

Oximeter Data Manager

User Manual

Introductions to User

Dear Users,

Thank you very much for purchasing our Oximeter. This manual is intended to assist the user in uploading data from Oximeter to PC in a safe and effective manner. Please read this manual carefully before running the system, and follow it to operate.

The Manual is published by our company and we have the ultimate right to explain the Manual. No part of this manual may be photocopied or modified without the prior written consent. We reserve the right to improve and amend it at any time without prior notice.

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This Oximeter Data Manager is application software running on a personal computer with Microsoft Windows operating system, so the user should be acquainted with some knowledge to operate computer.

3502-2290066

Information for Operation

- Please make sure that the connection between PC and the oximeter is reliable and do not unplug the data cable during uploading at will.
 - Low battery may interrupt the uploaded data while uploading.
 - Key button operation is not allowed during uploading, or may affect data uploading.
 - While installing printer driver, please quit the Oximeter Data Manager software if it's running.
-

Note:

- Connect/Disconnect data cable to the oximeter gently and carefully, do NOT wiring or shake the data cable plug with force to insert into or unplug from data interface port.
 - Before updating the Oximeter Data Manager software, please uninstall the previous Oximeter Data Manager procedure and USB driver procedure, and manually delete all the files in the default folder (“C: \Oximeter Data Manager\”) or your destination folder for saving Oximeter Data Manager installing file.
 - Please select the “Wireless” function of Oximeter Data Manager when uploading the data with the Oximeter(wireless data transmission).
-

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1 Overview

1.1 Introduction

The data saved in **Oximeter** which has been uploaded to PC through the wireless mode or data cable can be managed, viewed and analyzed by “Oximeter Data Manager”. It is convenient for user to view records and statistical result, and archive patients’ data.

1.2 Operating Prerequisite

Requirement for Computer:


Hardware requirement:

PC with Intel Pentium III CPU, 800MHz clock or higher; 256MB or higher memory; CD-ROM drive; at least 1GB space available in the hard disk to install Oximeter Data Manager software.

Software requirement:

Microsoft Windows XP, Windows 2000, Windows 7, Windows 8 or Windows Vista Operating System

1.3 Procedure of Data Upload

1. Install the “Oximeter Data Manager” software.
2. Set the resolution of screen display as “1024×768” pixel (best fit), or higher.
3. Connect the Oximeter and computer by data cable (refer to Figure 2-17A); or insert one adapter into the PC(refer to Figure 2-17B).
4. Let the oximeter stay in the specified mode (refer to Oximeter User Manual for details).
5. Double-click Oximeter Data Manager icon “” to start running Oximeter Data Manager and on the main menu screen click “Patient Record” to add a new user archive.
6. Click “Data Upload” button to acquire data, and then add the data to user archive for saving.
7. Click “Data Review” button to review and browse records.

Refer to each section for detailed operation.

2 Installation, Connection and Settings

2.1 Installation of Oximeter Data Manager

Important: This software should be installed by the user who has the permission level of system administrator.

Insert the CD-ROM which contains the installation software into CD-ROM drive, and the software installation will be automatically running or directly running the program "setup.exe" in the root directory of CD-ROM drive, then the window of "Oximeter Data Manager Setup" will be prompted on the screen as shown in Figure 2-1.



Figure 2-1 Setup Screen

On "Oximeter Data Manager Setup" screen, unlike the previous version, it's unnecessary to select the display language because the installing program will use the language same as the current operating system language to complete the installation (Note: Only four languages English, Italian, Simplified Chinese and Traditional Chinese are supported currently, refer to 3.5.2 for system configuration). The initializing screen is as shown in figure 2.2.



Figure 2-2

Installing screens are shown bellow: When clicking the "Finish" button to finish the installation of Oximeter Data Manager, the USB driver procedure will run automatically.

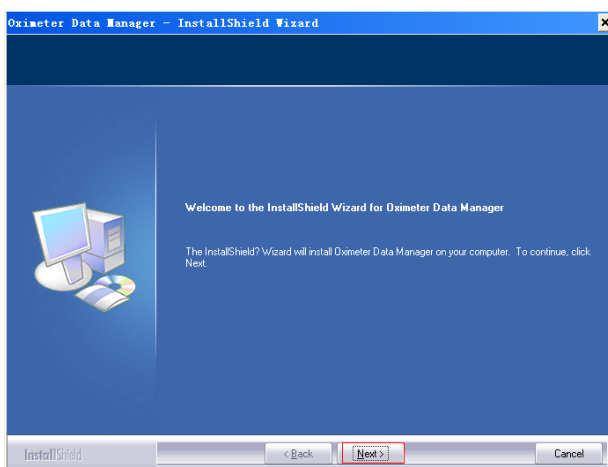


Figure2-3

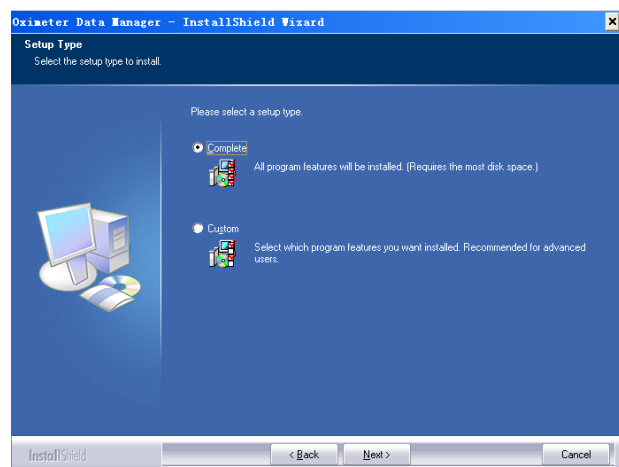


Figure 2-4

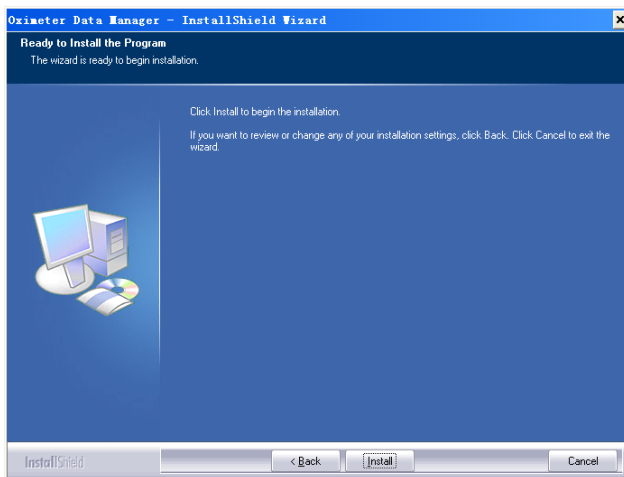


Figure 2-5

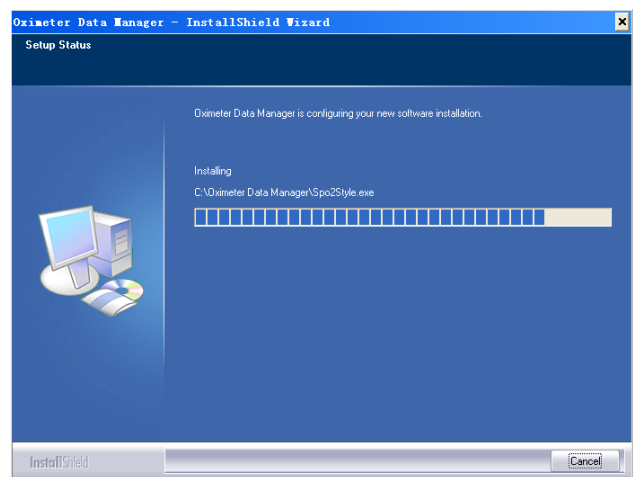


Figure 2-6A

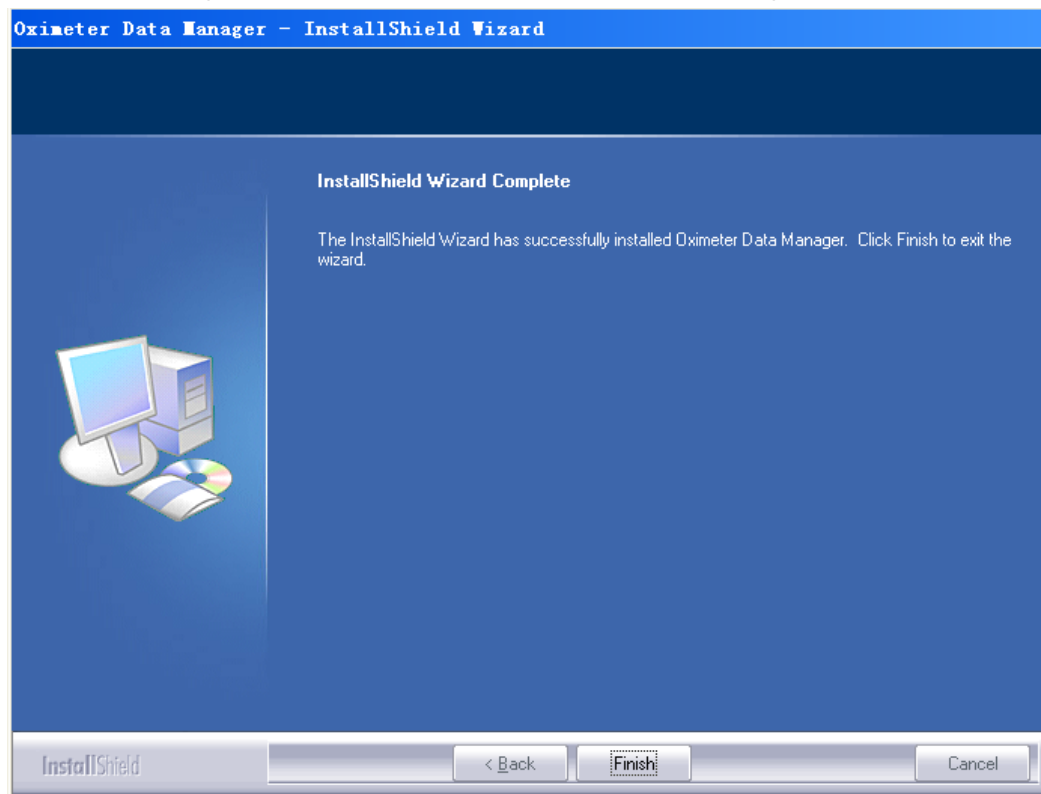


Figure 2-6B

Note: If user uses the default installation, the installation file will be saved in operating system disk "C:\Oximeter Data Manager\".

2.2 Installation of USB Driver

When clicking the "Finish" button to finish the installation of "Oximeter Data Manager", the USB driver installation will be followed automatically with the indication message "USB driver installing...please wait..." on the last line of the prompting window. Before starting to install the USB driver, a pop-up window shows up to remind the user to unplug the USB cable before the installation, as shown in figure 2-7. Then click "Continue" button to start the installation progress so the next prompting window is shown in figure 2-8.



Figure 2-7

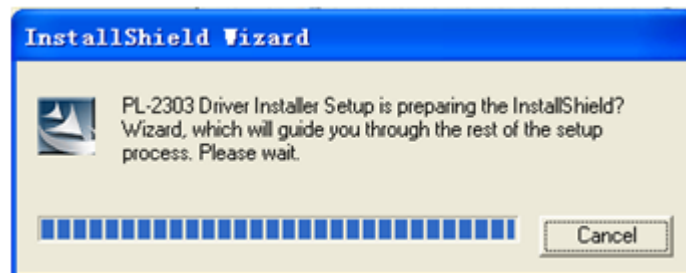


Figure 2-8

Please refer to the following figures to choose, as shown in figure 2.9 and figure 2.10. If the installation is completed, figure 2-11 pops up, then click "OK".

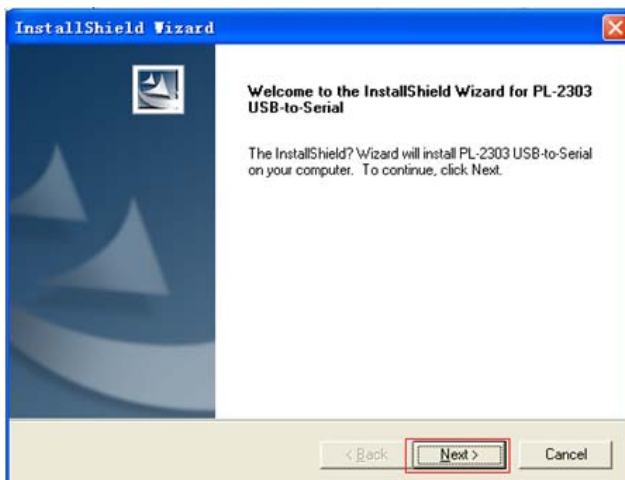


Figure 2-9

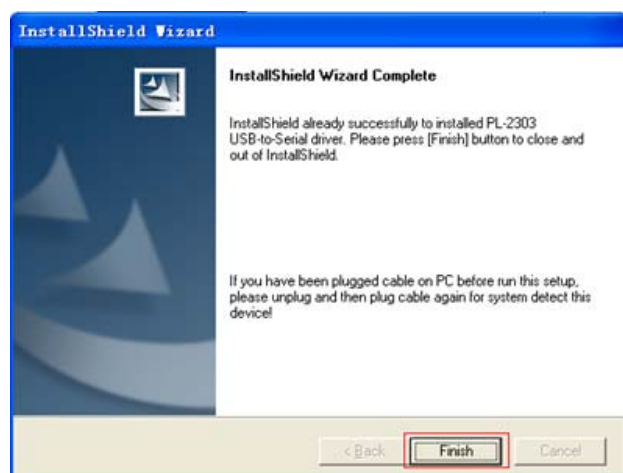


Figure 2-10

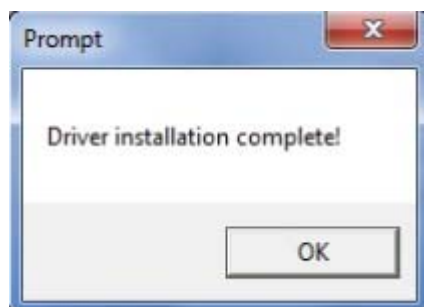


Figure 2-11

If this USB driver has been already installed in this computer, it prompts message "Reinstall PL-2303 USB-to-Serial Driver?", as shown in figure 2-12. If you need to reinstall, please click "(Yes)Y", the screen shows as figure 2-13, then will uninstall the installed driver at first, and then install the new driver; If there is no need to

reinstall, click "No (N)" to exit from the USB driver installation.

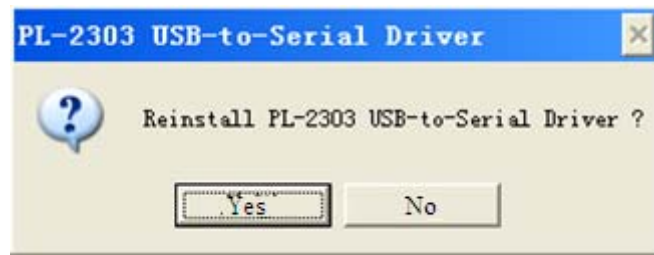


Figure 2-12

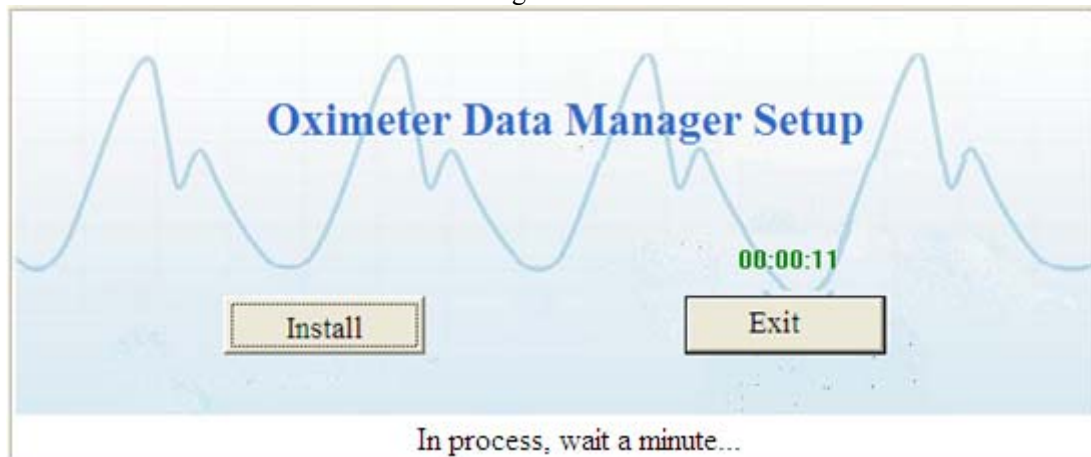


Figure 2-13

Note: if the current driver is not compatible with the current OS version, then a window pops up on the screen to remind user to uninstall the current driver and install a new one, as shown in figure 2-14. Click "OK", the screen pops up a dialog box, as shown in figure 2-15, click "Yes" to uninstall the installed driver firstly. If un-installation is completed, and on the pop-up screen, select "No, I will restart my computer later" item, then install the new driver, as shown in figure 2-9 and figure 2-11.

