

*Blood bank information systems***Once a shot in the dark, blood bank systems now hitting the mark**

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**I**n with the new and out with a few may be a good way to describe today's blood bank software market. Some vendors have introduced new or modified software during the past year or so, among them SCC Soft Computer's new donor system, SoftDonor, and Psyche Systems' Systematic Blood Bank-Hosted Transfusion System. And a few vendors have sunsetted legacy systems and introduced replacement products, including Medware, which is no longer marketing Hemocare and its LifeLine Blood Bank Data Management System but is now offering HCLL along with its established LifeTrak product.

The blood bank information systems survey on pages 59-70 provides an overview of blood bank software available in the United States. The information presented was generated from vendors' answers to a questionnaire. This year CAP TODAY has expanded its product profiles to include additional donor system functionality. With the recent emphasis on homeland security, the ability to rapidly react to a major catastrophe, find appropriate blood supplies in a community, and recruit and schedule donors efficiently has become paramount. Several vendors' systems now incorporate Web-based recruitment and self scheduling, as well as centralized transfusion services.

While the following product profiles provide information about general functionality, each facility should write its own detailed specifications for evaluating blood bank systems. Consultants can also help to generate such a checklist based on their knowledge of the marketplace and various vendors' capabilities. These specifications should be used primarily by facility staff as they review product characteristics. Loading such a list into a

thick request for proposal usually yields a measure of which salesperson is willing to give unsubstantiated "yes" answers rather than a true picture of system functionality.

Of importance to many donor centers and some hospital transfusion services are their options for semi-automated and fully automated pre-transfusion testing. Many blood banks initially had negative experiences with interfacing fully automated instruments with their information systems. Blood bankers considering automation should talk to their counterparts who have instruments that operate with an interface. Among the most common problem areas are the differences in medical nomenclature between the instruments and the LIS—that is, the definition of reactions, such as a dash versus 0 for negative, 4+ versus 4 for a strong reaction, and transmission of individual test results, such as Anti-A 4+ instead of sending a conclusion such as A POS. Having hard-coded definitions in the instrument and the information system could compromise the usability and visual appearance of the test reports.

Blood bankers should also be cognizant of the latest developments in the bedside identification of patients and specimens coupled with the use of bar-coded specimen labels. Both have been available since the late 1980s but have not been used to their fullest capacity.

The Joint Commission on Accreditation of Healthcare Organizations has focused extensively on patient identification. This, in part, spurred vendors' interest in developing software that is integrated with the blood bank information system and used at the patient bedside to verify specimen collection as well as to verify patient and blood component compatibility at the time of transfusion. Some vendors have developed their own, unique applications, while others have partnered

with a third party to develop such applications. Many of these are worthwhile products.

Positive identification obviously is also an issue for facilities that modify blood components for transfusion. The blood bankers at such facilities should ask vendors if their systems can produce labels that comply with the FDA's Feb. 26, 2004 final rule, "Bar Code Label Requirements for Human Drug Products and Biological Products," and if their systems can print Codabar and ISBT 128 blood component labels.

The FDA regulation, which applies to all hospitals, requires machine-readable information on blood and blood component container labels to help prevent transfusion errors and accidents. The labels must contain such bar-coded information as unique facility identifier, lot number relating to the donor, product code, and donor's blood group and type. Hospitals and other suppliers of blood and blood components conducting business before April 26, which was the effective date of the rule, have until April 26, 2006 to implement the regulation.

If you consider automation, bedside identification, and bar-code labeling to be a frill or an extra, keep in mind that you are likely to use the system you purchase today for five to seven years. Don't discount the importance of these features and compromise your ability to detect and prevent errors. □

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Blood bank information systems

