



What is Bipoint?

BiPoint is a web application for complete and efficient management of newborn screening process. The main aim of our solution is to provide a scalable platform to help each user involved, whether they are a neonatology nurse or a screening center administrative operator, in every phase and step of the diagnostic workflow.

A neonatology operator can access to the web application through a browser and use his own username and password to logon. He can enter any biographical data of the newborns and combine them with the barcode of paper card used to collect blood spots.

When the paper cards are sent by courier to the central laboratory for analysis, the tracking id can be entered so administrative users are able to track the dispatch.

In the screening laboratory, technicians can search each paper card data in the application using barcode number, they can accept or not the blood spots and then start the analysis process. Bipoint helps technicians during analysis providing working list and collecting results from instruments. Medical staff can so produce diagnosis or start second-tier tests when follow-up is needed; using Bipoint they can also request new blood spots to the nursery staff or invite parents of the infant to the screening center for further tests.

The nursery users can track analysis process for each newborn and read or download diagnosis report directly from Bipoint.

Our software provides warnings and alerts, for the administrative users, to monitor the paper cards unsend or not delivered. They can also monitor newborns under treatment protocol, share messages with nursery, create statistical reports.

Main functionalities:

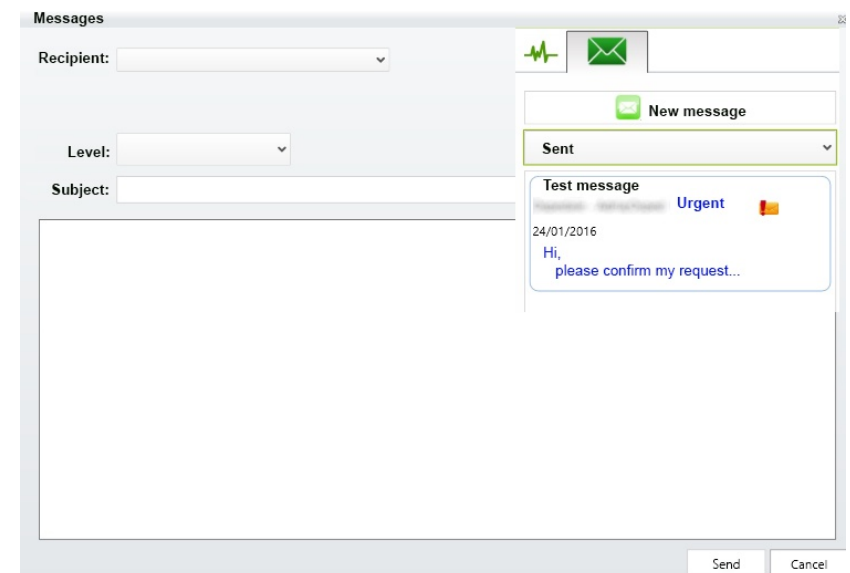
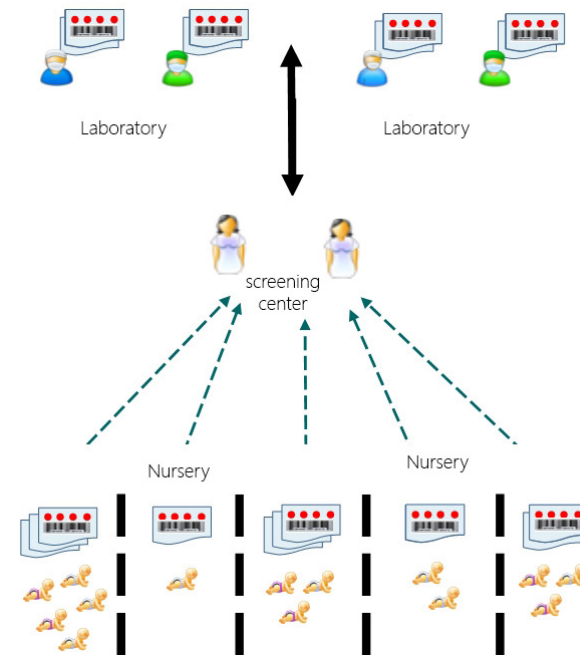
- **Users profiling**
- **Enter personal data and blood spot paper cards**
- **Dispatch, tracking and delivery**
- **Production process and results management**
- **Diagnosis and follow-up**
- **Messaging system and alerts**
- **Statistical reporting system**
- **Integration with instruments, LIMS and institutional birth registration systems**
- **Integration with CLIR (Collaborative Laboratory Integrated Reports) Mayo Clinic**