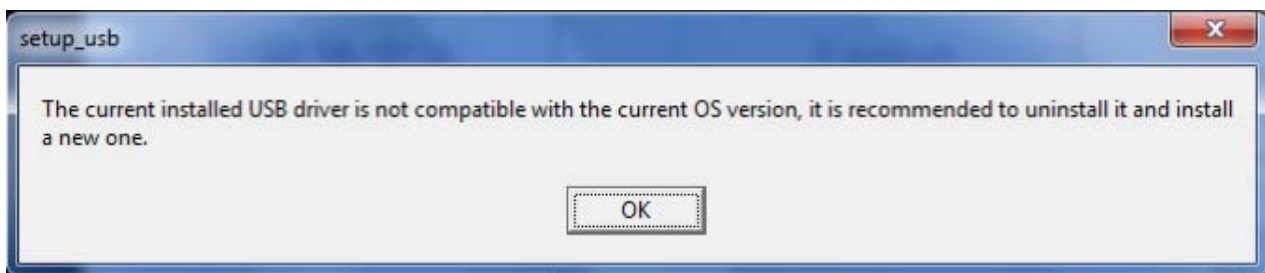


Figure 2-14

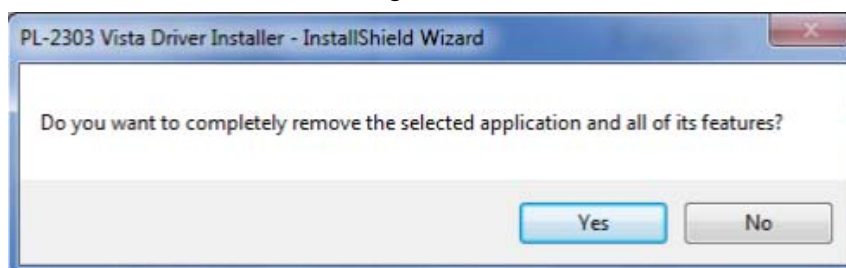


Figure 2-15

2.3 PC Setting

2.3.1 Setting Display Properties

After entering into Windows operating system desktop, click the right key of the mouse, and the desktop springs a quick menu, and then move the cursor to select "Properties". Choose "Settings" on the "Display Properties"

window, then set the “Screen resolution” option as “1024 by 768 pixels”, and set the “Color quality” option as 16bit at least, as shown in Figure 2-16.

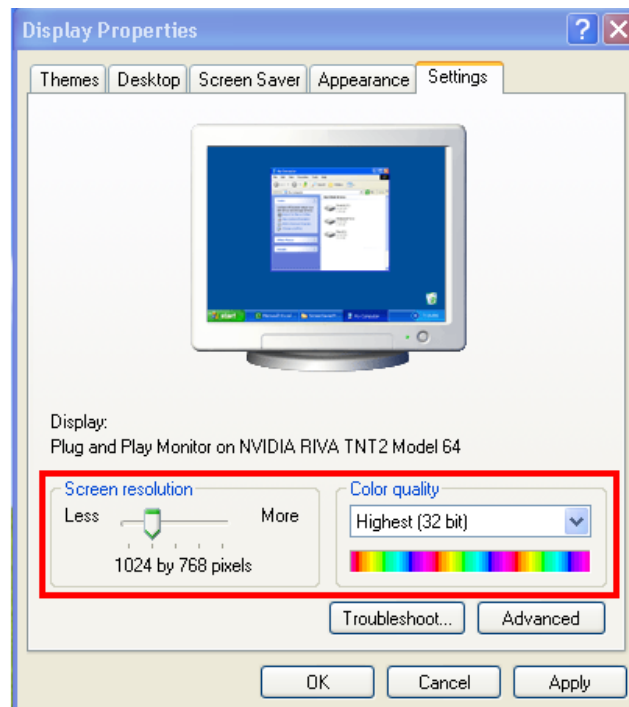


Figure 2-16 Display Properties Setup

2.4 Device Connection

After installing Oximeter Data Manager, refer to Figure 2-17 to perform connection:

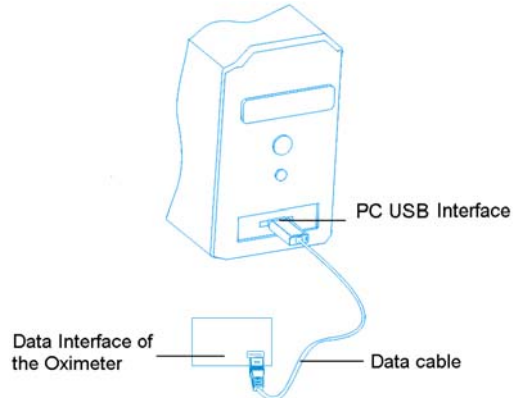


Figure 2-17A Upload by USB cable

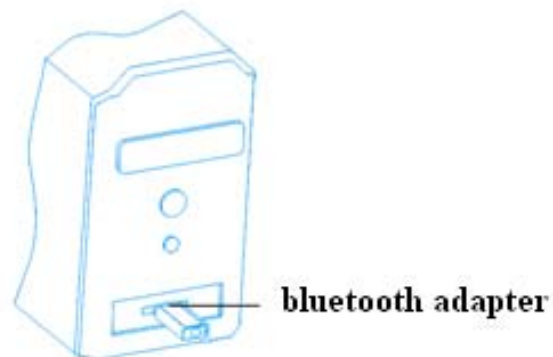


Figure 2-17B Wireless data transmission

Note: when connecting the device at the first time, the system prompts that “Found New Hardware. Your new hardware is installed and ready to use.” on the lower right, as shown in Figure 2-18, it means that USB driver is installed successfully.

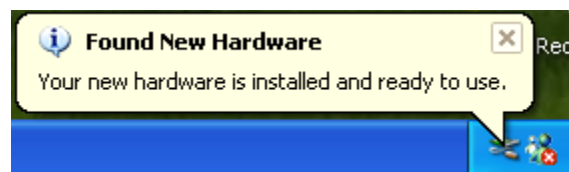


Figure 2-18

Please setting the “wireless” option is “on” if the user use the device is Oximeter(wireless data transmission) while inserting the provided adapter into the PC, it will prompt that “Found New Hardware. Your new hardware is installed and ready to use.” On the lower right corner, if the wireless mode matches successfully, it will prompt

that “wireless oximeter server” on the lower right corner, as shown in figure 2-19.

Note: the computer will match the wireless mode automatically. Therefore, do NOT click anything at this moment.




Figure 2-19

2.5 Oximeter Setting

Let the oximeter stay in the specified mode before uploading data. Refer to the Oximeter User Manual for detailed operation.

3 Operations

3.1 Main Menu

Double-click Oximeter Data Manager icon“” on the desktop with the Mouse, then the Oximeter Data Manager runs automatically and the main menu screen displays on the screen, as shown in Figure 3-1.

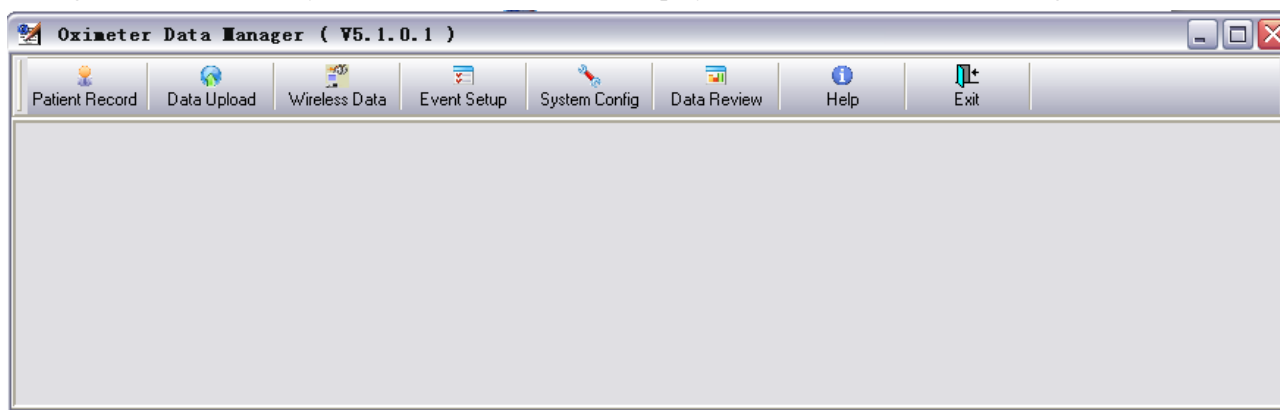


Figure 3-1 Main menu

❖ Menu instructions

Menu	Function description
Patient record	Perform patient record management, patient record creating, modifying and deleting can be done
Data upload	Perform the data upload by data cable
Wireless data	Perform real-time data transmission wirelessly
Event setup	Set event definition
System configuration	Set system configuration
Data review	View data and print report etc.
Help	1. Online update: click it to update the software to the latest version 2. User manual: click this button, then the User Manual for this Data Manager pops up. 3. USB-to-Serial Driver: click it to install the USB-to-Serial Driver 4. About system: view software information (including software version, disk space and so on.)
Exit	Exit from the Oximeter Data Manager

❖ Operation instructions

Select the function item from the pull-down menu for its relevant operation interface.

Tool bar:

- ✧ Tool bar is the shortcut of Menu Bar. User can do the operation through Menu Bar or Tool Bar. Click “Exit” to exit from Oximeter Data Manager.

3.2 Patient Record

On main menu screen click on “Patient Record” button, then pops up Patient Record window on the desktop.

ID	Name
13	lily
16	summer

Last Name: First Name:
 ID: Sex:
 Birthday: Height: cm Weight: kg
 Telephone:
 Address:
 Allergies:
 Comments:
 [New] [Delete] [Save] [Exit]

Figure 3-2 Patient Record Screen

Screen Description:

On patient record window, adding new archive, modification and deleting archive can be performed. On the left of screen is name list; on the right of screen is detailed information of the selected archive, and entering personal data is operated in this area.

- ✧ **Last Name:** display or enter patient’s last name; the length of last name is less than 15bytes.
- ✧ **First Name:** display or enter patient’s first name; the length of first name is less than 15bytes.
- ✧ **ID:** detecting number; display or enter detecting number; the length of ID is less than 6 bytes.
- ✧ **Sex:** click on “▼” to choose Male/Female in sub-menu.
- ✧ **Birthday:** patient’s birthday; display or enter patient’s birthday. You can click on “▼” to choose birthday in its sub-menu, or click year value and use keyboard to enter birthday. The operation of Month and Day set are the same with Year set.
- ✧ **Height:** patient’s height; display or enter patient’s height.
- ✧ **Weight:** patient’s weight; display or enter patient’s weight.
- ✧ **Telephone:** patient’s telephone number; the length of phone number is less than 25 bytes.
- ✧ **Address:** patient’s address; length of address is less than 60 bytes.
- ✧ **Allergies:** allergic symptom description of patient after using the oximeter; if no allergies appear, just enter “No”; length of words is less than 100 bytes.
- ✧ **Comments:** Description of diagnostic result; length of words is less than 100 bytes.

Functional button:

- ✧ **New:** create new patient account; if user needs to add a new account, please click this button and then enter patient’s detailed data in blank.

- ✧ **Delete:** delete the selected file in archive list.
- ✧ **Save:** confirm and save the new file or modification about patient's information.
Note: ID and Name can not be modified.
- ✧ **Exit:** Exit from Patient Record screen.

3.3 Data Acquisition

There are two methods for data acquisition: wireless transmission and uploaded by data cable. Click on "Wireless Data" and "Data Upload" respectively to upload the data to the computer.

3.3.1 wireless data transmission

On the main menu click the "Wireless Data", then pops up "Wireless Data Upload" dialog box on the screen, as shown in figure 3-3A. Then the system will search the connectable device automatically, the searching result is listed as shown in figure 3.3A. After selecting the device to be connected, the system will try to connect with it and the connecting status is shown in figure 3-3B.

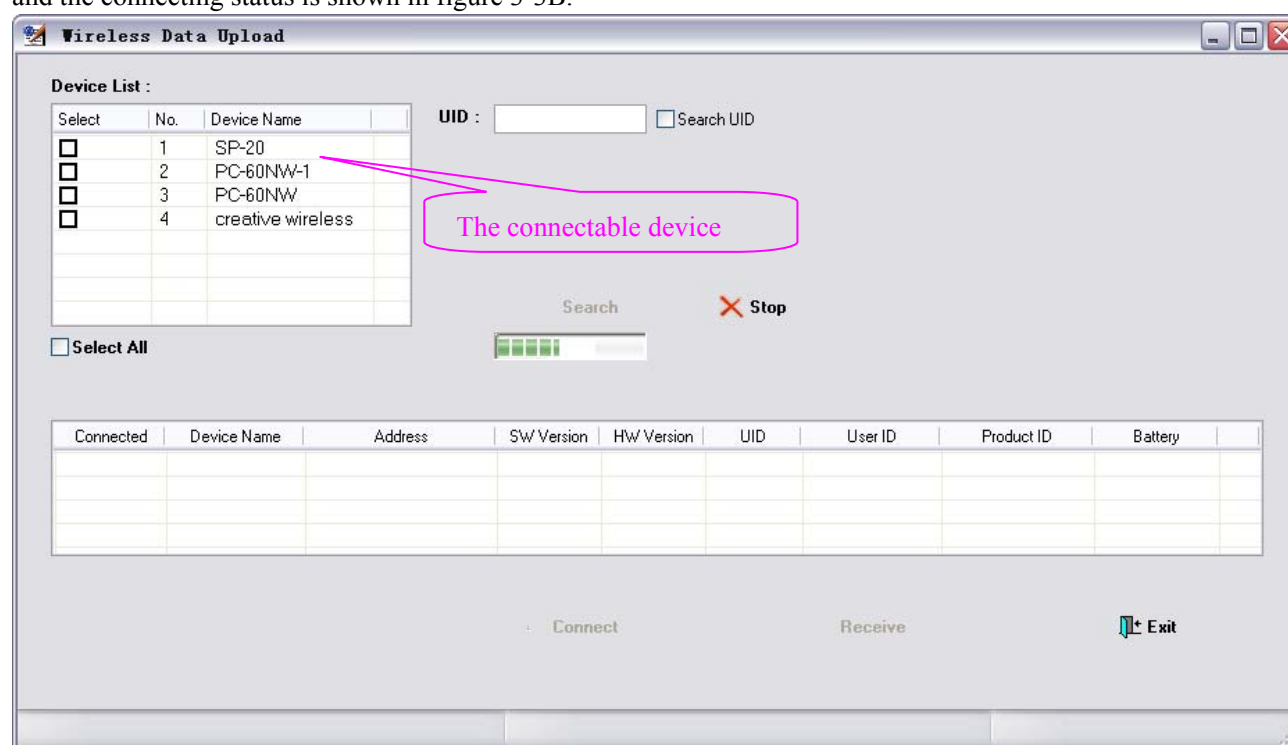


Figure 3-3A Searching devices

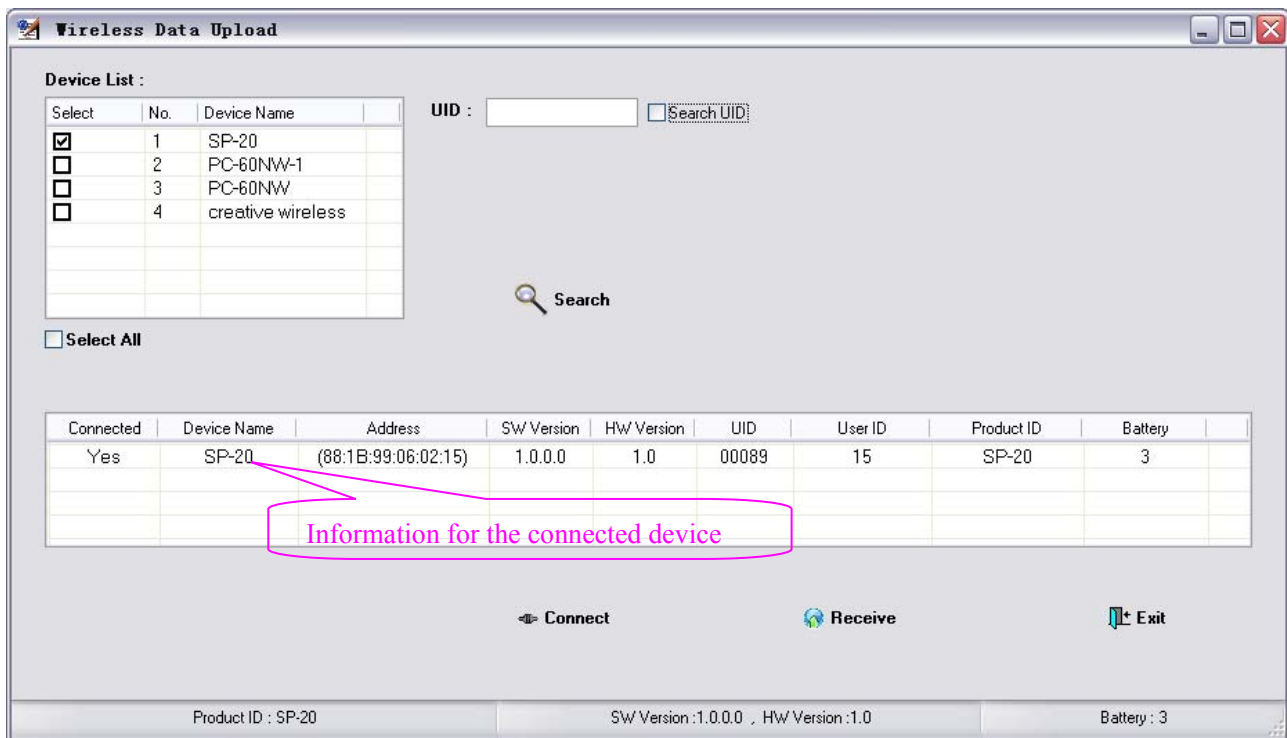



Figure 3-3B Connecting to the selected device

1) Select the patient account, click the “Receive”, button to activate the wireless data transmission, the screen displays the received data in real-time, as shown in the figure 3-5A, 3-5B and figure 3-5C (the display content depends on the Oximeter model you used).