<b>Part 1 of 6</b>	<b>Blood Bank Computer Systems</b> Craig Smith csmith@bbcsinc.com 1002 15th St. SW, Ste. 120 Auburn, WA 98001 253-333-0046 www.bbcsinc.com	<b>Cerner Corp.</b> Angela Betts abetts@cerner.com 2800 Rockcreek Parkway Kansas City, MO 64117 816-201-2771 www.cerner.com	<b>Cerner Corp.</b> Angela Betts abetts@cerner.com 2800 Rockcreek Parkway Kansas City, MO 64117 816-201-2771 www.cerner.com
<b>See accompanying article on page 58</b>			
<b>Name of blood bank system</b>	<b>Blood Bank Control System</b>	<b>PathNet Blood Bank Donor</b>	<b>PathNet Blood Bank Transfusion</b>
First ever blood bank system installation	1987	1985	1985
First/most recent installation of <i>current</i> blood bank system	1997/Aug. 2004	—†	1997/2004
Total number of contracts for operational sites	26	—	400+
•U.S. hospitals—donor and transfusion service	0	—	50+
•U.S. hospitals—transfusion service only	0	—	350+
•U.S. regional blood centers—donor service only	21	—	0
•U.S. regional blood centers—donor and transfusion service	5	—	4
•Centralized transfusion services in the U.S.	0	—	0
•Foreign hospitals/foreign regional blood centers	0	—	40+
Total number of sites operational	23	—	400+
Installations underway that are not yet live (hospitals/regional blood centers)	3 (0/3)	—	81+ (81/0)
Percentage of installations that are stand-alone systems	100%	available stand-alone or integrated	<10%
<b>Staff to develop/install/support/other*</b>			
•In entire company/in blood bank systems	14-2-3-3	800+-1,900+-800+-1,300+/15-24-10-15	800+-1,900+-800+-1,300+/15-24-10-15
<b>No. of different versions of software installed</b>	1	—	—
•Versions of product covered by FDA 510(k) clearance	4.4	Classic, Millennium	Classic, Millennium
•Versions of product that did not require FDA 510(k) clearance	0	n/a	n/a
<b>Range in No. of terminals/workstations in live sites (ave.)</b>	10-150 (ave. 40)	—	5-500+ (ave. 10-20)
•Central hardware/computer platform or services	IBM iSeries	HP, IBM RS/6000	HP, IBM RS/6000
•Terminals/workstations	IBM 5250-compatible workstations and PCs	Intel Pentium PCs	Intel Pentium PCs
•Central hardware redundant/fault-tolerant?	yes	yes	yes
<b>Software</b>			
•Programming language(s)	RPG/400, Java	Visual Basic, C++, Cobol (Classic)	Visual Basic, C++, Cobol (Classic)
•Operating system(s)	OS/400	Open VMS, AIX	Open VMS, AIX
•Database platform	IBM DB2	Oracle (Millennium), Cerner proprietary (Classic)	Oracle (Millennium), Cerner proprietary (Classic)
•Full transaction logging?	yes	yes	yes
<b>Features (listed as percentage of live installs or based on availability)</b>			
•Unit inventory	100%	expected in 2005	100%
•Autologous and directed unit tracking	100%	expected in 2005	100%
•Crossmatch results	20%	expected in 2005	100%
•Print donor unit labels—bar coded	available third quarter 2004	expected in 2005	available in 2004
•Full support of ISBT 128 unit labeling	available third quarter 2004	expected in 2005	available in 2004
•Donor recruitment	100%	expected in 2005	—
•Donor questionnaire	available third quarter 2004	expected in 2005	—
•Mobile scheduling	90%	future development	—
•Interface with automated type and screen instruments	80%	expected in 2005	5%
•Source/recovered plasma management	100%	expected in 2005	—