Users profiling

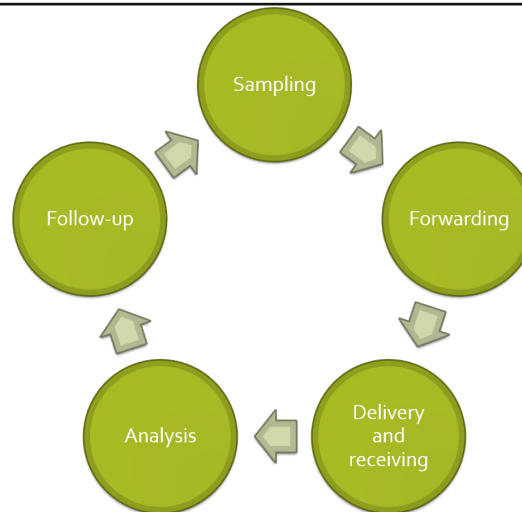
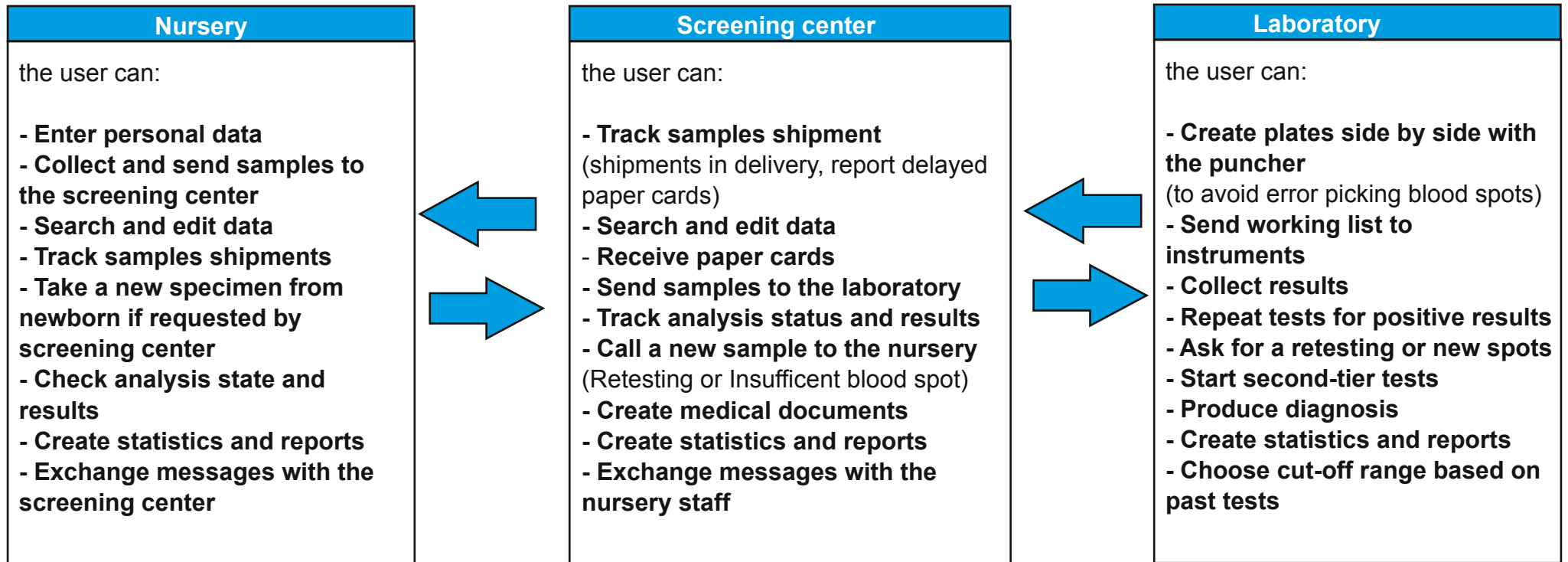
Bipoint provides a complete users profiling through roles (administratives user, doctors, laboratory technicians and nursery staff) for each different structure (neonatology, laboratories and screening centers).

