Dialysis Re-processor Reporting System

Dialysis Re-Processor Reporting System (DRRS) is a comprehensive software reporting suite designed to help Nephrologists and Dialysis Professionals with Dialyzer traceability, reuse and history. It has been designed to complement Tuscano's DCS-fs. But it can be used as a stand-alone reporting suite with other re-processor too. DRRS is hosted on a standard Windows PC and communicates with DCS through Wi-Fi. In the absence of Wi-Fi, DRRS has been designed for manual data entry (data from re-processor).

DRRS contains a patient database which if needed can be stand alone or be integrated with Hospital Management System. The system currently has a manual entry screen to enter patient details which can be automated if patient database already exists. Based on the need a bridge program will be provided to integrate with Hospital Information System.

Fig 1: Patient Detail Input Screen

While the patient entry screen allows the data input for the patient , provision has also been made to update the patient details such as address change , virology change etc.

Data Entry into the reporting suite is both through manual and automated manner. Where standard and repeated inputs are possible, the data entry has been automated to avoid data entry errors. Where bar-coded details are available, provision has been made to upload details through a bar-code scanner provided as standard hardware along with DRRS.

Data of the dialyzer used for the patients can be input into the system both through manually and through bar code scanner. Data entry bar code scanner is recommended as it eliminates manual data entry errors.
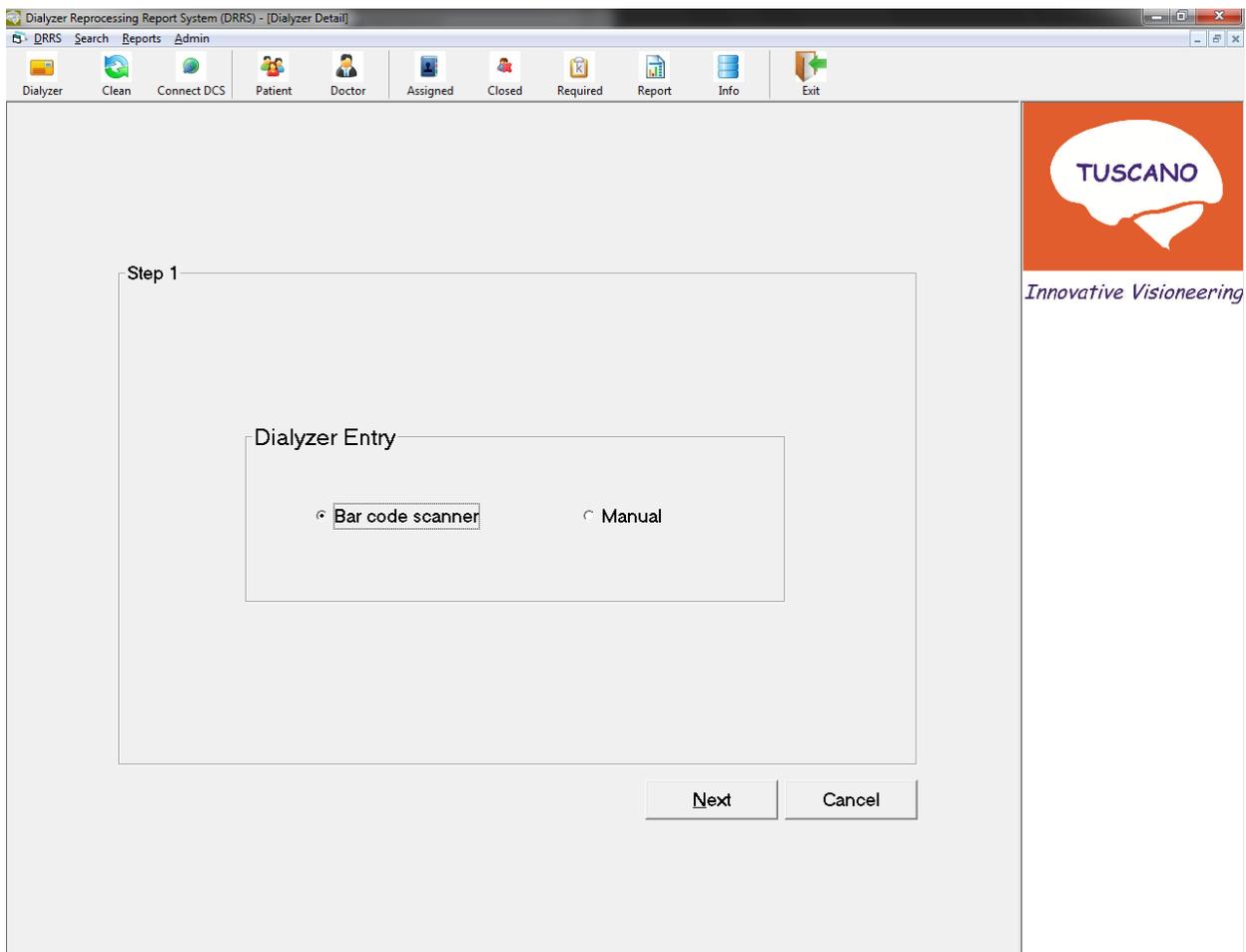

Fig 2: Step 1 in assigning dialyzer to the patient – reading / input of dialyzer details such as type etc.