•Bar-code reading of donor and unit information	100%	expected in 2005	100%
•Ad hoc report writer	100%	expected in 2005	100%
•Accounts receivable	100%	expected in 2005	15%
•Management reports	100%	expected in 2005	100%
•Direct entry of test results	100%	expected in 2005	100%
•Electronic crossmatch decisionmaking	5%	expected in 2005	30%
•Laptop-based mobile donor registration module	90%	future development	—
•Track all steps in production of product	100%	expected in 2005	100%
•Antigen typing	100%	expected in 2005	100%
•Interface with blood irradiator/centrifuges	available third quarter 2004	not available	not available
•Centralized transfusion services	5%	—	installed
•Hand-held devices for positive patient ID	available third quarter 2004	future development	not available
<b>System provides standard ASTM/HL7 interface?</b>	yes	yes	yes
<b>Connectivity</b>	Telnet, local client, remote client, Web client	Telnet, local client, remote client	—
<b>Tools to help clients validate their systems</b>	department dedicated to development of validation protocols, flow charts, management guides, validation guide documents, 24/7 client support	solution validation guidelines, support guide, application consultants, others	—
<b>Complete blood bank ASP solution?</b>	yes	yes	yes
<b>Method of charging for ASP service</b>	transaction based	fixed fee	fixed fee
<b>Client software required</b>	requires software be installed on client PC, uses dumb terminals	requires software be installed on client PC	requires software be installed on client PC
<b>ASP information conduit</b>	requires use of private, dedicated circuit	requires use of private, dedicated circuit	requires use of private, dedicated circuit
<b>Client contracts supported from data center not operated by client</b>	2	—	—
<b>How data center is operated</b>	by a third party (blood bank)	by vendor	by vendor
<b>System provides indexed field in each test definition for LOINC code?</b>	no	yes	yes
<b>Provide LOINC dictionary for each new installation?</b>	no	yes	yes
<b>HIS interfaces</b>	none	multiple vendors	multiple vendors
<b>LIS interfaces</b>	Cerner, Wyndgate, Medware, IDM	multiple vendors	multiple vendors
<b>User group?</b>	yes (meets online as well)	plan to form user group	yes
<b>Source code?</b>	escrow	escrow	escrow
<b>Can user modify screens?</b>	no	yes	yes
<b>User-defined report writer?/custom programming?</b>	yes/yes	yes/yes	yes/yes
<b>Cost (hardware/software/monthly maintenance)</b>			
•Smallest	—	—	—
•Largest	—	—	—
<b>Distinguishing features (supplied by vendor)</b>	<ul style="list-style-type: none"> <li>• leading the way in risk management</li> <li>• system is highly configurable</li> <li>• user group interaction and direction in product development</li> </ul>	<ul style="list-style-type: none"> <li>• comprehensive, totally integrated single system</li> <li>• more than 24 years in the LIS industry</li> <li>• continued innovations</li> </ul>	<ul style="list-style-type: none"> <li>• comprehensive, totally integrated single system</li> <li>• more than 24 years in the LIS industry</li> <li>• continued innovations</li> </ul>
<b>*other=sales, marketing, administration, other company functions</b>		† product going into alpha testing with first client	