Each user can read only related data of their own hospital/laboratory. Every action taken by the user in the software is tracked.

BiPoint provides an internal message system to help communicate between nursery and screening center.



Diagnostic process



Nursery

The user can enter newborn personal data and blood paper card data (id paper card, blood collecting date ecc.).

Bipoint provides an operating function to send cards to the screening, to insert the tracking id and to print a document to match it with the packages given to the courier.

When the packages are delivered at the screening center, administrative users can simply enter the tracking id to mark cards as "received". This step allows the checking of delayed cards and avoids losing cards and make sure all infants are being screened (the screening tests have to be taken within 48 hours from blood collecting date) because Bipoint shows alerts if a card is sent but not delivered within 3 days.

The user also receives retesting or new spot requests directly from laboratory or from screening center. During tests the user can check the state of each analysis and when the diagnosis is ready he can see results and download medical report from our platform.

The screenshot shows the 'Nursery' management interface. At the top, there are tabs for 'Newborn' and 'Dispatch'. Below, a table lists individual newborn records. The table columns include State, Birth date, Tracking ID, Barcode, Lastname, Firstname, Nursery, Gender, and P/R. The records show various states like 'Inviato' and 'Ricevuto' with corresponding dates and tracking IDs. On the right side, a 'State Summary' panel provides a quick overview: 1 Cards to send, 0 Retesting, 0 Cards sent today, and 6 Cards delayed.

The 'newborn personal data' form is divided into several sections. The 'Data' tab is active, showing fields for User (n60000089), Insertion date (30/09/2015 10:57), Birth date (28/08/2015 05:00), and Transfer to (P.N. Fittizio). It also includes fields for Lastname, Firstname, Gender (M), Braclet nr (2015, 30092015, A1530092015), and Nursery (P.N. Fittizio). Other sections include Weight (2100), Under-weight, Protocol type (Eisanguino-Trasfusione_Npt_Sott), Feeding, Gestation (weeks), Antibiotic therapy (breast feeding), Address, City (ND), Region/Nation (Veneto), Mobile, Phone, E-Mail, Mother Lastname, F.name, Birth date, Fiscal code, Father Lastname, F.name, Birth date, and Familiarity. Buttons for Log, Delete, Print, OK, and Cancel are at the bottom.

The 'Paper cards dispatch' form is used for sending cards to the screening center. It includes 'Inserting dispatch data' with Date (24/01/2016), Tracking ID (20502401160001), and Courier. Below, a table 'Choose paper cards to send' lists cards with Barcode, Lastname, Firstname, Gender, Birth date, and Insertion date. A 'Dispatch print' window is overlaid, showing a table with columns Insertion date, Tracking Id, and Nursery, and a Barcode field. Buttons for Dispatches, Conferma e Stampa, and Cancel are at the bottom.

Screening Center

Bipoint helps users of screening center to interface with nursery staff efficiently and safely, minimizing communication by phone and monitoring all working process of blood spot paper cards.

An administrative user can:

- read and edit personal data entered from nursery
- track delayed shipments and check all specimen in delivery
- monitor all newborns under protocol treatment (P14,P30,NTP, Blood-transfused)
- be helped to interface with nursery staff and family during follow-up

- Forward a request from laboratory to birth provider for a new specimen because it proved unsatisfactory or for retesting
- Manage Retesting requests (automatically sent and displayed at the nursery)

