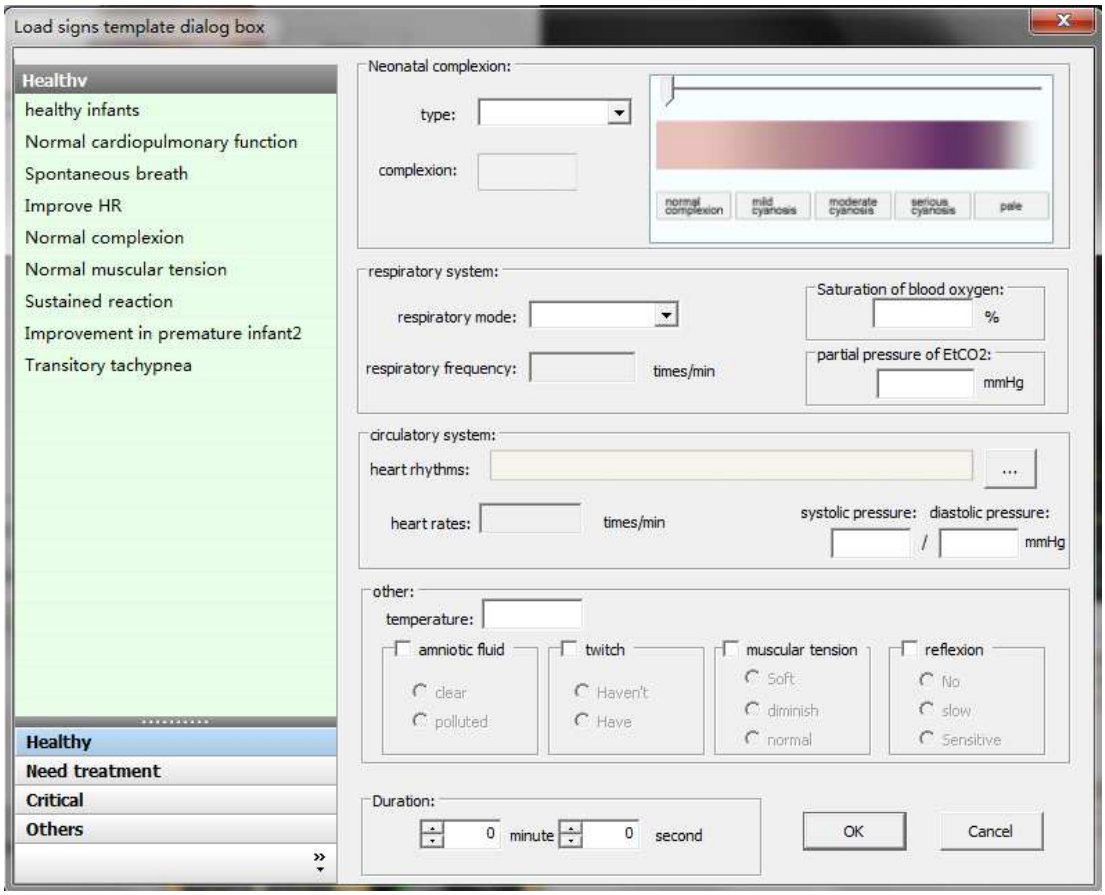


3. Changes of respiration modes: by dragging "  " to change the respiration frequency.

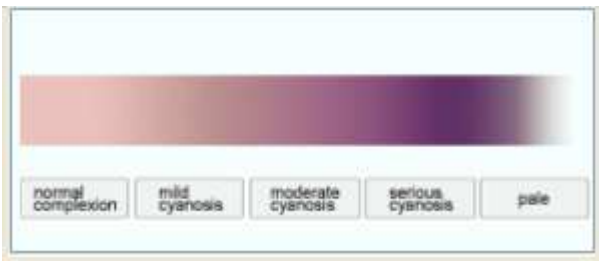
4. State changes of neonatal complexion, amniotic fluid, muscular tension, reflexion and twitch.



5. Settings of vital signs: click "Body signs template" to enter. The content of monitoring the manikin varies with changes of parameters.

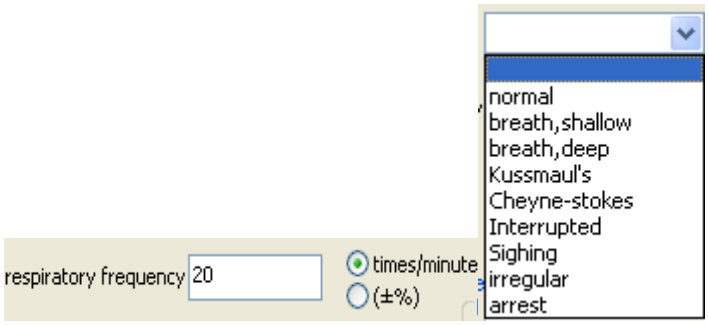


- Changes of neonatal complexion: change the heart rate by moving "", shown as the following picture:

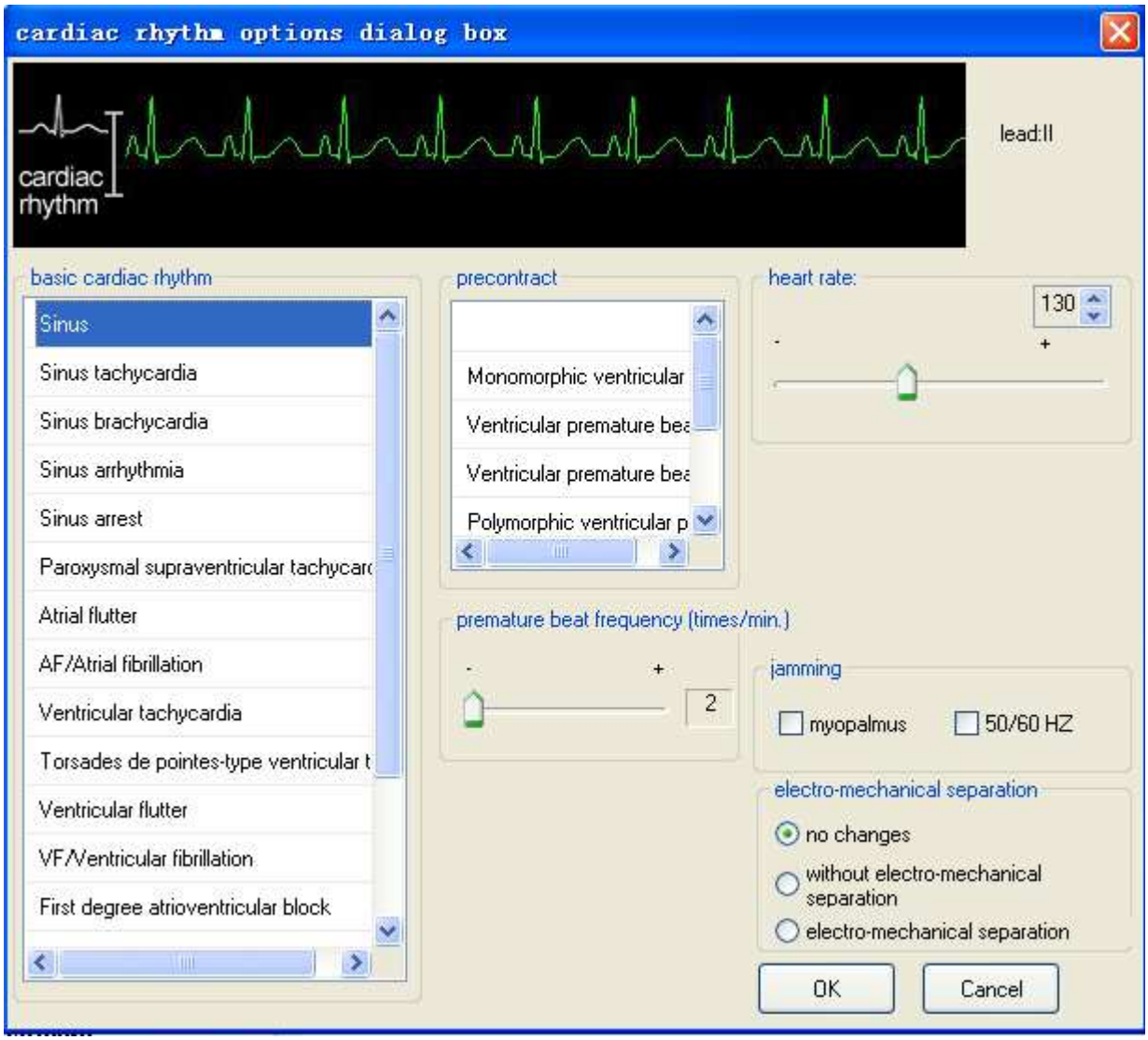


- Changes of SpO2: can directly fill in to change the SpO2.

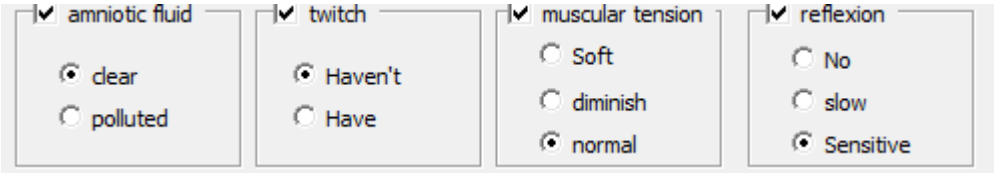
- Changes of blood pressure: can directly fill in to change the value of systolic pressure and diastolic pressure.
- Changes of temperature: can directly fill in to change the value of central temperature and peripheral temperature.
- Changes of carbon dioxide partial pressure at the end of expiration: can directly fill in to change the value of carbon dioxide at the end of expiration.
- Respiratory system: change the respiration modes and respiration frequency, shown as the following picture:



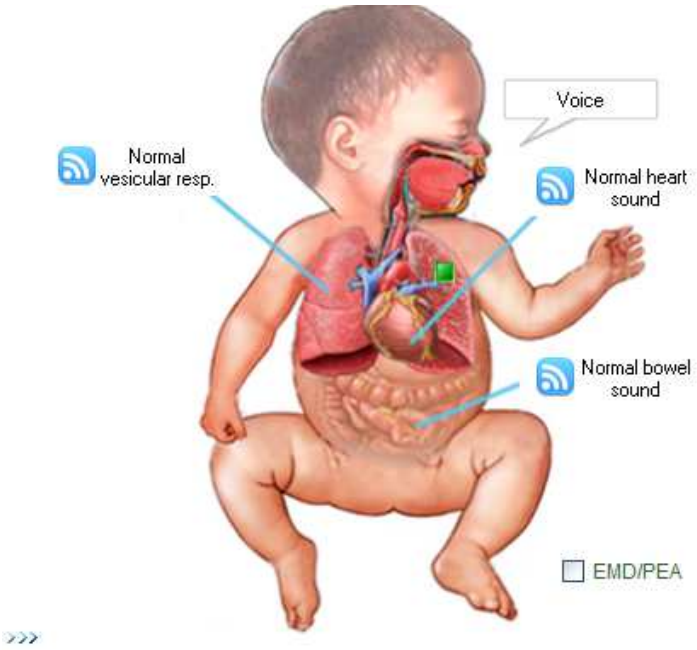
- Circulatory system: change cardiac rhythm and heart rate, shown as the following picture:



- Changes of other vital signs: tick "√" the box to change the sign parameters required to be modified. Shown as follows:



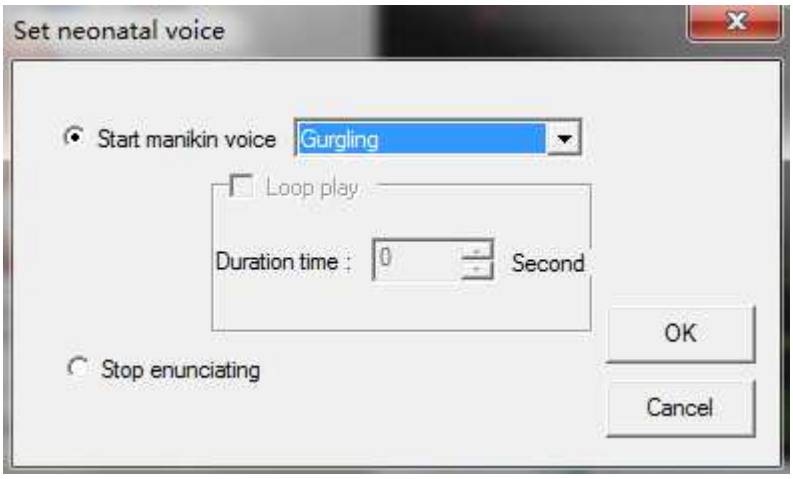
6. Airway management simulation: click "■" to choose different states, when it is red after your choice, the normal state will be green. Normal and abnormal states of left thorax are allowed to simulate. Left pneumothorax is shown as the following picture.



7. Auscultation: control the hardware by software. Available real auscultation with the manikin body by electronic stethoscope.

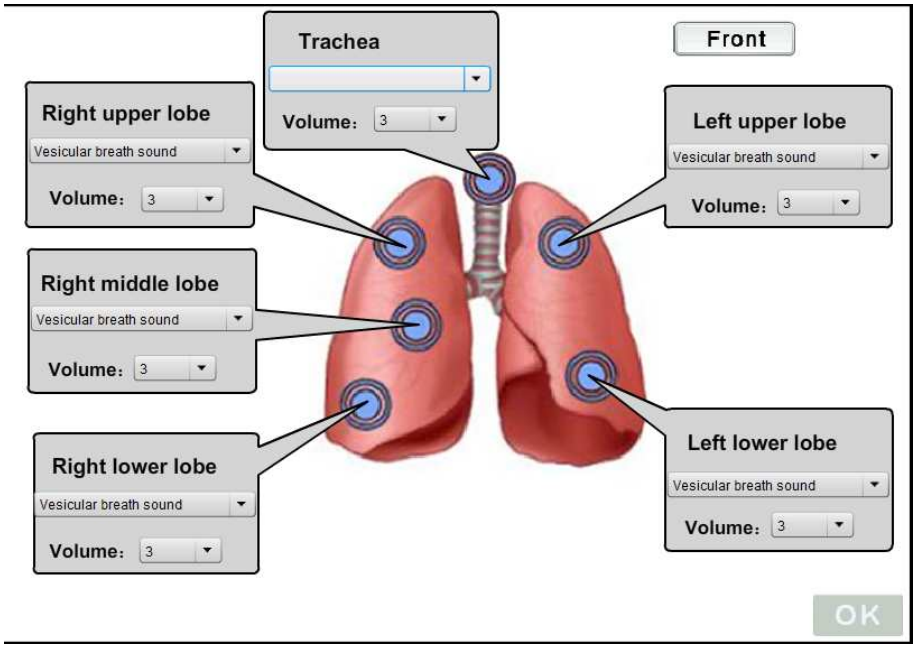
- Speech sounds: 7 kinds.

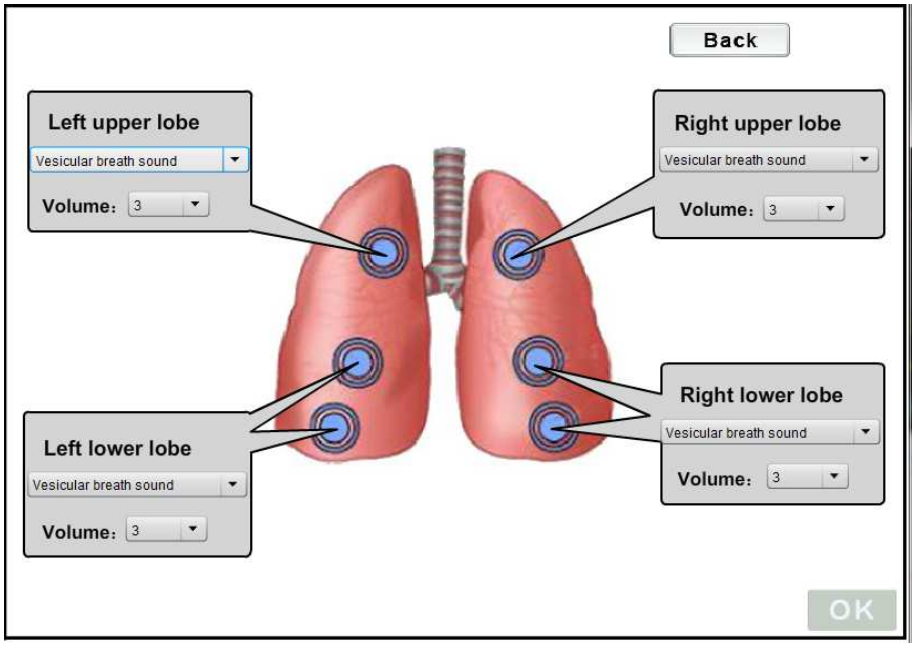
  Click "voice" to change the type of voice, begin to enlighten the manikin to pronounce, stop pronunciation and change times and intervals.



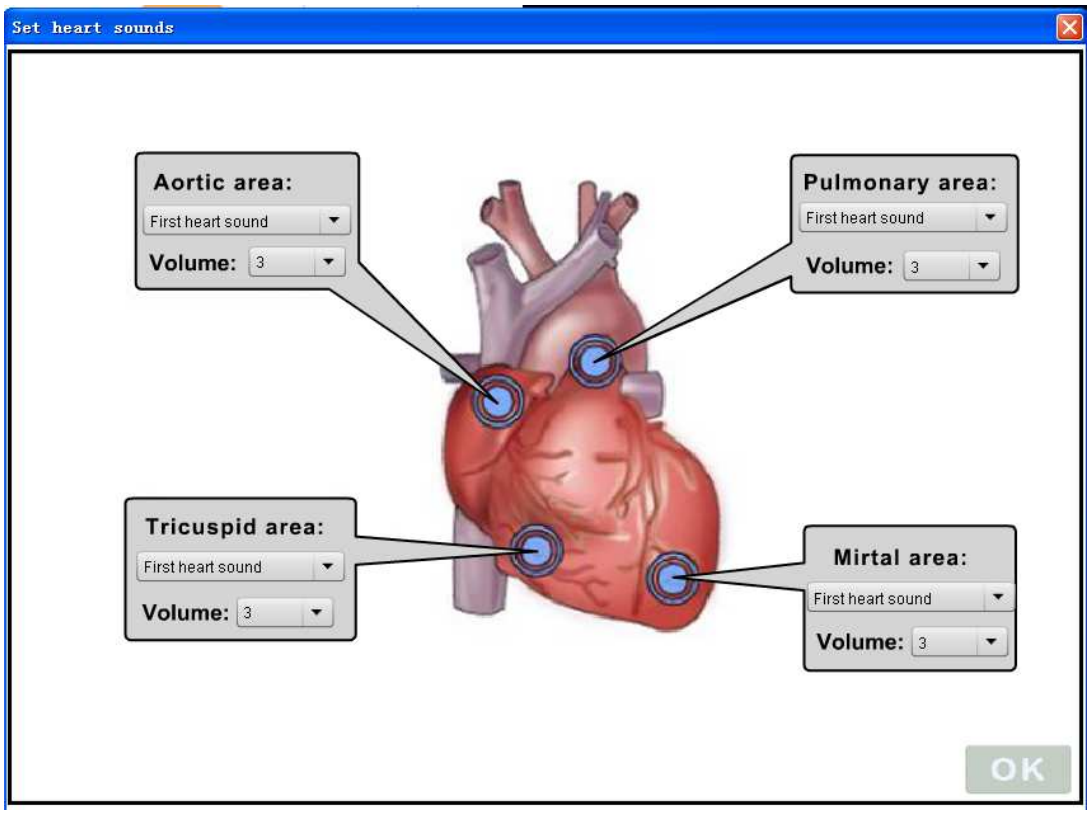
- Lung sounds: 9 kinds

  Click "user-defined", and there's difference between the front and the reverse in the settings of lung sounds. Shown as the following picture:



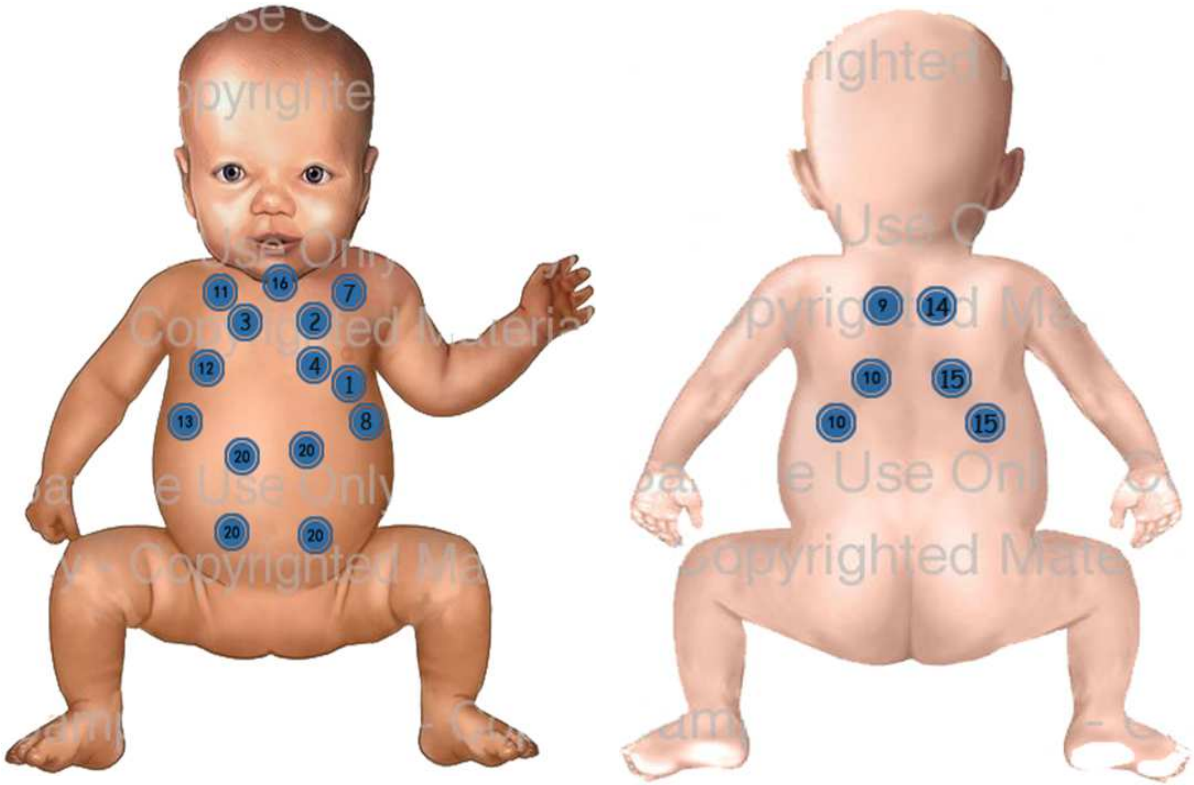


- Heart sounds: 14 kinds;
- Click "normal heart sounds" and change the type and volume of heart sounds by pull-down menu.