If there is no patient archive records found, click the “New entry”  buttons to add a new archive, the specific operation refers to the chapter 3.2 for details in this manual.

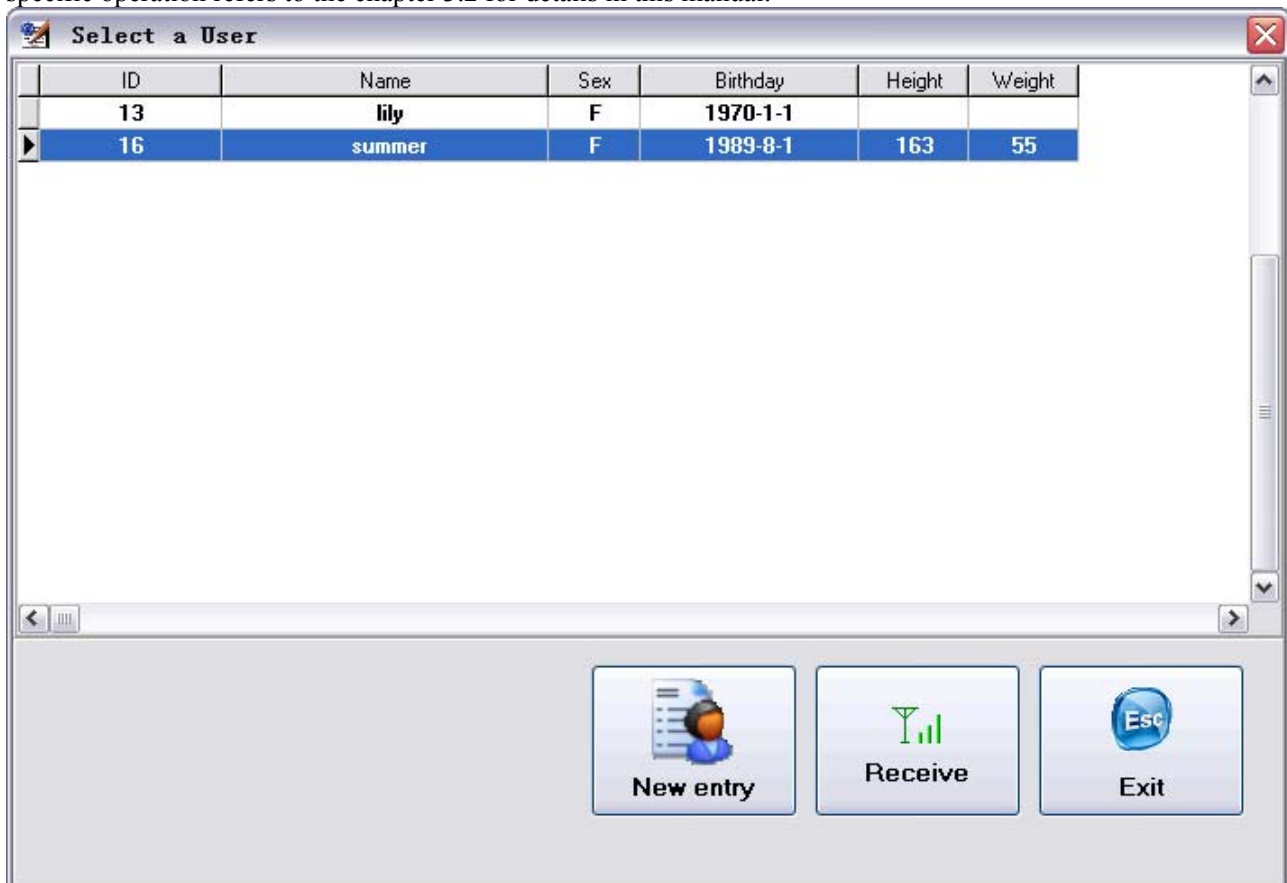


Figure 3-4

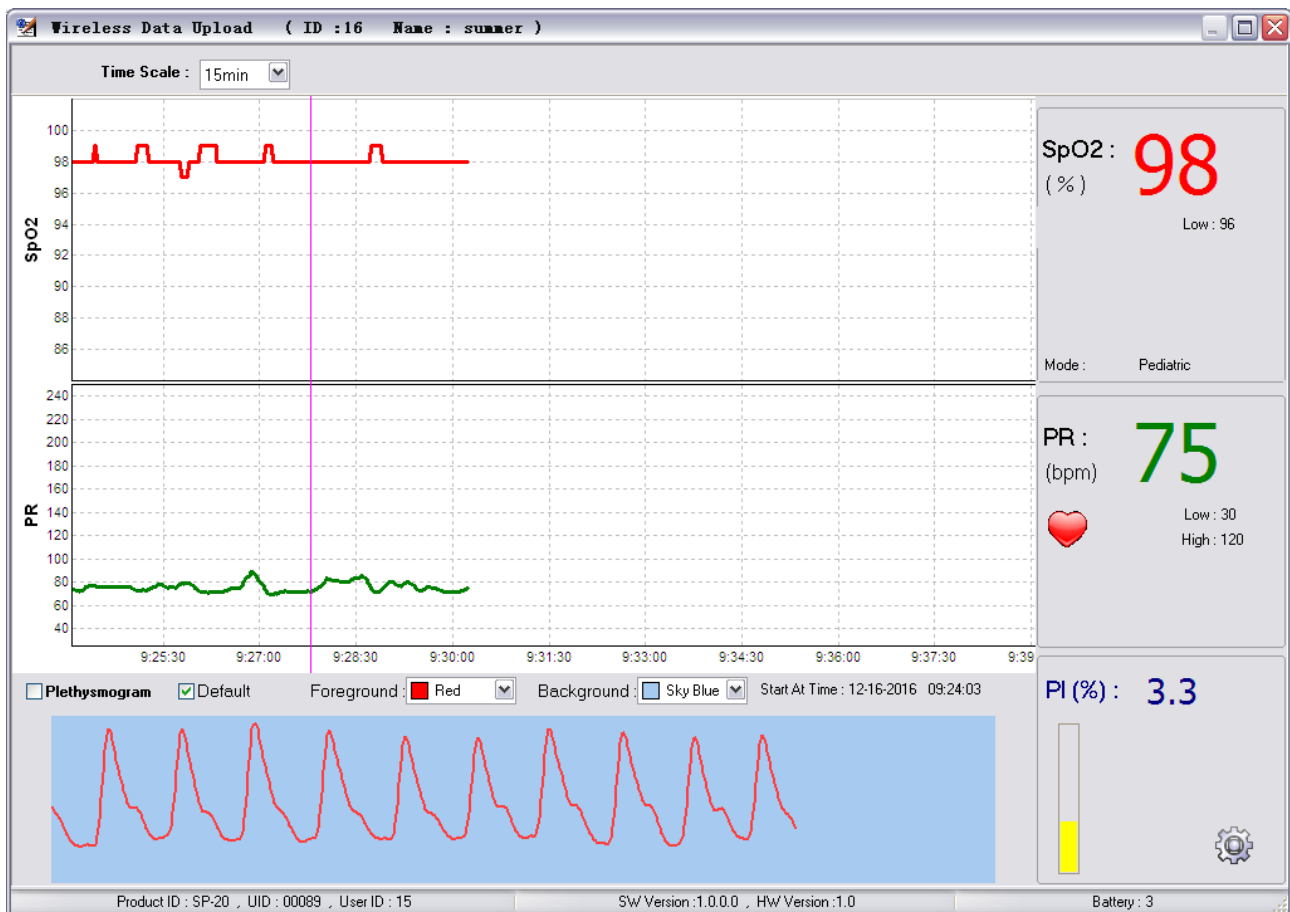


Figure 3-5A

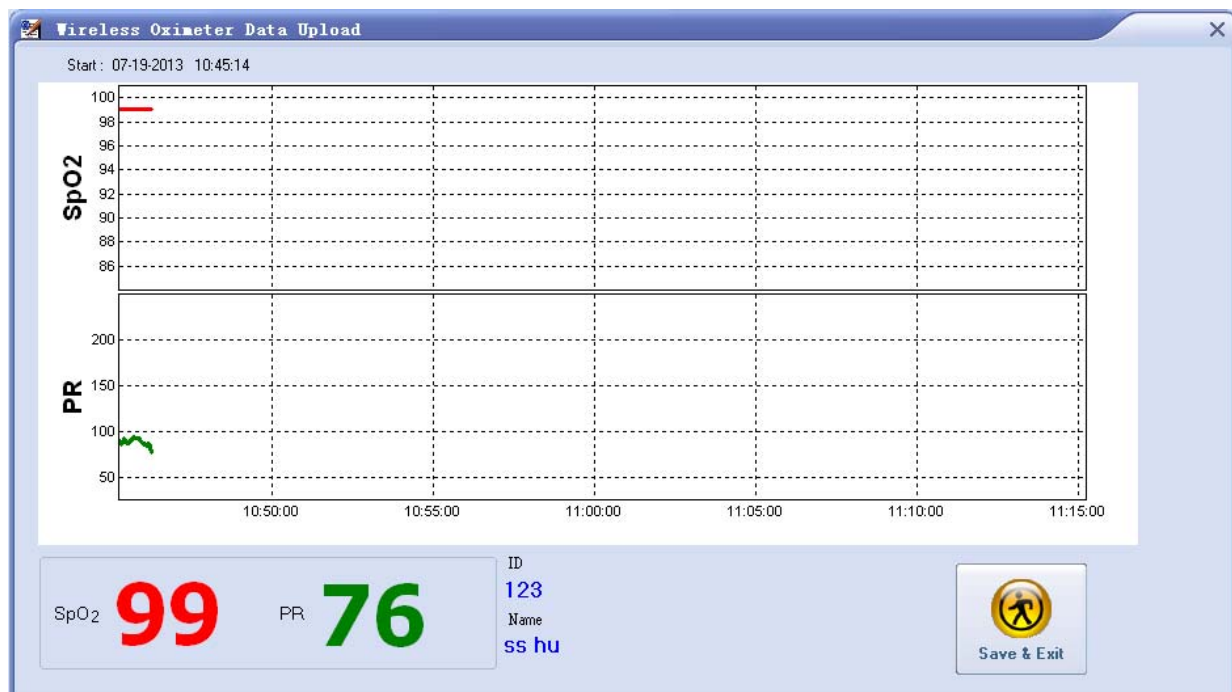


Figure 3-5B

In figure 3-5B, while receiving data by wireless transmission, the user can click on "Save & Exit" button to terminate the wireless data transmission, and the received data can be saved successfully, which can be reviewed and analyzed in "Data Review".

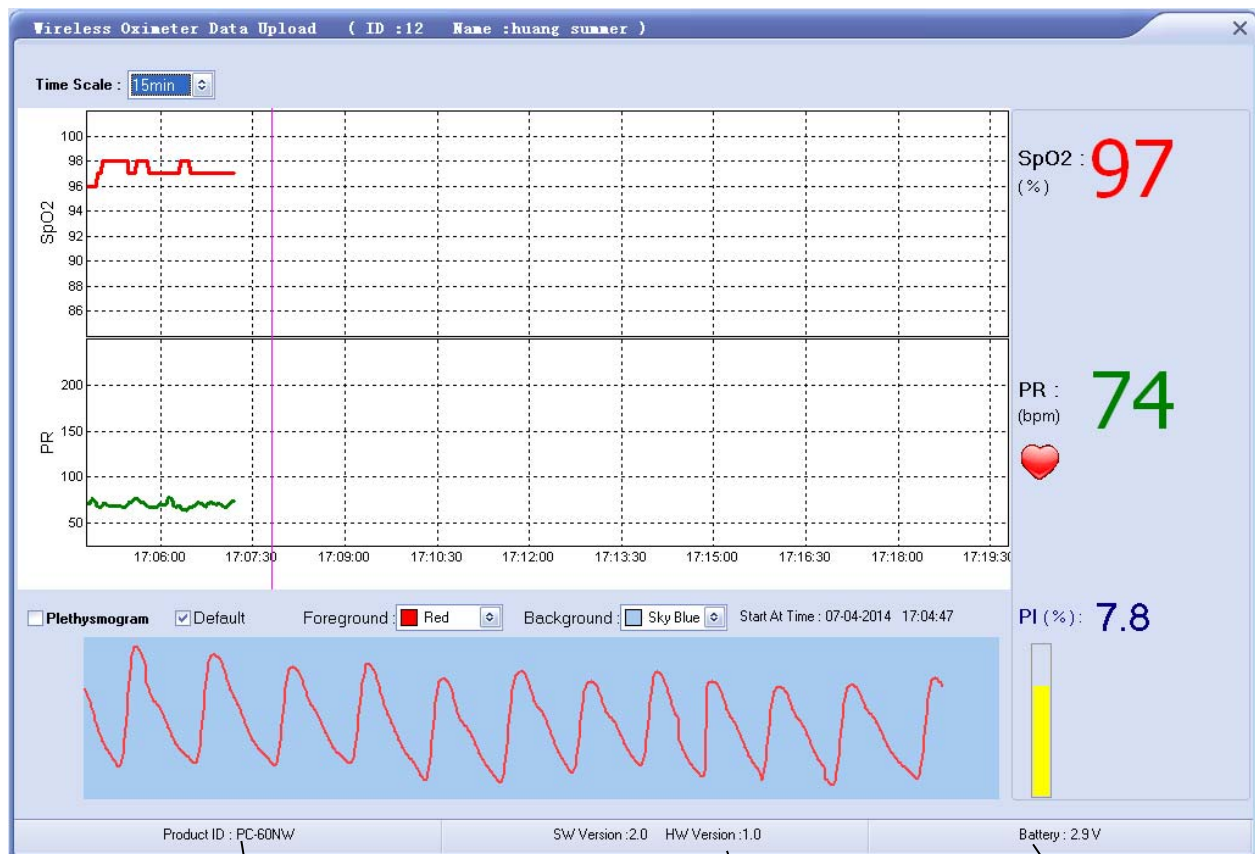


Figure 3-5C

Oximeter model

Oximeter version information

Oximeter battery voltage

In figure 3-5A and 3-5C, while receiving data by wireless transmission, the user can click the Close icon "X" on the upper right corner to terminate the wireless data transmission, and the received data will be saved automatically, which can be reviewed and analyzed in "Data Review".

Note: if SpO2 probe is off, then message "Check probe" pops up on the screen.

In figure 3-5A, click set icon "⚙️", then the alert setting window pops up on the screen, as shown in figure 3-5D.

The 'Alert Setting' window contains the following settings:

- Over limits Setting**
 - ☒ Alert Sound
 - SpO2**
 - Low: 96 (85 ~ 99) %
 - PR**
 - Low: 30 (30 ~ 99) bpm
 - High: 120 (100 ~ 240) bpm
- ☐ Pulse Beep
- Buttons:** OK, Cancel

Figure 3-5D Alert setting window

3.3.2 Data upload

Operation Description:

1. Click "data upload", the dialog box pops up on the screen, as shown in figure 3-6.



Figure 3-6A



Figure 3-6B Uploading Data



Figure 3-6C Uploading Data Manually

If you do not need to search the device automatically, please un-select the check-box "☒ Search the device automatically" to cancel the automatic searching, then you can manually select the data file and upload it to this software for managing. Select the data file within the local disk or the removable disk which is mapped from the oximeter device by computer, then click "OK" to confirm, as shown in Figure 3.6(c). If

the data is read completely, then the screen displays Data Upload Main Screen, as shown in Figure 3.8A, please refer to the below section (3. **Data Upload Main Screen**) for details.

Note: Manual uploading data function is ONLY available for some models of Oximeter device, at present, the Wrist Oximeter with Micro USB interface supports this function.

2. After clicking “OK” button in “Select device type” window, Oximeter Data Manager starts searching data records from the oximeter, at the same time the progressing bar will be displayed on the screen, as shown in Figure 3-7.



Figure 3-7 Uploading Data

3. **Data Upload Main Screen:** After searching, the list of data records stored in the oximeter will be displayed on the screen, for different models of Oximeter, their data uploading screen will be different, as shown in Figure 3-8A, Figure 3-8B, Figure 3-8C or Figure 3-8D.