Birth date	Lastname	Firstname	Gender	Code	Nursery	Protocol type
28/02/2015	2015 150305114407054980	Ospedale	...
28/02/2015	2015 050043001500000282	Ospedale	...
28/02/2015	2015 050139001500000074	Ospedale	...
28/02/2015	2015 050043001500000283	Ospedale	...
28/02/2015	2015 150304110948125344	Ospedale	...
28/02/2015	2015 050032001500378119	Ospedale	...
28/02/2015	2015 050902021500000278	Ospedale	...
28/02/2015	2015 150305114406418501	Ospedale	...
28/02/2015	2015 150305114409484372	Ospedale	...
28/02/2015	2015 050128001500000075	Ospedale	...
28/02/2015	2015 150304095319997912	Ospedale	...
28/02/2015	2015 050043001500000281	Ospedale	...
28/02/2015	2015 15030409532506949	Ospedale	...
28/02/2015	2015 150304095319715927	Ospedale	...
28/02/2015	2015 050029001500000347	Osp. "San	...
28/02/2015	2015 150303125710953354	Ospedale	...
28/02/2015	2015 150304095306459524	Ospedale	...
28/02/2015	2015 05003200150000037118	Ospedale	...
28/02/2015	2015 150303125654548572	Ospedale	...
28/02/2015	2015 050029001500000346	Osp. "San	...
28/02/2015	2015 050902011500000289	Ospedale	...

- Access analytical data and diagnoses

Data Invio	Barcode	Esame	Data Esame	Stato	Esito	Val.	Causale	Note
07/07/2015	...	Acilicarnitine	08/07/2015 10:24	Esaminato	N			
07/07/2015	...	17OHP	08/07/2015 09:41	Esaminato	N			
07/07/2015	...	GAO	08/07/2015 10:01	Esaminato	N			
07/07/2015	...	Biotinidasi	08/07/2015 10:09	Esaminato	N			
07/07/2015	...	G6PD	07/07/2015 12:27	Esaminato	N			
07/07/2015	...	TSH	08/07/2015 08:21	Esaminato	N			

SampleType	SampleId	Piastra	Progr.	Result	Val.	Referto	Note	C8 int.	C8 IS int.	C3 int.	C3 IS int.	C0	C2	C3/C2	C3/C0	C4	C4/C
LL								0	162000	0	87800	6.35	8.91	0.03	0.05	0.6	1.3
UL								100000000	243000	100000000	132000	38.38	55.12	0.17	0.27	3.3	12.8
	15390/54	N						0	26.98	0	26.98	26.3	0.08	0.08	2.07		
	15390/54	N						0	26.6	0	26.6	23.32	0.08	0.08	1.97		

Retesting Alert

Newborn:

date: 08/01/2016

Reason: Retesting Tandem

Note: RETESTING FOR METABOLIC TESTS

Contacted

OK Cancel

Receiving paper cards

Nursery: - All

Dispatch code: **16020 / 18**

Package n. 16025

also unsent

Barcode:

new package

2016 [16020/18]

Status

card to receive:

Dispatch	Code	Firstname	Lastname	Nursery
07/01/2016	0010000001	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000002	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000003	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000004	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000005	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000006	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000007	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000008	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000009	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000010	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000011	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000012	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000013	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000014	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000015	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000016	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000017	FRANCESCO	FRANCESCO	Ospedale "San M"
07/01/2016	0010000018	FRANCESCO	FRANCESCO	Ospedale "San M"
08/01/2016	0010000019	FRANCESCO	FRANCESCO	Ospedale "San M"
08/01/2016	0010000020	FRANCESCO	FRANCESCO	Ospedale "San M"

Code	Lastname	Name	Nursery	Pack	Prog.
0010000018	LEO	LEO	Ospedale "San M"	16020	18
0010000017	ISAAC	ISAAC	Ospedale "San M"	16020	17

- Receiving cards sent from nurseries
- Manage production lines, forward samples to second-tier tests
- Manage other diagnostic results

- Generate reports and related documentation
- Digital signing the document by the responsible clinical staff
- Forward the documentation to the birthplace or, if necessary, to the baby's family
- Create summary reports for archiving.
- Possibility of integration with replacement storage software

Preview

1 of 1

healthcare Azienda Ospedaliera Universitaria Centro Screening Neonatale

REFERTO MEDICO SCREENING NEONATALE

Il dosaggio quantitativo di acilcarnitine/aminoacidi eseguito in spettrometria di massa tandem su spot di sangue capillare di:

ROSSI MARIO

Nostro riferimento interno: 0000331223
Data nascita: 30/12/2015

24/01/2016 Il Direttore del Centro

75%

OK

Laboratory

Bipoint helps technicians and biologists to execute tests and to collect results from instruments.

