Merge Hemo™
Real time documentation tool for the cardiac cath lab

System Upgrade Document  |  PhysioLog to 9.10

**Hemodynamics**

- **Fractional Flow Reserve**
  Integrated FFR is now an option. The user can now utilize Merge Hemo to capture all associated data for recording an FFR directly into the Chronological Log thus eliminating the need for the third party box.

- **A-wave Detection**
  The user may now disable a-wave detection for a specific recording or the entire study for patients that may be in A-fib.

- **Gradient Calculation**
  The system admin can choose to calculate the gradient by either normalizing both waveforms or only normalize the non-ventricular waveform. This will provide the actual DFP and SEP calculation rather than a normalized calculation.

- **Ventricular Pressure Markers**
  The system admin can choose to calculate the ventricular diastolic and end diastolic pressure by either a calculated method or simply looking for the lowest ventricular pressure and the point where the ventricular pressure and the R-wave cross.

- **Record Wave Template Text Enhancement**
  The user can now create new template text entries that will change the scale and the sweep speed without the user having to manually change them.

- **Condition Selection Enhancement**
  The user can now create new template text entries that will create, select and change conditions without having to open the existing Change Conditions action. Additionally, the system admin can create and save custom conditions rather than have to manually type them in each time.

- **Locations Enhancement**
  The system admin can now add new record and saturation locations to Merge Hemo.

- **Locations**
  All saturation and pressure waveform locations have been consolidated into one list for consistency.

- **Recording of Waveforms**
  The user can record multiple pressure and ECG waveforms for the same location without having to change conditions.

- **Multi-Chamber Pullback**
  The system can perform a continuous recording that allows the user to select multiple record locations, resulting in a single recording that shows the transition from one chamber to another.

- **Editing Waveforms**
  Controls for editing the waveforms are easier as the user can move markers, beats and r-waves quickly. Adding or removing beats are easier and relabeling a waveform after recording is possible.

- **Gradients**
  The data related to valve gradients have been consolidated into one screen so that when a change to the waveform alignment is made, the gradient calculation is immediately recalculated and displayed. Additionally, the user can display the formula for the gradient on the screen and visualize all values used for the calculation.

- **Analog Output**
  Support for two independent outputs of hemodynamic data.

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- **Full Disclosure**  
  Split screen display of live and replay hemodynamic data on a single screen

- **Hemo Toolbar**  
  On record stations there is a tool bar with the common record functions displayed, which remains visible at all times no matter which screen the user is displaying

- **Qp/Qs Resistance Tab**  
  Valve areas can be calculated by utilizing the shunt calculations for patients that can’t have a reliable Fick or thermo cardiac output performed

- **Resistance Tab**  
  Resistance values available in both Woods and dynes units

- **Manual Override of Pressures**  
  The user may manually enter any value for a recorded pressure

**Navigation**

- **Clinical Cath Reporting**  
  The system now allows the user to utilize the Merge Cardio Clinical Cath Reporting tool in the absence of having the Merge image archival system

- **Minimize Hemo Application**  
  The user can now keep Merge Hemo running and minimize the entire application

- **List Search**  
  The system has a new search engine for any list in Merge Hemo. A yellow box indicates that the user can search the displayed list to make finding items easier. The user doesn’t have to know the entire name but can type a partial entry and the system will search

- **Manage Studies**  
  A new tool that has been added to Merge Hemo to make scheduling a patient study easier. There is a two month calendar view to see how many studies are on the schedule. The user can simply drag the patient into a cath lab and study is scheduled. Studies can be moved quickly from room to room or even to another date if necessary

- **Whiteboard**  
  A new tool is available to track the patients’ location within the cath department. Not only can the patient be tracked in the cath lab but also pre and post procedure as well. The users simply drag the patient from one location to another and a note is automatically added to the record. A timer is initiated with each move so anyone looking at the whiteboard will see how long a patient has been in one location. Even if there are no holding/recovery beds that document information in Merge Hemo, the user can create “virtual beds” and still move the patient to the appropriate location

- **Template Reordering**  
  The Start Template can now be moved to any position like all of the other templates in the system

- **Folders**  
  Color-coded folders allow the user quick access to different screens keeping the navigation very shallow

- **Chronological Log**  
  For data collection the user stays in the Chron Log. All templates are visible on the right side of the screen for quick selection

- **Vitals Capture**  
  Along with the standard patient vitals, the user can capture the patient’s pain level and Modified Aldrete score for each vitals capture

- **Touchscreen**  
  The entire GUI is designed for a touch-screen to make data collection quick and easy. The addition of a touchpad is available for entry of numeric values

- **Application Toolbar**  
  Icons on the left side of the GUI allow the user to select various applications with a single selection

- **Templates**  
  The user has the ability to set the order of the templates in the Chron Log folder

- **User Log On/Off**  
  The system has the ability to use either the hospital’s active directory or a local directory for user name and password. Auto log-off is
available and when the user returns to the application, it reopens on the same screen that was displayed prior to log off.