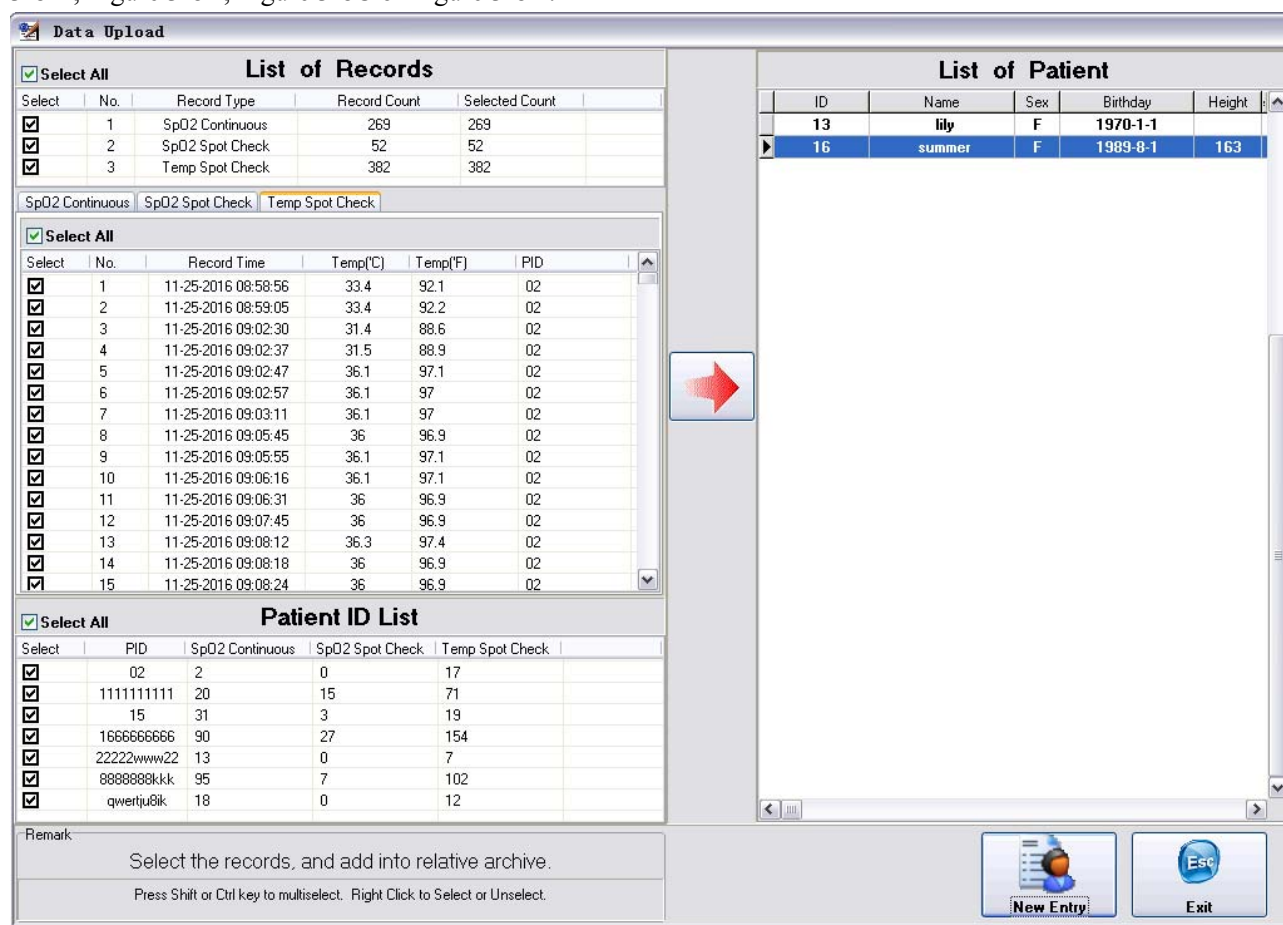


Figure 3-8A Add to archive

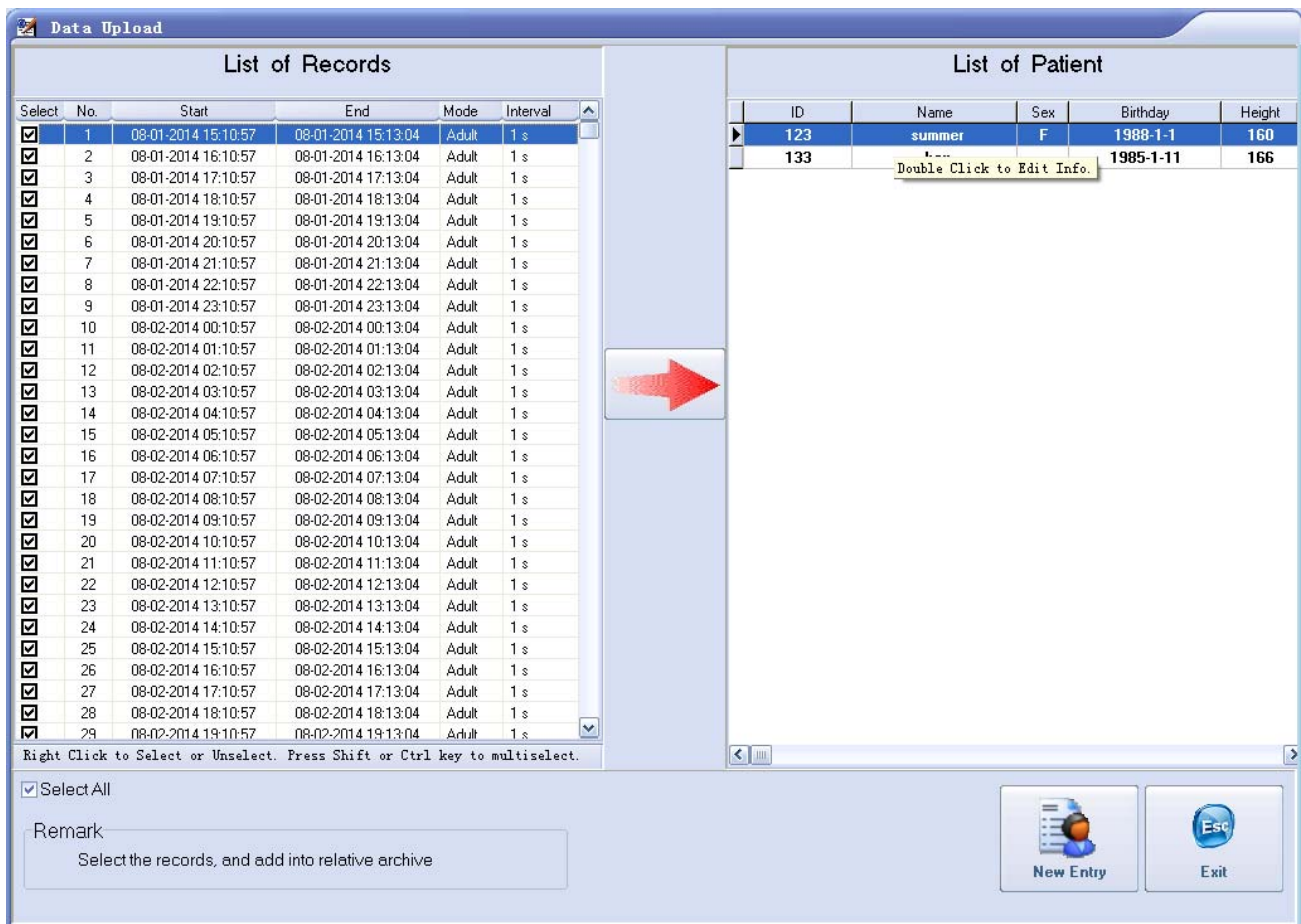


Figure 3-8B Add to archive

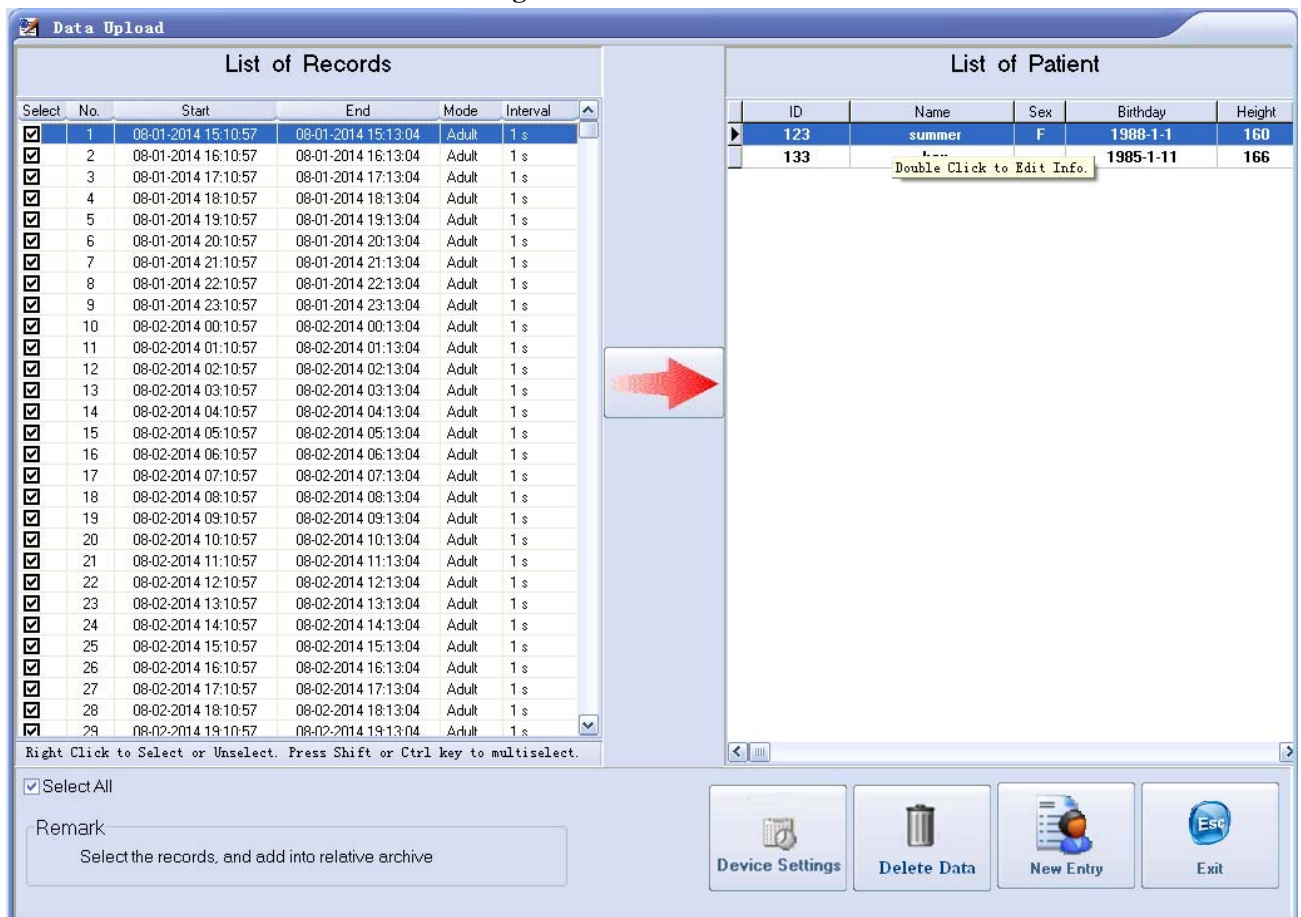


Figure 3-8C Add to archive

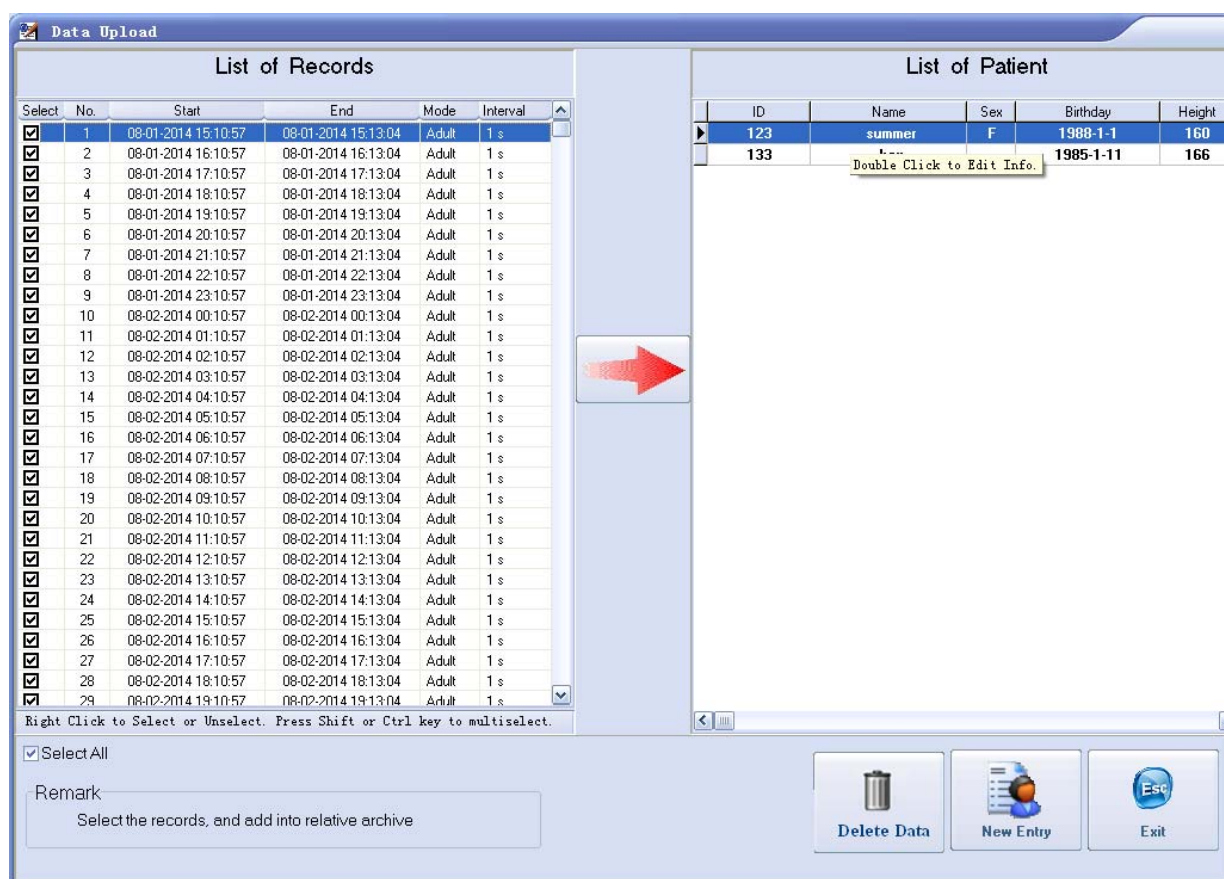



Figure 3-8D Add to archive

4. Add to archive: select the records in the record list (tick on “Select all” check box in the lower left area to select all the record listed in the record list column. The user can also right click mouse to select or deselect a single record, or press Shift key or Ctrl key to make multiple selection) and choose the patient account in the patient list, and then click “” button to upload the selected data records to local database for the selected patient. After that, the system info window appears as shown in Figure 3-9. Click "OK" to return to the record list. Figure 3-9 shows that 12 already uploaded data records are ignored and 691 data records have been uploaded successfully.

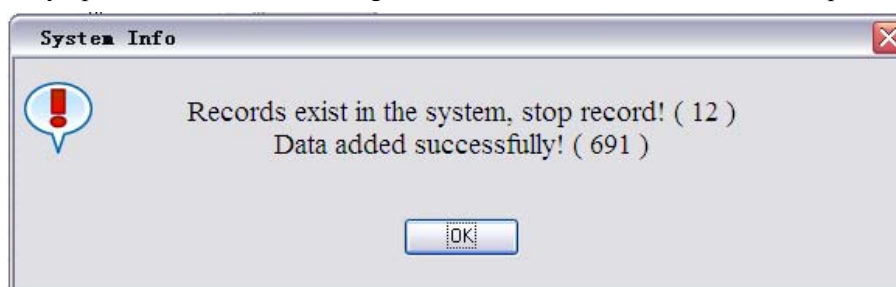



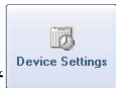
Figure 3-9 Data upload result

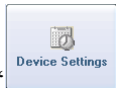
Note: If user has not set up a new archive, click on “New entry” button to perform entering archive operation. See section 3.2 Patient Record for details.

5. **Delete data stored in device:** After finishing upload, user can empty the memory of the device for recording new data; on the screen (Figure 3-8B or Figure 3-7C, the figure depends on the Oximeter model you used), click “” button, the dialogue box “Are you sure to delete all records in the oximeter?” pops up on the screen. Click “OK” for deleting all records or click “Cancel” for canceling the operation.

Note: on right side of data uploading screen (move the mouse over to patient list, then a hint pop-up box “Double Click to Edit Info.” appears), double click it to enter into patient archive screen, where the user information can be edited, and when necessary, the user can also add new archive or delete the existing archive.

6. Set the date/time: the date/time in Wrist Oximeter (model with segment LCD display) should be set via PC software-“Oximeter Data Manager”, by doing so the Oximeter will attach correct time-stamp in the future use.



Click “” button, the window “Device’s Date-Time Settings” displays on the screen, as shown in Figure 3-10.