To execute the analysis process they can:

- create plates picking blood spot from paper cards syde-by-syde with the puncher
- (Bipoint helps users to avoid mistakes through todo list and alerts)
- create the working list and send it to the instrument
- import test values from instruments
- repeat sample tests
- set diagnostic results
- request retesting or new blood spot



The screenshot shows the BiPoint LABORATORY interface. At the top, there are navigation buttons: Home, New, Change type, Default Seq., Plate, Export/Import, Print, Search, and Option. Below this is the BiPoint logo and the word 'LABORATORY'. The main area displays a 12-well plate layout with columns numbered 1-12 and rows lettered A-H. Each well contains a colored circle representing a test result. A sidebar on the right contains buttons for 'Empty', 'Controls', 'T4/Screening', 'Altro', 'RIP', 'RET', and 'PROT'. The top right shows 'T4 5 / 00' and the date '10/03/2017'.

Import results

Laboratory: LABORATORY 1
 Test: TSH

Upload file | Import history | Direct Import

Instrument: INSTRUMENT 1

Filename	Date	Show	Print
TSH.001	2016-11-20	Show	Print

Results

Year: 2015 | Package Nr: 15023 | Test: TSH | Barcode: | Line 6 | Open

Prog.	Result	Barcode	Sent date	Lastname	Firstname	Weight	Weeks	Test date	Cause	Val.
1	N					3900	38	14/01/2015		
2	N					3000	38	14/01/2015		
3	N					3200	41	14/01/2015		
4	N					3850	38	14/01/2015		
5	N					3230	39	14/01/2015		
6	N					3190	39	14/01/2015		
7	N					3290	37	14/01/2015		
8	RP					2590	36	14/01/2015		
9	RT					4030	39	14/01/2015		
10	AL					2200	34	14/01/2015		
11	AT					2890	38	14/01/2015		
12	X					3500	40	14/01/2015		
13	N					3180	38	14/01/2015		
14	N					1970	37	14/01/2015		
15	N					3950	39	14/01/2015		

Buttons: Validate, Change test date, Set All Negative, Notes, Suspend, Save

Bipoint can produce working lists in variuos formats (e.i. csv,text,xml,excel file etc.); Bipoint can also read results files directly on the instrument pc and import concentrations and tests values.

It can produce working lists and read results file from PerkinElmer Specimen Gate™, PerkinElmer GSP™ or PerkinElmer Autodelfia™

In Bipoint the laboratory processing is separated from diagnosis process: the role of the laboratory technician is separate from biologists and physicians role; technicians can produce work list and import results data but cannot make diagnosis; biologist can instead access to the processing results, evaluate them based on cut-off ranges and newborn data, validate the results, repeat the test or request new samples and produce diagnosis.

In Bipoint can share results with CLIR (Collaborative Laboratory Integrated Reports) from Mayo Clinic (clir.mayo.edu): data can be exported in csv format or can be directly transfered to Mayo webservice.