One the details of the dialyzer has been entered and assigned to the patient a unique Dialyzer ID is assigned by DRRS which is used to trace the dialyzer. A barcode sticker is generated by the system which contains dialyzer id and patient details. This sticker is stuck to the dialyzer which serves as identification tag.

Fig 3 dialyzer identification tag.

When dialyzers are used repeatedly, a bar code scanner can input the value into DRRS thus eliminating manual errors. After the dialysis and before the cleaning , details of the dialyzer is communicated to the DCS via the Wi-Fi module and once the cleaning is completed, the cleaning data is relayed back to the PC by DCS through Wi-Fi.

Fig 4: Communication from DCS to PC.

In the above screen (Fig 4), cleaning data such as Dialyzer Id, Dialysis date, start time, end time, priming volume and bundle volume are communicated by DCS to PC. Based on the Dialyzer id, system extracts patient id and name from the database. As a fall back option, manual data entry screen has also been provided to overcome Wi-Fi failure.

Fig 5: Manual Data Entry Screen for reprocessing details

DRRS has been built with warnings to ensure the users are aware of the dialyzer usage. In the event the bundle volume goes below 80% of the priming volume, a warning is flashed. If the Bundle Volume goes below the Hospital set value (through admin module) a warning is flashed and the dialyzer is automatically closed in the system.

DRRS comes with a set of reports which can be generated daily, weekly or monthly for a patient or dialyzer etc. It is being enhanced to give the user the choice of generating report of his choice. A set of sample reports is given below.

DCS Clinical Report - Patient wise

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Institute / Hospital :									DCS :
Reprocessing Date	Patient Name	Dialyzer (Manufacturer, Size)	Time Start	Time End	Time Taken	PV	BV	Cycle	Verification
04/Oct/2013	Valliammal	Fresenius, F6HPS	12:14:43	12:14:43	00:00	82	32	2	Malar
04/Oct/2013	Razina	Fresenius, F7	12:12:31	12:12:31	00:00	98	82	1	technician1
04/Oct/2013	Valliammal	Fresenius, F6HPS	12:11:51	12:11:51	00:00	82	56	1	technician1
04/Oct/2013	krishna samy	Fresenius, F6	11:54:31	11:54:31	00:00	138	125	1	Malar
26/Sep/2013	Mujahid	Fresenius, F7	11:44:11	11:56:07	00:12	98	87	0	Gandhimathi
26/Sep/2013	Suhainabanu	Fresenius, F6HPS	11:00:58	11:37:58	00:37	82	72	0	Gandhimathi
26/Sep/2013	Leela Boi	Fresenius, F6HPS	10:29:10	10:42:05	00:13	82	75	0	Jebazeon T
26/Sep/2013	Sakthi Vel	Nipro, 130L	10:14:10	10:16:37	00:02	78	87	0	Vinnoli
25/Sep/2013	Shysha Devi	Fresenius, F60S	15:56:15	15:58:41	00:02	82	87	1	Jebazeon T
25/Sep/2013	Zahir Ussion	Fresenius, F6HPS	15:53:15	15:55:49	00:02	82	87	1	Jebazeon T
25/Sep/2013	Zahir Ussion	Fresenius, F6HPS	15:33:15	15:35:09	00:02	82	87	0	Jebazeon T
25/Sep/2013	Zahir Ussion	Fresenius, F6HPS	15:28:15	15:30:21	00:02	82	87	0	Jebazeon T
25/Sep/2013	Sakthi Vel	Nipro, 130L	14:44:14	14:56:09	00:12	78	79	0	Jebazeon T

Fig 6: Patient wise report

DCS Clinical Record - Assigned Dialyzer

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Institute / Hospital :   DCS :

Reprocessing Date	Patient Name	Dialyzer (Manufacturer, Size)	Time Start	Time End	Time Taken	PV	BV	Cycle	Verification
04/Oct/2013	krishna samy	Fresenius, F6	11:54:31	11:54:31	00:00	138	125	1	Malar
26/Sep/2013	Leela Boi	Fresenius, F6HPS	10:29:10	10:42:05	00:13	82	75	0	Jebazeon T
26/Sep/2013	Mujahid	Fresenius, F7	11:44:11	11:56:07	00:12	98	87	0	Gandhimathi
04/Oct/2013	Razina	Fresenius, F7	12:12:31	12:12:31	00:00	98	82	1	technician1
26/Sep/2013	Sakthi Vel	Nipro, 130L	10:14:10	10:16:37	00:02	78	87	0	Vinnoli
25/Sep/2013	Shysha Devi	Fresenius, F60S	15:56:15	15:58:41	00:02	82	87	1	Jebazeon T
26/Sep/2013	Suhainabanu	Fresenius, F6HPS	11:00:58	11:37:58	00:37	82	72	0	Gandhimathi
25/Sep/2013	Zahir Ussion	Fresenius, F6HPS	15:53:15	15:55:49	00:02	82	87	1	Jebazeon T

Fig 7: A report on the assigned dialyzer to various patients.