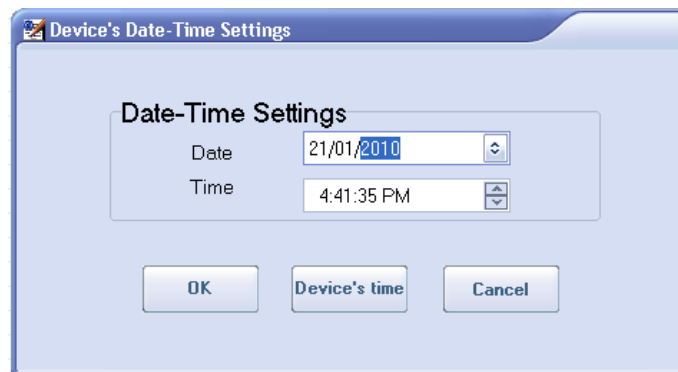


Figure 3-10 Date/Time Settings

3.4 Data Review

3.4.1 Trend Review

On main menu window, select “Data Review” to enter into data review screen, as shown in Figure 3-11.

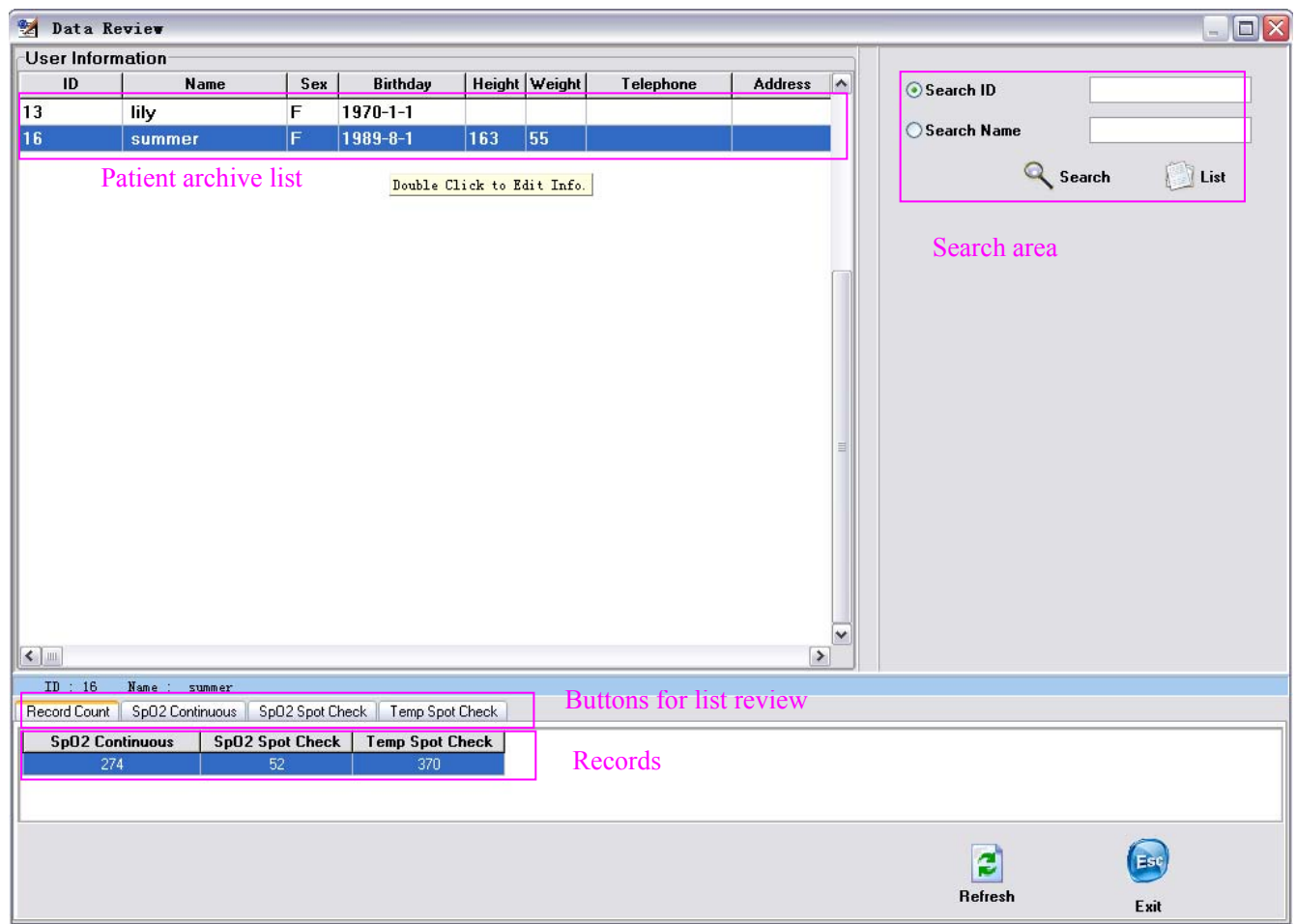


Figure 3-11 Data Review

Functional Button:



Refresh: to refresh the current uploaded data record.



Exit: to back to the main menu screen.

Operations description:

1. On the upper right corner of the screen, select "Search ID" or "Search Name" to enter query condition, then click "Search" for searching patient in the database; Or the user can select a member in archive list.
2. There are several buttons for data review: SpO₂ Continuous Record, SpO₂ Spot-check Record and Temperature Spot-check Record. Click one button to enter into the corresponding data review window, and click "Record Count" to return to the screen shown as in figure 3-11.

◆ SpO₂ Continuous Record

Click "SpO₂ Continuous" to enter into SpO₂ Continuous Record data review window, as shown in figure 3.12A.

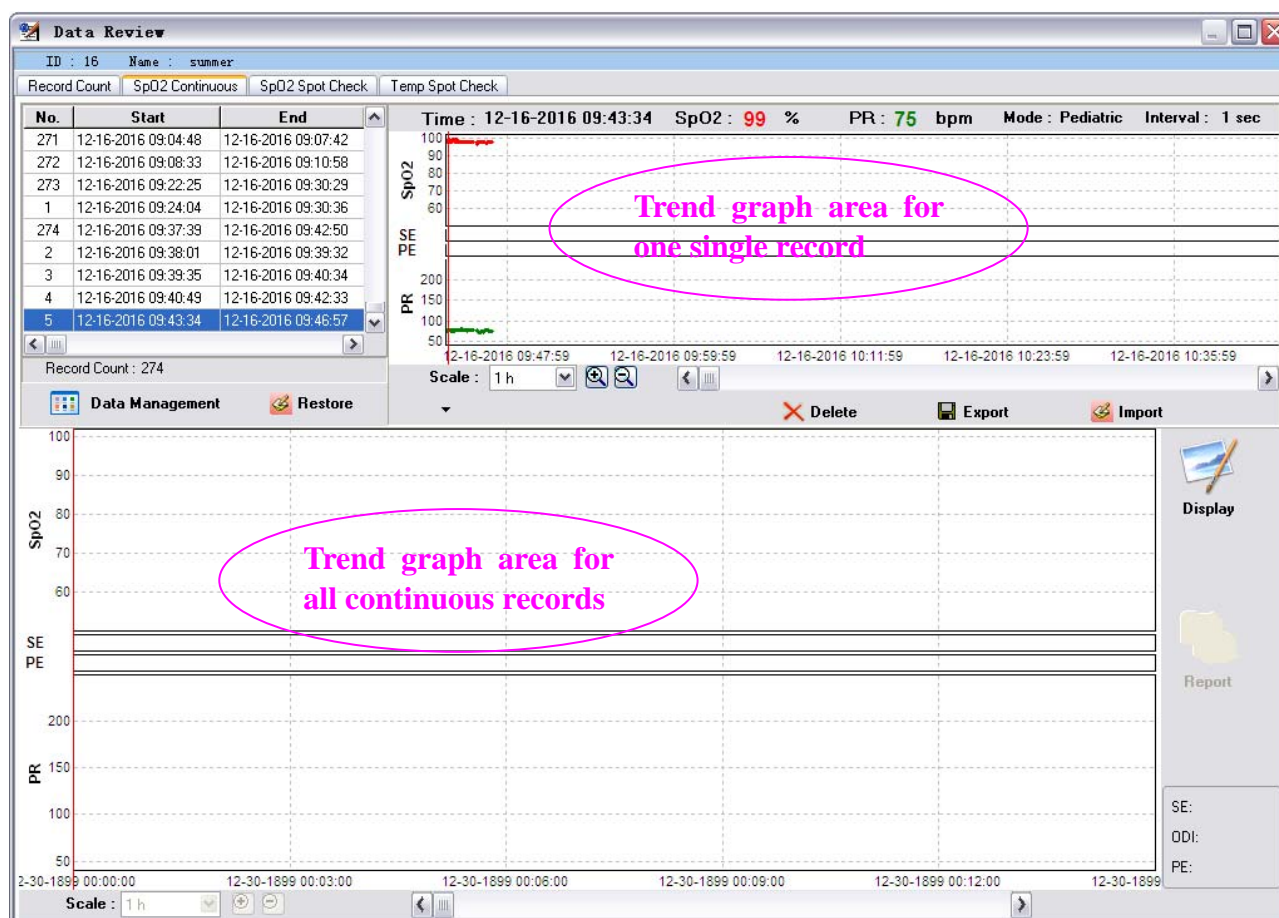
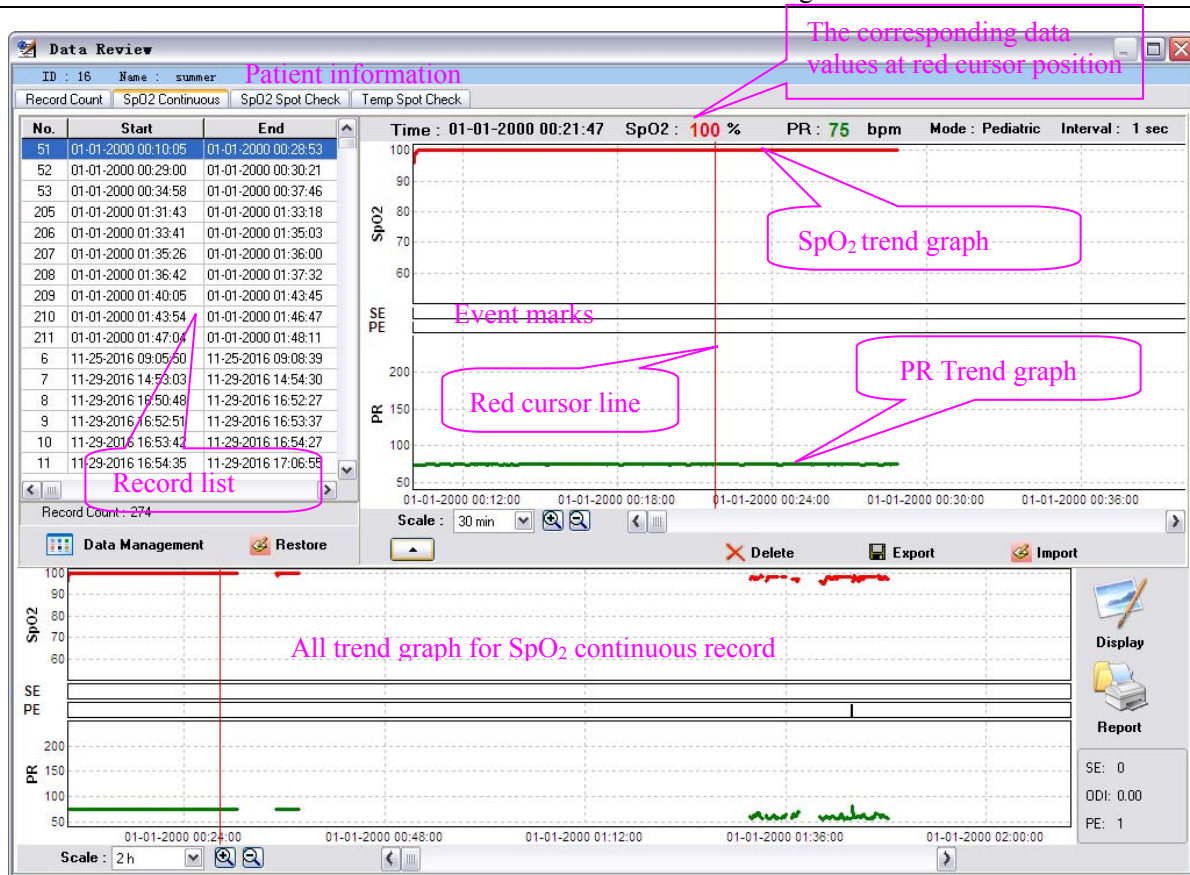


Figure 3.12A Data review----SpO₂ Continuous Record

Select a member in archive list, and then click on "Display" button. All the continuous SpO₂ and pulse rate records of this patient will be displayed in graphic trend area (as shown in Figure 3-12B).

Figure 3-12B All Trend Review---SpO₂ Continuous Record







1. On the graphic trend area, you can see a red line on the upside and lower side respectively, which is a vertical cursor line that you can drag it to other location by mouse. On the upside screen, it displays the data value of SpO₂ and Pulse Rate, as well as the time stamp of the current cursor location as shown in figure 3-12B. Click the icon "🔍" or "🔍" on the lower left corner (or on the middle screen) to zoom in or out the trend graph around the red cursor line.
2. In figure 3-12B, click the patient ID/name, then it displays the detailed patient archive list. Then move the mouse on patient list, and a hint pop-up box "Double Click to Edit Info." appears, double click it to enter into patient archive screen, where the user information can be edited, and when necessary, new data records can be imported to the given user or delete the existing data records.
3. If the record can not be displayed on one screen, it will be divided into several pages automatically. Please click "⏪" or "⏩" (or move the rolling strip) to turn to another page. The default trend time scale is 12hours.
4. Click "Scale: 30min" to choose the trend time scale for displaying all the graphic trends.
5. Select an archive member, all the records of this patient will be listed in record list. Next, choose a piece of record from record list, the graphic trends corresponding to this record will be displayed in upper left side of the screen, and graphic trends to all SpO₂ continuous record will be displayed in lower side of the screen.

Event mark

If SpO₂ or pulse rate value exceeds event triggering condition, there will be a mark "■" made in SE area or PE area.

Functional button:

- ✧ **Scale** 12H: set the trend time scale for displaying the trend-graphs.
- ✧ Click **data management** icon "🔧" to backup, restore, import or delete the trend data (all or part of the trend list) for the current patient account, as shown in figure 3-13A.
- **Backup** 📁: backup the selected records to the local disk or removable disk, as shown in figure 3-13B.

-  **Restore**: restore the data records from the data file which is backed up by "Backup" function to the current user's account.
-  **Import**: import the SpO₂ continuous data stored in local disk / removable disk to the current patient account.
-  **Delete**: delete the selected records.
-  **Exit**: exit from the current screen.
- ✧  **Export**: to export the SpO₂ continuous records (all or part) of the current patient account to a csv format data file. The user can select the saving location and enter the file name. The file name will be "XXX.csv" which is a plain text document, and can be opened by general software tools such as "EXCEL". See Figure 3-13B for exported sample file.
- ✧  **Report**: click it to output formatted data report, the pop-up report window is as shown in Figure 3-14A.