Home Cards Diagnostic tests **Laboratory**

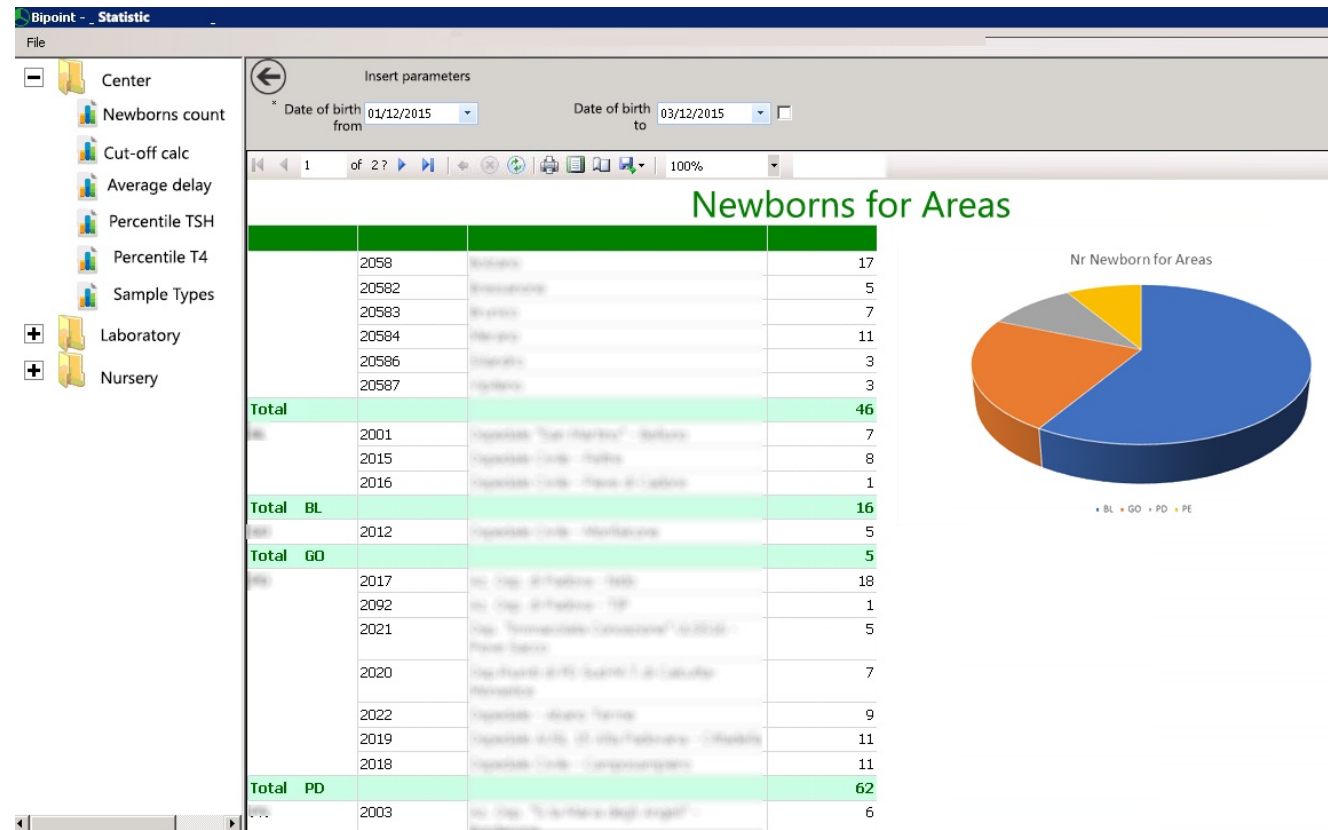
birth date	Barcode	Test	Test date	Status	Val	Reason	Note
07/07/2015		Acilcamitine	08/07/2015 10:24	Esaminato	N		
07/07/2015		17OHP	08/07/2015 09:41	Esaminato	N		
07/07/2015		GAO	08/07/2015 10:01	Esaminato	N		
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SampleType	SampleId	Piastra	Progr.	Result	Val.	Referto	Note	C8 int.	C8 IS int.	C3 int.	C3 IS int.	C0	C2	C3/C2	C3/C0	C3	C4/C
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	UL							100000000	243000	100000000	132000	38.38	55.12	0.17	0.27	3.3	12.8
			15390/54	N				0	0	0	0	26.98	26.3	0.08	0.08	2.07	1.1
			15390/54	N				0	0	0	0	26.6	23.32	0.08	0.08	1.97	1.1