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Survey editor: Raymond D. Aller, MD

## Blood bank information systems

Part 2 of 6 See accompanying article on page 58	Information Data Management Inc. Susan L. McBride slm@idm.com 9701 W. Higgins Rd., Ste. 500 Rosemont, IL 60018 800-249-4276/847-825-2300 www.idm.com	Mak-System Corp. Stephane Sajat sales.us@mak-system.net 2720 River Rd., Ste. 225 Des Plaines, IL 60018 847-803-4863 www.mak-system.net	Meditech Paul Berthiaume pberthiaume@meditech.com Meditech Circle Westwood, MA 02090 781-821-3000 www.meditech.com
Name of blood bank system	IDM Select Series for Blood Centers	Progesa	LIS Blood Bank Application (client/server)
First ever blood bank system installation	1991	1985	1981
First/most recent installation of <i>current</i> blood bank system	1999/July 2002	1985/2004	—/July 2004
Total number of contracts for operational sites	8	—	135
•U.S. hospitals—donor and transfusion service	0	—	—
•U.S. hospitals—transfusion service only	0	—	—
•U.S. regional blood centers—donor service only	7	5	—
•U.S. regional blood centers—donor and transfusion service	0	—	—
•Centralized transfusion services in the U.S.	0	—	—
•Foreign hospitals/foreign regional blood centers	1 (Hong Kong)	515	—
Total number of sites operational	8	—	124
Installations underway that are not yet live (hospitals/regional blood centers)	0	20 (10/10)	11 (11/0)
Percentage of installations that are stand-alone systems	100%	100%	2%
Staff to develop/install/support/other*			
•In entire company/in blood bank systems	32-8-12-15	102-45-48-55	2,093 total
No. of different versions of software installed	6	—	1
•Versions of product covered by FDA 510(k) clearance	—	4.4	client/server
•Versions of product that did not require FDA 510(k) clearance	DMIS 1.2.2, DMIS 2.0, CDIS 1.1.2, CDIS 2.0, InTouch 1.5, InTouch 2.0	—	—
Range in No. of terminals/workstations in live sites (ave.)	4-80 (ave. 30)	10-1,000 (ave. 100)	—
•Central hardware/computer platform or services	HP NetServers, HP 9000 business servers	no restrictions (any hardware with Unix)	HP, Dell, EMC, IBM
•Terminals/workstations	Unix terminals/X-terminals, PCs, workstations	Wyse, HP, IBM, DEC, PCs	HP, Dell, EMC, IBM
•Central hardware redundant/fault-tolerant?	yes	yes	yes
Software			
•Programming language(s)	C++, C	C, C++, Pro/5, Java	Windows NT
•Operating system(s)	Unix	Unix, Web technology, client servers	Windows NT
•Database platform	Oracle	Oracle, C-ISAM	SQL server
•Full transaction logging?	yes	yes	yes
Features (listed as percentage of live installs or based on availability)			
•Unit inventory	100%	100%	installed
•Autologous and directed unit tracking	100%	100%	installed
•Crossmatch results	not available	100%	installed
•Print donor unit labels—bar coded	100%	100%	installed
•Full support of ISBT 128 unit labeling	not available	installed	available
•Donor recruitment	100%	100%	installed
•Donor questionnaire	not available	100%	available
•Mobile scheduling	100%	100%	available
•Interface with automated type and screen instruments	available through IDM Surround	installed	available
•Source/recovered plasma management	100%	100%	installed
•Bar-code reading of donor and unit information	100%	100%	installed
•Ad hoc report writer	100%	100%	installed
•Accounts receivable	not available	100%	installed
•Management reports	100%	100%	installed
•Direct entry of test results	100%	installed	installed
•Electronic crossmatch decisionmaking	not available	installed	installed
•Laptop-based mobile donor registration module	not available	100%	available
•Track all steps in production of product	100%	installed	installed
•Antigen typing	100%	installed	installed
•Interface with blood irradiator/centrifuges	not available	installed	not available
•Centralized transfusion services	not available	—	installed
•Hand-held devices for positive patient ID	not available	100%	installed
System provides standard ASTM/HL7 interface?	no	yes	yes
Connectivity	Telnet, remote client, other	Telnet, Web client	local client, remote client, Web client, other
Tools to help clients validate their systems	product user manuals, product validation guide, configuration workshops, automated testing tools, training classes and materials, others	user guides, hazard analysis, training manuals, data conversion, validation, scenario samples	comprehensive manual to address validation issues, application consultants
Complete blood bank ASP solution?	yes	no	no
Method of charging for ASP service	fixed fee	—	—
Client software required	uses dumb terminals	—	—
ASP information conduit	requires use of private, dedicated circuit and VPN	—	—
Client contracts supported from data center not operated by client	0	—	—
How data center is operated	by vendor	—	—
System provides indexed field in each test definition for LOINC code?	no	no	yes
Provide LOINC dictionary for each new installation?	no	no	no
HIS interfaces	n/a	no restrictions	Cerner, Siemens, McKesson, others
LIS interfaces	IDM	no restrictions	Cerner, Misys, others
User group?	yes	yes (meets online as well)	yes (meets online as well)
Source code?	escrow	escrow	yes
Can user modify screens?	no	no	yes
User-defined report writer?/custom programming?	yes/yes	—	yes/no
Cost (hardware/software/monthly maintenance)			
•Smallest	—	—	—
•Largest	—	—	—
Distinguishing features (supplied by vendor)	<ul style="list-style-type: none"> <li>• over two decades of experience in regulated SW</li> <li>• 24/7 customer support services</li> <li>• large customer base and financial stability</li> </ul>	<ul style="list-style-type: none"> <li>• fully integrated application with abundant functionality</li> <li>• highly customizable through parameters</li> </ul>	<ul style="list-style-type: none"> <li>• fully integrated applications</li> <li>• developed in-house by Meditech</li> <li>• 35 years of LIS experience</li> </ul>
*other=sales, marketing, administration, other company functions			