- Normal bowel sound, bowel sound weakening and bowel sound vanishing

  Attached Chart Auscultation Position:



List of Heart Sounds:

	Medical Names
1	Normal Heart Sounds, Sinus Tachycardia, Sinus Bradycardia, PSVT with RBBB
2	Atrial Septal Defect, Patent Ductus Arteriosus, Tetralogy of Fallot
4	Tricuspid Regurgitation
2、4	Tetralogy of Fallot
1、2、3、4	Normal Heart Sounds -T, Perimembranous Ventricular Septal Defect-T, Complete Transposition of Great Ateries-T, Total Anomalous Pulmonary Venous Drainage(Supracardiac)-T, Aorticopulmonary Septal Defect-T, Aortic Coarctation with Ventricular Septal Defect-T

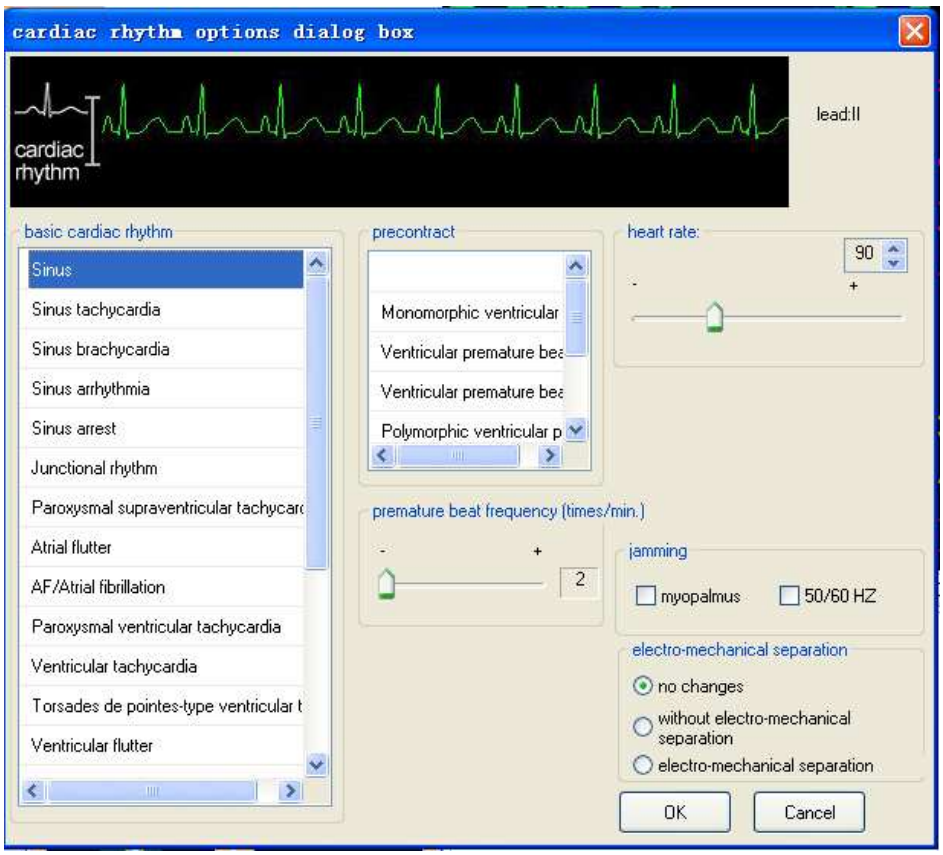
Auscultation List of Breath Sounds

Medical Names	No. of Auscultation Position
Normal Bronchovesicular Sounds	7、11、9、14
Normal Vesicular Sounds	7、8、9、10、11、12、13、14、15
Inspiratorystridor	16
Gurgling Respiration	16
Fine Rales	7、8、9、10、11、12、13、14、15
Velcro Rales	7、8、9、10、11、12、13、14、15
Sonorous Rhonchi	7、11、9、14
Sibilant Rhonchi	7、8、9、10、11、12、13、14、15
Pleural Friction Rub	8、13

List of Abdomen Auscultation:

Normal bowel sound	20
bowel sound weakening	20
bowel sound vanishing	20

8. Cardiac rhythm change: click "  " to change cardiac rhythm.



9. Defibrillation and pace-making: can use with matched real defibrillation pacemaker.

 : in need of pace-making.

 : no need of pace-making.

The picture is shown as: 

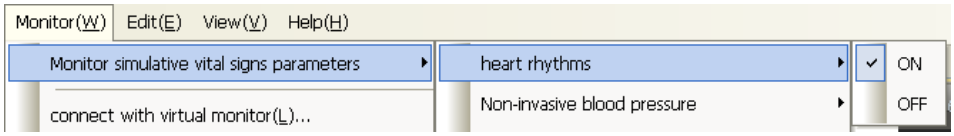
.

Change the pace-making limit value: by moving "  ".

10. Monitor

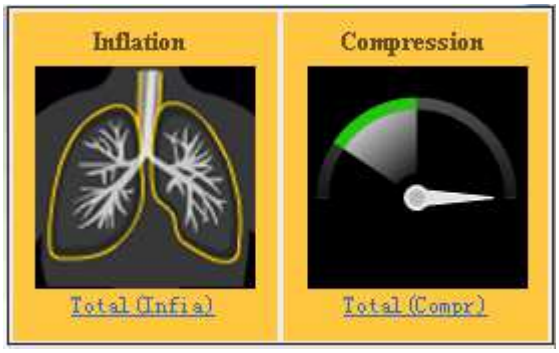
- Show all the vital signs, and ECG varies with the change of vital signs. Shown as the following picture:

- By changing the display content of the monitor.



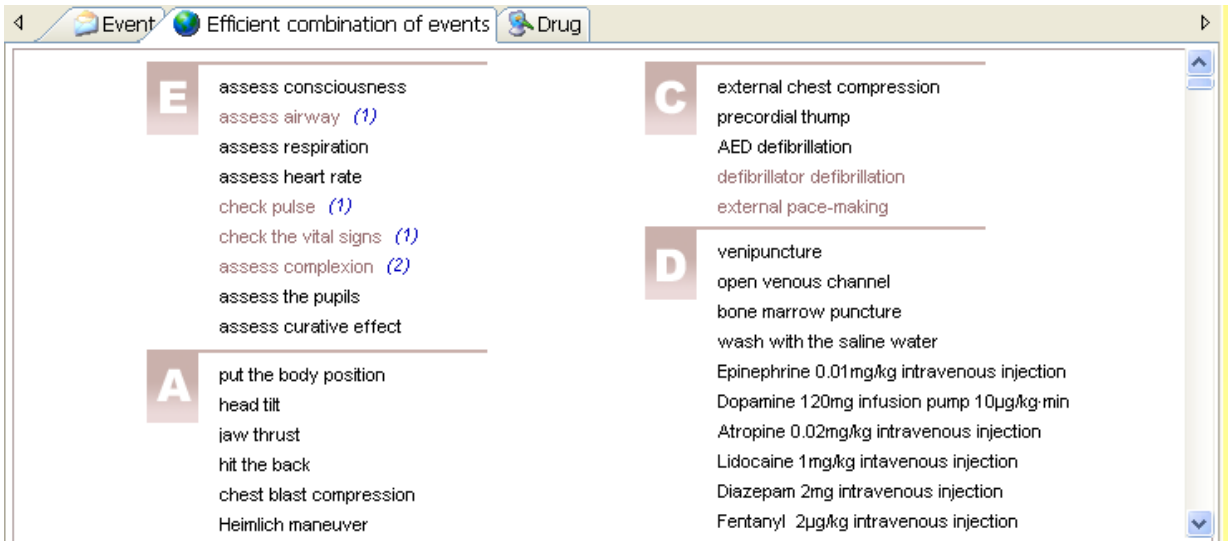
11. Animation display of the manikin:

- Statistics of artificial respiration and insufflation and statistics of external chest compressions and compressions are displayed on the computer. (shown as the following picture)



12. Remedy: including rescue measures and drug administration regimens. When some operations are done to the manikin and the computer fails to sense them, then we can directly choose the therapeutic schedule to enter the next stage.

12、



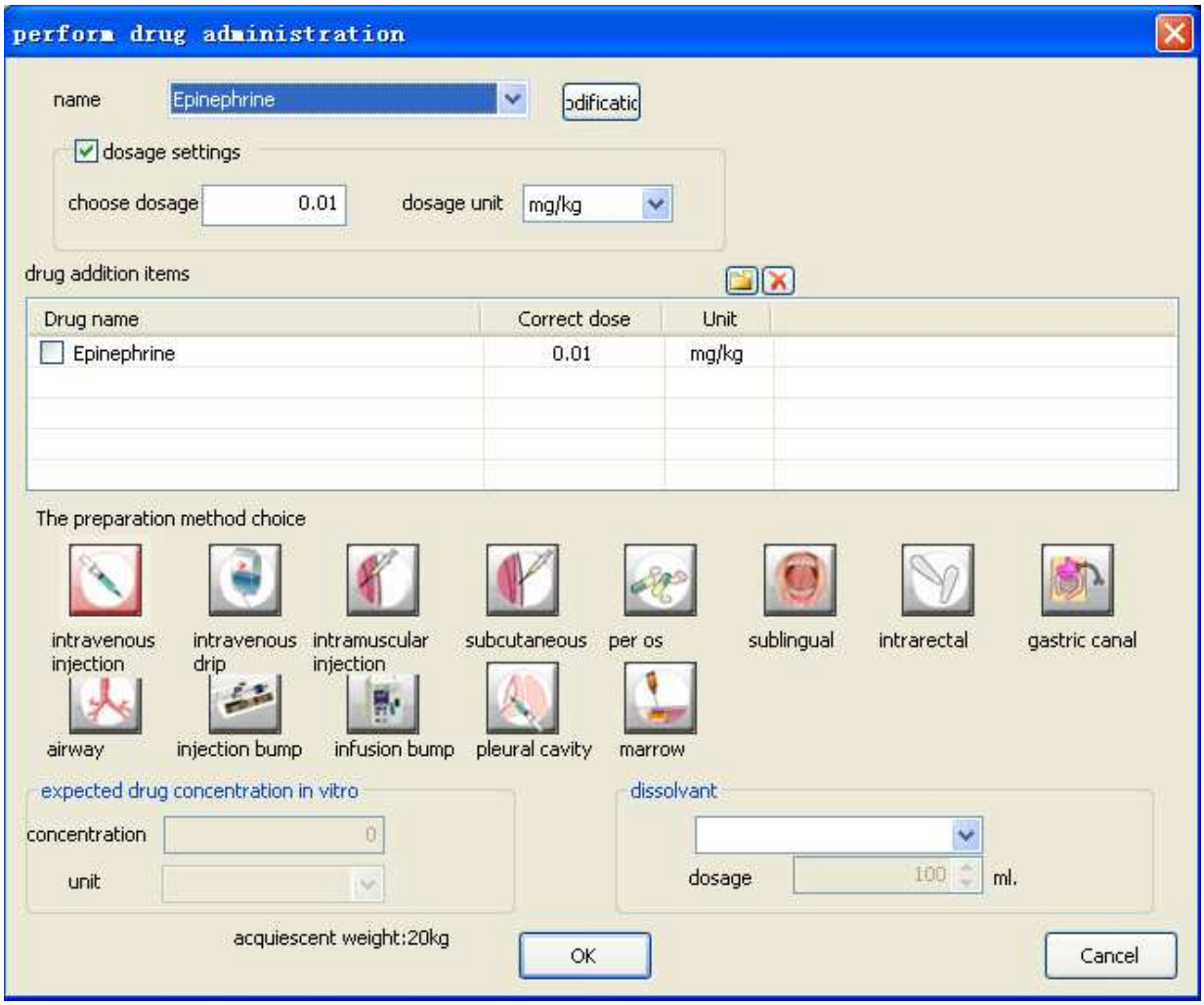
e.g: drug administration

Step1: choose drug names

Step2: choose the dosage of drug administration, units and injection ways.

Step 3: click "confirm".

Step 4: If the medication needs modification, please double-click the drug name and choose a new drug, and click "modification" . (the same to the dosage modification.)



13. Debrief:

Click " debrief" to display the operation course and the outcome of patient's condition.

ACLS1400 Emergency Training Operation Log

Manikin event log

Apr , 21 , 2011

0:00:00 Run the cases: healthy infants

Apgar score

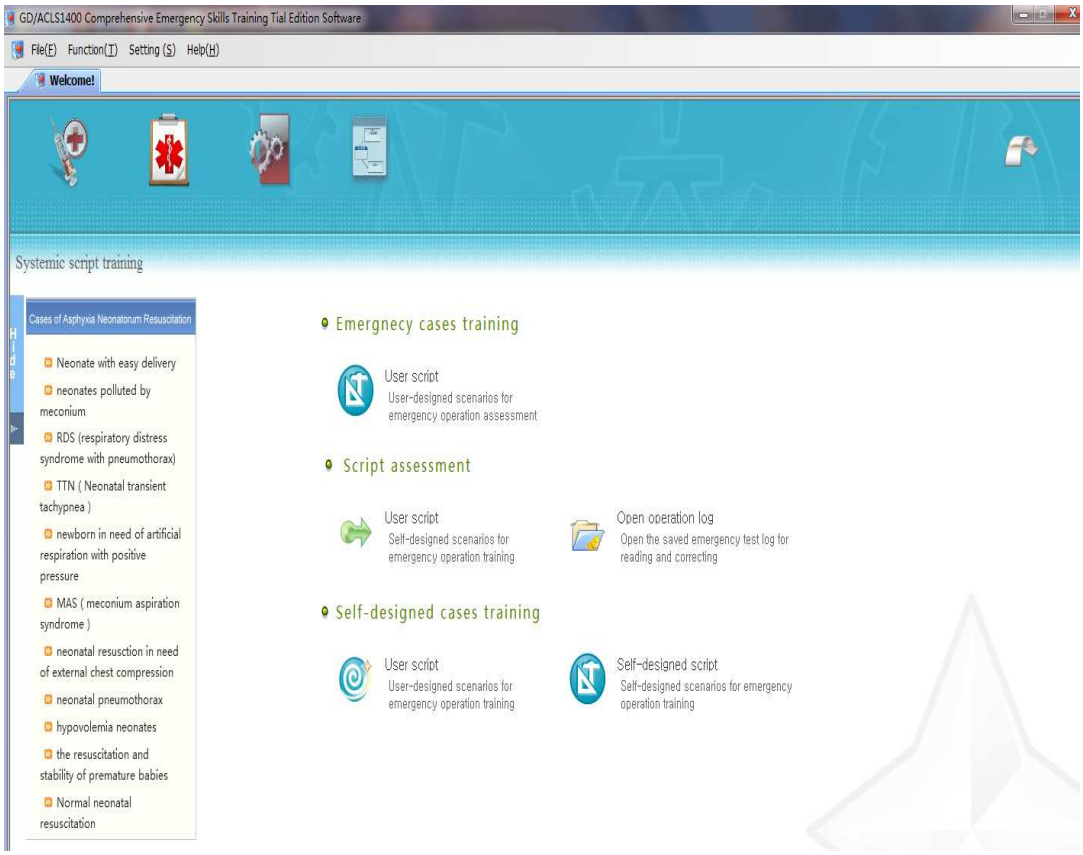
Apgar score								
Physical signs	0Points	1Points	2Points	1min	5min	10min	15min	20min
Complexion	Cyanosis or pale	Cyanosis of limbs	Ruddy body					
HR	0	<100bmp	>100bmp					
Reflection	NO	Painful expression	Cry, sensitive reflection					
Muscular tension	Soft	Slight flexion	Flexible movement					
Breath	NO	Weak, irregular	Good, cry					
Total score								

Remarks:	Resuscitation					
	Min.	1min	5min	10min		
	Oxygen supplying					
	Positive pressure artificial					

Professional Emergency Cases Training

Way 1: click "  " to enter the interface;

Way 2: click system function---professional emergency cases training--directly access to the required content.

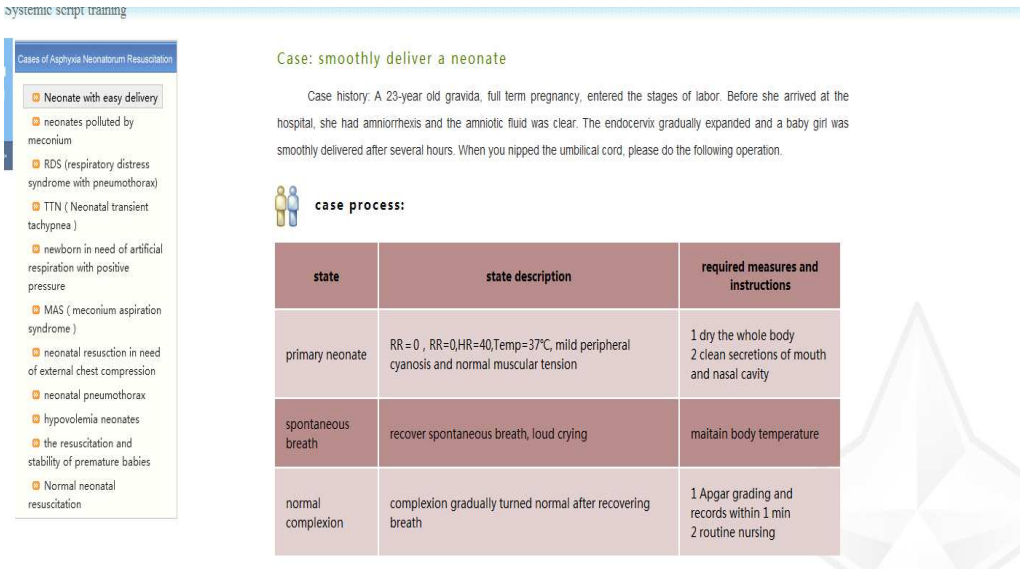


Content of cases training:

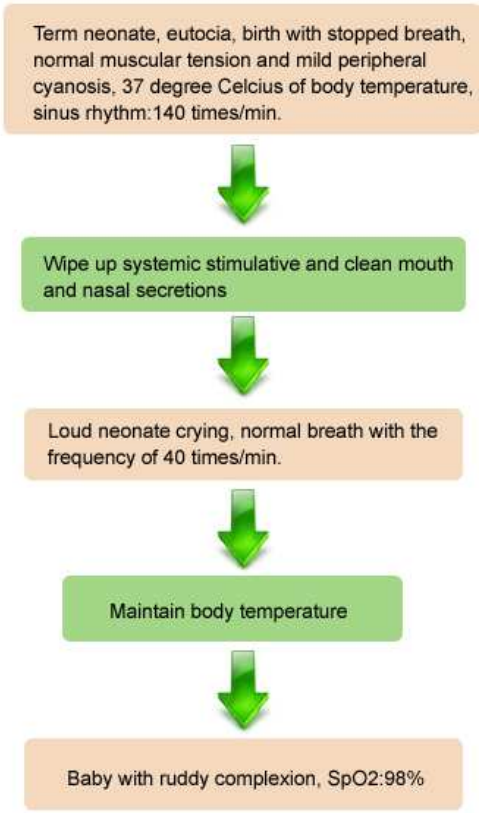
1. Self-set cases training: can make training operation according to the edited script.
2. System emergency cases: cases of RAM. Can choose cases of various types by clicking the following pictures.

E.g.1 : emergency case of RAM

Click "smooth delivery of the newborn", and specific case features and emergency operation points are shown.