**Documentation**

- **XML Export Improvements**
  The system will now import via HL7 and then export via the standard XML export function the Universal Service ID and description.

- **Responsible Physician**
  The chronological log can now assign a physician to every entry that will assign them as the physician responsible for each entry. This allows the user to now indicate the person who is overall responsible for the procedure and who created the action.

- **Staff Types**
  User-defined staff type can now be added to the system. The system admin can order the displayed list of staff types as well. Up to 10 staff members can be added to each staff type.

- **Procedure Report Export**
  The system admin now can select to export the entire study in an ASCII format or select to export a link to a PDF for the displayed report.

- **History Data Carry Forward**
  The user can choose to carry forward the history of a selected patient from the prior study to reduce the repetitive data entry of ACC history data.

- **View Prior Study Reports**
  The system allows the user to open a prior study report while in that patients’ active study.

- **Vitals Capture Screen**
  Along with the existing vital data the system now includes EtCO2, Apnea and a Ramsey score to this screen.

- **Vitals Capture Summary**
  The user can display all vitals captured in a spreadsheet style grid.

- **Comment Field Lengthened**
  The user can now enter up to 1,000 characters into any comment field.

- **ACC Data Collection**
  The system now allows the user to select a single button to fill in the empty Yes/No ACC fields so that No has been selected.

- **Data Export Enhancement**
  The user can now export the hemo data via the XML export service without having to close the study.

- **Concurrent Access**
  The system allows up to 5 workstations to access and document data on the same patient study.

- **Required Items**
  The system admin can now mark individual fields in MergeHemo as “Required”. These fields will be marked in red and until the data has been entered into the field the user will be reminded that they need to completed.

- **ACC CathPCI Registry**
  The ACC introduced a new database for its CathPCI registry and Merge Hemo can capture 100% of the fields within the application. This data can be sent to our CathPCI tool or can be exported to any of the major vendors that are approved by the ACC.

- **Lab Value Date and Time**
  When imported from an outside source, all lab values will have the ability to display the date and time that the lab was reported.

- **End Study Folder**
  The user can now enter multiple types of contrast for a single study.

- **No Complications**
  If the user doesn’t indicate that there were no complications for the study, it will remind the user to do so when printing or closing the study.

- **Complete Study**
  The user can mark the study as complete so when Study List is viewed, they can see which patients have been completed.

- **Medications**
  The user can preselect the Route and the Site in System Config to pre-populate the appropriate fields when documenting medications during the study.
Procedural Reporting
The user can now create custom reports which can be named for selection when printing

Chron Log Navigation
The system provides an easy way to scroll through all the notes as well as each event captured. A filter allows the user to shorten the entries to better identify the desired note

Field Definition
The user has more control over many fields to allow for site-specific ranges to be entered for some fields (i.e. normal ranges for lab values)

Application Toolbar

· General Description
  Along the left side of the Hemo screen are several icons that allow the user to move to different applications without having to close the existing application

· Study List & Active Study
  These icons allow the user to switch between a list of all studies on the server and the study that is open for documentation

· Settings
  This utility is available on record workstations to allow the user to be able to control all functions of the Hemo Monitor from one place

· Training Mode
  Built in ECG and pressure waveforms to allow the user to record hemo data for teaching new staff

· Inventory & System Config
  Utilities that are password-protected that enable the system admin to configure Merge Hemo and manage the departmental inventory

· Physician Report, UDR & Web Viewer
  Optional applications that allow the user to view reporting through “Inscription”. The system admin can run managerial reports via UDR and view images on Merge Cardio (formally Vericis)

Windows 7
Merge Hemo now supports Windows 7 for new builds

Server 2008 R2
The Merge Hemo server now supports Microsoft Server 2008 R2 operating system

SQL 2008
Merge Hemo now supports SQL 2008 Standard edition for the server and SQL Server 2008 Express for the workstations

End Tital CO2 Option
With an optional unit the Merge Hemo record workstation can capture side stream CO2. Other measurements captures are respiration rate and Apnea

GE Dash Monitor
Merge Hemo now supports the GE Dash patient monitor for the holding/recovery area

Hardware Improvements

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