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## Blood bank information systems

Part 3 of 6 See accompanying article on page 58	Meditech Paul Berthiaume pberthiaume@meditech.com Meditech Circle Westwood, MA 02090 781-821-3000 www.meditech.com	Mediware Information Systems Inc. Sam Cummings sam.cummings@mediware.com 1900 Spring Rd. Oak Brook, IL 60523 630-218-2112 www.mediware.com	Mediware Information Systems Inc. Sam Cummings sam.cummings@mediware.com 1900 Spring Rd. Oak Brook, IL 60523 630-218-2112 www.mediware.com
Name of blood bank system	LIS Blood Bank Application (Magic)	HCLL (Hemocare Lifeline)	LifeTrak
First ever blood bank system installation	1981	1978	1978
First/most recent installation of <i>current</i> blood bank system	—/July 2004	2000/2004	1999/2003
Total number of contracts for operational sites	626	448	9
•U.S. hospitals—donor and transfusion service	—	100	0
•U.S. hospitals—transfusion service only	—	348	0
•U.S. regional blood centers—donor service only	—	0	9
•U.S. regional blood centers—donor and transfusion service	—	0	0
•Centralized transfusion services in the U.S.	—	0	0
•Foreign hospitals/foreign regional blood centers	—	0	0
Total number of sites operational	615	436	5
Installations underway that are not yet live (hospitals/regional blood centers)	11 (11/0)	12 (12/0)	4 (0/4)
Percentage of installations that are stand-alone systems	2%	100%	100%
Staff to develop/install/support/other*			
•In entire company/in blood bank systems	2,093 total	39-26-41-69/19-8-21-23	39-26-41-69/19-8-21-23
No. of different versions of software installed	1	6	2
•Versions of product covered by FDA 510(k) clearance	Magic	100%	100%
•Versions of product that did not require FDA 510(k) clearance	—	0	0
Range in No. of terminals/workstations in live sites (ave.)	—	1–60 (ave. 16)	12–60 (ave. 30)
•Central hardware/computer platform or services	HP, Dell, EMC, IBM	Dell, Compaq, qualified models based on user configurations	HP 9000 series, Intel-based servers
•Terminals/workstations	HP, Dell, EMC, IBM	PCs	PCs
•Central hardware redundant/fault-tolerant?	yes	yes	yes
Software			
•Programming language(s)	Magic	Visual C++, Visual Basic w/component arch.	Oracle Developer 2000, PL/SQL
•Operating system(s)	Magic	Windows 2000 server, 2000 advance server workstations, 2000 Professional	HP-UX, Linux
•Database platform	Magic	SQL Server 2000, Seagate Crystal Reports	Oracle
•Full transaction logging?	yes	yes	yes
Features (listed as percentage of live installs or based on availability)			
•Unit inventory	installed	installed	80%
•Autologous and directed unit tracking	installed	installed	80%
•Crossmatch results	installed	installed	not available
•Print donor unit labels—bar coded	installed	installed	80%
•Full support of ISBT 128 unit labeling	available	installed	—
•Donor recruitment	installed	not available	80%
•Donor questionnaire	available	not available	—
•Mobile scheduling	available	not available	60%
•Interface with automated type and screen instruments	available	not available	100%
•Source/recovered plasma management	installed	not available	80%
•Bar-code reading of donor and unit information	installed	installed	80%
•Ad hoc report writer	installed	installed	installed
•Accounts receivable	installed	not available	not available
•Management reports	installed	installed	100%
•Direct entry of test results	installed	installed	installed
•Electronic crossmatch decisionmaking	installed	installed	not available
•Laptop-based mobile donor registration module	available	not available	installed
•Track all steps in production of product	installed	installed	100%
•Antigen typing	installed	installed	installed
•Interface with blood irradiator/centrifuges	not available	not available	not available
•Centralized transfusion services	installed	installed	not available
•Hand-held devices for positive patient ID	installed	not available	not available
System provides standard ASTM/HL7 interface?	yes	yes	—
Connectivity	Telnet, local & remote client, Web client, other	Telnet, local client, remote client	Telnet, local client, remote client
Tools to help clients validate their systems	comprehensive manual to address validation issues, application consultants	validation services, validation scripts, consultation services	telephone support, contracted services, validation templates
Complete blood bank ASP solution?	no	no	no
Method of charging for ASP service	—	—	—
Client software required	—	—	—
ASP information conduit	—	—	—
Client contracts supported from data center not operated by client	—	—	—
How data center is operated	—	—	—
System provides indexed field in each test definition for LOINC code?	yes	no	no
Provide LOINC dictionary for each new installation?	no	no	no
HIS interfaces	Cerner, Siemens, McKesson, others	any vendor that supports HL7 protocol	none
LIS interfaces	Cerner, Misis, others	any vendor that supports HL7 protocol	—
User group?	yes (meets online as well)	yes	yes
Source code?	yes	escrow	escrow
Can user modify screens?	yes	yes	no
User-defined report writer?/custom programming?	yes/no	yes/yes	yes/no
Cost (hardware/software/monthly maintenance)			
•Smallest	—	\$10k/\$35k/\$0.8k	\$15k/\$50k/\$2.7k
•Largest	—	\$80k/\$300k/\$7k	\$250k/\$700k/\$32k
Distinguishing features (supplied by vendor)	<ul style="list-style-type: none"> <li>fully integrated applications</li> <li>developed in-house by Meditech</li> <li>35 years of LIS experience</li> </ul>	<ul style="list-style-type: none"> <li>real-time patient inventory and testing monitors</li> <li>online exception report and investigation documentation</li> </ul>	<ul style="list-style-type: none"> <li>cGMP/manufacturing and process control to ensure product safety</li> <li>fully featured Windows-based donor application</li> </ul>
*other=sales, marketing, administration, other company functions			