Reports and Statistics

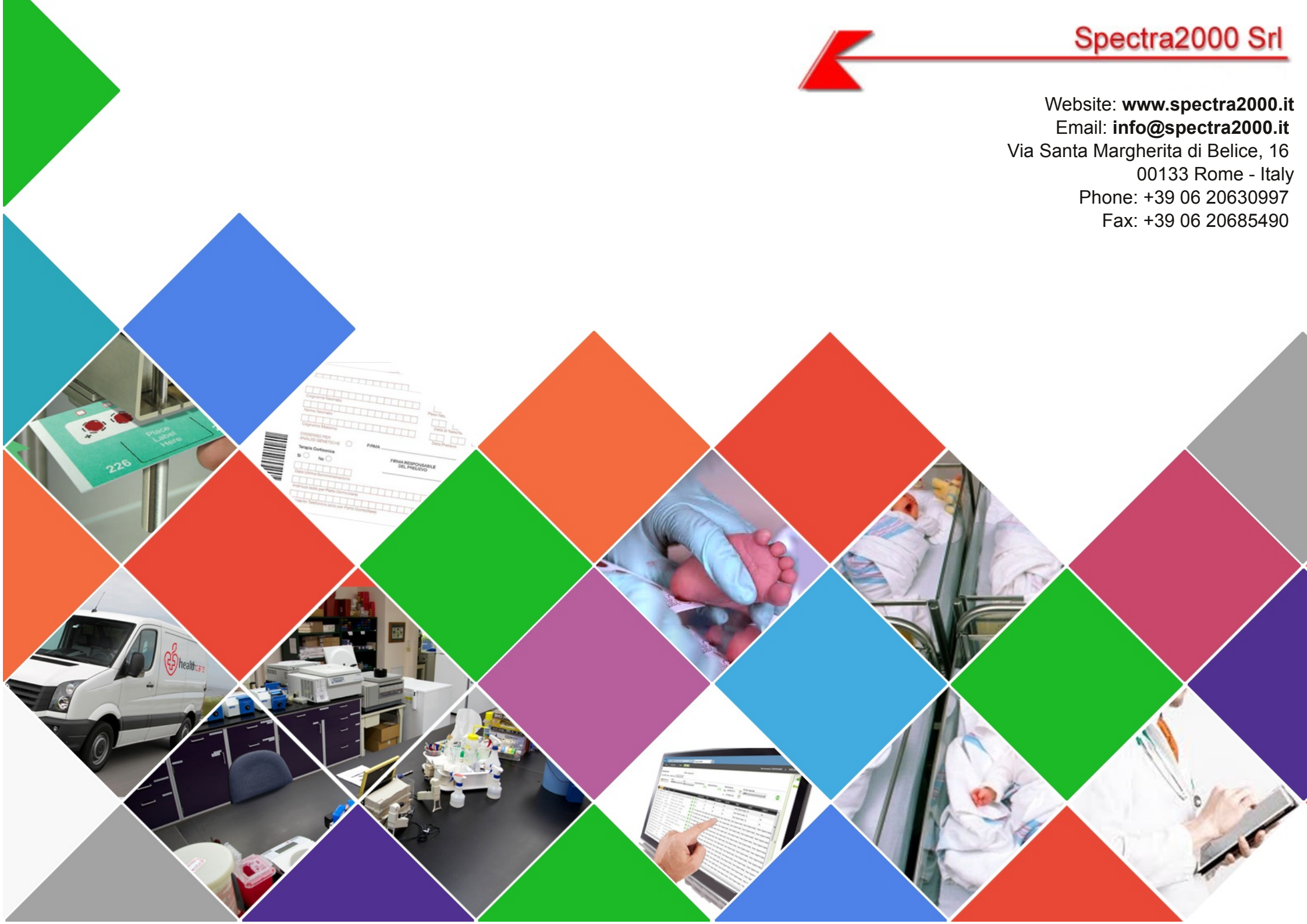
Bipoint provides a reporting system and a statistics module.
It can export data in all common format files as Excel, Csv, Html etc.
Bipoint comes with several pre-existing statistical reports.

Bipoint also can also be interfaced with other statistical softwares,
LIMS or hospital management system and institutional birth
registration systems and quality control.





Website: www.spectra2000.it
Email: info@spectra2000.it
Via Santa Margherita di Belice, 16
00133 Rome - Italy
Phone: +39 06 20630997
Fax: +39 06 20685490



Formulario per analisi mediche. Contiene campi per dati personali (Cognome, Nome, Indirizzo, Telefono, Data di Nascita, Sesso, Data di Partenza) e sezioni per "DETERMINO PER ANALISI MEDICHE" (Sì/No) e "FIRMA RESPONSABILE DEL PRELEVATO".