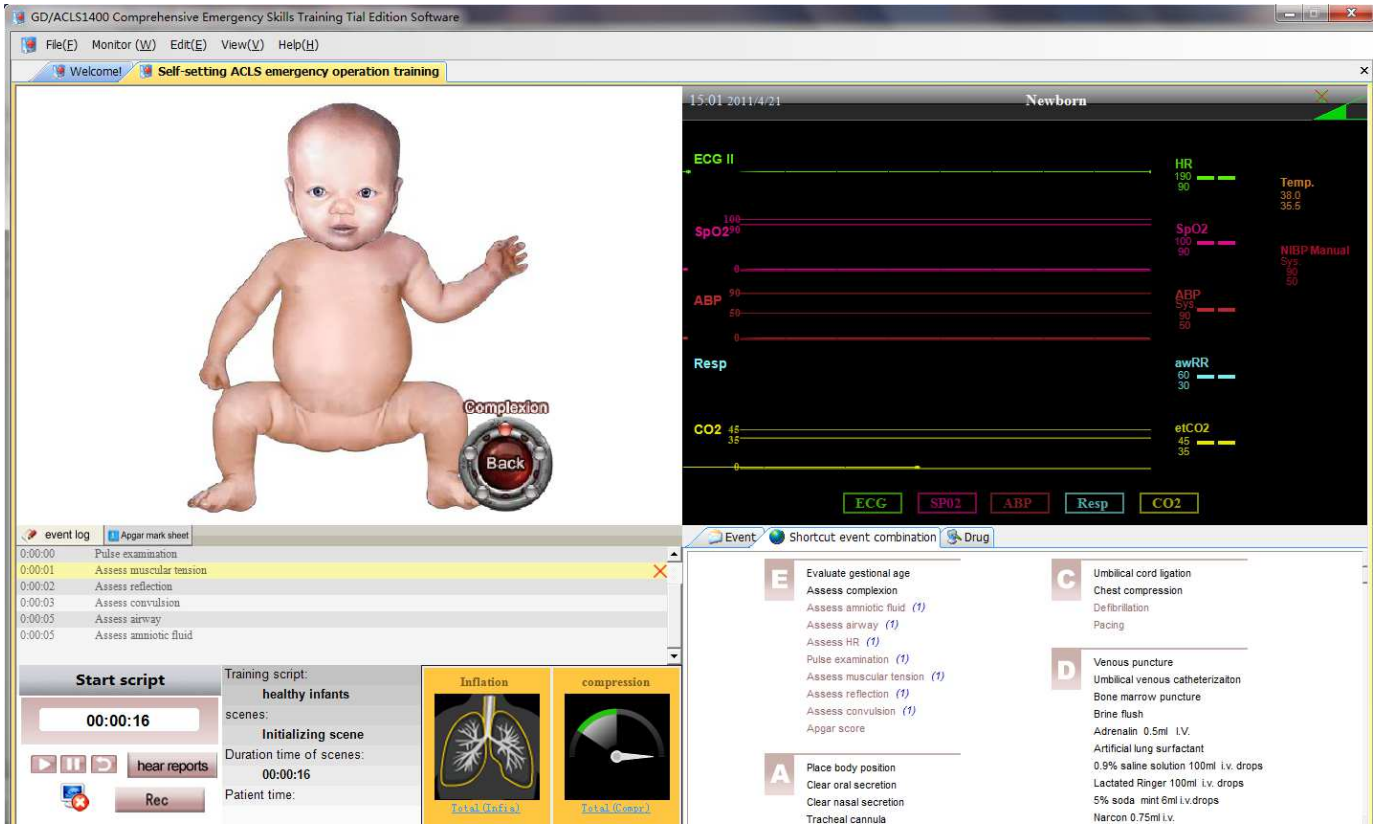
Click "  " , shown as the following picture:



Click "script training" to enter the interface (shown as the following picture)

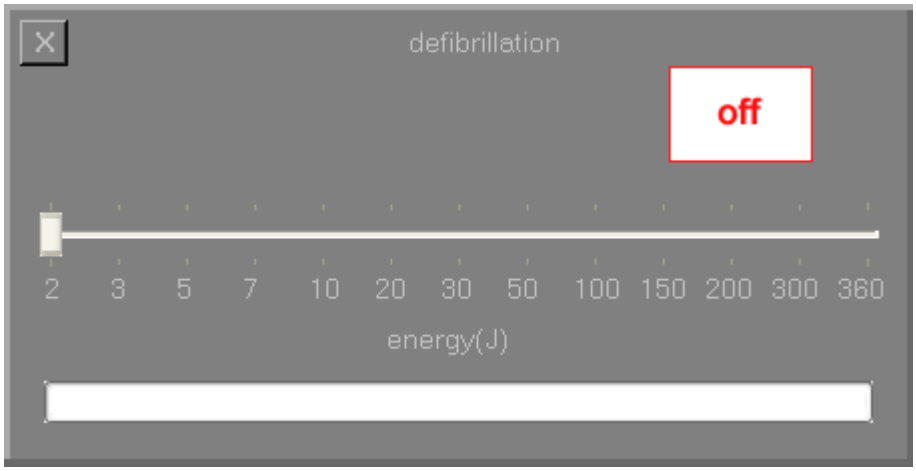
Features:

1. Can observe neonatal vital signs: Sign parameters can be seen from the monitor; state changes of reflexion, twitch, muscular tension, complexion and amniotic fluid can be observed in the scene.
2. All kinds of therapies can be done to the newborn.
3. Vital signs vary with therapy changes.

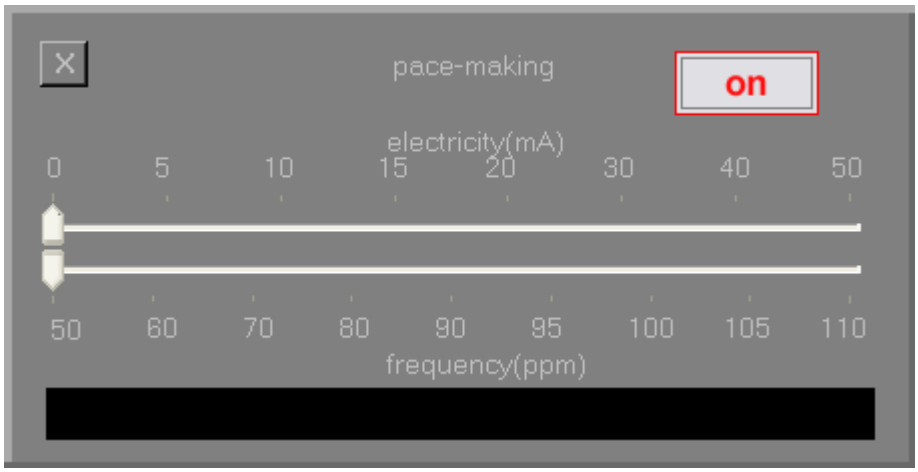


Briefly introduce defibrillation and pace-making.

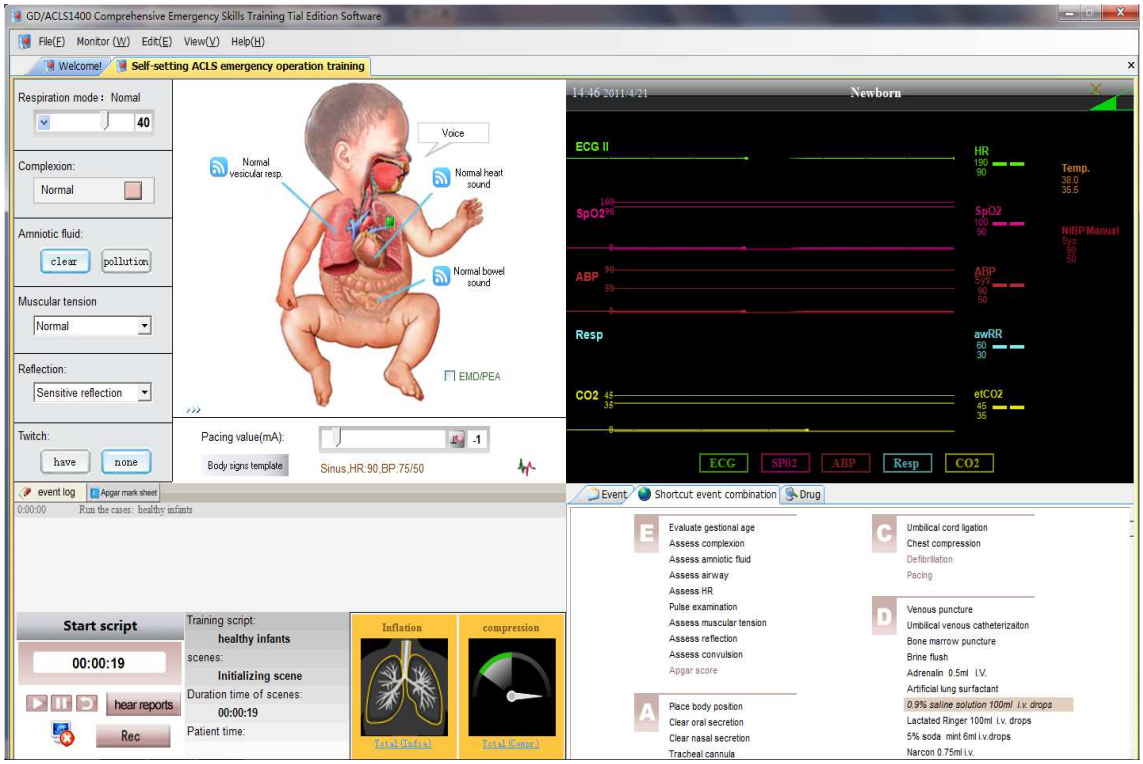
Click "defibrillation", shown as the following picture:



Just do as the same, click "pace-making" , shown as the following picture:



Attention: The icon button "" includes five states: reflexion, twitch, muscular tension, complexion and amniotic fluid, which can be varied at will and the state will change. Click "back", shown as the following picture:



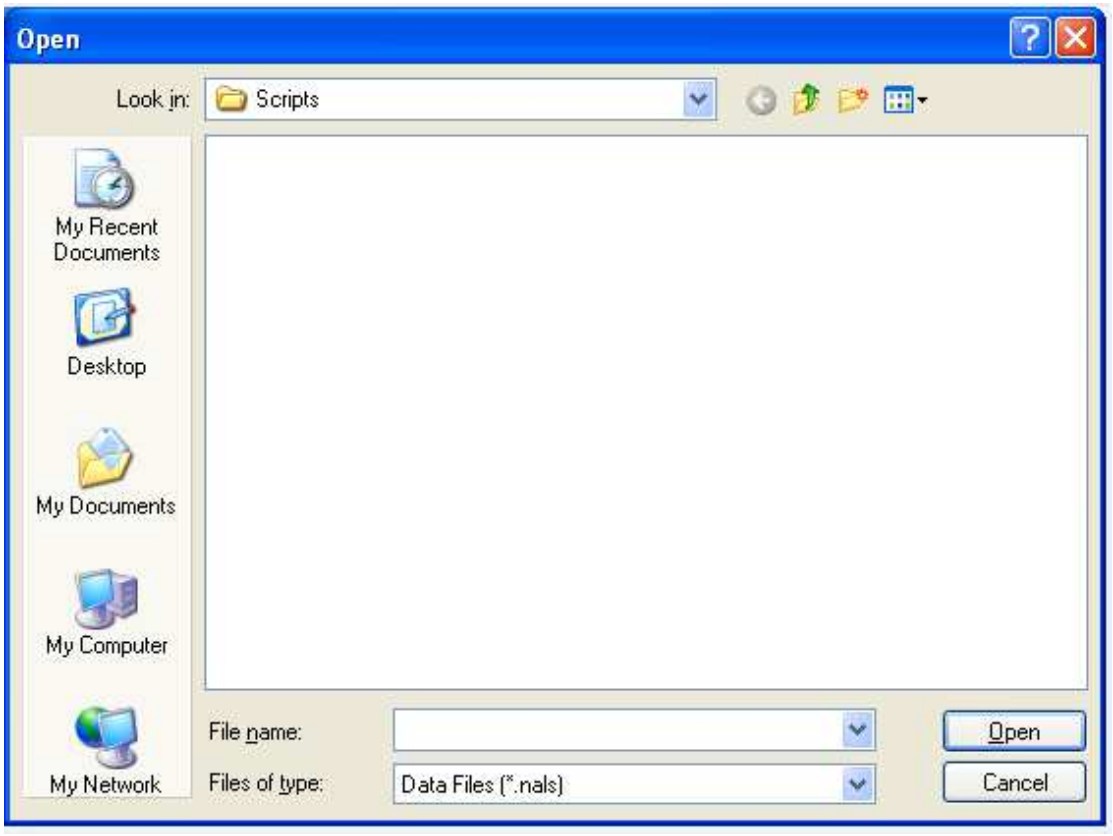
Professional Emergency Cases Assessment

Way 1: click "  " to enter the interface (shown as the following picture);

Way 2: click system function---professional emergency cases assessment--directly access to the required content.

The content is in accordance with that of professional emergency cases training:

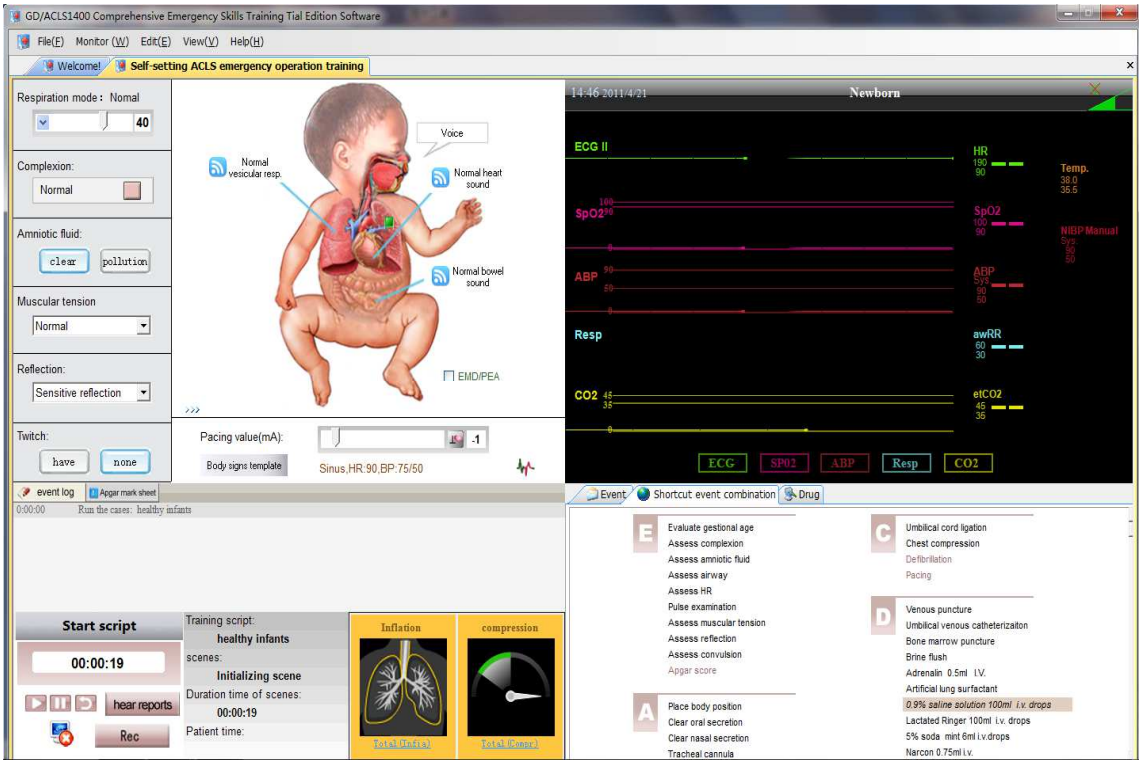
Emergency cases of RAM and user-edited cases are all available to be carried out.



Choose one of the cases, click "assessment" and enter the interface (shown as the following picture).

Features:

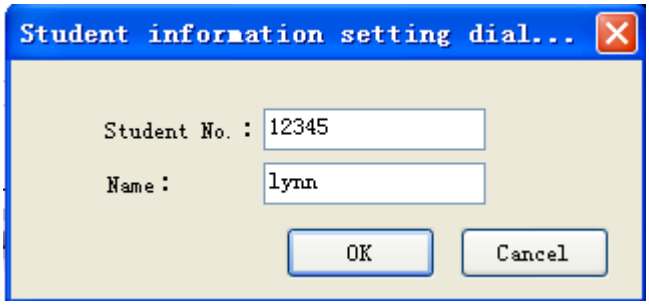
1. Can set the information of learners for examination;
2. Can check the introduction of neonatal condition;
3. Observe changes of neonatal vital signs from monitor;
4. Can check neonatal auxiliary examination;
5. Can treat the newborn, and their condition will vary with the change of therapies.



The procedures of assessment are as follows:

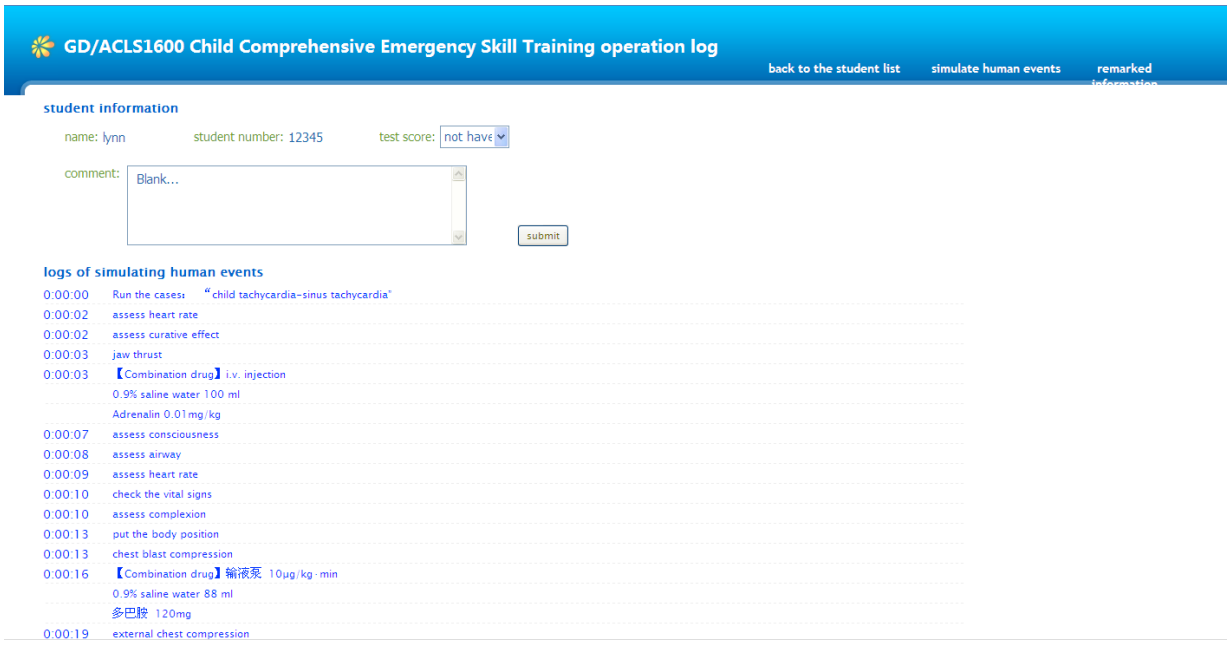
1. Build a file in any disc to save assessment results.

2. Open the dialog box of "choose a learner to examine" from "tool box", and the dialog box will appear, then input learners' information.



3. System will automatically connect the manikin to perform mock exam after "confirm" click;
4. Open the operation log of submitting learners from the "tool" box;
5. Open ACLS emergency operation log from "file" and save it;
6. Save the scores: open "file"--"save ACLS emergency operation log", save it to the pre-built file. Shown as the following picture:

7. View transcript. Directly enter the following picture after you save the transcript, choose a name of learners, view the exam results, assess exam results with written comments, and submit. Shown as the following picture:



Open ACLS Emergency Log:

Way 1: click "  " to enter the interface; (shown as the following picture)

Way 2: click system function---professional emergency cases assessment---open ACLS emergency log to enter the required content.

Open the emergency log package after clicking "confirm", shown as the following picture:

System Settings:

Way 1: click "  " to enter the interface (shown as the following picture).

Way 2: click "system settings" to directly enter the required content.

Content including: settings of system configuration, modification of lecturer's login passwords.