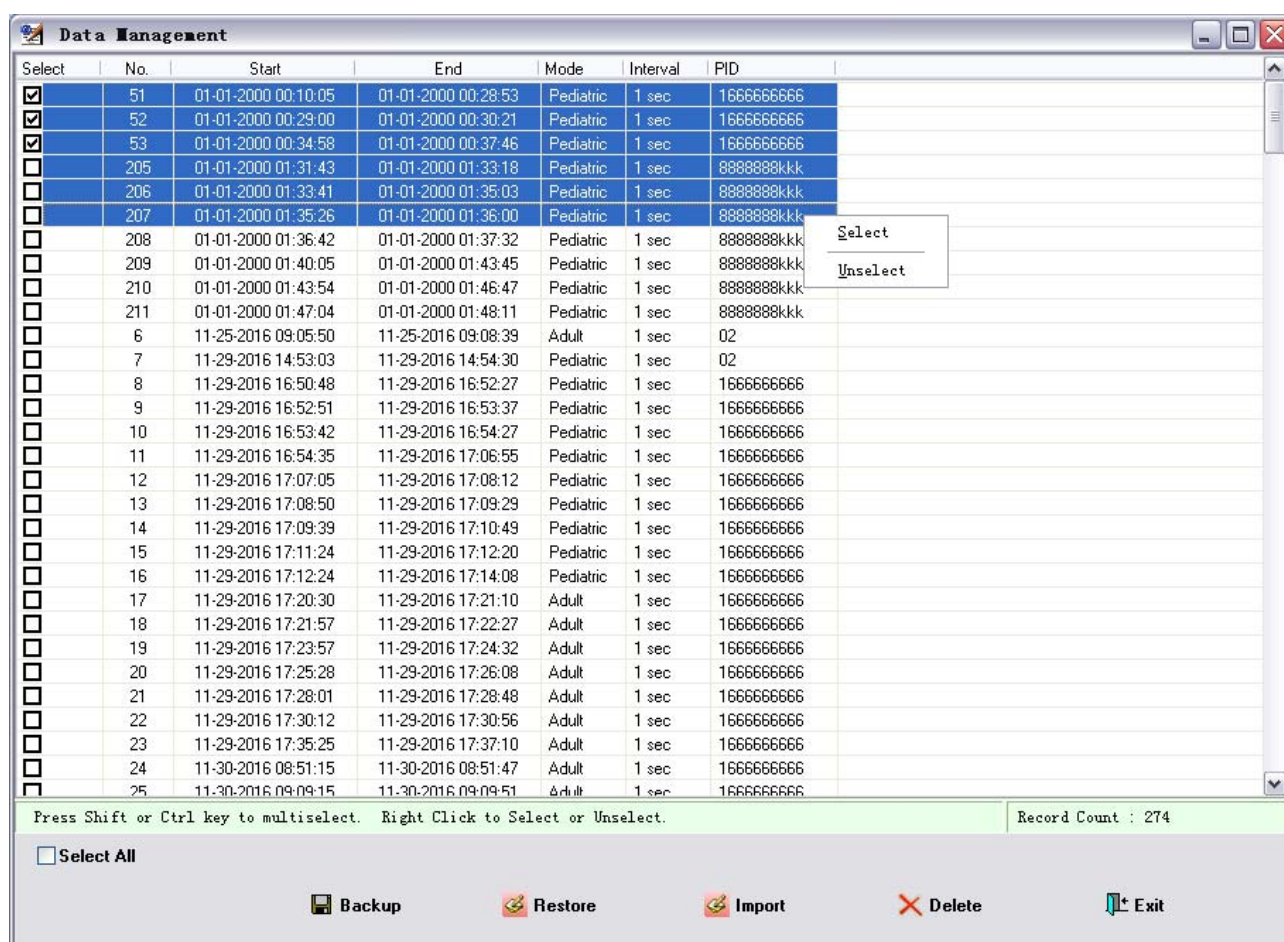


Figure 3-13A Data management

	A	B	C	D	E	F	G	H
1	# No. : 51	Name: summer	Start: 2000-1-1 0:10:05	End: 2000-1-1 0:28:53	Interval : 1secbl	Mode : (2)Pediatric		
2	# Time	SpO2 (%)	PR (bpm)					
3								
4	01-01-2000 00:10:05	96	74					
5	01-01-2000 00:10:06	96	74					
6	01-01-2000 00:10:07	96	74					
7	01-01-2000 00:10:08	98	74					
8	01-01-2000 00:10:09	99	74					
9	01-01-2000 00:10:10	99	74					
10	01-01-2000 00:10:11	99	74					
11	01-01-2000 00:10:12	99	74					
12	01-01-2000 00:10:13	99	74					
13	01-01-2000 00:10:14	99	74					
14	01-01-2000 00:10:15	100	74					
15	01-01-2000 00:10:16	100	74					
16	01-01-2000 00:10:17	100	74					
17	01-01-2000 00:10:18	100	74					
18	01-01-2000 00:10:19	100	74					
19	01-01-2000 00:10:20	100	74					
20	01-01-2000 00:10:21	100	74					
21	01-01-2000 00:10:22	100	74					

Figure 3-13B Exported Sample File

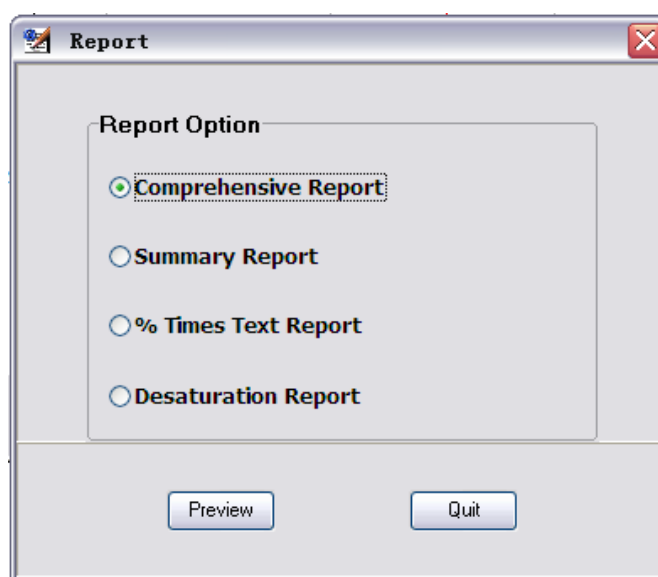


Figure 3-14A

✧ Report Option

Comprehensive Report: print SpO₂ and pulse rate statistical analysis and graphic trends corresponding to this record.

Summary Report: print all event information, statistical charts and trend graphs of SpO₂ and pulse rate for this record.

%Times Text Report: print the percentage of duration over the total measuring time, during which, the predefined range of SpO₂ or PR value occurred. The occurrence of SpO₂ or PR value within the predefined range will be printed out accordingly.

Desaturation Report: print all the SpO₂ event information.

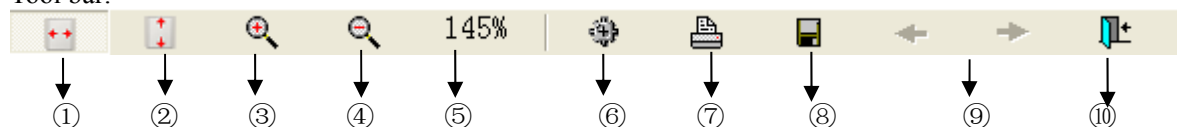
✧ Preview

Click on “Preview” to preview the report. The samples of **Comprehensive Report** (Figure 3-14B), **Summary Report** (Figure 3-14C), **%Times Text Report** (Figure 3-14D) and **Desaturation Report** (Figure 3-14E) are shown below. You can print report via preview screen by clicking on the printing icon.

Operations:

On Preview display window, there is a tool bar above the report. The function of each button will be defined below.

Tool bar:



- ① **Zoom to width:** Preview the report in proper width;
- ② **Zoom to fit:** Full screen preview the report in proper proportion;
- ③ **Zoom in:** Click it to zoom in the report, zooming in 1.2 times for each step;
- ④ **Zoom out:** Click it to zoom out the report, zooming out 0.8 times for each step;
- ⑤ **Zooming Proportion:** Displays the zooming proportion for the current report preview;
- ⑥ **Print Setup:** Select the printer type, paper size and print quality etc.;
- ⑦ **Print:** Print the current report displayed;
- ⑧ **Save:** Save the report in picture format;
- ⑨ **Previous/Next page:** Click it to preview the previous/next page of the report (if any);
- ⑩ **Close:** Close the current preview.

Report Explanation

1. “SpO₂ at (Time)”: it indicates the distribution chart of SpO₂ value (by percentage of total measuring time). From the table in Figure 3-14C, we can get the information below: In entire measuring time, all the SpO₂ values are less than 100%.
2. “SpO₂ at (Events)”: it indicates the number of events occurred at the given range of SpO₂ value.
3. Definition of ODI (Oxygen Desaturation Index): $ODI = \text{number of SpO}_2 \text{ (desaturation) events} / \text{Analyzed time (hours)}$.

Tel:

Fax:

Name: summer

ID: 16

Birthday: 08-01-1989

Sex: F

Address:

Height: 163 cm

Weight: 55 kg

Tel:

Comprehensive Report

Start: 12-01-2016 08:27:36

End: 12-01-2016 16:02:50

Duration: 0 days 07:35:14

Analyzed: 0 days 06:19:14

Highest pulse:	254	Highest SpO2:	100	Time with SpO2<90	0 05:08:49	67.8%
				Time with SpO2<80	0 04:07:19	54.3%
Lowest pulse:	23	Lowest SpO2:	30	Time with SpO2<70	0 03:49:18	50.4%
				Time with SpO2<60	0 01:42:01	22.4%
Mean pulse:	87.2	Mean SpO2:	75.3	Time with SpO2<88	0 04:59:57	65.9%

SE: Drop in SpO2 by at least 3 % for a minimum duration of 3 seconds

PE: Change in rate by at least 4 bpm for a minimum duration of 6 seconds

ODI: 10.60



Comment:

Doctor:

Figure 3-14B Comprehensive Report

Tel:

Fax:

Name: summer

ID: 16

Birthday: 08-01-1989

Sex: F

Address:

Height: 163 cm

Weight: 55 kg

Tel:

Summary Report

Start: 12-01-2016 08:27:36

End: 12-01-2016 16:02:50

Duration: 0 days 07:35:14

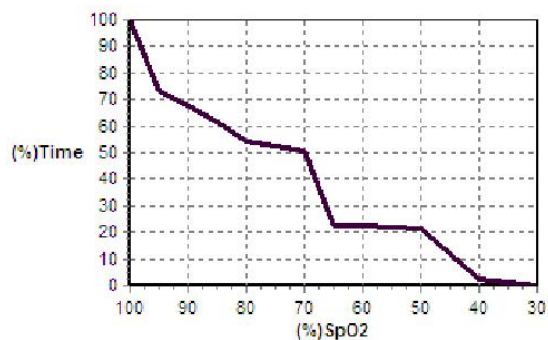
Analyzed: 0 days 06:19:14

Event Data	SpO2	PR	% SpO2 Level	Events	SpO2 Below	Time(%)	ODI
Total Events	67	35	99 -- 95	1	100	100	10.60
			94 -- 90	0	95	73.3	
SpO2< 88 %	64		89 -- 85	4	90	67.8	
Event			84 -- 80	8	85	61.6	
SpO2< 88 %	65.9		79 -- 75	4	80	54.3	
Time(%)			74 -- 70	1	75	52.5	
			69 -- 65	21	70	50.4	
			64 -- 60	1	65	22.8	
			< 60	27	60	22.4	

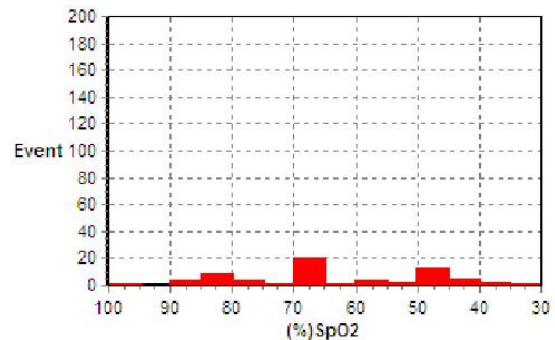
SE: Drop in SpO2 by at least 3 % for a minimum duration of 3 seconds

PE: Change in rate by at least 4 bpm for a minimum duration of 6 seconds

SpO2 at (time)



SpO2 at (Events)



Comment:

Doctor:

Figure 3-14C Summary Report

Tel:

Fax:

Name: summer

ID: 16

Birthday: 08-01-1989

Sex: F

Address:

Height: 163 cm

Weight: 55 kg

Tel:

% Times Text Report

Start: 12-01-2016 08:27:36

End: 12-01-2016 16:02:50

Duration: 0 days 07:35:14

Analyzed: 0 days 06:19:14

SpO2	Time(%)	SpO2	Time(%)	SpO2	Time(%)
100	24.6	89	1.6	79	1.5
99	0.6	88	0.4	78	0.2
98	0.1	87	4.1	77	0.1
97	0.2	86	0	76	0
96	1	85	0.1	75	0.1
95	0.1	84	0.7	74	0
94	0.3	83	0.3	73	0.1
93	0	82	0.6	72	0.3
92	0.1	81	4.6	71	0.6
91	1.4	80	1	70	1.2
90	3.6				
Total 90's	32.2	Total 80's	13.5	Total 70's	4
SpO2	Time(%)	SpO2	Time(%)	SpO2	Time(%)
69	20.1	59	0.2	49	0.7
68	4.3	58	0.3	48	1
67	2.2	57	0.1	47	14.2
66	0.8	56	0	46	1
65	0.2	55	0.1	45	0.6
64	0	54	0.1	44	0.3
63	0	53	0	43	0.6
62	0.2	52	0	42	0.3
61	0	51	0.1	41	0.2
60	0.1	50	0.2	40	0.1
Total 60's	28	Total 50's	1.2	Total 40's	19
Pulse range	Time(%)	Pulse range	Time(%)	< 40	
> 199	18.5	90 -- 99	0	2.2	
180 -- 199	0	80 -- 89	0.1		
160 -- 179	0	70 -- 79	19.1		
140 -- 159	0.2	60 -- 69	13		
120 -- 139	0	50 -- 59	15.9		
100 -- 119	0	< 50	33.2		

Comment:

Doctor:

Figure 3-14D %Times Text Report

Tel:

Fax:

Name: summer

ID: 16

Birthday: 08-01-1989

Sex: F

Address:

Height: 163 cm

Weight: 55 kg

Tel:

Desaturation Report

Start: 12-01-2016 08:27:36

End: 12-01-2016 16:02:50

Duration: 0 days 07:35:14

Analyzed: 0 days 06:19:14

	Start time	End time	Duration	Saturation:		Pulse Range:	
				Onset	Low	Low	High
1	12-01 08:27:56	08:28:00	00:00:04	98	73	74	74
2	12-01 08:28:01	08:30:08	00:02:07	66	41	65	75
3	12-01 09:20:17	09:20:44	00:00:27	100	96	47	48
4	12-01 09:20:45	09:20:56	00:00:11	96	83	47	47
5	12-01 09:20:57	09:21:01	00:00:04	83	57	47	50
6	12-01 09:21:02	09:21:54	00:00:52	47	31	50	50
7	12-01 09:26:05	09:26:09	00:00:04	96	58	64	84
8	12-01 09:26:10	09:27:18	00:01:08	56	46	50	62
9	12-01 09:27:19	09:28:32	00:01:13	47	39	50	50
10	12-01 09:28:33	09:33:04	00:04:31	41	36	49	50
11	12-01 09:40:14	09:40:19	00:00:05	96	57	49	49
12	12-01 09:40:20	09:41:14	00:00:54	57	46	49	50
13	12-01 09:41:40	09:41:45	00:00:05	96	89	50	50
14	12-01 09:41:46	09:41:51	00:00:05	89	84	50	50
15	12-01 09:41:52	09:41:56	00:00:04	84	81	50	50
16	12-01 09:42:08	09:42:45	00:00:37	82	45	50	50
17	12-01 09:46:18	09:46:55	00:00:37	96	83	49	50
18	12-01 09:47:08	09:48:05	00:00:57	96	82	49	50
19	12-01 09:52:08	09:53:32	00:01:24	96	81	49	50
20	12-01 10:04:19	10:04:33	00:00:14	49	45	31	32
21	12-01 10:04:38	10:05:29	00:00:51	49	43	30	31
22	12-01 10:17:18	10:17:32	00:00:14	97	75	66	69
23	12-01 10:17:33	10:23:06	00:05:33	75	65	69	75
24	12-01 10:23:07	10:24:07	00:01:00	68	62	74	75
25	12-01 10:24:08	10:24:23	00:00:15	62	59	74	75
26	12-01 10:26:37	10:26:41	00:00:04	58	53	76	76
27	12-01 10:26:42	10:26:52	00:00:10	51	47	74	76
28	12-01 10:33:44	10:33:49	00:00:05	96	85	72	73
29	12-01 10:33:50	10:34:51	00:01:01	85	79	73	75

Comment:

Doctor:

Figure 3-14E Desaturation Report

◆ SpO₂ Spot-check Record

Click " SpO₂ Spot Check " to enter into SpO₂ Spot-check Record data review window, as shown in figure 3-15A.

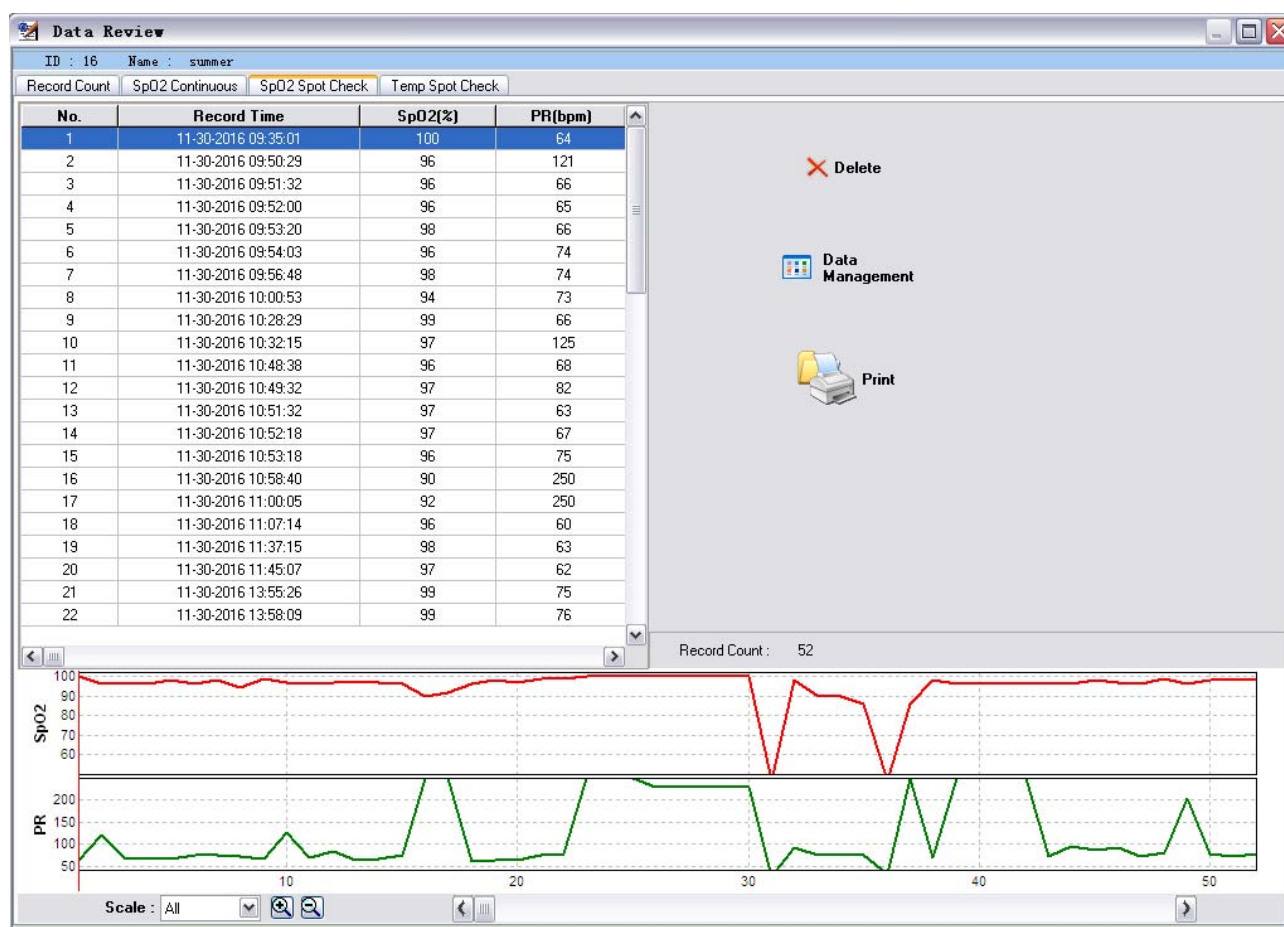






Figure 3-15A Data review----SpO₂ Spot-check Records

Functional button:

✧ Click **data management** icon "  " to export or delete the trend data (all or part of the trend list) for the current patient account, as shown in figure 3-15B.