## Blood bank information systems

	Misys Healthcare Elizabeth West liddy.west@misyshealthcare.com 4801 E. Broadway Blvd., Tucson, AZ 85711 520-570-2000 www.misyshealthcare.com	Psyche Systems Corp. Patricia Salem pattys@psychesystems.com 321 Fortune Blvd., Milford, MA 01757 800-345-1514 www.psychesystems.com
<b>Part 4 of 6</b> <b>See accompanying article on page 58</b>		
<b>Name of blood bank system</b>	<b>Misys Blood Bank and Misys Blood Donor†</b>	<b>Systematic Blood Bank-Hosted Transfusion System</b>
<b>First ever blood bank system installation</b>	1985	1987
<b>First/most recent installation of current blood bank system</b>	2004/2004	2001/Dec. 2003
<b>Total number of contracts for operational sites</b>	~486	9
•U.S. hospitals—donor and transfusion service	37	0
•U.S. hospitals—transfusion service only	421	9
•U.S. regional blood centers—donor service only	0	0
•U.S. regional blood centers—donor and transfusion service	0	0
•Centralized transfusion services in the U.S.	unknown	0
•Foreign hospitals/foreign regional blood centers	28	0
<b>Total number of sites operational</b>	480	5
<b>Installations underway that are not yet live (hospitals/regional blood centers)</b>	6 (6/0)	4 (4/0)
<b>Percentage of installations that are stand-alone systems</b>	0	0
<b>Staff to develop/install/support/other*</b>		
•In entire company/in blood bank systems	655-1,233††-550/8-4-6-2	9-15-10-6/4-8-5-3
<b>No. of different versions of software installed</b>	1	1
•Versions of product covered by FDA 510(k) clearance	1	SBB 3.0
•Versions of product that did not require FDA 510(k) clearance	0	0
<b>Range in No. of terminals/workstations in live sites (ave.)</b>	4–500+ (ave. 15–20)	2–20 (ave. 6)
•Central hardware/computer platform or services	HP Alpha, IBM RS/6000	HP Alpha platform
•Terminals/workstations	PCs, terminals	Windows compatible
•Central hardware redundant/fault-tolerant?	on request	yes
<b>Software</b>		
•Programming language(s)	Open M, Caché, C, C++	Fortran
•Operating system(s)	DEC Unix, Open VMS, AIX	Open VMS
•Database platform	Intersystems M, Caché	proprietary
•Full transaction logging?	yes	yes
<b>Features (listed as percentage of live installs or based on availability)</b>		
•Unit inventory	100%	100%
•Autologous and directed unit tracking	100%	100%
•Crossmatch results	100%	100%
•Print donor unit labels—bar coded	not available	100%
•Full support of ISBT 128 unit labeling	100%	100%
•Donor recruitment	15%	not available
•Donor questionnaire	not available	not available
•Mobile scheduling	not available	not available
•Interface with automated type and screen instruments	available fourth quarter 2004	10%
•Source/recovered plasma management	100%	not available
•Bar-code reading of donor and unit information	100%	100%
•Ad hoc report writer	100%	100%
•Accounts receivable	100% (charge capture)	not available
•Management reports	100%	100%
•Direct entry of test results	100%	100%
•Electronic crossmatch decisionmaking	available fourth quarter 2004	100%
•Laptop-based mobile donor registration module	not available	not available
•Track all steps in production of product	100%	100%
•Antigen typing	100%	100%
•Interface with blood irradiator/centrifuges	not available	not available
•Centralized transfusion services	installed	100%
•Hand-held devices for positive patient ID	2%	not available
<b>System provides standard ASTM/HL7 interface?</b>	yes	yes
<b>Connectivity</b>	Telnet, local client, remote client	Telnet, local client, remote client, Web client
<b>Tools to help clients validate their systems</b>	Misys Healthcare Consulting	documentation and training
<b>Complete blood bank ASP solution?</b>	no	yes
<b>Method of charging for ASP service</b>	—	fixed fee
<b>Client software required</b>	—	browser based
<b>ASP information conduit</b>	—	operates over Internet
<b>Client contracts supported from data center not operated by client</b>	0	2
<b>How data center is operated</b>	—	by vendor
<b>System provides indexed field in each test definition for LOINC code?</b>	no	yes
<b>Provide LOINC dictionary for each new installation?</b>	no	no
<b>HIS interfaces</b>	McKesson, Meditech, Siemens, Epic, Eclipsys, Cerner, Phamis, others	Meditech, Siemens, McKesson, Misys, Cerner, others
<b>LIS interfaces</b>	n/a	Psyche Systems, others
<b>User group?</b>	yes (meets online as well)	yes
<b>Source code?</b>	escrow	escrow
<b>Can user modify screens?</b>	no	yes
<b>User-defined report writer?/custom programming?</b>	yes/yes	yes/no
<b>Cost (hardware/software/monthly maintenance)</b>		
•Smallest	\$50k/\$100k/\$1.5k	\$0/\$10k/\$0.5k
•Largest	\$100k/\$250k/\$4k+	\$0/\$50k/\$0.75k
<b>Distinguishing features (supplied by vendor)</b>	<ul style="list-style-type: none"> <li>integrated with Misys Laboratory—includes display of results</li> <li>standard blood bank reports with lab data integrated</li> <li>proactive utilization reports</li> </ul>	<ul style="list-style-type: none"> <li>product runs on any operating system</li> <li>offered as a stand-alone product</li> <li>customizable browser user interface</li> </ul>
<b>*other=sales, marketing, administration, other company functions</b>	† answers are for both systems combined	†† installation and support combined