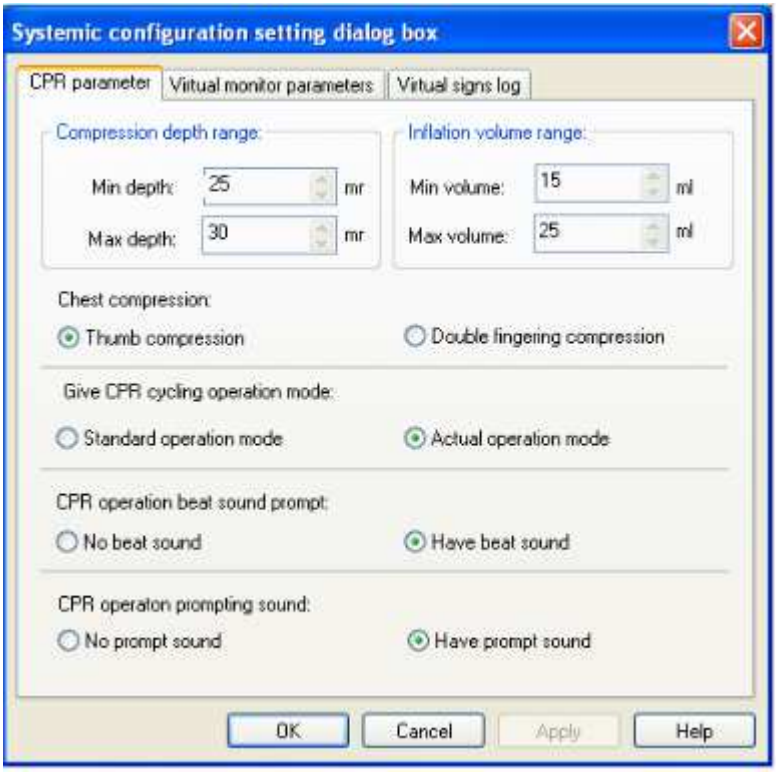
Click "  ", and the following interface will appear. (shown as the following picture)

Features:

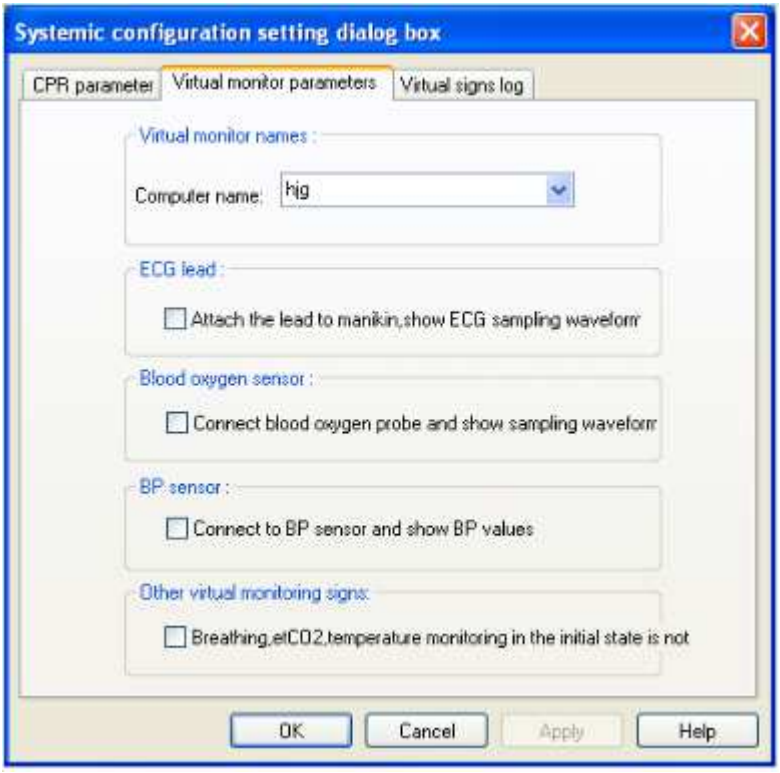
1. Can set parameters of CPR, virtual monitor and virtual signs log, and click "confirm".
2. These are technical parameters of system defaults.
3. Relevant training will change during the operation after the parameters are set.

CPR parameter settings : can set compression depth range, tidal volume range of insufflation, ways of external chest compression, modes of 5 CPR operation cycles, beat sound prompts of CPR operation,

CPR operation prompt tone.



Virtual monitor parameters: can set which computer to connect the monitor and display ECG lead and oxyhemoglobin probe.



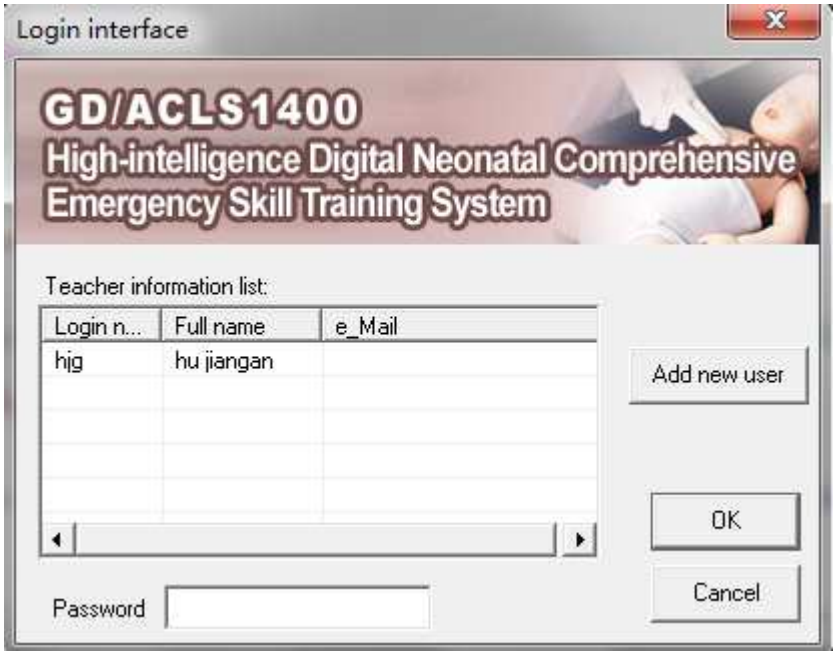
Virtual signs log: set the intervals of sign automatic saving; Click"  " to enter the interface (shown as the following picture). Can change login passwords. The passwords will also change when you log in after passwords modification.

Neonatal Emergency Script Editing Software:

Way 1: click "  " to enter the interface (shown as the following picture).
Way 2: click "function"---" neonatal emergency script editing software" to directly enter the required content. As follows:

Neonatal Emergency Training Script Editing Software

The login interface is shown as the following picture:



The login interface includes teacher information lists: login name, full name, e-mail and passwords. The software can only add login members, choose login name, and click "confirm" to enter the main interface.

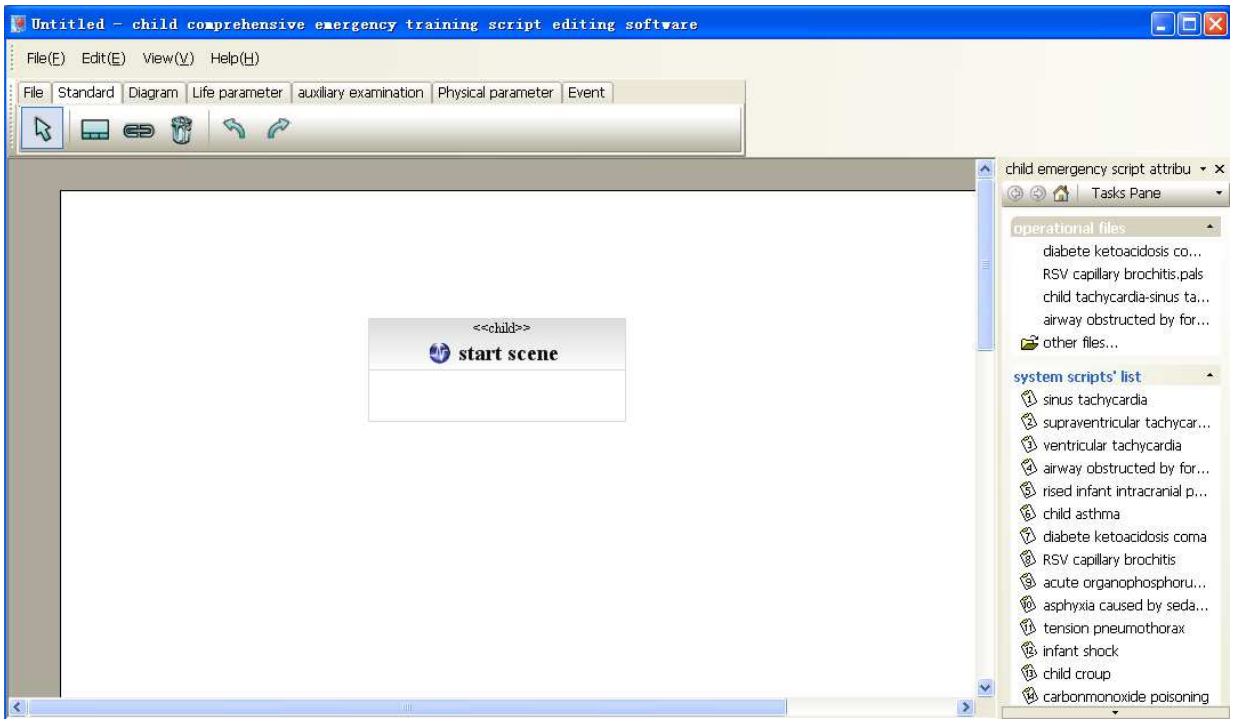
Introduction of System Functions

1. Simulate the evolution of neonatal state of illness;
2. Set neonatal physiological parameters;
3. Set therapeutic process and the effect after treatment;
4. Make training and assessment for various patient's condition.

Illustration of System Main Interface

The system interface consists of three parts. The part above shows menu bar and tool

bar; the middle part is the region for designing cases; the right part shows task panel, which is composed of system onboard script names and current operation file lists.



1. Introduction of "File (F)" Menu:

"File" Menu	Shortcut Key	Function
New		Open a new script edit window, display as "initial scene" in the view;
Open		Open existing script
Save		Save currently designed script
Save as		Save current script as another name
Print		Print current opened script
Print preview		Print preview current opened script
Printer installation		Install a new printer

Exit		Exit from application program

2. Introduction of "Edit" Menu

"Edit" Menu	Shortcut Key	Function
Withdraw		Withdraw user's operation
Repeat		Recover user's previous operation
Script		Edit neonatal case history and physical examination
New scene		New cases in the view
Sign parameters		Cardiac rhythm, BP, respiration mode, heart sounds, breath sounds, bowel sounds, left pneumothorax, complexion, muscular tension, twitch, reflexion, amniotic fluid, neonatal pronunciation, patient's time, physiological parameter signal
Physical parameters		Pace-making settings
Block diagram addition		They are respectively event box, combo event box and select events box.
Sign template edit		They are respectively neonatal state settings and system default neonatal states.
Event bar		Defibrillation, pace-making, CPR, measure events, drug administration events and time.
User-defined event edit		Measure events edit, drug administration events edit
Connection operation		Build relationship with different Frames through connection
New page		Create a new view area
Delete blank		Delete blank page

page		
delete		Delete case history, connecting line and elements in the scene

3. "View (V)" Menu: control the hide and show of neonatal emergency attribute bar

4. "Help (H)" Menu: show the help information of application program

Introduction of Cases Edit

1. Scene introduction: Each "scene" stands for neonatal vital signs of one period of time.

The whole case history is made of two parts: "<neonate> initial scene" stands for the name; the part below stands for case history, where can set patient's physical states such as cardiac rhythm, BP and respiration mode, etc.

2. Introduction of event box in the case history: the event stands for doctor's advice or treatment measures and it should be filled in the event box. Choose different event box according to therapeutic schedules.

Click "block diagram".

- ✧ Click "  ", "single event box" will appear. Note: only one treatment measure can be set. We can enter next patient's condition after the item is finished.
- ✧ Click "  ", "select events box" will appear. Note: multiple treatment measures can be set, however, we can enter next patient's condition even though only one item is finished.
- ✧ Click "  ", "combo event box" will appear. Note: multiple treatment measures can be set. We can enter next patient's condition only when all the treatment is done.

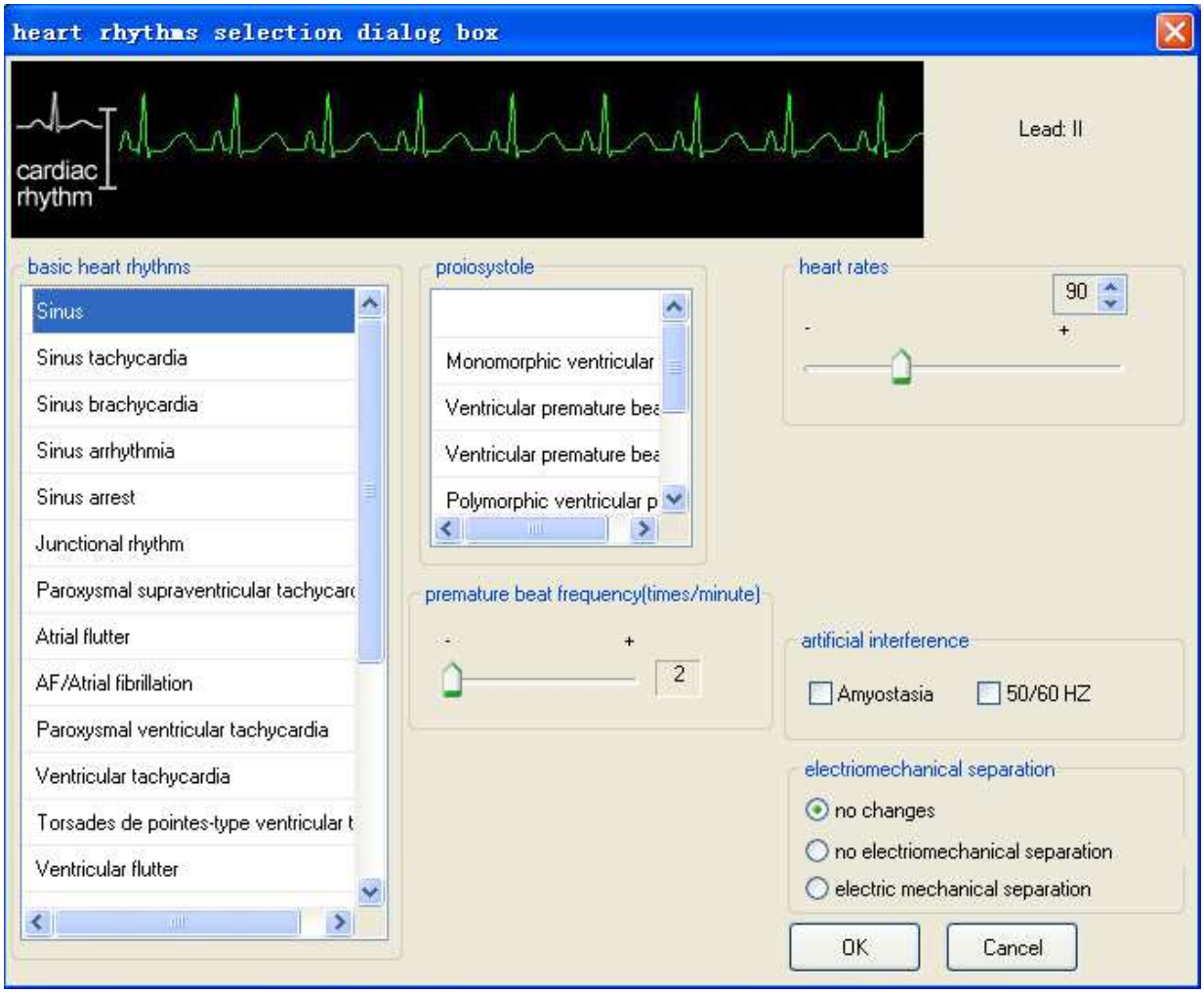
Input an event into the event box, and new case history will be built by connecting  .

3. Edit patient's condition:

Cardiac rhythm, blood pressure, respiration mode, heart sounds, breath sounds, bowel sounds, left pneumothorax, complexion, muscular tension, twitch, reflexion, amniotic fluid, neonatal pronunciation, patient's time and physiological parameters signal can be chosen from "sign parameters".

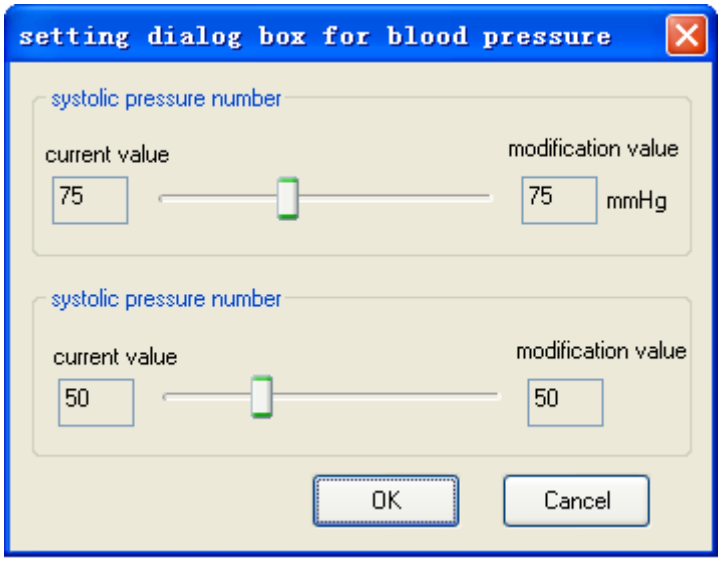
1). Cardiac rhythm

Cardiac rhythm select dialog box includes basic cardiac rhythm, premature systole, conduction, premature beat frequency, jamming and electromechanical separation, in which sinus rhythm, sinus tachycardia, sinus bradycardia, sinus arrhythmia, sinus standstill and paroxysmal supraventricular tachycardia, etc. are optional. Shown as the following picture:



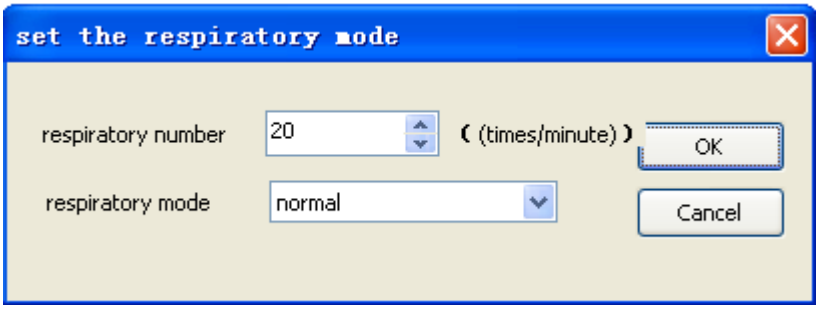
2). Blood pressure

Dialog box of blood pressure settings includes: systolic pressure value and diastolic pressure value. Shown as the following picture:



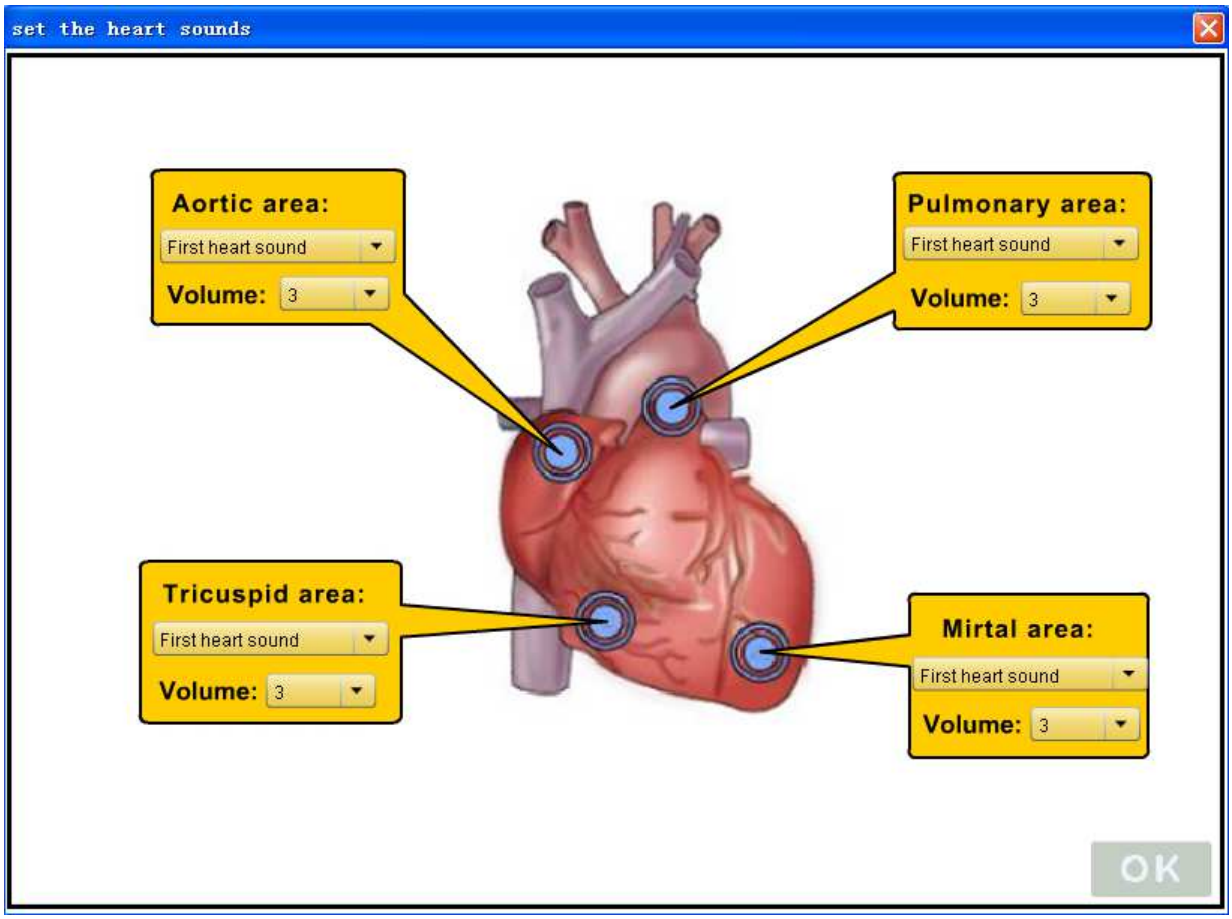
3). Respiration mode:

Respiration times and respiration modes can be set in the dialog box of respiration mode settings. Shown as the following picture:



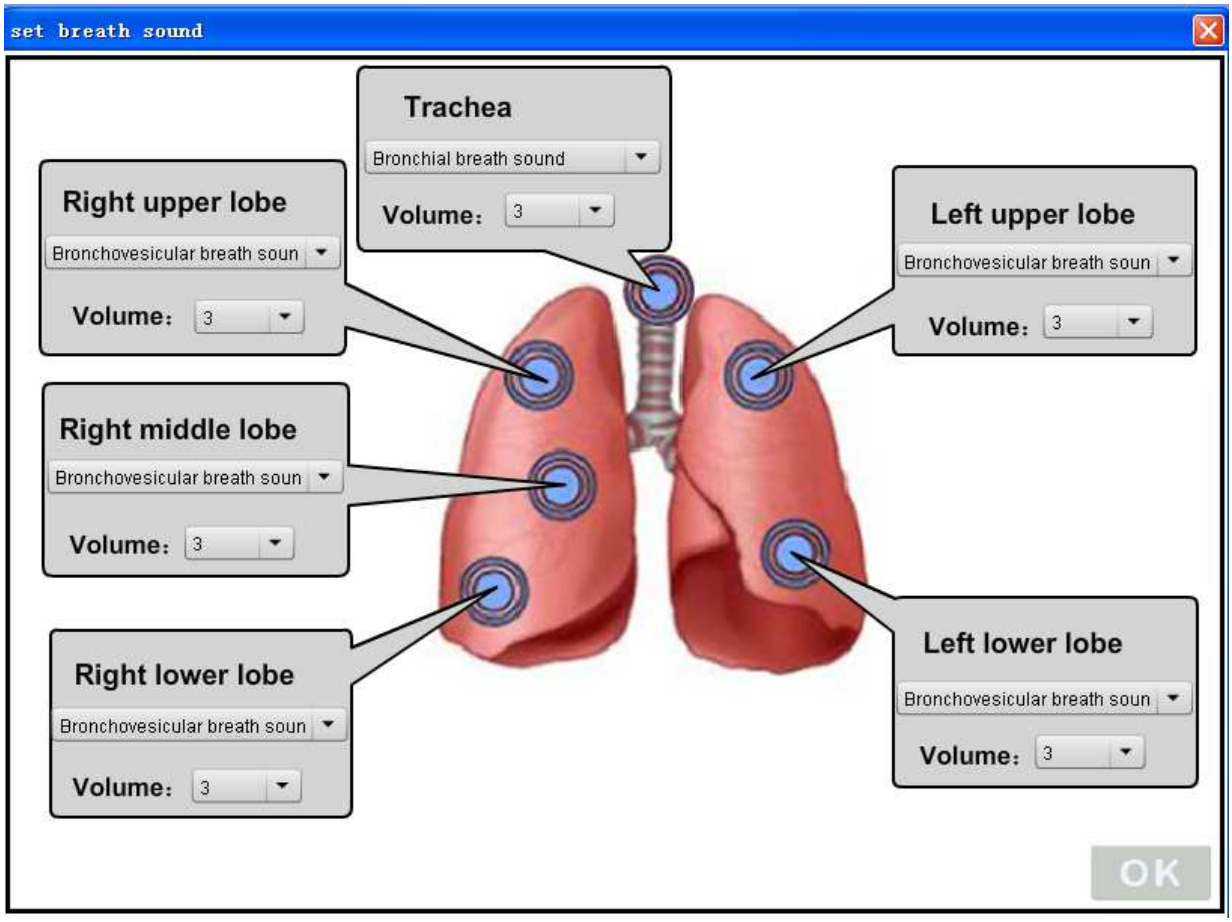
4). Heart sounds:

Dialog box of heart sounds settings can provide choice of case display positions and sounds and settings of self-set cases and sounds. Click "please make choice". Shown as the following picture:

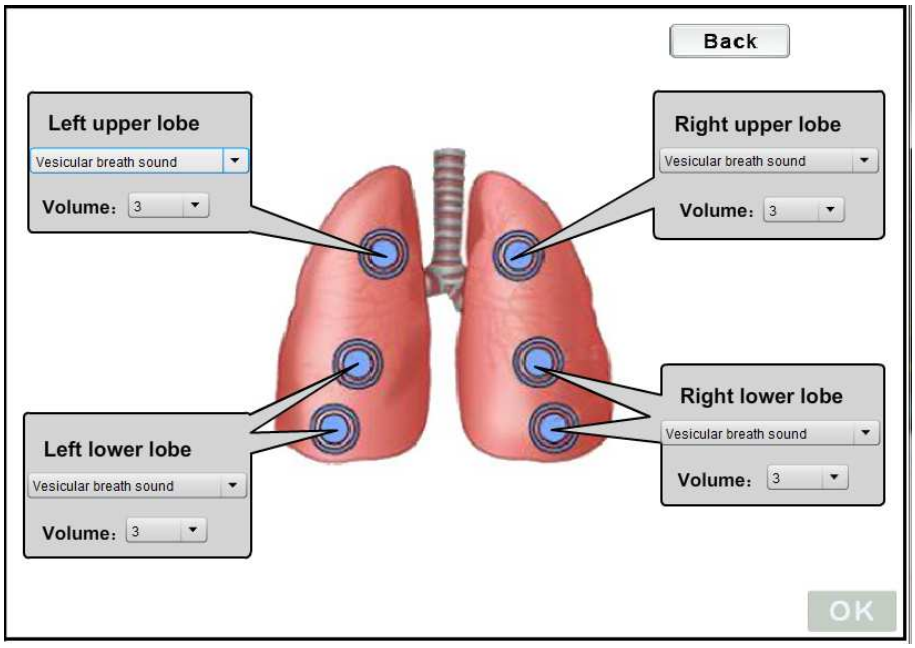


5). Breath sounds:

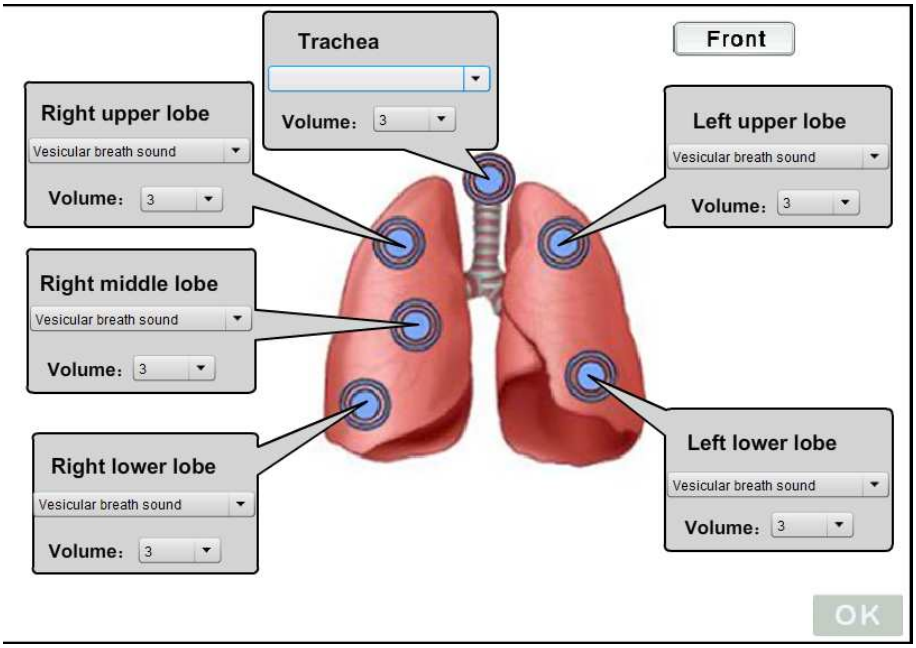
Dialog box of lung sounds settings can provide choice of case display positions and sounds and settings of self-set case and sounds. Click "please make choice". Shown as the following picture:



Lung sounds settings can be done on two sides: the front and the reverse. Take "fine rales" as an example, shown as the following picture:

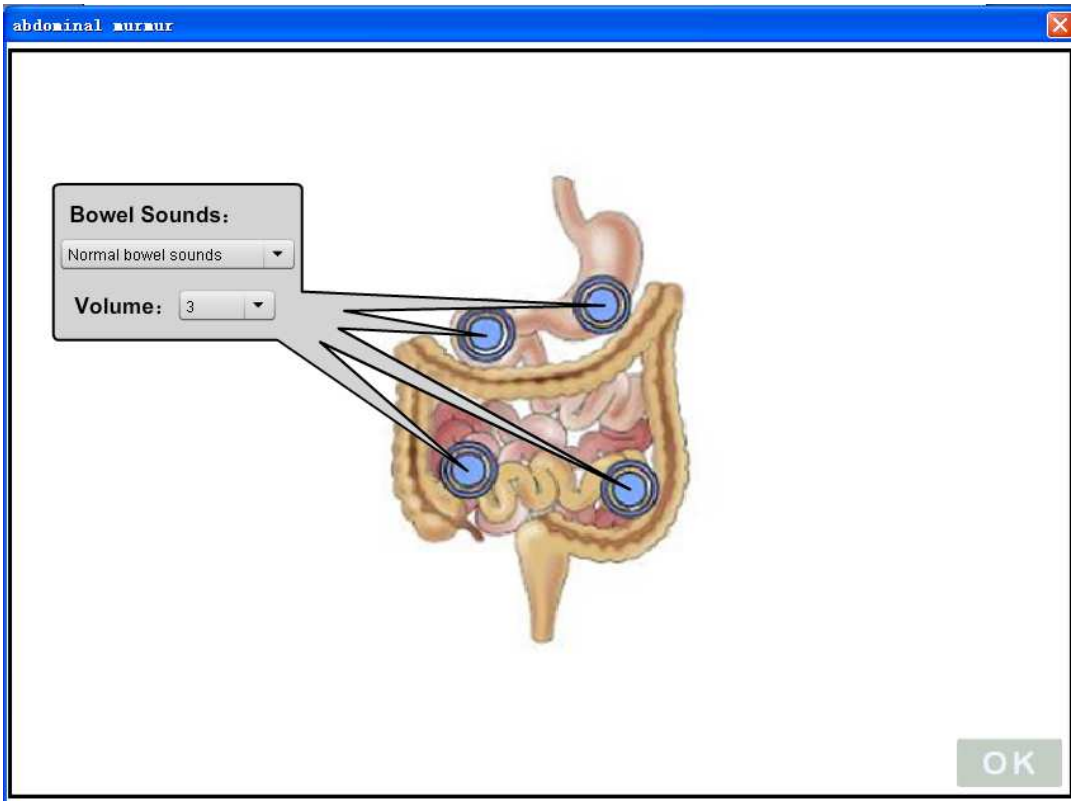


Click "reverse", shown as the following picture:



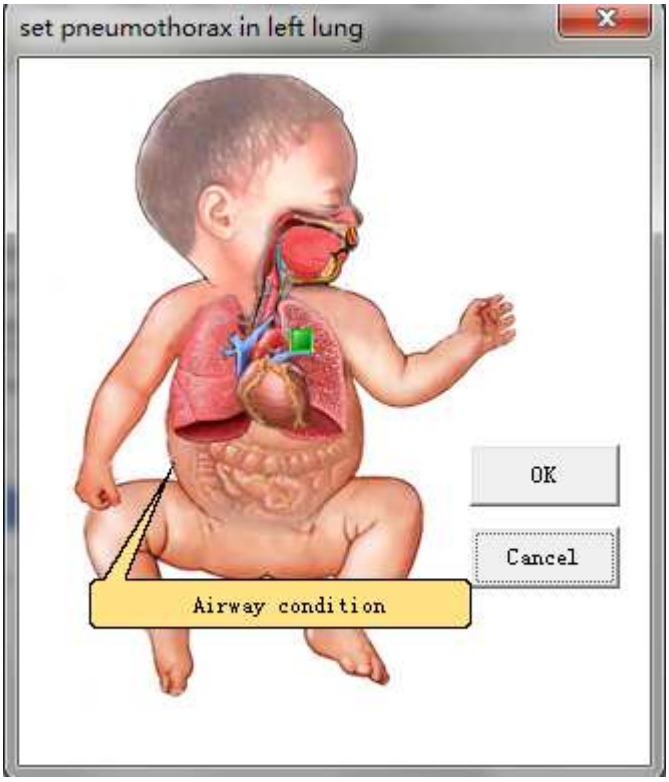
6). Bowel sound:

Dialog box of bowel sound settings can provide choice of case display positions and sounds and settings of self-set cases and sounds. Click "please make choice". Shown as the following picture:



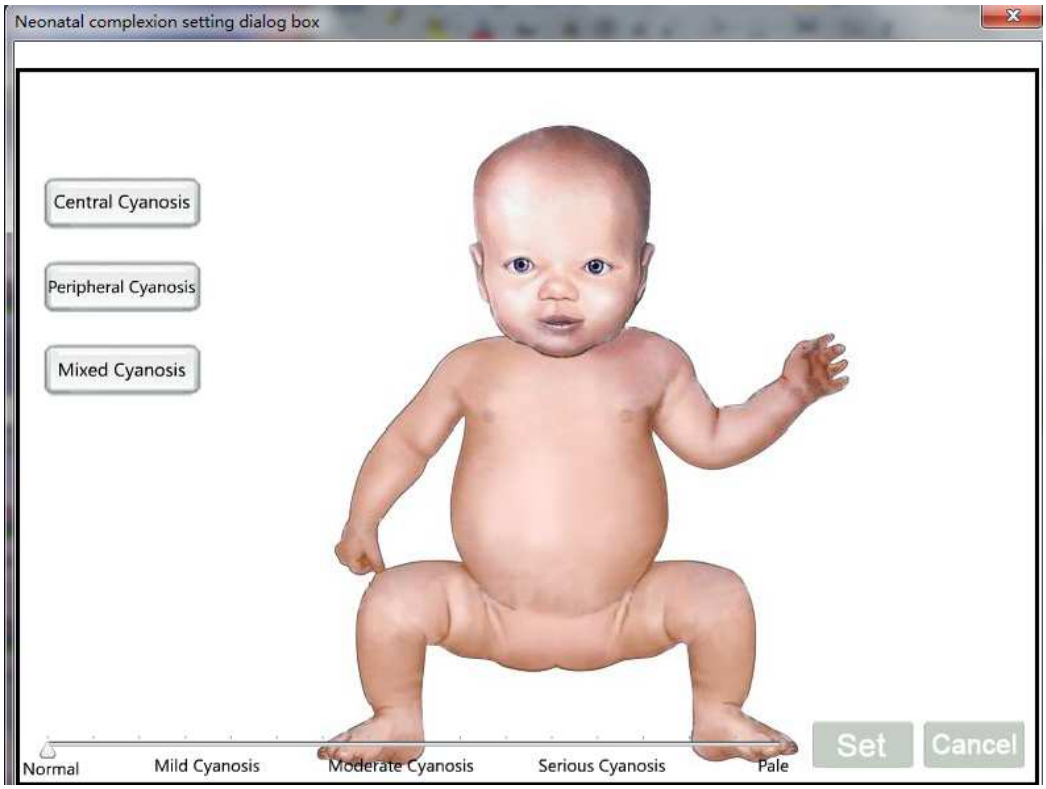
7). Left pneumothorax

Dialog box of airway management settings can set the airway states including normal state of left pneumothorax and left thorax. Shown as the following picture:



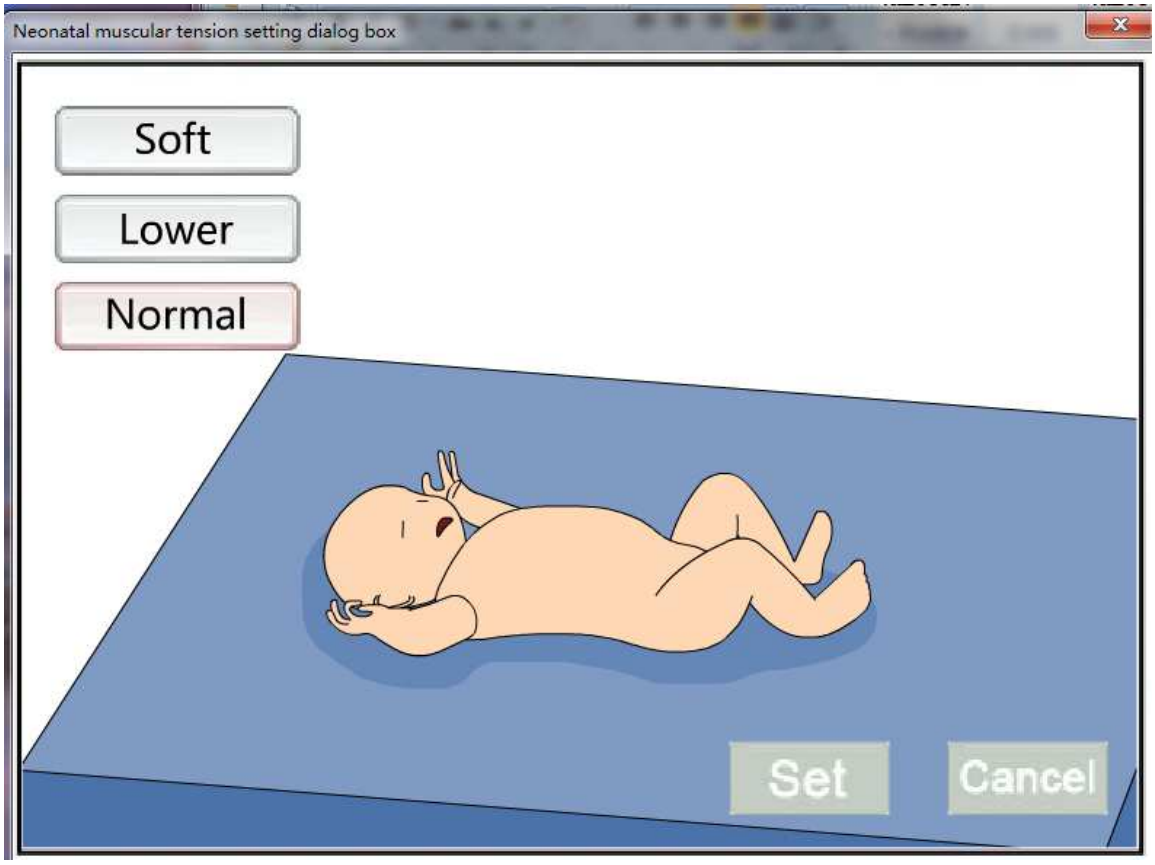
8). Complexion

Dialog box of child complexion settings includes central cyanosis, peripheral cyanosis and mixed cyanosis. Shown as the following picture:



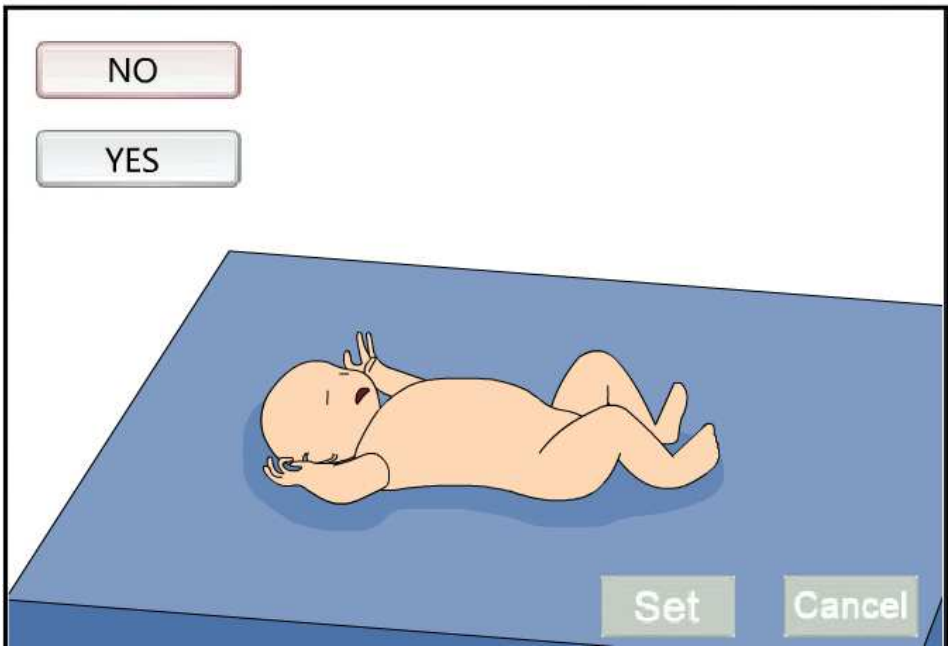
9). Muscular tension

Dialog box of neonatal muscular tension settings includes normal, floppy and diminished states. Shown as the following picture:



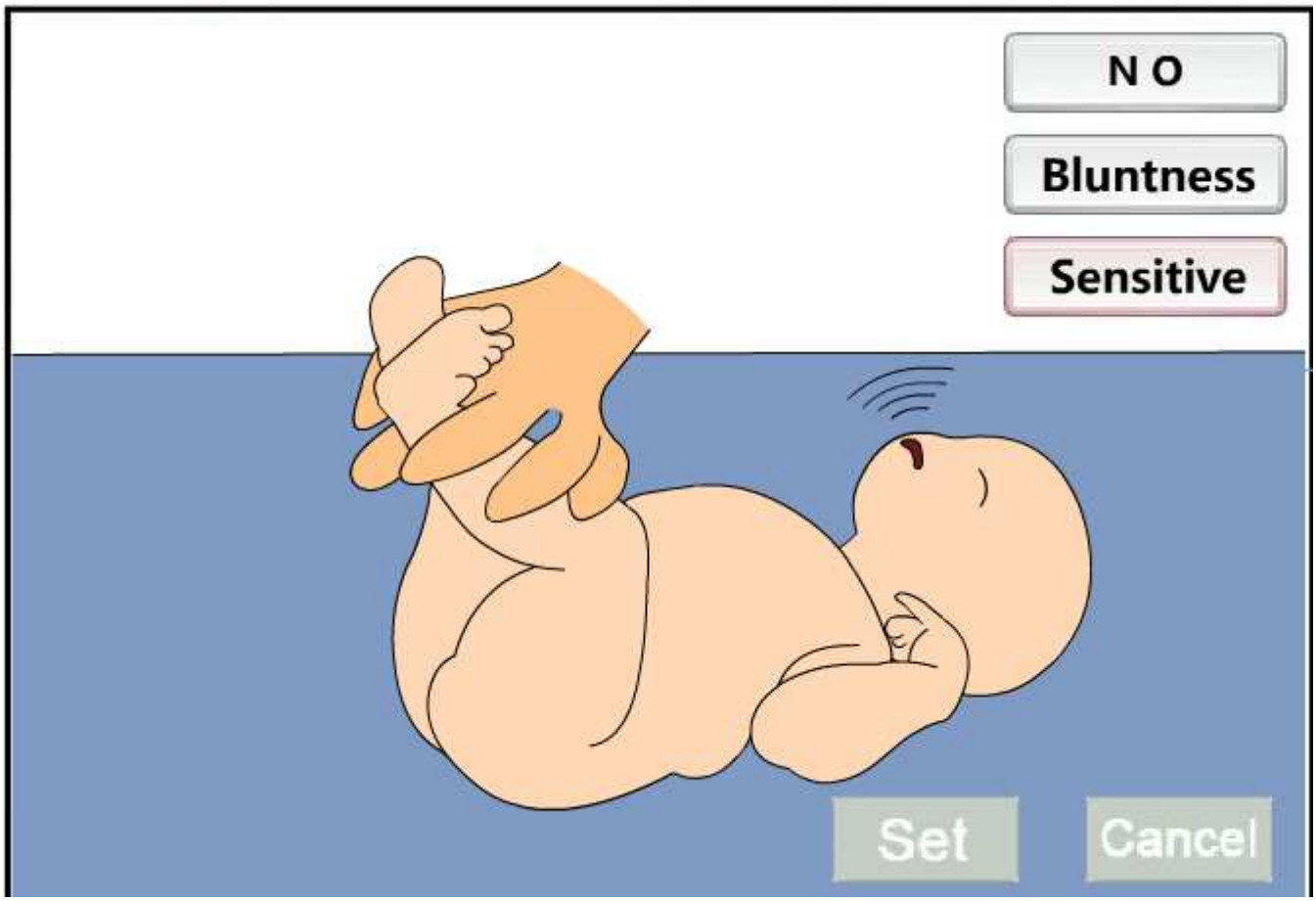
10). Twitch

Dialog box of twitch state settings includes two states: "have" and "not have". Shown as the following picture:



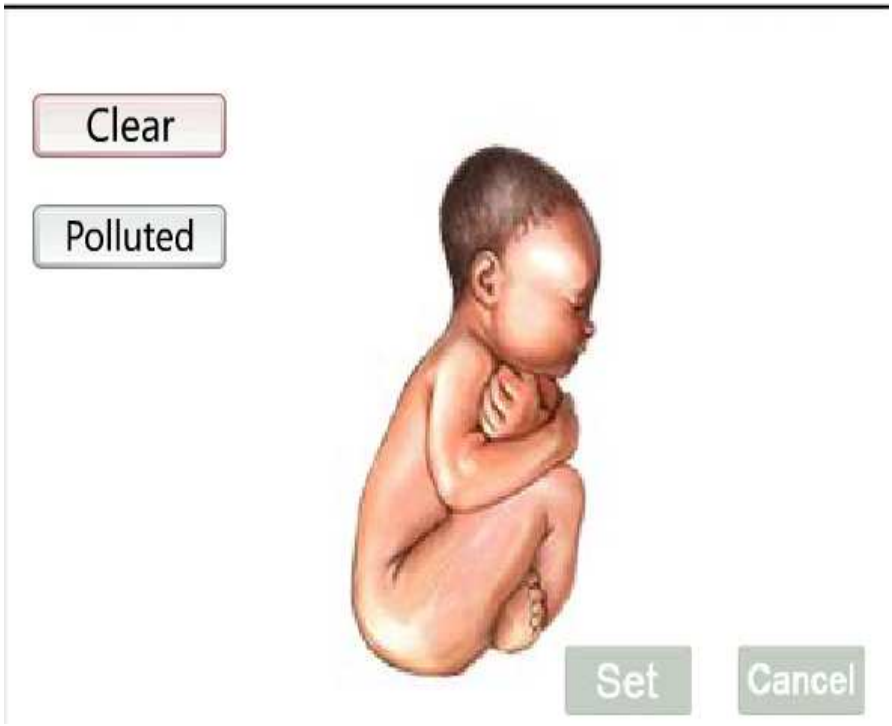
11). Reflexion

Dialog box of reflexion state settings includes three states: "not have", "dull" and "sensitive". Shown as the following picture:



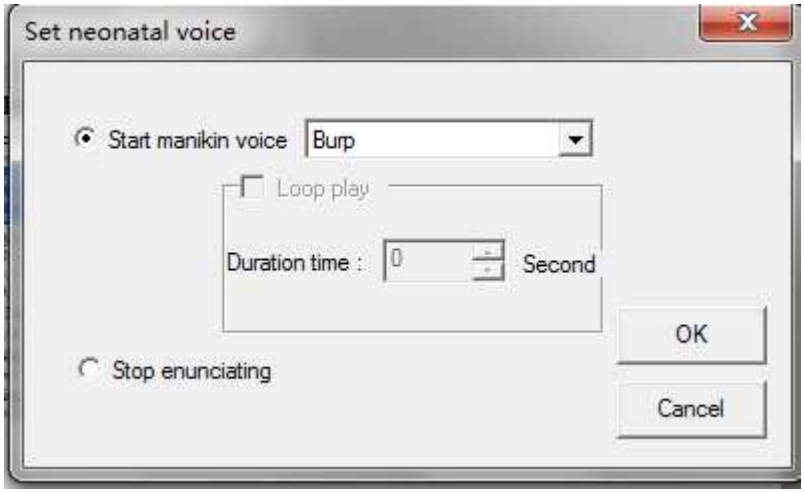
12). Amniotic fluid

Dialog box of neonatal amniotic fluid settings includes two states: "clear" and "polluted". Shown as the following picture:



13). Neonatal pronunciation

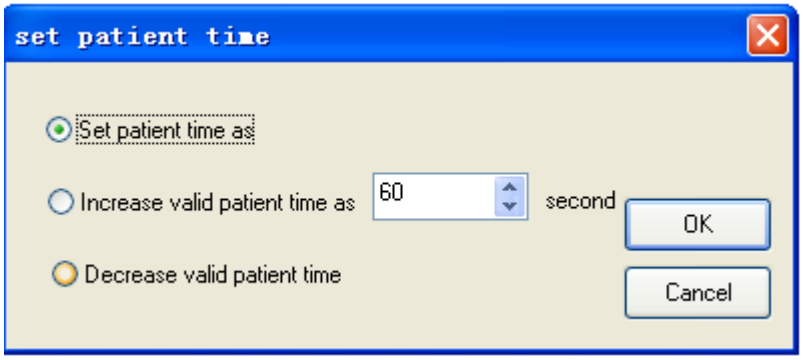
Dialog box of neonatal pronunciation settings includes launching manikin pronunciation and stopping pronunciation, and launching manikin pronunciation includes hiccup, crying, laughter and cough, etc.. Shown as the following picture:



14). Patient's time

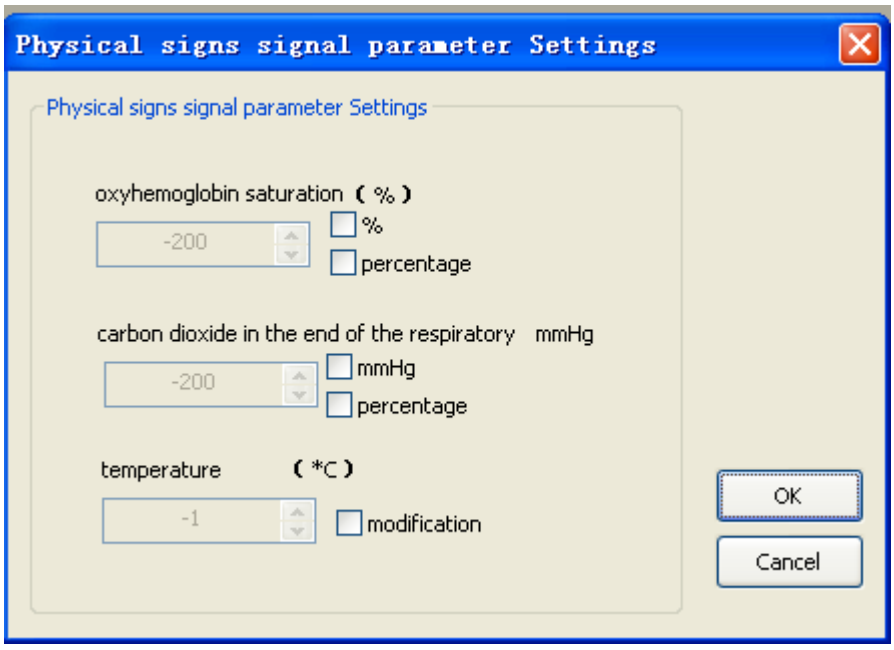
Dialog box of patient's time settings includes setting patient's time, increasing patient's effective time and decreasing patient's effective time. Shown as the

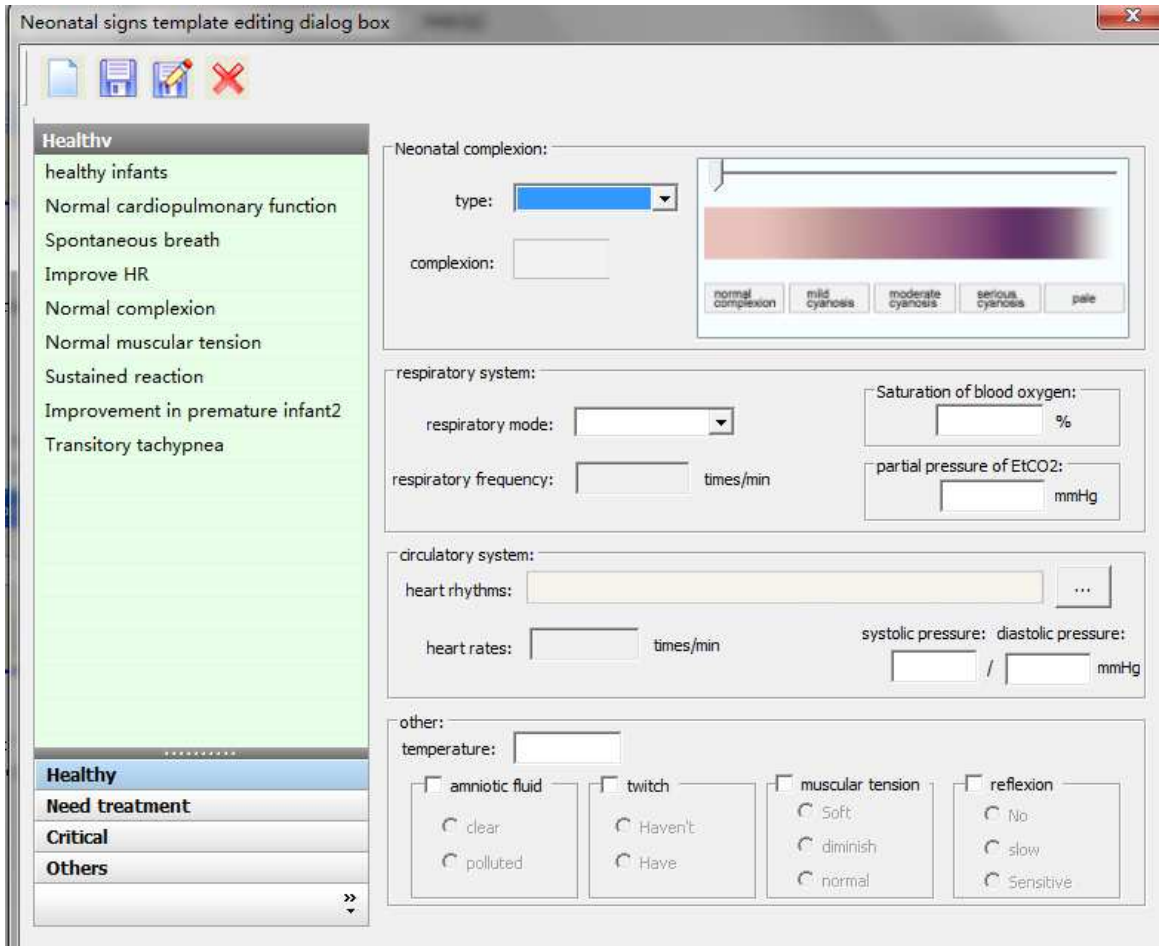
following picture:



15). Physiological parameters signal

Parameter settings of physical sign signal include modifications of oxyhemoglobin saturation, carbon dioxide at the end of respiration and temperature. Shown as the following picture.





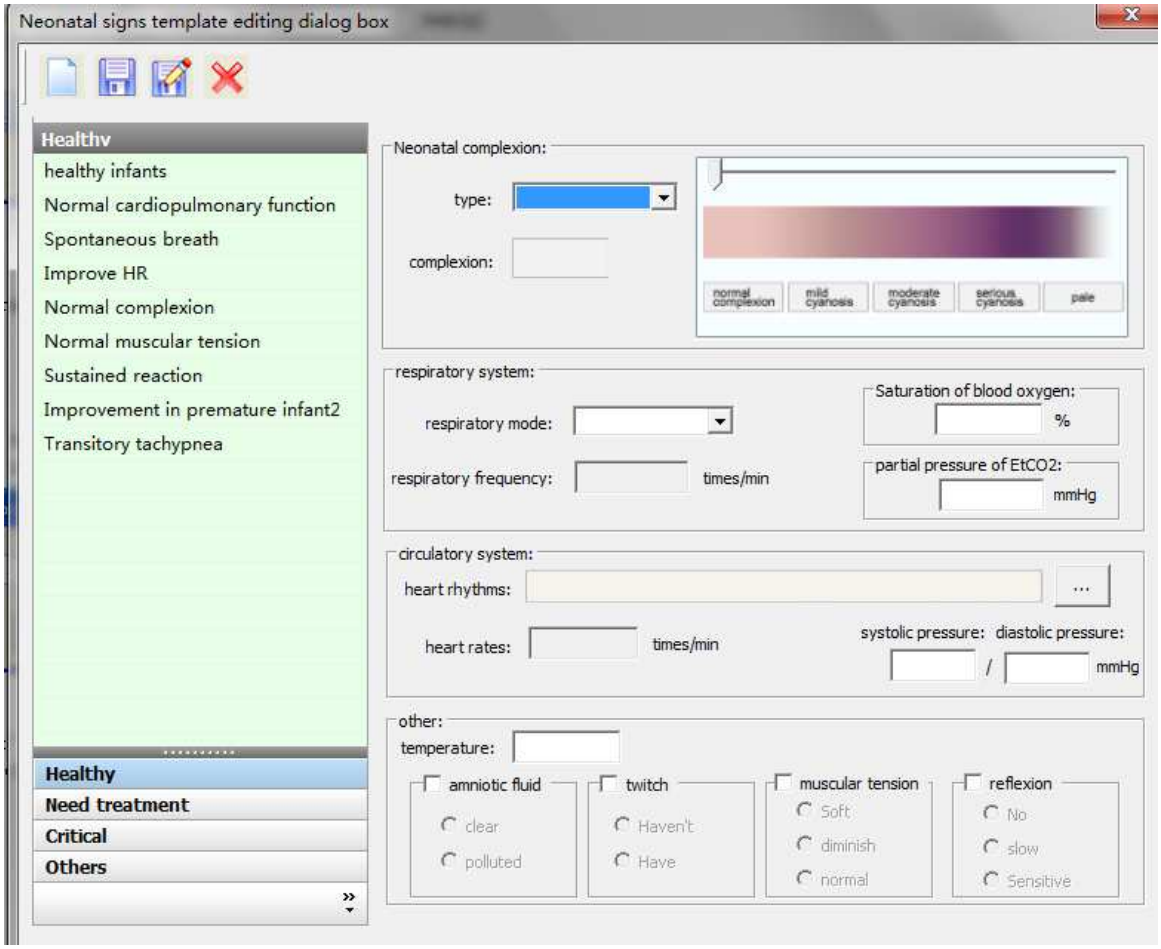
4. Withdraw the last procedure;

The last procedure can be restored by "withdraw" operation.

5. Sign template edit

Dialog box of neonatal sign template edit includes the functions of "new", "save", "save as" and "delete". In addition, the default content of neonatal sign template includes health, needs of treatment, critical condition and others.

Shown as the following picture:

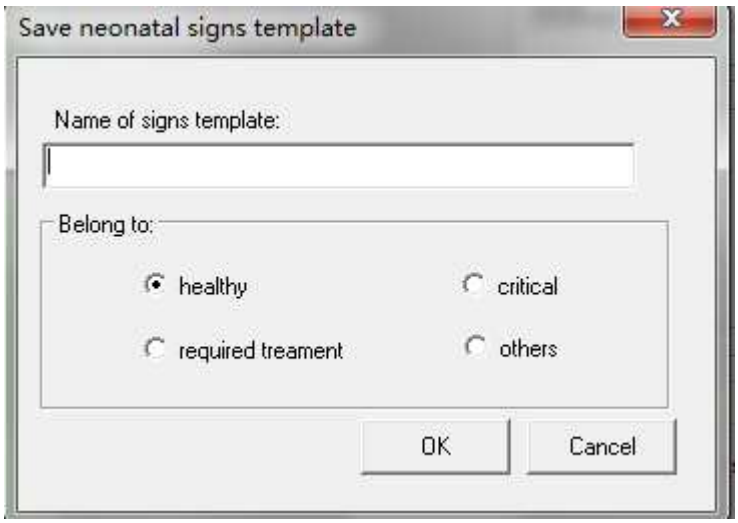


The default template of neonatal sign state includes healthy neonates, the newborn, normal cardio-pulmonary functions, recovered cardio-pulmonary function, spontaneous respiration, heart rate improvement, normal complexion, normal muscular tension, compensatory reaction, sustained response, improvement of premature infants and transient tachypnea.

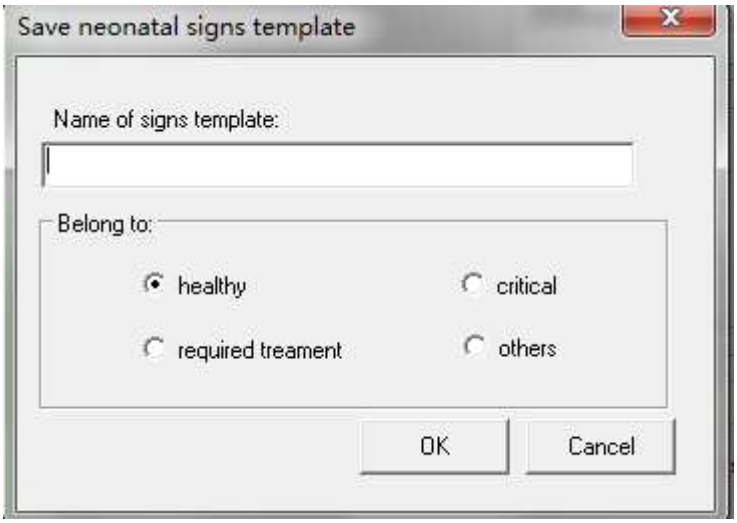
1). Click "  " to new the neonatal sign template, choose the complexion and respiration mode of the newborn and set the value of blood oxygen and the carbon dioxide at the end of expiration. And click "  ", dialog box of cardiac rhythm selections will turn up, which can set systolic pressure, diastolic pressure, temperature, amniotic fluid, twitch, muscular tension and reflexion and complete the description of the neonatal sign.

2). Click "  " to save it, shown as the following picture:

Fill in the name of the template and click "confirm" to save the file after the group it belongs to is fixed. Moreover, click "neonatal sign" to directly make changes.



3). Click “  ”. The course of “save as” is shown as follows.

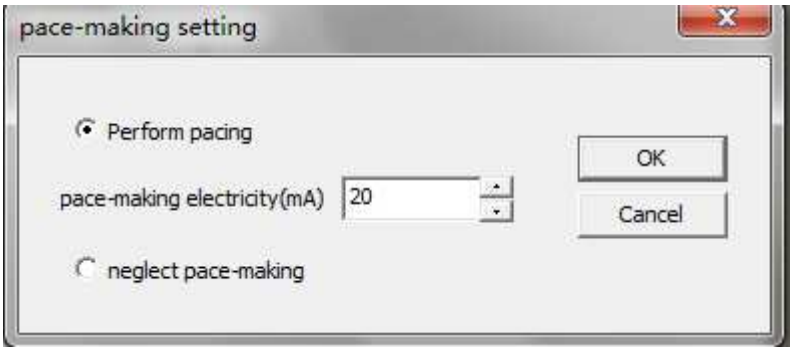


Click “confirm” to save the file.

4). Click “  ” to delete neonatal sign template.