-  **Export**: to export the SpO₂ Spot-check records (all or part) of the current patient account to a csv format data file. The user can select the saving location and enter the file name. The file name will be "XXX.csv" which is a plain text document, and can be opened by general software tools such as "EXCEL".
-  **Delete**: delete the selected records.
-  **Exit**: exit from the current screen.

✧  **Report**: click it to output formatted data report, as shown in Figure 3-15C.

SpO2 Spot Check -> Data Management						
Select	No.	Record Time	SpO2(%)	PR(bpm)	Mode	PID
<input checked="" type="checkbox"/>	1	11-30-2016 09:35:01	100	64	Pediatric	1666666666
<input checked="" type="checkbox"/>	2	11-30-2016 09:50:29	96	121	Pediatric	1666666666
<input checked="" type="checkbox"/>	3	11-30-2016 09:51:32	96	66	Pediatric	1666666666
<input checked="" type="checkbox"/>	4	11-30-2016 09:52:00	96	65	Pediatric	1666666666
<input checked="" type="checkbox"/>	5	11-30-2016 09:53:20	98	66	Pediatric	1666666666
<input checked="" type="checkbox"/>	6	11-30-2016 09:54:03	96	74	Pediatric	1666666666
<input checked="" type="checkbox"/>	7	11-30-2016 09:56:48	98	74	Pediatric	1666666666
<input checked="" type="checkbox"/>	8	11-30-2016 10:00:53		73	Pediatric	1666666666
<input type="checkbox"/>	9	11-30-2016 10:28:29		66	Pediatric	1666666666
<input type="checkbox"/>	10	11-30-2016 10:32:15		125	Pediatric	1666666666
<input type="checkbox"/>	11	11-30-2016 10:48:38	96	68	Pediatric	1666666666
<input type="checkbox"/>	12	11-30-2016 10:49:32	97	82	Pediatric	1666666666
<input type="checkbox"/>	13	11-30-2016 10:51:32	97	63	Adult	1666666666
<input type="checkbox"/>	14	11-30-2016 10:52:18	97	67	Adult	1666666666
<input type="checkbox"/>	15	11-30-2016 10:53:18	96	75	Adult	1666666666
<input type="checkbox"/>	16	11-30-2016 10:58:40	90	250	Adult	1666666666
<input type="checkbox"/>	17	11-30-2016 11:00:05	92	250	Adult	1666666666
<input type="checkbox"/>	18	11-30-2016 11:07:14	96	60	Adult	1666666666
<input type="checkbox"/>	19	11-30-2016 11:37:15	98	63	Adult	1666666666
<input type="checkbox"/>	20	11-30-2016 11:45:07	97	62	Adult	1666666666
<input type="checkbox"/>	21	11-30-2016 13:55:26	99	75	Adult	1666666666
<input type="checkbox"/>	22	11-30-2016 13:58:09	99	76	Pediatric	1666666666
<input type="checkbox"/>	23	12-01-2016 16:04:10	100	250	Pediatric	1666666666
<input type="checkbox"/>	24	12-01-2016 17:17:33	100	250	Pediatric	1666666666
<input type="checkbox"/>	25	12-01-2016 17:18:16	100	250	Adult	1666666666
<input type="checkbox"/>	26	12-01-2016 17:22:33	100	230	Adult	1666666666
<input type="checkbox"/>	27	12-01-2016 17:23:52	100	230	Pediatric	1666666666
<input type="checkbox"/>	28	12-01-2016 17:24:17	100	230	Pediatric	1111111111
<input type="checkbox"/>	29	12-01-2016 17:25:50	100	230	Pediatric	1111111111
<input type="checkbox"/>	30	12-01-2016 17:27:30	100	230	Pediatric	1111111111
<input type="checkbox"/>	31	12-01-2016 17:35:01	47	25	Pediatric	1111111111

Press Shift or Ctrl key to multiselect. Right Click to Select or Unselect.

☐ Select All

Record Count : 52

Export Delete Exit

Figure 3-15B Data management----SpO₂ Spot-check Records

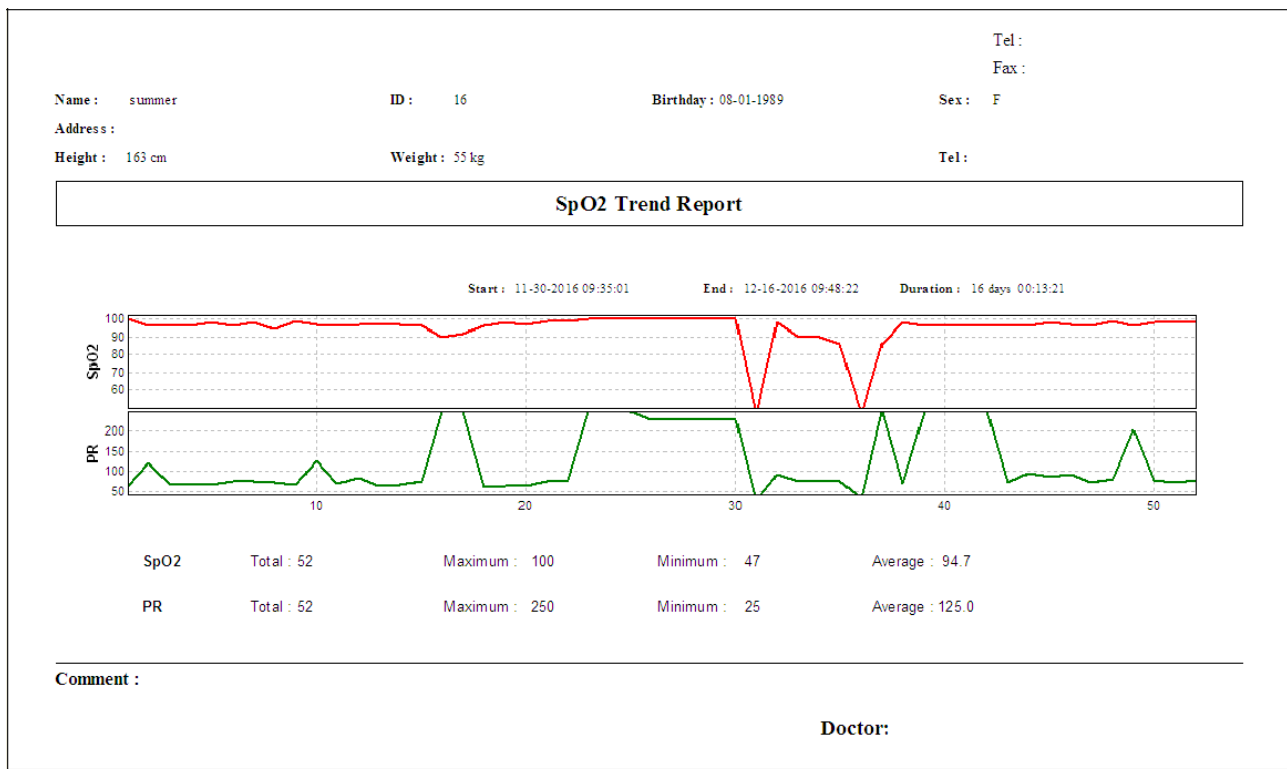


Figure 3-15C Report----SpO₂ Spot-check

◆ Temperature Spot-check Record

Click "Temp Spot Check" to enter into Temperature Spot-check Record data review window, as shown in figure 3-16A.

The functional buttons in temperature data review window is similar to that of the SpO₂ Spot-check, we will not cover it again.

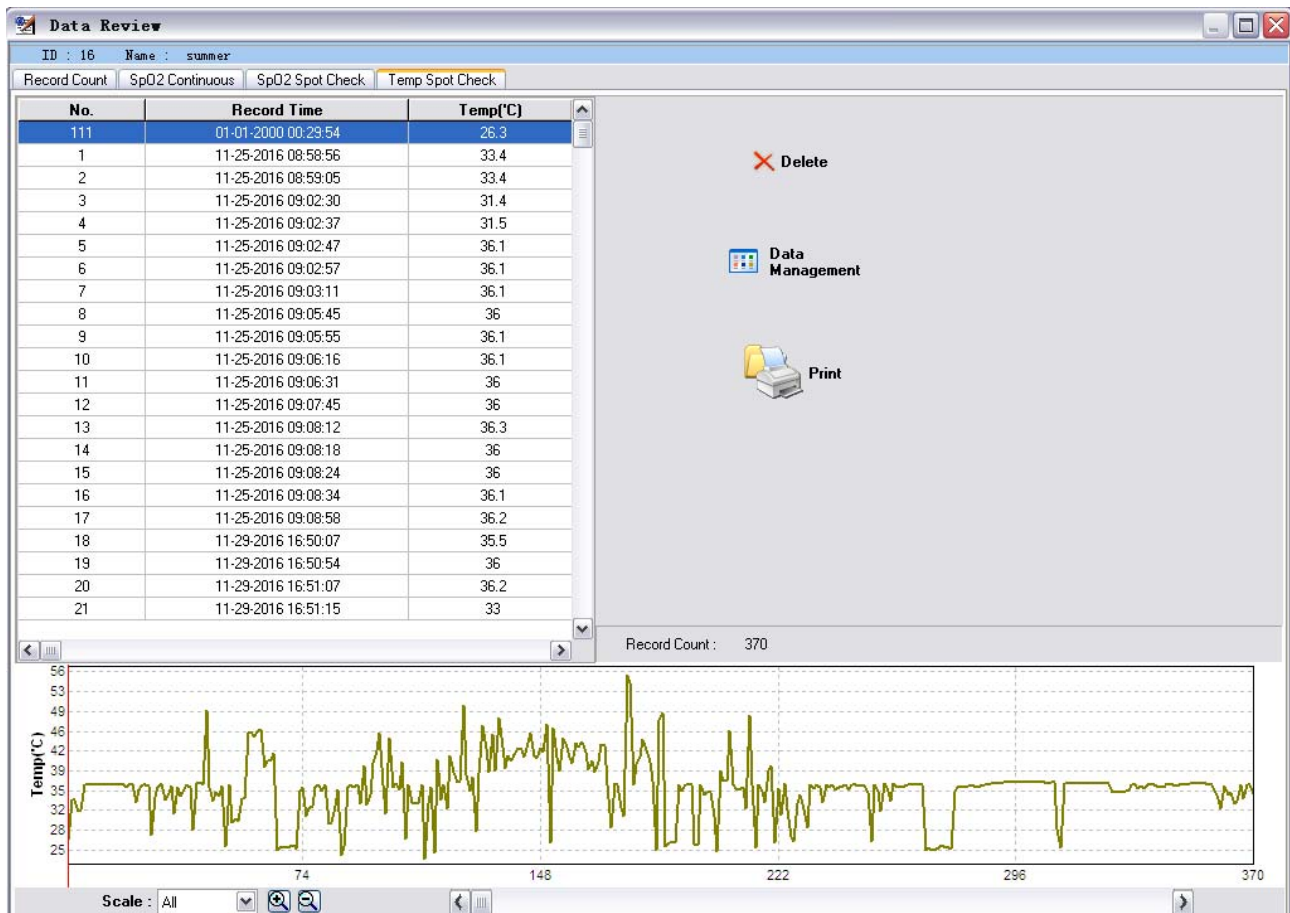


Figure 3-16A Trend graph---Temperature Spot-check Records

Temp Spot Check -> Data Management					
Select	No.	Record Time	Temp(°C)	PID	
<input checked="" type="checkbox"/>	111	01-01-2000 00:29:54	26.3	1666666666	
<input checked="" type="checkbox"/>	1	11-25-2016 08:58:56	33.4	02	
<input checked="" type="checkbox"/>	2	11-25-2016 08:59:05	33.4	02	
<input checked="" type="checkbox"/>	3	11-25-2016 09:02:30	31.4	02	
<input checked="" type="checkbox"/>	4	11-25-2016 09:02:37	31.5	02	
<input checked="" type="checkbox"/>	5	11-25-2016 09:02:47	36.1	02	
<input type="checkbox"/>	6	11-25-2016 09:02:57	36.1	02	
<input type="checkbox"/>	7	11-25-2016 09:03:11	36.1	02	
<input type="checkbox"/>	8	11-25-2016 09:05:45	36	02	
<input type="checkbox"/>	9	11-25-2016 09:05:55	36.1	02	
<input type="checkbox"/>	10	11-25-2016 09:06:16	36.1	02	
<input type="checkbox"/>	11	11-25-2016 09:06:31	36	02	
<input type="checkbox"/>	12	11-25-2016 09:07:45	36	02	
<input type="checkbox"/>	13	11-25-2016 09:08:12	36.3	02	
<input type="checkbox"/>	14	11-25-2016 09:08:18	36	02	
<input type="checkbox"/>	15	11-25-2016 09:08:24	36	02	
<input type="checkbox"/>	16	11-25-2016 09:08:34	36.1	02	
<input type="checkbox"/>	17	11-25-2016 09:08:58	36.2	02	
<input type="checkbox"/>	18	11-29-2016 16:50:07	35.5	1666666666	
<input type="checkbox"/>	19	11-29-2016 16:50:54	36	1666666666	
<input type="checkbox"/>	20	11-29-2016 16:51:07	36.2	1666666666	
<input type="checkbox"/>	21	11-29-2016 16:51:15	33	1666666666	
<input type="checkbox"/>	22	11-29-2016 16:51:21	35.2	1666666666	
<input type="checkbox"/>	23	11-29-2016 16:51:26	36	1666666666	
<input type="checkbox"/>	24	11-29-2016 16:51:41	36.1	1666666666	
<input type="checkbox"/>	25	11-29-2016 16:52:07	35.9	1666666666	
<input type="checkbox"/>	26	11-29-2016 16:52:12	27.1	1666666666	
<input type="checkbox"/>	27	11-29-2016 16:55:08	33.9	1666666666	
<input type="checkbox"/>	28	11-29-2016 16:55:13	35.6	1666666666	
<input type="checkbox"/>	29	11-29-2016 16:55:19	36.2	1666666666	
<input type="checkbox"/>	30	11-29-2016 17:04:27	33.3	1666666666	

Press Shift or Ctrl key to multiselect. Right Click to Select or Unselect. Record Count : 370

☐ Select All Export Delete Exit

Figure 3-16B Data management----Temperature Spot-check Records

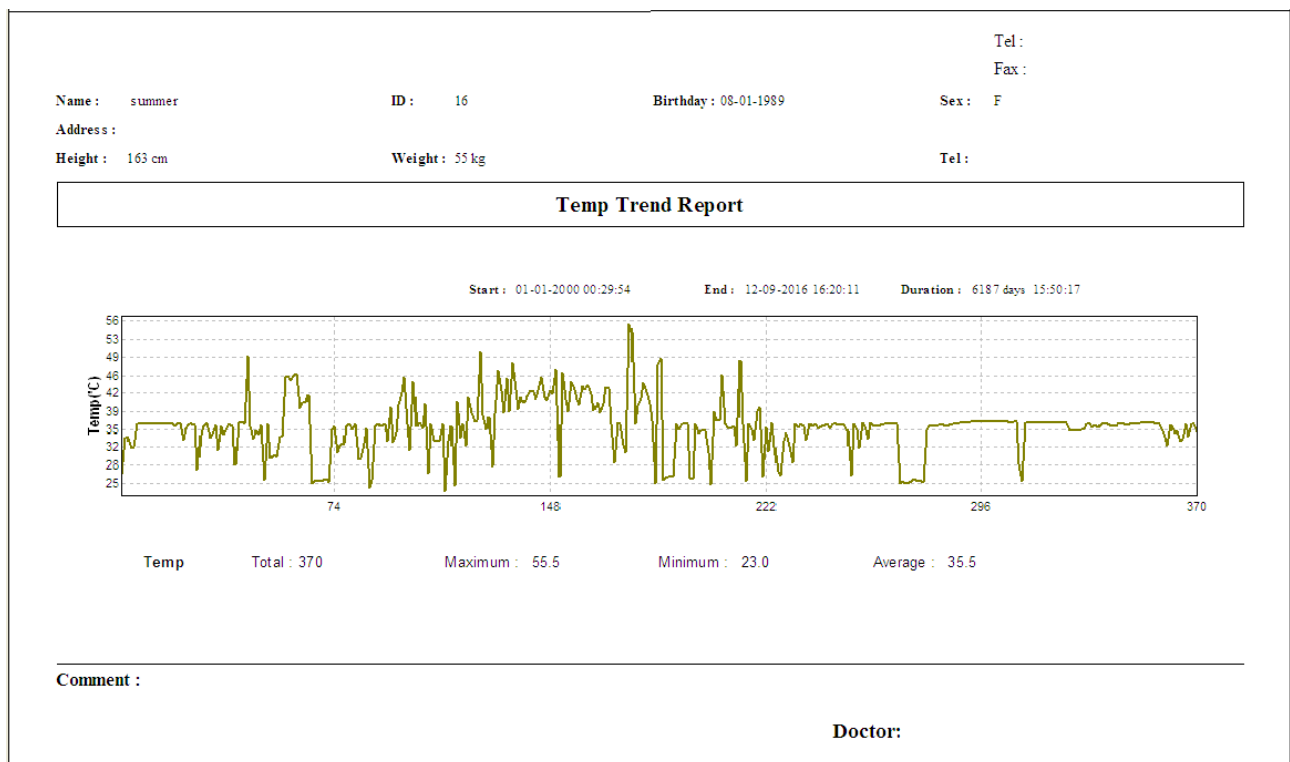


Figure 3-16C Report----Temperature Spot-check Records

3.5 Settings

3.5.1 Event setup

On main menu window, select “Settings” to enter into Settings screen, as shown in figure 3-171. There are three tabs, click on the tab to shift page to its relevant page.