## Blood bank information systems

Part 5 of 6	SCC Soft Computer Ellie Vahman ellie@softcomputer.com 34350 U.S. Hwy. 19 North Palm Harbor, FL 34684 727-789-0100 www.softcomputer.com	SCC Soft Computer Ellie Vahman ellie@softcomputer.com 34350 U.S. Hwy. 19 North Palm Harbor, FL 34684 727-789-0100 www.softcomputer.com
See accompanying article on page 58		
Name of blood bank system	SoftBank II	SoftDonor
First ever blood bank system installation	1992	1992
First/most recent installation of <i>current</i> blood bank system	2004/Aug. 2004	2004/May 2004
Total number of contracts for operational sites	107	1
•U.S. hospitals—donor and transfusion service	1	1
•U.S. hospitals—transfusion service only	101	0
•U.S. regional blood centers—donor service only	0	0
•U.S. regional blood centers—donor and transfusion service	0	0
•Centralized transfusion services in the U.S.	0	0
•Foreign hospitals/foreign regional blood centers	5	0
Total number of sites operational	163	1
Installations underway that are not yet live (hospitals/regional blood centers)	10 (10/0)	3 (3/0)
Percentage of installations that are stand-alone systems	5%	0
Staff to develop/install/support/other*		
•In entire company/in blood bank systems	317-106-202-346/20-7-13-22	317-106-202-346/20-7-13-22
No. of different versions of software installed	5	3
•Versions of product covered by FDA 510(k) clearance	SoftBank II 19.1, 21, 22, 23, 23 with SoftScape	SoftDonor 4.1, 4.2, 4.3
•Versions of product that did not require FDA 510(k) clearance	0	0
Range in No. of terminals/workstations in live sites (ave.)	1–90+ (ave. 8)	1–90+ (ave. 8)
•Central hardware/computer platform or services	IBM pSeries, F620 model 6F1, HP	IBM pSeries, F620 model 6F1, HP
•Terminals/workstations	PCs or ASCII terminals, Wyse	PCs or ASCII terminals, Wyse
•Central hardware redundant/fault-tolerant?	yes	yes
Software		
•Programming language(s)	C	C
•Operating system(s)	Unix AIX	Unix
•Database platform	Centura's Raima-db-Vista	Centura's Raima-db-Vista
•Full transaction logging?	yes	—
Features (listed as percentage of live installs or based on availability)		
•Unit inventory	100%	100%
•Autologous and directed unit tracking	100%	100%
•Crossmatch results	100%	not available
•Print donor unit labels—bar coded	available in Dec. 2004	available in Dec. 2004
•Full support of ISBT 128 unit labeling	70%	installed
•Donor recruitment	not available	100%
•Donor questionnaire	not available	100%
•Mobile scheduling	available in Dec. 2004	available in Dec. 2004
•Interface with automated type and screen instruments	2%	100%
•Source/recovered plasma management	50%	100%
•Bar-code reading of donor and unit information	100%	100%
•Ad hoc report writer	100%	100%
•Accounts receivable	95%	100%
•Management reports	100%	100%
•Direct entry of test results	100%	100%
•Electronic crossmatch decisionmaking	70%	not available
•Laptop-based mobile donor registration module	available in Dec. 2004	100%
•Track all steps in production of product	100%	100%
•Antigen typing	100%	100%
•Interface with blood irradiator/centrifuges	available in Dec. 2004	available in Dec. 2004
•Centralized transfusion services	30%	not available
•Hand-held devices for positive patient ID	available in Dec. 2004	not available
System provides standard ASTM/HL7 interface?	yes	yes
Connectivity	Telnet, local client	Telnet, local client
Tools to help clients validate their systems	critical control points and instructions on how to write test cases with electronic screen capture	critical control points and instructions on how to write test cases with electronic screen capture
Complete blood bank ASP solution?	yes	yes
Method of charging for ASP service	fixed fee	fixed fee
Client software required	requires software be installed on client PC	requires software be installed on client PC
ASP information conduit	operates over Internet	operates over Internet
Client contracts supported from data center not operated by client	1	—
How data center is operated	by vendor	by vendor
System provides indexed field in each test definition for LOINC code?	no	no
Provide LOINC dictionary for each new installation?	no	no
HIS interfaces	Meditech, McKesson, Siemens, IDX, Cerner, CPSI, others	vendors that support HL7 protocol
LIS interfaces	vendors that support HL7 protocol	vendors that support HL7 protocol
User group?	yes (meets online as well)	yes (meets online as well)
Source code?	escrow	escrow
Can user modify screens?	no	no
User-defined report writer?/custom programming?	yes/yes	yes/yes
Cost (hardware/software/monthly maintenance)		
•Smallest	\$30k/\$30k/\$0.6k	\$30k/\$50k/\$1k
•Largest	\$75k/\$150k/\$3k	\$75k/\$300k/\$6k
Distinguishing features (supplied by vendor)	<ul style="list-style-type: none"> <li>• interfacing to all major vendors</li> <li>• management tools, including audits and reporting</li> <li>• development, support, and implementation through blood bankers</li> </ul>	<ul style="list-style-type: none"> <li>• interface with all major vendors</li> <li>• 25 years of leading clinical software solutions</li> <li>• development, support, and implementation by donor specialists</li> </ul>
*other=sales, marketing, administration, other company functions		