6. Settings of physical parameters should be filled in the scene box.

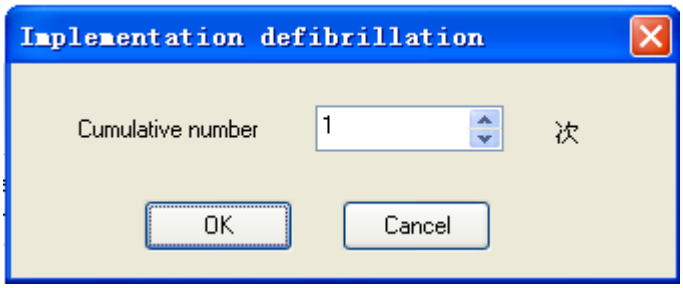
Pace-making settings: default as “available pace-making”. The pace-making current is 20mA, and it can be changed. If we choose “neglecting the current”, the neonatal manikin cannot do pace-making.



6. Introduction of "events":

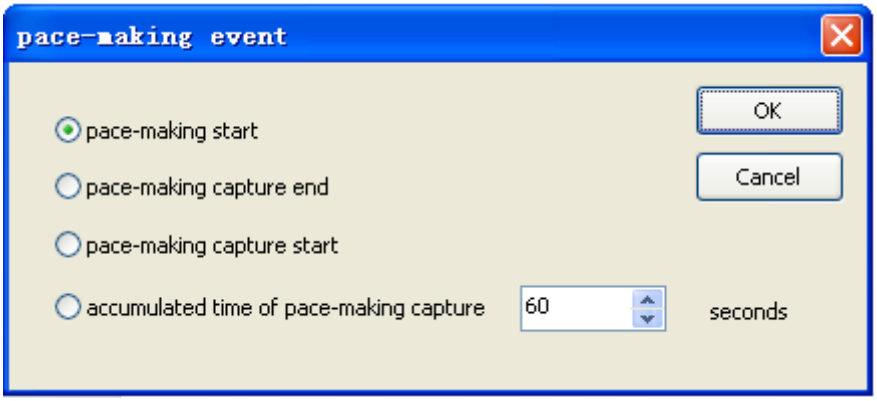
A) defibrillation

Click "defibrillation", and then click "event box" (shown as the following box). Can set accumulated defibrillation times, and click "confirm".



B) pace-making

Click "pace-making", and then click "event box" (shown as the following picture). Can set physiological parameters of pace-making, and click "confirm".

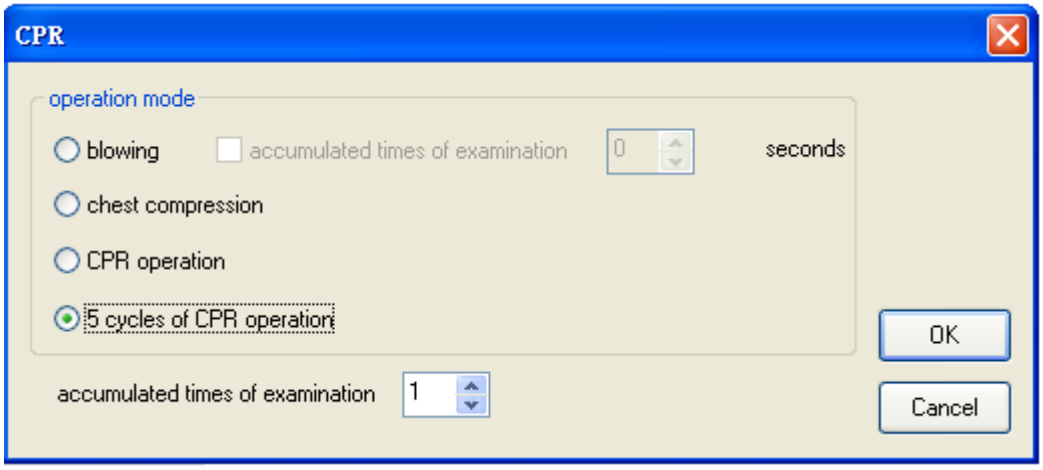


C). CPR

Click "CPR", and then click "event box" (shown as the following picture). Can set CPR operation modes.

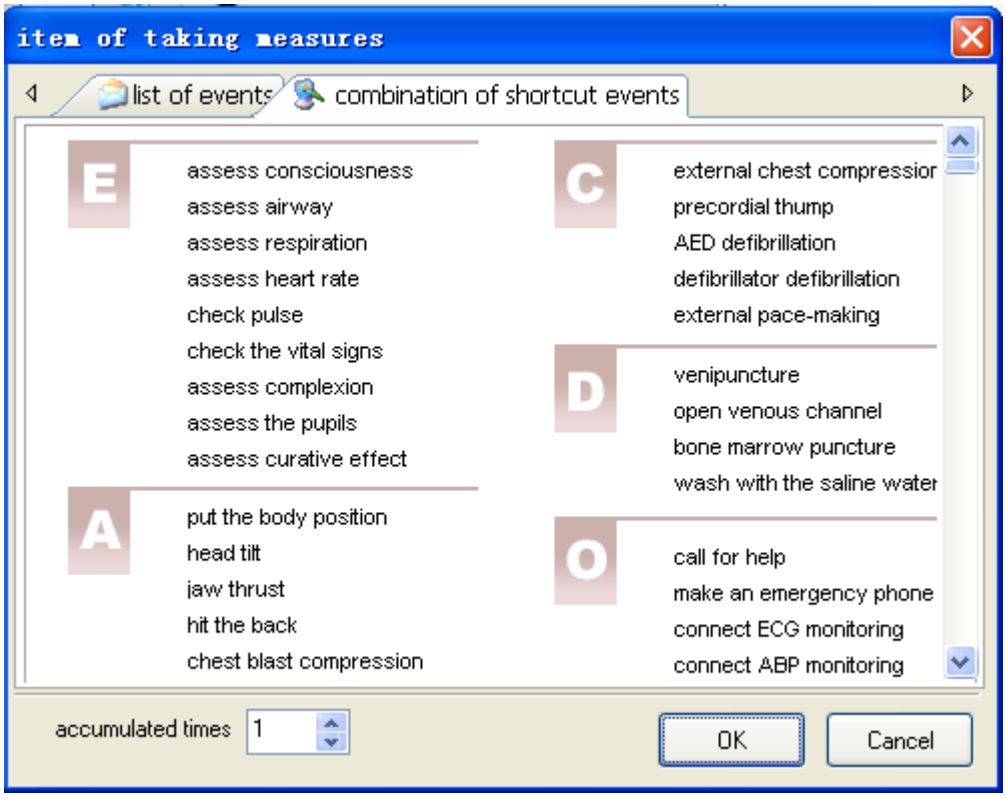
Operation modes: artificial respiration at positive pressure, chest compressions and

CPR operation. Can set accumulated operation time and accumulated checking times, and click "confirm".



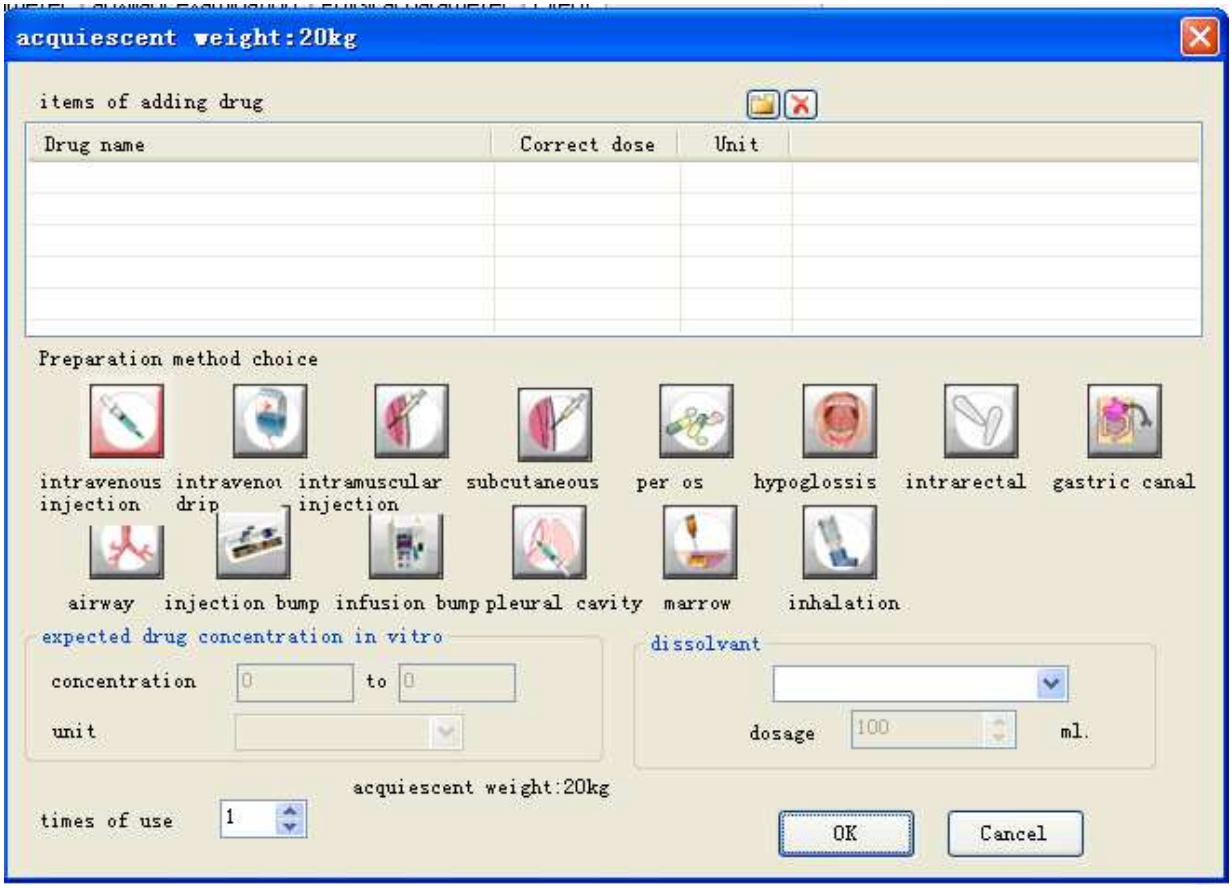
D) measure event

Click "measure event", and then click "event box". Can set accumulated times. The default interface is shown as the following picture:



E) drug administration event

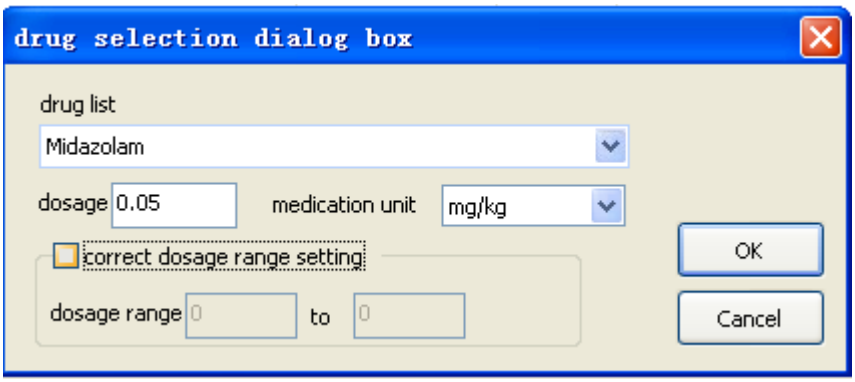
Click "drug administration event", and click "event box", then choose different drugs for treatment.



1. Add medicine

Can click "" to add the drug name and correct dosage, also can double-click the blank bar under the drug name to add it. When we finish adding the required drugs, we can make choice of injection ways among intravenous injection, intravenous drip, intramuscular injection, subcutaneous injection, per os, intra-rectal injection, by airway and by gastric tube and so on. Set dosage of the solvent after that, and click "confirm", then the event of drug administration is over. In addition, injection pump and infusion pump, two special injection ways, need more accurate dosage, so the expected drug concentration in vitro, unit, use times and solvent dosage should be set, and click "confirm", then the event of "drug administration" is over.

Double-click the blank bar under the drug name to add drugs, shown as the following picture:



2. Delete medicine

Choose a drug, and it can be canceled by "" click.

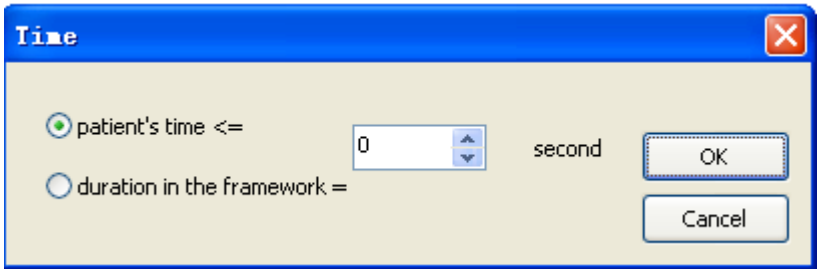
3. Modify medicine

Choose a drug name, and modify it by double-click.

F) time

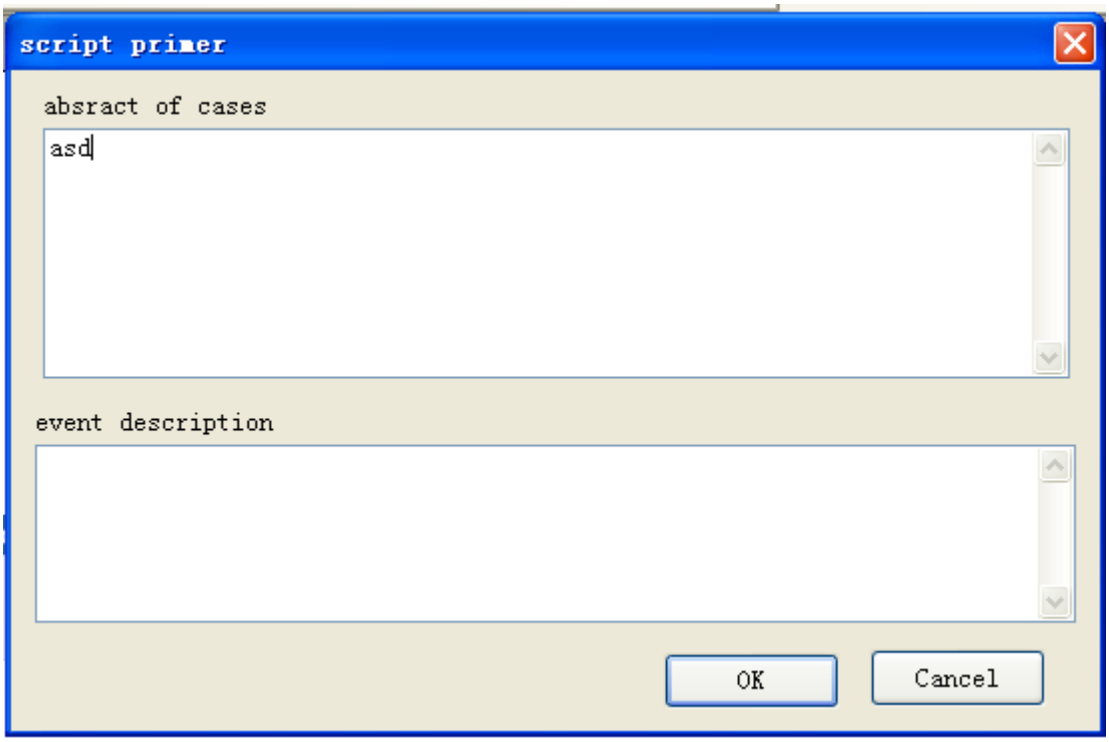
Stand for patient's time or the duration of a certain scene.

Click "time", and click "event box", patient's time can be modified. (shown as the following picture)



7. Add script

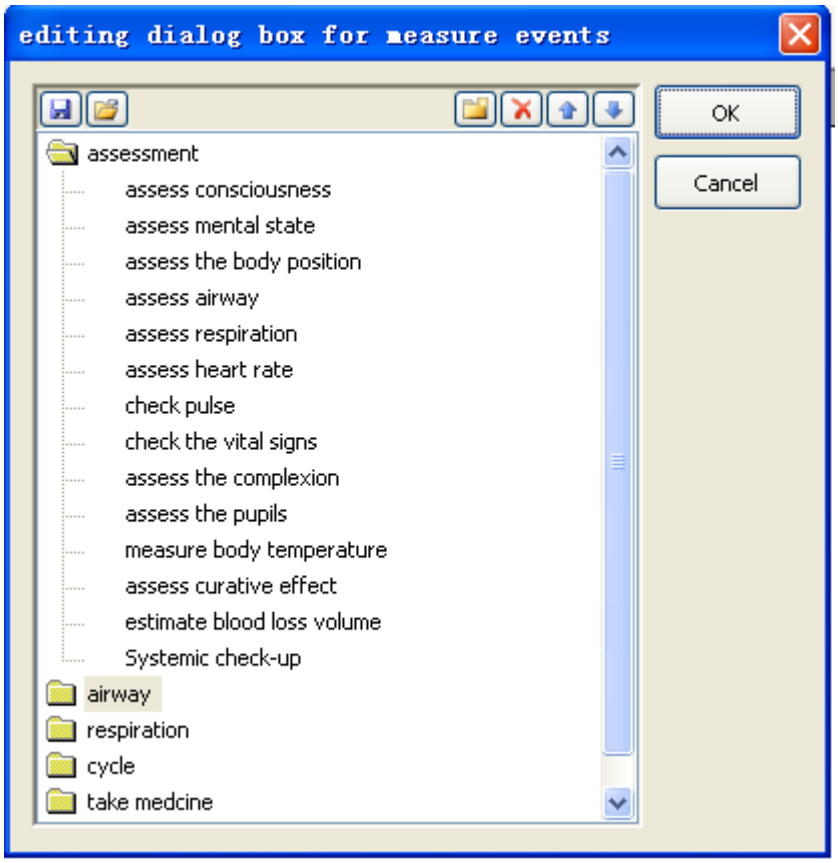
Open "edit" ---"script", and add case history. Shown as the following picture:



8. User-defined events edit

Click "edit" in the menu to "user-defined events edit", including measure events edit and drug administration events edit.

1) measure events edit, shown as the following picture:



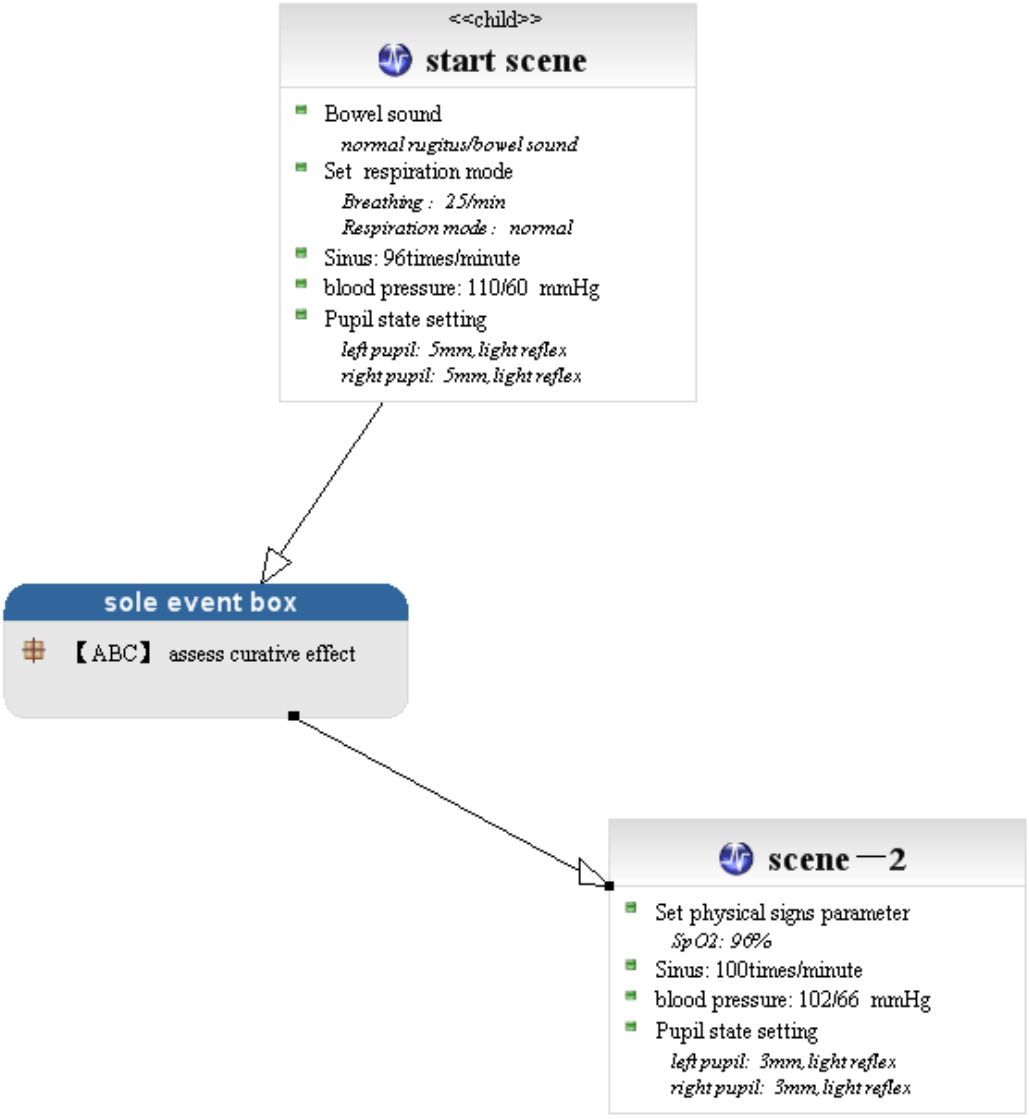
First, click assessment and airway, etc. Then click "[icon]" to new a measure event, click "[icon]" to save the new event, and click "[icon]" to delete the new event; click the icon "[icon]" to display the default measure event all along, click the icon "[icon]" to shift up the brother list, and click the icon "[icon]" to shift down the brother list.