All reports are generated in PDF Format. On request from customer this can be customized to be in MS Word.

To ensure the privacy and secured access to the system, DRRS can be accessed only with valid userid and password. An admin module has been integrated with DRRS. Admin module is for creating users, adding equipment data etc.
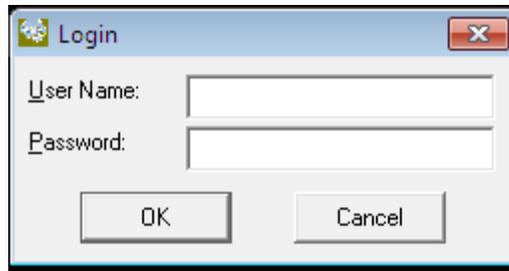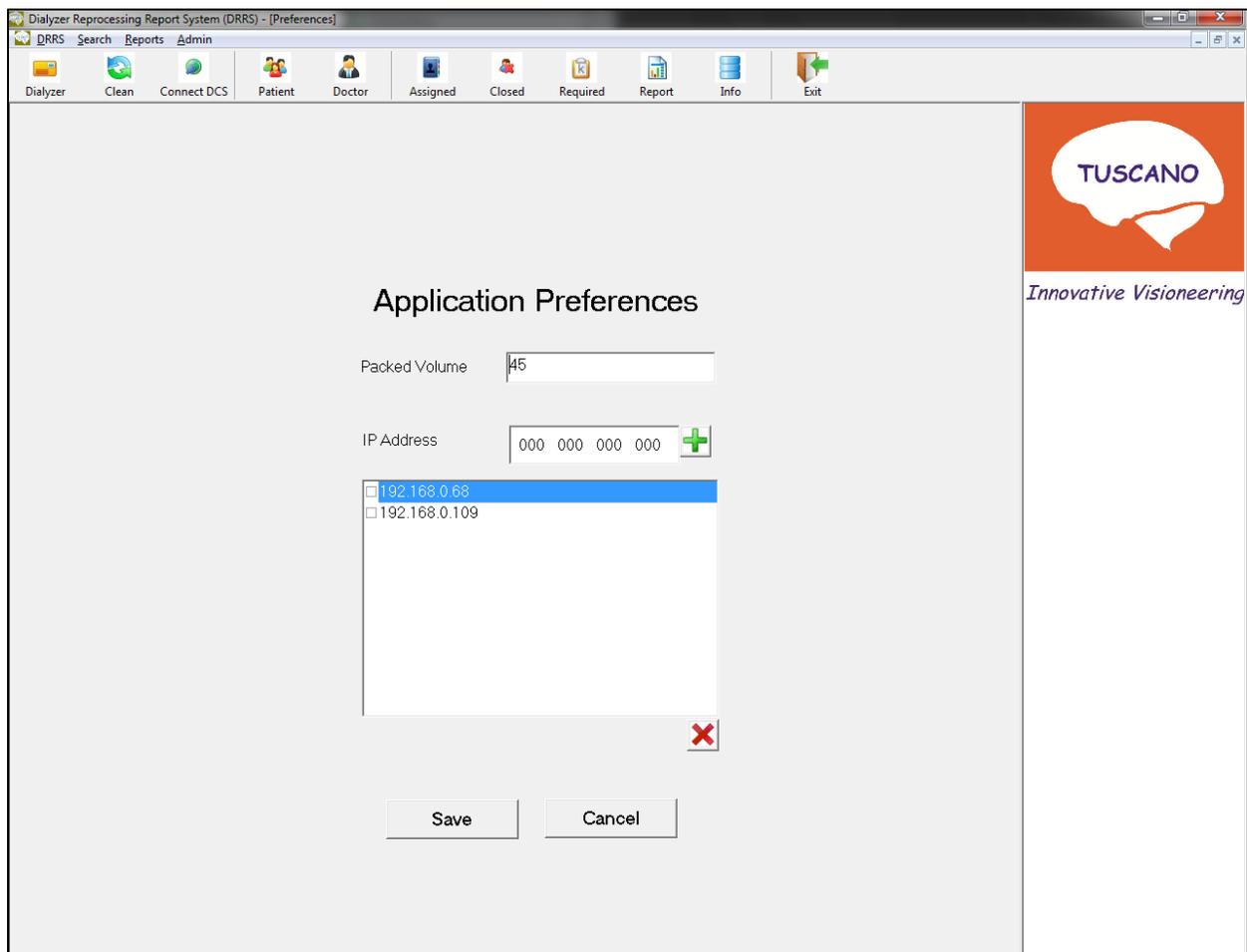
Fig 8: Login dialog box

Fig 9: Admin screen to enter Hospital preference on packed volume

In Short DRRS is a comprehensive and a reliable software suite designed to assist Nephrologist and Dialysis Center professionals in running Dialysis centers efficiently and effectively.