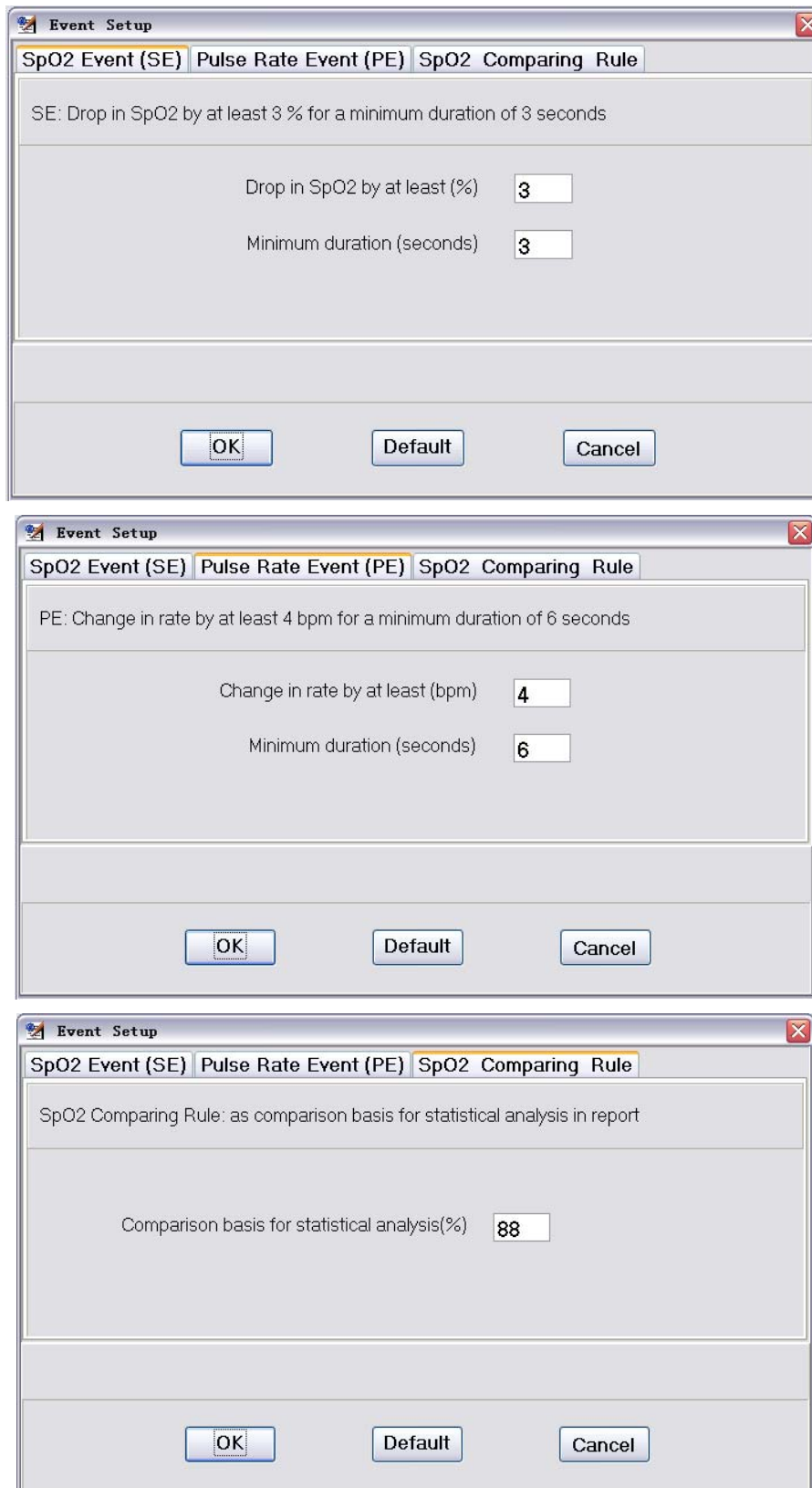


Figure 3-17 Event Setup

SpO₂ Event (SE)

If the SpO₂ dropping exceeds the preset value of “drop in SpO₂ by at least (%)” and this dropping lasts not less than the preset time period of “minimum duration (seconds)”, it will be identified as an event. For example, set “drop in SpO₂ by at least (%)” as “4” and set minimum duration as “10”, when SpO₂ dropping is over 4% for at least 10 seconds, a SpO₂ event (SE) will be identified and recorded.

Pulse Rate Event

If the PR change exceeds the preset value of “change in rate by at least (bpm)” and this changing lasts not less than the preset time period of “minimum duration (seconds)”, it will be identified as an event. For example, set “change in rate by at least (bpm)” as “6” and set minimum duration as “8”, when PR change is over 6bpm for at least 8 seconds, a PR event (PE) will be identified and recorded.

SpO₂ Comparing Rule

User can define a SpO₂ value as comparison basis for statistical analysis according to need. For example, if you set “Comparison basis for statistical analysis (%)” as “88”, refer to the report, we can get the the number of SpO₂ values and the SpO₂ values below 88% in measuring time.

3.5.2 System Configuration

On main menu window, select “System Configuration” to enter into System Configuration screen, as shown in figure 3-18. There are three tabs, click on the tab to shift page to its relevant page.

The screenshot shows a window titled "System Config" with three tabs: "System Para", "Trend Setting", and "Language". The "System Para" tab is active. It contains several input fields for hospital information: "Hospital Name", "Hospital Addr", "Hospital Tel", and "Hospital Fax". Below these are three sections for unit settings: "Unit of Measurement" with radio buttons for Height (cm, in) and Weight (kg, lb); "Unit of Temperature" with radio buttons for °C and °F; and "Date Format" with a dropdown menu showing "mm/dd/yyyy". At the bottom are three buttons: "OK", "Default", and "Cancel".



Figure 3-18 System Configurations

✧ **System Parameter**

- **Hospital information:** enter into hospital name, address, telephone and fax.
- **Unit of Measure:** set the units of height and weight:
“in and lb.” or “cm and kg”

Unit conversion: 1 cm = 0.39in 1kg = 2.2 lb.

- **Unit of temperature:** set the unit of temperature:

°C or °F

- **Date format:** select the date format.

The “mm/dd/yyyy”, “yyyy/mm/dd” and “dd/mm/yyyy” format are optional.

✧ **Trend Setting**

- **Color of SpO₂:** for setting the color of SpO₂ trend curve (click “▼” and choose the color);
- **Color of PR:** for setting the color of PR trend curve;
- **Line width of trend:** for setting the line width of SpO₂ and PR trend curves displayed in the graphic trend area;
- **Line width of report:** for setting the line width of SpO₂ and PR trend curves on the report.

✧ **Language**

- The operator can change the display language of the Oximeter Data Manager, Traditional Chinese, Simplified Chinese, English and Italian for optional.

3.6 Help

On main menu window, select "Help" to enter into the sub-menu, as shown in figure 3-19. Click the sub-menu to enter into the corresponding window.

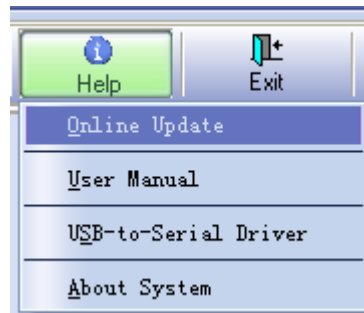


Figure 3-19 Help menu

◆ Online Update

If network is connected, then click "Online Update" to check if the current version is the latest version software. If it's checked as the latest version software, then figure 3.20A pops up. If not, then figure 3.20B pops up.

Note: do not operate the Oximeter Data Manager when updating the software, please wait for about 2 minutes.



Figure 3-20A

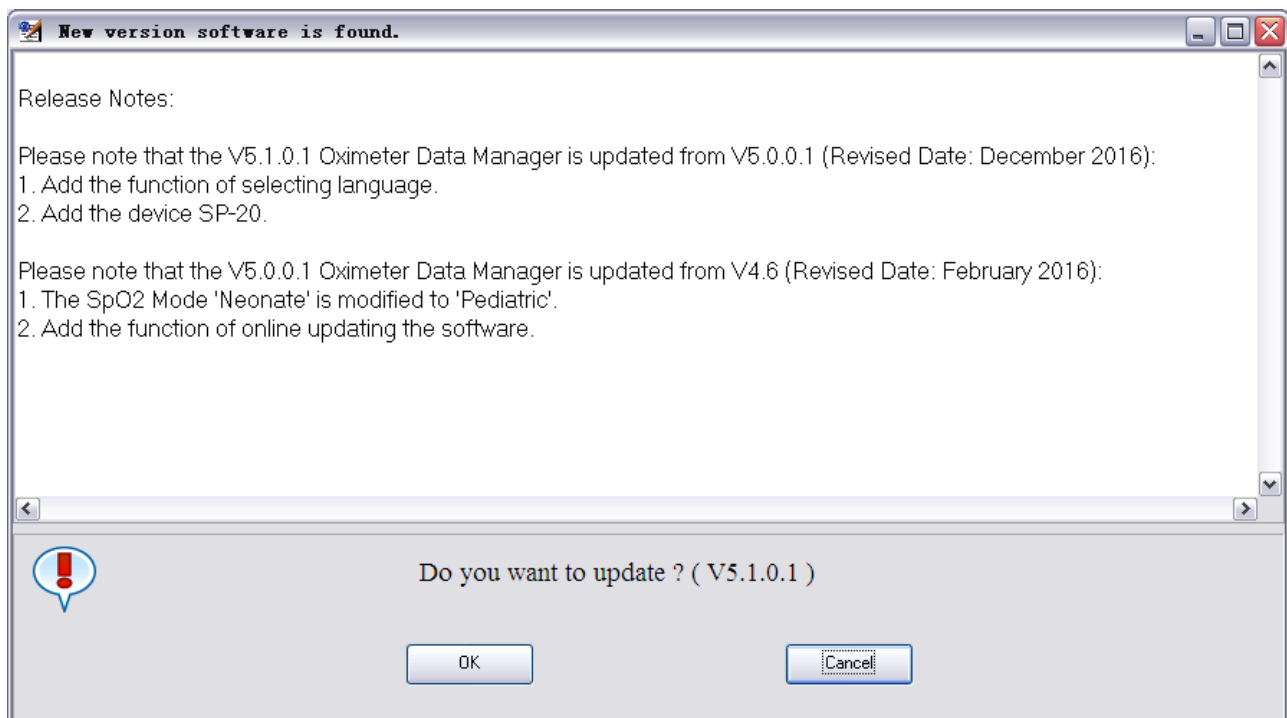


Figure 3-204B

If network is disconnected, then click "Online Update" will shows connection failure, as shown in figure 3-20C.

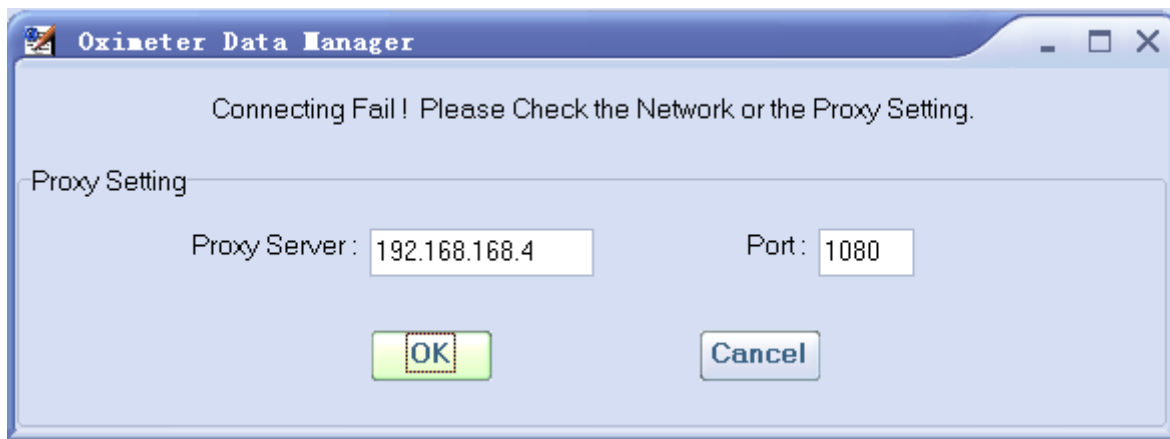


Figure 3-20C Connecting Fails

◆ **User Manual**

On sub-menu, click on "User Manual", then the User Manual for Oximeter Data Manager pops up, which is a document with ".pdf" format.

Note: your computer should install PDF reader, or the User Manual can not be opened.


◆ **USB-to-Serial Driver**

Click it to install the factory default USB-to-Serial Driver, the installation may last 36 seconds. Please plug out the cable of USB device when installing USB-to-Serial Driver.

◆ **About System**

Click it to view software information (including software version, disk space and so on.)

Error Codes

Error Codes	Possible Causes	Solutions
Please set the display resolution of the screen as 1024 x 768.	<ul style="list-style-type: none"> Your computer's display resolution doesn't meet the application software requirement. 	<ul style="list-style-type: none"> Please set the display resolution of the screen as 1024 x 768, or higher.
Query term error. Please reenter.	<ul style="list-style-type: none"> Incorrect or invalid term entered 	<ul style="list-style-type: none"> Reenter query term.
Please select Archive!	<ul style="list-style-type: none"> No archive No archive selected 	<ul style="list-style-type: none"> Please create a new patient record. Select an archive.
Please choose data to add!	<ul style="list-style-type: none"> No record selected. 	<ul style="list-style-type: none"> Select at least one record on record list. Or tick " <input type="checkbox"/> Select all" and click "  " to upload all records if the user wants.
Fail to connect the device, Please try again.	<ul style="list-style-type: none"> USB driver not installed or mismatched; Your selection of device type is wrong; The data cable is not connected well with device; The oximeter is not stayed in the specified status; USB interface damaged; Data cable damaged; The oximeter's malfunction; 	<ul style="list-style-type: none"> Please re-install the software: Oximeter Data Manager; Please choose the device type according to your oximeter; Make sure the connection of data cable is well at both side; Quit from the menu setting or trend view to the default measuring mode at oximeter side. Change a new one; Please contact the local dealer; Please contact the local dealer;
Com Error (Uploading data timeout and no response)	<ul style="list-style-type: none"> The data cable is not connected well at both sides when uploading data; USB driver is installed incorrectly; The oximeter's malfunction; 	<ul style="list-style-type: none"> Make sure the connection of data cable is well at both side; Run the executable file with name "setup_usb.exe" to reinstall the USB driver Please contact the local dealer;
Can not find COM port, please install COM port!	<ul style="list-style-type: none"> The data cable is not connected well with device; USB driver is not installed; The oximeter's malfunction; 	<ul style="list-style-type: none"> Make sure the connection of data cable is well at both side; Please re-install the software: Oximeter Data Manager; Please contact the local dealer;
Fail to update software	<ul style="list-style-type: none"> Network disconnected The antivirus program stops the downloading 	<ul style="list-style-type: none"> Recheck the network connection, and re-click "Online Update"; When downloading the updated file (ODM_files.exe), if the antivirus program (eg. 360 antivirus program) shows it as the computer virus, then choose "Trust in" and re-click "Online Update".