2) drug administration edit, shown as the following picture:

The specific operation is as above.

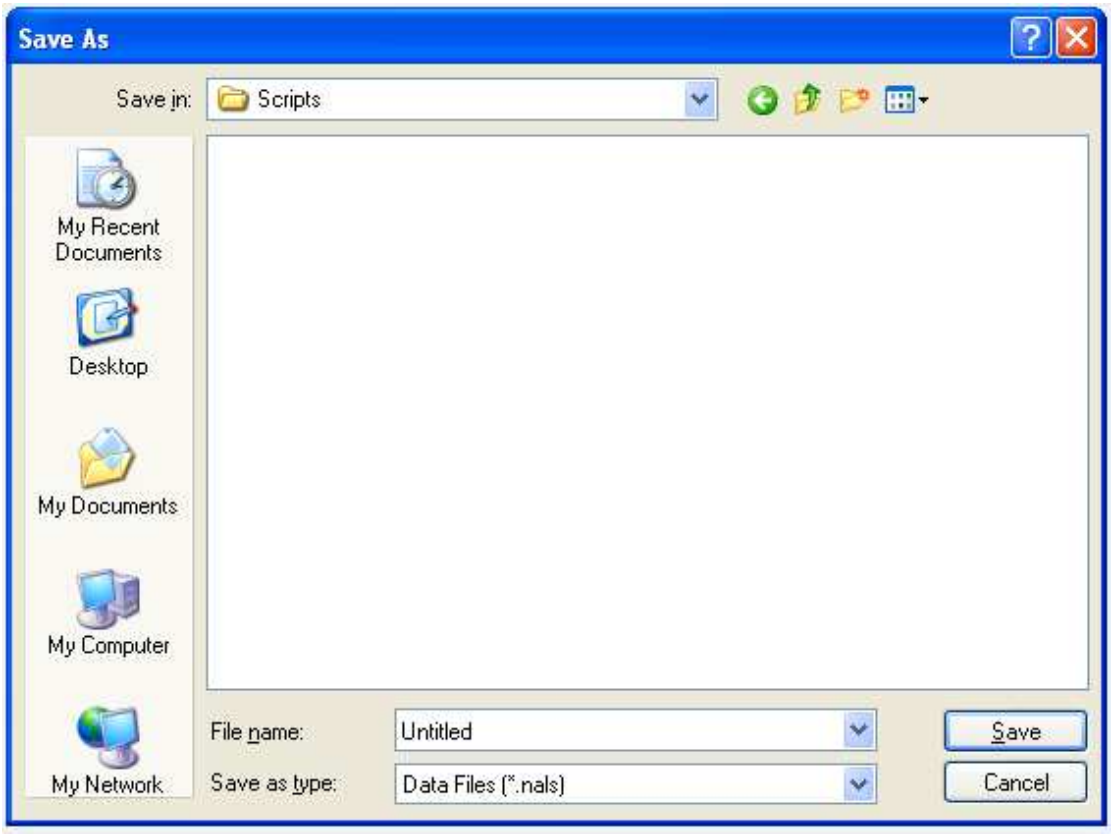
9. Connection Operation

Neonatal scenes cannot be directly connected with each other. They only can be connected to event box, change neonatal sign parameters and connect different scenes by defibrillation, etc. Shown as the following pictures:



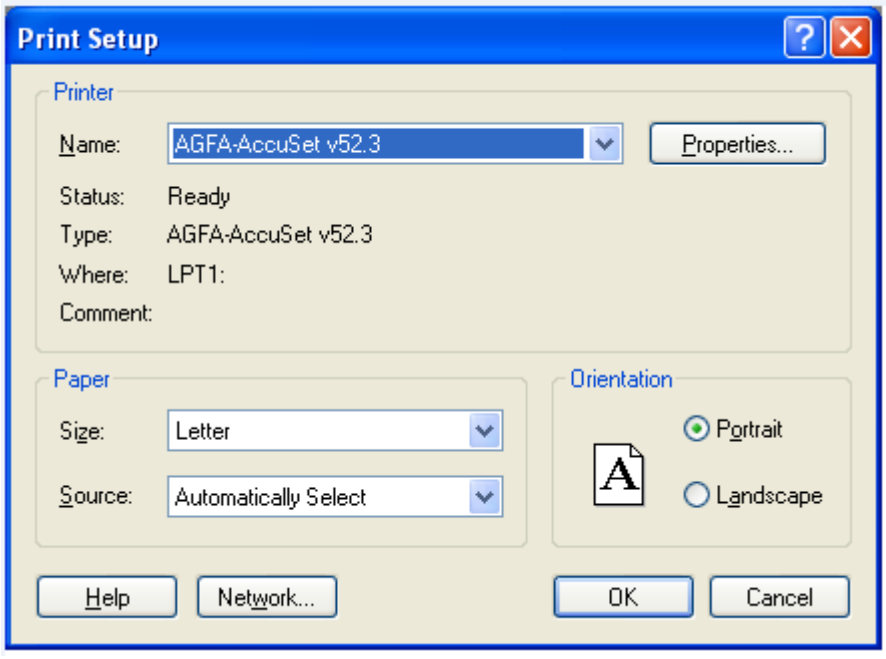
10. Save/Save as Script

Click "File" in the menu to "Save" and enter the file name. Click "save".



11. Script Print

To print script, choose "File" and "Print", and the following dialog box will pop up.



Set the name of printer and copies, and click "confirm" to print the script.

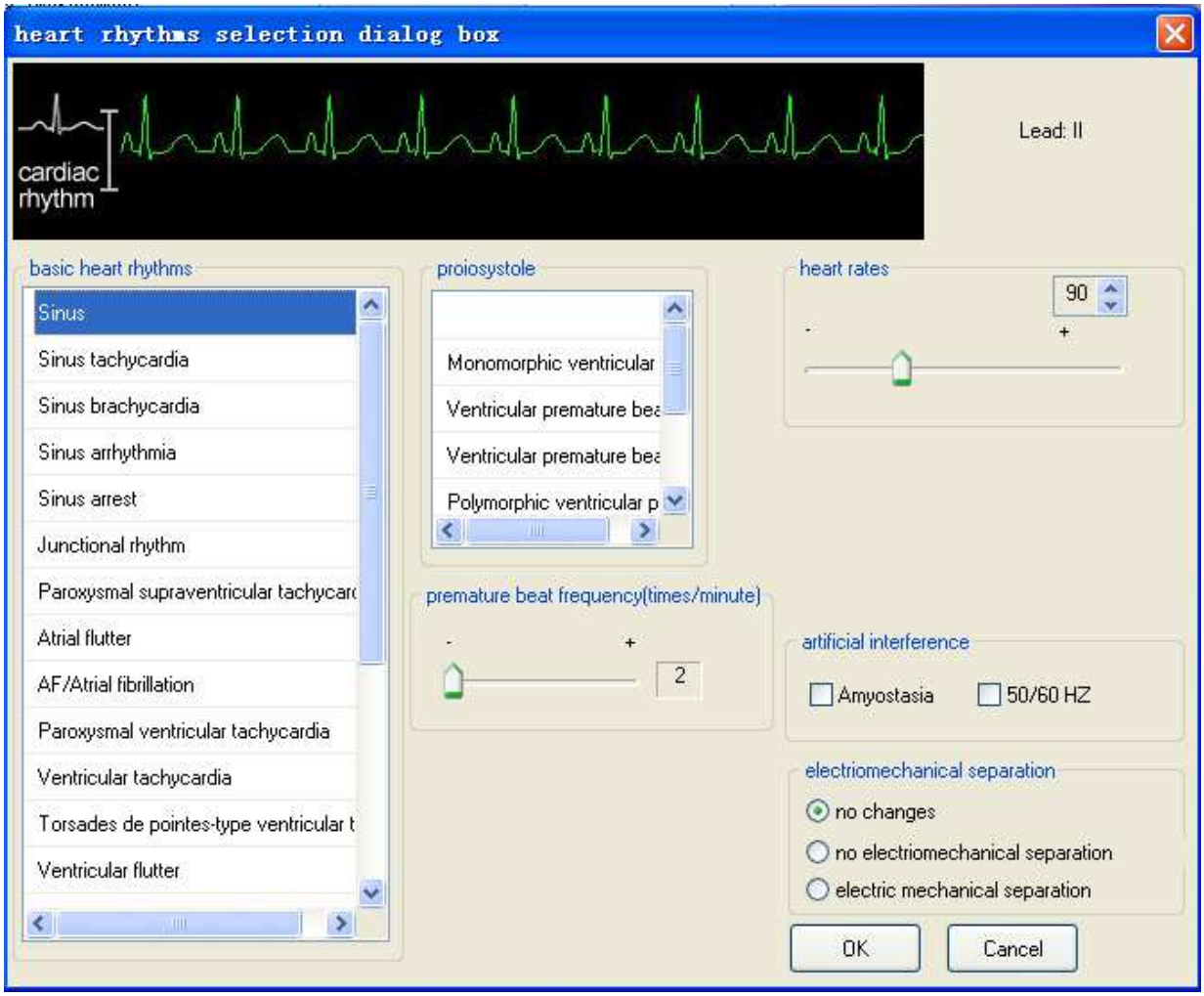
If you want to preview the effect before printing, please choose "File" and "Print Preview".

Case History Edit Demonstration:

Case1: "VF, HR:20 bpm, BP:2/0mmHg, RR:0 times/min". After once defibrillation, ECG will change into "sinus rhythm" with 80 bmp of heart rate, 110/70mmHg of blood pressure and 14 times/min of respiration.

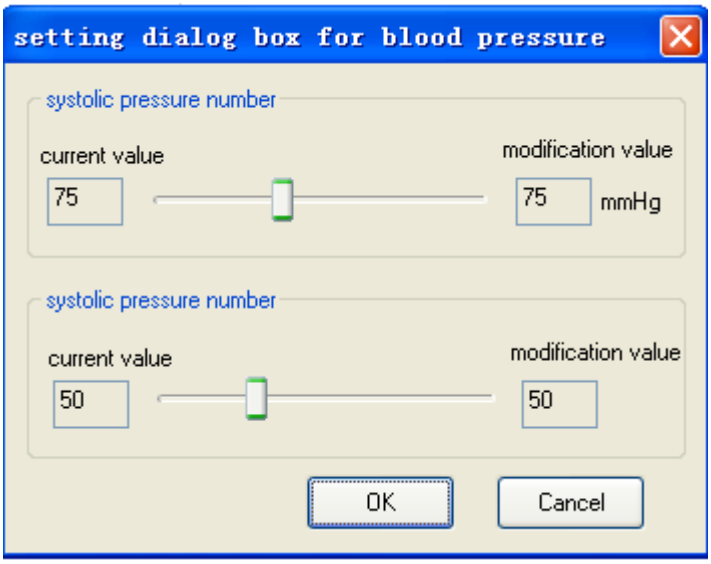
A. Open neonatal emergency training script edit software, and the following picture will appear in the view.

B. Click the cardiac rhythm of "sign parameters", and the following picture will appear.

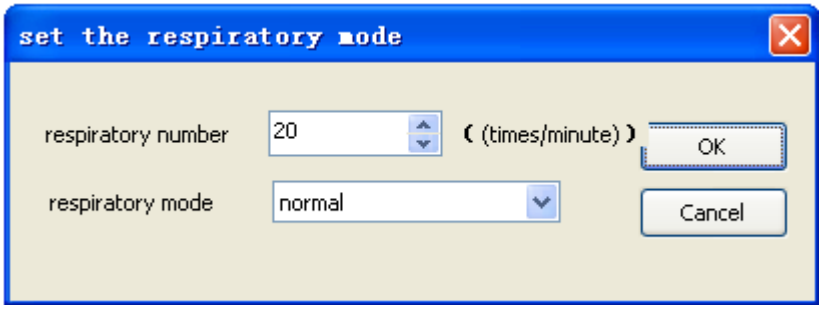


C. Select ECG from "basic rhythm" menu and click "confirm".

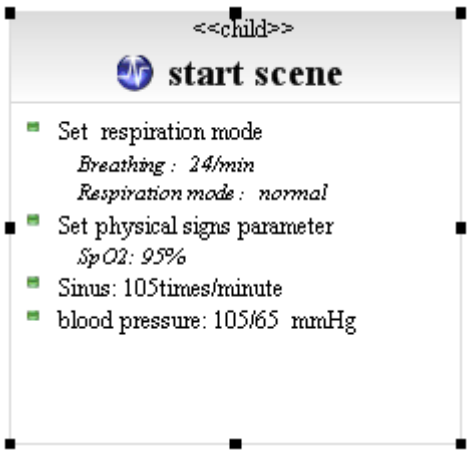
D. Click BP in the "sign parameters", set 0/0mmHg as BP value and click "confirm".



E. Click respiration mode in the "sign parameters", set respiratory arrest and click "confirm".

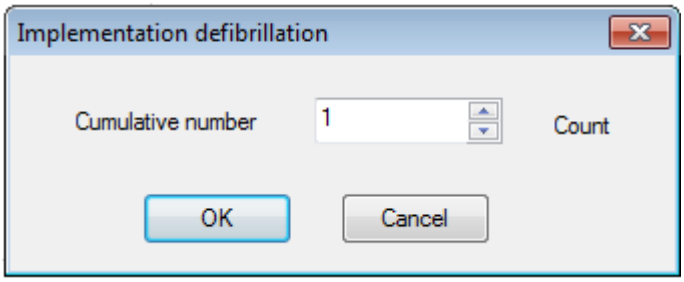


F. The following picture will appear after the settings of patient's condition are finished.



G. Click "single event box" in the "block diagram".

H. Click defibrillation in the "event", shown as the following picture:



I. Choose number "1" as the time of defibrillation.

J. Click "" to create a new scene, shown as the following picture:

K. Click "cardiac rhythm" in the "sign parameters", and select sinus rhythm from "basic rhythm" drop-down list.

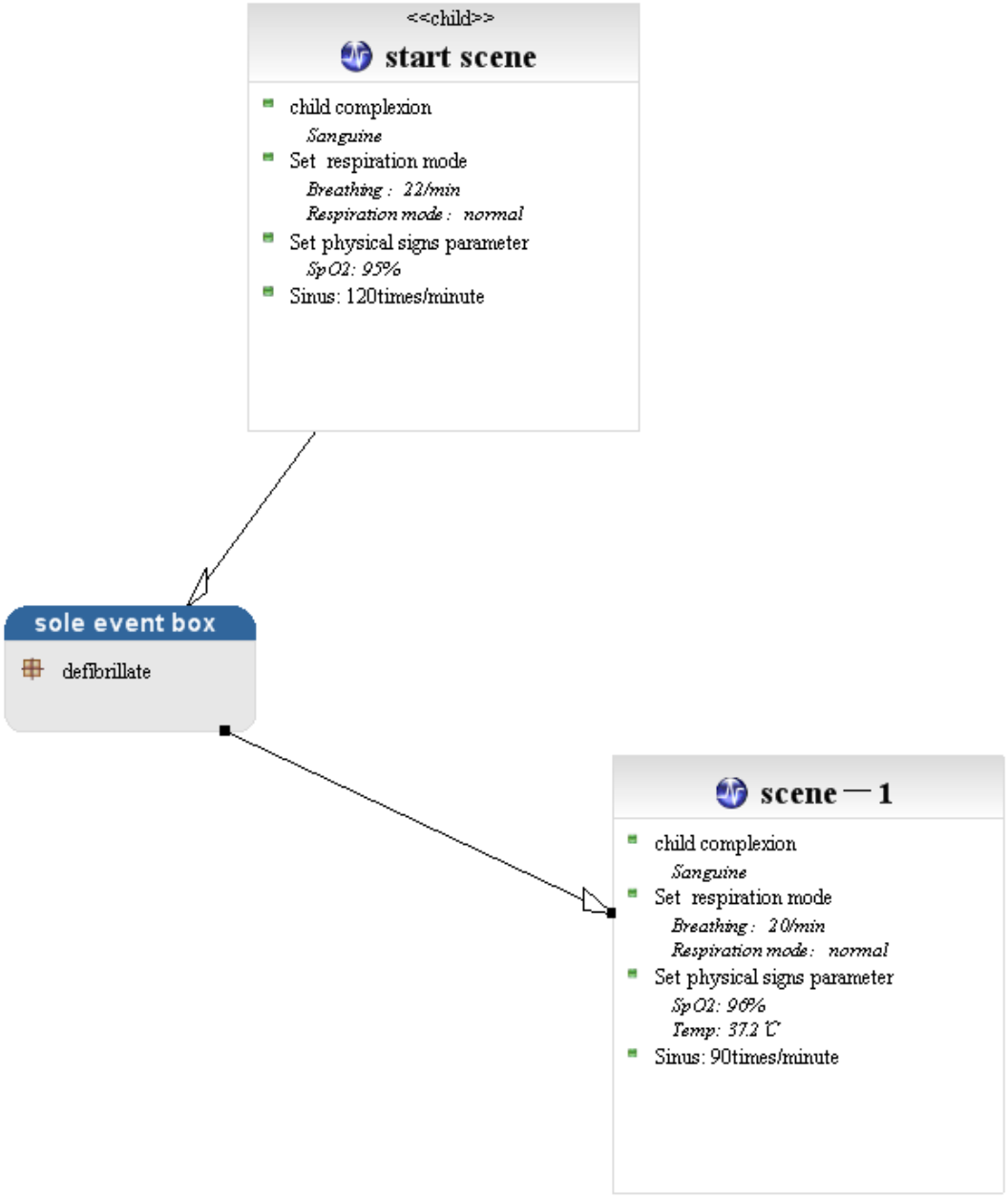
L. Click "BP" in the "sign parameters" to set 110/75mmHg as the BP value and click "confirm".

M. Click "respiration mode" in the "sign parameters" to set 40 times/min as the respiration times and click "confirm".

N. Click "" to connect "initial scene" with "single event box".

O. Click "" to connect "single event box" with "scene 1".

P. The flow chart is as follows:



Q. Save: Click "  " of "file". Name it . Click "save".

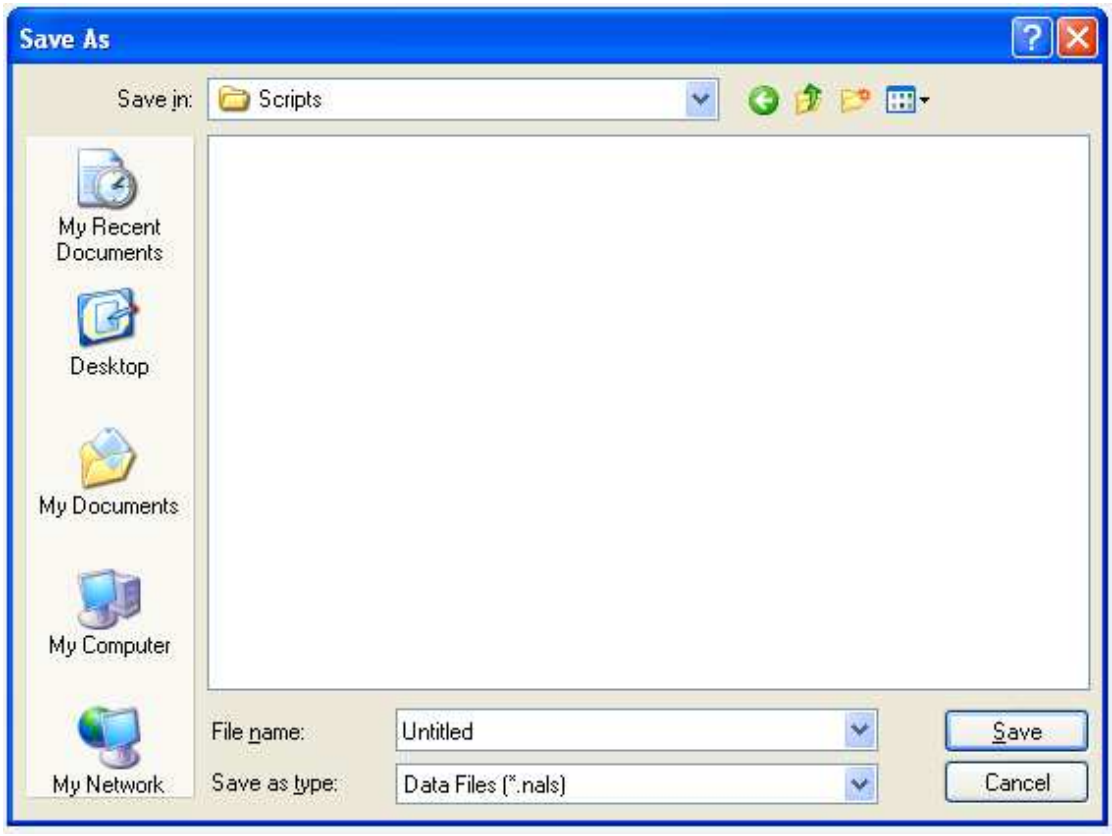


Illustration: Each script was made of several connected scenes. Only when the appointed operation is done, the previous scene can enter the next scene. Different scripts are made of different scenes. We should be familiar with the script before operation. As to the script, please see the instruction manual of "script editor".