## Blood bank information systems

Part 6 of 6	Wyndgate Technologies Patti Larson info@wyndgate.com 4925 Robert J. Mathews Parkway, Ste. 100 El Dorado Hills, CA 95762 800-WYNDGATE www.wyndgate.com	Wyndgate Technologies Patti Larson info@wyndgate.com 4925 Robert J. Mathews Parkway, Ste. 100 El Dorado Hills, CA 95762 800-WYNDGATE www.wyndgate.com
See accompanying article on page 58		
Name of blood bank system	SafeTrace	SafeTrace Tx
First ever blood bank system installation	1996	1996
First/most recent installation of <i>current</i> blood bank system	1996/2004	1999/2004
Total number of contracts for operational sites	36	84
•U.S. hospitals—donor and transfusion service	8	8
•U.S. hospitals—transfusion service only	0	61
•U.S. regional blood centers—donor service only	21	0
•U.S. regional blood centers—donor and transfusion service	6	9
•Centralized transfusion services in the U.S.	0	4
•Foreign hospitals/foreign regional blood centers	1	2
Total number of sites operational	31	44
Installations underway that are not yet live (hospitals/regional blood centers)	5 (3/2)	40 (39/1)
Percentage of installations that are stand-alone systems	100%	100%
Staff to develop/install/support/other*		
•In entire company/in blood bank systems	17-9-6-19	17-9-6-19
No. of different versions of software installed	2+	2+
•Versions of product covered by FDA 510(k) clearance	all	all
•Versions of product that did not require FDA 510(k) clearance	0	0
Range in No. of terminals/workstations in live sites (ave.)	3–200 (ave. 45)	1–75 (ave. 8)
•Central hardware/computer platform or services	HP, IBM, Sun	Intel-based servers, Unix-based servers
•Terminals/workstations	PCs	PCs
•Central hardware redundant/fault-tolerant?	yes	yes
Software		
•Programming language(s)	Delphi, Oracle, PL/SQL, Cold Fusion, C, 4GL	Delphi, SQL
•Operating system(s)	Unix	Windows NT, 2000, Unix optional
•Database platform	Oracle RDBMS	Oracle
•Full transaction logging?	yes	yes
Features (listed as percentage of live installs or based on availability)		
•Unit inventory	100%	100%
•Autologous and directed unit tracking	100%	100%
•Crossmatch results	not available	100%
•Print donor unit labels—bar coded	100%	installed
•Full support of ISBT 128 unit labeling	100%	100%
•Donor recruitment	100%	not available
•Donor questionnaire	not yet available	not available
•Mobile scheduling	100%	not available
•Interface with automated type and screen instruments	100%	installed
•Source/recovered plasma management	installed	not available
•Bar-code reading of donor and unit information	100%	100%
•Ad hoc report writer	100%	installed
•Accounts receivable	not available	not available
•Management reports	100%	100%
•Direct entry of test results	100%	100%
•Electronic crossmatch decisionmaking	not available	installed
•Laptop-based mobile donor registration module	installed	not available
•Track all steps in production of product	100%	100%
•Antigen typing	100%	100%
•Interface with blood irradiator/centrifuges	not yet available	available first quarter 2005
•Centralized transfusion services	not available	5%
•Hand-held devices for positive patient ID	not available	available through business partners
System provides standard ASTM/HL7 interface?	yes	yes
Connectivity	Telnet, remote client	local client, remote client, Web client
Tools to help clients validate their systems	validation guidelines and sample test cases	validation guidelines, templates, validation test plan for safety critical control checks
Complete blood bank ASP solution?	yes	yes
Method of charging for ASP service	transaction based	transaction based
Client software required	browser based, uses dumb terminals	browser based
ASP information conduit	operates over Internet, requires use of private, dedicated circuit	operates over Internet, requires use of private, dedicated circuit or VPN connection
Client contracts supported from data center not operated by client	2	1
How data center is operated	by a third party (Hemo-Net Inc.)	by a third party (Hemo-Net Inc.)
System provides indexed field in each test definition for LOINC code?	no	no
Provide LOINC dictionary for each new installation?	no	no
HIS interfaces	n/a	CCA, CPSI, Meditech, McKesson, Siemens, others
LIS interfaces	Misys	CCA, CPSI, Meditech, McKesson, Siemens, others
User group?	yes (meets online as well)	yes (meets online as well)
Source code?	yes (for most modules)†	escrow
Can user modify screens?	no	no
User-defined report writer?/custom programming?	yes/yes	yes (through a third party)/yes
Cost (hardware/software/monthly maintenance)		
•Smallest	—	—
•Largest	—	—
Distinguishing features (supplied by vendor)	<ul style="list-style-type: none"> <li>• excellent training and implementation services with strong customer focus</li> <li>• outstanding record of safety, compliance</li> <li>• complete Vein-to-Vein tracking</li> </ul>	<ul style="list-style-type: none"> <li>• excellent safety and service record with strong customer focus</li> <li>• patent pending for advanced CTS and transfusion service functionality</li> <li>• comprehensive Vein-to-Vein tracking</li> </ul>
*other=sales, marketing, administration, other company functions	† escrow for modules not provided to customer	